

Gliding & Motorgliding International

The online magazine community for glider pilots world-wide



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Why I Like My Sailplane

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Issue 8/2000

DG-800A The Go- Anywhere-Glider



"Alec" flies at Magalies Gliding Club, 80km west of Johannesburg, South Africa, and has more than 2000 hours with several hundred on self-launchers.

I've owned a number of sailplanes. My first experience of the freedom of self launching came when my hangar partner and I imported 3 DG-400. We flew these for several years before upgrading to the newly introduced DG-800.

This ship is something else! It was a DG-400 all over again, but with a better take off and climb under power and really a very flat glide. Handling too, was better. Tip stalling was a thing of the past, even in rough thermals. In fact the DG-800 handles so well that it can be flown too slowly in a thermal for good climb rates; about 100kph is being about the optimum speed thermal speed.

On the ground, the DG-800 is still an aircraft that one person can manage alone. The carbon wings are as light as my old LS4s to rig. Unassisted takeoffs with the small wing tip wheel down

on the ground, even with quite strong cross winds, are quite easy. Holding the tail down hard on the large steerable tail wheel gives plenty of lateral control, and coasting off the runway and up the taxiway is quite fun. Once you remember to wear dark coloured shoes, the long canopy is great.

With the thinner wings, the DG-800 gives a softer ride than the DG-400 and is not as affected by bugs and rain. It seems to be in its element penetrating up wind in weak conditions, but when loaded will run with the best in the 18m class and still climb well. In fact, small pilots may find it beneficial to always carry some water.

Just when we thought we had the ultimate glider, Wilhelm Dirks announced the tall winglets for the 18m span. Cutting the old tips off was a little traumatic, but the retrofit kit was well designed and what a nice surprise! Now the glider went round on rails. I can trim it out and let go everything and enjoy my lunch for a few turns.

Slow speed handling at gross weight, even in rough thermals, is superb. Tests by DG showed a slight improvement in sink rate at even 180kph and I can well believe that. I never fly without them any more.

A glider which can make a short take-off without any assistance is something that every pilot needs to experience. They say gliding is the ultimate in free flight ñ well the DG-800 takes it a big step further. Our two DG-800 have gone off on 2 to 4 day excursions to all sorts of places. To farms, other gliding clubs, air shows, overnight fly-ins, and mostly back on the day planned. Our transponders let us go almost anywhere if we telephone ATC with a rough flight plan. The high climb rate means that sink near thundershowers can mostly be overcome and allows us to climb sometimes to over 10000ft to ensure a safe glide home. The wing tanks avoid all those concerns about whether there will be enough fuel to return home.

After the DG-400, the Rotax 505A was quite familiar to me. So far with both aircraft it has proven to be very reliable and easy to maintain. There were a few precautionary modifications, but generally it has been a cheap motor to operate.

To avoid alcohol and other automotive fuel problems, we have always used Avgas 100LL with Castrol Super TT, a high grade mineral oil. We have never experienced any plug fouling. I prefer this motor to the new water cooled types.

DG-800B

The ultimate in excitement



Pete Williams, who flies from Minden-Tahoe Airport, Minden, Nevada, USA, began his flying career at 18, becoming a naval aviator two years later. Of his 8000 plus flying hours, he has more than 2700 in sailplanes including 1000 in self-launchers.

If you want the most exciting soaring experience you have ever dreamed of, then you need to take a flight in the DG-800B. The 800B is the new generation of German-made powered sailplanes with the capability to self-launch using an engine that is stowed in the aft fuselage. No aerotow is required and the 800B can taxi out to the runway unaided. Looking at the sailplane, it is difficult to believe that in the sleek tail boom there is a powerful engine that has the capability to produce a very rapid and steep climb to the nearest thermal. So let's get started.

Before entering the cockpit, extend the propeller pylon by turning on the master electric and engine master switch and selecting extend on the manual extension switch. You will hear the electric motor raising the pylon as the aft fuselage doors swing open. A flashing yellow light on the engine control console tells you the pylon is moving. Out comes the large paddle blade propeller and a radiator.

To not put undue pressure on the pylon pivot points, do not extend the pylon all the way but to just short of the vertical. Now that the pylon is extended, walk around to the rear of the sailplane and inspect the engine bay. Note the muffler in the bottom of the bay and the connection of the engine exhaust manifold pipe to the muffler pipe. The engine rotates 90° and is attached to the pylon. As you pull the prop through two revolutions, the 10.9:1 compression ratio is quite evident. This model 800B has a British-made liquid-cooled Mid-West two-cylinder, two-stroke with an output of over 50hp at 6250 engine revolutions (2083 prop revolutions at a ratio of 3:1). It has dual carburetors, dual electronic ignition and dual spark plugs and runs on a mixture of AvGas LL100 (or auto super unleaded) and two-stroke oil mixed at 40:1 ratio. Check the propeller hub attachment bolts for safety wire integrity and paint marks, as well as several other items found on the printed engine bay pre-flight check list.

The Digital Engine Indicator tells you all you need to know

Complete the airframe check list, enter the cockpit and prepare to start the engine. In the dead centre of the instrument panel is a horizontal display with switches, lights and a digital liquid crystal readout. This is called the Digital Engine Indicator (DEI) and provides the pilot with all he needs to know about pylon position, temperatures, voltage, ignition, rpm, generator, fuel, engine priming and limits. Just to the right of the DEI is the engine compartment fire warning light. After completing the airframe part of the cockpit check list and securing the seat harness, you are ready to start the engine. It's a long reach to the DEI, so make sure you can operate all the switches before the start. Put on the headset because it's going get a bit noisy inside the cockpit. Close the canopy and set the wheelbrake. A wheel chock and crew person, while not absolutely necessary, is recommended.

As you place the ignition switch in the up position, the pylon extends fully, a green light will appear on the DEI and you will hear the electric fuel and water pumps running. Flick the prime switch to auto, call 'clear' and push the starter button.

While looking in the rear view mirror you can see and feel the prop cranking. As the engine lights off and settles down to a dull purr, turn off the auto prime, check rpm and temperatures (both CHT and EGT). The red generator light should be off. Continue the warm up at 2500rpm until the coolant temperature reaches 60°C. All warning lights should be off on the DEI except the green ignition light. Increase rpm to 3000 and test the dual ignition system. The drop should not exceed 300rpm.

Hold the wheelbrake full on and run up to 5000rpm. (This may require the crew to keep the nose from dipping towards the ground.) During the full power check, you will notice an

increase in noise and vibration. You will also feel the thrust. Check coolant temperatures and EGT, if installed. If a crosswind take-off is expected, make sure the windward wing is the low wing before you taxi. To begin to taxi, reduce to 2500rpm and release the brake (pull chock). The 800B will immediately begin to move and may require a touch of brake and a slight reduction in power to establish a comfortable taxi speed. Tailwheel steering is responsive and positive.

Head for the runway and keep a lookout for other aircraft during taxi and prior to moving on to the runway. After making sure the runway is clear for take-off, lower the flaperons to +8°, check elevator trim full aft, spoilers down and locked. With all other pre-take-off checks completed, announce your departure, move on to the runway and add full power when lined up. As the propeller unloads, the growling acceleration will be more than brisk - it will paste you back in the seat. Aileron control is almost immediate and by the time you can count to eight, the aircraft will be airborne with rotation at 49kts. The climb rate is guaranteed to exceed your expectations as the 800B literally leaps into the air!

As the ground falls rapidly away, it's time to check temperatures, rpm, rate of climb and altimeter - 1000ft agl comes quickly. Raise the wheel and climb toward the house thermal. The take-off performance of the DG-800B clearly defines what high performance self-launching is all about.

An environment friendly aircraft, thanks to German know-how

While you are experiencing some cockpit noise, remember that the outside noise is a very low 57.1dBa which is 18.9dBa below the ICAO limit. The buried engine and low prop rpm makes possible an environment friendly aircraft, thanks to German know-how. When the lift rate on the variometer rises rapidly and remains between 6-10kts, it's a good indication a thermal has been found. Start the thermal turn and if lift is confirmed reduce power to idle. Maintain 45-49kts, switch off the ignition and watch the propeller in the rear view mirror.

As the propeller comes to a stop the pylon retracts a few degrees. This allows the propeller arc to line up with the rubber prop stop. The pylon will not retract until the propeller is in a vertical position with its tip against the prop stop. Step the propeller to the vertical by pushing the starter button intermittently or nose over to windmill the prop to the vertical.

As the prop stops in the vertical position, the proximity switch activates the electric screw jack which retracts the pylon. The yellow engine travelling light illuminates as the pylon retracts and goes out on full retraction as the fuselage doors bang shut. Activate the total energy system.

When the thermal tops out, select -10° flaperon and accelerate to 75-80kts. Check fuel quantity, engine coolant temperature and battery voltage, then turn off the master engine switch. You are now flying a 50:1 high performance sailplane.