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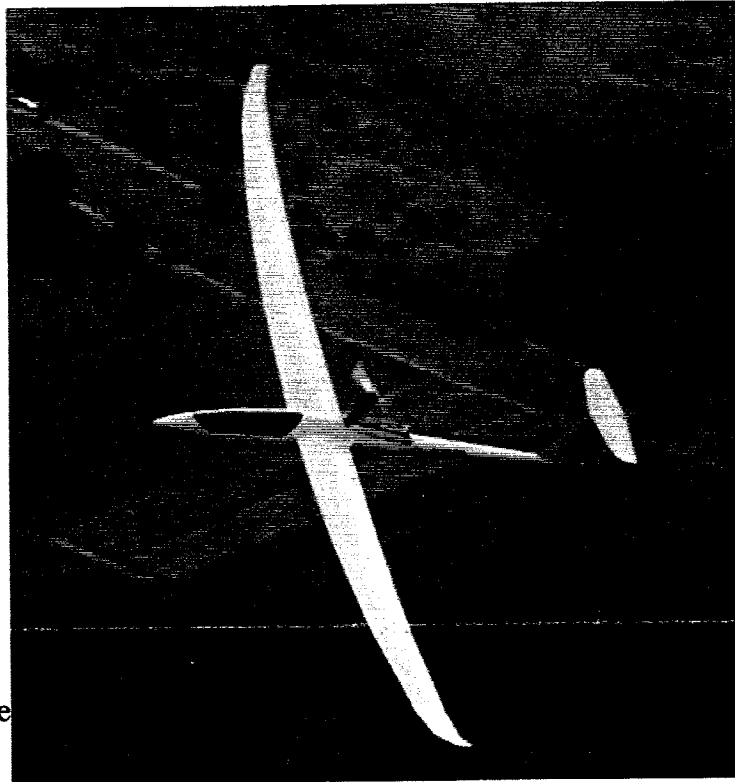
Auxiliary-powered Sailplane Association

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NIMBUS 4DM FLYING IN EUROPE

The Nimbus 4DM - DT became available in the summer of '1994' superseding the very successful Nimbus 3DM. A two fold design concept led to the final result. First, to apply the handling and performance characteristics of the then existing single seat Nimbus 4, and second, to offer the advantages of an engine remaining inside the fuselage to decrease noise emissions and increase powered performance.



with the airflow resulting in a net gain in thrust. The engine now available is the SOLO type 2625-02 providing 65 HP which may result in slight improvement in performance after tests have been completed. The take off run of the Nimbus 4DM is shorter than both the Nimbus 3DM and the Single seat Nimbus 4M.

A substantial reduction

Schempp-Hirth had a very successful design with a buried engine prior to the Nimbus 4DM, the Discus bM. I had the opportunity to fly the first Discus bM at the factory airfield at Hahnweide in 1992. At that time I owned and flew a Ventus CM. The climb performance of the Discus bM was nearly twice the rate of the Ventus CM and the noise was less even from the cockpit. Obviously, the buried engine was the way to go.

The powerplant offered in the first series of Nimbus 4DM's was the liquid cooled 59 HP Rotax model '535C'. The engine was used in the Janus CM and Nimbus 3DM. With the engine located in the fuselage, only the propeller and pylon is exposed for launch. The propeller is an aerodynamically efficient wide chord design by TECHNOFLUG AND W. BINDER. In addition, the mass of the engine is not located behind the propeller to interfere

in noise has been accomplished by the dampening effect of the walls of the engine compartment and the shell of the fuselage. In addition, the hollow propeller pylon in which the drive belt is routed, an air intake silencer and the upward pointing of the muffler contribute to total noise emissions less than the limits imposed by authorities. The Nimbus 4DM is designed to be predominately flown in the sailplane configuration and not as a 'touring aircraft'. Its propulsion system is principally designed for a powerful take off and climb.

The extension and retraction of the propeller pylon with the engine water-cooling radiator attached is by means of an electrical spindle drive. In powered flight the doors of the engine, which feature a heat reflecting foil coating, remain open to cool the engine and its muffler. The powerplant

is controlled and monitored by means of an ILEC multi-function control unit which is also available as an option for the rear cockpit as well. It continuously displays not only engine RPM and coolant temperature, but also indicates incorrect procedures. Also the unit shows battery voltage, low fuel level and whether the pylon is fully extended or retracted. In the case of a failure of the pylon control, an emergency system is provided which overrides the electronic boxes and limit switches in order to retract the engine.

Electrical power for the power plant system is provided by a 12 Volt, 24 amp hour battery which is charged by the engine generator in flight. Space for additional batteries is available for avionics power. A ground service receptacle is available upon request.

A nose towing hook is fitted as standard so that the Nimbus 4DM may be operated with its engine removed. A belly hook can be fitted as an option. Both methods of launching, by aero tow or winch, are approved with the engine in place and the aircraft fully loaded.

The powerplant system is designed such that the engine can be quickly removed or reinstalled. This is ensured by using a number of quick-disconnect couplings for the electrical and fuel system and by easily accessible engine suspension points.

There are more than forty(40) Nimbus 4D's and twenty-six(26) of them are self-launchers flying all over the world(United States, Europe, Australia, South Africa, Japan, etc.) About one Nimbus 4D/DM is built per month with a rising interest for this ship. Many thanks to Tilo Holighaus for the above information.

FLYING THE NIMBUS 4DM BY WILLIAM S. IVANS

After a year's ownership and about 80 hours of flying this big bird, plus 30 flown by son Dennis, I can offer these comments:

1. I am still impressed by just how flat it glides, even at 120 knots or better. And by how well it climbs. And by how very pleasant it is to fly!
2. The Nimbus 4DM wants a lot of rudder when entering or leaving turns; fortunately, ample rudder is available. It will circle nicely at an airspeed of 50 knots or so, but only in relatively smooth air. In rough thermals, an airspeed of 60 knots seems about right. It has a really solid, stable feel whether running or maneuvering.
3. Dive brakes are effective, and show no tendency to change position when partially deployed. At full dive brake, the flaps take an additional positive deflection, and the hydraulic disc wheel brake is actuated as well. This last movement can lead to an unplanned forward pitch upon touching down, and possible contact with the small nose wheel. The wheel brake can also be actuated by a lever mounted on the stick; it's convenient to have a choice.
4. Approach and landing are straight forward, with excellent glide path control and good visibility. The Nimbus 4DM likes to touch down with both wheels at once, but will make nice main gear only landings if called upon. Positive flap is used on approach.
5. Negative flap is used as soon as the landing roll is established, giving enhanced aileron control as well as keeping the fixed tail wheel firmly on the runway. Turning off the runway with negative flap is aided by using forward stick to lighten the tail, perhaps supplemented by a touch of wheel brake.
6. Self-launching and powered flight use the Rotax 535C engine, cleverly mounted at the base of an electrically retractable pylon, with belt drive to the one piece, fixed pitch propeller. Ignition and pylon controls are concentrated in dual panel mounted ILEC units, with lots of indicators, connections to limit switches and interlocks. Dual throttle and fuel shutoff valves are located on cockpit sides. About 50 liters of fuel can be carried, in wing and fuselage tanks.
7. A wing runner is required for taxi and takeoff. Most positioning is carried out using a tail dolly, which is removed just before takeoff. The engine is a great help, making it easy to taxi to the takeoff point in short order, especially at Minden when Mike or Tom is running the wingtip while riding a bicycle!
8. Takeoff at Minden is normally from the runway intersection, and with both seats filled involves a run of 1500 to 1800 feet until liftoff, with 2000 or more feet of runway still ahead.
9. Takeoff run begins with full back stick and gradual throttle advance, to avoid pitching forward onto the nose wheel. Negative flap is used at the beginning of the takeoff roll, giving good aileron response. As speed builds, this is gradually changed to the positive climbing flap position. The Nimbus 4DM will lift off from the full back stick rolling position at airspeeds in the mid 40's. Recommended climb speed is 51 knots indicated.
10. Climb to 3000 ft. agl usually takes from 8 to 10 minutes (Minden field elevation level is 4720 ft.). Full throttle yields 7100 rpm at 51 knots. 'Do not exceed' engine speed is 7200 rpm, with a red line on the ILEC as a reminder. The liquid cooled Rotax stays well inside its temperature limits; coolant temperature and engine rpm are continuously displayed by the ILECS. The climb uses about 4 liters of fuel, duly reported by the ILECS.
11. Cockpit noise is considerable during engine run; and headsets are available if communication is imperative. External noise is quite minimal, even at close range. This is due in part to the 3:1 ratio of engine to propeller rpm, and to a very effective muffler.
12. The Nimbus 4DM is comfortable and easy to fly from either the front or rear cockpit. A switch in the front cockpit selects front or rear cockpit engine control. The

