Book

United States of America

Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

Number **SA5940NM**

This certificate, issued to: **William F. Hubler**
5703 Hubler Lane
Caldwell, ID 83605

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 8 *of the* Civil Air *Regulations.* (CAR 8) effective October 11, 1950, as stated in the original product Type Certificate.

Original Product—Type Certificate Number A4SW

Make: Ayres Corporation

Model: S-2R, Restricted Category

Description of the Type Design Change: Install an Allied Signal TPE331-1-151A, -151G, or -151K turboprop engine operated at TPE331-43-A ratings to replace the Garrett TPE331-43-A turboprop engine installed under STC No. SA3071NM in accordance with William F. Hubler's Engine Installation Build-Up Parts List, WFH-PL-724, Revision A, dated January 15, 1998, or later FAA approved revision.

Limitations and Conditions: Data pertaining to this modification are considered inadequate for duplication in other aircraft. Therefore, this approval is limited to the installation in Ayres Corporation S-2R, Restricted Category aircraft, Serial Number 1711R. A copy of this Certificate and Airplane Flight Manual Supplement WFH-FM-300, Revision A, dated March 5, 1998, 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.

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: January 6, 1993 *Date reissued:*

Date of issuance April 13, 1993 *Date amended:* March 5, 1998

FEDERAL AVIATION ADMINISTRATION

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)

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Limitations and Conditions continued:

Ayres Corporation S-2R, Restricted Category, as modified by this STC.

Engine	Allied Signal TPE331-1-151A, -151G, or -151K	
Fuel	Aviation turbine fuels ASTM designation D1655-64T, Types Jet A, A-1, and B; and with military aviation turbine fuel MIL-T-5624G, Grades JP-4 and JP-5; and with military aircraft fuel MIL-F-5616-1, Grade JP-1. Consult Garrett Report PE-5064-R.	
Fuel Additives	Fuel not containing anti-icing fuel additives may be fortified with MIL-I-27686D Fuel System Icing Inhibitor, or an equivalent, but not in excess of 0.1 percent by volume.	
Oil	Oil types conforming to MIL-L-23699 and MIL-L-7808.	
	See Garrett Specification EMS 53110	
Engine Ratings (See Note 2)	Takeoff (5 minutes)	575 HP
	Maximum Continuous	575 HP
	Reverse	575 HP
Engine Limits	Output Shaft Speed	2000 RPM
	Transient Overspeed (5 secs.)	2100 RPM
	Transient Overspeed (5 mins.)	2020 RPM
	Reverse	2000 RPM
Torque	Takeoff (5 mins.)	1510 Ft. Lbs.
	Maximum Continuous	1510 Ft. Lbs.
	Reverse	1510 Ft. Lbs.
Exhaust Gas Temperature	Takeoff (5 mins.)	578° C
	Maximum Continuous	556° C
	Starting (1 sec.)	815° C
	Reverse	578° C
Oil Pressure	Takeoff and Maximum Continuous	70 to 120 psig
Oil Temperature	MIL-L-28699	-40° C to 127° C
	MIL-L-7808	-40° C to 93° C

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Limitations and Conditions continued:

Propeller	Hartzell HC-B3TN-5M/T10282+4 Minimum length 101 inches diameter Maximum length 106 inches diameter Flight Idle blade angle 8.5°
Max. Approved Altitude	30,000 feet
C.G. Range and Weight	Maximum weight 6,000 pounds; forward C.G. limit 22.5 inches aft of datum Aft C.G. limit 30.0 inches aft of datum (Datum is the leading edge of the wing)
Applicability	The approval of this change in type design applies to the aircraft shown on page 1 of this STC that is otherwise unmodified. This approval is not to be extended to other aircraft of this model.
Certification Basis	CAR 8, Restricted Category, effective October 11, 1950.
Equipment	The following must be installed in the aircraft for airworthiness certificate subsequent to the incorporating of this STC: The basic required equipment as prescribed in the applicable airworthiness regulations (see "Certification Basis" outlined above).
Note 1.	Refer to the applicable FAA Approved Flight Manual for required placards and instrument markings.
Note 2.	The ratings shown on the AiResearch TPE331 engine is based on the static sea level standard conditions with no external accessory loads and no air bleed, operated at the -43-A maximum HP rating.
Note 3.	Current weight and balance data, including a list of equipment included in the certificated empty weight and loading instructions, when necessary, must be provided at the time of airworthiness certification for return to service

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