



U.S. Department  
of Transportation  
Federal Aviation  
Administration

## MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved  
OMB No.2120-0020

For FAA Use Only

Office Identification

**INSTRUCTIONS:** Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

|                    |  |  |
|--------------------|--|--|
| <b>1. Aircraft</b> | Make<br>CESSNA   | Model<br>A185F   |
|                    | Serial No.<br>18502213                                     | Nationality and Registration Mark<br>N3946Q  |
| <b>2. Owner</b>    | Name (As shown on registration certificate)<br>MENNEN PAUL | Address (As shown on registration certificate)<br>1452 OWEN SOUND DR<br>SUNNYVALE CA 94087 |

### 3. For FAA Use Only

### 4. Unit Identification

### 5. Type

| Unit       | Make                           | Model    | Serial No. | Repair | Alteration |
|------------|--------------------------------|----------|------------|--------|------------|
| AIRFRAME   | (As described in item 1 above) |          |            |        | X          |
| POWERPLANT | TCM                            | IO-550-D | 680053     |        | X          |
| PROPELLER  |                                |          |            |        |            |
| APPLIANCE  | Type                           |          |            |        |            |
|            | Manufacturer                   |          |            |        |            |

### 6. Conformity Statement

|   |   |                           |
|---|---|---------------------------|
| <b>A. Agency's Name and Address</b>   | <b>B. Kind of Agency</b>                                    | <b>C. Certificate No.</b> |
| DAVID R. LANDRETH<br>TORNADO ALLEY TURBO<br>300 AIRPORT RD<br>ADA, OK 74820 | <input checked="" type="checkbox"/> U.S. Certified Mechanic | 2651512                   |
|   | <input type="checkbox"/> Foreign Certified Mechanic         |                           |
|   | <input type="checkbox"/> Certified Repair Station           |                           |
|   | <input type="checkbox"/> Manufacturer                       |                           |

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

|                   |  |
|-------------------|--|
| Date<br>12 FEB 02 | Signature of Authorized Individual<br> |
|-------------------|--|

### 7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is  APPROVED  REJECTED

|    |                             |                |                                     |   |                 |
|----|-----------------------------|----------------|-------------------------------------|---|-----------------|
| BY | FAA FT. Standards Inspector | Manufacturer   | <input checked="" type="checkbox"/> | Inspection Authorization                                | Other (Specify) |
|    | FAA Designee                | Repair Station |                                     | Person Approved by Transport Canada Airworthiness Group |                 |

|  |   |   |
|--|---|---|
| Date of Approval or Rejection<br>12 FEB 02 | Certificate or Designation No.<br>442647908 | Signature of Authorized Individual<br>Joe K. Grimes |
|--|---|---|

## NOTICE

*Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.*

### 8. Description of Work Accomplished

*(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)*

Removed six (6) TCM fuel nozzles P/N 623748-16B and Installed General Aviation Modification, Inc. turboGAMIjectors kit No. GT16B S/N 9673 STC No. SE09289SC PMA No. PQ821SW per turboGAMIjector Installation Procedure No. IP-97-002 (rev. 002) dated February 6 1997.

Modification to Teledyne Continental engine for the installation of turbonormalizing system in accordance with Turbo-Flite 520-D Master Drawing List No. FT185, Rev. IR dated October 10, 1995, or later FAA approved revision. All engine alterations were done in accordance with STC SE00215DE.

Installation of modified Teledyne Continental engine equipped with turbonormalizing system in accordance with Turbo-Flite 520-D Master Drawing List No. FT185, initial release, dated October 10, 1995 or later FAA approved revisions.. All work done to airframe alteration in accordance with STC SSA00214DE.

Installation of Teledyne Continental Motors model IO-550-d engine and hartzell model PHC-C3YF-1RF/F7691(), propeller on Cessna 185 series aircraft in accordance with Bonaire Aviation Company "Instructions Continental IO-550-D Installation Cessna 185 series Aircraft STC number #SA2933S0", revision D dated 11/1/98.

Installation of JPI digital tachometer in accordance with FAA Approved J.P. Instruments Drawing List Report No. 400, Revision NC, dated March 20, 1995 or later FAA approved revision. Installation per STC SA00061LA.

Installation of J. P. Instruments Slimline EGT-100 series primary instruments in accordance with J. P. Instruments Installation Instructions 102S, Revision A, dated February 19, 1999, or later Faa approved revision. Installation per STC SA00678SE.

Weight and balance revised, see P.O.H for changes.

\*\*\*\*\* NOTHING FOLLOWS \*\*\*\*\*

Additional Sheets Are Attached

**FAA Approved  
Airplane Flight Manual Supplement  
For**

**Cessna Models A185E or A185F**

**Registration No. N3946Q**

**Serial No. 18502213**

This Supplement must be attached to the F.A.A. Approved Aircraft Flight Manual or Airplane Owner's Manual (as appropriate) when Engine Technologies, Inc. Turbonormalizing system is installed in accordance with STC SA00214DE SE00215DE, and as already modified by STCs SA1522GL, SA2933SO, or SA00344WI.

The information contained in this document supplements or supercedes the information of the F.A.A. Approved Aircraft Flight Manual or Airplane Owner's Manual only in those areas listed. For limitations, procedures, and performance information not contained in this supplement, consult the basic Aircraft Flight Manual or Owner's Manual, and the Aircraft Flight Manual Supplement supplied with STCs SA1522GL, SA2933SO, or SA00344WI.

F.A.A. Approved



S. Frances Cox  
Manager, Special Certification Office  
Federal Aviation Administration  
Fort Worth, TX 76137-0190

LOG OF REVISIONS

| Revision | Pages | Date | Description     | FAA Approval             |
|----------|-------|------|-----------------|--------------------------|
| Original | All   |      | Initial Release | <i>A. J. [Signature]</i> |
|          |       |      |                 |                          |
|          |       |      |                 |                          |
|          |       |      |                 |                          |

## SECTION I. OPERATING CHECKLIST

### **Normal Takeoff:**

Power - Full throttle and 2700 RPM  
Climb Speed - 88 KIAS

### **Maximum Performance Takeoff:**

Power - Full throttle and 2700 RPM  
Climb Speed - 64 KIAS

### **Normal Climb:**

Power - Full throttle and 2500 RPM

### **Maximum Performance Climb:**

Airspeed - 100 KIAS to 15,000 ft, 110 KIAS above 15,000 ft.  
Power - Full throttle and 2700 RPM

## SECTION II. DESCRIPTION AND OPERATING DETAILS

### **Description:**

#### **Engine:**

Teledyne Continental IO-550-D turbo-normalized, inter-cooled, direct-drive, air-cooled, horizontally-opposed, fuel-injected, six-cylinder engine with 552 cu. in. displacement.

#### **Instruments:**

Manifold pressure Gage: Direct-reading, calibrated in inches of mercury (in. Hg.)  
Fuel Flow gage: Electronic, calibrated in gallons per hour (GPH)

#### **Turbocharger:**

An exhaust gas-driven compressor which provides high density air to the engine intake manifold for combustion. It is lubricated with filtered oil supplied from the engine oil system.

#### **Wastegate:**

An engine oil pressure-controlled butterfly valve that automatically meters excess exhaust gases to bypass the turbocharger.

#### **Pressure Relief Valve (PRV):**

A preset poppet valve that will open in the unlikely event of a failure of the automatic wastegate controller, in order to prevent engine damage due to overboosting.

#### **Intercooler:**

An air-to-air heat exchanger which reduces the induction air temperature before it enters the throttle body of the engine.

#### **Exhaust System:**

Reroutes exhaust gases to the wastegate/turbomanifold assembly. All exhaust gases are routed through a single tail pipe. While a newly-designed cabin heater is installed, operation is the same.

## SECTION II. DESCRIPTION AND OPERATING DETAILS (continued)

### Normal Procedures:

#### Takeoff:

Verify fuel flow at 30-32 GPH; lean only as necessary to achieve 32 GPH.

Use Full throttle and 2700 RPM for up to 5 minutes. Use full throttle and 2500 RPM for remainder of climb.

#### Climb:

Maintain 100 KIAS for best rate of climb. Above 15,000 ft, use at least 110 KIAS for engine cooling.

#### Cruise:

Lean in accordance with Cessna EGT-referenced procedures.

#### Descent:

Retard power slowly, especially at high altitudes, as this richens the fuel-air mixture considerably. Re-advancing the throttle will restore normal power.

### CAUTION

Retarding throttle directly to idle may cause engine combustion to cease, depending upon mixture setting (at or near full rich) and altitude (at high altitudes):

#### After Landing:

Allow engine to run at about 1,000 RPM for at least 4 minutes before shutdown, to allow turbine temperatures and turbine speed to stabilize.

### Emergency Procedures:

(NOTE: Do not use engine starter above 20,000 ft, due to possible electrical arcing.)

1. Airspeed 75 KIAS
2. Throttle ¼ Open (Above 18,000 ft: ½ Open)
3. Propeller High RPM (forwards)
4. Fuel Shutoff valve On
5. Fuel Selector Valve Both
6. Primer In & Locked
7. Magnetos On (both)
8. Auxiliary Fuel Pump Off (Above 18,000 ft: On for 3-5 seconds, then Off)
9. Mixture Lean until engine starts, then advance towards rich
10. Throttle & Mixture Reset for desired operation

**SECTION III. OPERATING LIMITATIONS**

**Powerplant (Instrument Markings):**

| <u>Instrument</u>                      | <u>Green Arc<br/>(Normal<br/>Operation)</u> | <u>Red Line<br/>(Maximum<br/>Limit)</u> |
|--|---|---|
| <u>Manifold Pressure<br/>(in. Hg.)</u> | 15 - 29.6                                   | 29.6                                    |
| <u>Propeller<br/>(RPM)</u>             | 2250-2500                                   | 2700                                    |
| <u>Fuel Flow<br/>(gph)</u>             | 10-35                                       | 35                                      |

**Maximum Altitude:**  
24,000 feet

**Fuel Flow:**

Use Full Rich Mixture when necessary for takeoff and climb.

**Starter:**

Do NOT use starter above 20,000 feet (due to possible electrical arcing)

**SECTION IV. CARE OF THE AIRPLANE**

No Change.

**SECTION V. OPERATIONAL DATA**

**Takeoff Data:**

Performance better than, or equal to original Airplane Owner's Manual data.

**Maximum Rate-Of-Climb Data:**

Performance better than, or equal to original Airplane Owner's Manual data.

(Note: Full throttle and 2500 RPM used.)

**Cruise & Endurance Data:**

Disregard all existing cruise and endurance data.

(Note: Fuel specifics have not been verified to be equal to or better than existing data.)