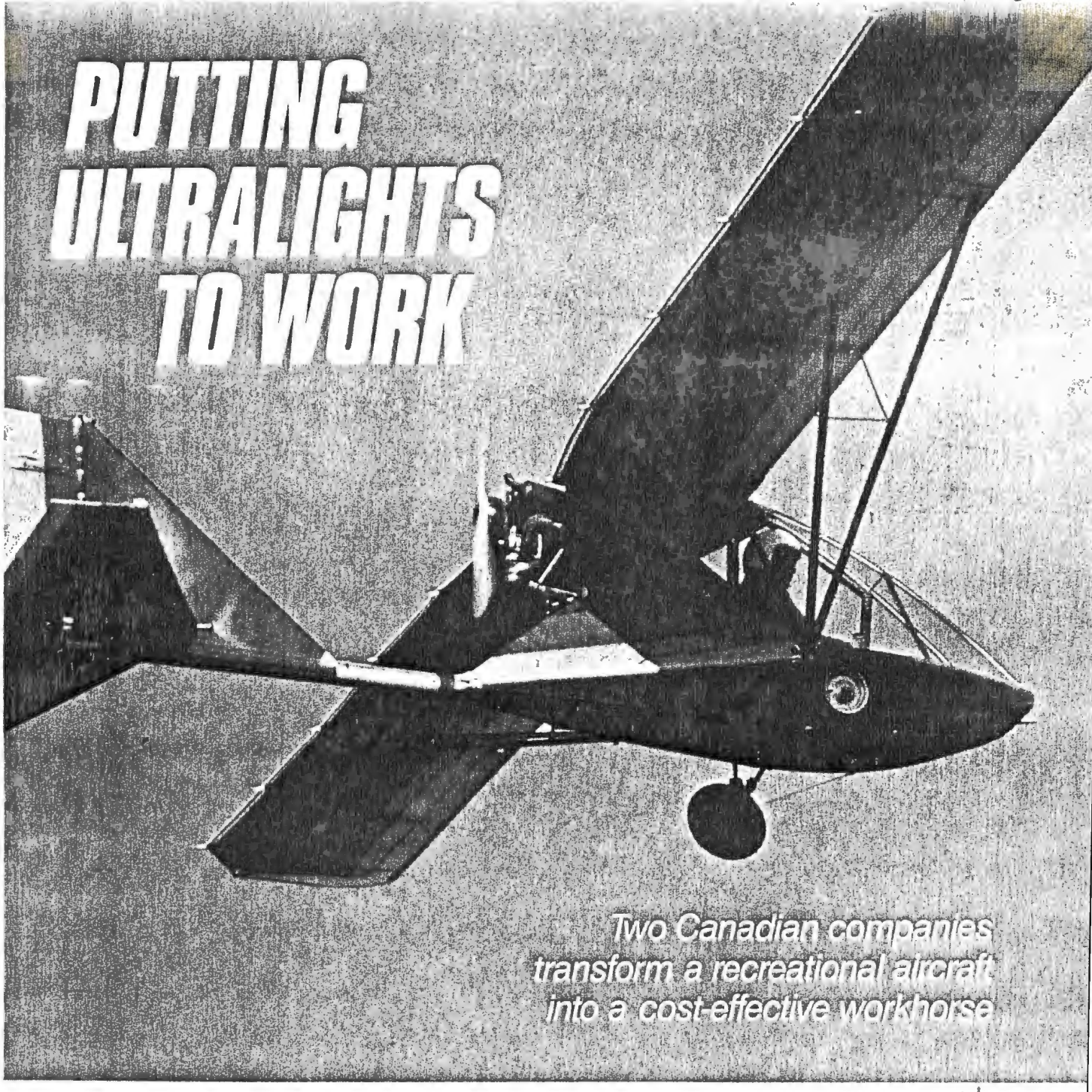
PUTTING ULTRALIGHTS TO WORK



Two Canadian companies transform a recreational aircraft into a cost-effective workhorse

by HAWLEY BLACK

It is a perhaps the poorman's perfect aviation package: strong, simple construction, crisp flying characteristics, a reliable virtually maintenance-free power plant, and low purchase and operating costs. That's the promise of two Edmonton-based companies which are fast becoming major exporters of Canadian-designed aircraft.

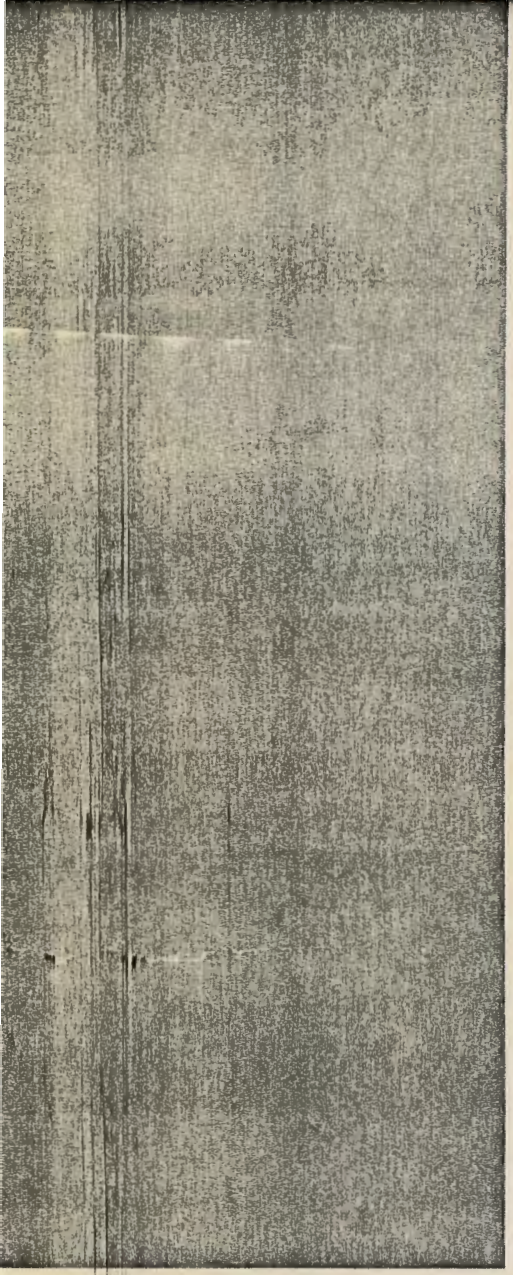
Birdman Enterprises is Canada's longest-established manufacturer of hang gliders and ultralight aircraft, and what it is selling these days is the product of its ten years in this field: the single-place WT-11 Chinook and two-place Chinook 2S ultralights.

Birdman sells its aircraft in Canada and abroad, with exports accounting for 40 percent of its total sales. In 1984, for example, it sold 65 machines in Australia, ten in Japan, five in Israel, and three in Norway, for total export sales of half a million dollars. Indeed, as a result of the work done by this firm, ultralights are moving out of the 'tubes and wire' stage into safe, practical cabin-class flying, says Gerry Vickers, Birdman's marketing manager.

WT Aircraft International is a new company formed by Birdman's former aircraft designer, Wladimir Talanczuk, and a Chinese aerospace firm to manufacture WT-12 Agroplane ultralights in China. The new Canadian-Chinese firm will be building 500 aircraft each year for the next five years, says Andriy Semotiuk, WT's vice-president. Initially, these will be used for agricultural spraying.

Subsequently, the Agroplanes will be available to other countries and for other uses. The project—a joint venture between Wladimir Talanczuk Aircraft Manufacturing Limited and Beijing Chang Feng Aircraft Manufacturing, a leading Chinese aerospace firm—could generate as much as $5 million worth of business over a five-year period for Canadian suppliers, says Semotiuk.

Under the agreement, reached in May 1985, a new firm, WT Aircraft Interna-



tional, has been formed with an initial capital investment of US $480,000. Of this total, 52.5 percent comes from the Chinese and the rest from Canadian investors. Control will be on an equal basis, although profit will be split according to investment.

The new firm will make the WT-12, the twelfth ultralight designed by Talanczuk, who serves as company president and chief designer. The new machines will be built in Peking using Chinese materials and labour. Talanczuk, who will be based in China for the next year, will oversee the design and quality control of the planes. The new firm also will be responsible for worldwide marketing of tions such as those found in developing countries. Notes Talanczuk: "The WT-12 is capable of flying eight or ten hours a day." The plane can carry the pilot, ten gallons of fuel and 220 pounds of insecticide payload. It also can be quickly converted to other roles such as aerial photography, pipeline and utility corridor maintenance, police work, search and rescue operations, or for livestock or wildlife observation. Combined with low costs, these advantages and its Chinese connection could give the firm an edge in selling to developing nations.

Born in Poland, where he was a Polish air force MiG pilot, Talanczuk came to Canada in 1981, and shortly after joined Birdman Enterprises where he designed the WT-11 and the 2S. Talanczuk studied aeronautical engineering in Poland, and has designed and built almost a dozen new machines.

WT currently is developing and evaluating better spray equipment with the Alberta government. This may be a further spinoff for the firm.

While Birdman has received financial support in marketing abroad under Ottawa's Program for Export Market Development (PEMD), so far WT Aircraft has received no federal or provincial financial help. Notes WT's Semotiuk: "We did it all on our own." Through contacts in New York, Semotiuk met representatives of the China International Trade and Investment Corporation, the Chinese trade promotion agency. In February, 1985, he and Talanczuk flew to Peking at their own expense to meet Chinese aerospace engineers, who in turn visited Edmonton in May to see the prototype.

"We learned that the Chinese work 20-hour days. We'd negotiate non-stop until four in the morning, then at eight they'd be waking us for another round," says Semotiuk.

"The company we have been dealing with employs 10,000 people and makes their rockets and satellites. As far as we know, we are the first Canadian company, and certainly the first small business, to arrange a joint venture with them," says Semotiuk.

Using low cost Chinese labour, the company projects a wholesale price to dealers of $5,000 per machine, from the Chinese export port. This is far below conventional agricultural aircraft which cost between $100,000 and $200,000 and are expensive to operate. Moreover, the machines can be repaired using only simple hand tools, a bonus in Third World countries.

Birdman Enterprises is Canada's largest manufacturer of ultralights. Founded in 1973 to make hang-gliders, the company package for retrofitting standard kites. The following year it introduced the Atlas, a modified version of the popular Quicksilver design. An Atlas became the first Canadian ultralight to log more than 400 hours.

Since 1983, Birdman has centered its production on the Chinook WT-11 and the Chinook 2S series. Birdman general manager Barry Metcalfe emphasizes that the new machines are not just for weekend hobbyists, but are "serious aerial transportation" that can approach the utility of a light airplane.

Although most of the aircraft made by Birdman are still used for sport, a growing number are used to perform a variety of tasks. These include surveillance of cattle on the open range, police work, crop dusting, and survey work. The aircraft can be disassembled and readily transported from one site to another. The Chinook's ability to take off and land in short distances and its facility with rough terrain takeoffs and landings also makes it ideal for rural areas with few airstrips. In urban areas, it can use parks, parking lots and even streets.

The Chinook 2S has tandem seating with the pilot and a passenger housed inside a cabin. While this means greater comfort, it also greatly reduces parasitic drag. Designed by Dr. David Marsden of the University of Alberta, the new airfoil designated UA 80/1 (Modified) is especially suitable for ultralights. It is designed to produce high lift and a gentle breakaway at the stall and low drag at the upper end of the speed range. This also means better performance at less power.

The Chinook WT-11 uses 28 horsepower, and the 2S uses 40 horsepower, compared to more powerful engines in other ultralights. This also means gas economy. The single-place WT-11 burns 1.5 gallons per hour. The two-place model burns about two gallons per hour. The plane has a spacious, comfortable cabin, and noise is no problem. Ground handling is easy, and the takeoff run is 200 feet. Birdman also sells ski and float packages.

The Chinook's wing is a strong two-spar unit with internal lift and drag trussing. It is supported by streamlined lift and jury struts to keep overall height and weight to a minimum. The aileron system is of the gapless or wing wrap type, and an integral part of the outer trailing edge. In the tail, weight has been pared down through the use of a sealed-gap elevator and rudder hinge system.

The aircraft, reports Vickers, can be built in 50 hours from the kit supplied by

Chinook WT 11
277cc Single Place

Specifications

Wing span	35 ft (10.7 m)
Length	17 ft 6 in (5.3 m)
Engine make, model, hp	Rotax 277, 28 hp
Fuel capacity/consumption	5 gal/1.5 gph cruise (22.5 ℓ/6.7 ℓph cruise)
Gross Weight	250 lb (113.5 kg)
Useful load	375 lb (170.3 kg)
Wing loading	3.3 psf
Power/weight ratio	22.3 lb/hp (gross weight)
Design load factors	+6 −3
Price	$7,495 Cdn.

Flight Performance

Cruise speed	50 mph (80.6 km/h)
Stall speed	25-28 mph (40.3-45.1 km/h)
Takeoff run	100-200 ft (30.5-61 m)
Service ceiling	15,000 ft (4,572 m)

Birdman. Once assembled, two people can take it apart in 15 minutes and reassemble it in about the same time. The aircraft can handle cross winds of 20 to 25 miles per hour at 45 degrees and 15 mph at 90 degrees. It starts to stall at 25-27 mph. At 2,500 feet above sea level, it can clear a 50-foot obstacle in 200-300 feet. The two-seat Chinook climbs at 600 feet per minute with two 180 pound individuals on board. It cruises at 55-60 miles per hour. Birdman has specially designed the sturdy undercarriage to handle soft and rough field takeoffs.

Birdman's machines are entirely Canadian made. Its planes are priced in the $7,500 to $8,700 range.

These two Edmonton-based companies, Birdman and WT Aircraft, are making major export sales not only through aggressive marketing but also because they have come up with the next logical step in the ultralight, especially for use in cold climates. Instead of leaving the pilot to freeze in the wind in a cockpit equipped with a seat, controls and little else, they have placed him inside a snug cabin in a style reminiscent of the early postwar Champs and Canucks. And the uses to which these machines may be put also sound a lot like the early days of North American aviation.

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