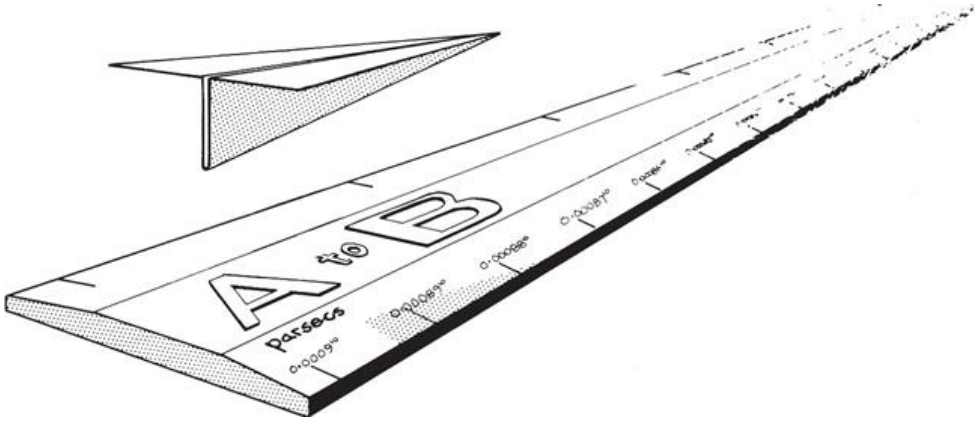
THE STRAIGHT GLIDE



The individual effects of the ailerons, rudder and elevator have been described earlier. In carrying out a straight glide the three controls are used together to keep straight with the wings level and a constant airspeed. The aircraft is naturally stable, and if properly trimmed tends to remain in steady flight unless it is displaced by some air disturbance or by a movement of the controls.

In carrying out a straight glide, as in any other manoeuvre, the pilot observes the attitude of the aircraft with respect to the horizon, glances at the airspeed occasionally, decides what correction, if any, is needed, and then applies this correction with the controls. It should be remembered that the ailerons cause a roll, the rudder a yaw and the elevator a pitch whatever the attitude of the aircraft with respect to the ground.

How to Glide Straight

1. Choose a point ahead to act as a reference. This can be some point on the horizon, a cloud, or some distinctive feature on the ground as far ahead as possible.

2. Level the wings with the ailerons; you can check that they are level by observing the position of each wing-tip with respect to the horizon, but you should become accustomed to the symmetrical appearance of the nose against the horizon when the wings are level. If the left wing tip should drop, move the stick to the right and at the same time apply a little right rudder to avoid adverse yaw. When the aircraft is level again, let the stick come back to the central position and centralise the rudder. Should the right wing-tip drop, the process is reversed.

3. Keep the nose pointing towards the landmark that you have chosen. If the glider swings round to the right (for example) it is probably because you have permitted the right wing to drop; correct this by applying a little left bank and left rudder until you are almost on the correct heading once more. Then straighten up and centralise the controls. Similarly, if the aircraft moves to the left of the landmark apply a little right bank and right rudder until you are straight again. It will be noted that the rudder control is not normally used on its own but is used to prevent the excessive sideslipping which occurs when corrections are carried out only with the ailerons. The rudder is being used properly if no sensation of flying sideways is produced and there is no indication of slip or skid from the indicators (the string on the canopy or the ball in the turn and balance indicator). The amount of rudder needed depends on the particular glider and the degree of aileron deflection and the speed.

4. Use the elevator to adjust the attitude of the aircraft in the pitching plane; you will have been shown the attitude which corresponds to the best gliding speed. You can usually judge the attitude by noting where the horizon cuts across the canopy of the glider.

Adjust the trim so no pressure on the stick is required to hold the attitude.

Wait and see what happens. If the nose of the aircraft starts to move up or down on the horizon, prevent this movement by use of the elevator, check the airspeed is correct and then alter the trim.

When the attitude remains steady, check the airspeed again but avoid trying to control the airspeed by watching the ASI. In conditions of poor visibility the true horizon may be obscured, and the speed may be more difficult to control quite so accurately. The tendency will be to place more reliance on the ASI but try and avoid this. Realise the extent to which a glider, once correctly trimmed, will largely fly itself.

You will quite quickly get into the habit of controlling the movement of the aircraft in its three planes. You will find it easier to let the aircraft do as much for you as possible through its own stability. Try to relax in the seat, do not brace yourself against the rudder pedals, hold the stick lightly and keep looking around you.

Gliding Speed

You will remember that in steady flight, by adjusting the airspeed to a certain figure we are in fact selecting a certain angle of attack. In the early stages of training you will be shown a safe speed at which to fly. In the Appendix we shall explain how you use your speed range to best advantage in varying circumstances, varying your angle of attack according to the conditions.

Here we shall only emphasise one point which is of great importance. In order to cover the maximum amount of ground in still air, you must fly at the "best gliding speed" of the aircraft (corresponding to the angle of attack of best L/D ratio).

Wind

If you fly a straight course across a wind of moderate strength it will probably be apparent that you are not moving over the ground in the direction in which you are pointing. This is to be expected. You are "drifting " due to the wind. Resist any temptation to correct for it by use of the rudder; the rudder should be central in straight glide.

Remember that you are flying your straight course in a block of air. Since there is a wind, the block of air itself is moving, and your movement over the ground is the resultant of the two motions.

You will drift when you fly across the wind; when flying into the wind your speed over the ground will be reduced by an amount equal to the wind strength; when flying downwind it will be increased by the same amount. Do not be put off by this. In controlling the glider you are only concerned with the airspeed which you can judge from the attitude of the aircraft and the ASI reading.

Note in particular that you cannot "feel" the wind when you are airborne; you are in fact part of the wind. The influence of the wind on you is purely navigational except when it is changing rapidly. This exception is of considerable importance when flying close to the ground; it will be dealt with later under the topics of "gusts" and "wind gradient".