**N52BT**

Aircraft: Van's RV-4 Homebuilt

Builder: Brian Trubee

Engine: 1993 Mazda 13BREW Wankel rotary, normally aspirated. Electronic Fuel injection and ignition. Liquid cooled.

Hp: 180+?

Fuel Capacity: 32 Gallons, uses regular gasoline

Weight: 1092 lbs empty

Max gross weight: 1800 lbs.

Stall speed: 54 MPH/49 KTS.

Range: 750 miles

Ceiling: Higher than I'll ever fly it- over 18,000 feet- probably 23,000 feet

Climb: 1400 fpm @ 100 mph & 1475 lbs.

Top speed: unknown- 195 mph/170 kts.?

Prop: Catto 72 diameter x 88 inch pitch

This is currently a day VFR aircraft.

This plane was built from 1994 to 2010, in my spare time from work and family, thanks to my understanding wife. It was issued an airworthiness certificate in August of 2010. Phase one flight testing is almost complete. Phase one consists of a 50 nautical mile radius restriction from Paine Field. After phase one is complete, it will be able to fly anywhere it's pilot decides to take it. The cooling scoop beneath the fuselage will be reconstructed to a higher standard of quality. The current scoop was made to test for an effective cooling configuration. Van's Aircraft are designed to be used with Lycoming engines, but I became interested in using a Mazda Wankel because of its size, power, smoothness, cost and reliability. A new 180 HP Lycoming engine costs upwards of $26,700. The engine was imported as a salvage engine from Japan. It cost $850. I sold the accessories from the engine that I did not need, such as the turbocharger, power steering pump, etc. The proceeds were used to purchase a rebuild kit and after all was said and done, the engine cost around $500. Engine mount, engine cowl, exhaust, intake manifold, plumbing, etc. were all crafted by the builder. The engine monitoring system and engine controller-ignition and fuel injection, and Propeller speed reduction unit- are handled by Tracy Crook's REAL WORLD SOLUTIONS products.

Since this Wankel engine likes to run around 6000-6800 rpm all day long, and the propeller needs to turn around 2400 RPM, a six pinion C6 planetary gear set from a Ford truck transmission is used in the REAL WORLD SOLUTIONS PSRU. Due to the unique design of the Wankel engine, the bearing loads at this rpm are very low and projected lifespan of the engine is expected to be greater than that of a Lycoming. ***TOTAL COST*** of this complete aircraft is equivalent to the new cost of the new 180 HP Lycoming engine alone.

Thanks to Rich Martin and Paul Lamar for advice and assistance, and to Tracy Crook for his REAL WORLD SOLUTIONS rotary engine products.