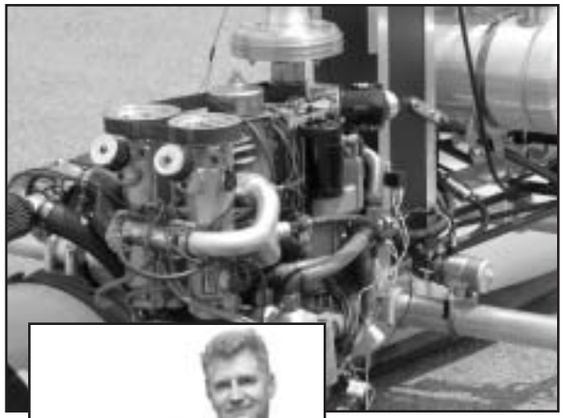
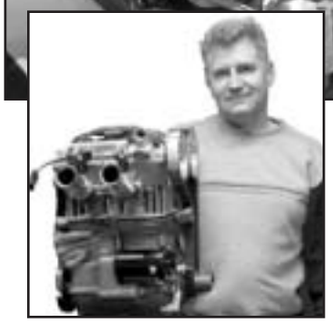
INDUSTRY WATCH

NEW PRODUCTS AND FLYING ACCESSORIES

65 Horsepower, Less than 80 Pounds "Ready to Run"

AeroTwin 4-Stroke Engine From New Zealand





At 65 horsepower and "less than 80 pounds ready to run," the new AeroTwin 4-stroke aircraft engine, designed and manufactured in New Zealand, is expected to "meet the needs of several markets for a lightweight yet powerful engine," says worldwide distributor AeroTwin Motors. The first application should be the AirScooter II "Part 103 recreational vehicle" – a helicopter.

A new 4-stroke aircraft engine has been developed that should generate interest among ultralighters. "AeroTwin Motors Corporation is the master distributor for the new AeroTwin engine manufactured by Pearson Motor Company of New Zealand," AeroTwin Motors says. "The AeroTwin engine has been designed for AeroTwin Motors by Bill White and Pearson Motor Company to meet the needs of several markets for a lightweight yet powerful engine in the 60- to 85-hp range."

Pearson Motor Company, in Christchurch, New Zealand, was formed to develop, manufacture and market small engines, according to AeroTwin Motors. "Stuart Pearson is the majority owner, founder and managing director of Pearson Motor," AeroTwin Motors says. "Bill White is a stockholder and director of engineering, and has directly managed the AeroTwin development project. White is a world-recognized engine expert involved in high-performance and racing engines. He has worked with New Zealand Rover, Jaguar, Rolls Royce and Bentley concessionaires, as well as restoring Aston Martins, Bristols and Jaguars. Recently, White was involved with Britten Motorcycle high-performance engines."

The first application for the new 4-stroke engine should be the AirScooter II "Part 103 recreational vehicle (helicopter)," from AeroTwin Motors' parent company, Nevada-based AirScooter Corporation, reported on in last month's *Ultralight Flying!* magazine.[1] The AirScooter II features a coaxial counter-rotating dual rotor system that eliminates much of the complexity of flying a conventional helicopter.

As the AirScooter project progressed, "We discovered the lightweight 4-stroke engine the AirScooter required did not exist anywhere in the world," AeroTwin Motors explains. "During discussions with many OEMs (original equipment manufacturers), we found they recognized the same 'hole' in the small-engine market. In late 2000, we discovered Pearson Motor Company in New Zealand, formed to develop a modern 2-cylinder 4-stroke motor that we determined met the needs of the AirScooter."

Recognizing the market potential for the new engine, AeroTwin Motors agreed to become its worldwide distributor. "We are proud to import and offer the AeroTwin 4-stroke engine," AeroTwin Motors says, "and we have the technical ability to support these engines with parts and technical support after the sale."

According to AeroTwin Motors, unique features of the AeroTwin 4-stroke engine include:

- an internal air-cooling/oil scavenging/turbo charging system;
- reversible cylinder head (swap sides for inlet and exhaust);
- hollowed head studs serve as oil passageways to cam boxes;
- alternator is a disk with an iron core and windings wrapped over the disk containing the magnets (like a disc brake caliper);
- alternator is combined with air-cooling turbine;
- the engine management system is incorporated into the inside lid of the plenum chamber to reduce loom size and provide cooling;
- cylinder barrels are cast into head as one piece;
- engine is held together by six studs that pass through the crankcase and also hold down head;
- head is not held under tension – it's fixed in place on top of crankcase by six studs;
- all sealing surfaces use O-rings – no sealant is used;
- internal starter drive uses ring gear as part of the crankshaft counterweight;
- hollow camshafts reduce weight;
- combustion chamber is entirely ceramic-coated;
- crankshaft secondary balance is improved by the use of light alloys;
- bore/stroke relationship is structured to reduce secondary imbalance without the need for balancing shafts; and
- the engine can be altered (starter reversed, and cams rotated 180°) to run in the opposite direction.

AeroTwin Motors notes the engine can run both vertically and horizontally; and the output drive is available from both ends of the engine.

Specifications

Configuration	Twin-cylinder inline, 4-stroke, air-cooled, dry sump (runs vertically or horizontally), two valves per cylinder, belt-driven twin camshafts
Power	65 hp @ 4,200 rpm
Displacement	1,130cc
Weight	"Less than 80 pounds ready to run"
Ignition	Electronic, two sparkplugs per cylinder
Fuel system	Electronic fuel injection
Fuel requirement	91UL octane minimum

The estimated selling price for the AeroTwin 4-stroke engine is $6,500. "The final firm price has not been set," the company says. Note: AeroTwin Motors prefers to be contacted via the e-mail address below.

[1]See "Industry Watch: AirScooter 'Part 103 Helicopter'," January '04 *Ultralight Flying!* magazine p. 7

– Buzz Chalmers

Info: AeroTwin Motors Corporation, Phone: (702) 566-2411 • Fax: (702) 566-3409 • e-mail: info@aerotwinmotors.com .