

# The Bearhawk Patrol

By Karl Jensen (Pictures by Athol Franz)

The Bearhawk Patrol was designed by Robert (Bob) Barrows of Fincastle, Virginia, USA. Bob has a B.Sc. degree in Mechanical Engineering and has over 4,000 hours of flight time, almost exclusively in tailwheel aircraft.

Bob has built numerous aircraft, including a scratch built Midget Mustang. He designed and built a single place, high wing, open cockpit Short Take Off and Landing (STOL) plane he named the Grasshopper which was powered by a 65 HP Continental engine. He designed, built, and then flew an open cockpit two seat aerobatic biplane for aerobatic competition and an RV-3. He restored and flew a Cessna 170 which he used to deliver aircraft engines for his customers. Finding the 170 marginal for that task, in the early 1990s Bob began work designing and building the four place Bearhawk. Bob's follow-on design - the Patrol first flew in 2002. His prototype Patrol now has over 1000 hours on it. Whilst very similar in appearance and construction to the four place Bearhawk, the Patrol

incorporates some new design elements such as the aerofoil shaped tail ribs and a special Riblett airfoil.

Wayne Giles, who lives at Fly-Inn Estate, Gauteng, built his Bearhawk Patrol, appropriately registered ZU-BHP at the estate where he has an engineering workshop. Wayne is an Arab Horse breeder and a successful industrial refrigeration engineer. He has about 1500 hours on taildragger aircraft. Wayne owns and regularly flies a pristine Cessna 180. Wayne took 20 months to complete his Bearhawk Patrol 'quick-build' kit in his workshop. I hangar my Cessna 170B - ZU-VAL in my happy pilot cave adjacent to Wayne's workshop and have monitored the construction of



ZU-BHP from the start and I was asked to do the proving flights for the South African Civil Aviation Authority (SACAA) Authority to Fly. Although the Bearhawk Patrol has been likened to a Super Cub on steroids, I found it an amazing upgrade that can scarcely be compared with that type.

This Bearhawk Patrol surprised me on every flight as one of the most benign taildraggers I've ever had the pleasure to fly. In spite of the gentle handling nature of the aircraft, the performance is scintillating in every respect. In my view, the Light Sport Aircraft (LSA) version as well as the regular Patrol will be superb taildragger trainers due to their robust construction and predictable handling characteristics. Since ZU-BHP is the first of its type in South Africa, I carried out an extensive testing programme to ensure that there were no surprises for anyone who builds or purchases a Patrol in South Africa. ZU-BHP testing was a pleasure and on the advice of Major General Des Barker SAAF (retired), the tests were flown to a carefully pre-determined plan. Wayne built his Bearhawk to an incredibly high standard with diligent attention to detail. The aircraft is fitted with a Superior IO-360 engine and an MT 3 bladed constant speed propeller. This is a wonderful match and the engine is turbine like in its smoothness of operation. The Advanced

Electronic Flight Instrument System (EFIS) is a delight and there are also regular modern RT (Round Thing) instruments.

The new engine on ZU-BHP had to be run-in before serious flight testing that required power changes. I carried out the run-in in accordance with recommended practice. I had to do this in early morning calm air as at high power settings, the speed would be well into the yellow still air only arc. The EFIS allowed close monitoring of the engine parameters that noticeably stabilised after about 11 hours when the rings had bedded. The engine fitted is a Lycoming IO-360 fitted with a three-blade MT propeller. Since the engine is new, I observed the Lycoming recommendations for breaking it in correctly. I was now able to do some of the required flight testing such as slow speed handling, stalls and spins without compromising the engine break-in regimen. These tests followed once the engine break-in was completed.

As I wrote earlier, I rate this Bearhawk Patrol as one of the most benign tail draggers I have experienced. The performance at our home airfield of Fly-Inn at 5200 feet above mean sea level at outside air temperatures ranging between 20 and 35 degrees centigrade at max gross weight was thrilling; a true rocket ship with solid fighter-like

handling qualities. This is intended as a compliment to the designers and also to Wayne for his quality build. From the first flight, the aircraft has flown straight and true with no tweaking of the rigging required. We have not flown at max Indicated Air Speed (IAS), but even with 70% power which is all we can achieve at our home base altitude, the indicated airspeed straight and level is into the yellow arc at 148 – 155 mph giving a True Air Speed (TAS) of 160-165 mph.

The approval flying required by the SACAA is 40 hours for a new non-type certified aircraft (NTCA) in this country. This is a conservative and rather stringent requirement for an aircraft type that has been proven in the USA. This Bearhawk Patrol at maximum gross weight of 2000 lbs (907 kg) stalls with full flap at IAS 35 knots (65 km/h) and clean at 45 knots (84 km/h). The design is suitable for STOL operations and 'back country' flying from unprepared fields. The flight envelope of the patrol is quite remarkable. For cross country flying, 75 % power cruise is 130-135 knots (240-250 km/h) due to the clean design and the Riblett aerofoil section. The handling is crisp and during spin testing, the ailerons were effective. The stall, when it happens at ridiculously steep angles of attack results in a straight ahead sink with little tendency to drop a wing unless the aircraft is grossly mishandled. To induce a spin requires power on

and abrupt control input. Recovery from a spin happens when the controls are simply released. Normal spin recovery of course makes regular flight resumption a cinch. The spacious interior dimensions can accommodate large pilots and passengers comfortably and the 210 litre fuel capacity permits a safe endurance of six hours and up to nine hours at minimum drag speed. Two large occupants and full fuel, allows about 50 kg of baggage to be legally carried in the spacious cargo hold which has a conveniently large access door. If the aircraft is built with basic instrumentation, a legal payload of 485 kg is possible. There are a few four-seater Bearhawks in South Africa and I am sure that there will be many more of the two-seater Patrols in the near future when discerning pilots meet up with this lovely aircraft. The Bearhawk stable of aircraft is available as 51% kits. Please view [www.bearhawkaircraft.com](http://www.bearhawkaircraft.com)

Editor's note: Karl Jensen retired from SAA as a B747-400 Captain in 2003 and has been continuously involved in aviation for more than 50 years. Karl has 26,800 flying hours. He is the past chairman of the Johannesburg Experimental Aircraft Association (EAA) Chapter 322, a position he held for eight years. Recently at the Aero Club awards, Karl deservedly received a 'life-time achievement award' for playing a pivotal role within the EAA movement in South Africa. ✈

