18 METER - THE NEW GENERATION OF SAILPLANES

by Pete Williams - USA

Every sailplane factory in Europe is now producing an 18 meter span model, unpowered and powered. the 18-meter Class is upon us and it is time to look at this concept and what holds it to the future. How and why did this happen? The difference between the Standard Class and the 15 meter Class has narrowed over the past decade with little advantage for the flapped 15-meter ship. Wing profile technology advancement has closed the gap between these two class with the standard Class Discus, LS-8, DG-600, DG-88S and ASW-24 leading the way with L/Ds as high as 44.1 in a 15 meter unflapped span. While 15 meter wing technology will most likely to continue to e enhanced, it is evident that gliding performance for this span is reaching a plateau. Open Class ships gliding rations have risen dramatically. In 1978 the wing spans were 18-320 meters with L/Ds of 47-49. Today they are 25-26.5 meters with L/Ds as high as 6':1. In reality, the complete spectrum of performance of all classes has moved significantly upward in the past 20 years. The installation of a retractable engine in a high performance sailplane began with the Nimbus 2M, six of which were produced in the mid seventies. All were fitted with a 55hp Hirth engine. the 20.3 meter Nimbus 2m had a glide ration of 47:1. Now, for the first time, a high performance all fiberglass sailplane was available as a self-launching aircraft. Next came the 15-meter PIK-20E (40.5 L/D) and the DG-400 (45:1 L/D in the 17 meter mode). 15 meter self-launcher pilots found that climbing in light lift was not an easy task due to high wing loading and the takeoff run was longer or required a tow, especially if ballasted. 17 meter extensions not only enhanced the takeoff run and climb but increased the glide ratio by at least 4 points and made light lift conditions workable. most pilots put their 15 meter tips away and began to enjoy the benefits of the long wing. The manufacturer's instructions for removing the engine to soar as a pure sailplane was, for the most part, never done by the majority of the self-launching pilots who did not want to bother with the time consuming and tedious task. So what does all of this have to do with the 18 meter ships that are non the market? Simply put, the 18 meter wing, especially in a self-launching sailplane, further enhances takeoff roll, climb rate, light lift thermalling with the bonus of another 5 points of L/D. The new 18 meter wing profiles are also

proving to have good penetration at high cruise speeds. Does this mean the 15-Meter racing class ship is obsolete? no, but it is perhaps becoming obsolescent as a separate Class. Contests, especially in Germany, now have three classes. An example is the 1995 German Gliding Championship held at Paderborn and open to international participation with no handicap scoring: Class I: Open Class with and without retractable engine with a wing span of 18 meters or more. Class II: 18M-Class with ad without retractable engine with a wingspan of 15-18 meters. Class III: Standard Class with retractable or foldable engine/propeller which meets the Standard Class definition. Of the 59 entrants, 21 were powered

Std 18 Meter Open

Entrants 11 31 17

Top Five

Powered: 5 1 5

Non powered: 0 4 0

As time goes on it is inevitable tat more of this type of integration of pure and powered ships will occur, especially with the advent of approval of the GPD Data recorder by the IGC. Since the 15-meter Class was approved by the SSA in 1976, forward thinking is necessary by SSA leadership to study and revise U.S. competition classes and tiles to accommodate the 19 meter spans and integrate the powered ships with the pre. In fact, at this writing, the Auxiliary-powered Sailplane Association (Editor's note, Pete Williams is the former President of this Association) and the SSA Executive Committee and Board of Directors are discussing the issues involved toward the eventual integration of auxiliary powered sailplanes into existing FAI Classes. A flight and an episode you would like to tell. The flight first It was a 500 km flight from Calcinate. I flew past Chur and the lake, forward over the high mountains to the turning point. I got back overflying Engadine. The sight was wonderful, everything was so gorgeous... I was flying a Kestrel 604. And the episode It was at Rieti. I was flying during a championship. They has assigned a then-innovative task, a 'cat's cradle'. I flew as far as I could, then I contacted the wave. I called the ground. Guglielmo Giusti was the only one still on the radio. I asked him 'It's late, but do you think I can go 'there' and make it home?'. He replied 'Yes, try'. I got back over the field when it was already dark. I landed carefully, and the only one who came to meet me in the otherwise desert airfield was a very young boy. Everybody else had gone to have dinner. He moved me. That child, Luca Monti, is now a gliding champion and an airline pilot with Alitalia. So you landed at Rieti after dark, as Alvaro de Orleans did during the 19th WGCs? Yes. I am sure it has been very interesting for you to witness the development of sailplanes from the Canguro to

the Calif, to the most modern ones. Which is the glider you liked best? It was a British one, it was the Skylark 4. Perhaps it was my first high performance glider. Plastics was not yet in fashion then. The Calif comes second, but I liked it less, even if side by side seats are a lot of fun, but possibly not the best solution in terms of performance. In any case I am sure that further developments will come soon. The soaring community can only look ahead. RF