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Burt Rutan preaching the canard gospel at the E M convention, Oshkosh

stream will keep the rear propeller
windmilling and make it virtually im-
possible to stop the engine if there
has not been a mechanical seizure).
While maintaining single^engine safety speed the pilot of a conven-tional twin has to keep straight, raise the gear, identify the failed engine, move three separate engine controls to shut it down and feather, perhaps bank slightly towards the live engine and retract the flaps. Rutan's case assumes that the Cessna pilot then goes for a best single-engine angle-of-climb speed of 95kt for obstacle clearance, rather than the best single-engine rate-of-chmb speed ("blue line") of 107kt, The 310 is nearly 4,500ft from brake-release before reaching 50ft, yet has a better single-engine performance than some other lighter twins.

The other lines in the illustration show the Defiant's performance. The lower lines indicate a "blue line" climb, and even if the nosewheel is left down the aircraft should be able to reach 50ft by 2,300ft. But it is the upper lines which best show the Defiant's remarkable potential. Rutan claims that he can zoom to over 150ft while slowing to minimum speed, and then continue to climb at full aft stick, even with the nose gear down. No normal twin can climb at mini-mum control speed, or at a speed so close to the stall.

Unlike the VariEze, the Defiant has been evolved as a potential producL tion aeroplane rather than a home-built, and Rutan intends to work to-wards full certification under FAR 23. Howard "Pug" Piper was involved in the original development and has con-sidered production of the type. But no plans, tentative or otherwise, have yet emerged. Rutan is developing the aircraft in his own characteristically unobtrusive way, having "a lot of fun" before committing it to production. He flew both the VariViggen and VariEze around for over a year before deciding to sell plans for them. (It must be emphasised that you cannot at present order a Defiant or buy plans.)

Burt Rutan is now known inter-nationally as an ardent exponent of the canard creed, and the Defiant has inspired him. to even greater fervour. His presentation one hot afternoon at this year's EAA convention at Osh-kosh packed the forum centre to capacity, as the accompanying photo-graph shows. At the end he went so far as to predict that one day conven-tional twins and their associated single-engine risks would be ruled illegal once it had been established that such hazards could be designed out in air-craft like the Defiant. Wishful think-ing? After all, the Cessna Skymaster did away with the asymmetric prob-lem for the more cautious buyer years ago, but there have since been plenty of highly sought-after twins with an engine on each wing. On the other hand, the new generation of light twins from Piper, Beech and Grum-

man all have the safest possible single-engine characteristics as a prime design aim, and the Grumman Cougar, for example, has a single-engine minimum control speed below the flaps-up stall speed.
Aviation is a pretty conservative world, and a lot of scepticism will have to be overcomei before an aero-plane as radical as the Defiant is seen in numbers outside the GA terminals. To do so it will have to demonstrate more attributes than mechanical sim-plicity and spectacular performance. How would it stand up to the tough

everyday working world of the ordi-nary twin, and could it cope with a dirt strip as well as a smooth runway? The Defiant has a flat approach angle similar to that of the VariEze, and in normal use a two-seat VariEze without the optional ventral spoiler needs 2,000ft of hard runway to land over a 50ft obstacle (at sea level). But time, and the value of an ultra-safe and remarkable performance, will tell. Perhaps one day there will
be a lot more light twins around that
at first glance look as if they're going
backwards.

The only "non-original" feature of the prototype is the Mooney retractable nosewheel leg

DEFIANT LEADING DATA

Basic empty weight 1.5351b (695kg) Equipped empty weight 1,6101b (732kg) Gross weight 2,9001b (1,315kg) Fuel weight 5401b (245kg) Span 29ft 2in (8-9m) Wing area 127 3fta(11 <83m2) Payload with
full fuel 750lb (340kg) Max cruise (70 per cent power): 186kt (345km/hr) Range at max cruise (45min reserve) 840 n.m. (1,560km) Economical cruise (55 per cent power) 170kt (315km/hr) Range at economical cruise (45min reserve) 980 n.m. (1,820km) Climb rate 1,600ft/min Single-engine climb 300ft/min Single-engine service ceiling 5,500ft (1,680m) Stall speed 65kt (120km/hr)