

THE VIKINGS ARE COMING

The Rebirth of the Twin Otter

By David Olsen

On May 20 1965, the first DHC-6 Twin Otter took to the air and rapidly became the byword for a tough go-anywhere, do-anything aircraft; with 844 sold worldwide by the time production ended in 1988. Now, thanks to the perseverance and vision of Dave Curtis, CEO of Victoria-based Viking Air, the aircraft is making history again. When the all-new Twin Otter Series 400 makes its first flight from Calgary Airport sometime this spring, it will be an unparalleled aviation historical event.

No other aircraft in the world has been returned to volume production more than 20 years after the original production ceased. That this happened with the Twin Otter, speaks volumes about its versatility and the business acumen of Curtis and the Viking team. Even more remarkable, in an industry so often the recipient of government funding, Viking Air has achieved the Twin Otter renaissance without a penny of public money.

Viking has a long history with de Havilland Canada (DHC) aircraft as the main supplier of parts and spares to previous DHC owner Bombardier. Viking VP business



With six different landing-gear options, the Twin Otter 400 can operate from any land, water or polar environment.

development, Rob Mauracher, who was Bombardier VP commercial aviation during this period, recalls discussing the possible resurrection of the Twin Otter with Curtis. However, as Curtis points out, “the economics were not right at the time” and when Viking negotiated the rights to DHC-1 through DHC-7 from Bombardier in 2005, it was not with the sole objective of putting the Twin Otter back into

production but as the maintenance and repair organization (MRO) for the aircraft.

Nevertheless, Curtis commissioned a market study for a new-built DHC-6 and in February 2006 Viking purchased the type certificates for the DHC-1 through DHC-7, giving it the sole right to manufacture new aircraft. The “new” DHC-6 took another step toward reality in September 2006 when, armed with a

business plan, Viking called a buyers/operators conference, after which its board made a commitment to the program, provided that orders and deposits for 18 aircraft could be obtained. Curtis then had to go out and sell 18 aircraft, which he did within six months and the board gave the go-ahead with first delivery scheduled for mid-2009. Since then, orders for the new Viking Twin Otter Series 400 have surged



Left: Dave Curtis (left), and Rob Mauracher (right), present the new and improved Series 400 to execs from Loch Ard Otters, LLC. Below: Viking built a demonstrator aircraft with a 21st-century flight deck based on the Honeywell Primus Apex integrated avionics system.

ahead with well over 40 orders by February 2009 and an additional 40 prospect in the current sales campaign.

While tooling up and organizing the supply chain for the 400 Series, Viking built a demonstrator aircraft, based on a DHC-6-300 Series airframe but with new electrical systems, Pratt & Whitney Canada PT-6A-34 engines and, most important, a 21st-century flight deck based on the Honeywell Primus Apex integrated avionics system. The Twin Otter 400 retains all the operational capability of its predecessors, enhanced by new PT-6A-34 engines or, for extra performance in hot and high conditions, the optional PT-6A-35. A weight reduction program will reduce aircraft weight by 250 lbs. from the 300 version, using composites for doors, stairs, the nose and other items. Like all Viking products, the 400 is built to the demanding standards of the AS-9100 Aerospace Quality System.

The Viking DHC-6-400 offers real value for money and operators can buy this brand

new, state-of-the-art 19-seat aircraft for \$4 million – which in the present global economic climate is good news indeed.

Versatility and flexibility remain the strong point of this remarkable aircraft. Like its predecessors, the 400 comes in several configurations, from a 19 seat airliner to a rugged military transport, capable of a variety of missions in almost any environment. Corporate and charter operators can have low-density seating with all the amenities for executive or VIP operations and the aircraft can be reconfigured from a 19-seat commuter airliner to a freighter in 45 minutes. With six different landing-gear options, the Twin Otter 400 can operate from any land, water or polar environment.

Building the Twin Otter 400 required major logistic and financial commitments, and financial backing has been provided by Westerkirk Capital of Toronto, owner of Viking Air. A new manufacturing and office complex is nearing completion at Victoria Airport, where Viking will build 70 per cent of the manu-

factured components for the 400 – which incorporates 800 changes from the Series 300. Curtis reports that the supply chain works well and brings leading-edge technology to the program. Suppliers range from Pratt & Whitney Canada in Montreal to Sealand Aviation on Vancouver Island and include Ameticon in the U.S., Fleet Aviation, Honeywell and many others.

Final assembly is in a new plant at Calgary Airport, with rollout and first flight scheduled for this spring. Type certification by both Canadian and European airworthiness authorities will be concurrent with delivery of the first aircraft to Swiss charter operator Zimex. Operating on behalf of oil companies and humanitarian agencies in Africa and the Middle East, Zimex is already a Series 300 operator and a member of the Series 400 steering committee. In Canada, certification will be an amendment to the original Type Certificate, with an updated certification basis.

Final assembly in Calgary maximizes availability of a la-

bour force experienced on the Twin Otter, partly due to the proximity of Kenn Borek Air, one of the world's major Twin Otter operators. In addition, Curtis notes that Calgary Airport Authority and the Alberta government are very supportive of the program, while experience shows that smaller business units are more effective and efficient than one large plant. Furthermore, operating two manufacturing facilities provides valuable experience which may become important in the future, since high import duties in some countries may necessitate the establishment of assembly plants overseas.

Mauracher sees the low infrastructure requirements of the Twin Otter as a major marketing advantage along with that of a small noise footprint, low emissions, and the continuing high residual value of the type, making it attractive to leasing companies and charter operators. The big challenge in introducing the 400 to the market was the diverse nature of operators who have been operating the legacy Twin Otters for up to 40 years. Mauracher recalls that at the buyers/operators conference, every shade of opinion was expressed as to

how the new aircraft should be configured.

However, the key issue that emerged was standardization. For example, in the legacy aircraft there are as many as 150 vendors involved with the cockpit systems. Companies are currently operating mixed fleets of owned and leased aircraft with a wide range of equipment – virtually no two aircraft are exactly the same. With around 600 legacy Twin Otters still flying, all 20 years old or more, it can be a logistic nightmare, both for operators and for Viking as the Type Certificate holder and MRO.

Curtis summarizes what the potential buyers told him – “We want modern standardized aircraft, with Viking as the OEM to support it – do that and we’ll probably buy it.”

Another market driver is that some countries prohibit the import of used aircraft above a certain age, or impose significant restrictions. Clearly, if the operators of more than 600 legacy Twin Otters think that there is no substitute for the type, then there is a large market for the 400 Series for many years to come, both to existing and new operators.

Viking makes a major contribution to the Vancouver Island economy with more than

330 employees (plus 50 in Calgary). An apprenticeship and training program ensures that not only can local youth aim for a skilled technical career but that Viking can maintain the quality of its globally re-

nown products. As the only Canadian manufacturer west of Ontario, the integrity of the supply chain, assurance of the employee skill base and product quality are vital elements of the Viking success story. Aircraft manufacture is a tough, competitive business and Viking has met the challenge head-on. As Mauracher puts it, “we re-invented the manufacturing process – aircraft are built to extremely precise tolerances, so that parts are interchangeable between aircraft, reducing life-cycle costs.” Wherever something can be done better, standardized or a product improved, it has been done for the Twin Otter 400, including digitizing the original DHC drawings. Furthermore, as Curtis points out, the 400 is cheaper to maintain and enhances operational safety – the Transport Canada flight deck human factors evaluation highlights the improved situational awareness

While developing the Twin Otter 400, Viking has not neglected its other long-term core business, namely the MRO and parts manufacturing. Mauracher stresses that parts manufacture has been a main driver of the business, supplying companies such as



The Twin Otter 400 retains all the operational capability of its predecessors, enhanced by new PT-6A-34 engines.

the world, with a strong emphasis on heavy maintenance business in Victoria.

Completion of the new hangar and 400 manufacturing base at Victoria Airport will allow Viking to refurbish the existing hangar and provide improved facilities for the MRO and associated business.

It might be thought that with this demonstration of capability, competence and expertise, federal government ministers would be hammering on the Viking hangar doors, seeking solutions to some of Canada’s military air transport and related needs. Unfortunately, however, ministers do not seem to have figured out just what an industrial gem Viking is for Canada. With Canadian manufacturing jobs disappearing like melting snow, Viking creates skilled jobs, not just directly,

fleet of DHC-6 Twin Otters (CC-138s) and DHC-5 Buffalos (CC-115s) and musings by government ministers seem to indicate that billions of dollars may be earmarked for replacement of the DHC-5, currently used for search-and-rescue and many other missions. Although the 2005 budget included funding to replace the CC-138, the Ottawa Citizen reported in August 2008 that the government rejected a proposal for four new northern utility aircraft and decided to re-wing the old CC-138s – an odd decision for a government concerned with Arctic sovereignty.

The DHC-5 replacement is a serious issue for Canada. Should taxpayers spend billions of dollars abroad when all the facilities, equipment and skills to build a brand-new version of the successful DHC-5 equipped with 21st-century technology, exist right here in Canada? With foreign buyers also known to be interested in such an aircraft, Viking CEO Curtis recently wrote an open letter encouraging Defence Minister Peter MacKay to support the concept. Let us hope that someone in Ottawa will have the foresight to follow through – recalling Charles Kingsley’s words: “Come; and strong within us stir the Vikings’ blood, bracing brain and sinew”! ✈

“Versatility and flexibility remain the strong point of this remarkable aircraft.”

Bombardier and Bell, but it is now redirected to the DHC legacy aircraft and new production. Meanwhile, the MRO is a stand-alone business and profit centre, supporting hundreds of DHC aircraft around

but through its suppliers and contractors – and Canadian government trade commissioners overseas are solidly behind the 400 program.

Furthermore, the Canadian Forces have an ageing