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GOSSAMER ALBATROSS

MacCready set for Channel flight
Paul MacCready stole a march on the man-powered aircraft world with his Kremer Prize-winning effort in 1977, and could be set to do the same again. MIKE HIRST looks at the few available facts on the Californian's new cross-Channel design and estimates his chances of success.

CALIFORNIAN aerodynamicist Dr
Paul MacCready, whose Gossamer
Condor man-powered aircraft won the
£50,000 Kremer Prize in 1977, may
have an aircraft in Britain within the next three months for an attempt on the £100,000 cross-Channel prize, announced shortly after his last vic-tory.
His latest aircraft is called Gossa-mer Albatross. Like the bird of the same name it has been designed for long endurance. It has the same lay-out as his first aircraft, and is built around Kremer prize-winner Bryan Allen, a 26-year-old Californian racing cyclist and hang-glider pilot. Allen was able to generate about 0-35 h.p. for almost eight minutes to power Gossamer Condor on its prizewinning flight, and can sustain over 0-2 h.p. for about three hours. This is the kind of performance which will be needed to take Gossamer Albatross across the English Channel.
Apart from two significant changes, MacCready has stayed with his original tandem-wing layout. The gondola is larger, permitting Allen to take up a racing-cyclist's stance on the pedals (he was in a reclined seat in Gossamer Condor), and the main-

plane has about half the wing area, although the span remains about the same. The empty weight is reported to be only 501b, partly achieved by using carbon-fibre filaments for wing main-spar strengthening. Because the wing aspect ratio is much higher than that of his earlier machine, MacCready has used more ribs while retaining a large amount of external bracing to maintain the aerodynamic profile. This will be critical, as a rough estimate of performance suggests that Albatross will cruise at about 12kt, at which the mainplane lift coefficient will be about 1-1. If these estimates are correct, the power required to maintain steady flights is just below 0 • 2 h.p.
At 12kt in still air Gossamer Alba-tross could cross the English Channel (it has to fly from England to France, according to the competition regula-tions) in about lOOmin, but even a light (5kt) breeze would extend this to almost 3hr. Tactics and clever use of local meteorological conditions will therefore play a big part in the plan-ning of a cross-Channel attempt.
It could be worthwhile for MacCready to wait for a 5kt breeze off the UK coast and to take off away from the Channel. Most man-powered

aircraft advocates would shy away from a 180° turn, but MacCready has proved that his designs have more controllability than other man-powered types, and so the risk might be worth taking. He could also get an offshore breeze at the French coast, in which case the first part of the journey would be fast and the remainder laborious. It seems that Allen must expect to be airborne for at least 2hr, rising to 3hr in the worst case.
There is also a large risk of the aircraft's being thrown into the water by turbulence created by shipping. Gossamer Albatross will probably stay close to the surface, where it will be vulnerable to disturbances which could extend for several miles behind large ships.
As has been proved once already, MacCready and his enthusiastic team will not be deterred by the long odds. It is rumoured that his 88ft-span wing is in four sections which could be transported easily from its California test site to a location on the English coast. The spring will bring favourable weather and an opportunity for Gossa-mer Albatross to prove that Paul MacCready's first man-powered air-craft success was not a fluke.