

FLYING FASTER

and

FURTHER

PART 2

BECOMING COMPETITIVE

in GLIDING

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PERSONAL PREPARATION

When the decision is made to enter a major competition the next step is to commence preparation.

The place to start is with the pilot. There is more to be gained by polishing the pilot than the sailplane. *It is essential to realise that the focus of effort must be on the skills and factors necessary to achieve the performance and not on the performance itself.*

A holistic approach is the best way to integrate the necessary factors into your life. The personal factors necessary for good gliding performance are the same as those for healthy life, so it merely becomes a matter of deciding the particular combination that you need and the organise the time to integrate them.

Overview

In any top level competition you will find that no pilot is markedly better at any of the basic skills. The differences in performance come from the decision making. There is plenty of evidence to show that good physical condition and mental toughness help good decision making.

A gliding competition is an endurance event. Only a good standard of physical fitness will carry you through it without any fading off or loss of performance towards the end. The higher standard you have the better chance you have in maintaining your level of competitiveness for the whole competition. This type of fatigue is very subtle. It shows earliest as indecision leading onto poor decisions. If, after reviewing a flight you wonder at some of the silly decisions you made, you may have been a victim of fatigue. There can also be other more direct reasons such as dehydration or low blood sugar. These are under your control and preventable.

Physical Fitness

If you haven't already done so, do Dr Kenneth Cooper's "12 Minute Fitness Test" or the "Multistage Fitness Test" (Shuttle-run test from the Australian Coaching Council) to establish your current level of fitness. There are 5 levels which are:

Very Poor, Poor, Fair, Good, Excellent.

Most people who are not involved in an athletic sport will test as Very Poor or Poor. A few will make Fair. If you are Good or Excellent you need do nothing different to what you already must be doing. If you test lower, then you need to improve at least to Fair and preferably Good.

Decide on a program to suit your needs and put it into action. Any program needs at least three months to make a noticeable difference so the earlier you start, the better.

The simplest program is walking. It needs to be at least 40 minutes of continuous exercise done 4 to 5 times a week to make improvement. This is between 4 and 5 kilometres distance. If you can take jogging this can come down to 20 minutes continuous. Once you are at the Good level, then 2 or 3 times a week is all that is necessary to maintain it. It needs twice the effort to improve than to maintain a level of fitness.

The only equipment necessary for both is good quality walking shoes, so make the investment. Damage to knees, ankles or feet will be counterproductive and must be avoided. If the shoes are not too bulky they can double up as flying shoes as well, so there is no real extra expense.

This is not a weight reduction programme. It is of no significance for pilots to be at the top end of what is considered a healthy weight for their height and frame. Unless you want to look good in a Tshirt it will be of little value to reduce. If you are heavier than that it may interfere with improving fitness, but that is all. If you want to reduce the same exercise will do but you must increase it to 6 or 7 times a week. It takes three times the effort to lose weight than it does to maintain fitness level.

Nutrition

Eat the right foods. The 80/20 system works well. 80% fruit or vegetables, 20% protein (meat) is recognised as a balanced diet. Most Australians are way out of balance towards the protein side at something like 30/70! Not so obvious, is that most meats contain fat, so a heavy meat intake means lots of fat too. While fat is high in energy it is not readily available and is usually stored. The natural result of that is a low level of fitness and obesity which we see around us every day.

Try some Asian cooking and see the small portions of meat they call for.

"Food for Sport" (Heinemann), "The complete guide to food for sports performance" and "Eating for Peak Performance", (both Allen & Unwin) and are typical of the many good books on the topic.

At the competition it may not be possible to get anything but "junk foods". With some care, even with these, it is possible to keep a balanced diet. It is essential that any change of diet not cause a stomach or bowel upset. If you are susceptible that way, have suitable (approved) medication available. If you have a good level of fitness you will get through the two or three weeks of poor nutrition without difficulty.

Food on the airfield and in flight

It can be very hot on the airfield and you can easily be there for many hours before take off. Ensure that you do keep well hydrated in this period. Always ensure that you have plenty of water in addition to your flight water for this time. If you cannot eat lunch before take off, take it with you. Do not miss it out.

If our flights were all under two and a half hours food would hardly be a consideration. Water would be all that is necessary.

The fuel for the brain is blood sugar. The level of this will drop between two and three hours after eating. It will remain below normal unless something is eaten to restore it. With flights longer than this we must eat something to keep our blood sugar adequate for good decision making.

As we are not doing anything strenuous, low blood sugar shows up as indecision, reduced or loss of concentration, bad decisions or even poor coordination. You may recall having some

or all of these symptoms? The same symptoms occur if you allow yourself to become dehydrated!

Food which can put a small amount of sugar into the system slowly is the best. I feel it is better to work on a "constant level" system.

Fresh or dried fruit can do this. Taking in some protein as well will help spread the intake of sugar. Nuts are convenient and effective at doing this, but as nuts are high in fat content they should be few and the type of nuts carefully chosen. Muesli bars and the like are OK if they have fruit in them. Each variety needs careful checking as many have high sugar and fat contents.

Glucose may be useful if you are going to land within 20 minutes. It gets sugar in to the blood fast and gives the system a good boost. It then causes an insulin production response that lowers the sugar level for some hours. This effect must be avoided if you still have a time longer to fly.

Don't forget water. Just a small amount frequently is all that is needed. Do not wait until you feel thirsty. This is a sign that you are already dehydrated. This can add up to well over a litre. I find two or three containers are easier to handle than one large one. The flexible "camel back" water containers that are made for cyclists are useful as they can be fitted into almost any space and are easy to use.

Fluid balance is very individual so that it would be a good part of preparation to know what your needs really are. Work from other sports indicates that average needs are 6 mls/kg body weight each 2 hours to be fully hydrated. About a litre each 4 hours for an 80 kg pilot. This takes no account of the effects of heat, altitude or stress. However, it does provide a starting point that we can compare with.

Alcohol

Control tests reported in the BASI magazine just a few years ago related pilot error, as determined by the number of mistakes made by a pilot during a pre-flight check, with alcohol consumption. These tests showed that quite moderate alcohol consumption substantially increased the number of mistakes and that *the effect continued for some days after the alcohol was consumed.*

While no pilots drink alcohol within 8 and more usually 12 hours before flight, a significant factor is that the effect may last several days! Many athletes and some pilots, notably Ingo Renner and Brad Edwards have abstained from alcohol in preparation and during a major competition.

To be of any real use this must be done for three months before the competition. This is the period needed to completely remove any substance from the body.

If you don't feel like abstaining, then consume only a small quantity each day. The medical profession has advertised that a maximum of one bottle of beer, or two bottles of light beer, or four glasses of wine or equivalents are unlikely to do any harm and may do some good. As women have a lower tolerance to alcohol, they should have no more than two thirds this amount. This amount is the recommendation for good health and still may be too much for

the level of decision making needed in competition. Not surprisingly, an excess of alcohol is also a factor in obesity. Drink less alcohol and look better in a Tshirt.

Drink more water if you feel thirsty. In places where the water can be suspect, drink mineral water, bottled fruit juice or a low joule soft drink. Fresh fruit juice is often diluted with water and if the water is suspect, then so must be the fresh fruit juice.

Sports additives for water

Despite advertising to the contrary, these all have a very similar formula. The early versions had too much sugar for our purposes. Current versions are better balanced, but it would be wise to use them at about half the recommended strength to avoid a sugar overload. Some fresh research with cyclists and distance runners has come up with the addition of Glycerin BP (available at supermarkets and chemists) at 50 ml per litre to water or half strength sports drink will improve the body absorption of water and hence reduce the need to both drink so much and urinate.

Drugs

I have not heard of any drugs that can be of use to the competition sailplane pilot. All run out of effect before the flight is over and then can be a considerable safety hazard. Some pilots were reputed to be using beta blockers to counter the effects of high altitude (in addition to oxygen!).

The sporting regulators consider some of the drugs regularly prescribed for common ailments as performance enhancing. Taking these may leave you open to a protest and disqualification. Lists of what is acceptable and what is banned are readily available. If you take any drugs at all check that they are acceptable. The Australian Sports Drug agency, Canberra regularly publishes lists.

Oxygen

Flight regulations state that we should use oxygen from 10,000 feet up. These heights are possible once or twice each competition and are the rule in mountain competitions. Make sure you have it available. A nasal cannula is the most convenient and comfortable. Oxygen is also a useful aid to repair a hangover!

If you are very fit you may be able to go to 12,000 feet with no apparent effect. This may be the case but it really is an illusion. Lack of oxygen in the early stages, is very insidious and creeps in as a feeling of well being. Decisions will be affected by this and they are critical when racing. It is a very sound practise to start using oxygen from 8,000 feet up.

Smoking

If you do, stop now!!. This affects fitness in so many ways that you will ***NEVER*** be able to achieve what may have been your true potential of performance. Smokers should go onto oxygen at 8,000 feet. or lower.

Mental Preparation

There are many things that can interfere with concentration, and so degrade performance.

It needs great mental strength to cope with landing out on the first day and not losing your will to win for the rest of the competition. This is a necessary attribute of the would be champion.

Even in Australia, where competitions are relatively friendly, opposition pilots or crew will make remarks or take actions deliberately calculated to upset you. In international competition this behaviour is often carried to an unbelievable level.

Some defence against these is essential.

If you are a Zen disciple or practice TM or yoga, this will probably be adequate to protect you from these problems.

If not, then some protection needs to be created.

A simple form of non mystical mediation described in

"The Calm Technique" by Paul Wilson (Greenhouse Publications) works well.

A useful one on the take-off grid or in the cockpit technique is "Centering". (Additional note on this.)

Combined with "Progressive Muscle Relaxation" or one of the similar forms of relaxation, these may be all you need.

There are many possibilities. The essential thing is to develop an immunity to the occurrences that can happen during a competition to destroy your competitive will.

Male advantage?

Gliding is male dominated, but as it is one of the few sports where muscular strength is not a requirement, there is no reason why women should not be successful in competition.

Endurance, at the level that we are involved in, may favour women.

As few competition flights exceed 6 hours, urination is not usually a problem in Australia's dry atmosphere but may be so in European conditions.

So far, competition success of women is matched by their relative involvement, which is 8% in Australia. However, with changing social factors, we could see an increasing proportion of women in the sport.

Start Now!

Lifting your physical fitness level takes time. So does learning to use relaxation techniques. Three months is needed to make an obvious difference. However, it will be worth while, as the improvement will be permanent if you keep a modest programme going. Better fitness will help improve every aspect of your life.

Review

Remember, the real area of competition is the flying. That is where the greatest effort of practice and training must be made. Improving the fitness level and mental abilities to be able to keep working at top level are (significant) factors in the overall performance.

The Test

If, at the end of the competition you found yourself improving on each flight, you did not do enough practice.

If you found, that in the last couple of days your performance was dropping off, then you were not fit enough.

If you performed badly on one or more days by being spooked by the opposition then the mental preparation was not adequate.

If none of these was the case, then you have flown as well as you can at your current level. Great!

If this didn't make you the winner, then you need to work at lifting your performance level.

Remember, in the top five area there is very little difference in the performance level of pilots.

The one who works to get that tiny bit more usually is the winner.

STRESS MANAGEMENT

Stress coping strategies

Relaxation techniques can effectively reduce stress, either generally in your life or in specific situations; if you regularly practice relaxation you will notice the benefits in your everyday life and will be able to manage a particularly stressful situation more easily. In gliding, relaxation techniques may be used as preparation for demanding flying and at critical times while flying.

The most common features of stress are muscle tension, sweating, headache, shallow breathing, increased heart rate, feelings of anxiety, poor concentration, and fatigue. The relaxation response induces reduced heart rate, decreased rate of breathing, decreased muscle tension and a feeling of peace and contentment.

The two main relaxation techniques are progressive relaxation and meditation. There are long and short versions of both of these methods. You might use a long version on a daily basis as part of your routine and apply the short version on occasions such as waiting on the airfield to launch or even in the air.

During a gliding flight, a short version of a relaxation method might be used to monitor and to trigger relaxation with minimal effort. To be able to apply relaxation techniques effectively in the air you will need to practice relaxation on a regular basis. You will become practiced at relaxing your mind and body if you have a daily routine of the long version of progressive relaxation or meditation. After a period of practice you will be able to trigger relaxation by simply scanning tension and need not work through the long version in detail.

Try to set aside 10 minutes a day to relax. You will find it easier to focus and relax the various muscles with practice. In time, you may find that you no longer have to tense the muscles first, but can simply release them to feel a sensation of relaxation flowing through your whole body.

Progressive muscle relaxation

1. Take a deep breath in, let it out slowly, and focus your thoughts on your body.
2. Now tense the muscles of your toes and feet, hold for several seconds, then let them relax completely. Notice how the muscles feel heavier.
3. Move to the lower legs and repeat this tensing/relaxing routine. Now do the same thing with the muscles of your thighs.
4. Now clench and release your buttocks. Then move to your back muscles.
5. Allow your fingers, hands and arms to relax in turn, and then move up to the shoulders.
6. Focus on your neck, scalp, jaw and forehead. Don't forget to include the eyes and face; you may be surprised how tight those muscles are.
7. Finally, focus on your whole body once more. Use your imagination to visualise any residual tension 'draining away' down your body, into your feet and away.

Meditation

Meditation is a mental experience rather than a physical technique. It can create a sense of fulfilment and contentment, and involves making your mind as 'still' as possible.

1. Find a comfortable position.
2. Relax physically using progressive relaxation.
3. Still the mind.
 - focus without analysing your thoughts or actions
 - focus your attention on one thing such as your breathing
 - observe, and concentrate on observing, without reacting; let sounds, thoughts, feelings come and go, like waves rising and falling

RECOVERY

Recovery is a specialist area of sports medicine. For a healthy, functioning athlete the term refers to adaptation to training stressors. This adaptation can be physical or psychological in nature and the recovery processes involved are often referred to as restoration and regeneration.

It does need to be considered at the planning stage of any training programme. It's incorporation will help to establish a well balanced programme that is more likely to be adhered to than one without it.

At the minimal state it is inclusion of some activities to help recover from the major stressors in your programme and the monitoring (and recording in a log) of key parameters. Make a quality assessment wherever possible. Use a 1 to 5 scale, very poor, poor, fair, good, excellent.

These are:

- ◆ Sleep quality
- ◆ Morning heart rate

If you are working on a fitness improvement programme this should reduce slightly over a three month period. Generally it takes three months to achieve any change.

- ◆ Weight Check this at the same time each day.
- ◆ Exercise program Note the time spent and type of exercise, quality, if significant.) If you are working on more than one type (walking, swimming, aerobics) make a separate entry for each.
- ◆ Nutrition Consider this in relation to your training programme in combination with your normal worklife. You may need to make changes to get a better result.
- ◆ Hydration Give this great attention. Current thinking is that a good deal of poor decision making in the air is due to dehydration. Probably a lot of thinking on the ground has the same cause too!
- ◆ Relaxation techniques These should be practised at least twice a week.
- ◆ Visualisation Gliding lends itself very well to this technique. This should be done at least twice a week.
- ◆ Make allowance for some non specific relaxation; reading, watch television, or some such at least once a week.
- ◆ Sport specific practice In our case flying. As well as the time, note the type, (lone cross country, group flight, one on one race or whatever.) Note the quality or placing. A useful recovery after flying is to walk or do light exercise or stretching for 5 minutes.

Extending this a little further, you may find that you need to do some specific recovery exercises. Typically, if you find you get any back pain from flying or exercise, some massage or other treatment will be useful. Similarly, if you find you tend to tense your legs or arms. After some time into your training programme, you will probably find that you need to modify it to include more recovery items. Use showers or spa baths after exercise. Consider alternation of hot and cold to help recovery.

Prioritise all weekly commitments (work, study, training, domestic chores, social). Add a variety of recovery activities around these commitments eg. massage, swim, spa.

Do not wait until you are in a competition before you get concerned about good quality sleep. From the commencement of your training programme put the following tips into practice.

Sleeping Tips Things to do:

1. Practise relaxation techniques before going to bed.
(relaxing music, muscle relaxation, breathing exercises, visualisation)
2. Lie down to sleep ONLY when you are sleepy.
3. If you don't fall asleep within 30 minutes after turning out the light get up and do some relaxation work (see Point 1)
4. If you wake up in the night and can't go back to sleep follow Point 3.
5. Reduce thinking and worrying in bed - learn to switch off.
6. Get up at the same time each day.

Things to avoid in the evening

- i. Caffeine (eg. coffee, tea, coke, chocolate)
- ii. Nicotine
- iii. Alcohol
- iv. High protein meals

COMPETITION PREPARATION LIST

Mark items that are fully prepared or need attention. If you are working with a coach forward a copy to your coach. **PILOT:**

COMPETITION to ENTER _____ **PRACTICE STARTS,** _____

CLASS _____ **SAILPLANE** _____ **RADIO** _____

INSURANCE DUE DATE _____ **FORM 2 DUE DATE** _____

BALLAST SYSTEM O K? _____ **BALANCE, YOUR WEIGHT?** _____

INSTRUMENTATION _____ **SEALING** _____ **SYSTEMS** _____

Flight equipment 1 Checked and fully operating?
PARACHUTE REPACK? _____ **OXYGEN CHECKED?** _____

CAMERAS and/or GPS _____ **TURNPOINTS ENTERED?** _____

Flight equipment 2
MAPS WAC, OTHER _____ **PLANNING EQUIP** _____ **APPAREL** _____

Ground equipment 1
TRAILER OK, REG _____ **CAR** _____
BASE RADIO _____ **BALLAST LOADING GEAR** _____

Ground equipment 2
BATTERY CHARGER _____ **BARO/LOGGER CHARGER** _____ **PLUGS?** _____

Competition requirements?
ENTRY _____ **ACCOMMODATION** _____ **COMP LIC.** _____ **TRAVEL** _____

CREW: ARRANGEMENTS FIRM? _____
Personal fitness program targets?
DIET: _____ **EXERCISE:** _____ **Alcohol Abstinence?** _____

MENTAL PREPARATION: _____

SITE _____ **METEOROLOGY** _____ **TECHNICAL READING** _____

Flying preparation: Hours on type and/or Competition:
CROSS COUNTRY, LONE/GROUP? _____ **CLUB COMPETITION,** _____

STATE COMPETITION, _____ **RECORDS/OTHER** _____

For team coordination, list the types of equipment.

VARIO 1 _____ VARIO 2 _____

RADIO _____ GPS _____

ANALYSE Your Strengths and Weaknesses

It is natural to assume that any pilot who enters a competition hopes to win. It is almost a certainty that if a pilot enters without that intention and hope, then they will not win. A positive attitude is essential. However, a realistic appraisal of the possibilities need to be made to avoid a severe loss of confidence due to failing to come up to expectations. Make those expectations realistic relative to the occasion.

Remember, it is the skills and factors that create the winning performance, the performance itself is the cumulation of them.

Some examination of these factors is necessary to decide which you can control and work on and those which are outside your control. Some of these are of a strategic nature. If you are planning for a competition closer than 6 months you may not be able to make a large difference. However, just starting on them will be of some assistance.

If you are not flying in competition, but simply trying to improve your performance you can use the same analysis.

Give yourself a 1 to 5 score on each of the following factors. If you consider a factor to be irrelevant to the particular competition or situation, then give it a 3 score. There are 20 factors to give a 100 maximum so you can think of it as a percentage factor if you wish.

- () Currency, flew yesterday, last week, last month?
- () Recent competition experience. Each competition is 1 point. Use last summer.
- () Annual experience. 100 hours/year gliding count 2. Add 1 for each 100 hours/year.
- () Competitive sailplane, equal to the best in the class?
- () Experience on type, totally familiar?
- () Instrumentation, adequate? Can you use it easily?
- () Aircraft preparation, nothing more you can do?
- () Crew, support equipment, practiced, working well?
- () Competition type and or venue compatible with your experience??
- () Overall weather knowledge. ***No pilot knows enough!***
- () Site knowledge, flown there before? Often? Never?
- () Practice at site, nearby or similar. (Before the comp.)
- () Environment at site, helpful to you?
- () Anyone in the opposition who concerns you?
- () Psyching by opposition? Your ability to cope?
- () State of fitness, take a month's hard flying, no worries?
- () Current health, no minor illnesses or problems?
- () Self monitoring, ability to adjust?
- () Confidence level?
- () Choose one additional factor, favourable or otherwise.

[] Your Score = ____ %

Having done that, now get someone who flies with you regularly (either in the two seater or competing on the same tasks) to score you. Alternatively, a coach who knows you can do this.

Compare their result with your own. You may be surprised to find their results are quite different. Combine them and you will have a list of the factors that you need to work on.

A coach can also help as a source of information, by giving direction to your efforts and providing feedback on your improvement programme.

The best practice for competition flying is competition flying. No other flying creates the competitive pressure.

A problem in training for a major event is that there are rarely enough competitions at convenient times to provide the best training. A way to overcome this is to make a competition whenever there are two or more pilots. Not quite the same but much more effective than lone flying.

One feature of a gliding competition is that each day is a fresh new chance to win. Yesterday's result does not influence today's except in our own mind.

It does need mental discipline to remember this and act on it.

It is difficult to isolate something like a bad score from a land out as history. This also applies during a flight. Whatever has been done is already history, and need not interfere with what we have yet to do in that flight. Fly the best you can each day. Competitions are won by being consistent.

A powerful positive factor to avoid is distractions. It is too late to argue about some aspect of the rules, task setting, or some failure of the organisation. That must be put aside and argued for the next competition.

Equally, we can try to put aside personal and business distractions.

All concentration must be applied to the current task, under the current rules.

Being able to use a relaxation technique is very useful to meet these problems and distractions with equanimity.

IMPROVEMENT PROGRAMME

This programme is an overview of the factors that must be considered if you wish to lift your standard of flying. Accurate information about strengths and areas of potential improvement, combined with realistic goal setting practices increase the likelihood of achieving those goals.

Gliding is an experience sport. Nothing will improve your gliding more than time in the air.

This is probably why Ingo Renner, four times world champion, with more than 22,000 hours of high value cross country gliding, is so difficult to beat.

“The more I practice the more I get lucky” attributed to Jack Nicklaus is just as true of gliding. However, we can do lots more to make sure good gliding is not brought down by silly, preventable mistakes.

The management of stress has come to be recognised as one of the most important skills a sports person can have. This must also take a high priority in your programme.

While the approach is holistic, for convenience, development can be viewed 5 areas.

MENTAL PHYSICAL ORGANISATIONAL TECHNICAL STRATEGIC

Because our equipment is so important to the overall result, **technical** can be divided into;
(a) personal knowledge (b) sailplane and equipment.

There is inevitably some overlap between the areas. It is impossible to discuss physical development without touching areas of mental approach and strategic plans. Similarly some areas of technical must also flow into strategic considerations.

Development of skills takes time so that it is useful to plan in short term and long term goals. Typically this could be, what can be done for the next local competition? (short term) and what can be done to achieve a place in the next Australian Team? (long term). A series of short term goals along the path to the main goal works well as rewards and encouragement as you proceed.

If the next World Competition was at a totally unsuitable site for Australian experience, then the long term goal could be either to expand experience to include the site or to miss that and plan on the following competition. Goals must be realistic, not pie in the sky stuff.

Listed are 22 relevant factors. Add others if you feel they are necessary

MENTAL: confidence level, ability to adjust, self monitoring ability, ability to relax, who is the opposition? psyching by the opposition.

PHYSICAL: state of fitness, current health.

ORGANISATIONAL: sailplane preparation, planning for a competition, crew, crew training

TECHNICAL: (a) personal knowledge; currency, experience on type, total experience, overall weather knowledge.

(b) sailplane; competitive type, instrumentation, sailplane preparation, support equipment.

STRATEGIC: practice at the site or similar, recent competition experience, site knowledge.

Make a training diary

A gliding log book is not enough. You need a separate book to keep notes on your whole preparation programme. A week at an opening diary is suitable, either in a pocket or A3 size.

In the planning areas you can write up your training programme, and enter every aspect of what you are doing about improving. Physical, Mental, Nutrition, Technical reading or courses and so on. Do not leave a single thing out. If you are working with a coach or mentor, get them to give advice and make comments.

Feedback: Work with a Coach, Mentor one or more pilot partners.

It is essential that some means of getting feedback on your progress is built in to the programme.

Also, you need to learn how to use this feedback. The following principles ought to be adhered to when receiving feedback.

Listen, rather than immediately reflecting the feedback or arguing with the person providing the feedback.

Often, our first reaction to hearing something said about us or our behaviour (particularly if we perceive it as criticism) is to deny the correctness of it in order to protect our ego. In doing so, we lose an opportunity to learn from the information.

Because we tend to be sensitive to the evaluation we receive from others, it is easy to “project” our fears of what people might think of us onto the person providing the feedback. For this reason it is important to clarify what it is that the feedback provider is actually saying about us or our behaviour. This can be done by checking our perceptions out with them. That is, ask, "do I understand you correctly? or are you saying...?"

Feedback can reflect, in part at least, a bias of the person providing it. However, it may still be quite valid. Listen carefully and check out the parts you are doubtful about.

One way of obtaining a more accurate picture of our behaviour is to seek more than one opinion.

At the same time you can take advantage of the opportunity to obtain information on other aspects of your performance, not just the items that the feedback provider wants to talk about. It is appropriate for a coach to decide to give you feedback on an element in order to bring about a change in that behaviour. This is also an opportunity for you to obtain information that might help with regard to changing another aspect that is of concern to you.

Decide on a course of action based on the feedback received.

Feedback is the cornerstone of the planning stage because the use of effective feedback is necessary to inform the goal setting process.

Once you have identified an element that can be improved, and have decided on a course of action to bring about the improvement, a timetable or schedule can be devised and implemented. You can then reward yourself for sustaining this commitment.

To develop your own training programme make a personal score on these factors, as set out in “Analysing your Strengths and Weaknesses” and then move onto the section “Making Your Own Training Programme”.

PERSONAL Competition Training Programme

Preparation for a new season or an important competition, such as a Nationals or World Competition, can be conceptualised in 3 stages. These are: planning, practice, and implementation. This is about the planning stage.

It is essential that a holistic approach be adopted for any programme to be successful.. Start with your goal. Write it down. Almost certainly you will find that you need to have intermediate goals so write them down too. Then work to the present. Consider then if it is reasonably possible in the time available. It may be that you need to modify the goals or time scale. If there are a number of, "I must place well enough to move to the next step," these will provide review steps to modify the goals or time scale.

It is essential to realise that it is not the goals themselves that need to be the focus of effort, but the skills and factors necessary to achieve those goals! If you put the maximum efforts into those factors, and you have the innate abilities, the goals will be realised.

In the planning stage, it is useful to review recent past performances in the light of future aspirations. You must make some provision for feedback of your progress.

Make a list of the major skills and factors you will need to consider.

Here are some, you should be able to add others.

The key ones are the competition venue(s) and Glider(s)

The following items you can make a development programme for.

Your: physical condition

mental strength

technical knowledge

Improvement programme for flying skills

Feedback on training progress

Practice (in addition to the improvement) at the home site

Competition practice (possibly intermediate goals)

Practice at the competition site

Other important items to consider.

1. Support equipment
2. Crew requirements
3. Selection requirements
4. Team requirements and organisation
5. Your own finance available for this project. Include future projections.
6. Financial assistance from: team, association, club, family, company, sponsorship?
7. What about the non gliding part (if any) of your life?

Expand each of these areas into as many sub areas as you think are necessary. Separate the ones that you cannot control. You will at least have to keep yourself informed about them and any changes that occur to them. Then construct a time line or calender and place the significant events on it. Work it through it in detail to get a weekly programme with daily items. If you can work with gantt charts they are excellent for this type of project planning.

The various sections of FF & F will help in identifying the details of each area. You need to note your needs of each and get them onto your action plan. FF & F is designed to give the

starting points and guidance for all gliding areas. The personal ones you must sort out for yourself.

Before going too far on the planning process, with relation to last three points, take a long, hard look at yourself. Now is the time to be very honest. To embark on a project that will impinge, if not dominate, every aspect of your life for 4 to 10 years is a major undertaking. Review every aspect in this light.

Your activities outside of gliding will all be affected to some degree. You must make adequate room for these to be accommodated or incorporate them into your gliding life. You may even decide to shift your gliding goals further into the future while you concentrate on a profession, partnership or making the first million dollars. A plan can still be made.

As a part of the plan commence a training log. This needs much more than just your flight log. A diary of at least a week to an opening is needed, and possibly a page to a day will not be too much.. Alternatively you could use a computer. If possible use a database, as that will allow analysis once you have accumulated a significant amount of data. Almost certainly it will show trends that will allow you to refine your programme.

Items you need to log are: Sleep quality; good, poor, indifferent? Your morning heart rate, preferably before you get out of bed. If you are doing any exercise, improvement in fitness should show up as a small reduction in this rate. Exercise type and time spent doing it. Your weight, preferably at the same time each day. A great way to help keep at a programme is to log it. When you see how many times you have missed you'll feel guilty enough to get back into it. Also it is a good pointer on what has let you down if you fail to make the goals you have set. Your flying, of course, give type as well as duration. Whether it was competition, group cross country, one on one race, flight with a coach or whatever. Your log should cover every item of your programme so you can track if you are doing enough and what effect it is having on you.

If you have taken on a diet you will need to log this too. The computer diet programs are quite good in tracking whether you are getting sufficient amounts of the various vitamins and minerals. Some of these also have provision for exercise and the overall effect that the combination should have on you.

Provide somewhere to log feedback. If you can regularly get this from a coach, great! Make sure it is detailed enough for your guidance.

SAILPLANE PREPARATION

If you need to do anything major with the sailplane begin well before you need the machine for competition. Maintenance is notorious for taking much longer than you estimate. Here I will cover only minor aspects of preparation.

AIRFRAME: Give it a through clean. Examine the leading edges of all surfaces. If there are any small chips in these areas they should be filled, as they are in the most critical area for performance.

Use silicone wax remover to make sure the area to be fixed is really clean and you will get good adhesion. Fill with gel coat (or with whatever finish has replaced it) using a spatula.

Sand off very carefully with fine wet and dry paper. Use it wet. You may need to do a final finish with cutting compound so the fillings are invisible. When all repairs are done, polish the entire airframe with a plain wax. Solid wax put on with a machine polisher is best, as it melts into any tiny holes. Then finish with a lambs wool buff.

After this is done all it needs is a clean with a moist chamois. Wax finishing once a year is enough unless you fly very frequently all year.

CONTROL SURFACES: You may have to remove some wax from these areas to get good tape adhesion. Use the sealing system recommended by the makers. Take particular care to make sure control movement is not restricted or stiffened. If it is, strip off the tape and start again. It is essential to get this correct as poor control surface taping can have a major effect on handling as well as performance.

BUG WIPERS: These are usually not needed in Australia. In some countries they are essential to performance. Consider them if you are taking your sailplane to a European competition.

CANOPY: Good sealing around the canopy can give the greatest benefit in reducing flight noise. It is easy to tack a thick wool thread at 5 cm intervals with contact. This is quite effective.

A silicone seal is good but is very difficult to do well. It will also alter with temperature and can distort the frame. The silicone must be put on as a very thin, even strip.

Between these two is a foam adhesive strip. It is easy to attach and can be very effective.

WHEEL DOORS: Check these and adjust if necessary to get a good fit. Replace any worn bungies or springs.

GAPS: Cover all junction gaps with tape. Electrical tape will be necessary if there is any three dimensional stretch. Otherwise use cloth tape. Tessa brand is best for both.

ELECTRICAL: A dual battery system is a must. Each should have its own fuse at the battery. Good quality wire of the correct load capacity, with appropriate switches and fuses for each instrument, helps keep the system safe and reliable. As with plastic tubes, you must neatly tie and bundle electrical wiring so it will not foul as you get in and out.

INSTRUMENT PREPARATION

Unless you are setting up your own sailplane there is little that you can do about the instruments. Some changes may be possible. Also, ensure that they do work correctly.

The two key instruments, the ASI and thermalling vario should be together on the top row. If there is room, the speed director should be on the top row also. If this is not possible, then on the next row down with the distance/height readout.

Sometimes it is possible to move instruments about without altering the system. Altimeters and radios which need little attention in flight can be lower on the panel.

If you cannot change a less than ideal instrument placement then accept that you must work harder at scanning. You will be at a small disadvantage to pilots with a more efficient instrument layout.

The instruments must all work correctly. To do so there must be no leaks in the system. There are schemes and equipment for checking this. This should be done before any competition.

Do not assume that because you checked it when it was installed that it will not leak two years later. Plastic tubing hardens with heat and age. After a few months just the tiniest disturbance can cause a leak.

Tubing should be positioned so it cannot be fouled by the pilot getting in or out. Whenever you shift instruments, use new tubing. This can be done many times over for the price of one unnecessary retrieve. Simply replacing all the tubing in the cockpit area with new tubing is worthwhile. This is not possible, or necessary for the tubing runs that go from the cockpit area to the rear fuselage. These are reasonably protected.

It is worthwhile to spend some time with the instrument handbook so that you can fully understand what information the instrument can provide and how to get that information.

The compass is an often neglected instrument. It is sensitive to electrical fields as well as the earth's magnetic field. A compass swing is a must to ensure that it is working correctly.

In circling flight it is of no use whatsoever. It is only useable in reasonably steady straight flight. However, if it is wrong, it can lead you astray and turn what may have been a good score into a zero score day.

Changing instruments around on the panel can change the inbuilt errors. Make sure that you check it before the competition begins.

The camera is important. No matter how fast or long a flight may be, if the turn point pictures are not correct it may as well never have been done.

I am appalled that pilots lose flights that must cost thousands for the sake of a \$4 film or another 30 seconds care to load it.

The camera mount is also important. To take the picture that you think you are taking it must be firm and correctly aligned.

Care with instruments and equipment is well worthwhile. It comes back as good results.

USING THE GAGGLES

Gaggle flying is an integral part of competition flying. So, as a competition pilot it is normal to become proficient at using them. All the other pilots will be intent on doing the same thing.

On a cumulus day, once sailplanes have started a race it is unusual for gaggles to develop. Seemingly each pilot has such faith in his ability to read the clouds to find the best lift that gaggles rarely develop. It needs good team flying to keep a gaggle together in cumulus conditions.

On blue days it is a different story. Perhaps because gliders are easier to see, perhaps pilots do not have faith in the forest theory. Whatever the reason, gaggles always develop and are usually maintained up to the point where gliders commence their final glide.

Being able to join and keep flying safely in the gaggles is only the basic skill required.

The tactical use of gaggles will depend on a number of factors. To work them to the fullest extent, it is necessary to be flying a glider that is evenly competitive with any other in the class. This must apply to the wing loading capabilities as well as the basic performance.

This also applies to the pilot. You must be able to handle your glider well over the full range of wing loading. This means you must be able to climb with the best pilots at the heaviest wing loading appropriate to the day.

You must learn to match your gliders wing loading to the conditions.

If you cannot match the heavy wing loading then the heavily loaded gliders will leave you behind on the strong days.

When the weather is weak the lightest gliders will climb away, or even leave you to outland while they pussyfoot home.

Most gliders can be flown at 35 to 45 kgs/sqm. and in each class there is only small differences between types. These loadings suit most competition days in Australia.

If you are confident that you have everything in your favour, you can plan on leaving last and use the gliders ahead to mark every thermal. That way you will catch them up with minimal time lost searching and centering thermals. If the earliest starters got it right you will catch them as they mark the thermal to climb to final glide height.

Sound a little too magic? It has been done. However, I think that the chances of doing this are getting less each year as there are more and more good pilots.

If you are a little less confident you could leave with a group and hope to stay with them the whole course. If you reach the top of the thermal first, set off slowly, with the McCready set back a little. Soon the others will pass you, but lower. They will reach the next thermal first, but you will reach it as they come to your height.

The more adventurous pilots pushing faster and lower will only escape you if they hook into a thermal better than the average by some 3 or 4 knots. Of course, that is what they hope for. Being alone when they hit the thermal reduces the chance of them doing this on the first turn. The time they lose centering is what you pick up by having them mark the thermal core for you.

This is the tactic of the "Leach". Despite some pilots making disparaging remarks about leaches, they themselves will be expert at doing it.

If you keep track of who is doing what, you will find that the lead changes in a rolling over sequence. The best pilots, if they cannot escape the gaggle will be at the top in the last thermal for the final glide. They may slow a little some 20 to 40 kilometres before to achieve this.

A frequent competition situation is when the whole class starts too late and the conditions deteriorate as the leading gliders come into the last 100 kilometres. This is where the very late starters sometimes catch up, but more often they find they have driven too low before realising that the situation is changing.

They will need to scramble to get home.

If you can discern sufficiently early, that the conditions are changing, the tactic is to slow a little and conserve height more than before. It may be necessary to lighten your glider to remain high. The late thermals are always stronger at height, so that the high pilots are working a stronger order of lift than the lower ones. The high ones will quite rapidly pass the low ones and soon be on a final glide.

This is also the tactic to use if you are coming home late.

If you fall in with a cooperative gaggle, everyone will leave a thermal at the same height and time. Do not cruise directly behind another glider, but 5 or 6 wingspans out to one side. The others should all spread out in a similar fashion.

With several gliders searching in cruise it becomes obvious when the next thermal is encountered. The thermal core is quickly found.

Flying this way in a group, rather than a gaggle, a very fast speed can be maintained. However, any glider which is lighter will soon fall behind.

COMPETITION TACTICS

All the tactics that apply to tasks also apply to competitions. There is no reason to change them. Once a task is commenced there is no more to be done than to fly as well as one possibly can. If that does not win then the whole standard must be improved.

The nature of competitions does allow a whole additional set of tactics to be considered.

In a competition made up of many days we need to consider some overall tactics. Flying the best you can every day is a good tactic, but there is more. In competition there is always the temptation to push that little bit harder, fly a little closer to the risks of landing out than you normally do. This flying on the edge can be very tiring, even if you are in the peak of fitness. This then increases the chance of landing out and blowing the whole competition.

In other sports the top experienced athletes often say, "I have only one or two world standard winning performances a year in me, I must work to bring them out on the right occasions." How many times do we hear of athletes working up to an Olympics, winning everything, only to make a mediocre placing in the one competition that was more important than all the others?

Athletes and pilots are like racehorses, they have "form." What all the preparation is about is to bring that "form" to a peak at the commencement of the major competition of the year.

This is a matter of pacing, and like athletes, glider pilots must pace themselves too.

The time to bring out the top performance is on the first and second day of a competition. Statistically, in 50% the Australian standard class nationals, the pilot who has won the first day has won the competition even though they may not have held the lead all the way through. This may be a function of the way the scoring system works. The other classes are not so consistent, but follow that general trend.

After that, fly a little more cautiously, and work to score 950 points each day. Do not be concerned if others win a day. If you are in the lead keep to your cautious standard, but be prepared to put out your best efforts on the last two days. Those are the days that everyone who is trying to catch up will be beginning to fly a little more risky. Good quality flying then will either win or bring you up into the top group.

There are a number of flying tactics as well.

These are almost all before the start. In task flying one simply sets off immediately after launch or after the first thermal. Competitions normally hold the opening of a start gate until after everyone has launched and has had a reasonable time to climb to a suitable start height. This is usually 10 minutes after the last release.

The time between launching and the opening of the start gate can be put to good use.

The most important decision to make is when to start. In Australia, tasks are set with the expectation that those who make 80% of the fastest time will get home. So, generally there is time to sample the thermals, and see if they match those forecast.

If the thermal strengths do not match the forecast, consider what your options are.

To make good decisions in this area, a reasonably detailed flight plan is necessary. See the chapter on flight planning for this.

This can then be used to determine start time. This gives the first basic decision. Has the task been overset so that it almost certainly become a distance task? If so, then a start must be made as soon as possible after the gate opens.

Maybe there is a better tactic? See what the others are doing.

As your planned start time approaches work high and upwind of your chosen start point.. Try and start on a surge when clouds ahead are developing well. If you miss a surge, then the area around the start point may well take another 20 minutes or more to generate new strong thermals. If this is as much as ten minutes before your planned start it is best to go. Waiting will move you behind the plan and possibly on the down side of a surge all day.

Start time tactics vary according to conditions. On days with a high density of cumulus clouds, the starting times of other pilots is not so important as gliders quickly become separated and difficult to see. Gaggles do not develop to any great extent. On blue days, particularly when associated with poor lift, the way for most pilots to achieve a good result is to leave at the same time and fly the task with a group of good pilots.

Don't wait indefinitely for the day to improve substantially. If conditions are not good between 1 and 2 pm then they are unlikely to get much better and will probably get even worse towards the end of the day.

If it is in the last few days of the competition the top runners may be more concerned with covering each other than completing the task! They may all land out but their scores for the day will be similar. It does not matter that another pilot who, in any case, is too far out of the running to overtake the leaders wins the day. This will maintain the same relative places of the leaders in the competition. This tactic has been used many times in National and World competitions.

This can give an opportunity for pilots just out of the top group to pull up several places. It is worth the risk of leaving early and keeping the chance of a completion high, than going with the top runners gaggle and an almost certain outlanding.

A basic tactic is to let some start and then to follow soon after. It is almost always possible to catch another glider that starts up to three minutes ahead. Allow more time and you probably will not see that glider again until you are home. Of course, it is always possible that the pilot gets stuck somewhere and you catch up. To expect that is to depend on luck rather than skill.

More often than not the task setters get it right and you will have about 20 to 30 minutes wait after the gate opens to get to your optimum start time.

If others start earlier, question why? If it is all the locals it may be a good move to start too. If no one will start then question why?

Did the weather forecast indicate an improvement in height after a certain time? Thermal strength is related to height, so any height improvement has a double advantage.

Once you have made the initial climb after launch, search for wave. If you can find one it may give you an initial start, or even winning advantage.

Each 1000 feet above the thermal height, will be a free two minutes. If you do get high and are in position to start, then do so, even if it is somewhat earlier than your planned time. waves are fickle things and may not be there at all at a later time.

Obviously you need to keep track of what the others are doing in this pre start period. Remember that a start time need not be reported until 30 minutes after the start. If the person you want to start near holds that report to the maximum you will not see them that day. Also, crews can report starts, so that the pilot may be long gone before you know about it.

The competition pilot needs to learn to **recognise every glider type** from a distance and needs to **know everyone's markings**. It helps to also recognise pilots voices as they often talk without using a call sign.

Know who everyone is, and what sailplane they are flying.

Know who the local pilots are and what their level of experience is.

If the local pilots start early or hang back, try to find out why. You may even go with them before finding out.

The only positive way to keep track of particular people is to sight them.

At a competition with both 15m and standard class it is easy to mistake one for the other. It can be disconcerting to be hanging about thinking there are plenty of gliders starting as late as you, only to discover they are all the other class!

Do not get into thermal races, or difficult gaggles before the start. This can wear you out so that you are tired before you even start! Concentrate sufficiently to check out all the likely things for the day and no harder until just before you start.

If the weather is as expected there is no reason to alter your planned start time. About 10 minutes before that time look for a good thermal a little upwind from a start point and climb to maximum height.

Try to start a few minutes after some other sailplanes. They will mark the first few thermals for you and you will almost certainly catch them.

You will not catch and probably not even see sailplanes that start more than 5 minutes ahead of you unless they get stuck somewhere.

Other sailplanes will mark thermals so do not be afraid to use them. They will use you.

Be careful not to follow those of another class who may have a different task! If it is a multi class event, know what task the other classes are flying. This may be of some help during the

flight. It will certainly avoid being confused as you see sailplanes heading off in a different direction to yourself.

COMPETITION CREWING

The purpose of the crew is to help the pilot fly to the best of his abilities and experience. This can help the pilot win.

This could give the crew a very broad range of activities. Only the practical ones are here.

In a nationals or a smaller competition a pilot may have only one crew. For an international three are allowed. One crew member must be nominated as the crew chief. It will be necessary for the pilot or crew chief to divide the duties in the most effective way. This needs to be discussed by the pilot and crew chief and possibly the whole group together.

Each pilot's requirements are different. Before the first day of crewing it is necessary for the pilot and crew to discuss what the crew will do. As the competition proceeds any changes to be made must be discussed too.

During a competition, the pilot will have varying amounts of stress to handle. While people respond to stress in many different ways, almost certainly the pilot will be highly sensitive to almost anything that is not normal. Crew need to learn their pilots particular stress signs and propels so that they can be minimised as far as possible.

Pilots need to remember that while crews are capable of intelligent thought they are not mind readers!

The crew has a full time occupation as there are duties before, during and after each flight.

Here is a checklist of pre-flight items. The crew must be told of any item the pilot wants to do. These items should stay on the checklist and be marked accordingly. They still need to be checked off each day as having been done. Pilots can forget!

SAILPLANE:

Daily Inspection, clean, with all tapes in 100% condition. Replace any tape that isn't. Stow or replace covers.

Ensure cockpit ballast for pilot weight is correct and secure.

Water Ballast loading; Are there any specific pilot requirements? Wing tanks, tail tank. Always full or different each day. Temporary tapes?

There is a need for the crew to understand completely how the water ballast system operates and how to solve any problems it may cause.

Batteries; Who will arrange charging? Are there spares readily available?

Radio; Check that it is operational. Make a list of all the frequencies to be used during the competition and what they are for the crew. Does the pilot have a list?

Barograph or Datalogger Does it need sealing, signing or other official checking?

Cameras; Film loaded, official clock or board photos taken, glider registration taken. Who loads films and does these actions?

Camera mounts; Which side? Check each day.

Oxygen system; Operational and sufficient oxygen.

NEVER USE ANY GREASE NEAR OXYGEN SYSTEMS.

Pilot land out bag.

Pilot drinking water fresh water, additives if any and sufficient. Do more need to be purchased?

Pilot in flight food. Lunch and other.

Tie down gear. With position reporting papers.

Parachute.

Cockpit cushions.

CAR:

Fuel state sufficient? Who will arrange for filling?

Tow out gear; operational and ready.

Grid comfort gear; chairs, umbrella, water.

Any additional items for the day on board?

Car or Base radio; checked operational?

TRAILER:

Parked ready for use? Any keys? Who holds them? Make extra copies if necessary.

Lights checked all serviceable.

PLACE THE SAILPLANE ON THE GRID.

The crew must check the position. Are there any special requirements for the day? When the sailplane is on the grid, the handling gear can be stowed in the car. Does the sailplane need to be parked with the wings level? If so, a wing wheel or other stands must be used. Is there a need to have a tail dolly with the glider for movement up the line?

TOW ROPES:

In some competitions each sailplane has its own rope. It is a crew job to retrieve it after the launch.

ON THE GRID:

The pilot should make all the detailed flight preparation of maps, flight plans, start and turn point data, finish lines and any other requirements. However, the crew may assist in putting such data into flight computers or GPS or even discuss these items as a part of the preparation. This can be used as a check. Similarly, the crew may have a pre flight checklist that they go through with the pilot once they are on the grid together. These items need to be discussed and agreed upon pre competition or early in practice.

AFTER TAKEOFF:

Once the sailplane takes off the crew enters a period of full alert and preparedness to go into action quickly.

A listening watch must be kept on the appropriate frequency for pilot messages. This will probably be the airfield control frequency which the pilot will be obliged to stay on while in the vicinity. Other frequencies may be used if the sailplane is out of the area. It is a good idea to team with other crews so that a number of frequencies can be monitored at this critical time.

Once the pilot has contacted a thermal and is climbing to a safe height a brief message **MUST** be sent to the crew. This will move them from full alert to relax but to still be available mode.

The pilot may not contact a thermal and be forced to land back at the airfield. This is likely if the sailplane is one of the first wave to take off. It is also likely on marginal days.

The crew must retrieve the sailplane quickly. Depending on the needs of the sailplane type (and the pilot) water may need to be refilled. Some discussion on how this can be handled is needed in the practice period.

The pilot may discover that some critical item has been forgotten (What went wrong with the checks?) and may want to land to get it.

Some sailplanes are particularly sensitive to loose tapes. Some are almost unflyable due to noise or vibration if critical tapes are loose or come off. This would necessitate landing to be fixed. Spare tapes and glue should be held with the car on the airfield as ready spares for such sailplanes.

Once the pilot is settled at a safe height preparing to start it is likely that information may be requested. It may be useful to devise a simple code or private frequency for items that may help the opposition. The pilot needs to discuss with the crew the likely information wanted. Typical is temperature and its rate of increase.

Once the pilot starts, then the crew need to be on listening watch. How effective the communication can be will depend on the efficiency of the base radio, its antenna, where the radio is positioned, and set adjustments. If communication is required at any range (100 kmns+) then the squelch control should be turned off or set so that the radio speaker is making some noise. There is a higher chance of a signal getting through if the squelch is minimised and the volume low rather than the reverse.

In a major competition it is worthwhile putting a base radio in a high location with the best antenna that can be obtained. In mountainous areas it may be necessary to set up a remote radio site.

It is problematical just how useful information can be to the pilot. Some like it. Some think it is a distraction. Sometimes it can be critical to a flight or even safety. Another area to discuss.

Approaching the likely finish time the pilot will want the local wind and any significant weather information. The crew should be updating this frequently and on standby to reply on request. Alternatively it could be broadcast from time to time in the expectation that the pilot will receive it. Possibly pilots nearer to home will receive it and be able to relay.

As a general principle, crews should not call pilots.

Once a finishing message is heard the crew needs to be ready at the most convenient place to retrieve the glider as soon as it has stopped rolling, maintaining a good lookout for other

landing gliders. On most airfields this needs to be done as quickly as possible to keep the landing area open for further arrivals.

AFTER LANDING:

After sailplane retrieval is in hand the pilot usually has to hand films or data loggers in as soon as possible. The pilot may have personal needs to attend to. Also there may be some recovery exercises that need to be done in this early post flight period.

The crew can then secure the sailplane and clean off the days collection of bugs. This is always best done as soon as possible as they tend to harden and stain the finish if left on for any length of time.

Batteries may need removing for charging and other equipment, such as oxygen, may need attention. Tapes need checking.

The night weather needs considering too. If thunderstorms are forecast it may be better to derig into the trailer or get hangarage. Even a rain forecast should provoke this consideration. Some extra simple work is better than making a rush effort to repair damage.

After securing the sailplane the pilot and crew need to go over any additional tasks that are needed before the next day's flying.

While the flight was being made the crew may have more duties than maintaining a radio watch. These can be diverse and numerous depending in the accommodation and living situation of the team. This is another area that the pilot and crew need to arrange early in the competition period. ***Pilots, remember that crews are not mind readers.***

In foreign countries, especially if English is not the first language, even the simplest item (such as two sticks to hold the wings level) that needs to be obtained can take an inordinate amount of time. If there is more than one crew it is better to delegate this so that there is still one person readily available on the radio or at the airfield at all times.

The crew should be organised to do a retrieve without any delay. Once the sailplane has landed the race is over for the day. However, this is not a reason to take any longer than necessary. Retrieves have a history of taking far longer than is ever thought possible. The sooner the crew can get to the pilot the better. ***Retrieves are another story, or volume of stories.***

There is one recurring theme throughout this section. Communicate, Communicate, Communicate! Make sure everybody does it.

COMPETITION ROUTINE

Once you get to the competition site, as early as possible in the practice period, it is most useful to establish a routine. This will to some extent make up for the change from your normal life and can provide a strong settling factor.

A key factor of this is that the routine covers all your necessary activities with adequate time. Make all the time allocations generous. It is important not to be hurrying anywhere and also have sufficient time to spare to cope with minor contingencies which are inevitable in such a situation. The program can be tightened up once you are settled, if that is necessary.

If this is established early, then your time at the competition can be relaxed so that you can devote your entire energy to the competition itself. After all that has almost certainly been the focus of your endeavours for the past two years or more.

Accommodation is important. If what you have started with is not satisfactory, then it has to be changed or enough changes made so that it is not an irritation.

Satisfactory meal arrangements must be made. While it may not be possible to exactly repeat what you have at home, you should be able to keep it sufficiently similar so as not to cause any bodily upset. If your physical and mental preparation has been good, a not so perfect diet will not cause any significant deterioration in the two or three weeks of a competition.

I find that it is almost impossible to keep a physical exercise program going during a competition. Perhaps others have more success with this? If there is a rest day and there are no urgent jobs needed, a light amount of exercise can be very beneficial.

The need for some mental relaxation will certainly be very individual. If you do relaxation exercises or meditation regularly, then it will be important to make an allocation of time and place to continue this.

COMPETING at the TOP

What the pilot needs to prepare

Know the rules. These must be studied so that the pilot has a clear understanding of them. Remember, if there is some aspect of them that you do not like or strongly disagree with, there is nothing you can do about that for this competition. If you want change you can campaign for that for some future competition. Do not let that distract you from this current competition.

Be as prepared as possible. The point of overload is determined by preparation and training. Adequate preparation will ensure that you do not reach that point.

SITES where RIDGE, WAVE and THERMAL CONDITIONS MIX

These are the sites that are the most difficult for Australian pilots, simply because we have no such sites to practice on in Australia. Our mountain areas do not have ridges organised into lines suitable to the prevailing winds. Mostly we explore them using thermals with the occasional working ridge. We have few ridges that are reliably soarable for more than 20 kms and our wave sites are not reliable either. Possibly the frequent occurrence of thermal wave may give us sufficient training in that mode.

World competitions in recent years in Italy, Austria, New Zealand and France all use such sites. This practice is likely to continue as, not only is the scenery the best there is in the world, but the demands on the glider pilot fit the concept that a world champion must be a versatile pilot. Not one who has limited skills only.

This becomes even more difficult as each one is very site specific. Being skilled in these forms of soaring from one site merely makes a better starting point for learning about another than flatland soaring experience only. Flying from a mountain site can be exhilarating and relatively safe soaring. Racing from them becomes another matter.

For the Reiti, Italy competition, the New Zealand pilots put in three months of practice in addition to the pre worlds and still did not win! Of the non locals they would have had the best background experience. Here are some comments about each site from various pilots who have flown there. Some of these may be able to be transferred.

Things to remember for ridge and wave flying

In an extensive mountain and valley area it soon occurs that you have only slopes available as a visual reference. The horizon is never horizontal! Initially this is quite difficult to cope with. There is a need to use the ASI more and it takes many days of flying to get used to and overcome.

Remember that when flying in wave or along ridges, gliders will be travelling quite fast in both directions along it!! Keep a good lookout and remember the rules of passing and meeting.

Water ballast does not usually freeze. There is too much mass too well insulated, unless you are up there all day. Fill the main tanks to three quarters only and do not attempt to drop at heights above freezing level. The water will freeze in the outlet and block it up. However, the water in the tail tank, being a much smaller mass, will freeze. Put anti freeze into the tail tank to prevent this and the consequent problem that it can cause. Alternatively leave it empty.

There is already a large collection of knowledge of most mountain areas. As it is essential to tap this knowledge when starting in a new area, find people who know the area and become their student until you have sufficient grasp of it to venture alone.

Some notes from Reiti, Italy.

At Reiti, almost all the ridge lift was actually anabatic. This is caused by the effect of sun heating on the higher slopes. This is sometimes confusing as if the winds are weak, the side opposite to the prevailing wind will be working strongest and often both sides will work to some extent! In the afternoon it is always the western side that works best.

When anabatic lift is the main sustaining lift, quite often thermals will be found on corners, or in convergence areas in a similar fashion to the way wave is formed. It needs good visualisation of flows to work out how such systems may work.

Unlike ridge lift, anabatic lift is usually too weak by one quarter of the way down from the top. It is always best to try to work right on top or only a little down from it. Much lower

and you will need to go out into the valley and try to find some thermal or find a lower ridge where anabatic or ridge lift is working.

Notes from discussions at Omarama, New Zealand.

The Australian team with Billy Walker, Justin Wills, Richard Halstead and others.

For New Zealand, predominantly the winds are westerly with variations north and south of west.

With the mountains mostly in north-south ridges, this gives both ridge and wave at the same time. Numerous factors, some very obscure, influence this. Sometimes the wave effect from one ridge cancels out the lift normally expected on another ridge. Sometimes it may enhance it. However, there is sufficient consistency so that the usual patterns may be learnt.

To get into the wave, first you must work as high as possible on a ridge.

This may not be to level with the top of the ridge if the ridge has a very shallow slope near the top and it is fairly flat on top. If it has a sharp top then it may be possible to get higher than the top.

Once you are as high as possible, then push out from the ridge into wind.

Fly fast enough to move against the wind but not so fast that you lose lots of height. Only experience will be the guide to this. At some distance out you should find a rotor. This will be quite rough and you may have to work it like a thermal for a thousand feet or more. Then you should find the wave. This will be immediately obvious as the lift will become quite smooth.

Sometimes you will find a wave without having to use a rotor.

When working the rotor you will have to work forward (into the wind) with every turn. When you decide to turn from the position of flying into the wind, make it very steep and then straighten up to fly forward each time you are into wind. This will make your turns like a letter "D".

If you do not find the rotor or wave return to the ridge and start again. Try a different part of the ridge that may give more height, try a slightly different line when moving out from the ridge, or try both.

From some ridges there are specific locations that will always have a good lift if the wave is working. "Hugo's Elevator" is one adjacent to the Ewe Range. This range is also known as Aubrey's Range. Hugo's Elevator is a bowl in the hill that must be in the same alignment to the wind that creates a wave. This wave needs a North West wind.

To be able to contact these rotors and waves with the maximum of certainty it is necessary to be good at understanding which ridges are working and being able to work them up.

In an area of mountains and valleys such as around Omarama, it is necessary to think of airflows

This applies universally for any mountainous area that produces ridge and wave lift together.

It is not enough to have a ridge and a wind blowing against it. If it can, the wind will blow around the ridge rather than over it. This is particularly so if the wind is cold. Then there will be no lift. This canalisation can occur well above ridge height. If a valley is near the wind line then the wind will channel through the valley. This canalisation may cause very strong winds in the valleys and very little on the ridges.

If there is thermal activity, it will assist the ridge lift.

We also need to think of the mountains upwind of the place we are at. A wave produced by them may place a down flow on the ridge here. This will normally be very close to the ridge. Even if this is the case there still may be some ridge lift further out from the ridge.

This down flow will then channel along a valley, usually the nearest and out to the east. All the river valleys that exit the ranges to the east have very strong winds along them. Great care is needed if you are landing at one of the airfields in their vicinity.

When a number of valleys flow into a larger one there will be a spreading of the air which will reduce the wind speed.

It may give a convergence. This will be the source of a thermal or rotor. There are a number of areas that are very consistent in producing lift through convergence.

The most notable convergence is the Tyree Pet. This is an isolated wave that can go to great (as yet unused) heights. It is at the convergence of two wave systems from the Pisa, Ruggedies, McClays and Tyree Ranges.

A convergence may also enhance ridge lift and give rise to a wave by striking a corner of a ridge.

Where the valleys are wider the slowing of the winds will also allow the ridges to work better than where they are narrow with strong winds and strong canal effects.

While the airflows are very complex, there is sufficient consistency and pattern that it can be learnt. This pattern will be different for different wind directions so that there are a number of different patterns for any one location.

Easterly airflows that come up valleys are usually very shallow. Rarely more than 2000 feet deep and often as little as 300 feet. If the upper wind has a westerly component the tops of the ridges will still be working on the west side.

Think of wind and gather every piece of information about it as you fly.

Notes from France from, Bruce Taylor, Paul Mander and David Jansen.

the wave systems were weaker and not as well organised as they were in New Zealand. there was a need to learn when to leave the wave or cumulus and go down onto the ridges. Also the reverse.

the passes were very significant. It was vital to know each and the lift patterns around them. It was often necessary to work weak lift (1 to 2 kts) nearby to get high enough to go through a pass.