

ARCHIVED REPORT

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B-N Group Turbine Islander

Outlook

- The BN-2T competes against single-engine turboprops in 10-seat utility aircraft market segment
- B-N Group also buys and refurbishes used BN-2 aircraft to raise additional revenue
- Britten-Norman targets the BN-2T-4S Defender model at the government/paramilitary surveillance market

Unit Production Forecast
2013-2022



Orientation

Description. Unpressurized, twin-engine, 10-seat turboprop utility aircraft.

Sponsor. Britten-Norman (now the B-N Group Ltd).

Status. BN-2T Turbine Islander in production; Defender 4000 model available for order.

Total Produced. Through 2012, production totaled an estimated 68 Turbine Islanders and 12 Defender 4000s.

Application. Short-range utility missions, including short-field operations. Military/paramilitary uses include surveillance/patrol, liaison, and COIN missions.

Price Range. BN-2T, approximately \$3 million.



B-N Group Turbine Islander

BN-2 Islander

Source: Garitzko

Contractors

Prime

B-N Group	http://www.britten-norman.com , Bembridge Airport, Bembridge, PO35 5PR Isle of Wight, United Kingdom, Tel: + 44 0 8708815060, Fax: + 44 0 8708815061, Email: hq@britten-norman.com , Prime
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Subcontractor

Hartzell Propeller Inc	http://hartzellprop.com , One Propeller Pl, Piqua, OH 45356-2656 United States, Tel: + 1 (937) 778-4200, Fax: + 1 (937) 778-4321 (Three-Blade Propeller)
Northrop Grumman Electronic Systems	http://www.es.northropgrumman.com , 1580-A W Nursery Rd, Linthicum, MD 21090 United States, Tel: + 1 (410) 765-1000, Email: ES_Communications@ngc.com (APG-66 Fire Control Radar)
Rolls-Royce Corp	http://www.rolls-royce.com/northamerica/na/ , PO Box 420, 2001 S Tibbs Ave, Indianapolis, IN 46206-0420 United States, Tel: + 1 (317) 230-2000, Fax: + 1 (317) 230-4020 (250-B17C Turboprop Engine)
Romaero SA	Sector 1, 44, Ficusului Blvd, Bucharest, 71544 Romania, Tel: + 40 1232 0721, Fax: + 40 1232 2082 (Aircraft Production)

Comprehensive information on Contractors can be found in Forecast International's "International Contractors" series. For a detailed description, go to www.forecastinternational.com (see Products & Services/Governments & Industries) or call + 1 (203) 426-0800.

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

Technical Data

(Turbine Islander/Defender 4000)

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Length overall	10.86/12.2 m	35.6/40.0 ft
Height	4.18/4.36 m	13.75/14.25 ft
Wingspan	14.94/16.15 m	49/53.0 ft
Weight		
Weight, empty	1,832/2,223 kg	4,040/4,900 lb
Max takeoff weight	3,175/3,855 kg	7,000/8,500 lb
Payload with max fuel	689/724 kg	1,520/1,598 lb
Performance		
Max cruise at 10,000 feet	315/326 kmph	170/176 kt
Service ceiling	7,620 m	25,000 ft
Maximum rate of climb (sea level)	320/381 m/min	1,050/1,250 ft/min
T-O roll	255/356 m	837/1,170 ft
T-O to 50-foot obstacle	381/565 m	1,250/1,855 ft
Landing run	228/308 m	750/1,250 ft
Range, IFR, plus reserves	1,093/1,594 km	590/861 nm

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Propulsion

BN-2T	(2)	Rolls-Royce 250-B17C turboprop engines rated 298 kW (400 shp), each driving a Hartzell three-bladed propeller. Engines are flat rated to 238.5 kW (320 shp).
Defender 4000	(2)	Rolls-Royce 250-B17F turboprop engines, each flat rated at 298 kW (400 shp), driving a three-bladed propeller.

Seating

Standard seating for 10, including pilot. Other configurations available.

Variants/Upgrades

BN-2T Turbine Islander. Powered by Allison 250-B17C turboprops, the BN-2T flew in 1980, and production deliveries began in December 1981.

BN-2C-300. Upgraded model with Hartzell scimitar propeller blades and other upgrades. Deliveries began in 2010 to an unidentified customer outside Europe.

Maritime Defender. Similar to the piston-powered Defender but a bit longer, this variant featured a modified nose to accommodate the Bendix/King RDR-1400 search radar and was intended primarily for fisheries patrol, oil rig protection, and search-and-rescue duties.

ASW/ASV Maritime Defender. This variant was available fitted out to a customer's requirements but generally included a search radar, forward-looking infrared (FLIR) capability, sonobuoys, a magnetic anomaly detector, and acoustic processors. It could carry two Sting Ray torpedoes, four Sea Skua anti-ship missiles, and a variety of other systems on the four wing hardpoints.

Internal Security Defender. Similar to that used for border patrol, the Internal Security Defender was purchased by the Netherlands police and the U.K. Army

Air Corps; the latter used a single aircraft for Northern Ireland operations. Generally equipped with cameras and FLIR, it could be configured to carry rockets, machine guns, and bombs. Racal or Bendix avionics were normally fitted, including the latter's RDR-1400C search radar.

ELINT Defender. This aircraft was a joint venture with Racal, and included that firm's Kestrel EW avionics suite.

Defender 4000. Announced at the 1994 Farnborough Air Show, this is the most powerful and largest Turbine Islander variant. Fuel capacity was increased about 50 percent over that of the standard Turbine Islander, to a total of 2,010 pounds, and payload was increased by a similar percentage to just over 1,000 kilograms (2,205 lb). The Irish Department of Justice became the first customer, with an order for one aircraft announced in January 1997. The British Army Air Corps has also acquired a small fleet of Defenders, for use in the surveillance role.

Defender MSSA. The Multi-Sensor Surveillance Aircraft, a version of the Defender 4000, is equipped with the APG-66 radar and WF-360 FLIR system.

Program Review

Background. The Britten-Norman Turbine Islander was developed from one of the world's most popular utility light twin aircraft, the piston-powered BN-2A Islander. The Rolls-Royce turboprop-powered aircraft expands on the success of the less powerful piston model, and performs the same arduous operations and missions in less developed nations.

The aircraft went through a relatively quick and trouble-free development period, flying for the first time in August 1980. The first production aircraft was delivered in December 1981. Prior to 1990 sales averaged only two to three annually, but they rose sharply in 1990, with announced orders for more than 10, and 15 actually built.

The BN-2 was originally developed in the mid-1960s by Britten-Norman Aircraft. Airframe production of the Islander was shifted to Romania in 1969 after Britten-Norman and IAvB Bucuresti inked a 1968 accord. In 1972, Fairey Ltd acquired the company and transferred airframe production to Fairey's Gosselies (Belgium) plant. Seven years later, in 1979, Fairey Ltd was liquidated and Pilatus acquired Britten-Norman in its entirety. The Swiss manufacturer quickly returned airframe production to Romania. Romanian-produced airframes were delivered to the Isle of Wight for completion, flight tests, and delivery.

In July 2012, the manufacturer announced that it was repatriating production of the airframe to a new facility

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at Daedalus Airfield in Hampshire, England. Production of subcomponents will remain in Romania, but these will now be shipped to the U.K. for assembly, flight testing, and delivery to the customer.

The manufacturer also plans to deliver aircraft to distant markets by disassembling them and then shipping them by sea. The aircraft can be uncrated and reassembled at any EASA/FAA-approved facility, saving the expense and risk associated with trans-oceanic ferry flights.

P B-N Sold

In 1998, Pilatus Aircraft, the Swiss parent company, sold Britten-Norman to Litchfield Continental, a U.K.-based investment group. In the spring of 2000, the company went into receivership and all production was suspended. Several months later, the company was acquired by a group of investors from Oman, and the company now does business as B-N Group Ltd.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1964	Piston Islander in initial design stages
Jun	1965	Prototype first flight
	1967	CAA, FAA certification
Jun	1969	BN-2A model introduced
Aug	1969	First Romanian-built Islander makes initial flight
	1971	Trislander deliveries begin
	1976	First PADC-assembled Islander makes initial flight
	1978	BN-2B model introduced
	1979	Britten-Norman acquired by Pilatus
	1980	Turbine Islander development begins
Aug	1980	First flight of BN-2T Turbine Islander
	1981	Turbine Islander deliveries begin
Mid	1997	First Defender 4000 delivery
Mid	1998	B-N sold to Litchfield Continental by Pilatus
Early	2000	B-N acquired by Omani investors

Worldwide Distribution/Inventories

(Military Users Only)

(as of July 2013)

Operator	Designation	Quantity
Angola Air Force	BN-2A	8
Belize Air Force	BN-2B	2
Botswana Air Force	BN-2A	4
Botswana Air Force	BN-2B	6
Cambodia Air Force	BN-2A	3
Congo (Democratic Republic) Air Force	BN-2A	1
Cyprus Air Force	BN-2B	1
Ghana Air Force	BN-2	4
Great Britain (United Kingdom) Air Force	BN-2T-4S	1
Great Britain (United Kingdom) Army	BN-2T	9
India Navy	BN-2	12
Indonesia Army	BN-2A	1
Malta Army	BN-2B	1

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Operator	Designation	Quantity
Malta Army	BN-2T	1
Mauritania Air Force	BN-2A	4
Mauritius Coast Guard	BN-2T	1
Myanmar Air Force	BN-2	4
Nepal Army Air Wing	BN-2T	1
Philippines Navy	BN-2A	7
Seychelles Coast Guard	BN-2A	1
Suriname Air Force	BN-2A	1
Zimbabwe Air Force	BN-2A	5

Forecast Rationale

The BN-2T Turbine Islander is a rugged, relatively simple, twin-engine turboprop aircraft with standard seating for 10. It is the latest, upgraded iteration of an aircraft design that dates from the 1960s and first flew equipped with piston engines.

The unpressurized BN-2T makes for a capable small transport for short-field operations in places like the Caribbean, Asia, Africa and other areas with a substantial number of short or unimproved runways. The BN-2T competes in this niche market against the Cessna Caravan, the Pilatus PC-12, and the Quest Kodiak. The BN Group does not report annual deliveries of the BN-2T, and in recent years there have been occasional gaps in production when the manufacturer runs out of orders to fill.

Britten-Norman both makes new aircraft and buys existing airframes on the used market for refurbishment and resale. The refurbishment program allows operators to buy a BN-2T or Defender at lower cost than an

all-new aircraft, which can allow the operator to use the aircraft on low-capacity revenue flights that may not justify the cost of acquiring and operating new aircraft. The program is successful and allows the manufacturer to generate revenues by refurbishing aircraft that other, outside firms would otherwise take on the existing refurbishment/upgrade market.

The company announced a new order for two aircraft from an unidentified operator in Asia in July 2012. The forecast assumes that the last of these aircraft will be produced in the 2013 timeframe. Because the BN Group has failed to announce new orders during the past year, production is forecast to end with production of this aircraft. The 10-seat utility market segment has turned to the Cessna Caravan, which costs substantially less than the BN-2T, is cheaper to run because it uses one less engine, and offers a similar level of performance and capacity.

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Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
B-N Group												
BN-2 T <- 250 -B 17C												
	68	1	0	0	0	0	0	0	0	0	0	1
Total	68	1	0	0	0	0	0	0	0	0	0	1