

SAFETY CORNER

MILES COVERDALE

In recent articles we have reviewed a number of factors which can be dangerous when a sailplane is near the ground. Another special situation often occurs while flying in moderate to strong winds where the ability of a sailplane to fly efficiently into the wind or "penetrate" depends not only on the configuration of the sailplane itself but also on the speed at which it is flown.

It can be easily seen that a sailplane which is downwind from the airport in a 50 mph wind, and which has a speed for best glide (maximum L/D) of 50 mph would never reach the airport at best glide speed but would simply sink to the earth without covering any ground at all. If the airspeed is increased to 60 mph the glider will make 10 mph over the ground and at 70 mph would move toward the airport at 20 mph. Even though the glider is flying at less than maximum L/D it is obviously better to move toward the airport although sinking more rapidly than to not move forward at all. The only question now is how to pick a best speed for various headwind conditions.

By taking the performance curve for the Schweizer 1-26 and calculating the amount of ground covered at various flying speeds against various headwinds the following results are obtained: Best speed in zero wind is 48 mph; for a 10 mph headwind it is 52 mph; for a 20 mph headwind it is 57 mph; for a 30 mph headwind it is 64 mph and for a 40 mph headwind best flying speed is 73 mph. If we look for a relationship between the amount of headwind and the required increase in speed over that for maximum L/D we find, at least at the lesser headwinds, that best speed is increased by an amount roughly equal to one half the speed of the wind. At higher wind speeds the percentage increase becomes greater, however, and it is general practice to recommend *that a pilot flying into a headwind increase his airspeed by the full amount of the wind speed — in other words, fly at a speed equal to the wind speed added to the speed for maximum L/D.* This is a rough criterion but it is valid because, due to the shape of the plotted curves of ground covered against airspeed, it is better to err on the high side rather than the low as regards speed when penetrating into a headwind.

When final approach is to be made into a noticeable headwind the glider will make little progress at normal flying speeds, so it is recommended practice not to go downwind of the airport boundary in strong winds or the glider may not be able to reach the field. Unfortunately an error of judgment or moment of carelessness may result in the pilot suddenly finding himself downwind of the airport, and it is important that the proper action in this case be instinctive. An attempt to stretch the glide by raising the nose is fatal under the circumstances, since a reduction in airspeed reduces the speed over the ground still further, and also exposes the pilot to the dangers of turbulence and wind shear mentioned previously. On the contrary, when an undershoot appears possible due to a headwind *the nose must be lowered at once* to increase the speed as rapidly as possible (even to the extent of

appearing to dive at the trees short of the runway, if necessary) and although this may result in a rapid loss of height nevertheless the glider will cover more ground in exchange for the height lost. Also, the glider will move closer to the ground where the headwind is probably less and where the excess speed will result in more distance being covered at the last moment due to floating than would otherwise have been possible.

We have now considered, in this and previous articles, five or six different situations or dangers that must be guarded against by a sailplane pilot when flying near the ground. In each case we find that an increase in airspeed is an effective safety measure. The increase recommended has varied from *at least* 10 mph above the normal cruising speed, to be observed at all times in the landing pattern, to the addition of an amount equal to the headwind to aid penetration — and this might be an increase of as much as 30 or 40 mph. For the situations involving turbulence, wind shear and downwind turns no specific increases have been suggested but it must be obvious that it is better to fly too fast than too slow, and not only from the safety angle but also because no excess speed is ever wasted since it can be exchanged for distance or height later as desired.

From this it can be seen that in practically all cases the increased speeds recommended are highly desirable and present no additional problems; however, one word of warning is in order and that is with regard to a short field landing. High speeds in the landing pattern when there is an airport runway ahead present no difficulties since normally there is lots of room, even with a high approach. In an off-field landing into a very small field, however, one would have to be careful at the last moment to reduce speed to normal, for too high a speed might prevent the glider from touching down and stopping in time.

Bids for 1-26 Nationals

Subject: Second Annual North American 1-26 Championship

From: Lowell C. Yund, M.D.
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To: All Qualified Soaring Clubs/Groups

The 1-26 Association herewith solicits bids for the second North American 1-26 Championship Contest.

The rules for this contest follow the SSA U.S. Regional Championship rules very closely, with the following exceptions: the contest is open to citizens of every country, provided they are members of the 1-26 Association. The Silver C distance requirement is waived. Abandonment of the task for the day by any contestant will move him to the bottom of the take-off order for the next day, but not disqualify him for the rest of the contest.

Five scheduled contest days are the minimum.

Any group considering hosting this event should expect 15 to 20 1-26's, plus those of their own group. The time should be after the middle of June and before the Labor Day weekend, 1966, since most 1-26 crews contain members of school age.

Please send your bid to Lowell C. Yund as soon as possible.