

<b>HCLJ510-000617</b>	<b>Havari</b>		
Luftfartøj:	Cessna TR 182 RG	Registrering:	OY-SFU
Motor:	Lycoming 0-540-L3C5D	Flyvning:	Privatflyvning, VFR
Besætning:	1 – ingen tilskadekomst	Passagerer:	1 – ingen tilskadekomst
Sted:	Aversi ved Haslev	Dato og tidspunkt:	8.2.2009 kl. 0920 UTC

Havarikommissionen for Civil Luftfart og Jernbane (HCLJ) fik meddelelse om havariet fra fartøjschefen den 8.2.2009 kl. 0935 UTC.

### **Flyvningen historie**

Havariet indtraf i forbindelse med start på bane 27 på en privat græsbane. Græsset var kortklippet og vådt.

Den 6.2.2009 startede fartøjschefen motoren for bl.a. at tjekke batteriets tilstand. Fartøjschefen lod motoren køre i ca. fem minutter.

Den 8.2.2009 skønnedes det, at vejrforholdene muliggjorde faldskærmsflyvning, og fartøjschefen besluttede sig for at udføre en kort flyvning (landingsrunde) for sammen med passageren at vurdere vejrforholdene.

Fartøjschefen konstaterede før start, at venstre brændstofmåler indikerede ca. 50 liter brændstof, og at højre brændstofmåler indikerede en tom højre brændstoftank. Brændstofbeholdningen i tankene blev ikke visuelt kontrolleret før flyvningen, og brændstoftankene blev ikke drænet. Oliestanden blev tjekket.

Motoropvarmningen gav ikke anledning til bemærkninger. Vinden var let fra vest, og luftfartøjet startede på bane 27 med flaps udfældet til flapposition 20°.

Luftfartøjet kom i luften før banemarkeringen, der var placeret syd for startbanen. Se bilag 1. Da luftfartøjet fløj vandret ligeud i ground effecten for at opbygge flyvefart, gik motoren i stå. Fartøjschefen landede ligefrem og forsøgte at bremse luftfartøjet inden for den resterende til rådighed værende bane.

Luftfartøjet kørte ud over enden af banen og kom til et fuldt stop i en blød mark ca. fem meter efter baneenden.

Luftfartøjet blev væsentligt beskadiget.

Havariet indtraf i dagslys og under visuelle meteorologiske vejrforhold (VMC).

## Skade på luftfartøjet

Der opstod skade på luftfartøjets propel samt landingsunderstel.



## Oplysninger om personel

a) Fartøjschefen var indehaver af privatflyvercertifikat (PPL (A)). Den helbredsmæssige godkendelse var gyldig indtil d. 3.12.2009. Rettigheden til at flyve enmotorede landflyvemaskiner (SEP (LAND)) var gyldig indtil d. 31.3.2010.

b) Fartøjschefens flyvetidsopgørelse jf. logbog.

	Sidste 24 timer	Sidste 90 dage	Total
Alle typer:	-	0:15	1733:40
Denne klasse / type:	-	0:15	1733:40
Antal landinger:	-	1	3493
(Denne klasse / type)			

## Oplysninger om luftfartøjet

a) Generelt.

Luftfartøjet ejedes af en faldskærmsklub, og blev benyttet til faldskærmsflyvning. Luftfartøjet var ikke udstyret med passagersæder.

b) Luftdygtighedsbevis og rejsedagbog.

Luftfartøjet havde på havaritidspunktet et gyldigt luftdygtighedsbevis.

Luftfartøjets seneste flyvning var jf. rejsedagbogen d. 31.10.2008. En gennemgang af rejsedagbogen gav ikke anledning til bemærkninger.

HCLJ blev oplyst om, at luftfartøjet i en periode fra d. 16.11.2008 til d. 6.2.2009 havde stået i en hangar uden motorkonservering, og at der ikke var foretaget ugentlige motorkørsler på jorden.

c) Service letter L180A.

For at undgå korrosionsdannelse i motorer i luftfartøjer, der ikke flyver så ofte, har motorfabrikanten (Textron Lycoming) i form af en Service Letter L180A udsendt anbefalinger for motorbevaring. Se bilag 2.

d) Pilot's checklist (uddrag fra luftfartøjets Aircraft Flight Manual (AFM)).

*"Preflight inspection.*

*Cabin.*

*6. Master Switch – ON.*

*7. Fuel Quantity indicators – CHECK QUANTITY.*

*Right wing (cont.)*

*3. Main Wheel Tire -- CHECK for proper inflation.*

*4. Before first flight of the day and after each refueling, use sampler cup and drain small quantity of fuel tank sump quick-drain valve to check for water, sediment and proper fuel grade.*

*5. Fuel quantity -- CHECK VISUALLY for desired level.*

*6. Fuel Filler Cap – SECURE and vent unobstructed.*

*Left wing.*

*1. Main Wheel Tire -- CHECK for proper inflation.*

*2. Before first flight of the day and after each refueling, use sampler cup and drain small quantity of fuel tank sump quick-drain valve to check for water, sediment and proper fuel grade.*

*3. Fuel quantity -- CHECK VISUALLY for desired level.*

*4. Fuel Filler Cap – SECURE and vent unobstructed."*

e) Brændstofmængde (uddrag fra luftfartøjets AFM).

FUEL QUANTITY DATA (U.S. GALLONS)			
TANKS	TOTAL USABLE FUEL ALL FLIGHT CONDITIONS	TOTAL UNUSABLE FUEL	TOTAL FUEL VOLUME
STANDARD (46 Gal. Each)	88	4	92
REDUCED FUEL (34.5 Gal. Each)	65	4	69

## JAR-FCL 1 (uddrag)

JAR-FCL 1.026 Recent experience for pilots not operating in accordance with JAR-OPS 1.

*(a) A pilot shall not operate an aeroplane carrying passengers as pilot-in-command or copilot unless he has carried out at least three take-offs and three landings as pilot flying in an aeroplane of the same type/class or a flight simulator of the aeroplane type/class to be used, in the preceding 90 days;"*

## Undersøgelse af luftfartøjet

HCLJs undersøgelse af luftfartøjet på havaristedet afdækkede følgende:

- Der konstateredes ingen tekniske fejl eller skader, der ikke kunne relateres til havariet.
- Der var ikke installeret et passagersæde til passageren.
- Begge brændstoftanke var intakte.
- En visuel inspektion af brændstofmængden i begge brændstoftanke afdækkede, at begge tanke var tomme.
- Ved dræning af venstre og højre brændstoftank var den tilbageværende brændstofmængde henholdsvis nul og en halv deciliter brændstof.
- Brændstofvælgeren var valgt til positionen "BOTH".
- Brændstofindikatorerne uden elektrisk spænding viste:



## Havarikommissionens vurderinger

Generelt.

Fartøjschefen var behørigt certificeret men opfyldte dog ikke kravene om tre starter og landinger inden for de sidste 90 dage for at kunne medbringe passagerer.

Luftfartøjet var i forbindelse med denne flyvning ikke konfigureret til passagerflyvning, hvilket efter HCLJs skøn ud fra et flyvesikkerhedsmæssigt aspekt udgjorde en latent risiko for passageren.

For at minimere risici for korrosionsdannelse i motorer i luftfartøjer, der ikke flyver så ofte, vil HCLJ gerne henlede opmærksomheden på motorfabrikantens anbefalinger desangående. Motorbevaring ved dette havari var dog ikke et forhold, der havde indflydelse på hændelsesforløbet.

Flyvningen.

Det er HCLJs vurdering, at fartøjschefen ved sin forberedelse af flyvningen alene lod brændstofindikatorernes visning indgå i beslutningsprocessen omkring den aktuelle brændstofmængde ombord. En visuel inspektion af brændstofmængden i tankene før start ville med stor sandsynlighed have afdækket den venstre brændstofindikator's fejlvisning. HCLJ vil gerne understrege vigtigheden af før hver flyvning at inspicere luftfartøjet i overensstemmelse med luftfartøjets AFM.

Det er HCLJs opfattelse ud fra den efterfølgende undersøgelse af luftfartøjet, at motoren umiddelbart efter start gik i stå grundet brændstofmangel.

Bilag 1



## **TEXTRON** Lycoming

### Williamsport Plant

Textron Lycoming/Subsidiary of Textron Inc.  
652 Oliver Street  
Williamsport, PA 17701 U.S.A.

# SERVICE LETTER

Service Letter No. L180A  
(Supersedes Service Letter No. L180)  
December 1, 1978

TO: All owners and operators of Avco Lycoming aircraft engines.  
SUBJECT: Engine Preservation for Active and Stored Aircraft

Engines in aircraft that are flown only occasionally may not achieve normal service life because of corrosion; this occurs when moisture from the air and products of combustion combine to attack cylinder walls and bearing surfaces during periods when the aircraft is not used. The procedures for combating this condition consists of coating the vulnerable surfaces with rust inhibitive compounds as herein described. However, the need for doing this must be evaluated by the owner or operator of the aircraft, based on environmental conditions and frequency of aircraft activity.

Obviously, an aircraft based near the sea coast and flown once each week will have more need for preservation attention than one flown every day in an arid region. Our experience has proven that in regions of high humidity, active corrosion can be found on cylinder walls of new engines inoperative for periods as brief as two days; in engines that have accumulated 50 hours or more in service the cylinder walls will have acquired a coating of resin that tends to protect them from corrosive action; such engines under favorable atmospheric condition can remain inactive for several weeks without evidence of damage by corrosion.

**FLYABLE AIRCRAFT:** In a favorable atmospheric environment the engine of an aircraft that is flown intermittently can be adequately protected from corrosion by turning the engine over five revolutions by means of the propeller. This will dispel any beads of moisture that may have accumulated and spread the residual lubricating oil around the cylinder walls. Unless the aircraft is flown, repeat this procedure every five days.

#### WARNING

Be sure the ignition switch is "off", the throttle closed, and mixture control in the idle cut-off position before turning the propeller. Do not stand in the path of the propeller blades. Also, ground running the engine for brief periods of time is not a substitute for turning the engine over by hand; in fact, the

practice of ground running will tend to aggravate rather than minimize corrosion formation in the engine.

After 30 days, the aircraft should be flown for 30 minutes or a ground run-up should be made long enough to produce an oil temperature within the lower green arc range. Excessive ground run-up should be avoided.

**INACTIVE AIRCRAFT:** If it is known that an aircraft is to remain inactive for a period of time exceeding thirty days the following procedure should be applied to the engine, especially if the aircraft is located near salt water or similar humid area.

1. Drain the lubricating oil from the sump or system and replace with a preservative mixture. This preservative mixture consists of one part by volume MIL-C-6529C Type I concentrated corrosion preservative compound added to three parts by volume of MIL-L-6082C (Grade 1100) mineral aircraft engine oil. Follow carefully the manufacturer's instructions before use.
2. Operate the engine until normal temperatures are attained. If this is accomplished on the ground be sure cylinder head temperatures do not exceed 475° F. Do not stop engine until oil temperature has attained 180° F. (82°C.). If weather conditions are below freezing, oil temperature should be at least 160° F. (71°C.) before shut down.
3. As soon as possible after the engine is stopped, move the aircraft into the hangar or other shelter where the preservative process is to be performed.
4. Drain the preservative oil mixture from the engine lubricating system. This oil mixture may be saved and reused for future preservation runs.
5. Remove sufficient cowling to gain access to the spark plugs and remove both spark plugs from each cylinder.
6. Spray the interior of each cylinder with approximately two (2) ounces of corrosion

preservative oil mixture while cranking the engine about five (5) revolutions with the starter. The spray gun nozzle may be placed in either of the spark plug holes.

The corrosion preservative oil mixture to be used should conform to specification MIL-L-6529C, Type I heated to 200° F./220° F. (93 C./104° C.) spray nozzle temperature. It is not necessary to flush preservative oil mixture from the cylinder prior to flying the aircraft. The small quantity of oil mixture coating the cylinders will be expelled from the engine during the first few minutes of operation.

Spraying should be accomplished using an airless spray gun (Spraying Systems Co., "Gunjet" Model 24A-8395 or equivalent). In the event an airless spray gun is not available, a moisture trap in the air line of a conventional spray gun may be installed. Be certain oil mixture is hot at the nozzle before spraying cylinders.

7. With the crankshaft stationary, again spray each cylinder through the spark plug holes with approximately two (2) ounces of corrosion preservative oil mixture. Assemble spark plugs and do not turn crankshaft after cylinders have been sprayed.

NOTE

Oils of the type mentioned are to be used in Avco Lycoming aircraft engines for corrosion prevention only, and not for lubrication. See the latest edition of Avco Lycoming Service Instruction No. 1014 and Service Bulletin No. 318 for recommended lubricating oil.

8. If the aircraft is stored in a region of high humidity, or near a sea coast, it is better to use dehydrator plugs instead of merely replacing the spark plugs as directed in the preceding step. Cylinder dehydrator plugs, Avco Lycoming P/N 40238, or equivalent, may be used.

9. Preferably before the engine has cooled, install small bags of desiccant in exhaust and intake ports and seal with moisture impervious material and pressure sensitive tape. Any other opening from the engine to the atmosphere, such as the breather and any pad from which an accessory is removed, should likewise be sealed.

10. Firmly attach red cloth streamers to any desiccant bags installed in the intake and exhaust passages to insure material is removed when the engine is made ready for flight. Streamers should be visible from outside the aircraft. Propeller should be tagged, "Engine preserved - do not turn propeller".

11. A periodic check should be made of the cylinder dehydrator plugs; when the color of the desiccant has turned from blue to pink this preservation procedure must be repeated.

NOTE: Revision "A" removes Exxon "Rustban 631", adds MIL specifications, procedure for mixing preservative oil.