

NC-08-030 182T, T182T STANDBY ALTERNATOR INSTALLATION



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Installation manual / Service Letter

Doc # NC-08-030 Rev C
Issue Date: 16 May 08

EFFECTIVITY

Cessna Aircraft Types: 182T, T182T

REVISION HISTORY

REV	DESCRIPTION	DATE
C	Changed format, additional clarifications	17 Sept 2008

PURPOSE

For installation of Standby alternator system

COMPLIANCE

Not mandatory, shall be complied with at aircraft owner's discretion

APPROVAL

FAA approval has been obtained on all technical data in this Service Letter that affects type design.

RESOURCES

40 hours of labor are required to comply with this Service Letter.

MATERIAL INFORMATION

The following documents list the materials required for compliance with this Service Letter. Parts can be obtained from Kelly Aerospace Thermal Systems (Kats), or procured locally (P/L) as indicated

Doc# NC-08-026 (Kats)

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INSTRUCTIONS FOR COMPLIANCE

1. Preparation

- a) Insure all documentation is the latest revision, this may be checked at www.airplanedeice.com
- b) Conduct a parts inventory to insure all required items are present.
- c) Disconnect aircraft battery per the Cessna Aircraft Maintenance Manual (AMM)
- d) Remove the engine cowling per (AMM)
- e) Secure external power receptacle to prevent unwanted power on aircraft busses (e.g. tape over receptacle with non metallic masking tape with label warning of hazard.)
- f) Remove the following components utilizing the AMM and store securely:
 - i) Fwd left and right “kick” panels
 - ii) Glove box
 - iii) Lh rudder pedal cover
 - iv) Propeller and starter ring
 - v) T182T ONLY
 - (1) Exhaust pipe and waste gate (T182T ONLY)
 - vi) Lamar electrical box cover
- g) For all references to wire stripping, crimping and tying procedures refer to AC 43.13-1B chapter 11
- h) Torque

Torque Specifications	
Unless otherwise specified, use the following torque values.	
6-32 UNC	7-9 inch-lbs
8-32 UNC	17-19 inch-lbs
10-24 UNC	20-22 inch-lbs
10-32 UNF	28-31 inch-lbs
1/4-20 UNC	70-75 inch-lbs
1/4-28 UNF	90-94 inch-lbs
5/16-24 UNF	220-230 inch-lbs
3/8-24 UNF	445-455 inch-lbs
7/16-20 UNF	760-780 inch-lbs

Table 1

2. Installation of components

- a) Drill holes and mount the voltage regulator (VR-202A) with MS21059L3K #10 nutplates and monel rivets. Reference figure 2.
- b) Mount one flange of DC contactor relay (P/N 124-911) using top outboard bolt of Lamar box. See figure 1

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Figure 1- Mounting location of DC contactor relay.

- c) You will need to remove an existing washer from under the Lamar box foot typically as the relay flange will replace this spacer in practice.
- d) Rotate the existing wire loom clamp 180 degrees from originally installed to make room for the relay body.
- e) Match drill the remaining flange to the firewall insuring no equipment, wiring ect. Is located behind where you want to drill inside cockpit behind instrument panel.
 - i) Use the supplied AN3-5A, AN365-1032A, and AN970-3 Large area washers as required to complete mounting of change over relay.
- f) Change over Relay (P/N 896H-1CH-D1-R1) can be mounted where possible or simply built into wiring bundles. See figure 2.
- g) Toggle switch, switch guard and placard see figure 5
- h) Fuse holder and bracket AC-00107 see figure 3

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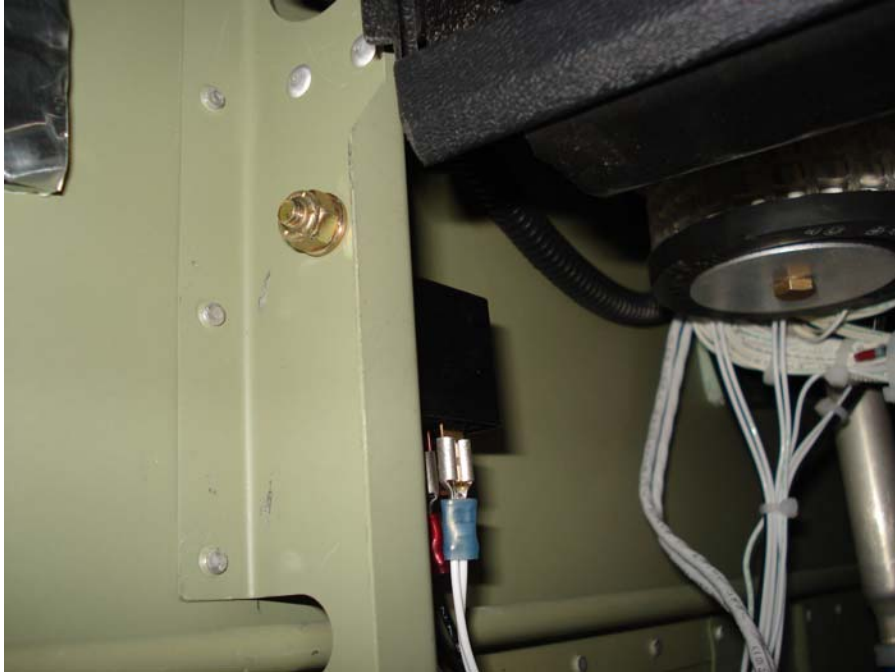


Figure 2 – Suggested Installation location of 896H-1CH-D1-R1 Change Over Relay (under left side of instrument panel)



Figure 3 – Suggested Installation of AC-00107 Fuse Holder Bracket (Adel Clamps/hardware procured locally)

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Figure 4 – Approximate location of VR-202A Voltage Regulator.

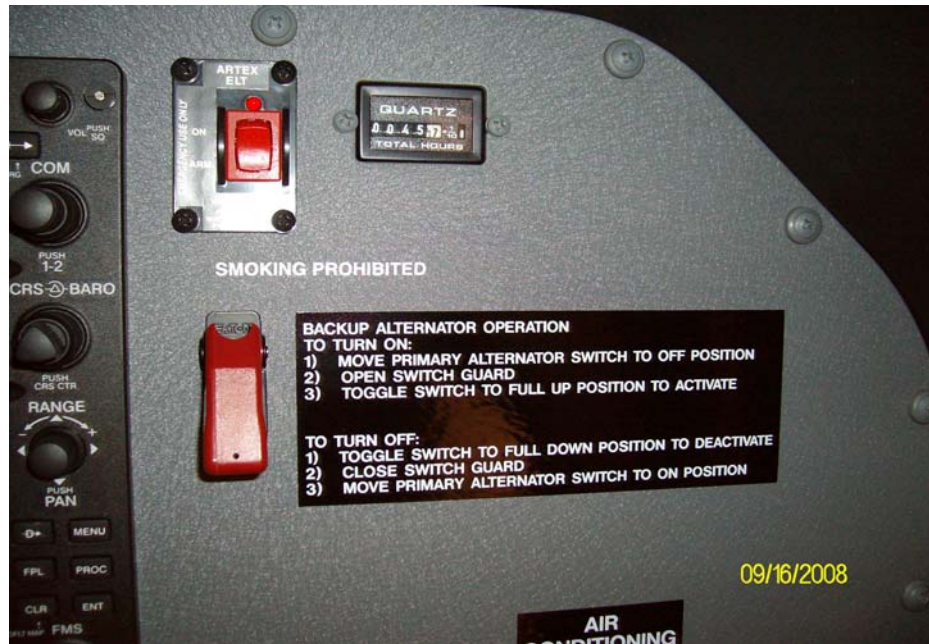


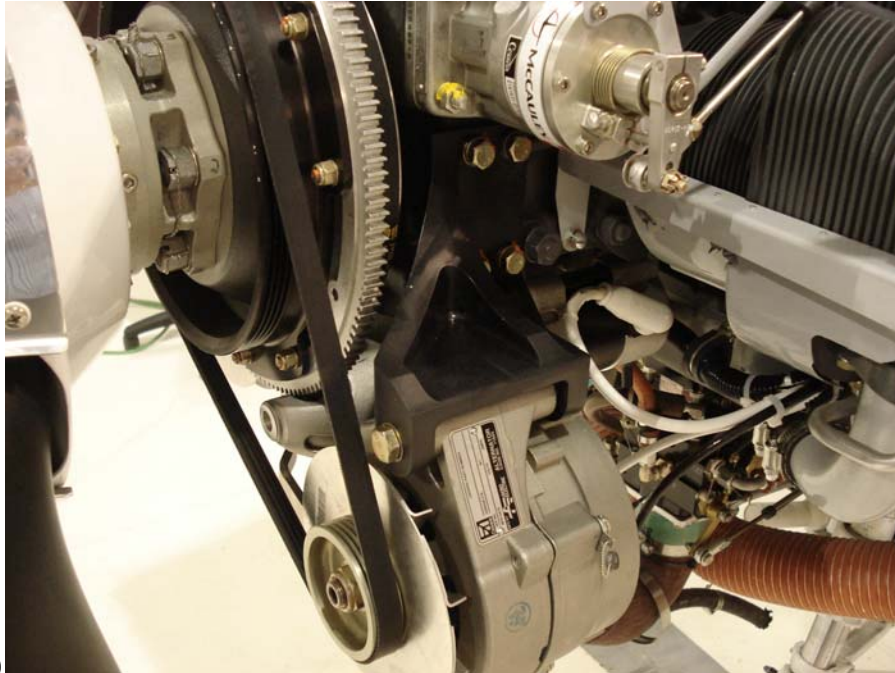
Figure 5 – Toggle switch and Placard location

- i) Alternator installation
 - i) Reference Dwg# AL-00063, figures 6-10 and instructions listed below.
- ii) Tensioning Arm Bracket (AL-00061) Installation
 - iii) Remove aircraft Primary Alternator.
- iv) Loosen, but do not remove Primary Alternator bracket from engine.
- v) Loosely install AL-00061 with alternator pivot bolt and starter bolt.
- vi) Tighten starter bolt verifying Primary Alternator bracket is flush against

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AL00061.

- vii) Tighten Primary Alternator bracket bolts to the engine block.
- viii) Verify alternator pivot bolt moves freely. Using AL-00061 as a guide, drill a, $\varnothing.199''$ / $\varnothing.193''$ through hole into the Primary Alternator bracket.
- ix) Loosely install AN3-7A bolt into drilled hole.
- x) Loosen Starter ear bolt and remove Primary Alternator pivot bolt. Stake Primary Alternator bracket bolts.
- xi) Install alternator and belt but do not adjust tension until after backup alternator has been installed and belt has been tensioned. This is done to ensure load from AL-00054 is being applied through AL-00061 and not through the ear on the starter.



xii)

Figure 6 – Alternator Installation

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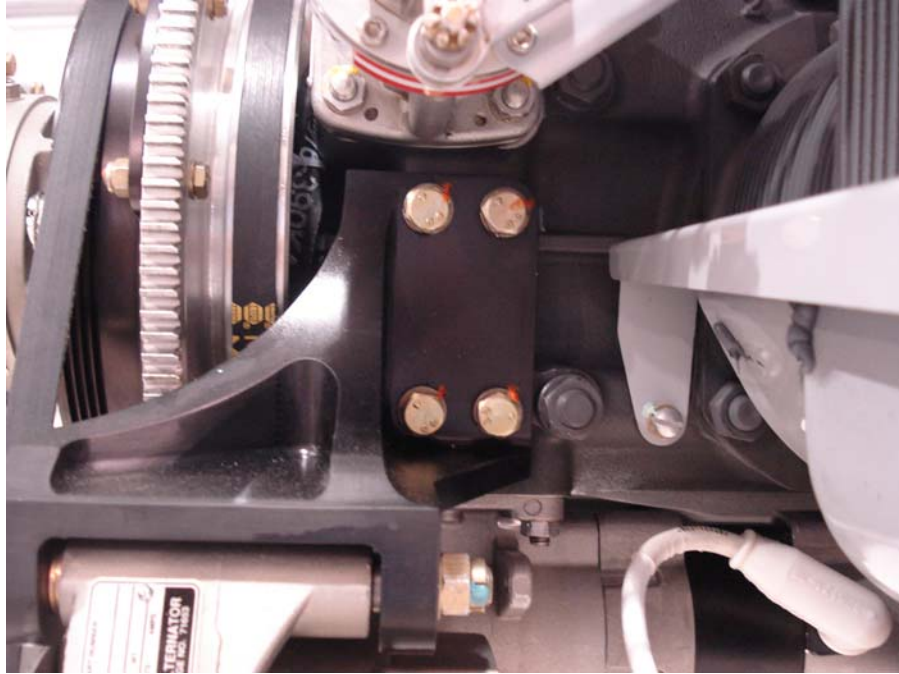


Figure 7 – Alternator Installation

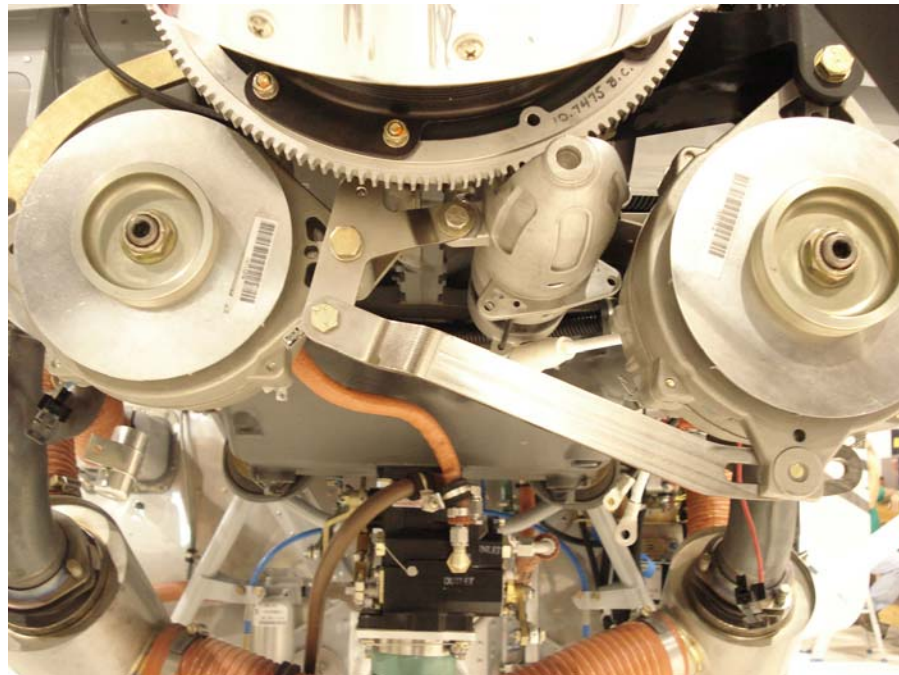


Figure 8 – Alternator Installation

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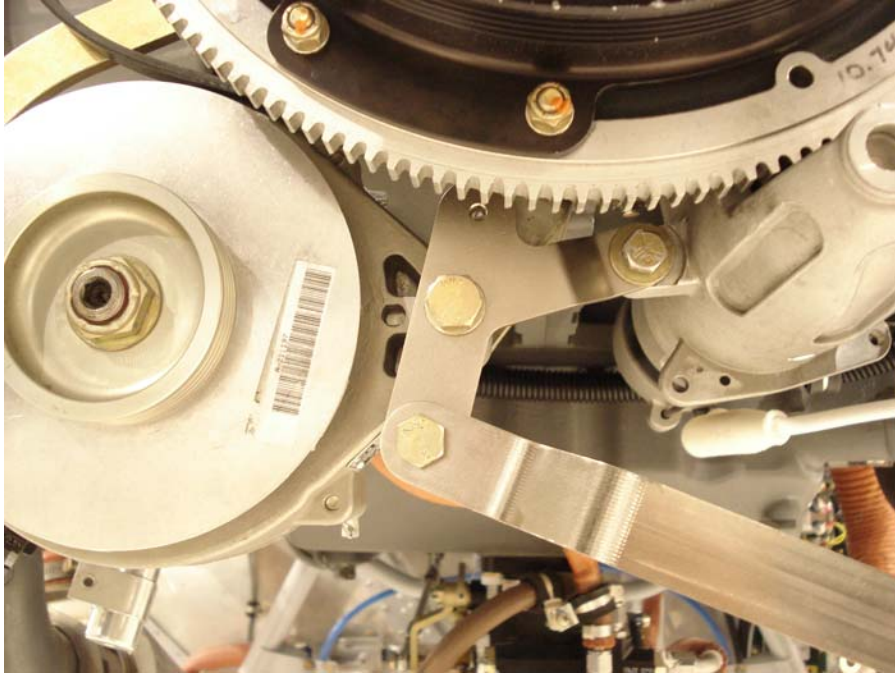


Figure 9 – Alternator Installation

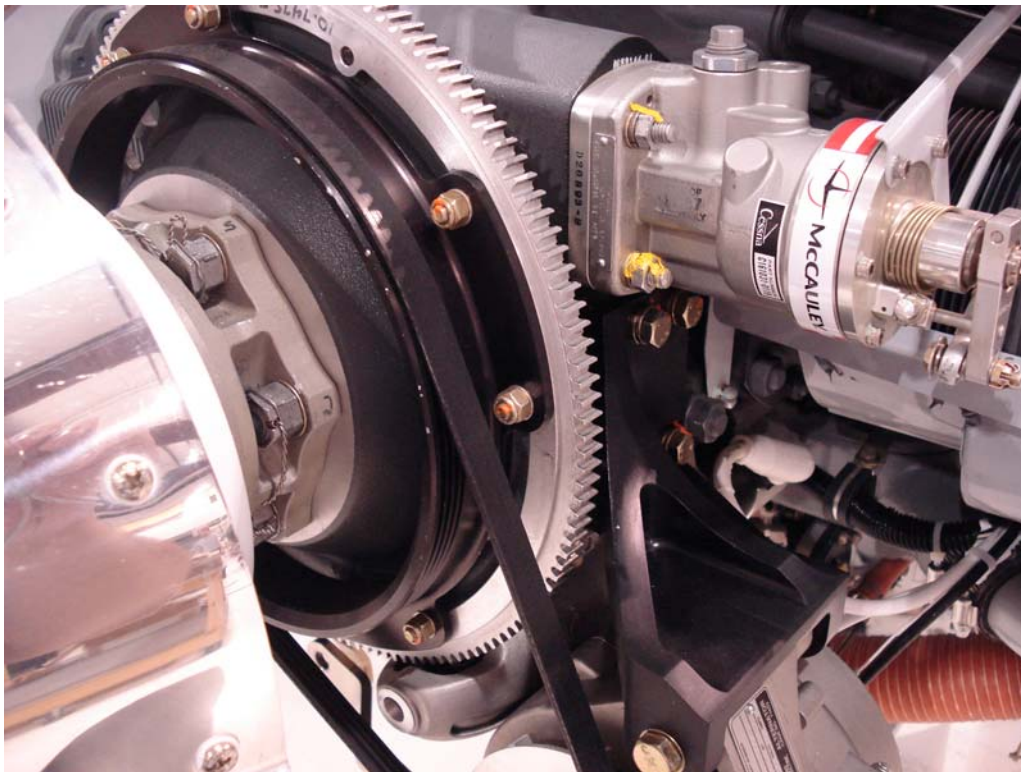


Figure 10 – Drive Pulley Installation

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- xiii) Re-Install prop per AMM.
- xiv) Refer to Figures 6-10 and Dwg# AL-00063 for final installation configuration.

3. Modification of existing components

- a) Lamar box cover will need to be trimmed as required for additional wiring to access the connections inside.
- b) A snap bushing has been provided to protect wiring into the Lamar box. See figure 11.

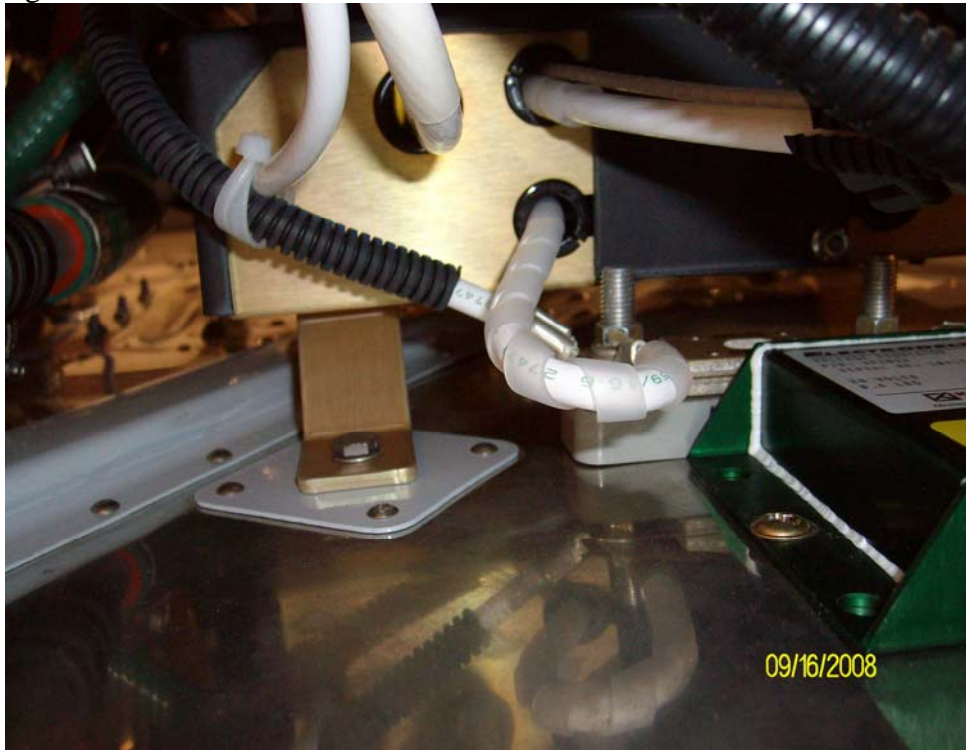


Figure 11- Bottom of Lamar box showing snap bushing and cover modification.

- c) T182T only
 - i) Remove left engine inlet naca scoop and repair per Cessna Structural Repair Manual (SRM)
 - ii) Install flange 10350-12 per Dwg # AC-00136 on lower left cowling.
 - iii) Trim to fit supplied 3 in. Scat tubing to route air to the heat muff and secure as required.(reuse hose clamps)
 - iv) High Temp RTV may be used to buffer the scat hose from the alternator if rubbing is expected.
- d) Paint reworked areas per AMM as required.

4. Wiring

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- a) See Dwg# AL-00062 for all wiring details
 - b) Care should be taken to insure a neat and tidy wiring installation and adequate additional wire protection (spiral wrap, wire loom, heat shrink, zip ties ect.) where required (e.g. inside the Lamar box where space is very limited)
 - c) All wire runs should be installed as per standard practices and follow existing wire runs where practical.
5. Reassembly of aircraft
- a) Reinstall the following components utilizing the AMM.
 - i) Front and rear seats
 - ii) Cabin carpet
 - iii) Glove box
 - iv) Lh rudder pedal cover
 - v) Floor inspection panels when/as required
 - vi) Propeller and starter ring
 - vii) Lamar electrical box cover
 - viii) Exhaust pipe and waste gate (T182T ONLY)
 - b) Reinstall aircraft battery per the Cessna Aircraft Maintenance Manual (AMM)
 - c) Reinstall the engine cowling per (AMM)
6. Perform operational test
- a) Aircraft will need to be relocated to a run up area to complete this section
 - b) Utilizing qualified personnel, operate the aircraft engine per the Pilot Operating Handbook.
 - c) Test system by utilizing instructions on placard AL-00064 located near guarded Red switch for stand by alternator
 - d) If further assistance is needed contact Kelly Aerospace Thermal Systems Technical support @ 440-951-4744
7. Return to service
- a) Perform compass swing deviation check as required by AC 43.13-1B chpt12 sec3
 - b) Update aircraft Weight and Balance records.
 - c) Install Approved Flight Manual Supplement
 - d) Complete FAA form 337.
 - e) Make aircraft log book entry