AIRPLANE FLIGHT MANUAL

MODEL PA-28-180

SERIAL NOS. 671 THRU 5600

FAA IDENTIFICATION NO. N8031W

SERIAL NO. 28-2097

THIS DOCUMENT MUST BE KEPT IN AIRPLANE AT ALL TIMES.

DUPLICATE

FAA APPROVED: Original signed by Walter R. Haldeman
Walter R. Haldeman
Chief, Engineering & Manufacturing Branch
Southern Region - Atlanta, Georgia

DATE: August 3, 1962

FAA APPROVED: Gene Dearing For Retype Only.
Gene Dearing
Aerospace Engineer

DATE: August 12, 1964
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<tr>
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<tr>
<td>1</td>
<td>1</td>
<td>Deleted Propeller Pitch Information. Added Static R.P.M. Information</td>
<td>H. E. Waterman Supervisor</td>
<td>5/25/64</td>
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<td>2</td>
<td>2</td>
<td>Placards Section: Added Placard No. 5</td>
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<td>7/3/64</td>
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<td>Added Placard No. 332 repl: &quot;BAGGAGE, MAX. 200 LBS., SBE WEIGHT AND BALANCE DATA FOR BAGGAGE LOADINGS BETWEEN 150 LBS. AND 200 LBS.&quot;</td>
<td>H. C. Faller Supervisor</td>
<td>8/5/64</td>
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<tr>
<td>1</td>
<td>1</td>
<td>Added Sensenich M76EMMS</td>
<td>H. C. Faller Supervisor</td>
<td>10/2/66</td>
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<tr>
<td>3</td>
<td>3</td>
<td>Item 5 added to Procedures Section</td>
<td>H. C. Faller Supervisor</td>
<td>6/27/66</td>
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<tr>
<td>5</td>
<td>1</td>
<td>Limitations Section: Revised Oil Temperature and Fuel Pressure Range</td>
<td>H. C. Faller Supervisor</td>
<td>1/5/66</td>
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<tr>
<td>6</td>
<td>1</td>
<td>Limitation Section: Add note to Engine Limits</td>
<td>H. C. Faller Supervisor</td>
<td>5/20/66</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>C. G. Range: 1975 lbs. 85.9 in., 95.9 in. 1650 lbs. 84.0 in., 95.9 in. Was 13.50 lbs. 85.1 in., 95.9 in.</td>
<td>H. C. Faller Supervisor</td>
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<td>4</td>
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<td>Added Procedures Section And Item 6</td>
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FAA APPROVED 8/3/62
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<tr>
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<td>Revised Oil Temperature, Oil Pressure and Fuel Pressure Limitations</td>
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<td></td>
<td>2,3</td>
<td>Revised Placards No. 3 and No. 5</td>
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<tr>
<td>5</td>
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<td>Added Page 5</td>
<td></td>
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<td>Procedures Section - Added Item 7</td>
<td></td>
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<tr>
<td>6</td>
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<td>Added Page 6</td>
<td>Henry C. Faller 7/15/66</td>
<td>SO-EMDO-43</td>
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<tr>
<td>9</td>
<td>1</td>
<td>Limitations Section Add &quot;or 0-360-A4A&quot;</td>
<td>Henry C. Faller 2/26</td>
<td>SO-EMDO-43</td>
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<tr>
<td>10</td>
<td>2,3</td>
<td>C.G. Range - Placard No. 1 and Placard No. 3 revised to include utility category operations. Added utility category max. wt. and approved maneuvers</td>
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<td>Procedures Section - Added to Item 3 &quot;For Normal Category Operation&quot; Added Placard No. 7.</td>
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## Log of Revisions

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| 11           | 3    | Placards Section: Revised Placard No. 1 to read, "In Full View of the Pilot" | H.C. Faller  
Supervisor  
SO-EMDO-43 | 5/12/67 |
| 12           | 2    | Revised C.G. Range | H.C. Faller  
Supervisor  
SO-EMDO-43 | 3/25/67 |
| 13           | 3, 4 | Revised Placard No. 4 and No. 7 to read: "In full view of the pilot" | H.C. Faller  
Supervisor  
SO-EMDO-43 | 4/2/68 |
| 14           | 1    | Added: Aircraft Serial Numbers 1571 and 1573 to Engine and Propeller Limitations | H.C. Faller  
Supervisor  
SO-EMDO-43 | 5/3/68 |
| 15           | 1    | Added Propeller Designations | H.C. Faller  
Supervisor  
SO-EMDO-43 | 6/24/68 |
| 16           |      | Title Allocated Piper Report No. VB-163 to this Manual. | Herb M. Toomey  
FAA DOA SO-1 | 11/11/68 |
| 17           |      | Title Added Applicable Serial Nos. 1 Thru 4377 | H. M. Toomey  
FAA DOA SO-1 | 1/22/69 |

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<td>18</td>
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<td>7/5/69</td>
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<td>20</td>
<td>2</td>
<td>Added Forward Intermediate and Forward Gross Weight Points</td>
<td>H. M. Toomey</td>
<td>5/28/71</td>
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<td>FAA DOA SO-1</td>
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<tr>
<td>21</td>
<td>2</td>
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<td>G. C. Stephen</td>
<td>9/14/70</td>
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<td>22</td>
<td>1</td>
<td>Changed oil pressure gauge markings</td>
<td>Ward Evans</td>
<td>7-25-75</td>
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FAA APPROVED 3/3/62
AIRPLANE FLIGHT MANUAL

1. Limitations Section

The following limitations must be observed in the operation of this airplane.

Engine
Lycoming 0-360-A3A or 0-360-A4A

Engine Limits
Maximum permissible RPM for takeoff, 2475. For all other operations, 2700 rpm, 180 hp, (A/C S/N 28-671 to 1760A).
For all operations, 2700 rpm, 180 hp, (A/C S/N 28-1571, 1573, 1761 and up).

Fuel
91/96 minimum octane aviation fuel.

Propeller
Sensenich M76 EMM or 76EM8 (S/N 671 to 1760A)
Sensenich M76 EMMS or 76EM8S5 (S/N 1571, 1573, 1761 & up).
Maximum diameter 76 inches, minimum diameter 76 inches.
Static RPM at maximum permissible throttle setting. Not over 2450, not under 2275. No additional tolerance permitted.

Power Instruments
Oil temperature: GREEN arc (normal operating range) 120°F to 245°F; YELLOW arc (caution range) 60°F to 120°F; RED line (maximum) 245°F (S/N 671 to S/N 1760A)

Oil Temperature: GREEN arc (normal operating range) 75°F to 245°F; RED line (maximum) 245°F (S/N 1571, 1573, 1761 &up).

Oil Pressure: GREEN arc (normal operating range) 60 psi to 90 psi; YELLOW ARC (caution range) 25 psi to 60 psi; RED line (minimum) 25 psi when installed or 60 psi when installed; RED line (maximum) 90 psi.

Fuel Pressure: GREEN arc (normal operating range) 5 psi to 5 psi; RED line (minimum) 5 psi; RED line (maximum) 5 psi (S/N 671 to S/N 1760A)

Tachometer: GREEN arc (normal operating range) 500 to 2700 rpm; RED line (maximum continuous power) 2700 rpm.
Airspeed Limits

- Never exceed: 171 mph
- Maximum structural cruise: 140
- Maneuvering: 129
- Flaps extended: 115
- Maximum positive load factor: 3.8 Normal Category
- Maximum positive load factor: 4.4 Utility Category
- Maximum negative load factor: No inverted maneuvers approved.

Maximum Weight

- 2400 lbs - Normal Category; 150 lbs - Utility Category.

Baggage Capacity

- 200 lbs

C. G. Range

- The datum used is 78.4 inches ahead of wing leading edge at the intersection of the straight and tapered section.

<table>
<thead>
<tr>
<th></th>
<th>Forward Limit</th>
<th>Rearward Limit</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(In. Aft of Datum)</td>
<td>(In. Aft of Datum)</td>
</tr>
<tr>
<td>2400 Pounds</td>
<td>92.1</td>
<td>94.5</td>
</tr>
<tr>
<td>2200 Pounds</td>
<td>89.2</td>
<td>95.9</td>
</tr>
<tr>
<td>1975 Pounds</td>
<td>85.9</td>
<td>95.9</td>
</tr>
<tr>
<td>1650 Pounds</td>
<td>84.0</td>
<td>95.9</td>
</tr>
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</table>

2. Utility Category

<table>
<thead>
<tr>
<th></th>
<th>Forward Limit</th>
<th>Rearward Limit</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(In. Aft of Datum)</td>
<td>(In. Aft of Datum)</td>
</tr>
<tr>
<td>1950 Pounds</td>
<td>85.8</td>
<td>86.5</td>
</tr>
<tr>
<td>1650 Pounds</td>
<td>84.0</td>
<td>86.5</td>
</tr>
</tbody>
</table>

Straight line variation between points given.

NOTE: It is the responsibility of the airplane owner and the pilot to ensure that the airplane is properly loaded. See weight and section for proper loading instructions.

Maneuvers

1. Normal Category - All acrobatic maneuvers including spins prohibited.
2. Utility Category - Approved maneuvers for Utility Category only.

<table>
<thead>
<tr>
<th>Maneuver</th>
<th>Entry Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spins (Flaps Up)</td>
<td>Stall</td>
</tr>
<tr>
<td>Steep Turns</td>
<td>129 mph</td>
</tr>
<tr>
<td>Lazy Eights</td>
<td>129</td>
</tr>
<tr>
<td>Chandelles</td>
<td>129</td>
</tr>
</tbody>
</table>

FAA APPROVED 8/3/62

REVISED 9/14/70 Rev. No. 21
Placards

1. In full view of the pilot:

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL OR UTILITY CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS.

ALL MARKINGS AND PLACARDS ON THIS AIRPLANE APPLY TO ITS OPERATION AS A UTILITY CATEGORY AIRPLANE. FOR NORMAL AND UTILITY CATEGORY OPERATIONS, REFER TO THE AIRPLANE FLIGHT MANUAL.

FOR SPIN RECOVERY, USE FULL RUDDER AGAINST SPIN, FOLLOWED IMMEDIATELY BY FORWARD WHEEL.

NO ACROBATIC MANEUVERS (INCLUDING SPINS) ARE APPROVED FOR NORMAL CATEGORY OPERATIONS."

2. Adjacent to upper door latch:

"ENGAGE LATCH BEFORE FLIGHT."

3. On the inside of the baggage compartment door:

"MAXIMUM BAGGAGE 125 LBS." (S/N 671 to 1760A)
(MAXIMUM BAGGAGE MAY BE INCREASED TO 200 LBS. IN ACCORDANCE WITH PIPER SERVICE SPARES LETTER NO. 242)

UTILITY CATEGORY OPERATION - NO BAGGAGE OR AFT PASSENGERS ALLOWED. NORMAL CATEGORY OPERATION - SEE AIRPLANE FLIGHT MANUAL WEIGHT AND BALANCE SECTION FOR BAGGAGE AND AFT PASSENGER LIMITATIONS.

4. In full view of the pilot:

"ROUGH AIR OR MANEUVERING SPEED 129 MPH."

"UTILITY CATEGORY OPERATION - NO AFT PASSENGERS ALLOWED."

5. On the instrument panel in full view of the pilot when the oil cooler winterization kit is installed:

"OIL COOLER WINTERIZATION PLATE TO BE REMOVED WHEN AMBIENT TEMPERATURE EXCEEDS 50° F."

6. On the instrument panel in full view of the pilot when the autoflite is installed:

"FOR HEADING CHANGES: PRESS DISENGAGE SWITCH ON CONTROL WHEEL. CHANGE HEADING, RELEASE DISENGAGE SWITCH."

FAA APPROVED 8/3/62

REVISED 4/2/68 Rev. No. 13
Placards (Cont’d) 7. In full view of the pilot: "UTILITY CATEGORY ONLY."

Acrobatic maneuvers are limited to the following:

<table>
<thead>
<tr>
<th>Maneuver</th>
<th>Entry Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spins (Flaps Up)</td>
<td>Stall</td>
</tr>
<tr>
<td>Steep Turns</td>
<td>129 mph</td>
</tr>
<tr>
<td>Lazy Eights</td>
<td>129</td>
</tr>
<tr>
<td>Chandelles</td>
<td>129</td>
</tr>
</tbody>
</table>

Airspeed Instrument Markings

<table>
<thead>
<tr>
<th>Arc</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED radial line</td>
<td>Never exceed 171 mph (148 knots)</td>
</tr>
<tr>
<td>YELLOW arc</td>
<td>Caution Range (Smooth Air Only) 140 to 171 mph (121 to 148 knots)</td>
</tr>
<tr>
<td>GREEN arc</td>
<td>Normal Operating Range 67 to 140 mph (58 to 121 knots)</td>
</tr>
<tr>
<td>WHITE arc</td>
<td>Flap Down Range 57 to 115 mph (50 to 100 knots)</td>
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</table>

2. Procedures Section

1. The stall-warning system is inoperative with the master switch off.

2. Electric fuel pump must be on for both landing and takeoff.

3. The PA-28-180 airplane is approved under FAA Regulation CAR 3 which prohibits intentional spins for normal category operation. The following information is noteworthy:

   a. The stall characteristics of the PA-28-180 are normal with the nose pitching down moderately following the stall, occasionally with a moderate roll which can be corrected by normal use of ailerons and rudder against the roll.

   b. Prolonged use of full rudder during stall practice may result in a rapid roll followed by a spin and should be avoided. Recovery from an incipient spin may be effected in less than one additional turn by use of opposite rudder followed by full forward control wheel.

   c. In the event that a fully developed spin is inadvertently experienced, recovery is best made by using full opposite rudder followed by full forward wheel and full opposite aileron. The control positions against the spin should be maintained during the entire recovery, which may require several turns and a substantial loss of altitude if the airplane is loaded heavily with a rearward center of gravity.

4. Except as noted above, all operating procedures for this airplane are normal.
5. (Electric Pitch Trim Installation Only)
The following emergency information applies in case of
electric pitch trim malfunction:

a. In case of malfunction, disengage electric pitch trim
   by pulling out circuit breaker on instrument panel.

b. In emergency, electric pitch trim may be overpowered
   using manual pitch trim.

c. In cruise configuration, malfunction results in $10^0$
   pitch change and 30 Ft. altitude variation.

6. (Autoflite Installation Only)
The following emergency information applies in case of
autoflite malfunction:

a. In case of malfunction PRESS disconnect switch on
   pilot's control wheel.

b. Rocker switch on instrument panel - OFF.

c. Unit may be overpowered manually.

d. In cruise configuration malfunction, 3 seconds delay
   results in $60^0$ bank, and 100 Ft. altitude loss.

e. In approach configuration malfunction, 1 second delay
   results in $10^0$ bank and 0 Ft. altitude loss.

7. (AutoControl III Installation Only)

I. Limitations:
   Pilot off during take off and landing.

II. Procedures:
   a. Normal Operation
      Refers to Manufacturer's Operation Manual.

   b. Emergency
      1. In case of malfunction, disengage manual
         controls.
      2. In emergency, pilot may be overpowered
         manually.
      3. In cruise configuration malfunction, 3
         seconds delay results in $60^0$ bank and
         100 Ft. altitude loss.
      4. In approach configuration malfunction,
         1 second delay results in $10^0$ bank and
         0 Ft. altitude loss.
3. Performance Section

The following performance figures were obtained during FAA Type tests and may be realized under conditions indicated with the airplane and engine in good condition and with average piloting technique. All performance is given for 2400 pounds.

Loss of altitude during stalls varied from 125 to 200 feet, depending on configuration and power.

Stalling speeds, in mph, power off, versus angle of bank (Calibrated Airspeed):

<table>
<thead>
<tr>
<th>Angle of bank</th>
<th>0</th>
<th>20</th>
<th>40</th>
<th>50</th>
<th>60</th>
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<tbody>
<tr>
<td>Flaps Up</td>
<td>67</td>
<td>69</td>
<td>76</td>
<td>83</td>
<td>94</td>
</tr>
<tr>
<td>Flaps Down</td>
<td>57</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
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</tbody>
</table>
SUPPLEMENT NO. 1 TO PIPER MODEL PA-28 FLIGHT MANUAL

MODELS AFFECTED: Piper PA-28 models equipped with Lycoming O-360-A3A engine and Sensenich M76EMM-0, M76EMMS-0, 76EM855-0 or 76EM8-0 propeller.

PROPELLER LIMITS

Avoid continuous operation between 2150 and 2350 RPM.

The aircraft tachometer must be placarded to show a red arc between 2150 and 2350 RPM in accordance with Piper Service Letter No. 326.

NOTE: This document must be attached to the Airplane Flight Manual.

FAA DOA SO-1
APPROVED

H. M. Toomey

DATE 4/22/69
Weight and Balance Information

N8031W
N8031W TCDS INFORMATION
PA-28-180 S/N 28-2097

Model PA-28-180 (Cherokee)  4PLCM (Normal Category) approved August 3, 1962;
2PLCM (Utility Category) approved December 6, 1966.
For S/N 28-03; 28-671 through 28-5859; and 28-7105001 through 28-7205318

Engine
Lycoming O-360-A3A or O-360-A4A with carburetor setting 10-3878 or 10-4164-1

Fuel
91/98 minimum grade aviation gasoline

Engine Limits
For all operations: 2700 RPM (180 HP)

Propeller & Limits
Sensenich M76EMMS or 76EM85S

Static RPM:  2275 – 2450 RPM. No additional tolerance permitted.
Diameter:  Not over or under 76"
Spinner:  Piper P/N 63760-04 or 65805-00

Note 10:
With Lycoming O-360-A3A engine installed avoid continuous operation
between 2150 and 2350 RPM in accordance with Piper SL 526.

Note 11:
Aircraft may be operated with the spinner dome removed, or with the
spinner dome and rear bulkhead removed.

Airspeed Limits
Never Exceed  171mph (148 knots)  CAS
Maximum Structural Cruising  140mph (121 knots)  CAS
Maneuvering  129mph (112 knots)  CAS
Flaps Extended  115mph (100 knots)  CAS

Fuel Capacity
50 Gallons

Oil Capacity
8 Quarts (6 quarts usable)

Control Surface Movements

Wing Flaps:  (±2°)  Up 0°  Down 40°
Ailerons:  (±2°)  Up 30°  Down 15°
Stablator:  (±1°)  Up 18°  Down 2°
Stablator Tab:  (±1°)  Up 3°  Down 12°
Rudder:  (±2°)  Left 27°  Right 27°

Nose Wheel Travel
Nose Wheel:  (±2°)  Left 30°  Right 30

DATA ABOVE IS TAKEN FROM TCDS 2A13, JUNE 24 2010
REFER TO FULL TCDS FOR CG ENVELOPE AND W&B LIMITS
United States Of America
Department of Transportation - Federal Aviation Administration

Supplemental Type Certificate

Number SA01941LA

This Certificate issued to
James A. Gillen
2509 W. Pampa
Mesa, AZ 85202

certifies that the change in the type design for the following product with the limitations and conditions therefore as specified herein meets the airworthiness requirements of Part 23* of the Federal Aviation Regulations. *Certification basis is set forth in Type Certificate Data Sheet.

Original Product Type Certificate Number:

Make: See Attached Approved Model List
Model: No. SA01941LA

Description of Type Design Change: Installation of stabilizer trim handle and cabin door handle in accordance with FAA approved model list Number SA01941LA on page 3 of this STC.

Limitations and Conditions: This installation should not be incorporated in any aircraft unless it is determined that the interrelationship between this installation and any previously approved configuration will not introduce any adverse effect upon the airworthiness of the 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: May 15, 2004
Date issued: December 1, 2006

By direction of the Administrator

Alan Shneidki
Manager, Cabin Safety/Mechanical and Environmental Systems,
Los Angeles 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.
### FEDERAL AVIATION ADMINISTRATION - PARTS MANUFACTURER APPROVAL

**gillen-phx, llc**  
2509 W. Pampa Ave.  
Mesa, AZ 85202  

**PMA NO: PQ2436NM**  
**SUPPLEMENT NO: 1**  
**DATE: 4/23/07**

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| Door Handle      | DR-001      | Modification Part                     | PA-24-250                                            |
|                  |             | STC SA01941LA                         | PA-24-260                                            |
|                  |             | DWG No: gillen-phx                    | PA-24-400                                            |
|                  |             | MDL g-p DR/TR IR                      | PA-28-140                                            |
|                  |             | Rev: B                                | PA-28-150                                            |
|                  |             | Date 10/10/06 or later                | PA-28-160                                            |
|                  |             | FAA Approved                          | PA-28-180                                            |
|                  |             | Revisions                             | PA-28-235                                            |
|                  |             |                                       | PA-32-260                                            |
|                  |             |                                       | PA-32-300                                            |

---

**NOTE:** The procedures that are acceptable to the type certificate or TSO authorization holder and their cognizant FAA Aircraft Certification Office, for minor changes to original parts used on type certificated products, are also acceptable for incorporating the same minor changes on identical FAA PMA replacement parts. The FAA-PMA holder must show traceability to the TC, STC, or TSO authorization holder on all minor changes incorporated by this procedure. When these procedures are no longer applicable because of completion of the production contract, or termination of the licensing agreement or business relationship, submit all subsequent minor design changes to the PMA parts in a manner determined by the ACO. TC, STC, or TSO authorization holder controls all major design changes to drawings and specifications.

---

[Signature]

Christopher B. Bergen  
Manager, Phoenix Manufacturing  
Inspection District Office
United States of America
Department of Transportation – Federal Aviation Administration

Supplemental Type Certificate

Number SA01147WI

This certificate issued to CONCORDB BATTERY CORPORATION
1632 South West Street
Suite 4
Wichita, KS 67213

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

Original Product-Type Certificate Number: * See attached FAA Approved Model List (AML) No. SA01147WI for list of approved models and applicable airworthiness regulations

Make:

Model:

Description of Type Design Change:
Installation of Concorde FLA or VRSLA series batteries in the Piper Light Airplanes listed on the attached FAA Approved Model List (AML) No. SA01147WI, dated February 25, 2003, in accordance with Concorde Battery Corporation, Master Drawing List Dwg. No. 5-0157, revision A, dated 12/09/02, or later FAA Approved revision.

Limitations and Conditions:
Compatibility of this design with previously approved modifications must be determined by the installer.

If the holder of this STC 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: November 15, 2002

Date of issuance: February 25, 2003

Date amended:

By direction of the Administrator

[Signature]
Harvey E. Nero
Program Manager
Wichita Aircraft Certification Office

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

FAR Part 33.1-3(63) This certificate may be transferred in accordance with FAR 21.47.
Permission for use of Supplemental Type Certificate

To Whom It May Concern:

Pursuant to Title 49 of United States Code § 44704 (b)(3) (Effective October 19, 1996), this signature constitutes the agreement and permission of CONCORDE BATTERY CORPORATION allowing the registered owner of N8031W a Piper PA-28-180, Serial Number 28-2097 to alter that airframe, and only that airframe, by applicable STC No. SA01147WI, for the purpose of replacing the lead-acid battery with a Concorde VRLA Battery or (Vented) battery, as designated for this aircraft, in accordance with Concorde Battery Corporation Master Drawing List No. 5-0157, Revision A, dated December 9, 2002, or later FAA Approved revision.

CONCORDE BATTERY CORPORATION

[Signature]

Name: Bill Carter
Title: Product Support Manager

August 3, 2005
Date
Supplemental Type Certificate

Number SA4008NM

This certificate, issued to
Bogert Aviation
308 S. Perry Place
Kennewick, WA 99336

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

Original Product—Type Certificate Number:

Make:

Model:

*See attached FAA Approved Model List (AML)
Number SA4008NM for list of approved airplane models and applicable airworthiness regulations.

Description of the Type Design Change: Installation of removable panels on the battery box sides in accordance with applicable Bogert Aviation Drawing listed on FAA approved AML SA4008NM, dated April 12, 2004, or later FAA approved revision. This installation does not require specific continued airworthiness instructions. Federa Aviation Regulations Part 43 and applicable Owner’s Manual are adequate to ensure Continued Airworthiness of this modification.

Note: This is compatible with STC SA3531NM.

Limitations and Conditions: Approval of this change in type design applies to the airplane models listed on the AML only. This approval should not be extended to other aircraft of these models 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, FAA Approved Model List (AML) No. SA4008NM, dated April 12, 2004, 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.

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: May 23, 1986
Date issued: August 17, 1987

Date amended: April 12, 2004

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(10-48)
Supplemental Type Certificate

Number SA3531NM

This certificate, issued to
Bogert Aviation
308 S. Perry Place
Kennewick, WA 99336

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 33 of the Regulations.

Original Product—Type Certificate Number: *See attached Approved Model List (AML)
Make: No. SA3531NM for a list of approved aircraft
Model: models and applicable airworthiness regulations.

Description of the Type Design Change: Installation of copper electrical cables in accordance with Bogert Aviation Installation Instructions as listed on AML No. SA3531NM, amended April 1, 1999, or later FAA approved revision.

Limitations and Conditions: Approval of this change in type design applies to aircraft models listed on the AML only. This approval should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined by the installer 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 AML No. SA3531NM 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: May 27, 1986
Date of issuance: July 15, 1986

Date reissued: April 10, 1989; April 1, 1999
Date amended: April 10, 1989; April 1, 1999

By direction of the Administrator

Acting Manager, Seattle Aircraft Certification Office

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.
United States of America
Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

Number: SA00178AT

This certificate issued to
TCB Composite Company
3811 South Airport Road
Ogden, UT 84405

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

Original Product—Type Certificate Number: 2A13
Make: Piper
Model: PA-28-151, -161, -180, -181,
PA-28 -140, -150, -160 (Please see note on Sheet 2)

Description of Type Design Change: Installation of Composite Spinner and/ or Spinner bulkheads in accordance with TCB Composite Company Report ST0086AT-A, Rev. 2, dated February 22, 1993; or later FAA approved revision.

Limitations and Conditions: This approval should not be extended to other aircraft of this model on which other previously approved modifications are incorporated unless it is determined by the installer that the interrelationship between this change and any of those previously approved modifications will produce no adverse effect upon the airworthiness of that aircraft.

(See continuation sheet 2 of 2)

Date of application: July 14, 1992
Date of issuance: April 05, 1993

Date issued: October 14, 1993; August 19, 1994;
January 7, 1997; February 21, 1997; April 25,
1997; October 13, 2000

By direction of the Administrator

Paul C. Sconners
Associate Manager
Atlanta Aircraft Certification Office

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.
Supplemental Type Certificate  
(Continuation Sheet)  

Type Certificate Data Sheet: 2A13

Model and Serial Number Eligibility:

PA28-180/-181  
Spinner P/N TCB65805-00  
S/N 28-1724 and up

PA28-151/-161  
Spinner P/N TCB35323-010  
Aft Bulkhead P/N TCB35323-011  
Fwd Bulkhead P/N TCB35323-012  

PA28-161  
Spinner P/N TCB36850-08  
Aft Bulkhead P/N TCB36707-003  
Fwd Bulkhead P/N TCB87325-05  
S/N 28-7916001 and up.

PA28-140/-150/-160  
Spinner P/N TCB35323-010  
Aft Bulkhead P/N TCB35323-011  
Fwd Bulkhead P/N TCB35323-012  
All Serial Numbers

**NOTE:** For Piper PA28-140, -150, and -160, the Composite Spinner and the Spinner Bulkhead assemblies must be installed as a kit.

**Date of Issuance:** April 5, 1993

**Date of Amendments:** October 14, 1994; August 19, 1994; January 7, 1997; February 21, 1997; April 25, 1997, October 13, 2000.

---END---
United States of America
Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

Number SA01786SE

This certificate, issued to:
RMD Aircraft Lighting Inc.
P.O. Box 238
32845 N.W. Beach Road
North Plains, OR 97133

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 23 of the Code of Federal Regulations.

Original Product—Type Certificate Number: 2A13 and A7SO
Make: Piper Aircraft, Inc.
Model: see Approved Model List

Description of the Type Design Change: Fabrication and installation of wing tips in accordance with RMD Aircraft Lighting, Inc. FAA approved Master Drawing List, document number RD-5010-0, Revision IR, dated August 1, 2007 or later FAA approved revision.

Limitations and Conditions: Approval of this change in type design applies to only the aircraft shown on the Approved Model List. This approval should not be extended to other aircraft of this model on which other previously approved modifications are incorporated unless it is determined by the installer 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 must be maintained as part of the permanent records of 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: August 1, 2007
Date of issuance: September 7, 2007
Date issued: 
Date amended: 

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.
<table>
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<th>ITEM</th>
<th>AIRPLANE MAKE</th>
<th>AIRPLANE MODEL</th>
<th>TYPE CERTIFICATE NUMBER</th>
<th>CERTIFICATION BASIS FOR ALTERATION</th>
<th>FAA APPROVED DRAWING LIST NUMBER</th>
<th>REVISION NO. AND DATE</th>
<th>AML AMENDED</th>
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<td>FAR 23</td>
<td>RD-5010-0</td>
<td>Revision IR 8/1/2007</td>
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FAA APPROVED: [Signature]

Acting Manager, Seattle Aircraft Certification Office

REISSUED: 

AMENDED:
United States of America
Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate

Number SA02015CH

This certificate issued to
Alpha Aviation Inc.
1505 Chateauin Lane
Burnsville, MN 55337

certifies that the change in the type design for the following product with the limitations and conditions therefore as specified herein meets the airworthiness requirements of Part 7 of the Regulations.

Original Product: Type Certificate Number: *(see attached FAA Approved Model List (AML) No. SA02015CH for list of Approved models and applicable airworthiness regulations)
Make: *
Model: *

Description of Type Design Change:
Installation of a Three Point Torso Restraint System in accordance with Alpha Aviation Inc. Installation and Maintenance Manual as listed on AML SA02015CH, issued October 5, 2005, or later FAA approved revisions.

Limitations and Conditions:
1. Compatibility of this design change with previously approved modifications must be determined by the installer. 2. A copy of this Certificate and FAA Approved Model List (AML) SA02015CH, issued October 5, 2005, or later FAA approved revisions, must be maintained as part of the permanent records for the modified aircraft. 3. The Three Point Torso Restraint System installation is to be inspected and maintained in accordance with Alpha Aviation Inc. Installation and Maintenance Manual Number PA285001, Revision B, dated May 14, 2004, or later FAA approved revisions. 4. 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: May 01, 2004
Date of issuance: July 30, 2004
Date reissued: 
Date amended: October 05, 2005

By direction of the Administrator

(Signature)
Gregory J. Michalk, Senior Aerospace Engineer
Airframe & Administrative Branch
Chicago Aircraft Certification Office

(Title)

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

FAA FORM 8182-1710-09 PAGE 1 of 3 PAGES This certificate may be transferred in accordance with 14 CFR 21.49,
### FAA APPROVED MODEL LIST (AML) NO. SA02015CH

**ALPHA AVIATION INC.**

**FOR**

**INSTALLING THREE POINT TORSO RESTRAINT SYSTEM**

**ISSUE DATE: 10/5/05**

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<th>CERTIFICATION BASIS FOR ALTERATION</th>
<th>INSTALLATION INSTRUCTIONS</th>
<th>REVISION NO. &amp; DATE</th>
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* or latter FAA Approved Revisions.

**FAA APPROVED:**

Gregory J. Michalik, Senior Aerospace Engineer
Airframe & Administrative Branch
Chicago Aircraft Certification Office

**Issued:** 10/5/05
United States Of America
Department of Transportation - Federal Aviation Administration

Supplemental Type Certificate

Number SA615EA

This Certificate issued to Whelen Engineering Company, Inc.
51 Winthrop Road
Chester, Connecticut 06412-0684

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified herein meets the airworthiness requirements of Part 3, 6, 23, 27 of the Civil Air/Federal Aviation Regulations.

Original Product Type Certificate Number: See Attached Eligibility List dated May 5, 2010

Model:

Installation of Whelen Anti-Collision Strobe Light Systems, Part Number 01-0770006(-), 01-0770028(-), 01-0770029(-), 01-0770062(-), 01-0770900(-), 01-0771055(-), 01-0771080(-), and 01-0790520(-) as replacement for originally installed anticollision lights, when installed in accordance with Whelen Anti-Collision Light Systems Installation and Service Manual, Document No. 05131, Rev B, dated June 2010, or later FAA-approved revision.

Limitations and Conditions:

(See continuation sheet 3 of 7)

The STC holder will provide each person it permits to use this certificate to alter the product written evidence of the agreement in a form acceptable to the Administrator.

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: February 19, 1968

Date of issuance: May 14, 1968

Date reissued: July 6, 2010

Date amended: May 5, 2010

See page 3 for amendment history.

By direction of the Administrator

Robert G. Mann
Manager, Boston Aircraft Certification Office

(Full title)

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.
United States Of America
Department of Transportation - Federal Aviation Administration

Supplemental Type Certificate
(Continuation Sheet)

Number SA615EA
Date Amended: May 5, 2010
Date Reissued: July 6, 2010

Limitations and Conditions (Continued):

1. These lights comply with the anti-collision light standards of the FARs as follows:
   a. With the red or combined red/white lens; those effective on or prior to August 10, 1971.
   b. With the white lens; those effective on August 11, 1971.

2. Install the following placard Whelen Part No. A421, or other FAA approved equivalent:

   WARNING

   TO AVOID OPTICAL ILLUSION AND SEVERE VERTIGO, TURN
   ANTI-COLLISION LIGHTS OFF UPON ENTERING CLOUDS, FOG OR HAZE

3. The aircraft listed on the Eligibility List are those which have had both the physical installation of the lights substantiated and the field of coverage checked including the 20° mask. Aircraft not included in the list can use these lights when the physical installation and field of coverage is substantiated as indicated in the Whelen Anti-Collision Light Systems Installation and Service Manual, June 2010, Document No. 05131, Rev B, or later FAA-approved revision, section titled “Aircraft Not Specifically Mentioned on the Eligibility List”.

4. The approval of this change in type design applies basically to aircraft listed on the attached eligibility list. This approval should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined by the installer that the interrelationship between this change and any of those other previously approved modifications will introduce no adverse effect upon the airworthiness of the aircraft. This determination should include a night flight check as specified in AC 43.13-2, Chapter 4, Paragraph 42a.

NOTE: Aircraft whose application for type certificate was made before April 1, 1957, may, but need not, comply with the field of coverage requirements of FAR 23(27).1401(b). Compliance with FAR 91.33(c) may be shown provided the light installation is in accordance with data approved prior to August 11, 1971, and the applicable criteria of Advisory Circular 43.13-2 are met.

AMENDMENT HISTORY:

This STC has been previously amended on the following dates:

7/15/68, 7/19/68, 11/25/68; 1/17/69, 2/18/69, 3/3/69, 3/21/70, 4/21/71, 5/18/72, 9/22/72, 11/7/72, 7/21/76, 10/4/78, 3/26/81, 8/5/81, 8/25/81; 5/21/82, 7/16/81; 6/7/99, 6/18/99, 6/17/05, 2/22/07.
United States Of America  
Department of Transportation - Federal Aviation Administration  
Supplemental Type Certificate  
(Continuation Sheet)

Number  SA615EA
Date Amended: May 5, 2010  
Date Reissued: July 6, 2010  
ELIGIBILITY LIST May 5, 2010

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

FAA Form 8110-2-1(10-69)  Page 4of 7  This certificate may be transferred in accordance with FAR 21.47.
United States Of America  
Department of Transportation - Federal Aviation Administration  
Supplemental Type Certificate  
(Continuation Sheet)  

**Number** SA615EA  
Date Amended: May 5, 2010  
Date Reissued: July 6, 2010  

ELIGIBILITY LIST May 5, 2010

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Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.
United States Of America
Department of Transportation - Federal Aviation Administration

Supplemental Type Certificate
(Continuation Sheet)

Number SA615EA
Date Amended: May 5, 2010
Date Reissued: July 6, 2010

ELIGIBILITY LIST May 5, 2010

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Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.
United States Of America  
Department of Transportation - Federal Aviation Administration  
Supplemental Type Certificate  
(Continuation Sheet)  

**Number** SA615EA  
Date Amended: May 5, 2010  
Date Reissued: July 6, 2010

ELIGIBILITY LIST May 5, 2010

<table>
<thead>
<tr>
<th>AIRCRAFT MANUFACTURER</th>
<th>MODEL</th>
<th>TYPE CERTIFICATE</th>
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<tbody>
<tr>
<td>Piper</td>
<td><strong>PA-11</strong></td>
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<td><strong>PA-12</strong></td>
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<td><strong>PA-18 Series, PA-19</strong></td>
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<td><strong>PA-20</strong></td>
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<td><strong>PA-22 Series</strong></td>
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<td><strong>PA-25 Series</strong></td>
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<td>PA-23, PA-23-160, *PA-23-235</td>
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<td>*PA-23-250, *PA-E23-250</td>
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<td>PA-24, -24-250, -24-260, -24-400</td>
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<td>PA-30, PA-39</td>
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<td>A8EA</td>
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<td>PA-32-260, -300, -32S-300</td>
<td>A3SO</td>
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</table>

NOTES TO ELIGIBILITY LIST:

*1. Aircraft as marked require specific attention to proper balancing of the rudder. Refer to the Manufacturer’s Service Manual for balancing instructions.

*2. Installations on these aircraft require prior or concurrent installation of STC SA4-977.
United States of America
Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

Number SA1216GL

This certificate, issued to Knots 2U, Ltd.
3106 Bieneman Road
Burlington, WI 53105

certifies that the change in the type design for the following product with the limitations and conditions
therefor as specified herein meets the airworthiness requirements of Part 3 of the Civil Air
Regulations. (See Type Certificate Data Sheet No. 2A13 for complete certification basis)

Original Product—Type Certificate Number: 2A13

Make: Piper Aircraft Corporation

Model: PA-28-140, PA-28-150, PA-28-151, PA-28-160,
PA-28-161, PA-28-180, PA-28-181, PA-28-235,
PA-28-236, PA-28-201T, PA-28R-180,
PA-28R-200, PA-28R-201, PA-28R-201T,
PA-28RT-201, PA-28RT-201T

Description of Type Design Change:

Install Wing Root Fairings in accordance with Knots 2U, Ltd. Wing Root Fairing
Installation Manual, Revision B, dated June 1, 1997, or later FAA approved revisions.

Limitations and Conditions:

Compatibility of this design change with previously approved modifications must
be determined by the installer.

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

Date of application: July 20, 1987

Date of issuance: August 5, 1987

Date issued: May 7, 1997

Date amended: July 15, 1997

By direction of the Administrator

Gregory J. Michalski, Senior Aerospace Engineer
Airframe & Administrative Branch
Chicago Aircraft Certification Office

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

Number SA603GL

This certificate, issued to
Knots 2U, Ltd.
3106 Bieneman Road
Burlington, WI 53105

certifies that the change in the type design for the following product with the limitations and conditions
thereafter specified herein meets the airworthiness requirements of Part 3 of the Civil Air
Regulations. (See Type Certificate Data Sheet No. 2A13 for complete certification basis)

Original Product—Type Certificate Number: 2A13
Make: Piper Aircraft Corporation
Model: PA-28-140, PA-28-150, PA-28-160, PA-28-180,
PA-28-235, PA-28R-180, PA-28R-200

Description of Type Design Change:
Installation of Aileron, Flap, and Stabilator Gap Seals in accordance with the
Knots 2U, Ltd. PA-28 Straight Wing Models Gap Seals Installation Manual,
Revision B, dated June 1, 1997, or later FAA approved revisions.

Limitations and Conditions:
1. Any or all combinations of the above items are approved.
2. Compatibility of this design change with previously approved modifications
must be determined by the installer.

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: February 24, 1982
Date of issuance: April 12, 1982

Date issued: July 21, 1982; May 7, 1997
Date amended: August 31, 1982; November 26, 1984;
October 11, 1990; July 15, 1997

By direction of the Administrator

Gregory J. Michalakis
Manager Aerospace Engineer
Airframe & Administrative Branch
Chicago Aircraft Certification Office

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.
United States Of America
Department of Transportation - Federal Aviation Administration

Supplemental Type Certificate

Number SA559CH

This Certificate issued to Aerotech Components, Inc.
3225 McLeod Dr. #100
Las Vegas, NV  89121

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 and Part 23* of the Federal Aviation Regulations. *See applicable Type Certificate Data Sheet for complete certification basis.

Original Product Type Certificate Number: * See attached FAA Approved Model List (AML)
Make No. SA559CH for a list of approved airplane models
Model and applicable airworthiness regulations.

Description of Type Design Change: Installation of Inline Air Filter Kit, P/N CV1J4-P, in accordance with Aerotech Components, Inc. Installation Instructions listed on AML No. SA559CH, or later FAA approved revision.

Limitations and Conditions: Compatibility of this design change with previously approved modifications must be determined by the installer. The approval of this change in type design applies to the basic aircraft of the specified models that are otherwise unmodified. This approval should not be extended to other aircraft of these models on which other previously approved modifications are incorporated, unless it is determined by the installer that the interrelationship between this change and any of those other previously approved modifications will introduce no adverse effect upon the airworthiness of that aircraft.

A copy of this STC must be included in the permanent records of 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: May 6, 1996
Date of issue: October 21, 1996
Date amended: By direction of the Administrator

________________________________________
(Signature)
Manager, Cabin Safety, Mechanical &
Environmental Systems Branch
Los Angeles 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.
## INSTALLATION OF INLINE AIR FILTER KIT

**Issue Date:** October 21, 1996

<table>
<thead>
<tr>
<th>Item</th>
<th>Aircraft Make</th>
<th>Aircraft Model</th>
<th>Original Type Certificate Number</th>
<th>Certification Basis for Alteration</th>
<th>AFM Supplement Number/Date</th>
<th>AML Amendment Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Piper Aircraft, Inc.</td>
<td>PA-28-140, -150, -151, -160, -161, -180, -181, PA-28R-180, -200, -201, -201T, PA-28RT-201, -201T</td>
<td>2A13</td>
<td>CAR 3 &amp; Amendments Listed in TCDS 2A13</td>
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<td>Rev. 1 March 8, 1997*</td>
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<td>2</td>
<td>Piper Aircraft, Inc.</td>
<td>PA-38-112</td>
<td>A18SO</td>
<td>14 CFR part 23 &amp; Amendments Listed in TCDS A18SO</td>
<td>96001-1</td>
<td>Rev. – May 1, 1996*</td>
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</tbody>
</table>

* Denotes “or later FAA approved revision”

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**FAA Approved:**
Manager, Cabin Safety, Mechanical & Environmental Systems Branch
Los Angeles Aircraft Certification Office

**Amended:** January 6, 1998, March 15, 2007

**Reissued:** November 30, 2012