

United States of America
Department of Transportation Federal Aviation Administration
Supplemental Type Certificate

Number **SA5967NM**

This certificate, issued to:

**BLR Aerospace, LLC
3102 100th Street SW
Everett, WA 98204**

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

Original Product—Type Certificate Number: A20SO
Make: Piper
Model: PA-31

Description of the Type Design Change: Vortex generators manufactured in accordance with Document AA1129, Revision A, dated June 4, 1993, and installed in accordance with Document AA1130, Revision A, dated June 4, 1993, or later FAA-approved revisions.

Limitations and Conditions: Approval of this change in type design applies to the above model aircraft only. This approval should not be extended to other aircraft of this model 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, Continuation Sheets, and the Flight Manual Supplement (FMS) specified on page 3, must be maintained as part of the permanent records for the modified aircraft.

(See Continuation Sheets on Pages 3, 4, and 5)..

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 05, 1993
Date of issuance: July 07, 1993

Date reissued: November 23, 2009
Date amended: January 21, 1994



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.

Supplemental Type Certificate

(Continuation Sheet)

Number **SA5967NM**

BLR Aerospace, LLC

Issued: July 07, 1993

Reissued: November 23, 2009

Amended: January 21, 1994

Limitations and Conditions continued:

This Continuation Sheet, which is part of STC SA5967NM, prescribes the conditions and limitations under which the product for which the STC was issued meets the standards for airworthiness of the Federal Aviation Regulations.

The conditions and limitations of Type Certificate Data Sheet No. A20SO apply except where superseded by the following:

The system consists of eighty-six vortex generators on the wing and vertical tail of the airplane and four strakes (two on each nacelle).

There may be a maximum combined total of four vortex generators missing from the wing and/or vertical tail before replacements must be installed.

If any of the eighty-six vortex generators are missing, the airplane must be operated within the limitations of the basic airplane flight manual until replacements are installed.

Flight Manual Supplement: The appropriate FAA approved supplement, as specified below, is required with this modification.

Aircraft without wing lockers: Document AFMS-NAV-1, Rev. "A" dated January 21, 1994, or later FAA approved revision.

Aircraft with wing lockers: Document AFMS-NAV-2, Rev. "A" dated January 21, 1994, or later FAA approved revision.

(See Continuation Sheets on Pages 4 and 5)..

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Supplemental Type Certificate (Continuation Sheet)

Number **SA5967NM**

BLR Aerospace, LLC

Issued: July 07, 1993

Reissued: November 23, 2009

Amended: January 21, 1994

Limitations and Conditions continued:

**Engine Limits:
(Aircraft serial
Numbers 31-2
through 31-751,
equipped with
TIO-540-A1A,
-A1B, -A2A, or
-A2B engines)**

Maximum Take-off Power

Maximum of 3 minutes except in emergency.
2575 RPM, 43 inches Hg manifold pressure below 15,000 feet MSL. Reduce manifold pressure by 1.6 inches for every 1000 feet of altitude above 15,000 feet MSL up to maximum operating altitude of 24,000 feet MSL.

Maximum Continuous Power

2400 RPM, 36.5 inches Hg manifold pressure below 19,000 feet MSL. Reduce manifold pressure by 1.6 inches of every 1000 feet of altitude above 19,000 feet MSL up to maximum operating altitude of 24,000 feet MSL.

**Engine Limits:
(Aircraft serial
numbers 31-712
and on, equipped
with TIO-540-A2C
engines)**

Maximum Take-off Power

Maximum of 3 minutes except in emergency.
2575 RPM, 46 inches Hg manifold pressure below 15,800 feet MSL. Reduce manifold pressure by 1.6 inches for every 1000 feet of altitude above 15,800 feet MSL up to maximum operating altitude of 24,000 feet MSL.

Maximum Continuous Power

2400 RPM, 39.5 inches Hg manifold pressure below 19,700 feet MSL. Reduce manifold pressure by 1.6 inches for every 1000 feet of altitude above 19,700 feet MSL up to maximum operating altitude of 24,000 feet MSL.

**Airspeed Indicator
Markings (IAS):**

Aircraft without wing lockers:

Normal Operating Range (green arc)..... 78 to 188 knots
Flaps Operating Range (white arc) 71 to 140 knots
Best Single-Engine Rate-of-Climb Speed (blue radial) 97 knots

Aircraft with wing lockers:

Normal Operating Range (green arc)..... 77 to 188 knots
Flaps Operating Range (white arc) 71 to 140 knots
Best Single-Engine Rate-of-Climb Speed (blue radial) 100 knots

(See Continuation Sheet on Page 5)..

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Supplemental Type Certificate (Continuation Sheet)

Number SA5967NM

BLR Aerospace, LLC

Issued: July 07, 1993

Reissued: November 23, 2009

Amended: January 21, 1994

Limitations and Conditions continued:

Maximum Weights: Aircraft without wing lockers:

Ramp	6880 pounds
Takeoff.....	6840 pounds
Landing.....	6500 pounds
Zero Fuel	6200 pounds

Aircraft with wing lockers:

Ramp	6770 pounds
Takeoff.....	6730 pounds
Landing.....	6500 pounds
Zero Fuel	6200 pounds

CG Range (Landing Gear Extended): Aircraft without wing lockers:

- +135.6 inches to +138.0 inches at 6840 pounds
- +134.0 inches to +138.0 inches at 6500 pounds
- +128.5 inches to +138.0 inches at 6000 pounds
- +120.0 inches to +138.0 inches at 4800 pounds or less
- Straight line variation between points given.

Aircraft with wing lockers:

- +135.1 inches to +138.0 inches at 6730 pounds
- +134.0 inches to +138.0 inches at 6500 pounds
- +128.5 inches to +138.0 inches at 6000 pounds
- +120.0 inches to +138.0 inches at 4800 pounds or less
- Straight line variation between points given.

Load Factor Limits (g's): Positive Maneuvers: +3.53
Negative Maneuvers: -1.41

Required Placards: Change all references to maneuver speed (V_P) values on placards to 158 KIAS (182 MPH IAS)

- END -

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