

spread around. On the basis of restricted visibility alone "contour couch" forms should rule themselves out for very close thermal work. On the basis of overall performance, the pilot who has fewer problems in visibility, easier access to stores and equipment, who feels that he is safer in the event of crash, and who can move around and change position instead of being molded in one shape for hours, can usually, at the end of a tough day or contest, outfly the closely packed purist—who, for all his trouble, may not have even one full point of glide ratio over his more comfortable brother! It now behooves one to measure performance against razzledazzle and, if the gain is not considerable, resist razzle-dazzle as being unrealistic.

The ultimate in low frontal area is the prone position where one leads with his chin and belly. It has never become popular.

#### REMARKS ABOUT TRADITIONAL FEATURES

Early gliders were built by and for tough people. They were open air affairs with maximum visibility and of minimum performance. In the interest of better performance, the enclosed streamlined fuselage was adopted with a hole in the top for the pilot's head. Entry through this hole was in keeping with the spirit and dash of early aviators who were actually or spiritually cavaliers. This started "hole in the top of the box" for access and discouraged entry by those not limber enough to mount a horse. As desires for better streamlining increased, the windshield became a totally enclosed canopy, but the pilot was still surrounded by a well. Years before this, automobiles and airplanes adopted side entry doors. Perhaps this is not sufficient reason in itself to ease entry and

The Mitchell Nimbus III sailplane, built by Vic Swierkowski, now owned by John E. Oates of San Jose, Calif. It is of all-wood construction, has laminar airfoil and slab tail.



egress, but since it is the designer's duty to consider every possible realistic condition, he should recognize that, for one reason or another, a sailplane may find itself in its final spiral dive. Then the strongest man in the world cannot lift his multiplied weight over the walled cockpit that surrounds most glider pilots. Some who have been so trapped and survived will testify to such a situation. These were saved by various means as Robert M. Stanley who opened his canopy, pulled the ripcord in the cockpit, fed the 'chute into the wind and was popped out by it as it inflated, or by some other action of the pilot or aircraft—combined with sufficient altitude.\*

On a time basis alone, it takes many seconds to bail out of some walled-in cockpits under ideal conditions, i.e. in light clothing with a pilot not cramped after hours of flying, and then with great effort.

\*See: Philip Wills' "On Being A Bird," and ask Dr. J. P. Kuettner, or Dr. Werner Spilger, or, more recently, Ed Seymour.

At 56 miles per hour average vertical descent for 12 seconds one loses 1000 precious feet. Now, imagine heavy clothing, oxygen equipment, time to size up the situation, consideration of possibilities of saving the sailplane, recovery from the shock that brought about the spiral dive in the first place, a cramped pilot and then add the time to get out...

If one can roll out sideways—regardless of the number of g's he is subjected to—in, say, 2 seconds, he is riding in a sailplane designed with the respect and consideration that is due every woman, man and youngster.

#### HATCHES AND DOORS

There is now the problem of hatch and door design to satisfy the requirements for side entry. A few ideas have been worked out for steel tube and for sheet metal construction which are quite good. In these cases high strength rigid materials are employed and the hatch-door combination is either combined, the "door" being a fixed part extending below the "hatch," or the lower part could hinge to the lower (or to the aft) edge of the fixed door frame. In any case the bottom sill need not be lower than the top of the hip bone. The door handle and simple latch should be affixed to the upward moving upper door so that one will not catch clothing or harness in the mechanism. Nor should it be accidentally openable. Arrangement of the hinge lines to cause the partly opened doors to be held open by the wind forces is possible.

Be careful if you design doors that are to be jettisoned, they may

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