Twin Otter replaced by.....Twin Otter!

Tony Dixon visited the scenic Vancouver Island in western Canada and the headquarters of Viking Air where the iconic 'Twotter' has returned to production.

There is still a large number of de Havilland Canada DHC-6 Twin Otters in operation around the world. Many may be getting rather 'long in the tooth' now, but there is simply nothing suitable to replace them with. Viking Air of Canada has come up with a solution – a new Twin Otter!

There's an old aviation adage that says… the only aircraft that can replace a Douglas DC-3 is another DC-3! It simply does its job so well that it cannot be improved upon, despite more modern aircraft being available. Well there aren't many other types that could lay claim to that, but one of them is the Twin Otter. One Caribbean operator of this rugged 19-seater – Winair – has actually 'cycled out' one of its aircraft – a cycle is a ➤

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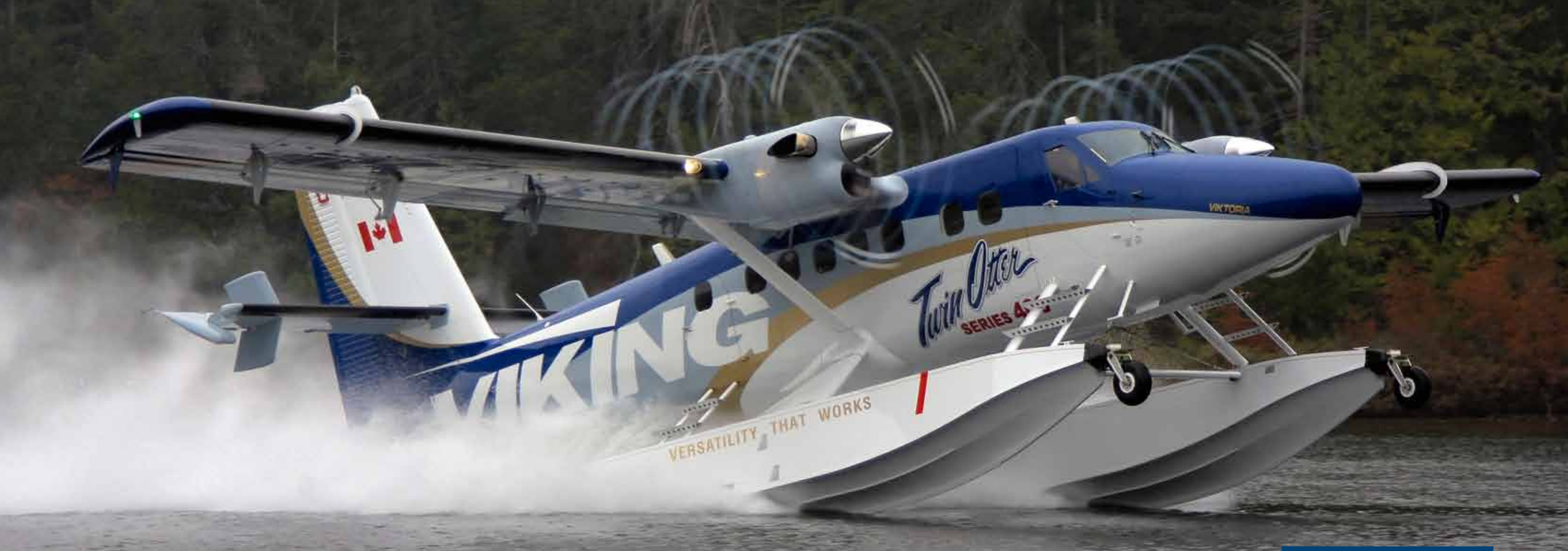

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take-off and landing – at a grand total of 120,000! When it was returned to the manufacturer for checks, they could hardly find anything wrong with the aicraft.

Aircraft History

The last of more than 800 Twin Otters rolled off the production line on December 30, 1988, after a run lasting 23 years. However, demand for the versatile aircraft remains high in certain niche markets due to its Short Take-Off and Landing (STOL) capability and its ability to operate from unprepared landing strips – as well as its use as a floatplane. It remains today the largest-selling 19-passenger commuter type in the world, with around 600 still airworthy.

The world's largest operator is Kenn Borek Air of Canada with 33 aircraft throughout the world. The carrier's fleet is variously equipped with wheels, skis, tundra tyres or floats, enabling operations in virtually any terrain – from Canada's frozen North to the warmth of the Indian Ocean.

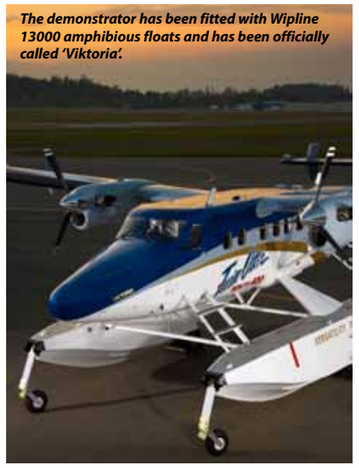
With no suitable replacement being produced Viking Air of Victoria, British Columbia in Western Canada decided on a major refurbishment of the type and producing an essentially 'new' aircraft in the Series 400. The first aircraft flew in 2008 and the company is now gearing up to full-scale production.

Viking Air

The company was established in 1970 as an aircraft modification, sales, and repair facility and has worked with DHC (and its successor Bombardier) for over 30 years. It acquired the exclusive rights to manufacture and distribute spare parts for the DHC-2 Beaver and the DHC-3 Otter in 1983 and since has amassed a wealth of experience with DHC products. Then on February 24, 2006, it took over Type Design Certificates relating to the DHC-1 Chipmunk, DHC-2 Beaver, DHC-3 Otter, DHC-4 Caribou, DHC-5 Buffalo, DHC-6 Twin Otter and Dash 7 from Bombardier. It also undertakes turbo conversions for the DHC-2 and DHC-3.

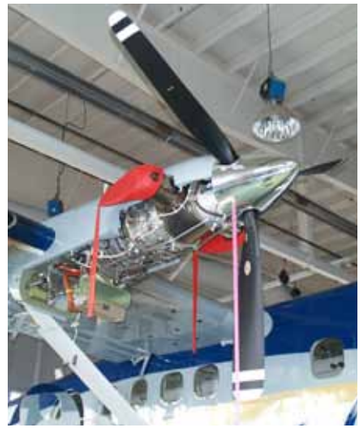
On April 2, 2007 Viking announced that with 27 orders and options in hand, it was restarting production of the Twin Otter with more powerful Pratt & Whitney Canada PT6A-34/35 engines, plus updated avionics and an improved interior. The first flight of the Series 400 prototype took place on October 1, 2008, at Victoria International Airport.

The company has increased the number of people it employs from 180 to over 350 in the last two years and has just moved into an 84,000sq ft (7,800m²) hangar built at Victoria. Components for future Twin Otters will be assembled here before the major units are trucked to Calgary, Alberta for flight testing.



The demonstrator has been fitted with Wipline 13000 amphibious floats and has been officially called 'Viktoria'.

The all-new interior includes a Honeywell Primus Apex avionics suite, with flat screen units replacing the older-style dials and instruments. (Key Collection)



Above • ***Major components, including the cockpit section, will be assembled at Victoria.*** (Key Collection)
Above right • ***As well as producing wings for new aircraft, Viking also makes replacement units for older examples.*** (Key Collection)
Right • ***The original Pratt & Whitney Canada PT6A-27 engines have been replaced by higher output PT6A-34s (with PT6A-35s are offered as upgrades).*** (Key Collection)

Aircraft Dimensions

Wing span:	65ft (19.8m)
Length:	51ft 9in (15.77m)
Cabin height:	9ft 8in (2.95m)
Tail height:	19ft 6in (5.94m)

CABIN DIMENSIONS:

Length:	18ft 5in (5.61m)
Height:	4ft 11in (1.50m)
Volume (usable):	384cu ft (10.87m³)
Doors (left side):	50in x 56in (1.27m x 1.42m)
Door (right side):	30in x 45.5in (76m x 1.16m)

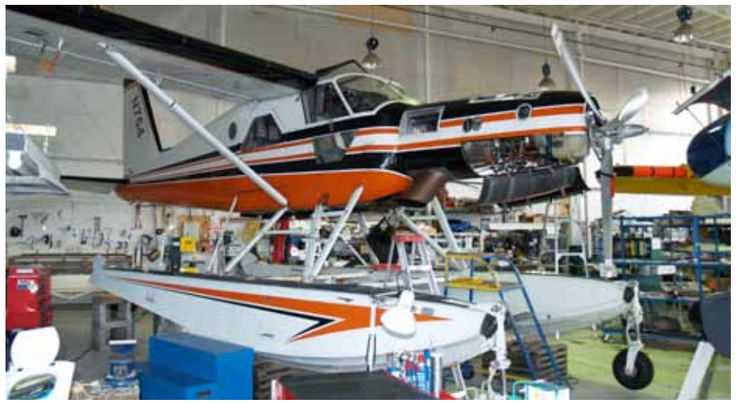
ENGINES:

Two Pratt & Whitney Aircraft of Canada Limited, PT6A-34 or optional PT6A-35, single stage, free-turbine engines.

PROPELLERS:

Two Hartzell, HC-B3TN-3DY, three bladed reversible pitch, constant speed, fully feathering propellers.

Above • ***The first aircraft at its roll-out ceremony at Victoria. The company has increased the number of people it employs from 180 to over 350 in the last two years.*** (All photos Viking Air unless stated)
Below • ***Viking is the owner of the Type Design and Certificates relating to the DHC-1 Chipmunk, DHC-2 Beaver, DHC-3 Otter, DHC-4 Caribou, DHC-5 Buffalo, DHC-6 Twin Otter and Dash 7. It also undertakes turbo conversions for the DHC-2 and DHC-3.*** (Key Collection)



"We have always looked at it as taking a good thing and making it better," said David Curtiss, the company's CEO at a press briefing. "Rather than rebuilding it, we are remanufacturing the aircraft. We've specialised in the de Havilland product for a long time. We're obviously connected to it emotionally but we also understand that operators depend on our products."

"The aircraft performed beautifully," remarked pilot Steve Stackhouse, Viking's Manager of Flight Operations on the occasion of the Viking Twin Otter 400's first flight. Michael Moore, engineering test pilot and co-captain added "it went smoothly and the aircraft handled exactly as expected."

It incorporates a number of improvements, with the original Pratt & Whitney Canada PT6A-27 engines replaced by higher output PT6A-34s (PT6A-35s and four-bladed propellers offered as upgrades). The all-new interior includes a Honeywell Primus Apex avionics suite, with flat screen units replacing the older-style dials and instruments. The demonstrator has been fitted with Wipline 13000 amphibious floats, although more conventional wheels and/or skies can be installed.

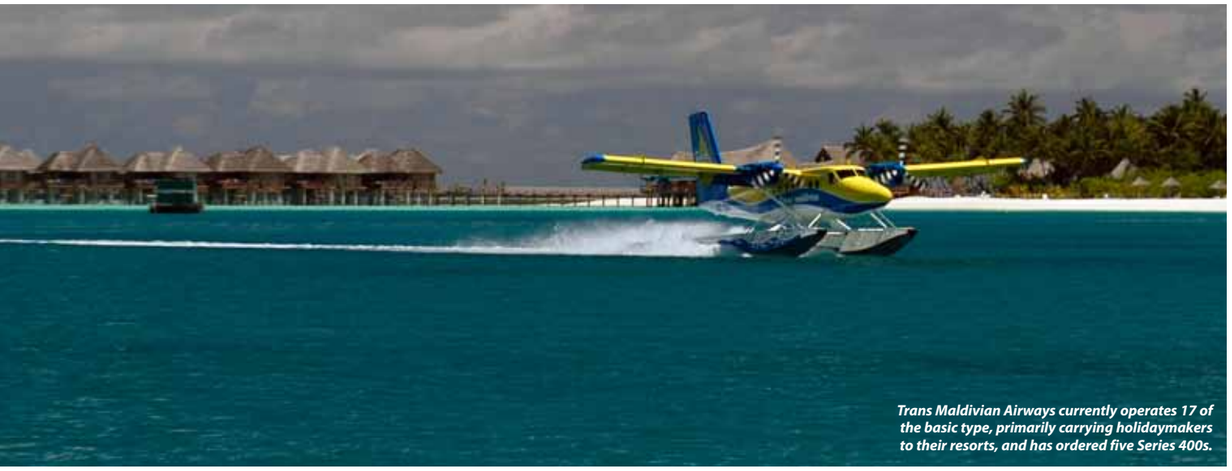
As part of the certification process for the Honeywell Primus Apex integrated avionics suite, the prototype has completed on-water testing. "The system performed flawlessly through 18 pages of test cards," said Steve Stackhouse. "One of the purposes of the tests was to evaluate whether the Air Data Attitude and Heading Reference System [ADAHRS] would initialize accurately and within design criteria in unstable conditions. The system has responded perfectly on every occasion, becoming stable in under 40 seconds."

In addition to the upgraded avionics, the company says the Series 400 incorporates over 200 modifications and improvements to the original design. Viking has set out to focus on reducing empty weight and maintenance costs, and at the same time increase reliability.

Sales

Market studies by analysts Conklin & Decker reflect a ten-year demand for over 400 new aircraft and at present, Viking has an order book of around 40 examples. Trans Maldivian Airways (TMA) currently operates 16 of the basic type, primarily carrying holidaymakers to their resorts in the Maldives, and has ordered five Series 400s. Loch Ard Otters of Palm Beach, Florida, has placed orders for six aircraft. These will be offered for lease to operators worldwide. Other launch customers include Air Seychelles (two), Air Moorea (two) and Zimex Aviation of Switzerland (one). Between them, these three carriers currently operate more than 25 original Twin Otters.

Deliveries are expected to begin later this year and a full de-ice, float, amphibious and ski landing gear will be offered as aftermarket options. TMA's Managing Director, Edward Alsford, believes the new variant will allow his company to expand and improve. "The arrival of the -400 Series is an exciting milestone in the history of Trans Maldivian Airways as it provides the company the ability to expand its fleet with a brand new modern variant of a very



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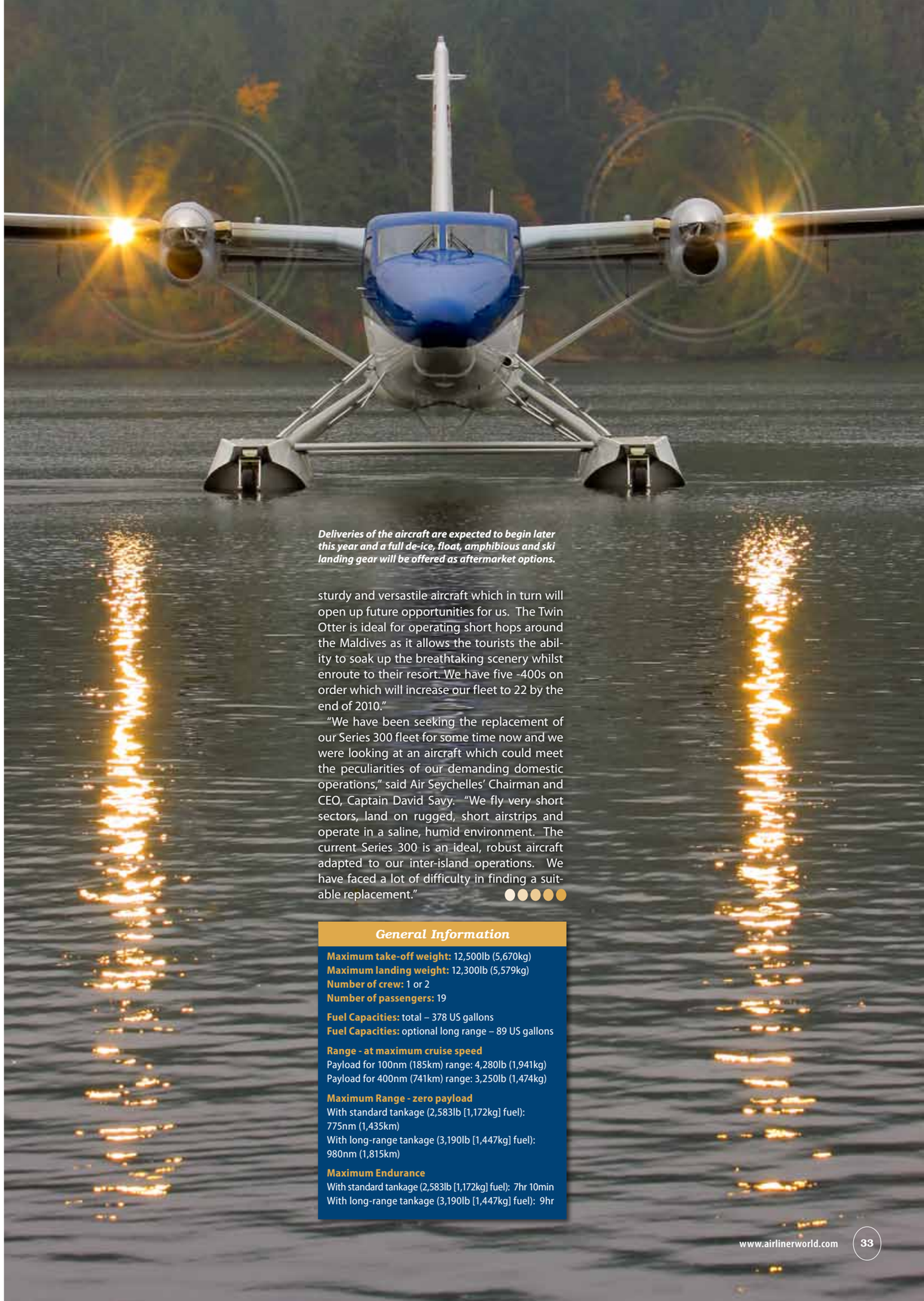

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sturdy and versatile aircraft which in turn will open up future opportunities for us. The Twin Otter is ideal for operating short hops around the Maldives as it allows the tourists the ability to soak up the breathtaking scenery whilst enroute to their resort. We have five -400s on order which will increase our fleet to 22 by the end of 2010."

"We have been seeking the replacement of our Series 300 fleet for some time now and we were looking at an aircraft which could meet the peculiarities of our demanding domestic operations," said Air Seychelles' Chairman and CEO, Captain David Savy. "We fly very short sectors, land on rugged, short airstrips and operate in a saline, humid environment. The current Series 300 is an ideal, robust aircraft adapted to our inter-island operations. We have faced a lot of difficulty in finding a suitable replacement."

General Information

Maximum take-off weight: 12,500lb (5,670kg)
Maximum landing weight: 12,300lb (5,579kg)
Number of crew: 1 or 2
Number of passengers: 19

Fuel Capacities: total – 378 US gallons
Fuel Capacities: optional long range – 89 US gallons

Range - at maximum cruise speed
Payload for 100nm (185km) range: 4,280lb (1,941kg)
Payload for 400nm (741km) range: 3,250lb (1,474kg)

Maximum Range - zero payload
With standard tankage (2,583lb [1,172kg] fuel): 775nm (1,435km)
With long-range tankage (3,190lb [1,447kg] fuel): 980nm (1,815km)

Maximum Endurance
With standard tankage (2,583lb [1,172kg] fuel): 7hr 10min
With long-range tankage (3,190lb [1,447kg] fuel): 9hr