PARAGLIDING ASSOCIATION OF INDIA



TECHNICAL MANUAL 2020 V2

WARNING

1. Paragliding, Hang Gliding and Paramotoring are adventure sports with inherent risk to the life and limb of participants.

2. This Manual is for reference only and should not be treated as a substitute to training through an instructor. The information provided within is intended to supplement training received at organised PAI Affiliated training schools operated by qualified and experienced Instructors.

The purpose of this manual is to provide technical information to the members and affiliated bodies of PAI.

The structure and the content of this manual are a joint effort of PG and PPG technical committee-members of PAI, with over two decades of teaching and flying experience, in line with "Atmanirbhar Bharat" - the proud vision of a self-reliant India. Technical manuals of BHPA, USPPA as well as a few other established associations were referred-to while drafting this manual. This manual is open to amendment and contributions from knowledgeable instructors and individual pilots.

This Manual will stay as a living document which PAI will strive to keep current by issuing updates as and when necessary. Suggestions, improvement and/or amendment as and when approved will be updated and available to all registered members in digital format.

This manual is published by the Technical Committee of Paragliding Association of India (PAI)

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Safety Notices, guidelines and few other useful documents are available in PDF format and can be downloaded from the PAI official website: www.pgaoi.org.

Note

To simplify updating this digital edition of the manual, each section is independently numbered. Supplementary information and sample forms are provided as Appendices for convenience.

Acknowledgements

This edition is compiled and edited for the Technical Committee of PAI by Samson D'silva, CFI of Space Apple, a Paragliding and Paramotoring training school. A written consent was obtained from BHPA & USPPA for use of some of the information available online.

SECTION 1 POLICIES Chapter 1 OVERVIEW

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1.1.1 Organisational Structure

The Paragliding Association of India (PAI) is a democratic body formed by the paragliding and paramotoring community of India with the express intention of bringing all paragliding and paramotoring pilots and schools together to determine guidelines, form rules and regulations. Though a formal recognition is yet to be received from MOCA or DGCA, PAI enjoys support from PG, PPG, PPC and HG pilots from the entire country and has India's top-most pilots and pioneers in its advisory and technical committee. PAI is the voice of PG, PPG, PPC & HG community of India and it is expected to be a natural choice for playing an important role when it comes to regulating these sports in the country.

The Memorandum of Association (MOA) is available on the official website <u>www.pgaoi.org</u>. The online forum is active so please log in if you wish to contribute or get updated.

PAI will extend its support to and will work with all the regional, state, national and international bodies when it comes to addressing the safety issues, regulating the aero-sports or planning events and competitions.

PAI is a member of the Aero Club of India, a NAC affiliated to FAI. The process of applying to the International and national bodies such as FAI, SAI and the Indian Olympic Association, for recognition, will be initiated as and when there is a need for PAI to take the lead and the sports community is ready for it.

The objectives of the PAI include promoting high standards of safety within the Sport through pilot and Instructor training and rating system, airworthiness processes and the dissemination of safety information. The Managing Committee of the PAI will delegate these tasks to the Technical Committee (TC). Safety and training at school and club-level are normally the responsibility of the Chief Flying Instructor or the Chief Coaches respectively. At the National level the PAI Technical Committee (TC) shall set the standards, monitor activities and ensure that the Association's aims are being met.

Conventions

The PAI is not interested in policing the sport but, at the same time, PAI wants to establish credibility by adhering to high standards amongst its members and therefore has devised a National Pilot Rating System for pilots, Instructors and Tandem Pilots, compiled this Technical Manual and also prepared several documents as guidelines for the community

1.1.2 Members

Membership is open to all as per the rules mentioned in the MOA of PAI. Membership is also open to Schools and Clubs which are providing or wish to provide paragliding / paramotoring training to its students or members.

Schools and Clubs will help the paragliding community by offering their services, securing flying sites, producing site-guides and organising social and informative meetings and events etc. PAI will support the state and local paragliding associations in their efforts for promotion of the sport.

The Affiliated Schools

The school membership to the PAI will be scrutinized and sanctioned by the TC. PAI affiliated Schools mainly focus on providing instruction for the ab-initio enthusiast and also provide progression training for those who wish to continue with the sport. Such instruction or training maybe for remuneration or other consideration. Under the close supervision of qualified Instructors the student is provided with the necessary training to become a competent, responsible and safe pilot of the discipline.

The Clubs or Associations

Clubs/Associations are formed by experienced pilots and cater to the needs of trained pilots. Clubs/Associations are encouraged to offer a level of continuation training for qualified pilots through the medium of Coaches. The Club/Association membership to the PAI will be scrutinized and sanctioned by the TC.

1.1.3 Independent Instructors (Coaches)

Detailed information on Instructor rating and qualifications is provided under section 5 of this manual. The independent Instructor/Coach and his team provide continuation training within the Association/clubs for qualified pilots on a voluntary basis with or without remuneration or other consideration.

1.1.4 Website, Online Forum and Whatsapp

The PAI already has an active online forum <u>www.paraglidingforum.in</u>. Most of the content is open to the general public for viewing. The forum may offer special registration as members, for those who wish to actively participate and interact with other forum members.

Along with the forum there will be a newsletter/Whatsapp group for the benefit of members who may not have regular excess to internet. The newsletter will also act as an official document to convey important messages to members and clubs for record and reference.

1.1.5 Office-bearers and Work force of PAI

For any democratic body to function it is important to have set of dedicated people who would make sure that its constitution, rules and regulations are adhered to and followed properly. The managing committee and technical committee members are the main office-bearers who are elected for a specific term. These office-bearers in turn would be selecting the panel members as per the guidelines of the Association. Chapter 2 and 3 of this section has more specific information about functioning of office-bearers and the work-force.

No.	Particulars	Selection process/Eligibility
1	PAI Managing Committee	Elected in AGM
2	Technical Committee PG	Nominated by MC
3	Technical Committee PPG	Nominated by MC
4	Accident prevention and Investigation panel	CFIs of schools
5	Airspace Panel	Senior pilots from each zone
6	Airworthiness Panel	Seniors and pioneers
7	Development Panel	As and when needed
8	Examination and Inspection Panel	Senior pilots
9	Publications Panel (Website, Online Forum)	Volunteers
10	The Instructor and Coach Training Panel	Nominated by MC and TC
11	The Pilot Training and Development Panel	Nominated by MC and TC
12	Tow Panel	Winch operators
13	PPG and PPC Panel	Senior PPG pilots
14	Events and Competition Panel	Pilots with relevant experience
15	The Veterans Advisory Panel	Senior Pilots over 60 Plus
16	PAI Board of Inquiry	As and when needed by MC

Work force of PAI

Glossary

PAI	Paragliding Association of India	PG	Paragliding
MOCA	Ministry Of Civil Aviation	HG	Hang Gliding
DGCA	Director General Civil Aviation	PPG	Powered Paragliding
AFMLU	Air Force Military Liaison Unit	PPC	Powered Parachute
AAI	Airport Authority of India	CFI	Chief Flying Instructor
ATC	Air Traffic Control	MC	Managing Committee
FAI	Federation of Aeronautique Internationale	TC	Technical Committee

SECTION 1 POLICIES Chapter 2 THE TECHNICAL COMMITTEE (TC)

1.2.1 The Technical Committee 1.2.7 The Publications Panel Specialised Panels The Training Panels 1.2.2The Accident Analysis Panel1.2.8The Instructor and Coac1.2.3The Airspace Panel1.2.9The Pilot Training and D1.2.4The Airworthiness Panel1.2.10The Tow Panel1.2.5The Development Panel1.2.11The PPG and PPC Panel1.2.6The Examination and Inspection Panel1.2.12The Veterans Panel 1.2.8 The Instructor and Coach Training Panel

- 1.2.9 The Pilot Training and Development Panel

- _____

1.2.1 The Technical Committee (TC)

Responsibilities

- a) To upgrade the PAI National Rating System to be on par with established systems worldwide.
- b) To help improve the PAI Technical Manual and safety guidelines and rules.
- c) To study incident reports with the objective of learning from the occurrences and avoiding further injury or damage through similar causes.
- d) To keep updated on development of equipment, training and operating techniques for use in the sport.
- e) To approve or classify operational equipment according to its suitability for purpose.
- To approve the syllabi and courses for all PAI-Affiliated schools, Instructors and Coaches. f)
- g) To liaise with specialists on various subjects to keep abreast of modern developments and seek advice on particular problems.
- h) To liaise with safety and training organisations of related sports for betterment of paragliding and paramotoring.
- To maintain an Examiners' Panel for the independent examination of candidates for rating. i)
- i) To carry out regular periodic inspections of PAI-affiliated schools, associations, independent Instructors and coaching.
- k) To monitor and scrutinize the skill levels of pilots who have obtained PAI ratings.

Structure and membership of the TC

The TC consists of volunteers vetted and appointed by the Managing Committee. TC members are experienced instructors or pilots, selected for the depth of their knowledge, experience and wisdom. The TC, duly constituted, will co-ordinate the work of various specialised panels. The TC members will elect the Chairman who will lead the TC. The size and membership of each panel is determined by the coordinator who, having been invited to lead a particular panel, may also take help from regular PAI members who are not in the TC.

TC may have panel members in each zone namely – East, West, North and South. Each zone will also have a TC coordinator for ease of operation and will be responsible for conducting zonal meetings along with the zonal Vice President. Additional posts may be created at state-level to deal with specific matters as and when necessary.

TC minutes

The minutes of the TC are confidential. They are normally circulated only to members of the TC and members of the Managing Committee. The reason for confidentiality is that sometimes sensitive issues concerning individuals are discussed and it may not be in the best interests of the people concerned to have these made public. Those individuals may request the sections of the minutes that relate to them. A summary of the TC's discussions is reported to the Managing Committee and included in their minutes, and conclusions and decisions reached are published through online forum, including those relating to disciplinary cases.

Dissemination of Safety Information

Individual members receive an electronic notification through e-mail and/or SMS/whatsapp about the Association's work and information relating to safety, training and equipment. It may contain safety and training news and reminders, along with regular summaries of selected incidents.

All PAI affiliated Schools, Instructors, Coaches and Safety Officers will receive personal copies of relevant Safety Notices issued by the TC. These should be digitally stored along with the PAI Technical Manual until cancelled by any subsequent amendment. Where it is appropriate to notify pilots of such notices, they will either receive individual copies or the notices will be published on the online forum.

Specialised Panels – Scope of work

Each Panel, whilst carrying out its duties, must also fulfill the following general terms:

- 1. Ensure that effective liaison with other panels is maintained especially where unavoidable 'overlap' occurs.
- 2. Refer all matters of expenditure to the TC Chairman, Secretary and the President.
- 3. Prepare and circulate progress reports in advance of the TC meetings.
- 4. Produce detailed Annual Reports in readiness for the Chairman TC's Report to The Annual General Meeting.

1.2.2 The Accident Prevention/Investigation and Analysis Panel

The purpose of this panel is to record, monitor and analyse reported incidents for signs of emerging trends and to recommend the follow-up actions. It is also authorised to carry out investigations into accidents and incidents at the appropriate level. Chapter 5 (Airworthiness) of this Section contains detailed reference on these matters. This panel provides a very valuable source of expert advice to support the work of the Technical Committee.

Scope of work

To assist the TC to fulfill its function of maintaining Instructional and Operational standards the panel is required to:

- 1. Report and make recommendations to the TC on all aspects relating to incidents and accidents involving paragliding and paramotoring.
- 2. Identify specific areas contributing to incidents and accidents and recommend action with regard to training, equipment, techniques and sites.
- 3. Convene, where necessary, PAI Boards of Inquiry in accordance with the standard procedures laid down in Chapter 5 of Section 1.
- 4. Publish incident and accident information, presented in such a way as to provide an educational service to the membership.

1.2.3 **The Airspace Panel**

Understanding the airspace that we use and share with other aircrafts is very important and also a safety concern. Violation of the airspace can invoke strict action from AAI. There are no fly zones as well. This panel will be responsible to educate the members about the existence, requirements and constraints of the airspace especially while doing cross country flights or creating records. Instructors are expected to cover this topic during student pilot training. The Airspace Panel will publicise and explain the relevant parts (and amendments) to the airspace legislation and will remain alert to national and international regulations which may affect the sport.

Scope of work

To assist the TC to fulfill its function of maintaining Instructional and Operational standards the panel is required to:

1. Ensure effective representation of the Association on the relevant bodies, in particular the following:

Air Force Movement Liasioning Unit (AFMLU). Director General of Civil Aviation (DGCA) Air Traffic Management (ATM-AAI)

- 2. Maintain cordial interaction with all 4 zonal AFMLU Units and keep them updated on the paragliding and paramotoring activities under their zone.
- 3. Where appropriate assist PAI affiliated schools and instructors/coaches with negotiations in connection with airspace matters.
- 4. Provide event organisers with the information necessary to notify the relevant airspace authorities and local administration.
- 5. Ensure that a current list of all sites is maintained containing information necessary for liaison with other air users.
- 6. Maintain the accuracy of the relevant parts in PAI Rating System exams.
- 7. Assist as required in the investigation of incidents, air misses and accidents.

1.2.4 The Airworthiness Panel

The safety of pilots is paramount and depends largely on the airworthiness of their equipment. The Panel's aim is to ensure that, as far as is practicable, all equipment used in the sport is suitable for

the purpose. Its main concern is the certification of gliders to a recognised standard although it is also responsible for inspecting accessories and associated ground-based equipment. **Scope of work**

To assist the TC to fulfill its function of maintaining operational standards the panel is required to:-

- 1. Establish and maintain procedures for ensuring the airworthiness of paragliders, hang-gliders and paramotor engines, and for ensuring the suitability of ancillary equipment as necessary.
- 2. Suggest test equipment/process necessary in the proving of airworthiness and suitability for use; and ensure the availability of the services of the appropriately qualified personnel.
- 3. Evolve and manage the airworthiness certification scheme as it relates to the membership with PAI. Members are committed to follow safe practices.
- 4. Monitor paraglider and paramotor materials and design-development, ensuring compliance with good engineering and aeronautical practice.
- 5. Establish and maintain effective liaison with all the relevant certification and authoritative bodies.
- 6. Educate the members in all aspects of equipment suitability.
- 7. Assist in the investigation of incidents where equipment is or may be suspect.

1.2.5 **The Development Panel**

The TC encourages experienced Instructors and pilots to develop new techniques. To avoid 'pioneering' something which has already been tried, members should consult the TC to gain the benefit of previous work and other useful information. Most of this discussion can take place on the online forum. This consultation may lead to informal online working groups being set up under the supervision of the Development Panel, bringing together people with the same interests or objectives.

Scope of work

To assist the TC to fulfill its function of stimulating and guiding the development of equipment, training and operating techniques for use in the sport the panel is required to:

- 1. Encourage the development of new disciplines and techniques.
- 2. Determine the best means of conducting the relevant trials.
- 3. On completion of the trials to prepare reports and recommendations for the TC

1.2.6 **The Examination and Inspection Panel**

The purpose of this Panel is to maintain high standards of safety and training in the sport by carrying out examinations of potential rating holders and existing rating holders seeking upgrade in their ratings. The Panel also inspects PAI affiliated schools, instructors and coaching centers. Examiners have the authority to approve the issue of a new rating at the completion of an appropriate examination. They are also empowered to withdraw a rating in the interests of the Association and its members, the public or the instructor. As a matter of course the instructor's CFI and the Chairman TC are informed as quickly as possible in such cases.

Membership of the Panel

The membership of the Panel is determined by the TC as follows:

- a) Members of the Panel must be experienced and qualified in the relevant discipline.
- b) New members are introduced on probation and may not take charge of an examination until approved by the Panel Coordinator (chief examiner).
- c) Members must maintain current status in their stated discipline.
- d) Members must be prepared to carry out examinations and/or inspections regularly.

While all Examiners and Inspectors are members of the Panel it would be unwieldy for all to attend the Panel Management Meetings. A small number of selected panel members with sufficient expertise to cover all disciplines are nominated to attend these meetings.

The need for examinations

The CFI is responsible for safety within his school/club and by definition for the standards of his instructors. He must satisfy himself as to the attitude, aptitude, knowledge and skill of Trainee Instructors (TIs) before nominating them for the examination, including enclosing a written report of his evaluation of the candidate for the benefit of the Examiners. The Examiners will be providing the service of cross-checking the CFI's opinion of a candidate against a national standard, and also

identifying any weaknesses which may have developed within the school. Examiners shall not qualify their own TIs but nominate them in the usual way for independent examination. The CFI will be debriefed by the Examiners on a candidate's performance. The independent examination of new instructors is one way of avoiding in-bred faults which have been known to develop in schools and if left uncorrected can lower safety standards.

The Examiners' Webinar / whatsapp group

The purpose of the Examiners' Webinar is to provide a forum for all Examiners and potential Examiners to discuss the conduct of examinations and the standards required both to apply for, and to pass an examination.

Scope of work - members of the Panel

To assist the TC to fulfill its function of maintaining Instructional and Operational standards the members of the panel are required to:

- 1. Attend Examination and Inspection Panel meetings.
- 2. Approve the appointment of additional Examiners and Inspectors.
- 3. Monitor the training of Examiners and Inspectors.
- 4. Understand the format of instructor examinations by discipline (PG hill & tow, PPG, and HG), advise on standards and set the topics during the examiners webinar.
- 5. Study all matters arising from instructor examinations and school inspections and advise the TC accordingly.
- 6. Arrange periodic external verification of the conduct of examinations and assessments.
- 7. Remain active in their areas of specialisation.

Scope of work - Examiners

To assist the Panel to maintain the established standards of instruction and operations an appointed Examiner is expected to:

- 1. Be available to conduct examinations on a regular basis.
- 2. Attend such webinars and undertake such training as is deemed necessary by the Panel.
- 3. Maintain current practice in the relevant disciplines.
- 4. Maintain an awareness of current examination procedures and fulfill those that apply to his or her discipline.
- 5. Provide such material as may be needed to conduct an examination.
- 6. Examine only those candidates allocated by the examination coordinator.
- 7. Conduct examinations in an impartial way, so that examinations are seen to be unbiased. Any interest which could appear to affect impartiality must be declared.
- 8. Decide whether the performance of the candidate has met the accepted standard.
- 9. Should the candidate fail to reach the required standard, the Examiner is expected to recommend to the Chief Examiner the minimum time period that should elapse before the candidate is permitted to apply for re-examination.
- 10. Inform the candidate of the result of the examination, identifying the candidate's strengths and weaknesses as necessary.
- 11. Discuss with the successful candidate the Chief Examiner's brief as provided.
- 12. Personally return the examination pro forma to the Chief Examiner as soon as is practical on completion of the examination.
- 13. Make comments on the candidate's performance to the Chief Examiner who may use these as a basis for his observation to the candidate's CFI.

Scope of work - Inspectors

When undertaking an inspection of a PAI Affiliated School, an Inspector is expected to examine for adequacy, suitability and serviceability, as appropriate:

- 1. Records the standard operating procedure of the school
 - a random selection of Daily Flight Logs
 - a random selection of Student Training Records
 - check all Permits and correspondence with local administration
 - feedback forms of students
- 2. Incident Reports a selection of recent IRs received from that School/Club will be provided which the Inspector should discuss with the CFI to see what, if any, lessons have been learnt.
- 3. Equipment a random selection of gliders which may be up to 100%
 - a random selection of paramotor used for training or joyrides

	- - -	a rand percer trainin tow ve all rad	om selection of peripheral equipment, including helmets, the stage of which is at the discretion of the inspector g equipment (e.g. harness suspension rig) shicle/winch and associated equipment if any io communications
4. Sites	-	a selec	ction of training sites must be visited and assessed
5. CFI's	Personal	Flying Log	- to be checked for current activity
6. Stude	ents -	throug the Ins	h discussion to check for correct training and approach by struction team
7. Club	Pilots -	throug the Ins	h discussion to check for correct training and approach by struction team
8. Instr	uctors and	d TIs -	through discussion and practical checks to ensure active involvement in all stages of training
9. Train	ing and o	perations -	assessment of the standards and effectiveness of the training an operations conducted by the school during the inspection period.

Should it be necessary, the Inspector is to immediately correct any safety violations or administrative errors if any.

On completion of the inspection the Inspector is to report to:

1. The CFI on points arising

2. The Panel Coordinator using the Inspection check sheet provided

The Inspector is empowered to suspend operations in case of serious concern; and to suspend any PAI rating after first discussing it with the Chairman TC and/or the Chief Examiner.

1.2.7 The Publications Panel (Website, Online Forum)

To assist in achieving the credibility which is desirable in a high profile sport the TC aims to standardise its publications and seek a professional presentation and production and it is through the expertise of the membership of the Publications Panel that this is sought. All documents such as newsletters, handbooks, manuals, and report forms are overseen by the Panel, which does not necessarily generate the information but is responsible for the final product.

Scope of work

To facilitate the TC's aim of being identified as an authoritative, professional and credible body the panel is required to:

- 1. Ensure a uniform style and suitable quality of design for documents.
- 2. Ensure that the content of such documents is accurate, well written and consistent with all aspects of TC policy.
- 3. Amend, update and revise publications as necessary.

The Training Panels

Training is the foundation of safety in any sport. It is also, naturally, a major facility and draws heavily on resources. There are two distinct divisions - that for student pilots and that for those who train the pilots, Instructors and Coaches.

1.2.8 The Instructor and Coach Training Panel

This Panel is concerned with the training and coaching requirements of all those officials who are involved in the supervision of others. The panel is also responsible for reviewing the annual Affiliation renewals; school and Association/club registrations; and addressing specific problems connected with these.

Scope of work

To assist the TC to fulfill its function of maintaining Instructional and Operational standards the panel is required to:

- 1. Monitor the syllabi established for those involved in the training or supervision of students and pilots and amend as necessary.
- 2. Arrange and publish a schedule of Coach and Instructor Courses and staff as required.
- 3. Monitor the current status of pilots who have obtained ratings. Also review the allied administrative procedures and amend as necessary.
- 4. Approve the technical standards for new schools and clubs prior to registration.
- 5. Monitor the performance of currently registered schools and clubs.
- 6. Address, for the benefit of the membership, any difficulties arising out of (1 to 5) above.

1.2.9 **The Pilot Training and Development Panel**

This panel is specifically responsible for all student and pilot training programs, techniques and procedures within the school structure

Scope of work

To assist the TC to fulfill its function of maintaining pilot training standards, the panel is required to:

- 1. Monitor established student and pilot training procedures and techniques (including written examination papers) and recommend amendments as necessary.
- 2. Evaluate and approve any new student and pilot training procedures and techniques for recommendation to the TC.

1.2.10 Tow Panel

Of all the Panels this is the most diverse. Whether the tow-launching is carried out by vehicle, winch or boat, the procedures differ in their detail and need monitoring constantly as fresh developments emerge. The requirements of the various tow-launched disciplines are documented in respective technical manuals and should be understood by the Tow Panel; in particular the specific procedures and techniques as they apply to each discipline.

Scope of work

To assist the TC to fulfill its function of maintaining Operational standards the panel is required to:

- 1. Monitor established tow-launch procedures and techniques and amend as necessary.
- 2. Study new tow-launch procedures and techniques for recommendation to the TC.

1.2.11 The PPG and PPC Panel

This panel is responsible for monitoring and developing flying and safety norms in respect of powered paragliding and powered parachute flying. PAI has a separate document covering safety aspects and training syllabus for Foot-launch and Trike-based paramotoring which will be used by this panel.

Scope of work

To assist the PPG TC to fulfill its function of maintaining Operational standards, the panel is required to:

- 1. Monitor established training procedures and techniques and amends them as and when necessary.
- 2. Study new procedures and techniques for recommendation to the TC.

1.2.12 The Veterans Advisory Panel

This is the guiding force of the entire community. The panel consists of several pioneers of aerosports in India who have gone out of their way to bring the sport to India either in their individual capacities or through the skills acquired while serving in the IAF, Army and Navy. Apart from the people with defence background, there are also a few civilians who have achieved accolades for their contribution as pioneers in various aero sports.

Scope of work

To guide the PAI Managing and Technical Committee

- 1. To study established training procedures and techniques and give their valuable suggestions.
- 2. To study new procedures and techniques and give their opinion to the TC.

SECTION 1

POLICIES

Chapter 3 ADMINISTRATION

1.3.1 Introduction	1.3.13 Club Inspections
1.3.2 Individual Membership	1.3.14 Insurance Requirements
1.3.3 Club Registration	1.3.15 Site Registration
1.3.4 The Club Safety Officer	1.3.16 Post Ab-initio Training
1.3.5 Pilot Rating Scheme	
1.3.6 Personal Log Book	Appendices
1.3.7 FAI Badge Awards	A - Site Sovereignty Policy
1.3.8 Tandem Flying	B - Training Guidelines for Pilots
1.3.9 Qualification Validity and Withdrawal	
1.3.10 Daily Flight Records	Annexes
1.3.11 Student Training Records	S1 - School Inspection Report form
1.3.12 Incident Reports	S2 - Daily Flight Record

1.3.1 Introduction

This chapter describes the administration procedures developed for the PAI, its members, and affiliated schools, associations and clubs. The Appendices contain information on policies, whilst sample formats of forms and records are given in the annexes and will also be available online.

1.3.2 Individual Membership

The PAI is an Association of individuals who form the membership and to whom the Managing Committee is responsible for providing the benefits set down in the Articles of Association in return for the applicable membership fees.

Annual membership

Annual membership allows pilots to progress through the Pilot Rating Scheme and ensures that they are kept in touch with the sport via the newsletter. Membership is open to anyone, whether they are regular pilots or simply wish to remain in touch with the sport on a non-flying basis. All annual members have the right to vote at the Annual General Meetings.

Note - To be eligible for any PAI rating the individual must be a current member of PAI.

Life-time membership

Life-time membership is also available for those who wish to be associated with the PAI for a lifetime.

Honorary membership

The PAI managing committee shall decide on offering honorary memberships to eminent personalities.

1.3.3 School, Association or Club Registration

The PAI encourages any group wishing to organise and operate paragliding / paramotoring activity, to do so, as a PAI affiliated body. An application for Association or club registration must show the names of responsible persons, the equipment to be used and the intended site(s). The application shall be vetted on behalf of the PAI by the Managing Committee and the Technical Committee. The club may not own its equipment but if it does then it must have exclusive use of the equipment. The application must be made in the proper form (see Annex S1) accompanied by the relevant site maps and details and sent to the PAI Office together with the applicable fees. Annual renewal fees shall be fixed at the AGM and shall be due for payment in advance, for the registration to remain valid.

There are 2 distinct categories of Affiliations:

A School

- It is a registered training center which may train from the beginner level and beyond, provided that it has the services of minimum one Senior Instructor and one Assistant Instructor who are qualified and experienced in each discipline, for the level at which the school intends to offer training.

An Individual Instructor or Coaching Club

- It is a registered center, preferably with a coaching structure, aimed at Club Pilot or above.

Acceptance of PAI authority

A school and its staff which applies for registration must accept that PAI has jurisdiction in matters of registration and de-registration and that the PAI may from time to time vary the requirements relating to registration and training.

'Constituted' Schools and Clubs

To comply with the Law, schools must be properly constituted as Clubs and only those which meet this legal requirement will be registered by the PAI.

Conditions of Registration

It must be understood and accepted that:

- a) School registration is for twelve months unless renewed or revoked. The PAI is under no obligation to renew a school's registration.
- b) School registration is valid only for activities conducted within India.
- c) Registration may be suspended or withdrawn, permanently or temporarily in accordance with the procedures laid down in this manual.
- d) In pursuance of the discharge of the PAI's responsibilities, any person(s) acting on behalf and with the authority of the TC may suspend registration immediately if the safety in respect of any trainee or member of the public is considered to be in jeopardy.
- e) All school/ club training staff must also be PAI members.
- f) The requirements, standards, regulations and procedures relevant to the discipline and level of registration of the school must be complied with at all times.
- g) The requirements, standards, regulations and procedures may be amended by the TC at any time and without any consultation or consent.
- h) The affiliated Schools shall allow access to authorised PAI inspectors at any time when the tuition is in progress and, at any other time by being given a reasonable notice.

Failure to comply with the conditions laid down may result in the immediate suspension of registration.

Registration Renewal

School/ club registrations are renewable annually provided that the TC is satisfied that the stipulated standards have been maintained. There is a provision, however, for the TC to refuse renewal or to impose conditions for renewal. Under these circumstances the school / club will be given the opportunity to furnish arguments in its favor.

Schools / Clubs will receive renewal reminders and must renew by the expiry date. Under special circumstances a grace period not exceeding 3 months may be allowed solely at the discretion of the TC, on the understanding that the registration will be for a continuous period. Any delayed application for registration may be treated as an initial registration commencing from the date of the delayed application.

Disciplinary Procedures

If any club is found not to have complied with PAI Rules and Regulations it may face disciplinary action as indicated in Chapter 6 of this Section.

De-Registration and Re-Registration

The procedures for de-registration and subsequent re-registration after disciplinary action are contained in Chapter 6 of Section 1.

Legal Liability

Whilst the PAI will use its best endeavors to ensure that clubs, licensed staff and club equipment reach the standards required:

- a. Registration of a club by the PAI shall not create any contract between the PAI, its officers, servants or members and any club so registered. Nor does it imply any warranty by the PAI, its officers, servants or members to the effect that any club so registered meets the requirements of the PAI Club Registration Scheme for the time being in force, or that any instructor of such club is of the requisite standard of competency or that any aircraft or equipment of any such club is airworthy.
- b. The PAI, its officers, servants and members shall not be liable for any loss, damage or injury, whether consequential or otherwise, arising in any way from any breach of warranty or contract by any registered club or by the negligence of any club, the proprietor of any club or any agents or servants of such club, nor for any loss or damage otherwise arising from the registration of any club or revocation or cancellation of any such registration.

1.3.4 The School / Club Safety Officer

Within the framework of the school / club there should be a responsible and knowledgeable pilot who acts as the local technical officer. If the Association / club appoint a Safety Officer it should also provide the necessary support for the SO to satisfactorily discharge his functions.

Responsibilities

- a) Disseminate Safety Notices and information within the club.
- b) Act as a technical reference source within the club.
- c) Support the coaching team in their efforts to ensure that accidents and incidents with in the club are reported to the TC.
- d) Maintain, through a program of continuous education and encouragement, an awareness of flying and technical safety standards within the club.
- e) Keep up-to-date with current information.

Appointment

This is a club appointment which must be based primarily on his or her ability to carry out the responsibilities listed above.

Note. In a school or club this role will be assumed by the CFI or Chief Coach respectively.

1.3.5 **PAI National Pilot Rating Schemes**

The PAI National Pilot Rating Schemes (NPRS) are designed to provide an incentive to students and pilots to progress in their training and gain experience in the sport. The schemes offer an indication of proficiency and may be used by outside organisations towards their awards (e.g. CAA, FAI Awards Scheme). Within the PAI the schemes shall be used as a basis for assessing competence and for entry to competitive events. Details of the various ratings are given in Section 5 Chapter 2 and chapter 3.

1.3.6 **Personal Log Books**

Pilots must maintain a personal record of their paragliding or paramotoring training and experience in a suitable Flight Log Book. Apart from being a fascinating reminder of an individual's flying history, the records are necessary when moving between clubs, applying for a PAI Pilot Rating or FAI badge award, or seeking an instructor qualification.

1.3.7 **FAI** (Fédération Aéronautique Internationale) **Badge Awards**

Once pilots have completed basic training they are encouraged to further their skills as pilots by mastering the elements and flying their gliders further, higher and for longer durations. The FAI Badge Awards encourage this by awarding badges for distance, height gain and duration (in free flight) at the levels of silver, gold and diamond. There is also a bronze badge awarded at national rather than international level. Details of the scheme and how to apply are available on FAI website.

1.3.8 Tandem Pilot

Before a member may pilot a glider carrying another person, certain requirements must be satisfied. The TC will then approve that person to act as a Tandem Pilot. (See also Section 5, Chapter 2)

1.3.9 Qualification Validity and Withdrawal

All qualifications (certifications and pilot ratings) are valid only for the person named and may be withdrawn by the Chairman TC or a delegated official. (Refer to Section 1, Chapter 6)

Lapsed Membership and Qualifications

All Ratings and Endorsements are non-expiring but need to be supported with current flying through recorded logbook entries. When any membership has lapsed, returning members are issued with an information-sheet giving guidance on the safe rejuvenation of their flying skills. In case a pilot has a gap of over 18 months in flying, he should undergo a skill-check with a PAI authorised instructor, to retain the rating by validating the entry in the logbook. In case of lapse of membership, the following will apply:

- 1. For lapse of membership up to 3 months, the rating will be reinstated provided that the membership is backdated to the date of expiry.
- 2. For lapses of more than 3 months, the TC will consider applications for rating-reinstatement on merit.

1.3.10 Daily Flight Records

All schools and tow clubs are required to keep a daily flight record. It should name the operating site, the students and pilots, instructor(s) and tow unit drivers, and list the gliders and tow-line lengths used (where relevant) plus the training exercises or types of flight carried out. Weather and wind conditions should also be recorded and where appropriate, also the take-off and landing times. The flight record sheets must be kept for a minimum of 6 years.

1.3.11 Student Training Records

All schools are required to maintain a record of each student's training and progress, using the appropriate format. These records must be kept for a minimum of 6 years.

1.3.12 Incident Reports (IRs)

Incident reports (IRs) are the primary means by which the Association can monitor and maintain safety in the sport. An IR may require follow-up action quickly, or simply be used for analysis of trends e.g. in minor injuries. Selected reports are summarised and publicised to enable all instructors, operators, coaches and pilots to benefit by understanding the causes of incidents. IRs must be submitted to the PAI Office for any injury or damage, any equipment malfunction, or any circumstance which was unusual or could have led to an injury or damage, or which might lead to an insurance claim or adverse publicity. Further details of the procedures for reporting incidents are contained in Chapter 5 of this section.

1.3.13 School Inspections

One of the TC's responsibilities is to monitor standards in schools and this is achieved though the inspection scheme. Every effort is made to visit each school, approximately every two years, using a team of PAI Inspectors. At the conclusion of the Inspection the CFI is debriefed on the results. A written report is forwarded to the Panel Coordinator for analysis, and a copy provided for the CFI.

1.3.14 Insurance Requirements

PAI will be looking into insurance matters through the appropriate panels. However in the absence of these facilities, it is desirable to have a personal accident policy which covers paragliding. Visit PAI website for insurance details.

1.3.15 Site Registration

Whenever a club or a school has negotiated the use of a site then it is regarded by the PAI as the 'resident club/school' and any other clubs or pilots wishing to fly from that site must contact that club before approaching the site owner or entering the site. (See Appendix A)

Permissions for Hill flying and Tow sites

Official permission from the Airport Authority of India must be obtained for using any regulated airspace. It is advisable to inform in writing the district administration, district police, forest department and the local police regarding the usage of a site for paragliding or paramotoring activity. Other permissions, when necessary, should be obtained from the appropriate authorities.

Site registration

Any school or club planning to negotiate the use of a site is required to seek clearance from the PAI to avoid conflict, and any club obtaining the use of a site must register it with the PAI to be recognised as the resident club. (Site database will be updated on PAI website)

1.3.16 Training of Qualified members – Beyond Pilot (P4) level

For PAI policy and advice on the training of qualified members see Appendix B

1.3.17 Standard Operating Procedure (SOP) Manual

All schools and clubs must maintain and use a Standard Operating Procedure Manual that is formally reviewed at least annually by the Chief Flying Instructor or someone specifically authorised to review the Manual on his behalf. The Manual must contain details of operating procedures put in place by the school / tow club to ensure compliance with the requirements in the Technical Manual. As a minimum, it must include all of the relevant content indicated in the PAI templates and annexures in the Technical Manual.

APPENDIX A SITE SOVEREIGNTY - CODE OF PRACTICE

To avoid legal issues, inter-school /club and inter-sport disputes and to help protect existing sites, the following Code of Practice shall apply to both the Clubs and the individual pilots. While using forest land or mountains, the forest department may or may not give a written permission for the use of that property. It is advisable to write a letter and obtain a formal acknowledgement to prove that you had informed them about your intention, in order to safeguard yourself from legal action.

1. Before attempting to use any site, the following steps must be taken, well in time, before the proposed use:

- (a) Check with the local PAI School / club(s) to see if the site has been adopted for the sport.
- (b) If it is already in use, follow the existing site rules
- (c) If it is not, seek permission from the landowners, forest department or relevant agencies.
- (d) If there is any existing air-related sporting club using the site, all negotiations with the landowners, forest department and other authorities must be made in conjunction with that club.
- (e) In view of the landowners' differing attitudes to the necessity of written agreements it should be noted that the existence of a written agreement is not necessarily a prerequisite to prove its usage

2. In the event of a new site being negotiated, the following procedure should be adopted to protect your interests:

- (a) Make note of the location/site coordinates and use them while corresponding with AAI & district administration this will result in identifying the spot and its notification to the Local Police, AAI and the AFMLU of the site's use for aero sports.
- (b) If it is a surface-based towing-site, it cannot be used to tow-launch within a controlled airspace or above 100 feet AGL, until permissions are obtained from AAI.
- (c) Try to agree with the landowners that in the interests of safety, and convenience to them, all future enquiries from other air related sports will be passed to your club

By following this procedure your club will be recognised as being the operating authority (Resident Club) for that site and you will be supported as such, in the event of any site problems.

- 3. If you choose not to use a site any more, you should inform the AAI so that they can make a note of it. If your Club ceases to exist as an Association Club or the relevant AAI Permission lapses, it will be assumed that you have relinquished all claims as the Resident Club.
- 4. Clubs are expected to provide reasonable assistance to other pilots wishing to fly at their sites. It must not be forgotten that it can cost a Club considerable time and expense for negotiating and keeping a site and that it is the landowner's wishes which are paramount.
- 5. This Code of Practice depends upon the integrity of both individual Pilots and the Clubs for its practicality.
- 6. Our flying depends upon the use of others' land and this must not be jeopardised by internal disputes or thoughtless behaviour.

APPENDIX B TRAINING GUIDELINES FOR QUALIFIED PILOTS

A Pilot (P4) level rated pilot is regarded as being suitably skilled to make his own decisions.

Nevertheless, there are further skills that the pilot should aspire to master: many of these are documented in the National Pilot Rating scheme. Whilst the latter stages of the NPRS are primarily written as a self- coaching guide, obtaining advice from suitably qualified persons can be a very efficient method of making progress with these and other skills. The following sets out the PAI's position on training for qualified members.

- Training for qualified members is defined as any situation where a new factor is being deliberately introduced to a pilot already qualified to fly that craft type. This factor may be a skill or a significantly different environment (e.g. mountains).
- All training for qualified members is regarded as being a form of `coaching'. (Formal `Instruction' ends with the issue of the Pilot (P4).)
- Any provider of training for qualified members must be suitably qualified. This means that as a minimum they must hold a Club Coach rating and have the necessary experience of whatever it is that they are teaching and the environment being used. Ideally such providers will also hold a PAI Senior Coach or Instructor rating. (For many activities (e.g. tow conversions, PG to PPG conversions) precise qualification requirements are stipulated.)
- 'Guiding' (i.e. introducing suitably qualified pilots to a new geographical area where the pilots will use their existing skills and knowledge) is not regarded as 'training'. Persons providing guiding services still have a legal Duty of Care to their clients.
 - Offering comments/information on flying conditions experienced during flight, landing fields in use etc. is the duty of every pilot, and is not considered to be training.

Advice to Qualified Pilots:

Various individuals and organisations offer services for qualified pilots. These can be loosely separated into two categories - 'guides' and 'training providers'. Irrespective of the type of service that you are receiving, you are reminded that the final decision to fly is your own, and the same applies to all maneuvers and activities undertaken in flight.

'Guides':

If being 'guided' in a new geographical area, understand that there are no PAI qualification criteria for 'guides', who may well have no instructional or coaching qualification or skills. Their function is only to get you to the site and introduce you to it. Local knowledge and site familiarity are invaluable, and should be tapped into – but the bottom line is that you have to be certain that the site, weather etc. is suitable for you to fly.

`Training providers':

Check out carefully the qualifications and relevant experience of any person providing training. Be realistic about your own experience level and only consider appropriate courses. Ensure that the course provider's aims are similar to your own. (A badly run or inappropriate course will teach you nothing and may have a detrimental effect on your development as a pilot).

Annexes S1 - School Inspection Report form

Available with PAI office in PDF format to be used by Inspectors

Annexes S2 - Daily Flight Record

Please contact PAI for a sample format (to be maintained by schools)

SECTION 1 POLICIES Chapter 4 SAFETY REQUIREMENTS AND PRACTICES

1.4.1 Introduction 1.4.2 Safety Requirements 1.4.3 Recommended Practices

1.4.4 PAI Regulations 1.4.5 Alcohol and Drugs Appendix A PLF

1.4.1 Introduction

Paragliding, Hang Gliding, Paramotoring and Powered parachute participants are expected to train in the operation and use of equipment in accordance with the guidelines described in this Technical Manual. Minor improvements in training, procedures or equipment may be introduced at club-level on the authority of the CFI or the Senior Coach, who are permitted to fine-tune these improvements and authorise their continued use by club instructors or coaches. Where a club intends to undertake a major development or make any significant variation from the normal practice, the CFI or the Senior Coach must obtain the written approval of the Chairman TC, in advance. In order to maintain a good safety record in the sport, certain procedures, training and equipment are identified as Safety Requirements and Recommended Practices, and all Instructors, Coaches and pilots are expected to comply with these. The TC is fully aware of the need to revise these practices as the sport progresses and will also consider granting waivers applied for by a CFI, either when one of the requirements is not applicable in a particular circumstance, or when a development project seeking new techniques is undertaken. These waivers shall only apply when given in writing by the Chairman TC, or his delegated representative, to the CFI, the Senior Coach, or the pilot and are for a specified period only. In the following paragraphs, 'Instructors' include registered Trainee Instructors.

Specific Don'ts

D1. Do not attempt teaching others unless you are fully qualified and have adequate experience to do so.

D2. Do not exceed the three key limitations of collapsible wings – firstly, wind and weather conditions; secondly, equipment airworthiness matching the level of the pilot and, thirdly, the skill and knowledge of the pilot in a given circumstance.

D3. Towing or winching has a high risk of accidents and should be attempted only by an experienced and knowledgeable person. It needs appropriate professional qualifications.

D4. Do not fly paramotors in thermic conditions. Paramotoring may seem to have a fast learningcurve but it demands technical and theoretical knowledge of the equipment and the weather conditions.

Insurance

Whilst every effort has been made to provide insurance to cover the claims of negligence against instructors, operators, coaches or pilots, the PAI's insurers have provided such cover on the condition that the Association's rules are complied with. Therefore, any deliberate or reckless contravention of the safety requirements, recommended practices, or PAI regulations may render the liability-insurance void. If any change in published procedures or accepted normal practices is required to be made, it should not be implemented until confirmation has been received from the TC Chairman that such a change is acceptable. In addition, where the TC considers it necessary, such confirmation may require prior consultation with the PAI's Insurers to ensure that the insurance cover will not be adversely affected.

1.4.2 Safety Requirements

General

- G1. Paragliding and paramotoring Instructors, Coaches and Pilots must comply with the current requirements and conditions laid down by the AFMLU and AAI. They should also comply with the state or district regulations.
- G2. Where necessary, the relevant authority must be informed before actual flying commences. (ATC & AFMLU and local administration)
- G3. During Training Exercises in a school, effective launch and site control must be maintained, through a delegated Instructor, who must be identified as such, to all students and pilots.

- G4. When students are under instruction, a wind-sock should be positioned at the designated landing area.
- G5. All equipment must comply with the standards laid down in this Technical Manual.
- G6. Pilots must wear a suitable helmet before connecting their harness to the glider.
- G7. All new participants must be given appropriate landing training before flying. Where a potential hazard is present (water, tree, obstacle etc.), the relevant briefing must be given.
- G8. Students and pilots undergoing training from Instructors or Senior Tow Coaches must receive, or declare, pre-flight and post-flight briefings or intentions.
- G9. A standard pre-flight check must be carried out before takeoff.
- G10.Elementary Pilot and above must record the details of all flights in a personal Flight Log Book.
- G11.The pilot-in-charge of a glider carrying 2 or more persons must hold the relevant PAI qualification /rating (Tandem Pilot).

Tow-Launched or Winching-specific Safety Requirements:

- T1. The tow-unit must at all times be driven or operated by a qualified and experienced Operator.
- T2. An Operator under training driving a tow-unit must be supervised by a suitably qualified Senior Instructor or Senior Tow-Coach present on site. Until authorised by the CFI, the Operator under training must not drive or operate the tow-unit unaccompanied by an authorised Operator in the tow-unit.
- T3. The tow-line must be attached to a tension-meter capable of providing the Operator with an analogue reading of tow-line tensions.
- T4. A quick release (QR) device must be fitted to Pilot-end.
- T5. The tow-unit must be equipped with a suitable tow-line cutting tool for use in the event of QR failure or tow-line entanglement.
- T6. A weak link may be fitted in the tow-line system so that approved maximum tow tensions cannot be exceeded.
- T7. A Launch-Marshal or Signaler, who has received the relevant practical training, but who is neither the pilot nor a dual-flight student, must supervise each launch. In winch-boat situations, this may be the winch-Operator.
- T9. Where the tow-line exceeds 150 meters, pilots must have received instruction in emergency actions in case of tow-line break or unplanned release from the tow unit, or tow line 'hang-up'.
- T10. Tow-unit Operators must regularly practice the relevant emergency procedures.
- T11.In over water operations, suitable buoyancy aids **MUST** be worn by all the participants.
- T13. Training sites must be chosen to avoid any possibility of water landing.

1.4.3 **Recommended Practices**

- RP1. Water landings should be avoided at all costs; experienced pilots anticipating flying over or near to significant areas of water should ensure that a safe dry landing area is always within reach. Wear suitable buoyancy aids and carry a suitable webbing cutting implement.
- RP2. When using the hand-tow controlled training technique, the tow-line should not exceed 5 meters.
- RP3. When flying with qualified pilots, students on achieving P1, should display a red streamer attached to the seat area of the PG harness as a warning to other pilots. It may be dispensed with when the pilot has reached CP rating plus 10 hours of logged flying-time.
- RP4. The tow-unit should be such that the driver can maintain an unobstructed view of the launch and subsequent towed flight.

- RP5. In the event of an emergency tow-line release, a mobile tow-unit should be positioned so as to be able to assist and advise the pilot if needed.
- RP6. At least one anchor-man should be used when the pilot is being harnessed to a canopy which is already attached to a tow-line.
- RP7. Metal tow-lines should not be used in the vicinity of power lines.
- RP8. When attaching 2 or more harnesses to a single hang point or riser system, physical separation, or a satisfactory means of preventing fouling of the connectors, must be ensured.
- RP9. Paraglider pilots should maintain steering control throughout inflation, launch, tow and free flight phases. Where the public have access to a tow-launch site, a board should be displayed prominently carrying the words "WARNING TOW CABLES".

1.4.4 **PAI Regulations**

General Administrative Regulations

- A1. All PAI members acting in an authorised supervisory capacity are responsible for ensuring that the Safety Requirements and Recommended Practices are complied with.
- A2. PAI membership must be held by all who participate or assist in operations.
- A3. Participants must sign a self-declaration form of medical and physical fitness level which will prove that he is fit to participate in risk-oriented adventure sport.
- A4. All ab-initio training must be conducted under the supervision of a suitably qualified and authorised PAI Instructor.

Age limits

- a) There is no upper age limit.
- b) A person must be at least 14 years old to be eligible for training under the direct supervision of an instructor, provided that the operation is within the confines of a tow-site, or, in hill-launch conditions where there is no possibility of achieving soaring flight.
- c) A person must be at least 16 years old to be eligible for a PAI NPRS rating.
- d) For flights where the instructor has direct control, such as tandem-flights or towed-flight where the tow-line is not released, the above age limits may be waived at the discretion of the CFI but the Duty Instructor must ensure that the student is of sufficient mental and physical maturity to follow and understand flight briefings.

NOTE: a parent's/guardian's consent form is necessary for minors (under 18 years).

1.4.5 Alcohol and Drugs

According to the Air Navigation Order Article 66 (2): "A person shall not, when acting as a member of the crew of any aircraft or being carried in any aircraft for the purpose so acting, be under the influence of drink, or a drug to such an extent as to impair his capacity to act."

In addition to the basic requirement of the law, the Association insists that instructors, students and pilots do not consume alcohol or intoxicating drugs within eight hours of commencing flying or conducting flying operations.

APPENDIX A PARACHUTE LANDING FALLS

Parachute Landing Falls

The British "Landing Roll" technique was developed for parachutists at Ringway early during the Second World War and has proved to be the most effective method of taking normal and severe landings without injury. The technique is not naturally acquired in other sports.

If injury occurs it can nearly always be attributed to two causes, firstly to a faulty position prior to touch down and secondly to faulty landing roll technique.

Objective

The three main aims of the technique are:

- 1) To spread the impact shock progressively and smoothly over a large area of the body
- 2) To spread the impact shock over a (comparatively) long period of time.
- 3) To avoid ground contact with the head, elbows, hands or the base of the spine.

Method

The sequence of events is a controlled fall to one side followed by a rolling motion of the upper body.

Direction of Landing Roll

As the pilot may be approaching the ground travelling in any direction, s/he must be trained to cope with any situation. A straight forward or backward roll should be avoided.

Preparing to land

- 1. Toes and heels firmly together, feet flat and parallel to the ground, knees together and slightly bent; the back and shoulders rounded.
- 2. Head down, chin on chest, with eyes watching the ground; elbows tucked in.
- 3. Hands holding the appropriate controls. The hands must not be used to cushion the fall.
- 4. The whole body is relaxed but alert.
- 5. Assess the direction of travel over the ground and turn the feet so that the outside of the 'leading' boot will touch down first NOT THE TOES OR THE HEELS!
- 6. Turn the shoulders away from the direction of travel if the ground is approaching from the left, twist the shoulders to the right, and vice-versa.

On 'touch down'

Feet flat and firmly together; fall and roll progressively and smoothly - the side of the leg then the thigh and buttock; at this point keep the legs together but lift them off the ground and flip them up and sideways in the opposite direction to roll the back on to the opposite shoulder. Keep the elbows tucked in and the head forward with chin on chest throughout the fall and roll.

Training and Practice

It is usual to teach students to practice 'sideways to the left and right'; followed by 'diagonally to the left and right' etc. It must, however, be stressed that impact can occur at any point within the 'circle' and they should be ready to make last minute adjustments before impact.

Adapting the technique

The harnesses on high performance paragliders usually incorporate a seat which can make it awkward to position the legs for the landing approach. By sliding forward off the seat the student can more easily adopt the landing position.

Similarly, all ram air wings needs to be controlled on approach, and they are usually 'flared' just prior to touch down. To avoid exposing the hands and arms to injury at this point they should be extended close to the body, and may even be crossed as an extra insurance.

SECTION 1 POLICIES Chapter 5 INCIDENT REPORTING AND ACCIDENT INVESTIGATION

	Арре	endices
1.5.1 Introduction	А	Incident Report Form
1.5.2 Incident Management	В	Responding to incident report
1.5.3 Investigating and Reporting	С	PAI Board of Inquiry
1.5.4 Incident Report Analysis	D	External Structures and Influences
1.5.5 Formal Investigation	E	Sample forms
1.5.6 Reportable Accidents	F	Primary Contact Recording Log

1.5.1 Introduction

Paragliding, Hang-gliding and Paramotoring activities have inherent risks associated with them and carry with them the danger of injury to participants. However, PAI strives to reduce the risk as much as possible while allowing participants to continue to enjoy their sport. When an incident occurs, everyone should be interested in finding out why it has happened and what might be done to prevent a repeat, especially if someone has been hurt. This chapter explains the investigation, reporting and analysis of incidents in the PAI. It also describes the processes of informal and formal investigations; details of the procedures required during a PAI Board of Inquiry and define 'Reportable Accidents'.

In a school training or club coaching situation, the school or club is responsible for completing and submitting Incident Reports, including the Supplement. Pilots of P4 level or above are expected to complete and submit Incident Report forms in their own right.

1.5.2 Incident Management – in serious life threatening situation

The initial reaction to an incident is important. Life may be saved by the right actions being taken quickly. Everyone must know who is taking charge. In a School this will usually be the Chief Instructor, whereas in a club it may be a Coach or simply a fellow pilot. A serious incident is not the time for playing the blame game, especially if someone is injured. Depending on the incident and the apparent severity of any injuries, carry out some or all of the following actions:

Liability - Under no circumstances should you admit any fault or liability to any person as there may be several factors responsible for an accident. An appeal should be made to people not to record and forward pictures or videos of the incident.

1. Administer minimum First-Aid as required.

Instructors and Coaches are expected to be trained and most will have access to a First-Aid kit. Individual pilots are also expected to carry small first-kits and every pilot should make an effort to attend a First-Aid course. On an accident site, specific knowledge is more important than resources.

2. Call the Emergency Service.

Although it is essential not to waste time, it is extremely important to assess the injuries so that precise information can be relayed to the Emergency Service which can then decide which form the rescue will take - ambulance or helicopter. Either telephone or radio may be used to summon aid. The list of nearby emergency medical facilities is expected to be with the organiser of the activity. In most cases (especially fatal or potentially fatal), the information is relayed directly to the Police who may investigate. In a group situation (School, Club or Event), to avoid the nuisance of multiple or false alarms, one or two persons should be appointed (and identified to others present) to make the emergency calls.

If the emergency services are not coming, or the accident does not warrant their use, then you must have a plan to evacuate the casualty. Knowing the location of the nearest hospital is essential.

3. Record, but do not disturb equipment

If possible, photograph it, sketch it or draw someone else's attention to it. The Police may impound it in some circumstances, so record the equipment state as soon as possible. **Do not test it.** Often, when the equipment was a possible cause, it had been packed away before an experienced investigator had had a chance to look at it (vital information can be gained from studying the equipment as it looks immediately after an incident).

4. Identify witnesses.

Note the names and addresses of witnesses including bystanders - if possible. A serious incident requiring further investigation needs information from several sources to build-up a picture of what

really happened. Sometimes, bystanders are better witnesses because they describe exactly what they saw rather than interpret what happened using their own flying experiences.

5. Get witness statements.

Have witnesses write down what they **saw or heard.** A more accurate picture will emerge from individual reports of what happened rather than from the group consensus. It is usual for statements to conflict. These should be resolved only when drawing conclusions about an incident and not when gathering information about it.

6. The Incident Report (IR) form should be sent to the PAI office within 48 hours, accompanied by the statements. If any statements are delayed, they can be sent, as soon as possible.

7. Notify relatives.

If there has been a fatality or serious incident, the Police will notify the next of kin - as they have been trained for such a situation. Let them do it. In lesser cases, notifying family or friends indicates a responsible attitude and can help to avoid acrimony and the pursuit of liability claims.

8. In serious cases directly inform the PAI office-bearers immediately

Telephone numbers are listed on the Incident Report Form. Do not leave messages but go through the list until you can talk to someone in person. Very serious incidents will need the support of experienced PAI officials, for example in liaising with the relatives, press, police, and any other organisations concerned, and, where appropriate, in undertaking a formal investigation.

Any incident, whether serious or not, can be reported by telephone for advice and encouragement.

For quick reference, the above points are summarised on the PAI Incident Report form (see Appendix A)

Dealing with the media

Very often the Press, in any of its forms, is on the scene very soon after the incident. Aggressive and leading questions may be posed at a time when defences are down and those involved may be in various stages of shock. Under these circumstances statements and comments may be made which could be misquoted, or subsequently damage the image of the sport, or create difficulties for any subsequent investigation. Faced with such a situation, it is best for an appointed person (say the CFI or Senior Coach) to provide a short statement such as:

"I can tell you that X has suffered a fatal/serious injury and has been taken to hospital and the Police and/or the PAI have been informed. An inquiry may be carried out by the Association but for further details you will have to wait for an official report from the PAI office."

1.5.3 Investigating and Reporting

As a National Association representing the sports community, on behalf of its members, PAI is empowered to record, investigate and report all paragliding and paramotoring incidents. It is also the duty of every pilot (whether or not they are PAI Members) to report incidents. The attention of all qualified members and Accident Inspectors in particular is drawn to the legislation.

The purpose of incident investigation is to identify any lessons which might be learned with, obviously, the aim of preventing any repetition. A logical approach to any investigation is important if the evaluation is to be fruitful, whether it is carried at school or club-level or by trained investigators during a formal investigation. Investigations conducted by the Accident Prevention and investigation Panel of the TC fall into 3 distinct categories:

- 1. An informal enquiry which might range from a short telephone enquiry to clarify specific points through to a visit to examine, for instance, equipment or to follow up initial reports.
- 2. A more formal approach either by letter or visit by an investigator to record statements or to conduct a preliminary investigation.
- 3. A formal investigation (see para 1.5.5 of this chapter).

Much useful information can be gathered at the school or club level when the inquiry is conducted by, say, the CFI or the Senior Coach who will need to understand the processes involved.

There are three stages of an investigation: gathering information, drawing conclusions and reporting.

Gathering Information

- a) Get reports from witnesses, including bystanders. Written reports can be more revealing and can be studied at leisure later. Avoid group consensus or conjecture about what happened, especially at this stage.
- b) While reports are being written, examine equipment, preferably in the state it was at the time of the incident. The initial description of the incident will help decide whether any equipment was a factor.
- c) Interview witnesses, separately, getting them to explain what they saw or heard, and only then asking questions to clarify points or draw out more information. Show respect for the help the witness is giving but do not express opinions as to the cause.
- d) Try to get information from any injured person.
- e) Always seek facts rather than opinions. Expect to hear conflicting accounts of what happened. Keep an open mind as to the cause of the incident.
- f) The 'uninformed bystander' can often be the most reliable witness as they are less likely to 'suppose, assume, imagine or pre-judge' than a knowledgeable pilot.

Drawing Conclusions

- a) Try to establish a sequence of events from the information gathered. If necessary go back to seek more information to fill in gaps or clarify points.
- b) Use the standard specific questions devised for PAI investigation as an aid to making a full appreciation of the incident (see Appendix C).
- c) Formulate conclusions as to the cause but be prepared to accept that there may be alternative causes or more than one cause. Reason out why one possible cause should be acceptable but another not doing so.
- d) List the cause(s) under one or more of the following headings: pilot error, Instructor error, launch-marshal error, training error, environmental, communications error, or equipment.
- e) Decide what needs to be done to prevent a similar incident from occurring, at the club-level and in other PAI clubs.
- f) Take action at club-level.
- g) Report your findings to the TC.

Reporting

Almost anything that causes or could have caused injury or damage, or is simply unusual or inexplicable is considered reportable. Moreover, failure to submit a PAI Incident Report Form promptly may jeopardise an instructor's legal standing and insurance cover in the event of a claim of negligence. But most importantly, the Incident Report could probably contribute to saving another pilot from injury.

PAI Reportable incidents are:

- Those involving injury, whether to participants or others.
 Those involving damage to property, whether or not it is third party.
- 3. Those in which an insurance or legal claim might arise.
- 4. Those involving the use of non-standard paragliding and paramotoring procedures or training.
- 5. Those in which equipment has broken or failed to function, or has malfunctioned.
- 6. Anything that might highlight safety points or was unusual.
- 7. Those from which the sport may learn.

The PAI Incident Report Form

A PAI Incident Report (IR) form (see Appendix A) must still be submitted even when a telephone report has been made, and the reporting timetable is important. The IR must be posted to the PAI Office within 24 hours of the incident occurring. For ease and convenience, the PAI provide a prepaid service. Every effort must be made to complete the form as fully as possible. If the information is not available, for example, about the probable length of stay in the hospital, then this should not delay the Incident Report but can be telephoned or posted to the PAI office later. Only when a PAI Board of Inquiry has been convened should the completed IR be handed to the President of the Board.

The IR is printed in A3 format and consists of several distinct parts each of which is simplified to require, wherever possible, a 'tick-in-the-box' response. A Supplement is included and must be completed where the incident occurred in a school or a similar training situation. It is important that the guidelines provided on the form are read and the steps followed - too often an Incident Report states what happened but does not suggest a cause, or in some cases gives a cause with no supporting facts. A fully completed form avoids the necessity of prolonged and expensive follow-up calls or letters which then have to be circulated so that all members of the Accident Prevention Panel may assess and analyse the information.

The Response Process

To avoid any delay or duplication of work it is essential that a procedure for responding to reported incidents is provided for the Accident Prevention Panel as a reference.

This process is detailed in Appendix B, which also contains the PAI definitions of the various categories of accidents and incidents.

1.5.4 Incident Report Analysis

The data from every IRF is entered onto the PAI Accident Database by the appointed PAI 'Investigating Officer', who also compiles a narrative report. The contents of all PAI Incident Reports are treated in confidence by officers of the PAI. Any subsequent publication of that information does not include reference to the club or persons concerned. A selection of these narrative reports will be published on the forum.

Any particular type of incident may receive more detailed analysis to uncover further facts and similarities. This usually requires further reference by the TC to each Incident Report where a fact or comment previously thought to be insignificant can prove to be the vital clue to the real cause of many incidents. Therefore, instructors and pilots should understand the importance of putting due thought and effort into completing each Incident Report comprehensively.

1.5.5 Formal investigation – PAI BOARD of INQUIRY

(subject to official approval from the Indian government)

Launching a Formal Investigation.

The coordinator of the Accident prevention and Investigation panel decides whether a formal Board of Investigation (BOI) is required and selects the Lead Investigator on the basis of his experience and training in conducting Formal Investigations and his availability.

The Lead Investigator is responsible for all further proceedings in the investigation.

Scope of work

PAI Board of Investigation may follow a specific method or may adopt a standard practice. The 'standard' practice will include investigating the accident/incident and

- a) Determining the sequence of events.
- b) Establishing, if possible, the cause or most likely cause.
- c) Where appropriate, making recommendations to the TC for the benefit of future safety in the sport.
- d) Producing a written report in the standard format for TC approval.

Although the apportioning of blame is specifically outside the purview of the investigation, where necessary the Board may bring to the attention of the TC, any serious matters arising from its investigation.

The proceedings of the Formal Investigation must be confidential until such time as the TC approves the final report.

The Formal Investigation must have proper regard for PAI's legal liability insurance and must avoid any action or public statement that may prejudice the interests of PAI insurers in handling any potential claim resulting from the incident.

The Formal Investigation Report

The Report is made to the TC which is responsible for acting upon its findings and recommendations. Each Report follows a standard layout and conforms to the following format:

- a) The front page containing the title, date and place of the incident; a summary of the incident; and the TC ratification and date.
- b) Then follows the body of the Report comprising:
- i) Factual information in which the verified facts of Personnel, Training, Equipment, Site, Conditions, and Flight (and any other area judged to be valuable) are recorded.
- ii) Analysis where the evidence is examined and evaluated; and the sequence of events determined.
- iii) Conclusions
- iv) Safety recommendations, if any

Report Stages and Publication

The Lead investigator, once all the evidence is received, analysed and assessed will, if deemed appropriate, prepare a Review Stage for circulation to all primary parties for any corrections of factual evidence. In the light of any responses, the Lead Investigator may elect to amend the Report accordingly, or include these in an Appendix.

The Final draft stage of the Report is presented to the Accident Panel for comment and onward transmission to the TC for ratification. Under normal circumstances, the Report is accepted or rejected in toto - if the TC is dissatisfied with the Report it should return the report to the Lead

Investigator or convene another investigation. The Chairman TC reserves the right, however, to call for minor amendments in content or wording without jeopardising the original Formal

Investigations Findings or Conclusions.

All originals and copies of any working documents of the Board are retained at the PAI Office together with the original, signed copy of the Formal Investigation Final Report after ratification by the TC. The final ratified report will be published on the PAI website.

In the event that investigating police requires a preliminary report, this may be prepared on the authority of and after liaison with the Chairman TC.

1.5.6 **Reportable Accidents**

Under the Civil Aviation (Investigation of Air Accidents) Regulations 1989 there is a legal obligation to report serious air accidents.

Following the PAI reporting procedures is interpreted as complying with this requirement.

Whenever there is a fatality at or in the vicinity of, and as a result of a paragliding and paramotoring event the local police must be informed at once. An effort has being initiated by PAI to contact all state and district administrations to let them know about systems and procedures devised by PAI for its members and the air sports community.

Incident Report Form Serial No.

Reportable incidents are those which:	Actions after injury or fatality:				
 Involve injury, whether to participants or others. Involve damage to property, whether 3rd party or not. May cause an insurance or legal claim. Involve the use of non-standard equipment or techniques. Involve failed or malfunctioned equipment. Highlight safety points or were unusual. You feel the sport may learn from. 	 Administer 1st Aid. Call relevant Emergency Services. Photograph or sketch the equipment - do not move or test Record names and addresses of witnesses. Have witnesses write down what they saw. Inform next of kin, or ensure that the Police do. 				
Contact telephone numbers:	WARNING III/				
Tech Officer (PG) 0000000000 Tech Officer (PM) 000000000	DO NOT ADMIT ANY FAULT OR LIABILITY.				
PAI Office 000000000 Whatsapp: 000 00000000	Failure to carry out the necessary actions and to submit an Incident Report promptly may jeopardise your legal standing and insurance cover in the event of negligence claims.				
Details of pilot injured or involved					
Name Male/Female	Age Address				
Post code Telephone (home)	(work) PAI M/ship No				
Clip in weight Intro. Certificate No.					
Ratings : P2 P3 P4 P5 Tandem TI Instructor	Date current rating attained				
Experience: Years Flying hours: Tow / Self	. Flight totals: Hours on current type :				
Time since last flown: Basic training by (tick) School Friend Self					
Name of training School	club				

Incident detail	s Date	Time	Time of arrival on site	
Name of Site		Best wind direction	Wind direction on the day	
Launch - Self:	Assisted Forward	Weather - Wind speed(mph) : 0-5	Conditions: Smooth/steady Variable	
Tow:	Reverse Power Winch Veh./boat	5-10 10-15 15-20 20-25 ,25-30 , 30 +	Gusts Thermic Turbulent	

Injuries sustained :	Person/s inju	ured -	Pilot 1	Pilot 2	2nd pi	lot(dual)	Ground crew	Course mem	ber	3rd party
Services called: 1st Aid Ambulance Police Fire Brigade Mtn Rescue Helicopter Medical: Casualty Hospital admission Name of hospital and town Equipment Glider/canopy:MakeModelSize(m2) Bought: New 2nd hand Total flying hrs Date of manufacture Certification: PG - CEN DHV LTF Registered Any modifications?(list)	Injuries sust	ained :								
Medical:CasualtyHospital admissionName of hospital and townEquipmentGlider/canopy:MakeModelSize(m2)Bought:New2nd handTotal flying hrsDate of manufactureBought:Vew2nd handTotal flying hrsDate of manufactureCertification:PG -CENDHVLTFRegisteredAny modifications?ItalItalItalItalAccessoriesEngine TypeHarness:MakeModelModelEmergency particityItalModelAgeSizeItalItalItal	Services calle	ed:	1st Aid	Ambi	ulance	Police	Fire Brigade	Mtn Rescue	He	licopter
Equipment Glider/canopy: Make Model Bought: New 2nd hand Total flying hrs Date of manufacture Certification: PG - CEN DHV LTF Registered Any modifications?(list) Accessories Harness: Make Helmet: Make Model Emergency parchute: Make Model Age Size	Medical:	Cası	ualty	Hos	pital adr	mission		Name of I	nospi	tal and town
Glider/canopy: Make Model Size(m2) Bought: New 2nd hand Total flying hrs Date of manufacture Certification: PG - CEN DHV LTF Registered Any modifications?(list) Engine Type	Equipment									
Bought: New 2nd hand Total flying hrs Date of manufacture Certification: PG - CEN DHV LTF Registered Any modifications?(list) Engine Type	Glider/canopy:			Make _			_Model		Size((m2)
Certification: PG - CEN DHV LTF Registered Any modifications?(list) Engine Type	Bought:	New	2	nd hand		Total flyi	ng hrs	Date	of m	anufacture
Any modifications?(list) AccessoriesEngine Type Harness: Make Helmet: Make Model Emergency parachute: Make Model Age Size	Certification: P	۶G -	CEN	DHV	LTF	Registe	ered			
Accessories Engine Type Harness: Make Helmet: Make Model Emergency parachute: Make Model Age Size	Any modification	ons?(lis	t)							
Harness: MakeHelmet: MakeModelEmergency parachute: MakeModelAgeSize	Accessories				I	Engine Typ	oe			
Emergency parachute: Make Model Age Size	Harness: Make			Helm	et: Make		Mode	el		
	Emergency par	rachute	: Make			Mode	el Age	Size		

Appendix B PROCEDURES FOR RESPONDING TO INCIDENT REPORTS

If any responsible officer hears of, witnesses or has an incident reported to them, first obtain as much information on the incident as possible, write it down and remind the person reporting it to complete an Incident Report form (IR form) within 48 hours of the incident, using the link on the PAI's website. If they do not have access to the online IR form take the name and contact details so that a member of the PAI technical team can telephone them and submit the IR form on their behalf. Depending upon the Category Classification (see the list attached to this Appendix), take the appropriate action:

1. Fatal or Serious Accidents

Call the 'primary contact' or one of the TC members immediately. If unsuccessful, try each of the other listed investigators. Pass on the information - they will then take over the responsibility for further action and pursue the matter. Names and telephone numbers are listed on the PAI's website.

2. Minor Accidents

Ensure that an IR form has been submitted online within 48 hours of the incident.

3. Incidents

Treat as a Minor Accident unless there is a good reason for greater urgency.

4. Air proximity

All Airproxes are to be reported IMMEDIATELY to the Association's Airspace Officer who will advise and assist in submitting a formal report if necessary - a PAI Incident

Report must also be submitted UNDER ALL CIRCUMSTANCES.

- a) If involving aero models then no AIRPROX is to be filed but a PAI Incident Report form is to be submitted this will be sent to the relevant aeromodelling association.
- b) If involving a glider, microlight aircraft or powered aeroplane it is to be reported by telephone immediately after landing to the local Air Traffic Control or WSO

If the identity of the conflicting aircraft is uncertain WSO can use radar tracing techniques if the report is made quickly. A written report can also be submitted by email.

INTERNAL PROCEDURES

Once an initial report has been received by any investigator or member of the Technical Committee, the following procedures will be followed:

1. Alert the Panel coordinator or a senior investigator and:

- a) Decide who will take what action in the following areas:
 - i) the level of investigation necessary
 - ii) liaison with the local police authorities:-
 - ii) media liaison inform the PAI President and agree a statement for release.
- b) Agree on the constitution of any investigation team.
- c) Ensure the involvement of any other relevant Panel (Airworthiness, Airspace etc.)d) Inform the Chairman TC if necessary.
- 2. If necessary record the details (or leave a message) in the Panel coordinator's IR log.
- 3. Circulate brief details to the remainder of the Accident Investigation and Analysis Panel.

PAI ACCIDENT CATEGORIES - DEFINITIONS

SERIOUS - Category 'S'

An accident resulting in the death or serious injury to the pilot or other person(s); or in which the glider suffered major failure or was otherwise severely damaged whilst the pilot was attached.

MINOR - Category 'M'

An accident in which the pilot or other person(s) received only slight injuries and/or the glider received only minor damage.

INCIDENT - Category 'I'

An occurrence, often of a technical nature, which, in less favorable circumstances might have led to an accident, and about which information should be circulated.

AIRPROX - Category 'A'

A situation in which, in the opinion of a pilot or controller, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved was or may have been compromised.

SUMMARY OF DEFINITIONS

Accident - An occurrence, in which a person is fatally or seriously injured as a result of being in, or being struck by, an aircraft. Or:

The aircraft sustains damage or structural failure, (except for engine failure or damage which is limited to the engine or propeller).

Fatal Injury - An injury sustained by a person in an accident which results in his/her death within thirty days of that accident.

Serious Injury - Injury sustained by a person in an accident which:

- a) requires hospitalisation for 48 hours or more.
- b) results in the fracture of any bone, except simple fractures of fingers, toes or nose.
- c) involves severe hemorrhage, nerve, muscle or tendon damage.
- d) involves injury to any internal organ.
- e) involves second or third degree burns.

Minor Injury - Any injury of less severity than those categorised as Serious.

Incident - An occurrence, other than an accident, associated with the operation of an aircraft, which affects or would affect the safety of operation.

Serious Incident - An incident involving circumstances indicating that an accident nearly occurred.

Appendix C

PAI BOARD OF INQUIRY

Requirement: A Board of Inquiry is required to investigate the following fatal accident:

Name:	
Site:	

School/Club: Date:

Members of the Board: President:

Member:

Purpose: The Board is required to investigate report and comment on the circumstances of the incident and thereby:-

1. Determine the sequence of events.

- 2. Establish, if possible, the cause or most likely cause of the incident.
- 3. Answer the standard and specific questions listed below.
- 4. Where appropriate, make recommendations to the Flying and Safety Committee (TC) of the PAI for the benefit of future safety within the sport.

Standard Questions:

- a) Was any PAI Mandatory Safety Requirement contravened and did this contribute to the incident?
- b) Was any operating procedure used different from those contained in the PAI Technical Manual, or within the Boards own experience; was it reasonable, and did it contribute to the incident?
- c) Was there any equipment failure or cause contributing to the incident?
- d) Was there any human-factor psychological cause contributing to the incident?
- e) Was there any physical or physiological cause contributing to the incident?
- f) Was there an environmental condition which contributed to the incident or severity of the injury?
- g) Did any training or lack of training contribute to the incident?
- h) Was the cause or were the circumstances similar to any previous accident or incident reported to the TC or known to the Board?

Specific questions:

a)

After ratification by the TC copies of the Board's Report are to be sent to the Department of Air Accident Investigation if any and to Local Police if required.

PROCEDURES FOR THE DISTRIBUTION OF BOARD OF INQUIRY REPORTS

Preliminary information

When a Board of Inquiry is convened the coordinator of the Accident Prevention and Medical Panel is to instruct the PAI Office Administrator to open a file as necessary. The coordinator is to ensure that the President and Members of the Board receive copies of the Terms of Reference, Witness Statement blanks, and that, where necessary, the Investigation Pack is made available.

The President of the Board is to ensure that a copy of all report-stages is lodged in the file in the PAI office. He is to ensure that the Final Report is produced in standard format by the office for presentation to the TC, and on ratification is to instruct the Administrator to distribute copies as defined in section 1.5.5.

THE REPORT STAGES

Internal draft report

This stage is confidential to the President and members of the Board and will be circulated as the President determines. It is to be clearly marked on the title page as "**First/Second/Third Draft**" as appropriate and the date is to be shown.

Review Stage Report

When the Board is satisfied that it has completed its investigations, a further draft is produced (clearly dated and marked on the title page as "**Review Stage**") and copied (less the evidential documentation) to those 'primary parties' who were directly involved in the accident or incident.

It is to be made clear in the standard covering letter to the primary parties that:

- a) The purpose of providing this draft is to seek corrections of fact.
- b) Any opinion they may wish to express will not form part of the Final Report but may be attached to it in a manner decided by the President of the Board.
- c) The Review Stage remains confidential to them and the Board and should not be circulated further.

Final Report

The final report is prepared and presented for ratification by the TC. It is to be accompanied by a letter stating that any TC member wishing for clarification on the contents is to discuss it with the President of the Board, prior to the TC meeting. Subject to any minor amendment by the Committee, it may then be released to the primary parties and those authorities indicated in section 1.5.5 of this Chapter. The date of ratification is to be clearly shown on the title page, and a

formal response by the TC accompanied by any other relevant documents (such as Safety Notices) is to be attached.

In the event that police requires a preliminary report this may be prepared on the authority and after liaison with the Chairman TC.

Appendix SAMPLE ONLY

Questions devised for PAI investigation

Narrative report

1. Please write clearly, preferably in black ink. 2. State briefly what happened before, during and after incident

3. Provide photos/ sketches 4. Give your comments, conclusions and follow-up actions

5. Include relevant comments of witnesses/participants6. Send to the BHPA office within 48 hours, or

7. If a Board of Inquiry is convened, retain it and hand to the President.

What led up to the incident?

What was the student/pilot briefed to do (or what did he say he would do)?

What happened after the incident? (include relevant medical diagnosis)

Describe the incident:

Have you completed the report as fully as possible? Then print your name, sign and date it.

Name

Signed

Date

Instructor/pilot's opinions:	nstructor/pilot's opinions: What do you think was the cause?			
When did flight/tow start to go wrong?	715		Primary	Secondary
1. On take-off		1. Inexperience		
2. During the tow		2. High/low wind		
3. During free flight		3. Turbulence		
4. On approach	 	4. Stall/tuck		
5. On landing		5. Confusion/froze		
6. Other (describe		6.		
below)		Carelessness/overconfide		
		nce		
		7. Equipment		
	- [8. Poor lookout		
		9. Overcrowding		
	-1 [10. Other		
	┛║╽	(describe here->)		

Appendix SAMPLE ONLY - DO NOT USE

Additional information	Name		Membership no.
Details of person submitting the report if different from	Address		
front cover			
Names & add of witnesses			
1			
2			
Details of damage to	Glider/canopy		
	Property		
Names and addresses of 3rd party(ies)			
In your opinion is an insurance	claim likely? No	Yes	Don't know

Office use only	I.O. assessment :			
Injury category	Nil SL (treatment req'd)	SV (hospitalised)	F (fatal)	Cause :
Rec'd:	Ack'd: PAI - IR month/year			

Appendix - SAMPLE ONLY

Supplement to Incident Report - For School and Tow-Based Incidents

In the event of any incident or accident at a PAI registered school or tow-group this supplementary form is to be completed, attached to the Incident Report form and posted to the PAI office within 48 hours. If a Board of Inquiry is convened then it is to be handed to the President of the Board on his arrival.

Severe incidents/accidents are to be reported by telephone first.

	Operational details						
	Name of School/Tow Based Club						
	At the time of the incident:						
	Who was the duty	y Instructor/Instru	uctor in charge?				
	Who was supervising the 'incident' group? Who was driving/operating the tow unit?			What ratings are held? What ratings are held?			
Was a separate tensio reader carried? Was a separate observer available? Was an anchorman used?							
	What length tow line was used?			What material?			
	What types of communications were used? What training aids were used? How many students were being trained?						
	How many students were in the 'incident' group?						
	What was the student's previous training exercise?						
	No. of flights on the previous exercise? On what date Details of the student's two most recent theory sessions:						
	Subject	Duration	Venue (outdoors/vehic	cle/c'room)	Name of Tutor	Date	

1								
2								
Student's Tra	ining hi	story	Name of stuc	lent				
What type of co Intro S	ourse was P/EPC	s he/she o CP/CPC	n: Refresher	Soaring	ХС	RFM*	Other	
Previous School	l attende	d (if any)						
No. of days on this course Total no. of training days								
A brief on his fly	ying histo	ory:						
Performance to	date:	Рос	or Fair	Good	Outstanding	Inco	nsistent	
* RFM = Radical flight maneuvers								
PAI - IR 09/93.supp								

Appendix SAMPLE PRIMARY CONTACT RECORD LOG

Name of recorder			Date of record
Name of reporter			Tel. No.
Name of injured party			Date of incident
Incident site			Discipline
Nature of injury/damage			
Actions taken:	Contact	Date	Notes
Panel Co-coordinator			
Tech Staff (1)			
Tech Staff (2)			
Office			
PRO			
Police (Name, address & Tel)			
Press			
Any other information			

SECTION 1 POLICIES Chapter 6 DISCIPLINARY PROCEDURES

1.6.1 Introduction 1.6.2 Disciplinary Procedures	1.6.3 Appeals Procedure

1.6.1 Introduction

PAI has no role to play when it comes to policing the sport at national, state or district level. Local administration which gives clearance for conducting the activity should be looking into this. PAI will provide all the support as a national body.

To help the its members & community as well as the state and district level administration PAI has made rules and regulations, published various safety guidelines and devised a skill level rating system with an aim to minimise the risks and accidents. All this can be adopted by the state or district level administration while granting permissions and delegating the responsibilities to local operators under their jurisdiction.

The sport has inherent risks associated with it for participants and, therefore, certain safety and training safeguards are essential which the clubs, instructors and pilots must comply with, to minimise the risks. Any witnessed dangerous behaviour of a PAI-associate can be reported to the PAI office bearers. In case some pilots or instructors do not act in consonance with the air rules or PAI rules (teaching without affiliation, flying tandem dangerously, flying tandem without use of safety gear etc.), PAI's Accident Prevention and Investigation panel will investigate, try to make corrections and, if necessary, impose sanctions. There are also Association policies that are necessary to promote good relations within the sport and with outside agencies. Any club or member which/who contravenes these safeguards or policies may be subject to disciplinary processes. In keeping with current conventions, the Association has defined a set of procedures to ensure an objective and fair approach.

Authenticity Check

In order to prevent any fraud and misuse of PAI membership-card and rating, PAI has a QR code printed on the card which will take you to the member-search on the PAI website. You can enter the last four digits of the membership number to check the validity of the membership card as well as the rating and other details.

1.6.2 Disciplinary Procedures

In the event of a breach of PAI Rules and Regulations, disciplinary action may be taken against individual members, schools or against the clubs/associations. When action is taken against a PAI affiliated school, it is the CFI who is normally required to represent the school.

The procedure followed depends on whether in the opinion of the Chairman TC (or Technical Officers operating under his delegated authority) the breach is minor, serious or extreme:

- **A.** Minor breaches are dealt with by the member/school CFI concerned being given written notice detailing:
- 1. The areas of concern.
- 2. A timescale by which improvements must be in place.
- 3. The fact that disciplinary action(s) will follow in the event of non-compliance.

If, within the stated period, no response is received or the concerns are ignored or not addressed to its satisfaction then the TC will regard the matter as a serious breach.

B. For serious breaches the member/school CFI concerned will be sent a written invitation to attend a TC meeting which will set out the areas of concern to be discussed. One more person may accompany the member/school CFI at the hearing.

If, as a result of these discussions, the TC decide that disciplinary sanctions and/or remedial actions are appropriate, the member/school CFI will be informed at that meeting of the TC's decision - which, in the case of:

- 1. Individual members may include withdrawal of qualification or other sanctions.
- 2. Schools may include a financial penalty, a temporary suspension of registration or a permanent withdrawal of registration.

- a) Confirm its decision in writing, listing any penalties, remedial actions and drawing attention to the Appeals Process.
- b) Inform, as necessary, any other member(s) who may be affected by the action.
- c) Report the facts (at the discretion of the Chairman TC).

The member/School will have the right of appeal under paragraph 1.6.3 below

- **C.** In extremis, PAI Technical Staff, TC members, Exec members and Examiners may suspend qualifications/registration on the spot with immediate effect. When this is the case, the procedure laid out under B (serious breaches) above will apply, but with the following additional preliminary steps:
- 1. The member/School CFI will immediately be informed verbally as to the reason for suspension and be made aware of the meaning and consequences of the suspension.
- 2. This will be followed as quickly as possible by confirmation in writing from the Chairman TC.

NOTE: If there are implications that significantly affect school or club members, the TC will write to those members and keep them informed.

Qualification/Registration re-instatement

Following the disciplinary action, a qualification/registration may be reinstated provided that all normal criteria and the additional conditions set out by the TC and confirmed in writing have been met.

1.6.3 Appeals Procedure

Any School or member subjected to disciplinary action has the right of appeal to the Managing Committee, which may appoint an independent tribunal to consider the issue. Appeals must be submitted in writing to the Chairman of the Managing Committee within 28 days of receiving formal notice of the penalty or penalties imposed.

- Any person or PAI member who witnesses dangerous behaviour of a pilot can send a complaint with PAI.

- In case some pilots or instructors do not act properly regarding the air rules or PAI rules (teaching without certification, flying tandem dangerously, flying tandem without use of safety gear), the PAI has a panel that will investigate, try to make corrections and, if necessary, impose sanctions.

SECTION 2 OPERATING PROCEDURES Chapter 1 HILL LAUNCHED PARAGLIDING

2.1.1 Introduction2.1.5 Instruction in schools2.1.2 Sites2.1.7 Student Notes2.1.3 Equipment2.1.6 Training Techniques2.1.4 Training Facilities2.1.8 Video Sessions

2.1.1 Introduction

The PAI recommends getting introduced to the sport of paragliding through a professional Instructor - either at a well organised school or by a qualified individual instructor or coach. The PAI does not encourage self-learning or getting lessons from non-registered operators. Thus, it is very important for PAI affiliated schools and instructors to match the expectations reflected in this Technical Manual.

After getting introduced to the sport and before deciding to take the sport as a serious hobby or profession, a prospective PG pilot is expected to do some study and research and the instructor is expected to provide proper guidance.

Developments and techniques in this field have resulted in a greater self-responsibility being placed on the competent PG pilot, whilst that of the Instructor has reduced to the point where, on completion of training, little or no supervisory presence is required. The PG pilot will carry out many of the pre-launch functions which in other disciplines are completed by support crews; and the all-important assessment of flying conditions and associated techniques will be made by the pilot in relative isolation.

This individual-shouldered responsibility aspect requires a concentration and application of training skills for which the pilot must be prepared during the training stages by the professional Instructor.

This section will focus on identifying those operating areas and techniques with which an Instructor will need to be familiar in order to properly prepare the trainee pilot.

NOTE: The Instructor should also refer to Section 1 Chapter 4 for information on Recommended Practices and Safety Requirements

2.1.2 **Sites**

The choice of site will be affected by several factors:

- a) If it is in regulated air space, the requisite permissions must be obtained.
- b) The local schools and clubs are expected to form their own guidelines, prior to registering the site with the PAI.
- c) Local rules or laws shall be binding on everyone who wishes to fly on that particular site (memberships, hiring services of locals if necessary, leave no trace etc.).
- d) Site-sharing requires effective and constant liaison with other users.
- e) Every site (including landing areas) should be surveyed for potential hazards ground and air obstacles (e.g. trees, rocks, significant areas of water; power lines, localised turbulence, proximity of other airborne craft).
- f) Where the public have access to a tow-launch site, a board: "WARNING TOW CABLES," should be displayed prominently.

The **launch-zone** should be chosen with the following points in mind:

- 1. There should be sufficient clear ground in the immediate vicinity to:
 - i. Allow the glider to get safely airborne.
 - ii. Minimise the danger in the event of an emergency-on or shortly after take-off. This includes an abort-space to the front, sufficient 'blow-back' space, and clearance to either side in case of side-slip or rotation.
- iii. Allow other pilots to make their gliders ready for flight.
- 2. The ground surface ideally should be soft; grass or sand is better than concrete or rock.
- 3. In tow-operations the launch point must be visible from the tow-unit so that all signals can be seen and the tow-unit operator can observe the glider during the inflation process.
- 4. The "parking" for members' and visitors' cars and equipment should be situated at a safe distance from the launch point.
- 5. The proximity and the effect of the sport upon other users of the site and passersby (e.g. cars on a nearby road; horse riders) should be considered.
- 6. The orientation or direction of the launch should be as near as possible into the wind.
- 7. It should be appropriate to the level of training or competency of the student or the pilot.

The **landing zone** should be chosen with the following points in mind:

- 1. It should be of suitable size; both for the level of student or pilot competency and the intended exercise.
- 2. It should be clearly defined; where an alternative landing area is available, it too, should be clearly marked.
- 3. It should be suitable for the identified wind directions, and the approaches should be hazard-free.
- 4. It should not be prone to turbulent effects.
- 5. Where appropriate, it should be clearly visible to a tow-unit driver practising controlled descents.
- 6. To avoid congestion, pilots should be able to clear the landing area quickly and easily.

If there are more than one school or operator using the same site, a *site Incharge* may be appointed on a daily basis who is responsible for taking the lead, allocating duties to other Instructors, and maintaining overall control (especially of the operations and the site). This is necessary to anticipate and prevent confusion, thus minimising the possibility of unsafe procedures which might lead to incidents or accidents. The *site Incharge* should be identified to students and pilots, who will gain confidence from, and respond to the presence of this authority.

Attention should be paid to the effect which the smallest obstacle (e.g. twigs, small shrubs, rocks) can have in a 'committed' situation. Just as important is the danger of a small ditch or spectator to the pilot whose concentration is fixed on the canopy above his head. It is also worth noting that the self-launched situation has certain additional needs such as a 'nursery' slope and access to intermediate and advanced sites.

The Instructor must also initiate the student in the skill of site assessment, selection and use; paying particular attention to the importance of seeking advice and guidance from local pilots before flying unfamiliar sites. The PAI certification and rating system takes care of this requirement.

The nursery slope

The foundation and early techniques are best learned on a slope which is neither too steep nor hazardous - the bottom slope of a hill is usually chosen to limit the possibility of student error and/or injury. Instructors should be satisfied with the student's ability to control the paraglider, particularly on take-off and landing, before allowing attempts at higher take-offs.

Progressive sites

For advance training and skill development for the student to be progressively trained in more advanced techniques, access is required to, for instance, ridge sites which are needed for 'ridgesoaring' practice and slope-landings. The Instructor will need to introduce the student to more demanding sites and conditions to fully prepare them for progressing towards thermalling and cross-country flights.

2.1.3 Equipment

The regular and careful inspection of the equipment is essential for the continuing safety of the students and the pilots, alike.

In addition to regular periodic checks on an annual or seasonal basis, all equipment should be given a thoroughly detailed Daily Inspection at the start of the flying day. This should not be confused with the Pre-Flight Check which is carried out by the student or pilot just prior to take-off and which is described in the Appendix C of this chapter.

Checking all the equipment brought onto the site avoids the danger of overlooking a glider which, although not immediately required, might be brought into service later in the day. In a training situation, it is the Instructor's responsibility to ensure that these inspections are carried out although experienced pilots are expected to be responsible for their personal equipment and perform daily inspection and pre-flight checks, themselves.

Unserviceable gliders should be marked with the red tag to ensure that they are not used until they have been repaired. These tags are not to be removed by any person other than a CFI or a qualified rigger.

Gliders

All pilots are expected to fly only certificated paragliders. 'Certificated' means tested to an approved standard by a body acceptable to the PAI.
School gliders

- a. All paraglider canopies used in schools must be certified and carry a sail-badge, label or sticker confirming this. For paragliders, DHV or CEN/AFNOR or LTF or EN is recognised.
- b. All gliders used in schools must be clearly marked with the weight limits ('total weight in flight' for paragliders). These limits must be adhered to.
- c. Instructors must ensure that the glider in use is suitable for the training exercise being attempted.
- d. All gliders in use must be maintained in an airworthy condition. Any damage that occurs must be rectified before further use.
- e. Modifications to gliders, however slight, must have the written approval of the manufacturer.
- f. A student may use his own glider within a school providing all the above criteria are met. The CFI is responsible for checking this compliance.

Protective Head and Foot Wear

The School should ensure that suitable and properly fitting protective headgear and suitable footwear is worn. Helmets used by student must conform to CE EN 966. For Indian motorcycle helmets, the ISI certificate is a must.

A simple way to check for fit (which all students should be taught) is to don and fasten the chin strap; look over the shoulder and check the helmet doesn't impede the movement. Looking forward, shake the head from side to side and make sure the helmet stays firm. Finally tilt the head forward, place a hand under the back of the helmet and push up – the helmet should remain firmly in place.

Footwear should provide firm sole and ankle protection; lacing hooks should be avoided or taped over to prevent the danger of entanglement.

When paragliding tandem-flying is intended, there is a possible danger that the pilot-in-charge could suffer facial injury when, after an awkward landing, the face comes into contact with the passenger's helmet. It is, therefore, strongly recommended that the pilot-in-charge wear a suitable full face-helmet to afford better protection.

Dress - Should be suitable for the planned exercise, bearing in mind the environment and weather; something that can offer some protection is better than a pair of jeans etc. Knee-guards, elbow-guards and gloves will add to the protection.

Harnesses (paraglider)

There are, usually, two sets of straps to secure on a paragliding harness - the chest strap and the leg straps. There have been instances of the canopy inflating in the period (however, short) between fastening each set and of injuries being sustained. The choice rests between:

- a) Fastening chest straps first in which case, if the canopy thereafter inflates, the chest strap can be pulled up and under the pilot's throat, and he is pulled-over on to his back with considerable force. In the worst case, that of high performance paragliders, the pilot might become airborne in a strangulated position and be unable to reach the controls.
- b) On the other hand, if the leg-straps are fastened and an inflation occurs then the force acting on the thighs will jack-knife the pilot backwards; he will however, be in a better position to reach the controls.

Note: The risk is less in b) and so the recommendation is that the leg straps should be secured first. Conversely, they should be unfastened last when taking the harness off.

Harness – Tandem

During tandem-flights, there is a particular danger when fitting both pilots into their harnesses when 'spreader' bars are used and a reverse launch is used. As both rigging and spreaders must be crossed, it is essential that both are crossed the same way. So as to reduce the risk of confusion, the following sequence is strongly recommended:

- a) Harnesses on.
- b) Spreaders fitted to the student (if not already attached).
- c) Spreaders fitted to the pilot-in-charge.
- d) Canopy fitted to the spreaders ensuring that both pilots are facing forward.

First Aid

The School is responsible for the provision of adequate First-Aid arrangement at the site used. An Incident Book should be kept and all accidents to students recorded - in addition to submitting a PAI Incident Report form.

A good simulator or suspended harness systems for paragliding training are recommended.

Wind Meter

A suitable wind-speed measuring device should be introduced to students and used whenever appropriate, to measure wind speed.

Wind-socks and Streamers

One or more wind-socks or streamers should be available especially during early training. For hill-training a wind-sock must be positioned in the landing-area, identified to the students, and its purpose explained.

In addition, the Instructor must ensure that the pupil is given thorough training in the detailed inspection and maintenance of what will ultimately be an expensive and personal possession. The student (whether Student-Pilot or Club-Pilot) must be made to understand the importance of selecting a paraglider which conforms to accepted standards and which also matches both the ability and the size of the pilot. An introduction should be given on the various enhancements and modifications found on harnesses and paragliders; the use of instruments (both legal minimum and advisory) should be explained and, if possible, demonstrated; and a thorough knowledge of emergency equipment, particularly reserve parachutes, is necessary. All these areas should form a part of the training which an Instructor provides above and beyond the Training Program.

Particular attention should be paid to explanations and demonstrations of advanced flying techniques such as 'big-ears' (deliberately collapsing outer cell sections to reduce glide-angle), or 'B-risering' (pulling down the relevant riser to induce a controlled-stall condition).

By providing this comprehensive foundation, the Instructor will be secure in the knowledge that the pupil will be a competent and proficient pilot.

2.1.4 Training Facilities

Instructors should also refer to syllabi and Training Exercises contained in Section 3 Chapter 1.

Classroom

To give proper theoretical instruction, Schools should have access to and use a classroom in which full use of visual aids is made.

Wherever possible, a classroom should be equipped with a range of resources:-

- i. Black/white board and/or flip chart.
- ii. A computer or television for screening training videos.

iii. Models, posters, drawings, current charts, photographs etc. should be used and displayed to enrich the learning environment.

The Schools are expected to have detailed information about the courses/ training programs conducted by them, supported by a syllabus, notes and theory exam to issue training certificates and rating.

2.1.5 Instruction in schools

Training is carried out in strict accordance with the specific Student Training Program as given in Section 3 Chapter 2. Instructors should also take note of the following points:

Supervision - Students should, at all times, be under qualified supervision; this will range from the Day 1 situation of 'very close supervision' through to near-CP rating of 'watchful attention'. Very close supervision means that the instructor is in direct audio/visual contact with the student - they are close enough for there to be no misunderstanding as to what is intended and, in case of problems, the necessary corrective actions can be taken. Watchful attention means the instructor knows what the student intends, has assessed it as reasonable, and is observing the task so as to be able to debrief effectively and, where appropriate, sign off the task.

Explanation by the	
Instructor	This is the most
Demonstration by the	effective tool in the
Instructor	Instructor's should put in
Practice by the student	practice
Feedback	•

As a general guide for practical tasks, the student should complete at least three consecutively satisfactory flights to demonstrate competency in a particular skill (controlled 90° turns for instance).

Fitness - Instructors have a duty of care which includes assessing the student for fitness to undertake any part of the training. They should continually assess students for fatigue, particularly in the early stages when bottom landings are likely or when weather extremes may accelerate the effects.

Instructors should also bear in mind that fatique can also affect Tandem-Pilots.

Communications - Students must receive a thorough briefing on the method of communications which will be used during the exercises. Whether verbal, radio or semaphore, instructions or directions must be simple and not likely to be misunderstood. In the early stages, when direct briefings or instructions are usual, the student should always be asked to repeat them back to the Instructor. As students become more proficient, the briefings should become increasingly discursive (e.g. "What do you think you should be doing next?"). The student should always be debriefed after landing, in the manner of "What did we agree you would do?": "What did you actually do?" and, if there is an error "Why do you think you did (or did not do) that?"

Sequential checks

There are numerous instances of incidents occurring after a sequence has been interrupted, then continued but with a point missed out. Students (and Instructors) should be constantly reminded that once a sequence has started, it should be completed without interruption. If necessary, it should be repeated from the beginning.

Balanced Instruction

- a. Students attend schools with a narrow view: They wish to be taught how to fly gliders. But, in addition to the practical skills involved, a student must have a sound theoretical knowledge - if they are to achieve a complete understanding.
- b. Some schools tend to lecture new students for the first half of their first day which can involve 2 to 3 hours of theory (classroom). Other schools initiate their students with basic practical training as early as possible, and then introduce them to theory on an 'as required' basis. The latter approach gives the students something to which they can relate and is by far:
 - i. ii. The most practical and effective (weather permitting).
 - The most interesting and rewarding for the student.
 - iii. The more constructive method of teaching.
- c. The structure of the first day depends upon the type of discipline but, in any event, should be flexible.
 - i. If weather conditions are suitable, students should be introduced to the gliders and start ground handling, as quickly as possible. A short 30 minute basic theory session could be appropriate, if not too much time has been absorbed in administration and introductions. Theory, thereafter, should be carefully controlled to ensure that it is introduced at the most appropriate time. This could save the schools from having to cancel a part of their courses due to inclement weather.
 - ii. If the weather on the first morning is unsuitable for practical work, then an introduction to theory and video session can be made - provided it is kept within reasonable bounds and not allowed to become boring.

Bad-Weather Program

Schools are encouraged to compile a program of attractive activities for students to take advantage of, when poor weather prevents further training.

Training Programs

Experience built up over many years has resulted in the Student Training Programs listed in Section 3. Student safety is paramount and depends upon following this planned and progressive series of exercises. These are the building blocks of the sport - before a student is awarded any rating the CFI must be satisfied that all aspects of the program, including theory, have been properly and fully covered and that the student has been tested and has successfully completed all the requirements.

Part-Trained Students

The PAI schools may be attended by students who have undertaken some training within other schools. To prevent unnecessary repetition, students who have recently completed such training need not repeat exercises already carried out, provided that the experience was reasonably current and the procedure below is followed:

1. The student must provide the PAI Instructor with satisfactory evidence of attendance at another school, and of the standard achieved (e.g. relevant rating, log book).

- The student and PAI Instructor must clarify the extent of the student's previous training by signing the Student Training Record booklets only where an exercise was completed in full. (The 'Exercise x completed satisfactorily' line should be mentioned with another school name and country.)
- 3. Starting from exercise one, any exercise not completed (or not fully completed) should be thoroughly reviewed and completed satisfactorily (and the Student Training Record Booklets signed) before any new exercises are introduced.

NB. Students trained in foreign schools will usually be unfamiliar with the Indian flying environment (hills size, wind pattern). It is essential that Instructors anticipate and address these gaps in the student's knowledge / ability. Irrespective of all the above, when practical training commences, Instructors should carefully gauge the student's true ability by setting and monitoring how well they perform simple basic exercises.

Invigilation of examination papers

Schools (and clubs) should have suitable facilities to allow students and pilots to remain undisturbed whilst an examination paper is attempted. CFIs and Senior Coaches should make every effort to maintain the integrity of the scheme by briefing invigilating officers (Instructors, Coaches and Safety Officers) accordingly.

Special Training Techniques

Certain skills and techniques have been derived over many years of experience and a standard approach or method of application agreed upon, and where this is evident Instructors should follow the standard method as indicated. An example of this is the Parachute Landing Fall (PLF) or Landing Roll; and procedures for tree and water landings. These have been adapted to suit the sport in its various disciplines and have been found to be extremely effective.

Landing emergencies

Students should be trained to make every effort to avoid the following situations, but it is accepted that emergencies will arise and all students should be made aware of the following procedures. It must be stressed to the student, however, that every scenario is different and instructors should discuss with the student the problems, the variables and the options which might be open to them.

Tree-landings

Instructors should stress that falling out of the tree is the greatest danger. If a tree landing is inevitable, aim the glider squarely at a large one if possible and try to ensure firm contact. It is advisable to point the closed legs and try to crash through to the center trunk and, having found a firm footing, hang on. Crossing the legs may help protect the groin, and placing an arm across the face will protect the eyes. DO NOT TRY TO CLIMB DOWN; make sure the glider cannot drag you off your perch - and await rescue.

Water-landings - paragliders

Instructors must stress the probability, except within the most strictly controlled environment, that a water-landing is not survivable and must be avoided at all costs. Pilots should, if flying near water, make sure that a safe dry landing is within easy reach at all times.

If, however, it is impossible to make a dry-landing (even with the risk of injury) then, the real danger lies in the potential for entanglement with the paraglider suspension lines. It is, therefore, imperative to get clear of the paraglider as quickly as possible. On approach, sit well back and unclip the chest-strap and loosen the leg-straps. On entering the water, release the leg-straps (or riser-to-harness connectors) and FLOAT clear with the minimum of movement. If an inflatable life jacket is worn, it should be inflated.

If a modern seat-harness is worn, then sit well back and unfasten the chest and leg-straps; continue to lean back in the seat; just before entering the water draw the elbows well in and tuck the head down. As the feet hit the water, allow the body to roll forward out of the harness, which should then be dragged clear by the still-flying canopy. Float clear with the minimum of movement. If an inflatable life jacket is worn, it should be inflated.

Depending on the type of paraglider, it should be controlled to land as far away as possible; this keeps the suspension lines taut and away from you.

It is not advisable to drop from the paraglider before impact - it is often difficult to assess height above water, especially if it is calm.

2.1.6 Training techniques

Instructors should also refer to Syllabi and Training Exercises contained in Section 3 Chapter 1.

The Pre-flight check - This is carried out immediately before take-off and consists of the last minute safety checks. See Appendix C of this section.

Take-off - The Instructor must explain the importance of a committed launch run; keeping the wing constantly loaded; and achieving flying speed as quickly as possible. Demonstrations followed by student practice will prove the points.

Instructors will also need to demonstrate to the students how to make themselves safely comfortable in the harness once they are well clear of the ground, preferably by using a simulator or showing a video clip.

Canopy inflation - The process of preparing the paraglider for launch should be explained and both forward and reverse inflation methods explained and demonstrated. It is explained that the choice between the two is dependent upon the flying speed of the paraglider in conjunction with the wind speed. If the wind speed is such that, after inflating and launching the canopy, the student would have to keep moving forward to keep the canopy overhead, then a forward launch is chosen. If the wind speed were higher, then a reverse launch would be used.

The forward Alpine launch - for use at lower wind speeds

The canopy is laid on its upper/top surface with the trailing edge into the wind; the student faces away from the canopy (into the wind); the controls are held as if in flight (the front-risers may need holding in the hands, too) with the rear-risers draped over the forearms or shoulders. The suspension-lines should be resting on the canopy fabric to reduce the likelihood of fouling, and a pace or two taken back to slacken the lines.

A check is carried out to make sure the airspace is clear.

A strong, smooth run - looking ahead with the body leaning forwards until the canopy is felt overhead; the front risers are released - at no time should the risers be pulled down or pushed forward. It is important to get the student using body power and not arm power during this initial inflation and launch stage, and that it is maintained throughout the run until the student is airborne.

The canopy can now be checked to make sure that all the cells are inflated and there are no linetangles; deflated-cells can be re-inflated by giving a sharp pumping action on the relevant control – paragliders must not be launched with collapsed cells. A final check on lines and airspace is carried out just before the paragliders lifts off.

The reverse launch - for use at higher wind speeds

The canopy is laid facing into the wind on its upper surface, but with an even arc from wing-tip to wing-tip. The student, in harness and facing into wind, lifts one set of risers and turns underneath them to face the canopy. The risers are now crossed - the importance of noting which way they cross must be stressed. About 1 metre of each control line, plus the corresponding front riser, is taken in each hand without putting any tension on them.

The front-risers are then pulled gently to lift the canopy in the shape of a wall; this is done in stages to ensure a smooth 'build' and allow the student to correct any unevenness. If it lifts too quickly, the student can pull in some control line or walk towards it and let off the tension.

The aim should be to keep the center of the 'wall' higher than the tips - when the 'wall' is about 3 feet high and firm and level, then a good pull on the front-risers should lift it cleanly into a position overhead.

Whilst the canopy is lifting, the student maintains control, checking for line-tangles and keeping the canopy stable. Now the student can turn to face into the wind, but the transition must be smooth - the method depends upon the paraglider and wind conditions and the various methods should be demonstrated for clarity. It is here that noting which way the original 'cross' was made helps; the turn must be completed without the student getting tangled or strangled, so it is crucial that he turn the right way and change-over controls correctly.

A final check on lines and airspace

Gentle pressure on the controls should now lift the paraglider cleanly away.

Safe flight considerations - A pilot should always be aware of his height above the ground and his position relative to the ground and other air users in the vicinity. A thorough knowledge, application of and compliance with the Rules of the Air and particularly those for Collision Avoidance are essential. The Instructor must take every opportunity to instill these skills and awareness into students at all times by, for instance, allowing them to watch other pilots and analyse their flying.

Emergencies - Flexible paragliders are prone to tucks and cell-closures and Instructors must explain the factors, causes and effects of invisible things like porosity, turbulence, rotors, vortices and eddies - to name but a few. More importantly, the student must be equipped with the skill to recognise the symptom and react rapidly to recover from a threatening situation. Some of the unstable maneuvers called for in the various training stages are designed to instill a better understanding and ability to recover and the Instructor must set a high standard of training in these areas. The use of simulators and video films are of immeasurable value and should be used at every opportunity.

Communicating - This is probably the most difficult area to prepare for; once the student takes off there should be an effective way of communicating corrections. The idea is to have a radio link between Instructor and student, but there are disadvantages even with this. Having another Instructor at the landing point (easily identifiable) giving bat signals is a very useful method provided that the problem of 'mirror' signals is overcome. Relying on purely verbal instructions is not an effective method as there are too many associated problems.

Landing training - Students should practice PLFs until they are proficient, and Instructors should stress that every landing should be regarded as potentially requiring a PLF unless, at the last minute, a stand-up landing can be achieved. Slope-landing techniques should also be taught and practiced; and at a suitable stage other landing emergencies (e.g. tree, water, walls) should be discussed. It must also be emphasised that, although every landing should be into the wind, it is better to land out of wind (with a PLF) than attempt a last minute, low level, tight turn into wind.

2.1.7 Course Notes

Every PAI member school is advised to develop their own course-notes for reference during training. They should also have a system of briefing and debriefing along with a small written test based on the course notes. List of paragliding training manual in PDF as well as printed format should be shared with the students for further reference.

2.1.8 Video Sessions

Taking videos of students during training sessions can be very useful during debriefs. There are numerous training videos available on you tube and over internet. Every training school should try and provide these videos to their students. Schools should have video sessions where various training videos can be watched along with the instructors.

The Pre-flight Check

All students must learn the importance of that final check before they attempt to take off - the pre-flight check.

The following easy to remember list of the vital actions that must be covered before every launch should be used by paraglider pilots.

• W= Wind and Weather – Observe for 10 minutes after reaching the takeoff zone

Check:

• Wind direction - is it shifting around?

• Wind strength - is it varying much? Is it satisfactory for your level of experience? Will it remain so?

- Visibility will the visibility remain satisfactory?
- Weather Observe the clouds if any, any signs indicating rain or likely turbulence?

• G= Glider

Give your glider a quick 'once over' to confirm nothing has altered since your Daily Inspection. **Check**:

- Laid out properly Cells clear Lines untangled.
- H= Helmet

Check:

- That you are wearing one That it fits snugly and will not drop over your eyes
- That it is fastened and won't fall off.

• H= Harness Check the Five Main Points:

- Left leg strap Right leg strap
- Chest strap (fastened and correctly adjusted for semi-cross bracing)
- Left maillon/karabiner
 Right maillon/karabiner
- Check any cross bracing straps, speed system etc.

Check the Emergency Parachute is stowed correctly and the handle is within reach.

NB for tow launching:

Check that the tow release is securely fastened to the harness and that it is functioning correctly

After connecting to the glider before inflation for takeoff

- C= Controls **Check:**
- Control handles in the correct hands
- Correct risers held appropriately Control lines free running.
- A= All Clear **Check:**
- Your take off path is clear nothing to trip you or wrench your ankles
- No bushes, posts etc. or roving people/livestock within leading edge range
- No gliders or people about to appear mysteriously from below the brow, on their way up
- Airspace above, in front and below you is clear from other air users and will remain so during your take off sequence
- No one is about to overshoot their top landing and need the airspace you are about to occupy.
- (T = Turn Direction)
- If using the standard reverse launch, check which riser is on top: that shoulder must go back when you turn to face into wind.

You are now ready to launch.

SECTION 2 OPERATING PROCEDURES Chapter 2 HILL-LAUNCHED HANG-GLIDING

2.2.1 Introduction 2.2.2 Solo Flights and Emergencies 2.2.3 Pitch-Tether _____

2.2.4 Hand-Towing 2.2.5 Wind Speed Limits

2.2.1 Introduction

Hang-gliding is not as popular as paragliding in India. There are hardly any organised schools which conduct training courses for hang-gliding. However, the PAI would like to encourage those who wish to indulge in the sport of hang-gliding in India.

At present there are no schools for hang-gliding affiliated with PAI. However, there are a few hangglider pilots who are members of the PAI. Some of them are interested in sharing their knowledge and skills to those who wish to join the community.

The PAI does not encourage self-learning. As compared to paragliding, hang-gliding needs better fitness level as well as more dedication and commitment to sustain the hardships during initial training. HG instructor is expected to provide proper guidance.

Though PG and HG are two different sports which have specific requirements for takeoff and landing zones, there are several common factors in free-flying PG and HG. Please refer to Section 2 Chapter 1 which deals with paragliding. Hang-glider flies faster and a beginner student may need a long final-leg before touch-down. Hence, the landing-zone needs to have a bigger open space, as compared to PG.

NOTE: The Instructor should also refer to Section 1 Chapter 4 for information on Recommended Practices and Safety Requirements

2.2.2 Solo-Flights and Emergencies

- a. Students must be taught for their initial solo-flight on a slope which only just exceeds the glideangle of the training glider used.
- b. When a student is given his/her first high solo-flights, two qualified instructors must be present; one at the top of the hill and one at the bottom. If radios are used, then only one instructor need be present, provided s/he is at the takeoff point. However, in case of an emergency in the landing field, the instructor must ensure that he can reach the incident quickly and efficiently by either running or driving down the slope. If either of these is not reasonably quick, then the instructor must keep a glider rigged for his use.

2.2.3 Pitch-Tether

In winds of over 18 mph, training must only be conducted with the assistance of effective tethering. Only an Instructor may take control of pitch-tethers.

2.2.4 Hand-Towing

- a. The use of "hand-towing" is permitted provided that:
 - (i) The instructor in-charge has knowledge and experience of Tow Environment.
 - (ii) Approved equipment is used in a proper manner.
 - (iii) Heights are restricted to no more than 40ft AGL.

(iv) Please remember that none of these flights count towards those required on the taskforms.

- b. Hand-towing below 10ft AGL will be deemed to be tethering and may be conducted by qualified instructors without tow environments.
- c. No towing, apart from that described above, is permitted at schools registered for hill-training only. Should a school wish to use towing, it must seek the appropriate registration (Tow Schools).
- d. Schools which use both hill and tow training must take care, when signing-off pilot ratings, not to confuse the disciplines. As a general rule, schools should issue the rating appropriate to the last high flights accomplished by the student.
- e. Extra-special care must be exercised when transferring students from one take-off method to the other - and back again.

2.2.5 Wind-Speed Limits for Ab-initio Training

a. For first solos, the wind-speed must not be greater than10mph.

b. For subsequent solos, the wind-speed should not be greater than18mph.

Absolute limits

No training should take place if the wind speed is greater than 25mph. The maximum variation in wind strength must not exceed 5mph, in 10 seconds.

SECTION 2 OPERATING PROCEDURES Chapter 3 TOW-LAUNCHED PARAGLIDING

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2.3.5 Winches: Requirements and Techniques2.3.6 Emergencies from the Tow-UnitAppendix A - SignalsAppendix B - Weak-links

2.3.1 Introduction

Not all Paragliders are designed with towing in mind. Only paragliders certified for towing should be used for winched flights. Paragliders can be tow-launched using a pay-out winch, a static pull-in winch. Depending upon the type of tow-unit and/or the equipment used, certain procedures differ in varying degrees and are mentioned where appropriate. Instructors and Tow-Coaches must make themselves aware of these differences and the relevant circumstances.

2.3.2 Personnel

In a School / club registered as a school, a suitably qualified Instructor must be present and take charge of the operation. In other clubs (i.e. where no form of ab-initio training occurs), a suitably qualified Tow-Coach must be present and take charge.

A Launch-Marshal, who has received relevant practical training, but is neither the pilot nor a tandem-flight student, must supervise at the launch-point. The Launch-Marshal need not be a qualified Instructor.

The tow-unit must at all times be operated or driven by an appropriately experienced operator, or a potential operator training under supervision.

2.3.3 Signals and Commands

General

The Instructor is to ensure that all those involved in the operation are fully conversant with these signals which are to be regarded as standard.

Ground-to-ground signals

The Instructor appoints a Launch-Marshal or Signaler who is then responsible for signals made from the launch-point to the tow-unit. Whatever method of signaling is used (bats, radio, lights or other) there must be no possibility of mistaking the STOP signal – in fact, the absence of a positive signal-to-proceed should be understood by the tow-unit operator that there is a potential problem and the tow should be abandoned. There are four basic signals for launching a glider:

- 1. "Take up slack" is a positive, repeated signal meaning all is clear at the launch-point and the tow-unit can take up the slack in the tow-line, stopping short of launching the glider.
- 2. "All out" signal indicates to the tow-unit that they can proceed to launch the glider. Notes:
 - a. The signal used at international events is 'DRIVE.'

b. The 'All out' signal in some parascending circumstances has become obsolete and, at the discretion of the CFI, the 'Take up slack' signal may be used throughout the launch-phase provided that there is no chance of a misunderstanding arising.

- 3. "Stand-by" (bat held out to the side) indicates that there is a problem at the launch-point which needs correcting before the launch can proceed.
- 4. "STOP" is a warning to the tow-unit operator that there is a problem at the launch-point and the launch should not proceed; the action required of the operator depends upon the stage of the launch, the tension in the tow-line, and any indications which the tow-unit operator may have as to the cause.

In order to avoid confusion, the signals must be distinctly different (see Appendix A of this Section).

When using radio communications, the commands may be shortened for clarity – reference should be made to the specific chapter which deals with each discipline and which defines these and other signals. Words like 'No' or 'Go' should be avoided for obvious reasons.

The tow-vehicle may signal "I am ready to proceed" to the Launch-Marshal by switching-on its hazard-warning lights, which also indicates to other airfield users that this is a moving vehicle. Alternatively, and for similar reasons, a flashing strobe-light may be mounted on the tow-unit to indicate that a launch is proceeding.

Air-to-ground signals

A pilot may signal a 'request to release' by opening wide his legs and keeping them open. The tow-unit operator should normally respond to this signal by removing the tension from the tow-line thus allowing the pilot to release; at this point the pilot may close his legs. However, particularly with students, the driver may decide to continue the tow until the glider is more safely positioned.

Radio communications

All forms of radio communications used in paragliding and paramotoring must comply with the current legal requirements. Particular attention must be paid to such regulations when using air-to-air or ground-to-air communications, with pilots trained to understand the proper procedures. It is recommended that schools should use an approved ground-to-air radio for the longer solo-flights. This is a requirement when only one instructor is present for the student's high solos.

Appendix A to this chapter contains details of the signals mentioned above.

Effective communication between all concerned is of the utmost importance. In addition to the standard procedures as listed in items 1 and 2 below, the launch-instructor should, where appropriate, relay the following information to the winch operator who will then acknowledge it:

- a) The proficiency and any known faults of the pilot.
- b) The objective(s) of the next flight.

This will ensure that the winch-operator knows what to expect, how high/gently to launch the pilot and where to halt proceedings if things do not conform to the plan.

The following standard procedures should be adopted for every launch. They can be given using voice alone, by radio, by visual signal system, or by a combination of all. The chosen method must work properly and efficiently.

- Pilot information via the Launch Instructor to the winch operator. Name, weight and experience as appropriate - any possible pilot problem should be included. If using radios, the winch operator repeats the messages as necessary.
- 2. 'Winch Ready to Proceed' is indicated by switching-on the hazard light.
- 3. Safety Checks

The signaler/Launch Instructor asks the pilot: "Ready to launch?" If all is clear the Pilot replies: "Ready." The signaler/Launch Instructor then asks: "Pre-flight check?" Pilot completes the pre-flight checks. When the checks are complete, the winch-operator is told: "All checks completed". The winch-operator can repeat the message by radio, if appropriate.

- 4. Tow-Line Attachment
 Only when items 1, 2 and 3 above have been completed can the Pilot:
 a) Connect the tow-line
- a) Connect the tow-line.
- b) Operate the release-system to check its satisfactory operation.
- c) Re-connect the tow-line and check that it is properly attached.
- Tensioning the Line When ready, the pilot shouts clearly: "Take up tension". This is relayed via the signalman to the winch-operator by:
- a) Visual by bat: clear, steady, underarm swings of the bat from 4 o'clock to 8 o'clock.
- b) Visual by light: clear, steady, slow flashes.
- c) Radio/Audio: the command: "Take up tension"

NOTE: At this point, the "Stand-by" signal is given to indicate to all that a launch is imminent.

6. The Take-Off

As the pilot feels the pull, he lifts-off the glider and controls the canopy overhead. The winchoperator sees the profile of the wing to continue winching. The pilot then shouts clearly: "All out," if he is in control. The signaler checks and, if all-clear, repeats and gives the "All-out" signal'. This is relayed via the signalman to the winch-operator by:

- a) Visual by bat: clear, rapid, over-arm swings of bat from 10 o'clock to 2 o'clock.
- b) Visual by light: clear, steady fast-flashes.
- c) Radio/Audio: the command "All out; All out; All out"
- Emergency Stop.
 To terminate a launch once the "All-Out" signal has been given:
- a) Visual by bat: held stationary directly overhead (12 o'clock).
- b) Visual by light: continuous beam of light.
- c) Radio/Audio: "STOP, STOP, STOP," repeated.
- 8. Other Signals
- i) When the pilot wants slack in the tow-line before the "All Out" signal but after the "Take Up" signal has been given:
 - a) Visual by bat: discontinue underarm swings.
 - b) Visual by light: discontinue flashing and switch-off light.
 - c) Radio/Audio the command: "GIVE SLACK". The winch-operator repeats the command:
 - "Slack". At this point, the pilot should release the tow-line for safety reasons. When ready, the launch proceeds from 3 above.
- ii) If the winch-operator no longer wishes to go ahead with the launch, for whatever reason, he switches off the flashing light. If appropriate, he relays the reasons to the pilot/Launch Instructor. The pilot must then release the line if it has been attached.

When the winch-operator is ready to go ahead again, he switches the light back on. The launch can then proceed from item 3 above.

Tow-Line Tension

a) First-flight tow-line tensions should be kept to the necessary minimum.

b) Tow-line tension must be adjusted to allow for the differences in pilot weight, glider type and pilot experience.

General Requirements

- a) Maximum wind strength for any training is 30 kmph at this level only full tethered training can be carried out.
- b) Maximum wind strength for :
 - i. A solo flight is 15 mph measured at the ground level.
 - ii. First solo is 10 mph measured at the ground level.
- c) Maximum variation in wind strength must not exceed 5 kmph in 10 seconds.
- d) Only an instructor may take control of pitch-tethers.

2.3.4 Equipment General

The equipment must be safe to use for pilots, launch crews and instructors and free from hazard to bystanders, under both normal and emergency conditions.

The system must permit all towing signals to be implemented.

The system must provide a smooth continuous tow at a controlled tension.

It must be safe for the winch-operator to operate in normal and emergency situations.

All releases must be reliable whether on or off-load.

The Weak-Link

It is advisable to uses a weak-link - See Section 2: Chapter 1: Appendix D.

The Tow-line

- 1. Only approved rope or cable should be used for towing. Polypropylene rope is acceptable.
- 2. On failure of the weak-link no more than 1.5m of line, but preferably none, shall stay attached to the pilot.
- 3. A "drogue-chute" is required, attached to the line below the weak-link, so that the winchoperator can observe release or weak-link failure.

4. An effective means of cutting the tow-line at the winch immediately in an emergency must be provided; a fixed wire-cutter or guillotine is required for a wire tow-line.

The Bridle or tow-yoke

- a) The bridle must provide a safe tow with no danger of inducing any unnatural flying state for the glider.
- b) At least 50% of the tow-line tension must be applied through the pilot's harness.
- c) The bridle may also be connected to the riser just above harness carabineers.
- d) On release, bridle parts must not strike the pilot.
- e) After release, bridle-lines must not hang more than 1.5m below hang-points.
- f) Bridles used for step-towing must self-release on backward tension.
- g) 3-ring releases must have a cover to shield the pin end to remove the risk of entanglement.
- h) 3-ring releases must only be used with a matching ring at the end of the line, NOT a rope-loop or eye.
- i) The rope-loop system with two loops may be used after testing.

2.3.5 Winches: Requirements and Techniques

All winches must be fitted with appropriate guards in accordance with the Health and Safety at Work Act.

STATIC WINCH

All static winches must be fitted with the following safety devices:

- a) The engine speed-control lever (throttle) must be spring-loaded to "OFF."
- b) A guillotine or cutting tool, controlled by the winch-operator, capable of severing the tow-line in one action.
- c) A tow-line tension-indicator is desirable.
- d) A weak-link of the correct breaking load. See Appendix B.
- e) An automatic means of distributing the line across the width of the drum as it reels-in is desirable.
- f) The end of the line, which may have a flag or streamer, must be free to pull clear of the drum.

Additionally, it is recommended that a static winch should have the following facilities:

- 1. Differently shaped handles/knobs on throttle and brake controls.
- 2. Colour-coded drums and lines on a twin-drum system such that, viewed from the launch-point, the left-hand line is, for instance, red; and the right-hand line is green.

Operating a Static Winch

Preparation

Standard daily inspection checks are carried out, with particular attention being paid to any special equipment (e.g. gearbox) fitted. The winch is positioned facing into the wind and effectively secured to prevent the winch moving or swiveling. Set and latch the guillotine(s) taking care to keep the hands well clear during the cocking operation. Feed the tow-line(s) through the guide(s) (gloves should be worn to protect the hands) ensuring the cables do not fall down the side of the runners, nor foul any mechanical part. Attach the drogue-parachute(s).

The tow-lines(s) are then ready to be towed-out to the launch-point, as follows:

- a) Set drum brake(s) "ON" and check that the clutch is dis-engaged.
- b) Start the winch engine.
- c) Attach the tow-line(s) to the retrieve-unit.
- d) Release the drum brake(s), then apply just enough brake(s) to prevent drum over-run.
- e) Drive the retrieve-unit slowly to the launch-point, in a straight line. Where two tow-lines are being run-out, care must be taken that they do not cross each other.
- f) The retrieve-unit should slow down as it nears the launch-point to avoid drum over-run
- g) Apply drum brake(s) firmly, when it is clear that the tow-line(s) are fully paid-out.
- h) Stop the winch engine.

Pre-tow checks

- 1. Check that the tow-line is free and has not over-run the drums.
- 2. Set both drum brakes firmly "ON."
- 3. Check that the clutch is dis-engaged.
- 4. Switch the battery "ON."
- 5. Start the winch engine.

Towing

On receiving 'Take-up-slack' signal

- a) Engage clutch.
- b) Progressively release the relevant drum hand-brake, controlling and holding the winching-in rate by use of the throttle until the canopy is inflated and flying above the head of the pilot.

If either the Launch-Marshal or the pilot is dissatisfied at this stage, the Launch-Marshal should show a **'Stand-by'** signal until the problem is corrected. If all is well, the Launch-Marshal will indicate **'All-out'** and the winch-operator can then increase the drum speed to start the ascent. Tow tension indicator = 50% of target initially, until the paraglider is approximately 100ft AGL, rising to 100% of thetarget, to allow optimum rate of ascent. (The target tow-tension will usually be around 80kgs to 100kgs, less for training. Higher tensions increase the risk much more than the height!)

NOTE: If a **'STOP'** signal is given at any time, the launch should be aborted. When the cause has been ascertained and corrected, the launch may then proceed but from the beginning.

- c) On seeing the **'release'** signal from the pilot, use the throttle to reduce tension (in high winds first dis-engage the clutch).
- d) After the pilot has released the tow-line (and it has fallen away), open the throttle to retrieve the remainder reducing the tension each time the drogue-chute hits the ground.
 When the drogue is 15m away from the winch, close the throttle and use the drum brake to slow the intake down.
- e) When the drogue is 3m away dis-engage the clutch and slow the drum to a stop.
- f) Stop the engine (unless a 2nd line is ready for immediate use).

Notes on towing

Tow-tension in the early stage must be kept at a steady level which just allows the canopy to ascend. Too high a tension will cause the wing to pitch up to an unsafe angle.

Wire tow-line preparation - forming a closed loop

- a) Cut the cable cleanly.
- b) Slide two swages on to the cable.
- c) Loop the cable back on itself and slide through the first swage pulling cable through to form a loop some 3 to 5cms between the swage and the end of the loop.
- d) Crimp the first swage firmly.
- e) Twist the cable half-a-turn and slide through the second swage.
- f) Crimp the second swage firmly as near the cut end as possible -the distance between the two swages should be approximately 5 to 7cms.
- g) Pick up the debris to avoid possible danger to animals/people/canopies/equipment.

Wire tow-line preparation - in-line repair

- a) Cut the tow-cable cleanly.
- b) Place both swages on one cable, and then slide the second cable through both, making sure that there is half-a-turn twist between each swage.
- c) Crimp each swage as close to the respective ends as possible the distance between each swage when finished should be approximately 5 to 7cms.
- d) Pick up the debris to avoid possible danger to animals/people/canopies/equipment.

PAY-OUT WINCH

All pay-out winches must be fitted with the following safety devices:

- a) A tow-line tension indicator. Alternatively, an adjustable-stop is required to limit the maximum line-tension, and a means is required of checking the tension between launches.
 The smoothness and efficiency of winch-brakes has been found to vary considerably between launching sessions (depending on storage conditions) and also as they warm up with use.
 Winches should be stored under cover and checked frequently when in use.
- b) If internal expanding brakes are used, it is recommended that they are of the double trailingshoe type.
- c) There must be an operator controlled, single-action, effective means of cutting the tow-line at the vehicle **immediately** in an emergency (e.g. a guillotine or cutting tool). A fixed wire-cutter or guillotine is required for a wire-tow line.

- d) A tow-line weak-link of the correct breaking load.
- e) The end of the line which may have a flag or streamer must be free to pull clear of the drum.
- f) There must be a means of distributing the line across the drum during rewind.
- g) A secure seat is required for the winch-operator so that he can operate the brake smoothly during a rough ride.
- h) Recommended trailer dimensions are: hitch to wheel axle(s) 1.8m (6 ft.); minimum wheel size 13 inches.

i) The vehicle, such as a hatch-back or van should allow the winch-operator to sit comfortably with a clear view of the glider under tow, with immediate access to the release and in direct communication with the driver.

Notes on towing

Tow-tension in the early stage must be kept at a steady level which just allows the canopy to ascend. Too high a tension will cause the wing to pitch up to an unsafe angle.

2.3.6 Emergencies from the Tow-Unit

Training in emergency procedures, including regular dummy practice - especially by Trainee Operators - is an essential part of a paragliding operation.

Tow-line breaks/ jettisoned tow-lines

Normally the tow-line should not be released under tension – but in an emergency situation it should be guillotined without hesitation.

Rotation / 'lock-out' on launch

The term 'rotation' describes the condition where the canopy ceases to ascend vertically but attempts to turn away from the direction of the tow; the resulting increase in tow-line tension will accelerate the turning action and, if not corrected, cause the canopy to dive rapidly to the ground. Paragliders will change their heading off to one side or the other and their perceived shape will change; the angle between the tow-line and the canopy-heading must never exceed 45°.

Symptoms

The canopy flies off to one side - it may be slow or rapid, and it may occur before the pilot's feet leave the ground, or at a later stage.

Corrective actions

- a) If the turn is slow: reduce the tow-tension to allow gravity (and the pilot) to assist in recovery; once stabilised and flying true, increase the tension and try again. If the ascent is now true, then continue with the launch in the normal manner. If, however, the divergence recurs, the launch must be abandoned by gently removing the tow-tension.
- b) If the turn is rapid and at very low altitude: reduce the tow-tension immediately by guillotining the towline.

Causes of rotation on launch

- a) Incorrect canopy trim canopy damage (tears etc.).
- b) Tangled, knotted or broken suspension/control line.
- c) Incorrectly adjusted / ill-fitting harness.
- d) Partial cell collapse or front edge tuck.
- e) Failure of the pilot to correct partial collapse/tuck or over-correction.
- f) Pilot induced problem.
- g) Wind-shear.

APPENDIX A



	Take up slack	All out	STOP
Radio	Repeat 'Take up slack' 3 times	Repeat 'All out' 3 times	Repeat 'STOP' 3 times
White lights	3 second dashes at 3 sec intervals- repeatedly	1 second dots at 1 sec intervals- repeatedly	Continuous white light(s)

In-flight signals to tow unit : Legs spread wide = "STOP, I want to release"

Any apparent pilot signal should be treated in the same way; although students should not be released if it is unsafe. Refer also to para 2.1.5

Glider tow cable sign

Displayed on the 'airfield' (in white) as a warning to airmen that there are tow cables in use.



Measurement a=1 metre

All operations for towing higher than 60 metres AGL or within an ATZ require a CAA Permit to tow. Normally restricted to 2000 ft. AGL maximum it is possible that lower or higher is permitted (indicated on the Permit).

APPENDIX B Weak Links

Approved maximum weak link values for tow launch operations.

- 1. All weak link values stated are maximums.
- 2. All weak link values stated are for professionally purpose built calibrated weak links such as Tost and Koch. These values must be reduced by 20% if using any other type of weak link.
- 3. 1daN is approximately 1kg force.

Paragliding

Up to 125 kg total weight in flight: 125daN weak link

More than 125 kg total weight in flight: 150daN weak link

Hang Gliding

Hang glider winch tow:

Up to 150kg clip-in weight: 125daN weak link

More than 150kg clip-in weight: 150daN weak link

SECTION 2 OPERATING PROCEDURES Chapter 4 TOW-LAUNCHED HANG GLIDING

4.2.1 Introduction	4.2.5 General Requirements
4.2.2 Personnel	4.2.6 Equipment Requirements
4.2.3 Signals and Commands	4.2.7 Winch Requirements and Approval
4.2.4 Tow-Line Tension	4.2.8 Fixed-Line System

4.2.1 Introduction

Depending upon the type of tow-unit and/or the equipment used, certain procedures differ in varying degrees and are mentioned as appropriate. Instructors and Tow-Coaches must make themselves aware of these differences and the relevant circumstances.

4.2.2 Personnel

A suitably qualified Instructor must be present and take charge of the operation. A Launch-Marshal, who has received relevant practical training, but is neither the pilot nor a dual flight student, must supervise at the launch-point. The tow-unit must at all times be operated or driven by an appropriately experienced operator, or a potential operator training under supervision.

4.2.3 Signals and Commands

Reference should also be made to Section 2: Chapter 3: Appendix A.

Effective communication between all concerned is of the utmost importance. In addition to the standard procedures as listed in items 1 and 2 below, the launch-instructor should, where appropriate, relay the following information to the winch-operator who will then acknowledge it: a) The proficiency and any known faults of the pilot.

b) The objective(s) of the next flight.

This will ensure that the winch-operator knows what to expect, how high/gently to launch the pilot and where to halt proceedings, if things do not conform to plan. The following standard procedures should be adopted for every launch. They can be given, using voice alone, by radio, by visual signal system, or by a combination of all. The chosen method must work properly and efficiently.

- Pilot information via the Launch-Instructor to the Winch-Operator. Name, weight and experience as appropriate - any possible pilot problem should be included. If using radios, the Winch Operator repeats the messages as necessary.
- 2. 'Winch Live' is indicated by switching on the flashing light.
- 3. Safety Checks

The signaler/Launch-Instructor asks the pilot: "**Is the glider checked?**" If all is clear, the Pilot replies: "**Glider checked and satisfactory**" The signaler/Launch Instructor then asks "**Hang check?**" Pilot completes a hang-check. When the checks are complete the winch operator is told: "**All checks completed**". The winch operator can repeat the message by radio if appropriate.

4. Tow-Line Attachment

Only when items 1, 2 and 3 above have been completed can the Pilot:

- a) Connect the tow-line
- b) Operate the release system to check its satisfactory operation.
- c) Re-connect the tow-line and check that it is properly attached.
- Tensioning the Line
 When ready, the pilot shouts clearly: "Take up tension". This is relayed via the signal-man to the winch operator by:
- a) Visual by bat: clear, steady, underarm swings of the bat from 4 o'clock to 8 o'clock.
- b) Visual by light: clear, steady, slow flashes.
- c) Radio/Audio: the command "Take up tension."
- 6. The Take Off

When ready, the pilot asks "Clear above and behind?"

The signaler checks and if all clear repeats: 'Clear above and behind'.

The pilot then shouts clearly "**All out**". This is relayed via the signal-man to the winch-operator by:

- a) Visual by bat: clear, **rapid**, overarm swings of bat from 10 o'clock to 2 o'clock.
- b) Visual by light: clear, steady fast flashes.

- c) Radio/Audio: the command "All out; All out; All out"
- 7. Emergency Stop.
- To terminate a launch once the "All Out" signal has been given:
- a) Visual by bat: held stationary directly overhead (12 o'clock).
- b) Visual by light: continuous beam of light.
- c) Radio/Audio: "STOP, STOP, STOP," repeated.
- 8. Other Signals
- i) When the pilot wants slack in the tow-line before the "All Out" signal but after the "Take Up" signal has been given:
- a) Visual by bat: discontinue underarm swings.
- b) Visual by light: discontinue flashing and switch off light.
- c) Radio/Audio: the command "GIVE SLACK". The winch-operator repeats the command "Slack". At this point the pilot should release the tow-line for safety reasons. When ready, the launch proceeds from 3 above.
- ii) If the winch-operator no longer wishes to go ahead with the launch, for whatever reason, he switches off the flashing light. If appropriate, he relays the reasons to the pilot/Launch Instructor. The pilot must then release the line if it has been attached.

When the winch-operator is ready to go ahead again, he switches the light back on. The launch can then proceed from item 3 above.

4.2.4 Tow-Line Tension

- a) First-flight tow-line tensions should be kept to the necessary minimum.
- b) Tow-line tension must be adjusted to allow for the differences in pilot weight, glider type and pilot experience.

4.2.5 Additional Requirements for Tow Training

a) Maximum wind strength for any training is 30 mph - at this level only full tethered training can be carried out.

- b) Maximum wind strength for:
 i) A Solo flight is 15 mph measured at ground level.
 ii) First solo is 10 mph measured at ground level.
- c) Maximum variation in wind strength must not exceed 5 mph in 10 seconds.
- d) Only an instructor may take control of pitch-tethers.

4.2.6 Equipment Requirements

Winch Systems and Towing Equipment

General

The equipment must be safe to use for pilots, launch crews and instructors and free from hazard to bystanders, under both normal and emergency conditions.

The system must permit all BHPA towing signals to be implemented.

The system must provide a smooth continuous tow at a controlled tension.

It must be safe for the winch-operator to operate in normal and emergency situations.

Tow Equipment

The Weak-Link

A weak-link must be used. See Section 2: Chapter 1: Appendix B.

The Tow-line

- 1. The release(s) must be reliable whether on or off load.
- 2. On failure of the weak-link, no more than 1.5m of line, but preferably none, shall dangle below the control bar with the pilot in the upright landing position.
- 3. When towing with 100% of the tow force applied to a chest release with two gates (for the topline and bottom-line), the longer (bottom) line should measure $2.5m (\pm 5cm)$ and the shorter (top) line 1.5m (± 5cm). This ensures that the bottom-line does not interfere with the base-bar during take-off, whilst minimising the shock-load on the top-line when the bottom-line is released.
- 4. A flag or parachute is required, attached to the line below the weak-link, so that the winchoperator can observe release on weak-link failure.
- 5. An effective means of cutting the tow-line at the winch **immediately** in an emergency must be provided; a fixed wire-cutter or guillotine is required for a wire tow-line.

Events and Competitions

- 6. When a fixed-line tow-launch is used, prior to launch, the paid-out length of tow-line must be capable of stretching 6m when a 100kg load is applied to it.
- Because of the difficulty of maintaining accurate observation over long distances from a moving vehicle, it is recommended that for fixed-line systems, the tow-line does not exceed 500 metres. Longer lengths may be used with static winches as long as accurate observation can be maintained.

The Bridle or tow-yoke

- 1. The bridle must provide a safe tow with no danger of inducing any unnatural flying state for the glider.
- 2. At least 50% of the tow line tension must be applied-through the pilot's harness.
- 3. The bridle may also be connected to the airframe but only to the keel forward of the hang-point and not more than 20cm from it.
- 4. It should not be possible to continue the tow from a bridle connection to the keel after release of the bridle connection to the pilot.
- 5. On release, bridle parts must not strike the pilot.
- 6. After release, bridle-lines must not hang more than 1.5m below the control-bar.
- 7. Bridles used for step-towing must self-release on backward tension.
- 8. 3-ring releases must have a cover to shield the pin-end to remove the risk of entanglement.
- 9. 3-ring releases must only be used with a matching ring at the end of the line, NOT a rope loop or eye.

4.2.7 Winch Requirements and Techniques

All winches must be fitted with appropriate guards in accordance with the Health and Safety at Work Act.

STATIC WINCH

- All static winches must be fitted with the following safety devices:
- a) The engine speed control lever (throttle) must be sprung loaded to idle.
- b) A guillotine or cutting tool, controlled by the winch-operator, capable of severing the tow-line in a single action.
- c) A tow-line tension indicator.
- d) A weak-link (fitted in the tow-line) of the correct breaking load. See Section 2: Chapter 3: Appendix B.
- e) An automatic means of distributing the line across the width of the drum as it reels in.
- f) The end of the line, which may have a flag or streamer, must be free to pull clear of the drum. Additionally, it is recommended that a static winch should have the following facilities:
- g) Differently shaped handles/knobs on throttle and brake controls.

h) Colour-coded drums and lines on a twin-drum system such that, viewed from the launch point, the left-hand line is, for instance, red; and the right-hand line is green.

Operating a Static Winch

This information is based on operating certain 'Koch' type winches and derivatives. Operators of other winch types should refer to the User's Manual for specific differences.

Preparation

Standard daily inspection checks are carried out, with particular attention being paid to any special equipment (e.g. gearbox) fitted. The winch is positioned facing into wind and effectively secured to prevent the winch moving or swiveling. Set and latch the guillotine(s) taking care to keep the hands well clear during the cocking operation. Feed the tow line(s) through the guide(s) (gloves should be worn to protect the hands) ensuring the cables do not fall down the side of the runners, nor foul any mechanical part. Attach the drogue-parachute(s).

The tow-lines(s) are then ready to be towed out to the launch point as follows:

- a) Set drum brake(s) ON and check that the clutch is dis-engaged.
- b) Start the winch engine and leave it idling.
- c) Attach the tow line(s) to the retrieve unit using a weak-link.
- d) Release the drum brake(s), then apply just enough brake(s) to prevent drum over-run.
- e) Drive the retrieve unit slowly to the launch point, in a straight line. Where two tow-lines are being run out, care must be taken that they do not cross each other.
- f) The retrieve-unit should slow down as it nears the launch point to avoid drum over-run.
- g) Apply drum brake(s) firmly when it is clear that the tow-line(s) are fully paid out
- h) Stop the winch engine.

Pre-tow checks

- a) Check that the tow-line is free and has not over-run the drums.
- b) Set both drum-brakes firmly ON.
- c) Check that the clutch is dis-engaged.

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- d) Switch the battery ON.
- e) Start the winch engine.

Towing

On receiving 'Take up slack' signal

- a) Engage the clutch.
- b) Progressively release the relevant drum hand-brake, controlling and holding the winching-in rate by use of the throttle until receiving either a 'Stand by' signal or the 'All Out' signal. On receiving the 'All out' signal, increase the drum speed to start the ascent.

NOTE: If a **'STOP'** signal is given at any time, the launch should be aborted. When the cause has been ascertained and corrected, the launch may then proceed but from the beginning.

- c) If the pilot is using a two-line release, when the glider reaches approx. 30m (100ft), reduce the tow tension until the pilot has released the top-line. Then smoothly re-apply tension.
- d) On seeing the 'release' signal from the pilot, use the throttle to reduce tension (in high winds first dis-engage the clutch).
- e) After the pilot has released the tow-line (and it has fallen away), open the throttle to retrieve the remainder reducing the tension each time the drogue chute hits the ground. When the drogue is 15m (50ft) away from the winch, close the throttle and use the drum-brake to slow the intake down.
- f) When the drogue is 3m (10ft) away, dis-engage the clutch and slow the drum to a stop.
- g) Stop the engine (unless a 2nd line is ready for immediate use).

Wire tow-line preparation - forming a closed loop

- a) Cut the cable cleanly.
- b) Slide two swages on to the cable.
- c) Loop the cable back on itself and slide through the first swage pulling cable through, to form a loop some 3 to 5cms between the swage and the end of the loop.
- d) Crimp the first swage firmly.
- e) Twist the cable half-a-turn and slide through the second swage.
- f) Crimp the second swage firmly as near the cut end as possible -the distance between the two swages should be approximately 5 to 7cms.
- g) Pick up the debris to avoid possible danger to animals/people/gliders/equipment.

Wire tow-line preparation - in-line repair

- a) Cut the tow-cable cleanly.
- b) Place both swages on one cable, then slide the second cable through both, making sure that there is half-a-turn twist between each swage.
- c) Crimp the swage as close to the respective ends as possible the distance between each swage, when finished, should be approximately 5 to 7cms.
- d) Pick up the debris to avoid possible danger to animals/people/gliders/equipment.

PAY-OUT WINCH

All pay-out winches must be fitted with the following safety devices:

a) Tow-line tension indicator. Alternatively, an adjustable stop is required to limit the maximum line-tension, and a means is required of checking the tension between launches.

The smoothness and efficiency of winch-brakes has been found to vary considerably between launching sessions (depending on storage conditions) and also as they warm up with use. Winches should be stored under cover and checked frequently when in use.

- b) If internal expanding brakes are used it is recommended that they are of the double trailingshoe type.
- c) There must be an operator-controlled, single action, effective means of cutting the tow-line at the vehicle immediately in an emergency (e.g. a guillotine or cutting tool). A fixed wire-cutter or guillotine is required for a wire tow-line.
- d) A tow-line weak-link of the correct breaking load.
- e) The end of the line, which may have a flag or streamer, must be free to pull clear of the drum.
- f) There must be a means of distributing the line across the drum during rewind.
- g) A secure seat is required for the winch-operator so that he can operate the brake smoothly during a rough ride.
- h) Recommended trailer dimensions are: hitch to wheel axle(s) 1.8m (6 ft.); minimum wheel size 13 inches.
- i) The vehicle, such as a hatch-back or van should allow the winch-operator to sit comfortably with a clear view of the glider under tow, with immediate access to the release and in direct communication with the driver.

4.2.8 Fixed-Line System

Fixed-Line Hang Glider towing requires specific TC approval.

All fixed-line tow systems must include the following safety devices:

- a) A line tension-indicator. It is recommended that the tension-indicator scale is direct-reading to avoid errors, and is mounted where the driver can see it while driving without turning his head. An audio read out is ideal.
- b) An approved release at the vehicle (unless the line is hand-held), immediately to hand for the operator from the towing position.
- c) There must be an operator-controlled, single-action, effective means of cutting the tow-line at the vehicle immediately in an emergency (e.g. a guillotine or cutting tool). A fixed wire-cutter or guillotine is required for a wire tow-line.
- d) A tow-line weak-link of the correct breaking load. (Refer to earlier chapter for winch paragliding)
- e) The vehicle, such as a hatch-back or van should allow the operator to sit comfortably with a clear view of the glider under tow, with immediate access to the release and in direct communication with the driver.

SECTION 2 OPERATING PROCEDURES Chapter 5 POWERED PARAGLIDING AND PPC

- 2.5.1 Introduction
- 2.5.2 Personnel
- 2.5.3 Equipment

2.5.4 Fuel Mixture and Carburetor tuning

- 2.5.5 Propellers
- 2.5.6 Conversion from PG to PPG
- 2.5.7 Flying Locations and Permissions
- 2.5.8 Emergencies
- _____

2.5.1 Introduction

Paramotors may appear to be the most simple of flying machines. But, to fly one safely, an approved training-syllabus based course is essential. The training-syllabus requires a would-be PPG pilot to become proficient at handling a paraglider, before learning to use and control it under power. The paramotor pilot must also respect and be conversant with Air Law and be fully aware of the guite severe airspace restrictions that apply to their use. Having learned to fly safely, the pilot will have at his or her command a unique and highly portable flying machine. When used with due respect for the weather conditions, these are fair-weather flying machines and flying in strong and qusty winds is not advised.

2.5.2 Personnel

There are a few PAI-affiliated schools that offer paramotor and powered parachute training. Please visit the PAI website for details or ask your instructor where to go for more information.

In a School / club registered as a school, a suitably gualified Instructor must be present and take charge of the operation. In other clubs (i.e. where no form of ab-initio training occurs), a suitably qualified Coach must be present and take charge.

Please refer to Chapter 4 for detailed training and skill-rating related information

2.5.3 Equipment

Wings: Though there is a separate certification for paramotor wings called DULV most paragliders, which are certified for the beginner or intermediate-levels, or are certified for towing, are generally used for paramotoring.

Due to the increasing popularity of the sport, most manufacturers do have wings specifically designed for paramotor use. The PAI recommends that only paramotor-certified wings should be used for paramotoring.

Engines

A paramotor-unit manufacturer may not necessarily be the engine manufacturer. The common practice is to design a trike or a cage-and-a-frame adaptable to engines available in the market.

The most popular paramotor engines flown by hobby pilots are not certified as aircraft engines. However, engine manufacturers design their engines and optimize their performance for the purpose of flying.

Paramotor engines will come with a technical manual explaining the assembly, safety precautions to be taken while starting the engine, running-in procedure, maintenance schedule and other related information. The pilot has to understand his engine and the operations before he starts using the motor for flying.

Electric-Powered Paramotors are a new alternative to the traditional Petrol-Engine based Paramotors. They benefit from a simpler construction and have very few moving parts, very often just one, the motor. As a result, the usual mechanical maintenance procedures and fuel-mixing precautions do not apply. Instead, battery health monitoring is the key. The manufacturer's notes on charging and operating are strictly followed. And, when not being used for an extended period of time, ensure that the battery is safely stored at the recommended storage voltage level and is stored in a place where temperature and humidity levels are controlled as per the manufacturer's quidelines, along with the rest of the electric engine unit.

Check lists are important for all stages right from the assembly, starting the engine and takeoff.

Engine log-book has to be maintained for service and maintenance schedule

The student should be fully familiarised with the power-unit that he is going to fly.

Safety

The pilot under training must gain an understanding of:

- a) Dangers to self and others: propellers, fuel.
- b) Kill-switch and engine stopping.
- c) Procedures in the event of fire.
- d) Safety equipment: helmet, ear defenders.
- e) Inflight dangers: engine failures, loose items, fire.

Basic Understanding of the power-unit and associated equipment

- Understanding of all the component parts of the motor unit and their inter-relationships:
- a) Power-unit component parts.
- b) Safety-cages and the importance of maintaining them in good condition.
- c) Correctly rigging the motor with safety-straps in accordance with the manufacturer's recommendations.
- d) Hang-Check and adjustments for different pilots (weight, thrust angle).
- f) Controls ignition switch, throttle(s), choke, starter mechanism.
- g) Daily inspection of power unit.
- h) Necessary toolkit, basic spares (plug, pull start spring).
- i) Suitability of chosen canopy weight range, flying characteristics, control line lengths/trim position.

2.5.4 Fuel Mixture and Carburetor tuning

Fuel

The pilot under training should gain an understanding of:

- a) Dangers from fuels.
- b) Petrol/oil mixtures different mixtures/oils for running in, synthetic/semi-synthetic oils, etc.).
- c) Water in fuel.
- d) Storage and transport.

Tuning of carburetor

For a paramotor pilot, the knowledge of tuning their carburetors is very important. Unfortunately, many engine manufacturers, in their engine owner's manuals, do not even bother to describe how to tune a carburetor.

Any internal combustion engine needs an optimal mixture of fuel and air. This is achieved by means of a carburetor. There are two main types of carburetors:

a) The float-type carburetor, also known as the bowl-type.

b) The membrane-type, also called the diaphragm-carburetor.

Most paramotors are equipped with the membrane-type carburetor (be it a Walbro, Mikuni, or Tillotson) as compared to float-type carburetors like Bing or PWR.

The advantages of the diaphragm carburetors over the float-type are as follows:

a) They can be mounted in virtually any position.

b) They are much lighter, cheaper, and have a self-contained vacuum-powered fuel-pump.

With all these good properties versus the float-type carburetor, the membrane-type has a more peculiar feature. It is more difficult to tune if one is not familiar with it.

For a proper and safe combustion, any engine needs to be delivered a relatively precise mixture of air and atomized fuel, over a wide range of operating conditions and RPMs. The operation is from idle, usually 2000 to 2,300 RPMs, to full power (usually from 6000 to 6,500 RPMs if not even more), depending on the engine, reduction, propeller-size and type.

The ideal air-to-fuel mixture-ratio is anywhere from 12:1 to 16:1 (example 16 volumes of air and one volume of fuel) and it depends on elevation, type of fuel, oil-to-fuel mixture, ambient temperature and engine.

The membrane carburetor has four adjustments:

1) The fuel metering system (needle valve) located underneath the membrane.

- 2) The idle screw.
- 3) The high-RPM adjustment screw.
- 4) The low-RPM adjustment screw.

Most paramotor engines have an average TBO (time between overhaul) from 300 to 500 hours but many of them run much shorter. It is mainly because of improper carburetor tuning.

2.4.5 **Propellers**

Propellers transfer the energy of the paramotor engine into thrust against the air so that one can enjoy the magnificent sport of paramotoring. Propellers are actually super-efficient airfoils, and handmade propellers are a work of art!

Propellers are moving parts and can cause irreparable damage to a wing or snag a line. In case of an unfortunate incident of a hand getting into a propeller, it can cause a serious injury. One has to be very careful about anything getting into a spinning propeller. A damaged propeller can cause vibrations and can even end up damaging the engine.

So, follow all the safety measures to safeguard yourself and others on the field, from the propeller.

- 1. Before starting the engine, the propeller should be rotated a few times to make sure that it rotates smoothly and that the tips do not touch any part of the cage.
- 2. If an engine has to be started on the ground, it should be secured and anchored.
- 3. The kill-switch and the throttle should be ready for use in the control of the pilot.
- 4. Before starting a loud and clear warning: "Clear Prop" should be given so that anyone around will stay clear of the propeller.
- 5. On landing, immediately after touch-down, the engine should be shutoff so that the propeller stops rotating.

Propellers were initially made using layers of soft and hard wood. The lengths vary between 115 cms to 160 cms and are made in 2, 3, 4 or 6 configuration. Propellers are also made of composite material using glass-fiber or carbon, with 2 to 4 blades. The new E-props are supposed to be better in design and more efficient. Wooden propellers tend to be a bit thicker and less efficient but less expensive and hence are the preferred choice while getting trained. Carbon-fiber props are usually thinner, more streamlined with higher-precision and therefore able to produce more thrust.

It's always good to have a spare prop along with you, even if it is a cheaper one. A simple mistake of a loose bolt or a stone from the ground could end up damaging a propeller and results in no-flying on an otherwise beautiful flyable day.

2.5.6 Conversion from PG to PPG

All three forms of paragliding i.e. free flying, winching and paramotoring need different skill sets and understanding of the equipment and accessories used. The limitations of wind and weather conditions too are different for each of these disciplines.

The experience of a pilot in any of these disciplines will surely help him in progressing to paramotoring. However, he needs to get himself systematically introduced through an experienced and qualified instructor.

The risk associated with a paramotor should never be underestimated. The additional load of the engine on the wing changes handling of the controls. The takeoff and landing techniques are also different. A small error of judgment can lead to a serious accident.

2.5.7 Flying Locations and permissions

Just like paragliding, paramotoring too is an unregulated sport in many countries including India. There is no need of a hill or elevated ground for takeoff, thus making it possible to takeoff from any open space.

However the following guidelines and rules are applicable to the sport and have to be followed in order to stay within the legal parameters as a citizen of a country.

Common sense and basic rules:

- a. No person may fly a paramotor in a manner that creates a hazard to other persons or property.
- b. No person may allow an object to be dropped from the paramotor if such action creates a hazard to other persons or property.
- c. No person may fly a paramotor except between the hours of sunrise and sunset.
- d. No person may fly a paramotor over any congested area of a city, town, or settlement, or over any open-air assembly of persons.
- e. No person may fly a paramotor except by visual reference with the surface.
- f. If the pilot regularly takes-off from one place, he should vary his flight path to avoid annoying the general public.
- g. Paramotors can disturb livestock; the pilot should particularly avoid flying over reserved forests, bird sanctuaries, riding stables, grazing grounds etc.

Takeoff and Landing Zones

- 1. Launch/Land Area: 200 x 400 feet minimum with another 400' clear climb-out zone.
- 2. In case of private land, permission from land-owners should be obtained
- 3. In case of public or government property, NOC from local administration is desirable.
- 4. Permission should be obtained from AAI by providing the co-ordinates, mentioning the altitude and radius desired for the activity.

2.5.8 Emergencies

Any adventure sport has inherent risks associated with them and paramotoring is no exception. Advance planning and preparation is the essence

- 1. There should be a standby vehicle always present on the site for emergency evacuation of injured persons to the nearest hospital.
- 2. The vehicle should be equipped with first-aid facility, a stretcher and a fire extinguisher.
- 3. The ground-staff should have adequate training as a first-aid responder.

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6.1.1 Introduction

The PAI will extend its support and will work with all the regional, state, national and international bodies when it comes to planning events and competitions or addressing the safety issues through workshops and safety clinics.

Success of any event or a competition, however small, depends on teamwork during conception, planning and execution. PAI encourages local schools and association to plan events for promotion of the sport.

There are several experienced and qualified pilots in the community who are capable and willing to share their knowledge and contribute in several ways to encourage promotion of the sport at regional and state levels.

Local, state and national level government support can play a key role in the success of such events and competitions.

6.1.2 Workshops

Workshops should be conducted by senior pilots and instructors with an aim to encourage new entrants to the sports as well as to increase knowledge of specific areas of the sport among the existing PG and PPG community.

6.1.3 Safety clinics

Safety clinics are a great way to encourage emerging pilots to meet experienced pilots who will share their skills and knowledge through lectures and practical skill development programs

6.1.4 **Events**

Annual events at the regional and the state level can help in promotion of the sport.

6.1.5 **Competitions**

Competitions are great ways of finding new talents who could be then groomed and prepared for representing the country at world competitions.

https://www.fai.org/sites/default/files/documents/cat1_guidelines_complete.pdf

Note:

There are separate guidelines for **workshops**, **safety clinics**, **events and competitions** please contact PAI office for details.

SECTION 3: PG PILOT TRAINING & RATING Chapter 1: PG STUDENT TRAINING COURSES

3.1.1 Introduction	3.1.2 Courses and Rating
3.1.3 Training Record book	

3.1.1 Introduction

Today we live in a digital world where internet is widely used to gather information. A prospective student is expected to do some research about the sport. Watching videos and visiting websites to gather information should be the first step to gain basic understanding. Interaction with schools can help one understand about the courses offered, the fees and the course duration. Most schools will also inform the students about the physical and mental preparedness before joining for the course.

Training Schools affiliated to PAI are evaluated for the system and procedures they follow in their school for imparting training as well as offering joyrides. They follow PAI National Pilot Rating System which provides a structure for developing training courses, based upon progressive flying tasks and theoretical knowledge tests. It also functions as the minimum proficiency indicator system.

Though paragliding is a safe and easy sport at the beginner level, exposure to risks increases as you progress. It also demands time and money. Paragliding is a wonderful sport but it is not for everyone. Statistics have revealed that a very small percentage of those who join for the course continue with the sport. So the best way would be to either start with a tandem experience of by joining for a basic course. This will give you a fair idea and practical experience to take the leap.

The initial knowledge or foundation should come from an instructor who will be introducing the student to this wonderful sport. However, a student should realise that the real progress will happen when he starts seeking supplementary knowledge. Books, Videos and senior pilots will be a great source of information. Several technical books and videos are available online. For any sport, the basic foundation is very important. In paragliding too, choosing the right school and a passionate instructor as a mentor, is critical.

A good school will have a structured syllabus which will be followed during the training which they would be willing to share with a prospective student. The sport is weather dependent, so check the school's policy for extra days to complete the curriculum, if disrupted by bad weather.

3.1.2 COURSES and RATINGS

The initial stage training completed under the guidance of instructors within schools, and ending with the award of the Club Pilot (Novice) rating, will take an ab-initio pilot to a level where he is able to fly safely without the need for supervision. The subsequent stages (Pilot and Advanced Pilot) are completed as a self-learning process, where the pilot builds upon those basics within clubs, with the assistance of Coaches.

Section 1 chapter 3 and Section 2 chapter 1 has covered some aspects about the training procedures to be followed by a school.

Training schools plan their training programs based on the expertise of their instructors, as well as scope of flying on their training sites. The training programs consist of a number of exercises that have been grouped together in phases. The programs will have details of when and how these exercises are taught, and the level of ability that needs to be acquired before the student is progressed. As both the Instructor and student must refer to the syllabus during training, it is expected to be well documented and approved by PAI technical committee while giving affiliation to a school. A copy of the same is expected to be given to the student when he joins for the course.

Instructor Notes and student evaluation

Schools will also have Instructor Notes to provide further clarification for the Instructor as to the precise delivery of the instructions and exercises during the training programs. The notes will also have remarks from the instructor to keep track of the progress of the students so as to make sure that the student completes all the tasks with understanding and knowledge. Skill checks and reflexes are noted before clearing a student for first solo or a particular task executed during the training fight.

The PAI National Pilot Rating System covered in chapter 5 is referred to for evaluation of skill level and rating. Theory and practical exams are conducted by the instructors as per the guidelines.

Student-Pilot Course

This is the basic introductory course and may also be called as Elementary Pilot Course by some schools. This will be a minimum 3 to 4 day course where you will get introduced to the equipment, weather and wind conditions and basic skill and technique.

You can expect to end up doing small bunny-hops or top-to-bottom flights which will be under the direct supervision and guidance of your instructors.

Student-Pilot rating (P2)

This is awarded by the school during the student's training to mark the successful completion of the introductory phase, and to indicate the student's suitability to undertake further school training required to gain the first rating.

Now that you have experienced the thrill of flying like a bird, it's time to reflect on the efforts and risks that you went through during the course. If you feel that you want to continue with the sport, you need to plan ahead – financial planning for buying the equipment, time management and feasibility will be the key to take the decision of continuing with the sport.

Novice Pilot Course

Once you finish your basic course and wish to explore further, you can join for this course. At this stage, you should be prepared to focus on developing understanding and skill. The instructors will introduce you to technical skills to make you take your own decisions and start becoming independent. The course duration many vary between 8 to 10 days.

Novice-pilot rating (Novice- P3)

This is the 'novice' qualification. It marks the end of the student's formal basic instruction, and qualifies the student to leave the school environment and to fly without formal instruction in PAI member clubs. The student will still be very much in a learning phase, and so should seek advice and guidance from coaches as he perfects his skills and works towards the **Pilot rating**.

3.1.3 Training Record book

The training record book known as LOGBOOK is an important document for any pilot. All the flights and tasks completed are recorded in this book as a proof which is duly signed by the student and endorsed by the instructor or the senior pilot. The logbook should have information about the equipment, location of flying, weather conditions, takeoff and landing altitude, altitude gained during the flight, duration of flight, tasks completed during the flight and a remark column for notes.

Most schools will have a printed logbook which is issued to their student once they join for the Club pilot course.

SECTION 3 PG PILOT TRAINING & RATING Chapter 2: PG Pilot and Advance Pilot Certification Tasks

3.2.1 Introduction	3.2.2 Courses and Rating
3.2.3 Pilot Task book	

3.2.1 Introduction

"Once you have tasted flight, you will forever walk the earth with your eyes turned skyward, for there you have been, and there you will always long to return." — Leonardo da Vinci (or was it John H Secondari ?)

If you have managed to do some soaring flights during your initial training, it will be difficult not to get addicted to the sport. Soaring with the help of a paraglider on a local sight in smooth and laminar wind is very safe. But for most humans, the real thrill comes from exploring further. It is expected that you have your own personal equipment at this stage.

This is when you have to look at developing your skills and mastering your techniques further. Overconfidence is a negative which may lead to incidents that will ground you with fear. Taking risks is a part of the game but at this stage of progression, it is important to safely build your confidence-level. The source of your knowledge should not be limited to your local instructor alone. Reading, watching videos, talking to senior pilots, self-analysis should become part of the learning process. Even if your local site is good for cross-country flights, exploring new sites and meeting other pilots will help you progress better and faster.

At this stage, your own initiative and acumen will decide your progress in how you take the sport further. What you want from the sport is, will and should be your choice. Cross-country flying, acrobatics, tandem-flying, competition flying will be your next goals which will need you to understand flying in varying wind conditions.

The pace of progression will largely depend on an individual and the instructor's role will be more of mentoring.

3.2.2 ADVANCED COURSES and RATINGS

The advanced courses will have more of briefing and discussions before the flight, as well as long sessions of debriefing. The number of students in a batch will be less compared to basic course batch. In some schools it will be one to one training. Every instructor has his expertise and specialty so there will be some difference in training received at this level from instructor to instructor. Flying-sites and weather conditions will also play an important role in completing the desired tasks during this progression course. A student may choose to do the same course with different instructors at different locations offering different weather conditions to gain more experience and confidence.

These subsequent stages (Pilot and Advanced Pilot) are more of a self-learning process under watchful eyes of an instructor or a coach. Classroom theory sessions will be very important to help understand the exposure to risks and gain knowledge. Reading and watching training videos will be of great help.

Pilot (P4)

For Pilot level tasks that are needed to be covered during flights, wind and weather conditions will play an important role. Along with improving his soaring skills the pilot will also be exploring the various lift bands while actively piloting his wing in dynamic wind conditions. The site of training will be more advanced and challenging offering top landing possibilities. Since the tasks covered during the training course will be weather dependent the course may get spread over several days. The risk factors will increase and so will the rewards of flying. The instructor's role at this level will be more of a mentor who will be guiding only for specific tasks to be covered to obtain the rating. The student is expected to be taking his own decisions and risks while performing the tasks.

This is the 'fully-qualified' rating. The pilot will now possess well-rounded skills and abilities, along with enough experience to know how and when to exercise them! Pilots should hold this rating before embarking on cross-country flights.

Advanced Pilot (P5)

More number of years and many hours of flying, at different locations, are expected at this stage from a student.

This rating is for the above-average pilot who is a total master of his or her aircraft and who enjoys all the challenges the sport can offer. He would choose his flying days after studying the wind and weather pattern as he may not prefer to fly if the winds conditions are not challenging enough. He would ideally travel to different sites to improve his thermalling skills and logging cross country flights. He may get his log book signed from any of the senior instructors that may be present on the site when the rating tasks are being completed and logged.

Sports-Tandem (P5)

This rating is for those pilots who wish to reach the next level where they can take along a passenger for giving him a flying experience. At initial stage he will only be taking fellow pilots as his passengers and that too with experienced assistants at takeoff. Only after getting comfortable with his takeoffs and landing with the passenger he can progress to taking non flying passengers with him for a flight. The tasks to be completed for qualifying as a tandem-pilot are documented in the rating system. He is expected to read understand and follow the guidelines of PAI for tandem flying. A PAI authorised instructor will ask him to fly under his observation and also conduct oral and written tests before certifying this skill level.

Note

As the pilot progresses beyond the AP level, he should turn to the Federation Aeronautique International (FAI) Delta or Eagle Award Schemes (see Section 3: Chapter 4: Appendix A.)

3.2.3 Pilot Task-Book for Pilots and Advanced Pilots

Most schools will have special sections in their log-book where advanced tasks are mentioned separately, for filling-up on completion of those tasks.

In addition to the information of flying, it is also important to keep track of the different tasks and personal notes in the log-book. It is a good idea to design your own logbook to maintain your flying record.

PG PILOT TRAINING & RATING **SECTION 3 Chapter 3: ASSOCIATED INFORMATION**

_____ 3.3.1 Alternative Entry to the NPRS

3.3.5 International Pilot Proficiency Identification (IPPI) card

3.3.2 Transferring between disciplines Appendices

3.3.4 The Red Ribbon System 3.3.3 Endorsement Courses

A FAI proficiency badge scheme

3.3.1 Alternative Entry to the PAI NPRS

In order to address unusual situations, an alternative entry method is available to the PAI National Pilot Rating System.

This method is designed to allow existing pilots into the **PAI NPRS** without them having to work through the system from the beginning. There are two steps:

i. Prove pilot proficiency to Technical Officer's satisfaction. This can be:

- By producing an 'International Pilot Proficiency Identification' card (see Appendix B).
- By providing logbook evidence of flying experience to enable a Technical Officer (on behalf of the TC) to decide which rating is most appropriate.
- Through Chief Flying Instructor or Coach. Evaluation of flying skill level. In this case the examiner must provide written support vouching that the pilot's demonstrated skill level equals or surpasses that required for the rating applied for.

Note: The CFI/Coach may only observe; the CFI/Coach must not place himself in the position of assuming any level of responsibility for an unqualified pilot other than the normal duty of care owed by one citizen to another. No coaching or supervision should take place.

ii. Pass the relevant PAI examination.

The papers will be marked by the PAI office staff. (Alternatively or previously qualified pilots may be exempted this requirement if they can show an equivalent and current knowledge of Air law and Flight Theory topics, demonstrated through an equivalent examination.)

In this way, the pilot proves his practical and theoretical experience.

3.3.2 Transferring Between Disciplines

A sensible, safe approach is required for those converting between disciplines. Unnecessary duplication should be avoided although revision of topics is to be encouraged. It should not, however, be assumed that a competent pilot in one discipline will automatically show the same skill in another and special care must be taken where the glider used is substantially different.

Ratings - Ratings are awarded for those who complete the full training program for that Rating. Written examination papers need not be retaken if passed in any other discipline.

Endorsements - Endorsements are awarded for those who attend a short launch method endorsement course.

3.3.3 Endorsement Courses

The following conversion information relates only to alternative launch method courses.

Where a candidate has less than the required entry qualification, the endorsement course cannot be attempted. A suitably qualified instructor always has the option of putting the candidate through the training program leading to a 'rating' in the desired launch method.

Paragliding a. PG (Tow) to (Hill) - (for 'Hill Endorsement')

- 1. Course run by:
- Instructor (Hill).
- 2. Pilot Entry Qualification:
- CP (Tow) + 5 hours or 50 tow-launches on paragliders. 3. Course Syllabus:

i) At training slope, master ground handling, take-off techniques.

ii) Ridge-soaring theory. To include site-assessment (including hazards, turbulence and rotor); weather-assessment (including wind gradient on slope face, the effects of the wind being slightly off the hill, venturi effect);flight-planning (including the importance of making all turns away from the hill, building-in options); rules of the air / ridge protocols and the need to keep a good look-out.

iii) At large easy-ridge site, master higher launches, ridge soaring practical, top landings, flying with others.

Pass an assessment by the supervising instructor (Hill).

b. PG (Hill) to (Tow) - (for 'Tow Endorsement')

1. Course run by:

A Senior Tow-Coach or Instructor (Tow).

- 2. Pilot entry qualification:
- CP (Hill) and should have logged a minimum of 10 flying hours.
- 3. Course Syllabus:
 - i) Basic training in the differences in environment, techniques, equipment and signals.
 - ii) Practical training covering inflation and launch methods whilst attached to the tow-line.
 - iii) Sufficient towed flights to gain an appreciation of the control-under-tow, and subsequent self-release skills.
 - iv) A total of 10 flights minimum.
 - v) Emergency procedures.

Pass an assessment by the supervising Instructor or Senior Tow-Coach.

Endorsement Issue Procedure

On successful completion of the endorsement course, the pilot must send a completed Endorsement Registration Form and the appropriate fee to the PAI Office. This must be received within seven days of it being signed by the Senior Tow-Coach / Instructor. Provided that the procedure above has been followed, the pilot may act in the role of Endorsed Pilot, whilst awaiting an updated membership card from the PAI Office.

3.3.4 The Red Ribbon System

This system is intended to:

- (i) Identify inexperienced pilots on the hill.
- (ii) Encourage inexperienced and experienced pilots to make contact with each other and give advice, when necessary.

Although this system is designed to cope with the problems found away from the school, schools still play an important role within it.

Students should be told to wear a red ribbon on gaining the EP rating.

The ribbon may be dispensed with, when a pilot achieves CP plus 10 hours logged flying time.

3.3.5 International Pilot Proficiency Identification (IPPI) Card

The FAI does not regulate a specific development for paragliding training or education levels. This is generally done by a country's national association. The FAI does not validate the Tandem-Pilot, instructor or any professional Level. FAI issues IPPI card based on the skill level approved at national level of a country. It is just an endorsement by FAI of a national rating.

THE IPPI CARD WAS INTRODUCED IN 1992.

Since then, associations and pilots throughout the world have benefited from its internationally recognized standards.

The IPPI Card provides a standard reference by which all national rating programs may be compared.

The SafePro Delta (for hang gliding) and/or SafePro Para (for paragliding) stage on the card reflects the pilot proficiency. For the pilot who flies outside of his known or local area, it is a quick and easy method of providing proof-of-flying experience and proficiency.

When a pilot travels abroad, the IPPI Card – together with the national rating card – will identify the pilot skills. It gives flying site managers, instructors and others responsible for hang gliding and/or paragliding flight operations an easy way of verifying the pilot experience level prior to approval of flight activities.

The IPPI Card is valid only together with a current national license or rating card. The PAI has been interacting with ACI and FAI for recognition of the PAI National PG Pilot rating system. Once approved, the PAI will be able to issue IPPI cards to its qualified members.

APPENDIX A FAI PROFICIENCY BADGE SCHEMES

Description

FAI Proficiency Badges are standards of achievement which do not need to be renewed. The qualifications are the same in every country. 'Delta' badges are for pilots flying hang gliders Classes 1 and 2; 'Eagle' badges are for paragliders.

Requirements of the 'DELTA' scheme

Bronze badge:

A distance of not less than 2 km must be flown over a course of not less than 0.5km between two turn points, followed by a controlled landing within 25m of a designated spot. Five flights of not less than 5 minutes duration each, followed by controlled landings within 25m of a designated spot.

Silver badge:

A distance flight of at least 50km and a height gain of at least 1000m and a duration flight of at least 5 hours.

Gold badge: A distance flight of at least 300km and an out-and-return flight or triangle of at least 200km.

Diamond badges:

There are	three s	separate	Delta	Diamond	badges	-	
- · ·	- · · ·						

Diamond Distance	:	A distance flight of 500km or more.
Diamond Goal	:	A goal flight of 400km or more.
Diamond Closed Course	:	An out-and-return or triangle of 300km or more

Requirements of the 'EAGLE' scheme

Bronze badge: Distance: 15km *or* Duration: 1 hour *or* Height gain: 500m.

Silver badge: Distance: 30km *and* Duration: 5 hours *and* Height gain: 1000m.

Gold badge: Distance: 100km *and* Duration: 5 hours *and* Height gain: 2000m.

Diamond badges:

There are two separate Eagle Diamond badges -Distance: A distance flight of 200km or more Height gain: A height gain of 3000m or more.

Source: FAI website

SECTION 4 PPG PILOT TRAINING & RATING Chapter 1: PPG/PPC STUDENT TRAINING COURSES

4.1.1 Introduction	4.1.2 Foot-launch or Trike
4.1.3 Courses and Rating	4.1.4 Training Record book

3.1.1 Introduction

Paramotoring, as compared to paragliding, is a new sport, rapidly gaining popularity in India. As of 2021, this is the only powered-craft in India which one can fly without requiring a license or a registration. The learning curve of PPG/PPC is faster than free flying, which is unfortunate for the community because, the percentage of self-trained or risky pilots is higher in this segment. Homemade equipment with half-baked knowledge can put peoples' lives in danger. The PAI is very concerned about this because, ultimately, the whole aero sports community gets affected with adverse publicity, in case of mishaps.

The training fees and equipment cost is much higher, as compared to paragliding. Hence, unless you are thinking of investing in equipment at some stage, there is no point in joining for a Paramotoring course. Interaction with schools can help one understand about the courses offered, the fees and the course duration. Most schools will also inform the students about the physical, mental and financial preparedness before joining for the course.

Training Schools affiliated to the PAI are evaluated for the system and procedures they follow in their school, for imparting training as well as offering joyrides. They follow the PAI National Pilot Rating System, which provides a structure for developing training courses, based upon progressive flying tasks and theoretical knowledge tests.

There is no need of thermic or dynamic weather condition to fly a paramotor so flying generally is done in smooth and laminar winds. So it is possible to minimise weather-related risk-factors, if one is careful. Generally early mornings and late evenings offer better weather conditions for paramotoring. Because of this, one can enjoy the sport without sacrificing the routine work during the daytime.

One has to be systematic, organised and very particular about following safety procedure and pre-flight checks as things can go wrong very fast during your takeoff. Since there is an engine with a propeller, the injuries can be more serious as compared to hill-flying.

The initial knowledge or foundation should come from an instructor who will be introducing the student to this wonderful sport. However, a student should realise that that real progress will happen only when he starts seeking supplementary knowledge. Books, Videos, senior pilots will be a great source of information. Several technical books and videos are available online. For any sport, the basic foundation is very important. In paragliding too, choosing the right school and a passionate instructor as a mentor, is critical.

A good school will have a structured syllabus which will be followed during the training syllabus they would be willing to share with a prospective student. The basic and intermediate training is generally completed in one go which covers most of the certification tasks. It is a good idea to complete around 20 flights under supervision during your training.

4.1.2 Foot-launch or Trike

There are two basic methods of paramotoring foot-launch which is also known as backpack **Page 1** paramotoring and flying with your engine mounted on a trike.

Foot-launch method gives you more flexibility with options of landing on smaller ground and short approaches for touch-down. However, it will demand more physical strength and agility during takeoff and landing. The risk of injury during landing is comparatively more, especially in nil-wind conditions, when you fly with a backpack because your legs are the landing gear. It is a good idea to do a basic hill-flying course and then convert to backpack flying. Trike flying is comparatively safer but the equipment is more bulky for transportation and storage. Open space requirement is bigger with flat surface for smooth movement of the wheel during taxing. You need not undergo free-flying course to fly on a trike. Basic ground handling skills are good enough to understand your canopy handling. Takeoff and landings are much safer on a trike as you have a landing gear.

3.1.3 COURSES and RATINGS

The initial stages (completed under the guidance of instructors within schools, and ending with the award of PPG 2 rating) take an ab-initio pilot to a level where he is able to fly safely, without the need for supervision. The subsequent stages (PPG 3) are completed as a self-learning process, where the pilot builds upon those basic skills under watchful eyes of an Instructor or Coach.

Section 1 chapter 3 and section 2 chapter 5 have covered some aspects about the training procedures to be followed by a school.

It is easy for students who are already into paragliding to convert to paramotoring. However, those who are totally new will begin their lessons with ground training. The training programs consist of a number of exercises that have been grouped together in phases. Classroom theory-session is done before you get clearance for your solo flight which generally takes place on 3rd or 4th day of the training. Most schools will also conduct a written test to check your knowledge and understanding before sending you on a solo. Most schools will also encourage you to maintain notes of what you learn during the training.

Instructor Notes and student evaluation

Schools will also have Instructor Notes to provide further clarification for the Instructor as to the precise delivery of the instructions and exercises during the training programs. The notes will also have remarks from the Instructor to keep track of the progress of the students so as to make sure that the student completes all the tasks with understanding and knowledge. Skill-checks and reflexes are noted before clearing a student for first solo or a particular task executed during the training fight.

The PAI National Pilot Rating System covered in Section 5 is referred to for evaluation of skill level and rating. Theory and practical exams are conducted by the instructors as per the guidelines.

PPG 1 Course

This will be a minimum 3 to 5 day course where you will get introduced to the equipment, weather and wind conditions and you will learn the basic skills and techniques. You can expect two solo-flying sessions where you will end up doing 3 to 5 solo-flights. Your flying will be on a huge open field without any obstructions. Maximum duration of your flights will be 5 minutes. You will get the basic idea of taxiing before takeoff and making landing approaches with smooth touch-downs. All flights will be under the direct supervision and guidance of your instructors. Flying altitudes will be between 200 to 300 feet.

PPG1 rating

This is awarded by the school, during the student's training, to mark the successful completion of the introductory phase, and to indicate the student's suitability to undertake further training required to become an independent PPG pilot. A theory exam is mandatory to make sure that you have the understanding and knowledge.

The first solo-flight is a memorable landmark in your PPG flying. The first takeoff generally happens unexpectedly because your focus is on increasing the thrust to gain speed, for getting airborne. The landing, too, may happen under instructors' guidance for maintaining **Page 2** smooth reduction of pressure on the throttle. The subsequent flights should ideally make you comfortable.

This is a good time to reflect on your experience and make a decision if you wish to continue or be happy with a few solo-flights.

PPG 2 Course

This course is ideally combined with PPG1 and student is expected to progress to PPG 2 level, immediately after completion of the PPG 1 course. In this course, you will focus on fine-tuning your inflations, control and smooth transition from ground to air. You landing approaches will improve and so will the touch-downs. The instructor will give you various
exercises where you will learn to plan your entry-legs, base-legs and final-leg approaches. You will also improve your spot-landing skills. The course duration may be 4 to 5 days, depending on the wind-window for flying.

PPG 2 rating

An extensive theory test is important to get your 'PPG pilot' qualification. It marks the end of the student's formal training and qualifies the student to explore on his own. The instructor will help you in shortlisting the equipment and may also import the equipment for you.

3.1.4 Training Record book

The training record book known as LOG BOOK is an important document for any pilot. All the flights and tasks completed are recorded in this book as a proof, duly signed by the student and endorsed by the instructor or the senior pilot. The logbook should have information about the equipment, location of flying, weather conditions, takeoff and landing altitude, altitude gained during the flight, duration of flight, tasks completed during the flight and a remarks column for notes.

Most schools will have a printed logbook which is issued to their students, once they join for the Club-pilot course.

Page 3

SECTION 4 PPG PILOT TRAINING AND RATING Chapter 2: PPG 3 / PPC Tandem-Pilot Certification Tasks

3.2.1 Introduction	3.2.2 Courses and Rating
3.2.3 Pilot Task-book	

3.2.1 Introduction

If you managed to do some good flying with clean takeoff and landings during your PPG2 training course, you will want to continue with the sport. The freedom of owning and flying your own small aircraft is like a dream come true. Though a bit expensive it is an affordable sport for those who wish to take it up as a hobby. You can progress to small cross country flights and even take your family members as passengers.

At this stage you will also have to plan and invest in your own equipment as using school equipment will not be practical and economical for long duration flights. You have to look at developing your skills and mastering your techniques further for which your instructor will be your mentor and guide. Overconfidence is a deficit which may lead to incidents that will ground you with fear. Taking risks is a part of the game but, at this stage of progression, it is important to safely build your confidence level. The source of your knowledge should not be limited to your instructor alone. Reading, watching videos, talking to senior pilots and self-analysis should become a part of the learning process.

Your own initiative and acumen will decide your progress and how you take the sport further. What you want from the sport is, will and should be your choice. Cross-country flying, acrobatics, tandem-flying, competition-flying will be your next goals which will require you to understand flying in varying wind conditions.

The pace of progression will largely depend on an individual and the instructor's role will be more of mentoring.

3.2.2 ADVANCED COURSES AND RATINGS

Flying locations and weather conditions will play an important role in completing the desired tasks during progression. A student may choose to do the same course with different instructors at different locations preferably closer to your permanent residence.

These subsequent stages (PPG3 and Tandem Pilot) are more of a self-learning process under the watchful eyes of an instructor or a coach. Classroom theory sessions will be very important to help understand the exposure to risks and gain knowledge. Reading too will be of great help.

PPG 3

This rating builds on the knowledge and skills from the PPG1 & PPG2. It is common to need 100 or more flights before attaining PPG 3 skill level.

The pilot is expected to gain a thorough understanding of the equipment, wind and weather conditions which he keeps acquiring during each flight at this stage of progression. He/she should be able to judge and safely fly from any launch site within his skill level. Launches should be consistently successful with the ability to easily steer during the launch run as well as control the flight path immediately from liftoff.

Section 5 chapter 3 of this manual covers the requirements in details which are completed under an instructor observation in order to achieve PPG 3 skill level.

PPG Tandem

The requirements and skill levels are similar to PPG3 level with exception that as the name suggests you should be completing these tasks with a passenger on board. One can directly obtain a PPG tandem level skill rating after his PPG2 skill rating if he uses a tandem trike or tandem foot launch setup for completing the requirements. However he needs to develop good skills and expertise in solo flying before attempting to take responsibilities of taking a passenger on a flight.

The 100 odd flights needed to complete the requirement have to be done with a fellow pilot as a passenger or using dead weight in passenger seat.

Section 5 chapter 3 of this manual covers the requirements in details which are completed under an instructor observation in order to achieve PPG Tandem skill level.

3.2.3 Pilot Task-Book for Pilots and Advanced Pilots

Most schools will have special sections in their log-books where advanced tasks are mentioned separately to be filled up on completion of those tasks.

In addition to the information of flying, it is also important to keep track of the different tasks and personal notes in the log book. It is a good idea to design your own logbook to maintain your flying record.

SECTION 5 RATING SYSTEMS, AFFILIATION & CERTIFICATION Chapter 1: INTRODUCTION

5.1.1 What do we mean by rating 5.1.2 International scenario V/S PAI rating system

5.1.1 What do we mean by rating?

In order to maintain safety standards, a pilot's skill and knowledge need to be assessed and certified so that incidents and accidents can be minimised. This is done by rating their skill-level. Rating system is not a license. It is a task-based evaluation, which needs to be demonstrated by a pilot, to his instructor. Theory exams help gauge the understanding achieved. The completed tasks have to be noted in a log-book with date, location and weather conditions, duly signed by the instructor and the student. Ideally, a student-pilot completes a certain level of his training with his instructor, who is responsible for ingraining the right attitude and qualities in his student, to become a safe and responsible pilot. We strongly believe that a training school should take this responsibility of rating their students up to the P3 level. A student should not be in a hurry to become independent or behave irresponsibly, by venturing to a new site, without getting clearance from his instructor.

Refer to Section 5, chapters 2 and 3 for complete details on the PAI rating system.

First-Aid Training

All pilots, who wish to apply for the Instructor-rating or Tandem pilot rating, are expected to undergo Basic First-Aid Training.

There are several organisations which conduct certification courses for first aid. Any Certificate will be considered as suitable, provided that the course organiser satisfies the criteria set by the HSE (Health Safety Environment) and the course:

- 1. Was of at least 16 hours' duration.
- 2. Was of a Pass/Fail nature.
- 3. Included the standard Elementary First-Aid principles.
- 4. Contained the diagnosis and management of spinal injuries.
- 5. Contained an Incident Management element.
- 6. Contained a Casualty Management element.

Items 4 and 5 should ideally involve 'Remote Location' issues.

5.1.2 International Systems V/S PAI National Paragliding Rating System

The National associations of a country, comprising of members who are pioneers or veterans, generally help in forming the rules, regulations and contribute for development of the sport in their country. These associations are generally recognised by their country.

When there is a reference to International Systems it generally means the standard practices, rules, regulations and ratings that are internationally accepted.

The FAI is an international body involved in all air sports in general (organizing and maintaining competition standards for all Air Sports). The FAI has recommended safety proficiency standards for hang-gliding and paragliding called 'Safepro delta' and 'Safepro Para.' However, the FAI does not regulate specific contents for paragliding training or education.

Safety standards and skill levels are generally formed on par with established standards mentioned in 'FAI Safepro' documents or rating system of BHPA (British), USHPA (US) and FFVL (French) who have long established their systems which are also endorsed by FAI. APPI is an international association which has recently been endorsed by FAI.

The Paragliding Association of India has formed its own rating systems equivalent to international standards. While drafting the rating systems PAI has evaluated all internationally recognised systems and matched all these in a tabular format for easy reference.

The first three ratings i.e. rating up to P3 level are awarded by the training school CFI wherein they take responsibility of developing the skill levels of their students before forwarding their rating applications to PAI office. For awarding ratings from Level P4

onwards the skill level of the pilots is judged by two CFI's from two different PAI affiliated schools. This helps in maintaining the checks and standards of training and rating.

For detailed information on the PAI ratings, refer to Section 5, Chapters 2 and 3.

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SECTION 5 RATING SYSTEMS, AFFILIATION & CERTIFICATION Chapter 2: PAI PG NATIONAL PILOT-RATING SYSTEM (PG NPRS)

5.2.1 Introduction	5.
5.2.2 PAI's National Paraglider Pilot-Rating System	5.

5.2.3 The Ratings 5.2.4 SOP for Rating of Pilots

5.2.1 Introduction

A pilot goes through many stages of developing and improving his skills. This is an on-going process throughout his flying career. If there is a gap in his flying of over 6 months, he needs to brush-up his skills before he ventures into flying in challenging conditions.

A beginner-level pilot starts his flying under supervision and guidance. However, he is quickly ready to venture out on his own because the pace of learning in paragliding is very fast. Paragliding can be enjoyed in smooth laminar sea breeze as well as in thermic and dynamic wind conditions. It is important to understand which conditions are suitable for you. Overconfidence is a major stumbling block in progression and can be dangerous, both for the pilot and others flying with him. Theoretical knowledge and skill, along with the right attitude and physical fitness-level, are important in this sport. Knowledge of wind and weather conditions at different locations and over varied terrain, are important to evaluate and analyse the flying conditions.

Rating system is not a license. It is a task-based syllabus which needs to be demonstrated by a pilot, to his instructor. Theory exams help gauge this understanding. The completed tasks have to be noted in a log-book with date, location and weather conditions, duly signed by the instructor and the student. Ideally, a student-pilot completes a certain level of his training with his instructor, who is responsible for ingraining the right attitude and qualities in his student, to become a safe and responsible pilot. We strongly believe that a training school should take this responsibility of rating their students up to the P3 level. A student should not be in a hurry to become independent or behave irresponsibly by venturing to a new site, without getting clearance from his instructor. He can, however, change his instructor or location of flying, during his course of training.

Mastering the skills and understanding the sport of paragliding is a challenging process with overwhelming rewards. In order to progress, exploring beyond the local school is critical and important. Flying at different locations, with varying wind and weather conditions, helps in developing flying skills while understanding the limitations. Talking to local pilots and observing flying of fellow pilots is important once you visit a new site. Reading, watching videos exchanging knowledge with experienced pilots helps in understanding the sport better and thus improving your skills. The flying community is generally helpful; most instructors and pilots know each other because the community is still very small. However, a rating-system is a good method of evaluating one's skills and improving each other's comfort level when we share a ridge or a thermal. In P4 and above rating-system, skills of pilots are evaluated by two or more senior instructors appointed by the PAI, for this purpose.

Rating systems will help in getting insurance cover as well as increase your credibility and respect in the flying community. In the absence of national licensing system, the rating-card will add value to your credentials, while dealing with local authorities.

5.2.2 PAI's National Paraglider Pilot-Rating System

PAI's National Paraglider Pilot-Rating System has been designed by Senior Paraglider Pilots and Instructors of well-known Paragliding Schools, with over two decades of teaching and flying experience, in line with "Atmanirbhar Bharat: The Prime Minister's vision of a self-reliant India." The PAI is not actively involved in rating and licensing systems for commercial flying, since it is not yet allowed by the Government of India. Any association - Indian or foreign - issuing a license without the Indian government's recognition is illegal and the licence is of no value.

List of the Chief Flying Instructors and Veterans, involved in creating the system.

- 1. **Gurpreet Dhindsa**, Indian Paragliding Champion and Paragliding Guru. Holds BHPA instructor rating. CFI Paragliding Gurukul based in Bir-Billing. ATOAI member and advisor for Aero Sports.
- 2. **Eric Menezes**, One of the pioneers of Paragliding in Maharashtra, veteran instructor in Paragliding, Paramotoring and DGCA approved Sail-Plane Instructor and Examiner. CFI Wings and Flights based in Pune.
- 3. **Sanjay Pendurkar**, Veteran Guru, Instructor and Tandem rating of BHPA. CFI Indus Paragliding School based in Kamshet.

- 4. **Tanaji Takve**, young Acro Master, Paragliding Instructor, BHPA tandem-rating, CFI Mantra Paragliding School based in Kamshet.
- 5. **Samson Dsilva** is a veteran Paragliding and Paramotoring Instructor, CFI Space Apple, Virar, Mumbai. In 2018, he was invited by INDONESIAN ASIAN GAMES ORGANIZING COMMITTEE to conduct a Judging Seminar for Accuracy and XC competitions. Samson was one of the Technical Officers for Cross country and Accuracy events, during the Asian Games 2018.
- 6. **Vijay Soni**, Indian Paragliding Champion and Paragliding Instructor, CFI Orange Life Paragliding School based in Kamshet.
- 7. **Debu Choudhury**, Indian Paragliding Champion and independent Paragliding Instructor based in Manali, also associated with Jockey Sanderson, in teaching professional courses.
- 8. **Ajay Kumar Sharma**, Indian Paragliding Champion and Independent Instructor, the man behind Nepal paragliding team, recently moved to India, based in Manali.

5.2.3 The Ratings

This document describes the Paragliding proficiency or Skill levels of the National Paragliding Rating System – India. **These levels** are considered equivalent of major systems around the world and follow the FAI Safepro Para system.

Levels	PAI	BHPA	USHPA	APPI
Level 1 (P2)	Student Pilot	Elementary	Novice	Explore
Level 2 (P3)	Novice Pilot	Club	Intermediate	APPI Pilot
Level 3 (P4)	Pilot	Pilot	Advanced	Intermediate Pilot
Level 4 (P5)	Advance Pilot	Advanced	Master	Advanced Pilot
Level 5	Sports Tandem	Tandem	Tandem Instructor	Non-Commercial Tandem

Paraglider-Pilot Levels

1. "Introduction to Paragliding" or Level 0:

The main purpose of this non-certificate course is to bring more people into the sport by letting them experience the joys of free-flying, without making any major time or financial commitment. This course can be counted towards the tasks needed to be completed for the "Student" course. In case there is a gap of more than 4 weeks between this course and the "Student" course, refresher days will be added by the schools as they seem fit. Training exercises must be maintained in a Logbook and signed off by an Instructor.

This course introduces student to

i) Theory Knowledge

- Paraglider as an aircraft, how the glider flies, how it is controlled in the air etc.
- Introduction to different parts of the paraglider, weight range etc.
- Basics of airflow in which a new student can fly safely.

ii) Ground handling

- Glider layout on the ground.
- Forward Inflation with A-risers.
- Raising sail and control (including aborting take-off): On flat ground and on slope.

iii) Task-List for Introduction level

- Equipment routines: Assembly, unfolding sail on ground, moving it when needed, daily check, adjustment, disassembly.
- Packing and Unpacking the glider.
- Clearing the lines.
- Strapping into harness safety checks.
- Preflight check: Connections, conditions, visualizing run or flight, clear area.
- Take-off: Sight forward, acceleration and trajectory control, gradual loading of glider.
- Flight-control: Correct airspeed and directional control, smooth corrections.
- Landing: Directly into the wind, sight forward, ready to run, using the glider as a brake.
- Proper PLF emergency landing Knowledge requirements

2. Level – STUDENT:

This course is intended to create a responsible, well aware and safe student-pilot. Some of the tasks listed in this course can be considered completed if they were completed in the "Introduction to Paragliding" course taken if within a 4 week period. Instructors will add refresher days in case the gap between the courses is longer than that. The instructor shall be convinced that the student is able to take care of his own and others' safety, while

altitude-gliding within the recommendations given.

Training exercises must be maintained in a logbook and signed off by an Instructor.

i) Minimum Requirement

• Introduction Course where available but not mandatory.

ii) Theory Content

- How the wing flies, how controls work, what conditions the wing stops to fly, wind over surface, concepts of lee and rotor and basic concept of high and low pressure and how wind flows.
- Nomenclature of paragliding equipment. Adjusting the harness for comfort and safety. Introduction to different parts of a paraglider, weight range etc.
- Active Piloting and safe control range for student level.
- Ridge soaring/ Thermal flying traffic rules.

iii) Ground handling

- Glider layout on the ground with respect to the wind.
- Forward Inflation with A-risers.
- Demonstrating a good understanding of controlling the inflation and keeping the glider above head, depending on site and wind conditions.

iv) Task List

- Planning: Insight, evaluations and decisions, flight plan, axes, drift, height, landmarks.
- Pre-flight check.
- Mental state and stress level awareness, techniques to lower stress.
- Take-off: Canopy raising and control, stop-line/decision, acceleration, liftoff, clearing terrain, transition to sitting position.
- Shallow turns: Visual check, gentle to medium bank, drift correction.
- Approach: Setting relative to terrain and wind, types of approach.
- Hands up, straight final, overcoming gradient with speed.
- Landing: Aiming towards a preset area, hands up and braking.
- After landing: Checking traffic, leaving landing for next pilots.
- Daily inspection, preparation, and pre-flight checks (unassisted).
- Pilot should have done minimum 6 flights and at least two flights without instructor inputs.

3. Level - Novice:

The course at this level is intended to create independent soaring pilots. Pilots having completed NOVICE Level can fly independently. The Instructor shall be convinced that the student can take care of his own and others safety within applicable rules and regulations, recommendations and code of good practice, while operating alone. It is recommended that they fly a minimum of 10 hours in the company of experienced pilots.

Active flying is maintaining the normal flying mode in turbulent air. It includes keeping the angle of attack within the limits, managing pitch and roll movements, preventing and recovering from collapses, tucks and stalls, and quick descent techniques.

Training exercises must be maintained in a Logbook and signed off by an Instructor

i) Minimum Requirement

- STUDENT Level Rating.
- 6 Flights (with 2 flights without instructor inputs).

ii) Theory Content

- Flight theory: angle-of-attack, stall, drag and their relationship to speed, polar curve and speed to fly. Air interaction with wing during deflations and instabilities like stall and spin.
- Take-off: Stop-line awareness and decision before accelerating for take-off.
- Pitch and roll control: Simulation and dampening swings (stabilizing the glider), speed bar.
- Big ears: Collapsing wingtips, holding them, recovering them; big ears and weight shift turns; big ears plus speed system; other descending techniques.
- Asymmetric collapse: Like a one side big ear or slightly bigger, if possible inducing, holding, recovery.
- Big ears, effect on angle-of-attack explained.
- Speed-bar use and effect on angle-of-attack and stability.
- Met theory: deeper discussion into lee-side and turbulence around thermals, cloud types, fronts and associated weather. Also clarify that clouds can be pure convection clouds too, not just from fronts. Lapse rate and energy in over developing clouds. Inversion explained in terms of lapse rate.

• Airspace rules, Ridge soaring/ Thermal flying traffic rules.

iii) Task List

- Demonstrate soaring with outside weight-shift with drift control.
- Speed control: Minimum sink speed, best glide angle including with lift/sink or wind.
- Turns: Ordinary speed and at minimum sink, coordinated, no sign of stall.
- Introduction to controlled 360° with bank angle control.
- Use of speed-bar with big ears.
- Roll and pitch, induced and corrected. 360° turns short of spiral dive.
- In mountains where over development is common, B line stall.
- In dynamic conditions, if available, top and slope-landing.
- Precision approach and landing: Safe and inside an area decided by the instructor, figure 8 and standard aircraft patterns.

4. Level - Pilot:

Soaring involves using up draughts to extend the flight duration, be it flying on a ridge facing wind or in thermals. At least 25 successful flights from 3 different sites with 15 flying hours, including thermal soaring. At this stage, the pilot should be able to take care of his own and others' safety while flying during displays, demonstrations, and local/friendly competitions.

A student can do these one at a time and can get endorsement for each and complete the PILOT Level when the pilot has both endorsements. Also need to understand air space distribution, air laws and air maps to qualify, as the next level is XC and this knowledge is required for the next step. The Pilot-Level exam will be evaluated by an authorized person from outside the school that the student belongs to and pilots can self-study and apply for the exam, too. However, their Logbooks will need to be countersigned by a pilot of higher rating.

i) Minimum Requirement

- Novice Level.
- 50 hours of flying (10 hours in Thermic conditions).

ii) Task-List

- Take-off strong in wind, reverse position.
- Maneuvering in lift band: Figure 8 pattern, drift and gradient corrections, no sign of stall, maneuvering according to terrain and traffic, keeping a good lookout.
- Ridge soaring: Best lift zone, best speed along the ridge, managing priorities, maintaining easy reach of landing options.
- 360° turns: From minimum sink to steep bank, correcting drift.
- Thermal soaring: Finding and following thermal cores, choosing exit direction.
- Landing in wind: Positioning according to wind strength, traffic control, ground handling.

5. Advanced-Pilot level

Pilots should successfully complete an SIV course prior to starting this course. At this level, pilots should exhibit the ability to remain calm and give the right inputs (Note to instructors: If the pilot is nervous and not in control of their wing, the level cannot be considered completed). Additionally, pilots need to have completed a 100 km XC flight in mountainous terrains or a 50 km XC flight in flatland. XC Distances may be re-quantified according to the standard of difficulty at each site. Pilots should exhibit a clear understanding of the aerodynamics of the wing in all conditions. They should also have a clear understanding of when conditions are getting unsuitable to fly safely.

i) Minimum Requirement

- Pilot Level.
- SIV course.
- 100 hours of flying
- Minimum qualifying distance in single XC flight (60kms in Bir, 35 in Panchgani, 25 in Vagamon).

i) Task-List

- Choosing the best launch with regard to the weather analysis.
- Taking off with less than ideal conditions, managing traffic.
- Ease to turn both directions in a thermal, alone or in traffic.
- Sustaining flight in very weak conditions while maintaining a good safety margin (close to terrain, with limited landing fields, in glider traffic, etc.).
- Thermalling in strong wind while maintaining safety with drift and elusive lift.
- Using the MacCready theory, choosing thermal exit time and speed to fly.

- Thermalling in gaggles: This practice should be acquired gradually, with first one, then more pilots at the learner's level.
- Managing:
 - Accelerated asymmetric collapse.
 - Amplified pitch with dampening, with front collapse, amplified roll.
 - Autorotation, stalls.
- Choosing the best landing field while in flight and setting up a precision approach for a short field with possible barriers.
- Landing with other gliders at the same time.

6. Sports-Tandem

This rating shows that the pilot has mastered the specific skills needed to fly a tandem-flight. The Pilot must have completed his "Pilot Level" certification successfully and should also have completed the SIV course in the next 6 months or 50 tandem-flights. The Pilot should attend "Tandem Clinic" to help pilots understand the legal obligations, soft skills, safety focus etc.

i) Minimum Requirement

- Pilot Level.
- Pilot should have flown in 5 different sites with at least 100 hours and 100 flights after completing his Novice level.
- Pilot should have completed a first aid training course from a reputed organisation.
- Tandem clinic Organised by the PAI.

ii) Task-List

- The Pilot should have flown in 5 different sites with at least 100 hours and 100 flights after completing this Novice-Pilot level.
- The Pilot should have completed his first aid training course from a reputable organization.
- The Pilot should display thoroughness in securing himself and the passenger to the tandem-glider. The Pilot should demonstrate rigorous and verbal safety-check before the actual takeoff.
- The Pilot should ensure securing helmets for both and reserve installation during every flight.
- The Pilot should be able to demonstrate briefing the pilot regarding the flying condition and explain the flight-plan to the passenger. Soft-skills needed to put anxious passengers at ease will need to be practiced and demonstrated.
- The Pilot should demonstrate controlled inflation and takeoff in different wind conditions suitable to the site.
- The Pilot should demonstrate his alertness with the passenger's mental state and help him with relaxing methods, small talk to enjoy the flying experience.
- The Pilot should be able to adapt his landing style to different wind conditions keeping the safety of the passenger in mind.
- The Pilot should understand different glider trim settings and the right settings for suitable conditions.
- The Pilot should have good knowledge regarding this glider trim check and recognize when it needs periodic health checks.

5.2.4 Standard Operating Procedure for Rating of Pilots

1. TRAINEE-PILOT SCENARIO

1.1 The Trainee joins a school for the Student-Level and starts training. The schools complete all the pre-training formalities which will now also include application of AS membership of the PAI (Full Annual membership optional).

1.2 The membership card gets prepared online in which rating will be added after the successful completion of the level and the soft copy of the card will be emailed to the student.

2. QUICK VIEW OF THE PROCESS:

2.1 STUDENT Level / NOVICE Level:

- 2.1.1 Fill-in the PAI AS membership form (and other requirements/documents).
- 2.1.2 Level Task-Sheet (LTS) to be filled-up as per the Task completion.
- 2.1.3 LTS to be handed over to the student on completion of NOVICE Level.

- 2.1.4 School to fill-up and retain Training Completion Record (TCR) for their records (refer all related documents for details).
- 2.1.5 School to conduct the Theory test for the level
- 2.1.6 School to issue Rating and inform PAI to be added to the membership card.

2.2 PILOT-Level:

- 2.2.1 Fill in the PAI Annual membership form if not already members (and other requirements/documents).
- 2.2.2 Verification/Declaration of currently held pilot-level skills, if not from the same school.
- 2.2.3 LTS to be filled as per task completion.
- 2.2.4 LTS to be handed over to the student.
- 2.2.5 School to fill up and retain TCR.
- 2.2.6 School to conduct the Theory test (online or offline if online not possible) for the concerned level.
- 2.2.7 School to recommend the Rating and inform the PAI for it to be added to the membership card.
- 2.2.8 The Schools' recommendation is countersigned by a second CFI after verification.

2.3 Advanced-Pilot Level

- 2.3.1 Fill in the PAI Annual membership form (and other requirements/documents) if not already a member.
- 2.3.2 Verification/Declaration of Currently held pilot-level skills, if not from the same school.
- 2.3.3 LTS to be filled as per task completion.
- 2.3.4 LTS to be handed over to the student upon completion of the course.
- 2.3.5 School to fill-up and retain TCR.
- 2.3.6 Student to take Online (offline if not possible) Theory test for the concerned level.
- 2.3.7 School to recommend the Rating and inform PAI for it to be added to the membership card.
- 2.3.8 The School's recommendation is countersigned by a second CFI, after verification.

2.4 Sports-Tandem Level

- 2.4.1 Fill in PAI Annual membership form (and other requirements/documents), if not already a member.
- 2.4.2 Verification/Declaration of currently held pilot-level skills, if not from the same school. Advanced-Pilot Level is a must for applying for Sports-Tandem Level.
- 2.4.3 LTS to be filled as per task completion.
- 2.4.4 LTS to be handed over to the student upon completion of course.
- 2.4.5 School to fill up and retain TCR.
- 2.4.6 Student to take Online (offline if not possible) Theory test for the concerned level.
- 2.4.7 School to recommend the Rating and inform the PAI for it to be added to the membership card.
- 2.4.8 The School's recommendation is countersigned by a second CFI, after verification.

3. GENERAL INFORMATION

- 3.1 All PAI cards will also display the Pilot's current-Rated level.
- 3.2 The application can be filled up online on the PAI website.
- 3.3 Membership cards will only be issued by the PAI (softcopy emailed directly to the student).
- 3.4 Ratings are awarded by the CFI of the concerned schools up to the NOVICE Level and 2 CFI signatures are required for higher levels.
- 3.5 The LTS shall be retained by the trainee-pilot. This will serve as a universal record and proof of the student's training for any other school/association and applying for higher Rating.
- 3.6 Schools to maintain and submit a copy of the training record for each student, which can be linked to membership number.
- 3.7 The training record will include copies of logbook, task sheet for the level, and training completion record for each student duly signed by the CFI.

Name of School	Location	CFI
Paragliding Mantra	Kamshet, Maharashtra	Tanaji Takve
Indus Paragliding	Kamshet, Maharashtra	Sanjay Pendurkar
PG Gurukul	Bir, Himachal Pradesh	Gurpreet Dhindsa
Wings and Flight	Pune, Maharashtra	Eric Menezes
Space Apple	Virar, Maharashtra	Samson D'silva
Orange life	Kamshet, Maharashtra	Vijay Soni
Big Air Paragliding	Manali, Himachal Pradesh	Ajay Kumar Sharma

List of PAI-Affiliated Schools

SECTION 5 RATING SYSTEMS, AFFILIATION & CERTIFICATION Chapter 3: PAI PPG NATIONAL PILOT RATING SYSTEM (PPG NPRS)

5.3.1 Introduction5.3.3 The Ratings5.3.2 PAI's National PPG-Pilot Rating System

5.3.1 Introduction

The PAI's National Paramotor Pilot Rating System has been compiled by Paramotor Pilots and Instructors of well-known Paragliding Schools with decades of teaching and flying experience, in line with "Atmanirbhar Bharat - the Prime Minister's vision of a self-reliant India." The PAI has developed this PPG system for students and pilots. The system is applicable to our entire country. The PAI is not actively involved in the rating and licensing systems for commercial flying, since it is not allowed by the Government of India. Any association - Indian or Foreign - issuing a license without the Indian government's recognition is meaningless and such licence has no value in our country.

The CFIs and Paramotor pilots involved in creating the system are listed below:

- 1. **Eric Menezes**, One of the pioneers of Paragliding in Maharashtra, veteran instructor in Paragliding, Paramotoring and DGCA-approved Sail-Plane Instructor and Examiner. CFI, Wings and Flights, based in Pune.
- 2. **Samson D'silva** is a veteran Paragliding and paramotoring Instructor, CFI Space Apple is located in Virar, Mumbai. He was invited by the INDONESIAN ASIAN GAMES ORGANIZING COMMITTEE, to conduct a Judging Seminar for Accuracy and XC competitions. He was one of the Technical Officers for Cross country and Accuracy events during Asian Games 2018.
- 3. **Dr. Vidyadhar Vaidya** is a Glider-pilot holding a DGCA license and flying at the Pune Gliding Centre, since 2009. He also flies a hang-glider (over 600 launches), and paraglider and paramotors (Para trikes and Backpack). He provides individual training to students under his company "Celestial Flights," registered in Pune.
- 4. **Mangesh Dighe** is involved in Paragliding from the past 24 years and paramotoring from the past 15 years. He is an honorary instructor at the paramotor training school "Wings and Flights," Pune. He also holds the record in the 'Limca Book of Records' of 2012, for the longest night-flying. He has participated in Paragliding Pre-World Cup 2005- India, Basse Ham Paramotor festival 2010- France, Asia Oceania Paramotor Championship 2017-Thailand, and Paramotor World cup 2018- Thailand.
- 5. **Hiren Shah** is into various aero-sports since his childhood, He started with flying RC aircrafts and later on moved to Paragliding and Paramotoring. A chemical engineer by profession, he likes to understand technicalities of everything he indulges into. He likes to share his knowledge and expertise with anyone who seeks information from him. He is associated with Space Apple paragliding and Paramotoring School since 2006.

5.2.2 The PAI's National PPG-Pilot Rating System

PPG ratings are partially adopted from the USPPA (United States Powered Paragliding Association) syllabus, with their official consent and have been ratified by the Managing Committee of the PAI.

Given below is the process to recognize your flight skills through the PAI PPG-pilot ratings. A new pilot seeks out a PAI registered School for paramotoring training. That School will describe their training program and charges. Upon completion of any skill for rating, the pilot submits his PAI rating application, along with the instructor's signature. Rated Pilot will receive a card indicating his rating within 30 days.

Existing pilots wanting a PPG 1 through PPG 3 rating can go to any PAI Affiliated Schools, for paramotoring rating. All tests must be passed because they build on each other. So, an experienced pilot wanting to demonstrate knowledge and skills to a PPG 3-level must go through the PPG 1, 2, and 3 syllabi and tests. For an appropriately skilled, knowledgeable

pilot, it can be done over a weekend. We are sure that the pilots who do undergo this will enjoy the process and report learning some new things even if they've been flying for years.

5.3.3 The Ratings

These levels and ratings are equivalent to international standards as per the chart given below.

PAI -PPG Rating System	BHPA	USPPA	APPI
(Indian)	(U.K)	(USA)	(Generic)
Novice Pilot (PPG1)	-	PPG1	Pilot
Pilot (PPG2)	Club Pilot(Novice)	PPG2	Advance Pilot
Advanced / Tandem (PPG3)	Pilot(Power)	PPG3	Assistant Instructor
PPG Instructor (PPG4)	-	PPG Instructor	Instructor
PPG Instructor (PPG5)	-	PPG Instructor	Master Instructor
Examiner/Administrator		Administrator	

Paramotor-Pilots Levels

Novice Pilot: PPG 1 Rating

This first step establishes the skills, knowledge and experience for the pilot who gets to take his first two flights. He is far from ready to venture out on his/her own but has gained the basic knowledge and skill - a significant step to pursue the sport as a hobby or profession.

PPG 1 General Requirements (TL = Trike-launch)

- 1. Proper layout and pre-flight check of canopy and motor (including harness).
- 2. Has successfully completed a basic ground school.
- 3. Understanding of proper canopy packing, storage and care.
- 4. Site analysis including wind direction and speed, terrain, obstructions and emergency landing zone in case of engine failure.
- 5. Proper canopy handling and kiting skills.
- 6. Explains motor, propeller, and fueling safety.
- 7. Understands basic operation of the motor including at least two ways to shut it off and what to look for during preflight run up.
- 8. Explains effects of the Center of Gravity and wing connection location on the harness or the trike frame.
- 9. [TL] explains the cause and cure to rollover-type accidents. (TL = Trike launch).
- 10. Has passed the PPG1 written exam. Pilot has completed 4 solo flights.

PPG 1 Flight Requirements (Launch/Landing/Inflation) (FL=foot-launch)

- 1. Two controlled forward-inflations with visual canopy-check each time.
- 2. [FL] Two controlled reverse-inflations with proper surge-dampening.
- 3. [FL] Half-minute of controlled kiting overhead in a steady wind.
- 4. [FL] 15 seconds of controlled ground handling without lifting off.
- 5. Demonstrates a method of establishing proper connection to the wing, with cleared lines and risers, just prior to inflation.
- 6. Pilot has completed 4 solo-flights including two unassisted (other than radio) flights.

PPG 1 Limitations for TL and FL

These recommended limitations are intended to provide a guide for those at this skill level to operate within their ability. Obviously, there are other considerations before flying but this is a good starting point. Exceed these limitations ONLY under the instructor's supervision.

1. All flights must be under the supervision of an instructor.

- 2. Max wind, including gusts 12 kmph.
- 3. Launch and land directly into the wind.
- 4. Use canopy rated for beginner (DHV 1, 1-2, EN-A, EN-B or equivalent other rating).

5. Takeoff and landing area should allow unobstructed climb and landing approach without maneuvering below 100' AGL.

Pilot: PPG 2 rating

This rating signifies that the pilot should be able to fly on his/her own within the limits specified below. It is the beginning of an enjoyable learning process and progression to the next level

PPG 2 General Requirements for FL and TL

- 1. Pilot uses good judgment and has a level of maturity, commensurate with the rating.
- 2. Attends a minimum of 8 hours of ground school / theory session.
- 3. Explains correct canopy maintenance.
- 4. Setup and preflight the glider harness and reserve. (Reserve may be explained if not equipped).
- 5. Verbal analysis of general site conditions including a flight plan (flight path, avoidance areas, obstacles, wind effects).
- 6. Demonstrates proper and effective PLF technique (FL).
- 7. Demonstrates reserve deployment while hanging in a harness, in simulated turbulence or malfunction conditions. This may be done without an actual reserve, if none is available.
- 8. Explains the basics of airspace as it pertains to PPG and how to determine legal flightareas from sectional-charts including how to obtain a weather briefing from the MET department.
- 9. Explains proper strong-wind landing procedures and how to avoid being dragged back.
- 10. Has received training in and understands collapses, stalls, spins, and turbulence-induced collapses, is familiar with the canopy owner's manual and the incident reports.
- 11. Explains how to shorten and lengthen flight path with no power.
- 12. Explains speed-bar and trimmers, their use, risks, and limitations, including for reflex wings.
- 13. Explains the right-of-way traffic rules.
- 14. Explains how to maintain directional control during asymmetric wing-fold of 25% of the wing-span and procedure to correct /recover.
- 15. Has passed the PPG2 written exam and reviewed incorrect answers with the instructor.

PPG 2 Flight Requirements (Launch/Landing/Inflation) FL and TL

- 1. Consistently succeeds at no-wind (0-2 mph/5kmph) forward inflations.
- 2. [FL] consistently succeeds at controlled reverse-inflations with proper surge-dampening.
- 3. Demonstrate two minutes of controlled kiting overhead (foot-launch only).
- 4. [TL] 30 seconds or 100 feet of controlled taxiing without lifting off.
- 5. Two cross-wind (> 15° cross to takeoff path) launches in light wind (<= 5 mph).
- 6. Landings are consistently smooth, power-on landings within 15' of a target and into the wind.
- 7. Landings, after reducing thrust from at least 300' height, are consistently within 100' of
- a target (40' for the Precision-Landing special-skill).
- 8. [TL] Briefs and instructs ground crew for assisted launch.
- 9. Demonstrates smooth variation in airspeed and throttle to maintain level flight from just above min sink to fast flight on a constant heading.
- 10. Alternating 'S' turn (at least 90° heading change) flights along a planned path.
- 11. Hands-off (or up) flying with smooth transition to climb and descent using throttle only.
- 12. Hands-off (or up) flying with turns using weight-shift (if available) and rear-riser turns.

PPG 2 Minimum Logged Flight Experience FL and TL

These are minimums. It is common to need 40 or more flights before attaining PPG 2 skill-levels.

1. 25 flights except that, for PG P2 or higher rated paraglider-pilots, 15 non-powered flights may be counted towards the 25 minimum flight requirements.

2. 5 flying days.

PPG 2 Limitations both for FL and TL

These recommended limitations are intended to provide a guide for those at this skill level, to remain within their 'bounds.' Obviously, there are other factors which should be considered before flying but this is a good starting point.

Exceed these limitations ONLY after thoroughly mastering all PPG 2 tasks and with full understanding of the potential problems and dangers involved in doing so.

- 1. Max peak thermal strength 200 fpm.
- 2. Max wind speed of 11 mph/18kmph.
- 3. Max gust rate of 4 mph/7kmph in 5 seconds
- 4. Should not launch with the wind aligned more than 25 degrees from the takeoff path.
- 5. Avoid using the brake beyond 2/3 of the full travel (stall).
- 6. Max bank-angle of 30 degrees.
- 7. Avoid flying downwind less than 150' above the ground (except in the landing zone)
- 8. Use canopy rated for a beginner (DHV 1, 1-2, EN-A, EN-B or equivalent other rating).
- 9. Takeoff and landing area should allow unobstructed climb and landing approach, without maneuvering below 100' AGL

Advance / Tandem Pilot: PPG 3 for FL and TL

This rating builds on the knowledge and skills from the PPG1 & PPG2. Only the additional areas are included here. These are minimums. It is common to need 100 or more flights before attaining the PPG 3 skill levels

The pilot should have a thorough understanding of the skill sets required for those ratings. He/she should be able to judge and safely fly from any launch site within his skill level. Launches should be consistently successful with the ability to easily steer during the launch run as well as control the flight path immediately after the liftoff.

PPG 3 Ground/General Requirements for FL and TL

- 1. The Pilot uses good judgment and has a level of Maturity commensurate with the rating.
- 2. Explains characteristics of impending stall or spin and the recovery technique for each.
- 3. Explains how to shorten and lengthen flight distance by adjusting speed, height and the relationship of headwind/tailwind in doing so.
- 4. Explains how to maintain directional control during an asymmetric collapse and correction for an asymmetric wing fold of 50% or more of the wing span.
- 5. Has passed the PPG3 written exam and reviewed incorrect answers.

PPG 3 Flight Requirements (Launch/Landing/Inflation) FL and TL

- 1. All landings are safe, smooth, on the feet (FL) both rear wheels touch simultaneously (TL), in the desired touchdown area and in control.
- 2. Consistently succeeds at no-wind (0-2 mph/5kmph) inflations/launches.
- 3. Good canopy control while doing turns of at least 20 degrees while on the ground [FL] running or [TL] rolling with the wing overhead and under power.
- 4. Consistently makes power-on landings within 5' of a target and into the wind.
- 5. Consistently makes power-off (from 300') landings within 15 feet of a target and into the wind without falling.
- 6. Demonstrates smooth transition from descent to climb in a go-around maneuver while controlling the surge.
- 7. Demonstrates smooth, single-swing dampening of surges using throttle only.
- 8. Demonstrates smooth, single-swing dampening of left/right oscillations.
- 9. Linked 180° turns along a predetermined ground track showing smooth controlled reversals and coordination at various speeds, throttle settings and bank angles.
- 10. Demonstrates ability to use Trimmers and Speed-Bar setup and use. (Gives explanation if not installed on wing)
- 11. Significant asymmetric tip-folds and/or big ears (25% each side, 50% total) or other canopy reduction method to increase descent rate.

PPG 3 Logged Flight Experience for FL and TL

- 1. 100 flights either with dead weight or experienced pilot in the passenger seat. It is common to need 100 or more flights before attaining PPG 3 skill levels.
- 2. 30 flying days.
- 3. Has had PPG2 rating or equivalent for at least 120 days.
- 4. 20 solo airtime hours.

PPG 3 Limitations

These recommended limitations are intended to provide a guide for those at this skill level

to remain within their 'bounds.' Obviously, there are other considerations before flying but this is a good starting point.

- 1. Exceed these limitations ONLY after thoroughly mastering all Novice tasks and after acquiring a full understanding of the potential problems and dangers involved in exceeding these limitations.
- 2. Follows safe flying guidelines issued by the PAI.
- 3. Max peak wind-speed of 15 mph (25kmph) without high-wind add-on.
- 4. Max gust-rate of 6 mph (10kmph) in 5 seconds.
- 5. Limit turns to bank-angles recommended by the manufacturer, smoothly exit any spiralturn that is becoming steeper or accelerating.
- 6. Should not fly in thermals where peak climb-rates exceed 500 fpm or where significant cloud development exists.
- 7. Avoid using the brake beyond 3/4 of the full travel (stall).
- 8. Avoid steep banks close to the ground.
- 9. Avoid flying downwind less than 100' above the ground (except on landing zone).

For tandem-rating, please refer to the tandem-paramotoring safety-guidelines for Trike and foot-launch methods. A separate exam/clinic may be conducted by the instructors for tandem endorsement.

PPG Instructor

These requirements are meant to ensure that the instructors have the requisite experience and skills necessary, to take responsibility of a student, by correct instructions, at the right time. This is for an instructor, who may or may not be tandem-qualified.

The Minimum Training Standards, as well as the Instructor Commitment are meant to help ensure that the students receive safe and effective training. These recommendations come from experienced instructors who have found that the risk is thereby minimized, during training.

PPG Instructor Ground/General Requirements

- 1. The Pilot has good judgment and a level of Maturity commensurate with the rating.
- 2. All witnessed flights must be pre-planned by the pilot and discussed with the examining instructor.
- 3. Has successfully passed Instructor Certification Clinic conducted by an instructor administrator or completed 20 hours of apprenticeship with a PAI PPG Inst. administrator.
- 4. Successfully passed Instructor Written Test.
- 5. Successfully completed First Aid and CPR class.

PPG Instructor Experience and Minimums

- 1. Completed one year of flying, using a paramotor.
- 2. 120 flights using a paramotor.
- 3. 45 flying days using a paramotor in the span of one year.
- 4. Has had a PPG3 rating for at least 180 days (may be waived).
- 5. 50 solo airtime hours on a paramotor.
- 6. Agrees to apply minimum training standards prior to student instruction, flight and other areas, as appropriate.
- 7. Adheres to "commitment letter" whenever doing instruction for PAI rating.

PPG Instructor Administrator / Examiner

These requirements are meant to ensure that the Instructor Administrators have the requisite experience and skills necessary to safely certify new instructors. It is important that any issuance of instructor ratings be based solely on the applicant's ability to evaluate potential instructors so as to ensure that our program is administered fairly.

The Instructor Administrator is our most important authority and is subject to an annual review by the training committee. These individuals are responsible for selecting competent Instructor Candidates who:

- 1. Embrace the PAI standards.
- 2. Are willing to work with the PAI instructor community

- 3. Operate first and foremost for the success of their students.
- 4. Represent and support our training program in a way that reflects positively on the profession and the organization.

An administrator's status will be reviewed by the training committee annually and can be revoked by a majority vote of the committee. The intent is to ensure that these individuals are adhering to the program and policies, are being fair and not compromising on quality. Any revocation must be by a majority of the training committee and may be appealed to the officers. A majority of the officers must agree with the revocation for it to stand.

Requirements

Instructor Administrator applicants must:

- 1. Have at least 4 years as a PAI instructor or should have been teaching for over 5 years.
- 2. Have been the primary instructor for at least 10 students and given at least 5 PPG 2 ratings within the last year as primary instructor. Primary instructor means giving at least 90% of all the instruction to each student, including their first solo flight and testing for the PPG2 rating. Up to half of this requirement can be met with other instruction of equivalent value, such as for free flight, at the discretion of a majority of the training committee.
- 3. Commit to giving at least 1 instructor clinic per year that accepts any qualified applicant, regardless of brand or school relationship.
- 4. Be recommended by either
 - a) Two PAI instructor Administrators or
 - b) One PAI Instructor Administrator and two experienced PAI instructors (2+ years as PAI Instructor).
- 5. Pass a review of the training committee.

Process

Here is the submission process.

- 1. The recommending instructor administrator submits an email to the training committee, indicating the desire to certify a new Instructor Administrator and that the candidate meets all requirements.
- The applicant sends an email explaining his/her desire to become an administrator committed to the program's principles, as long as he maintains his administrator status. Further, that he understands that the rating is subject to annual review by the training committee and officers.
- 3. The two emails are forwarded to the training committee and officers.
- 4. If there is no objection by either group within 30 days of the emails' submission, then the rating gets approved.
- 5. Denial by the training committee requires a majority noting that the applicant is not suitable, for the listed reasons.
- 6. Denial by the officers requires that at least two officers note that the applicant is not suitable, for the listed reasons.
- 7. Reasons for denial are: a) attitude incompatible with our mission, b) history of student incidents or non-compliance as an instructor, c) others.
- 8. Any disapproval requires an explanation of the reason, remedy, and when a reapplication may be made.

List of PAI Affiliated Schools

Name of School	Location	CFI
Wings and Flight	Pune, Maharashtra	Eric Menezes
Space Apple	Virar, Maharashtra	Samson D'silva

SECTION 5 RATING SYSTEMS, AFFILIATION & CERTIFICATION Chapter 4: SCHOOLS, COACHES AND TANDEM-PILOTS

5.4.1 School Affiliation5.4.2 Coaches in Clubs and Associations5.4.3 Tandem-pilots

Appendices Appendix A Appendix B

5.4.1 School Affiliation

Affiliation of existing schools:

Broad criteria:

Any school in India, which has been started in India before 2004, or has been operating for about five years and has a good track record, will be considered for affiliation as a school with the PAI.

In the case of branching or splitting of the club, the earlier experience will also be considered - subject to the Chief instructor of the new setup meeting the desired qualifications.

Exception to the above conditions will need an approval from the majority of the TC members.

Minimum conditions for the Instructors, Setup and equipment:

- 1. The School should have at least one chief instructor with flying experience of over five years and should have minimum knowledge and skill level equivalent to "Pilot Level" rating of PAI or equivalent.
- 2. The school should have a proper, documented training syllabus for the courses they conduct.
- 3. The School should be equipped with a class room, where theory sessions with video presentation, can be conducted.
- 4. The school should follow proper briefing and debriefing practice for all the courses conducted by them.
- 5. The equipment used for training should be certified and rated. All safety precautions must be followed, while imparting the training.
- 6. The site and locations used for training should be suitable for the tasks being conducted during the training.
- 7. The school should follow all rules and laws of the country, as applicable, for running the training school.

Also refer to Section 1 Chapter 3 for information on School operations.

Application forms for applying for school affiliations have to be obtained through the PAI office-bearers, via email.

5.1.2 Clubs and Associations Coaches

Coaches are expected to have qualifications and skills just like an instructor but they may not have a regular school setup. They may work independently or may work under an Association or a Club. PAI has provision to certify such coaches who can offer their services to clients who are willing to progress under their guidance.

Clubs and Associations are generally formed by group of enthusiasts and experienced pilots, to help each other as well as promote adventure sports activities in their area. These are mostly regional bodies, with their own rules and regulations, to provide assistance, develop facilities and infrastructure for their members. They may have qualified and certified

coaches, who would play the role of mentors. These coaches should have ratings just like instructors because they will be responsible for the safety of their wards.

The PAI offers memberships to such Clubs and Associations provided they are willing to accept and adopt the systems, rules and regulations and follow the guidelines published by PAI on their website.

5.1.3 Tandem-Pilots

Tandem flight is an option to experience paragliding without getting in to the hassles of learning the requisite skills and techniques. Tandem joyrides are offered to prospective student or friends and family members or general public at tourist destinations which have sites suitable flying sites.

The term 'Tandem-Pilot' means any pilot duly qualified and certified to carry another person on a single paraglider, designed and duly certified for the purpose.

The PAI Sports Tandem-ratings are available as:

- a) Tandem-Pilot Paraglider (Tow)
- b) Tandem-Pilot Paraglider (Hill)
- c) PPG 3 (Power)

Becoming a Tandem-Pilot

Pre-requisites: Before commencing the 'Training as a tandem-pilot,' the potential Tandem-Pilot must first:

- a) Be a regular skilled pilot and a member of the PAI.
- b) Be aged 18 years or over.
- c) Hold Pilot rating (or endorsement) minimum, in the relevant discipline.
- d) Have logged (solo) 100 flying hours (Hill) or 250 flights (Tow).
- e) Have completed 20 launches in the preceding 12 months, using the launch method and in the discipline for which the Tandem certification is being sought.
- f) Produce a letter of support or recommendation from his Club, Association or CFI.

Role and responsibilities

- a) Operate safely in accordance with the "Guidelines for Tandem-Pilots" available on the PAI website.
- b) Continue to improve their own skills and knowledge in various ways, including studying the TM, handbooks, articles in newsletters, Incident Summaries and Safety Notices.

For detail information please refer to the PAI National rating system.

SECTION 5 **RATING SYSTEMS, AFFILIATION & CERTIFICATION Chapter 5: INSTRUCTORS AND EXAMINERS**

_____ 5.5.1 Introduction 5.5.2 Instructor 5.5.3 Senior Instructor _____

5.5.4 Chief Flying Instructor 5.5.5 Instructor Examiner

5.5.1 Introduction

There can be many levels of instructors in a school environment such as – AI (Assistant Instructor), TI (Trainees Instructor), SI (Senior Instructor), CFI (Chief Flying Instructor) offering training to students at various levels.

5.5.2 **Instructor**

By Instructor we mean, a person whose job is to teach a practical skill or a sport. The Instructor ratings will be available in the following categories:

Instructor PG Instructor PPG

Role and responsibilities

- a) Operate safely within a registered school in accordance with the TM and the instructions of the CFI and Senior Instructors. Any and all contraventions of rules and regulations should be reported, in confidence, to the TC.
- b) Operate under the direct authority of a properly qualified Senior Instructor.
- c) Ensure that safety standards are maintained throughout the appropriate operations.
- d) Provide students and pilots with a high standard of training to enable them to achieve their potential.
- e) Ensure that all students are made fully aware of the inherent risks attached to the sport.
- f) Confirm the ability of, and authorise visiting students and pilots to operate within the school.
- q) Improve their own flying and instructional skills and knowledge in various ways, including studying the TM, handbooks, articles in newsletter and Incident Summaries and Safety Notices.
- h) Assist with any PAI investigation or inspection in the school.
- i) Under the authority of the CFI, train his own group of students in a specific discipline without the need for supervision.
- j) Adhere to student group-size limitations: The maximum size group of students that an Instructor can train is two. (See also 'l' below.)
- k) An Instructor may not train TIs.
- 1) An instructor may, with his CFI's authorisation (entered in his Instructor Log Book), be assisted by a TI who has, in turn, been authorised by the CFI (signed off) to teach the exercise in question. In this case, the maximum student group size can be increased to four.
- m) Maintain and promote a positive attitude to the sport, the TC and the PAI.
- n) Uphold his duty of care to the student and members of the public.
- o) Instructors may train only in those disciplines for which they are certified but, once certified, they are regarded as being registered as Trainee Instructors in all other disciplines without the need for formal registration as TIs, subject to all other prerequisites being satisfied - including the CFI's approval.

Becoming an Instructor

The potential Instructor must first:

a) Be a PAI Member with Pilot rating.

- b) Be aged 18 or over.
- c) Be supported by the CFI.
- d) Have recorded the following minimum experience in the relevant discipline:
 - i) Paragliding- "Pilot (P4)" rated.
 - ii) PPG/PPG "PPG 2" rated.

The candidate must now be registered as a Trainee Instructor with the PAI.

The Training Program for Instructors

These training requirements may be carried out in any order.

The Trainee Instructor must:

- a) Study the current edition of the PAI Technical Manual.
- b) Be thoroughly trained in and practice the relevant theory and practical skills and techniques listed in Section 2 (Operating Procedures) of this Manual.
- c) Maintain a log of all training completed, including a towing record, if applicable.
- d) Gain a recognised valid First Aid Certificate (See Section 5: Chapter 1).
- e) Achieve Pilot rating (minimum) in the relevant discipline.
- f) Complete a minimum of 10 days' instructional experience.
- g) Be signed off by the CFI as competent to instruct in all training exercises up to CP level in the relevant discipline (PG, PPG/PPC).

The supervision of Trainee Instructors

- a) For each Training Exercise, the TI should first spend time observing the SI teach the students the SI should back this up with explanations to the TI.
- b) The TI may then be employed to assist the SI but without taking sole charge of students.
- c) Gradually, the TI may (under close SI supervision) increase his input to the student.
- d) Eventually, the SI may sign off the TI for a specific Training Exercise only when he considers that the TI is capable of teaching the exercise without close supervision.
- e) The TI may now, under the supervision of an SI, teach and supervise students attempting that specific Exercise.

A 'signed off' TI, supervised by an SI, may teach a maximum of four students.

N.B. Supervision Terminology

'Assist' means helping the Instructor/SI teach the Instructors/SI's group of students.

'Close Supervision' means that the SI is in direct audio/visual contact with the TI – within a few meters and paying close attention to the TI's training.

'Supervise' means generally overseeing the activity of the TI.

The supervising SI would need to be in easy visual contact (a few hundred meters maximum) and would periodically, during a training day, make direct audio/visual contact (within a few meters and paying close attention). The supervising SI would know what the TI intends, would have assessed it as reasonable, and would keep fully aware of the general progress of the day.

Examination

Instructor ratings are granted by the TC on the recommendation of the CFI after successful independent Examination.

Extending the Instructor Rating

Any extension between paramotoring and paragliding is treated as a new Rating. After completion of all pre-requisites and training, the CFI must apply to have the candidate examined.

Subsequent Ratings applied for within the paramotoring main discipline: Additional PM launch categories may be added to an existing PG instructor Rating by meeting all pre-requisites, completing the training, and successfully passing an assessment.

5.5.3 Senior Instructors

The term Senior Instructor denotes an already certified Instructor further certified as a result of gaining substantial practical experience in one or more disciplines and additional managerial and administrative skills - necessary to prepare him for, if necessary, appointment as a Chief Flying Instructor.

Note: Every school must have at least one Senior Instructor licensed in each discipline offered.

Role and responsibilities

In addition to the responsibilities of the Instructor:

- a) The Senior Instructor (Non Instructor Training) has no specific additional roles and responsibilities beyond those of a certified Instructor until he achieves CFI appointment and/or the 'Instructor trainer' certificate extension.
 - (i) If operating under the supervision of a CFI who is qualified to train Instructors, then he may operate with the assistance of signed-off TIs, certified Instructors and tandem-pilots and must provide a high level of leadership, but is not qualified to train them.
 - (ii) If operating under the supervision of, or in the role of a CFI who is not qualified to train Instructors, then he may operate with the assistance of certified Instructors and tandem-pilots and must provide a high level of leadership, but is not qualified to train them.
- b) The Senior Instructor, with an Instructor Training certification extension may, additionally, under the authority of the CFI:
 - (i) Train Instructors, Trainee Instructors and potential Tandem-pilots.
 - (ii) Sign off TI tasks.

Becoming a Senior Instructor (Non Instructor Training)

A potential Senior Instructor must:

- a) Complete a minimum of 25 days' logged instructional experience as a certified Instructor, and have instructed each and every ab-initio Training Exercise on several separate occasions.
- b) Obtain the PAI Senior Instructor rating.
- c) Maintain an Instructor Log Book.
- d) Be signed off by the CFI as able and ready to take on the responsibilities of a SI.
- e) Pass an examination by an independent Examiner.

Examination

SI certifications are granted by the TC on the recommendation of the CFI, after a successful independent examination.

Extending the Senior Instructor certification

Once certified as an SI, the SI certification can be extended to other disciplines where an Instructor Certification is held and SI pre-requisites 'a' and 'd' are met. Written application for such SI certificate extension is to be made to the PAI office, accompanied by documentary evidence of fulfilling pre-requisites 'a' and 'd'.

Instructor Training Extension

To extend the SI certification to include Instructor training the SI must:

- a) Have logged 50 days as a Senior Instructor.
- b) Achieved a high level of proficiency at classroom and practical teaching, such that he would provide a model for future Instructors.
- c) Be signed off by the Chief Examiner as able and ready to take on the responsibilities of Instructor Training.
- d) Instructor Training Extensions are granted by the TC and are subject to an examination.

5.5.4 The Chief Flying Instructor

The Chief Flying Instructor is the head of operations within a registered school.

Role and responsibilities

In addition to the responsibilities of the Instructor and Senior Instructor, the CFI must:

- a) Be responsible for all operational and administrative activities within the school.
- b) Seek exemption for any proposed deviation from the published Safety Requirements by written permission from the Chairman TC.
- c) Ensure that the equipment is maintained to a safe standard and consult with the TC when considering the use of non-standard equipment within the school.
- d) Ensure that the flight and instructional standards are maintained.
- e) May support the annual renewal of the certification of instructors and tandem-pilots operating within the school.
- f) Confirm the qualifications of and, at his discretion, authorise visiting instructors to operate with the school.
- g) Supervise the training of Trainee Instructors including assessing and signing them off as competent to instruct specific training exercises and carrying out a mock examination prior to proposing them for examination.
- h) Supervise the training of tandem-pilots and their formal assessment and the PAI rating.
- i) Monitor the training standards within the school; and support applications for pilot rating awards.
- j) Make the school available for inspection.
- k) Ensure that incidents occurring within the school are submitted promptly to the PAI.
- 1) Carry out internal investigations, or assist with a PAI Board of Inquiry following an accident or incident, if called upon.
- m) Assume the responsibilities of the Club Safety Officer.
- n) Maintain an effective liaison with the TC.

Becoming a Chief Flying Instructor

The CFI is a school appointment; it is not a PAI rating. A CFI requires a certain amount of administrative skills but need not be the most senior school member, chairman, proprietor

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or officer in charge. The appointment of a CFI must be based primarily on his or her ability to carry out the responsibilities listed above. A CFI must hold a PAI Senior Instructor certification. The appointment cannot be shared, nor can a CFI act for more than one school. The TC will advise a school as to suitability following the nominee's attendance at a TC meeting, whilst retaining the authority to reject any candidate nominated for the post.

Delegation of position

Whilst retaining the overall responsibility for the school, a CFI may delegate, on a temporary basis, his role and responsibilities to a Senior Instructor. If the delegation period exceeds 1 month the TC must be informed. In exceptional circumstances the TC may approve the delegation to an experienced Instructor, with the exception that they may not carry out formal assessments or support pilot rating awards.

5.5.5 Instructor Examiner

These requirements are meant to ensure that the Instructor Examiners have the requisite experience and skills necessary to safely certify new instructors. It is important that any issuance of instructor ratings be based solely on the applicant's ability to evaluate potential instructors so as to ensure our program is administered fairly.

Instructor Examiner is our most important position and is subject to annual review by the training committee. These individuals are responsible for selecting competent Instructor Candidates who:

- 1. Embrace PAI standards.
- 2. Are willing to work with the PAI instructor community.
- 3. Operate first and foremost for the success of their students.
- 4. Represent and support our training program in a way that reflects well on the profession and the organization.

An Examiner's status will be reviewed by the training committee annually and can be revoked by a majority vote of the committee. The intent is to ensure that these individuals adhere to the program and policies, are fair and do not compromise quality. Any revocation must be by a majority of the training committee and may be appealed to the officers. A majority of the officers must agree with the revocation for it to be valid.

Requirements

Instructor Administrator applicants must:

- 1. Have at least 4 years' experience as PAI instructor or should have been teaching for over 5 years.
- 2. Have been the primary instructor for at least 10 students and given at least 5 Pilot ratings within the last year, as primary instructor. Primary instructor means giving at least 90% of all the instruction to each student, including their first solo flight and testing for the Pilot rating. Up to half of this requirement can be met with other instruction of equivalent value, such as for free flight, at the discretion of a majority of the training committee.
- 3. Commit to giving at least 1 instructor clinic per year that accepts any qualified applicant regardless of brand or school relationship.
- 4. Be recommended by either a) two PAI instructor Administrators or b) one PAI Instructor Administrator and two experienced PAI instructors (2+ years as PAI Instructor).
- 5. Pass a review by the training committee.

Process

Here is the submission process:

- 1. The recommending instructor administrator submits an email to the training committee, indicating the desire to certify a new Instructor Administrator to the effect that the candidate meets all the requirements.
- 2. The applicant sends an email explaining his/her desire to become an administrator and commitment to the program's beliefs, as long as he holds his administrator status. Further, that he understands that the rating is subject to annual review by the training committee and officers.
- 3. The two emails are forwarded to the training committee and officers.
- 4. If there is no objection by either group within 30 days of the email submission, then the rating gets approved.
- 5. Denial by the training committee requires a majority stating that the applicant is not suitable for the listed reasons.
- 6. Denial by the officers requires that at least two officers state that the applicant is not suitable for the listed reasons.
- 7. Reasons for denial are: a) Attitude incompatible with our mission, b) History of student incidents or non-compliance as an instructor, c) Any other.
- 8. Any disapproval requires an explanation of the reason, remedy, and when a reapplication may be made.