

AIR PLAINS SERVICES CORP
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Continued Airworthiness Manual
Cessna R182
FAA STC SA00861WI



Continued Airworthiness Manual

Document Number: R1820941

Continued Airworthiness Manual for maintaining the R182 following the installation of an IO-540, 300 HP, Lycoming engine, with a three blade Hartzell propeller.

Air Plains Services, Corp.
439 N. West Rd
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Prepared BY: Mike Kelley
Air Plains Services, Corp.





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FAA APPROVED SUPPLEMENTAL FLIGHT MANUAL
LOG OF REVISIONS

Rev. No.	Pages	Description	Date	Approved
Original	All	Continued Airworthiness Manual	2/18/00	
1	7	Corrected Text	02/26/03	
1	9	Added Airworthiness Limitation	02/26/03	

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Comment: Added this 2/26/03

Introduction

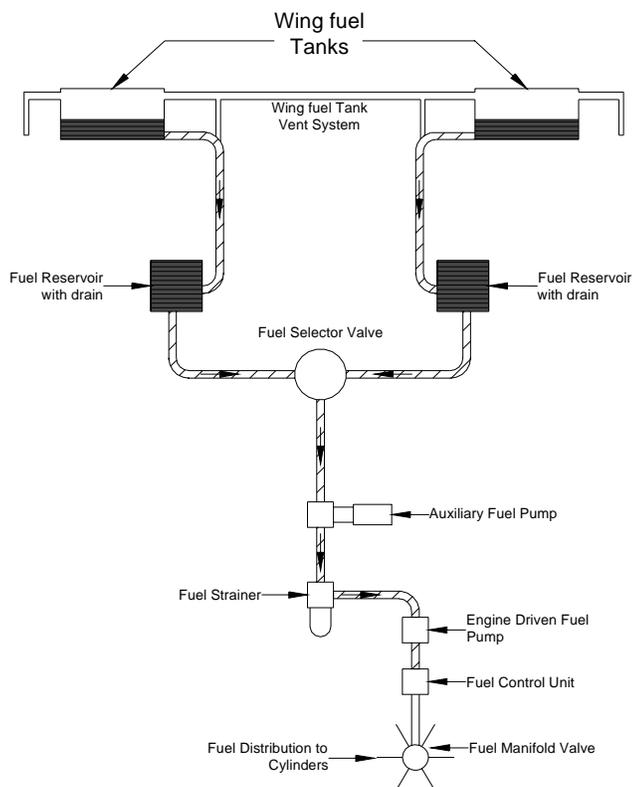
- This R182 aircraft has been modified by the installation of an IO-540 Lycoming engine and the installation of a Hartzell 3 bladed propeller. The fuel system has been modified by the installation of two fuel reservoir tanks under the floor of the cabin. The nose landing gear has been changed to restrict the upward movement of the strut due to the location of the oil sump. The landing gear doors have been changed to provide clearance for the nose wheel and tire.

Systems

- Engine - Lycoming IO-540-K1A5
 - The engine is controlled via a manual throttle, mixture and propeller control. The operation of the engine is monitored by a tachometer, manifold pressure gage and fuel flow gage. The condition of the engine is monitored with the oil pressure gage, oil temperature gage and cylinder temperature gage.
- Propeller - Hartzell - HC-C3YR-1RF/8468A-6R
 - The propeller is a hydraulic 3 blade propeller that maintains desired RPM by the application of engine oil supplied through the crankshaft from the propeller governor.
- Propeller Governor - McCauley DC290D1/T33
 - The propeller governor is controlled by a panel mounted control. The governor supplies high pressure oil to the propeller to maintain the desired RPM.
- The Airframe fuel system is a combination of Air Plains designed and built components and original manufacturer's components. (Refer to the Fuel System Schematic)
 - The fuel system supplies fuel from the main tanks to the engine. Two fuel reservoir tanks are installed under the floor forward of the cabin door bulkhead. These tanks supply fuel from the main tanks to the fuel-selector valve and are vented back to the main tanks. The electric fuel pump located on the firewall supplies fuel to the engine for starting and in the event of engine driven fuel pump failure. The fuel pump is controlled by a switch located on the switch panel.
 - Drains are installed in the bottom of each fuel reservoir tank. These drains should be drained prior to the first flight of each day.

Comment: Change to show under the floor, aft of the RH side F.S. 12.0

Fuel System Schematic



Limitations

- Engine - IO-540
 - Rated maximum continuous HP300
 - Maximum continuous RPM.....2700

 - Oil Sump Capacity..... 12 qts.
 - Fuel Grade 100LL or 100

 - Maximum Cylinder Head Temp.500° see note 1
 - Maximum Oil Temperature245°

 - Minimum Oil Pressure25 psi
 - Normal Oil Pressure55 - 95 psi
 - Maximum Oil Pressure 115 psi

 - Maximum Fuel Pressure.....40 psi

Note1: Temperature measured with bayonet type AN5541 or equivalent.

- Propeller
 - Low pitch blade settings 12.0° ±.2°
 - High pitch blade settings31.0° ±1°

Servicing

- Engine
 - Service the engine in accordance with the Lycoming Operators Manual.

- Aircraft
 - Service the aircraft in accordance with the Cessna Service Manual.

Maintenance

Except for the items discussed in the following paragraphs the airframe must be maintained in accordance with the original manufacturer's maintenance manual.

All Reference to Turbocharger is removed.

- **Service, Overhaul and Parts Manual**

- Engine

- The engine must be maintained in accordance with the current Lycoming Overhaul, Parts and Operators manuals. Reference Lycoming Service Letter SL 114 for the latest revisions.

- Overhaul.....60294-7
 - PartsPC615
 - Operators manual.....60297-10
 - Engine mount bolt Torque450 - 500 in. Lbs.

Comment: Add – or latest revision

Comment: Add or latest revision

Comment: Add or latest revisions

- Propeller

- The propeller must be maintained in accordance with the current Hartzell Overhaul, Parts and Operators manuals.

- Overhaul - Parts113B
 - Propeller to engine bolt torque60-70 ft. lbs.

Comment: Add or latest revision

- Propeller Governor

- The propeller governor must be maintained in accordance with the current McCauley Overhaul and Parts manuals.

- Overhaul - Parts780401

Comment: Add or latest revision

- Parts and Procedures

- Reference the installation instructions (R1820921), Drawing List (R1821) and related drawings for installation and part numbers of approved components and installation details.

- **Inspections**

- Engine

- The engine should be inspected and serviced in accordance with the inspection schedule and guidelines in the operator's manual.
 - The engine overhaul should be performed in accordance with the manufacturer's recommendations and done in accordance with the manufacturer's overhaul manual.

- Propeller

- The propeller should be inspected and serviced in accordance with the inspection schedule and guidelines in the operator's manual.
 - The propeller overhaul should be performed in accordance with the manufacturer's recommendations and done in accordance with the manufacturer's overhaul manual.

- Aircraft
 - The aircraft should be inspected and serviced in accordance with the Cessna Service Manual except as noted above and as noted below.
 - Landing Gear
 - The nose gear door rigging is performed in accordance with the Cessna Service Manual. The doors should be inspected for clearance on the tire and the hinge brackets inspected for cracks and deformation.
 - The landing gear warning horn should be adjusted for activation @ 15" of manifold pressure.
 - The nose gear up limit switch should be adjusted to provide contact with the strut and a small amount of free play on the switch with the strut tight against the stop. The switch should not be bottomed out.

Trouble Shooting

Except for the items discussed in the following paragraphs the airframe must be maintained in accordance with the original manufacturer's maintenance manual.

- Engine
 - Engine trouble shooting should be performed in accordance with the applicable Lycoming Overhaul Manual and Operators Manual.
- Propeller
 - Propeller trouble shooting should be performed in accordance with the applicable Hartzell Overhaul / Parts Manual.
- Aircraft
 - Aircraft trouble shooting should be performed in accordance with the applicable Cessna Service Manual.

Comment: Add fuel system maintenance statement at the end of this document Note 1

Comment: Add trouble shooting of electric pump Note 2

Special Instructions

- None

Comment: Add Airworthiness limitations section Note 3

Joan

Add this to the comment referencing note 1 under the landing gear heading

Fuel System

Reservoir Tanks

Two reservoir tanks are located under the floor at F.S. 22.0. These tanks are accessed by removing the covers plates in the floor. The tanks require no recurring maintenance. The tanks should be inspected at normal inspection intervals for leaks and security of mounting. If the tanks require repair, disconnect the lines and remove the mounting screws. Following repair reinstall in the reverse order. The tank sump drains may be replaced from the bottom of the aircraft without removing the tanks.

Electric Fuel Pump

The electric fuel pump is located under the floor on the RH side of the fuselage at F.S. 12.0. Access to the pump is gained by removing the cover plate. The pump may be removed for replacement by disconnecting the lines and removing the pump and mount as an assembly. The pump requires no recurring maintenance. The pump should be inspected at normal inspection intervals for leaks, security of mounting and operation.

Note 2

Electric Fuel Pump

Pump Inoperative – Check for electrical power to the pump if not present repair as needed. If power is available to the electric fuel pump, remove for overhaul

Suspected low fuel pressure or flow – Remove the pump for overhaul.

Excessive noise when running – Remove for overhaul

Note 3

Airworthiness Limitations

None

INCLUDE THE STATEMENT FROM G23.4

Program to distribute changes to the Instructions for Continued Airworthiness Manual

Air Plains will mail to the owner of record, of each SN: aircraft modified by STC SA00861WI, a revised copy of the "Instructions for Continued Airworthiness" each time a Revision is made and approved.

The revision to be mailed may be in the form of the complete document or the revised pages and will consist of revisions produced by Air Plains and or revisions