A Guide to Outfield Landings – by Allan Latemore

Introduction

Being competent at planning and executing a safe outlanding is a necessary part of cross country flying; and even though the original task has not been completed, a successful outlanding is also an achievement that is to a pilot's credit when done well.

The general plan

The aim is to be in an area of suitable fields whenever you're low, ie. 2000 ft or below. The decision that puts the glider in such an area at this height might have been made at any height and miles away. eg. a pilot may be 20 miles away from an area of suitable fields at 6000 ft, and over unlandable country, unable to find lift. He should in that situation, decide to head for the area of good paddocks he has kept in range.

With 2000 ft in hand, the pilot has plenty of height to select several fields, check their suitability until the choice is reduced to two- the field and the alternate field. (The alternative is close to the first choice field, and is in case some hazard was missed in the first choice field, and only becomes apparent at low height (eg. on downwind).

Then, if height continues to be lost, the pilot plans and carries out a normal circuit and landing in the same way as if he were landing at the home airstrip.

Field Selection

As a guide to selecting a suitable field the letters SSSSW are useful (4S's sound a bit like 4X's - which is useful).

Surface

Sufficiently smooth. Generally a cultivated field is better than a stubble field as the later may have deep hoof marks from feeding cattle or had time for erosion of ruts to take place. In the Darling Downs area, fields cultivated for grain crops will be smooth enough and unlikely to be deeply ploughed with deep furrows. If the field surface is deeply furrowed, the aircraft must be landed parallel to the furrows, even if out of wind. On no account must a field cultivated for cotton be chosen as the furrows formed to flood irrigate the crop are far too deep for a safe landing. Heavy standing crops can cause damage to the aircraft, especially if a high crop-corn must be avoided. It is only fair to consider the cost to the farmer, and avoid electing to land in young crop. Express your concern and perhaps tactfully offer to compensate him for crop damage, if you are forced to do so. Grazing fields must be carefully examined for stumps, logs, gullies. Melon holes in a field under grass or crop, or if not freshly cultivated, tend to show up in an artic-glass pattern of various grading of colour and shading strengths, constructions inside a field, like telephone wires, electric wires, poles and rocky outcrops, are easier to spot in a cultivated field, as an uncultivated part will have been left around the hazard, and the different colour may be observed. A stony field is almost impossible to spot, if grassed or in stubble. Be cautious that a bright green field is not a swamp. Select a field without animals or land in the opposite side. It will be seen that the selection of a cultivated field automatically takes care of most problems.

Size

Must be adequate. In general, the larger the better. A long narrow field would if into wind, but a square shape has the advantages worthy of note; - it would be possible to land either parallel to the side fence, or diagonally across, whichever is into wind; secondly, if a height miscalculation has been made, base leg can be shortened (see A) or lengthened (see B). Thirdly, if an unobserved obstruction becomes evident once a pilot is committed to the field, a large and square shaped field provides better possibilities for taking evasive action.

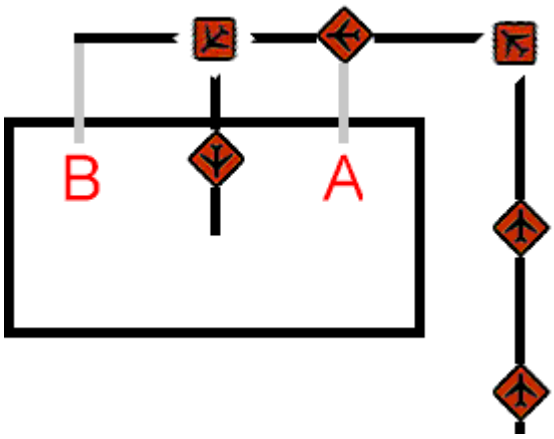

Fig1. Alternatives to outfield approaches

Slope

Difficult to detect from the air, especially if directly above the field, and if easily detected, is too steep. If flying in a generally hilly area, remember fields near the bottom of the valley are most likely to be the more level; so a fields near a stream would be chosen and the slope assumed to be down to the stream. If at all steep, the aircraft should be landed up the slope, regardless of wind direction, and a higher approach speed is necessary when rounding out up a hill. While it is possible to land across a gentle slope, avoid attempting to land down a slope. Contoured fields require great care and experience, and present special problems. In general, the wider the spaces between the contour banks the flatter the slope between them; and then it's best, if there is enough space, to plan an approach at right angles and touch down across a lower bank and end the ground run before the next bank up hill.

Surroundings

Look for power lines, telephone lines, high trees in the approach path. These may force the approach path to be so high that a smaller field may have more effective length. Power and telephone lines are more likely to be present if the field is adjacent to a road or house. Turbulence and wind gradient may occur near trees or large buildings. In some cases, wires may be supported by trees, and the normal line of regularly spaced poles may not help the pilot detect their presence.

Wind

As usual, plan to land into wind. If there is no indication, use the longest run. As there's often no indication of wind direction conveniently at hand, just when an outlanding becomes likely, the pilot should be constantly checking this aspect throughout the cross country flight, and orientating it with a major navigational feature such as the sun or a mountain range. Perhaps a few miles back there was smoke or dust, or a windmill as a pointer. The drift of clouds of the sailplane itself is some help, but does not necessarily indicate ground wind direction. On strong wind days, there is wave motion across standing crops and grass; also the upwind end of water holes or dams has a smooth surface. If the wind is strong, or has become strong, it will be evident by the movement of trees, bushes, tall grass etc. and the base leg of the

circuit would be planned closer to the field, and wind gradient allowed for, on approach. It has already been mentioned that landing into wind may have to be modified in the light of some other requirement.

Flying Technique Involved During Paddock Selection, Circuit and Landing

The pilot has been using part of his 2000 ft of height to select and discard fields below him, until the choice is narrowed to two fields, a first and second choice. a definite decision has been made to accept the fact that the cross-country task he was on is either permanently or temporarily ended. His prime consideration has been selecting a safe landing area, but he has also been searching for lift while doing this. If the pilot has flown a wide circle around the selected fields he has both checked them from every direction, and also has searched a wide area of sky for thermals. It could be said that, once the field selection is completed, the cross country flight has changed into a local thermal search flight above suitable landing area. The amount of time and height used to select the field will determine how much can be spent exploring likely thermal sources, and will vary in relation to the area and the pilot's experience. As the glider gets lower, the search area becomes smaller and smaller, and would eventually be confined to the upwind side of the first choice field, very handy to it's circuit joining area. The break-off point for the flight is approaching, and once the decision to land has been made, the circuit joining area is entered, the legs of the normal circuit pattern flown, and a normal approach and landing made. Notice the emphasis on the point that this is the way a pilot has been planning and flying circuits and landings, throughout his training. If the pilot repeats this method, he will be doing something he has done many times, and which he knows he can handle.
The only unusual factor that may be involved is that the altimeter reading may not be correct for that particular area, and the pilot should concentrate on judging heights by angle/distance relationships, especially during the circuit and landing.

Further Points

1. It is a foregone conclusion that a cross country pilot should always be in glide range of suitable fields. 7000 ft may be when the first decision about setting out for this area of fields should be made; and it could be the most critical decision. At some height a decision has to be made to forget the cross country task , and not to press on into "tiger country". Similarly, there is always a height (approx. 2000ft above the terrain - not the altimeter reading) to decide not to press on, even if there seemed to be good fields ahead; since time and height are needed to thoroughly check and select two fields. The importance of making these two decisions early has to be emphasised, as the pilot will be naturally disappointed about the possibility of not completing his cross country task, and reluctant to use up time and height in his field selection. Yet, many instances of damage to aircraft during outlandings can be traced back to one or other of these initial decisions.

2. The situation at 2000ft is easily resolved if good lift is found soon and the glider climbs away, or if no lift is found and the glider has to land. The position is complicated if weak, scratchy lift is encountered, especially in strong wind situations. The pilot must be sure to be on the upwind side of the selected field

before thermalling; and just as at the home strip, the rate of achieved climb must offset the drift. Care must be taken to assess the position and break off an unsuccessful climb with enough height to not only penetrate back upwind to the chosen field, but to also have height to set up a normal circuit pattern.

3. Once the decision to land has been made, and the circuit well begun, any temptation to thermal below the 600ft check point must be firmly resisted. This caution applies at the familiar home site, so must be even more important at a strange landing field. Similar warnings apply to doing unusual approaches from 'S' turns, or side slips - any change from the normal must be avoided.

4. The pilot should make an effort to achieve the usual hold-off and stall-on landing and avoid wheeling on. The aircraft will then touch down with the least possible impact and forward speed; and if a hidden obstruction is encountered, or a ground loop occurs, less damage is likely. In soft soil the ground run will be short, use the controls in the normal way to keep the ground run straight.

5. Remember that the length of the selected field is likely to be shorter than the home strip, and if a pilot has developed the bad habit of arriving at a certain height "half way along" the home strip, he may overshoot if he does the same with a small field. The method which applies to both the home strip and the outlanding field is to isolate the Landing Area, (which consists of aim point, touch down point, landing run, end of roll) and to position the aircraft so it is opposite the end of roll point at 600ft on the downwind leg. His aiming point will be such that he clears the fence with a safe margin just as he would at the home strip. If he selected a small field, he is forced to reduce this margin, and aim just inside the fence; or in extreme circumstances the aim point would be at the fence itself, the round out would begin over the fence, and the touch down just inside.

6. It may be necessary to resist the tendency to stand in too close on the downwind leg.

7. It would be better to select a field that allowed the usual left hand circuit, rather than one where obstructions required the less normal right hand circuit.

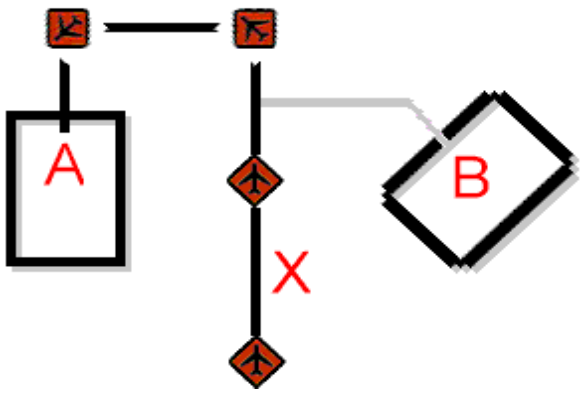

Fig 2. Alternative outfield approaches

However, if the second field has to be used, right hand pattern could be called for eg. the left hand circuit pattern of field A may have to be changed to a right hand circuit for field B at point X on the downwind leg, because an obstruction has been missed in field A up till that point.

8. In an emergency, where the aircraft is going to over-shoot and run into the far fence or some similar obstruction, the pilot may perhaps avoid or reduce personal injury by initiating a ground loop.

After Landing

1. The first concern is the safety of the aircraft. It should be securely pegged down, both at the wing tip and the rear fuselage, with dive brakes open and canopy fastened, before leaving to phone.

2. Do not leave the aircraft unattended if there is stock in the same field, and sightseers, especially children, must also be responsible person is left in charge of the aircraft, until you return from phoning in.
3. It's better if the pilot can do the phoning, and not delegate this task. Before you make the call, it is best to have jotted down on paper such facts as pilot's name, name of nearest town, on the road to/from ..., name of owner, aircraft type, distance to nearest town, name of property, phone number, special instruction for retrieve crew.

An entirely new phase of the cross country begins, when the flying itself ends, and often delightful and amusing things are experienced. The usual reaction to your dropping in, is mostly one of lively interest and entertaining you until the crew arrives. It is important for the gliding movement to do all in your power to keep things this way, and to be an acceptable, if an uninvited guest.