dilemma. We are baffled as to why this can occur. A similar phenomena has been experienced during several deep stall accidents with the Velocity aircraft. All were survivable and one went into water with the pilot experiencing no injury at all! (See article in July '91 Sport Aviation.)
The Utah Long-EZ had a wing-loading of about 12.2 lbs./sq. ft. and, considering all its area, including the wings, strakes, cowl and fuselage, a "flat-plat loading" of about 9.2 lbs./sq. ft. (1150 lbs. divided by 125 sq. ft.). A basic calculation of the predicted rate-of-sink in a flat descent would use a flat-plate drag coefficient of about 1.2 and would predict a sink of about 4820 ft. per minute or 80 ft./sec. This would definitely not be survivable.
Using two different methods, we have calculated that the Utah Long-EZ probably had a drag of about 2.8 times that predicted by simple flat-plat theory, i.e. a co-efficient of about 3.3. This results in an energy at impact of only about 1/3 that which would result from the "calculated prediction" sink of 4820 ft./min. Here's the two methods:
1) Analysis of the video tape shows a sink rate of about 48 ft./sec. (2900 ft./min.). This required measuring the size of the airplane image and may be off as much as 30 percent. The post-crash video data show the rate of drift of dust from impact. Comparing this rate of drift of dust (wind was about 20 knots) to the rate of sink of the airplane (on video) confirms the approximate 48 ft./sec. estimate.
2) Assuming a 48 ft./sec. descent, the main landing gear would absorb 18 ft./sec. before the fuselage strikes the dirt - this is a relatively accurate calculation knowing the gear's stiffness and strength. Absorbing the remaining 30 ft./sec. over a total deflection of approximately 6.7" (cushion, plus fuselage, plus dirt), results in an average deceleration of about 25 G with a peak deceleration of about 40 G. Considering the support and attitude of the pilots back, this is consistent with the injuries he sustained. An 80 ft/sec descent would result in a fatal 150+ G impact of the spine.
Both these methods are very rough but (along with the deep stall experience with the velocity) they tell us that an unusual phenomena is occurring. It is likely that a large, trapped vortex forms above the aircraft. It's relatively easy to see how this could increase the drag by 25 to 50 percent, but it makes no logical sense that it could increase drag by a factor of 2.8 - this would require the airplane to decelerate a column of air that is more than 3 times the size of the airplane! What is even more baffling is the report (not confirmed by us) that the Velocity aircraft sinks at less than 1500 ft/min (15 knots!). If that were true, it would have to have a "flat- plate" drag coefficient of about 12! ! (A totally illogical result). We suspect that the Velocity and Long-EZ have similar drag coefficients and that the cushion of water landing provided the difference in pilot injury.
The Utah pilot had one thing going for him, he was sitting on seat cushions fabricated from Tempa-Foam an excellent impact absorber."

Hmm. Did he figure out a way to build it out of helium?

If anybody wants to feel little depressed do a search for 'crash' through the CP's.
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Cheers,

Mark Spedding - Spodman
Darraweit Guim - Australia
Theoretical Cozy IV VH-UMI
Celebrating one year of not building anything.