

Supplemental Type Certificate

Number SA3777NM

This certificate, issued to

Vazar, Inc.
3025 Eldridge Ave.
Bellingham, WA 98225

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 3 of the Civil Air Regulations.

Original Product—Type Certificate Number: A-815

Make: Bombardier (de Havilland)

Model: DHC-3 (Otter)

Description of the Type Design Change: Installation of a Pratt and Whitney PT6A-34, -34AG, -135, or -135A turbine engine, Hartzell propeller on the landplane or the seaplane equipped with Edo 7490 or 7170 floats. These modifications are to be performed in accordance with the data listed below or later FAA approved revisions.

PT6A Engine Installation	SA-MDL-020987	Revision R, dated 11/8/04
Installation Instructions	SAIP-021087	Revision E, dated 8/26/04
Edo 7490 Amphibious Floats	Installation Drawing 23300	Revision Cb, dated 4/9/57
Edo 7170 Seaplane Floats	Installation Drawing 12700	Revision Ca, dated 1/11/57

(See Limitations and Conditions for Approved Combinations.)

Limitations and Conditions: Approval of this change in type design applies to the above model aircraft only. This approval should not be extended to aircraft on which other previously approved modifications are incorporated unless it is determined that the relationship between this change and any of those other previously approved modifications, including changes in type design, will introduce no adverse effect upon the airworthiness of that aircraft. A copy of this Certificate and the Airplane Flight Manual Supplement (AFMS) Report 041288, Revision J, dated January 24, 2005, or later FAA approved revision, must be maintained as part of the permanent records for the modified aircraft.

If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

(See Continuation Sheets for additional Limitations and Conditions.)

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: March 27, 1986

Date reissued: December 15, 1995; May 15, 2003

Date of issuance: June 2, 1988

Date amended: April 23, 1993; August 9, 1996;
June 14, 2002; May 15, 2003;
January 31, 2005; July 12, 2005



By direction of the Administrator

(Signature)
Acting Manager, Seattle Aircraft
Certification Office

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.

FAA FORM 8110-2(10-68)

Supplemental Type Certificate

(Continuation Sheet)

Number SA3777NM

Vazar, Inc.

Reissued: December 15, 1995; May 15, 2003

Amended: April 23, 1993; August 9, 1996;
June 14, 2002; May 15, 2003; January 31, 2005; July 12, 2005

Limitations and Conditions continued:

The conditions and limitations of Aircraft Specification No. A-815 apply except as follows:

This Addendum, which is part of Supplemental Type Certificate No. SA3777NM, prescribes conditions and limitations under which the product for which the STC was issued meets the airworthiness requirements of the Civil Air Regulations. A copy of this addendum shall be maintained as part of the modified aircraft's permanent records.

Supplemental Type Certificate Holder: Vazar, Inc.

Landplane:

Engine: Pratt and Whitney PT6A-135, -135A
Propeller: HC-B3TN-3D/T10282 or HC-B3TN-3D/T10282+4 or HC-B3TN-3AEY/T10290+2

Engine: Pratt and Whitney PT6A-34, -34AG
Propeller: HC-B3TN-3D/T10282 or HC-B3TN-3D/T10282+4

Airspeed Limits (CAS):

		(mph)	(knots)
Maximum Operating Limit Speed	V_{MO}	147	128
Maneuvering Speed	V_A	129	112
Flap Extended Speed	V_{FE}	95	83

Seaplane/Skiplane:

Engine: Pratt and Whitney PT6A-135, -135A
Propeller: HC-B3TN-3D/T10282 or HC-B3TN-3D/T10282+4 or HC-B3TN-3AEY/T0290+2
Floats: Edo 7170 Straight Floats, Edo 7490 Amphibious Floats
Skis: Wheeled Ski Installation per TCDS A-818 Misc. Item 300

Engine: Pratt and Whitney PT6A-34, -34AG
Propeller: HC-B3TN-3D/T10282 or HC-B3TN-3D/T10282+4
Floats: Edo 7170 Straight Floats, Edo 7490 Amphibious Floats
Skis: Wheeled Ski Installation per TCDS A-818 Misc. Item 300

Airspeed Limits (CAS):

		(mph)	(knots)
Maximum Operating Limit Speed	V_{MO}	137	119
Maneuvering Speed	V_A	129	112
Flap Extended Speed	V_{FE}	95	83

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Limitations and Conditions continued:

Data Pertaining to Landplane and Seaplane

Engine Operating Limits:

<u>PT6-135/-135A</u>	Shaft Horsepower HP	Gas Generator RPM - Ng % RPM	Indicated Torque PSI	Prop Shaft Speed - Np RPM	Max ITT °C
Take Off	750	101.5	59.1	1900	805
Max Continuous	750	101.5	59.1	1900	805
Starting	---	102.6	---	---	1090
Momentary (2 sec)		102.6	68.2	2090	880
<u>PT6-34/-34AG</u>	Shaft Horsepower HP	Gas Generator RPM - Ng % RPM	Indicated Torque PSI	Prop Shaft Speed - Np RPM	Max ITT °C
Take Off	750	101.6	58.7	2200	790
Max Continuous	750	101.6	58.7	2200	790
Starting	---	---	---	---	1090
Momentary (2 sec)		102.6	68.4	2420	850

Fuel: JP5 (MIL-T-5624), Jet A or Jet A-1 conforming to Pratt & Whitney SB 1244 or ASTM-F1655. Anti-icing additive per MIL-SPEC 127686E or 3GP-526A must be blended into aircraft fuel in concentrations not less than 0.06 percent or more than 0.15 percent.

Oil: See Pratt & Whitney PT6 Engine Service Bulletin Nos. 1001, 3001, 4001, and 12001 for approved brand oils.

Oil Capacity: 18 qts (6 qts usable)

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Limitations and Conditions continued:

<u>Propeller and Propeller Limits:</u>	HC-B3TN-3DY/T10282	HC-B3TN-3DY/T10282+4	HC-B3TN-3AEY/T10290N+2
Diameter:	100.5 to 102.5 inches	100.5 to 106.0 inches	100.0 to 104.0 inches
Blade Angle Limits:	30.0 inch blade station	30.0 inch blade station	42.0 inch blade station
Feather	87° ± 1.0°	87° ± 1.0°	78° ± 1.0°
Low Pitch	21° ± 0.1°	21° ± 0.1°	12° ± 0.1°
Reverse	-15° ± 0.5°	-15° ± 0.5°	-16° ± 0.5°
Governor:	Woodward 210632	Woodward 210632	Woodward 210632
Spinner:	Hartzell 8203065-1P	Hartzell 8203065-1P	Hartzell 8203065-1P

Control Surface Movements:

Flaps:	Inboard Leading Edge	Down 24° ± 2°
	Inboard Trailing Edge	Down 45° ± 2°
	Outboard Leading Edge	Down 18° ± 2°

Maximum Operating Altitude: 16,000 feet

Certification Basis: CAR 3 as amended to November 1, 1949

The following requirements are added to apply to the airplane equipped with the turbo-prop engine and to introduce equivalent or higher levels of safety than those of the basic airplane.

23.45	23.49	23.51	23.65	23.75	23.77
23.251	23.253	23.335	23.361	23.363	23.371
23.629 (e, f)	23.901	23.903	23.905	23.907	23.925
23.929	23.933	23.937	23.939	23.943	23.951
23.954	23.955	23.957	23.959	23.961	23.977
23.991	23.997	23.1013	23.1017	23.1019	23.1027
23.1041	23.1045	23.1091	23.1093	23.1103	23.1111
23.1121	23.1123	23.1141	23.1143	23.1145	23.1153
23.1155	23.1163	23.1165	23.1182	23.1183	23.1189
23.1191	23.1193	23.1301	23.1303	23.1307	23.1309
23.1321	23.1322	23.1323	23.1331	23.1337	23.1351
23.1353	23.1357	23.1416	23.1419	23.1461	23.1501
23.1505	23.1521	23.1527	23.1529	23.1545	23.1549
23.1557	23.1581	23.1583	23.1585	23.1587	23.1589

of FAR 23, dated November 2, 1984, including Amendments 23-1 through 23-31.

Special Federal Aviation Regulation 27, as amended by 27-1 and 27-2.

Department of Transportation Federal Aviation Administration

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Limitations and Conditions continued:

Addendum to Notes, Aircraft Specification No. A-815

NOTE 2. The following placards must be displayed as noted:

- (d) At the appropriate fuel tank filler openings:
"Fuel 50, 61, or 102 U.S. Gal. Cap.
JET A, JET A-1, JP-5"
- (e) At the Oil tank filler opening:
"Approved oils - DO NOT MIX BRANDS
Oil System Capacity 18 qts"
- (f) On EPA can door:
"EPA DRAIN and PROPERLY DISPOSE OF"
- (g) At the flap position indicator:
"CRUISE"
"TAKEOFF"
- (h) On the instrument panel in clear view of the pilot:
Landplane:
"WARNING: DO NOT USE REVERSE POWER IN FLIGHT. AT HIGH TAXI SPEEDS
USE REVERSE POWER ONLY IF TAIL WHEEL IS LOCKED AND HELD FIRMLY ON
THE GROUND"

Seaplane:
"WARNING: DO NOT USE REVERSE POWER IN FLIGHT"

NOTE 5. Compliance with FAR 36, Appendix F, was shown for the landplane with PT6A-135/-135A engine, with the following procedures:

Level fly over at 1000 ft AGL at 1900 propeller RPM.

The certified noise level is 76.0 dB(A). This noise level reflects correction of "as measured" data to a standard 77°F, 70% R.H. acoustic day as well as a 0.3 dB(A) credit resulting from aircraft takeoff and climb characteristics. The related airplane gross weight is 8000 lb. and the FAR 36 limit is 80.0 dB(A).

No determination has been made by the Federal Aviation Administration that the noise level of this airplane is or should be acceptable or unacceptable for operation at, into, or out of any airport.

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Limitations and Conditions continued:

- NOTE 6. The corrected noise level of this airplane is 84.0 dB determined by flight tests when operated at Maximum Continuous Power (64.5 psi Torque and 2000 RPM). No determination has been made by the Federal Aviation Administration that the noise levels of this airplane are or should be acceptable for operation at, into, or out of any airport.
- The above statement notwithstanding, the noise level stated above has been verified by and approved by the Federal Aviation Administration in noise level test flights conducted in accordance with FAR Part 36, Appendix G, Amendment 22, Noise Standards: Airplane Type and Airworthiness Certification. The airplane noise is in compliance with all FAR Part 36 noise standards applicable to this type.
- NOTE 7. This STC has been found to be compatible with the combination of the Edo 7850 float installation and the Baron STOL kit installed per STC SA00287NY.
- NOTE 8. This STC has been found to be compatible with the installation of the Wipaire Wipline 8000 amphibian or seaplane floats.
- NOTE 9. This STC shall not be extended to other float installations without an evaluation of the flight, ground, and water handling characteristics
- NOTE 10. This STC is found to be compatible with the combination of new elevator servo-tab and redundant control linkage kit per STC SA01059SE.

- END -

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