

SAFETY CORNER

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As owners change sailplanes, some beautiful, high-performance ships end up being flown by low-time pilots. This normally is no problem as long as the pilot uses good judgement, and gets all the advice he can find from experts. Dan Pierson of Inner City Soaring in Los Angeles has more hours in the Diamant than any other U.S. pilot. He certainly is qualified to discuss the landing manners of the big, heavy, beautiful bird.—RG

LANDING THE DIAMANT

The *Diamant* sailplane has no unusual or adverse landing characteristics; however, the design does have some features which can be an advantage or disadvantage depending upon the particular circumstances.

The combination of the reclined pilot position with the resultant low fuselage height and long tail boom arm can produce interesting interactions during landings. The reclined pilot position is extremely comfortable for long duration flights. At the end of these long flights, however, low sun angles can complicate the pilot's job of discerning features on the ground during the final approach.

For this reason I never fly my *Diamant* without making sure the inside of the canopy has been thoroughly cleaned. Even a fine layer of dust can produce large amounts of lost visibili-

ty. The same goes for rain. I have often flown around long enough to allow rain drops to evaporate before landing. When landing into the late afternoon sun, these two conditions (dusty canopy or rain drops) can be *very* serious hazards.

The techniques for landing on hard and soft surfaces are totally different. When landing on hard surfaces the *Diamant* is best flown down to contact with the main wheel touching first, or (when landed slowly in a soft field) main and tail wheel contacting simultaneously. The low wing position relative to the ground will allow the ship to float for incredibly long distances in the ground effect if two actions are not taken: the speed brakes should be fully opened after touchdown, and the flaps should be raised to a negative position. This will put weight on the wheel for better braking, and produce better roll control with the ailerons during the latter part of the roll-out.

Adequate wheel braking is rare on most *Diamants* as the wheel and brake assembly originally were designed for the much lighter Hütter *Libelle*. Some owners may have managed to produce better braking than my ship has, and for this I congratulate them. Still, it is a very wise policy never to land the ship pointed at something you would rather not hit.

Because of the long tail arm of the *Diamant* it is not possible to land the ship on hard surfaces at the lowest approach speeds the ship can sustain. Such high angle of attack/low speed landings can result in broken main landing gear supports when the tail wheel contacts the runway and the main gear is still two feet in the air and comes slamming down.

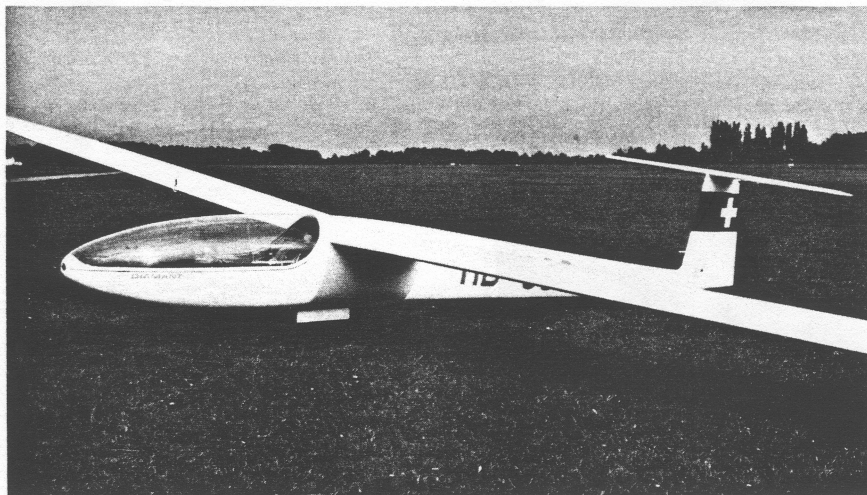
This configuration, however (full flaps, tail low/high angle of attack), will produce excellent low-energy, low-speed, short field landings on soft plowed surfaces. I have paced off several short field landings on plowed fields that were no more than three or four fuselage lengths from touchdown to full stop! There is no way to practice this maneuver on hard surfaces, and I must say that I do not recommend landings being performed this way by low-time *Diamant* owners.

I suspect that *Diamant* drivers with quite a few flying hours already have discovered the ship's amazingly short landing ability on soft surfaces. A note of caution: when landed on soft fields, even with full aft stick applied after touchdown, the ship may complete the rollout sliding along on the underside of the nose for about 25 feet. Apparently the small main wheel goes into soft surfaces and essentially doesn't even roll, acting as a brake so effectively that the ship goes forward onto its nose.

I have never experienced any damage during soft field landings other than sprained gear doors. The factory manual suggests gear-up landings at the pilot's discretion and says that the ship has been designed to accommodate this. In any case, I would suspect a gear-up landing would result in a longer distance covered before stopping, and my point in including this soft-field landing technique is to possibly save some nervous *Diamant* pilot from floating across a perfectly good soft field into a tree or fence. If forced to land across furrows, a pilot would probably do better to land with the gear up. I generally avoid plowed fields with furrows as the crops planted can be damaged during landings and retrieves.

Landing speeds during the tail-first maneuver can be as low as 32 knots airspeed, and into a 15-knot headwind the ground speed at touchdown can be 25 mph or slower!

Any one of the *Diamants*, particularly the 16.5 meter and larger spans, can be landed in soft fields in shorter distances than any other fiberglass sailplanes including those with 90° flaps. With newer pilots buying used fiberglass sailplanes as they become more affordable, I hope that this information may serve a useful purpose, and aid in their flying and landing safety during the initial years of their *Diamant* ownership. For further information contact Dan Pierson, *Diamant* Owners Network, Inner City Soaring Services, 1404 W. 151st St., Compton, CA 90220.



The Diamant is one of several high performance glass ships whose used market prices are 'aging' downward within reach of relatively inexperienced buyers, but whose demands on piloting skills remain as high as they were when it was new. There's a lot of inertia to be managed on landing, but if you tap the accumulated wisdom of the high timers, you can learn to stuff the airplane into those tight spots when and where you need to.

