

Attachment 4 - Constant Speed Prop Break-in Checklist

Engine/Cylinder Break-In Checklist

(Reference: CAP Engine Break-In Instructions)

I have fully read and understand the provided CAP Engine/Cylinder break in instructions.

Name:	CAP ID:
Phone #:	Email:
Tail #:	Date:
Mission #:	Sortie #:

Tach	Hobbs
Stop	Stop
Start	Start
Total	Total

Pre Flight preparations:

DENSITY ALTITUDE (DA) PLANNING

Determine and record the expected settings you will be using at the expected cruise altitude you are planning. Write these figures here.

(Indicated Altitude (IA), Manifold Pressure (MP), Constant speed propellor (RPM)) Adjust as necessary once at altitude, consult POH for accuracy)

	Planned DA	Equivalent IA	Required MP	Required RPM
75% power				
65% power				

*Maximum 7000 DA is based on the engines ability to produce at minimum 75 % power. (prefer a lower DA if obstacle clearance assured). **N/A for turbocharged aircraft.**

Verify Airplane Belly clean (during pre-flight) (Picture might help – you will make assessment following flight for oil overboard determination)	
Cold Engine Oil level (record BEFORE adding oil)	
Oil added to achieve 8 qt. for 182T or T182T // 11 qt for T206H // 12 qt. Continental engine // 9 qt. GA8 (record only oil added (qt))	
Total oil in sump preflight (TOTAL cold oil level + oil add)	

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*Flight planning for DA at or below 7000 DA	
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Full Preflight Inspection COMPLETED	
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Taxi:

Limited ground time where possible	
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Normal runup / limit prop cycling to +/- 100 RPM	
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Oil Pressure during taxi	
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Oil Temperature before departure	
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TAKE OFF TIME (Z)

Z

Climb out:

Maintain shallow climb angle to cruise level where possible (300 ft/minute). Monitor CHT, Oil Pressure, Oil Temperature during climb, OPEN cowl flaps.

Verify

Cruise:

Level at or below 7000 Density Altitude

Verify

During the FIRST hour at Cruise (Hour ONE)

- **Maintain 75% power** at or below 7000 ft Density Altitude. (Prefer a lower DA if obstacle avoidance allows)
- **Monitor CHTs – maintain temperatures as low as possible.** OPEN COWL flaps and **maintain rich mixtures.**
- **Record data every 20 minutes.** (see below)
- **NEVER allow any of these procedures to jeopardize the safety and success of your flight. Please RTB or land as soon as practical if you notice any unusual issues.**
- **TOUCH and GOs PROHIBITED**

During the SECOND Hour at Cruise (Hour TWO) and subsequent (Hour THREE)

- **Alternate between 65% and 75% power** at or below 7000 ft Density Altitude. Alternate every 20 minutes starting at T + 80 mark. (Prefer lower DA if obstacle avoidance allows)

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*TIME Record	Indicated ALT	OAT	Oil Temp	Oil Press	CHT - Highest Temp & Cylinder #	EGT - Highest Temp & Cylinder #	FUEL FLOW - GPH
z <hr/> (T+0 min)							
Hour ONE at cruise altitude begins here – 75% power							
T + 0							
T + 20							
T + 40							
T + 60							
Hour TWO at cruise altitude begins here (alternate power)							
65% T + 80							
75% T + 100							
65% T + 120							
75% T + 140							
65% T + 160							
75% T + 180							

***TIME Record** = Record (Z) time **after the aircraft is at cruise altitude**, this is the begin time (T + 0) for all recording intervals.

Monitor all engine parameters. All areas should remain in the “GREEN” areas of performance.

Temperatures may be higher than you normally observe during the engine break in period but must remain in the GREEN. Return for landing is any area outside of GREEN.

If at any time you suspect something amiss return for landing.

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Descent:

AVOID large power reductions unless necessary. "Chopping" the power leads to extreme temperature changes.

Achieve a cruise descent – Start by reducing MP by 2 inches – allow CHT to stabilize (5 minutes)	
If additional descent is required – reduce another 2 inches and allow CHT to stabilize / repeat if necessary	
Use of flaps (high drag configuration) supports maintain higher RPM at reduced speed. (Technique)	
Close COWL Flaps to help maintain CHT in descent (try to maintain CHT between 300°F and 400°F)	
Avoid pattern work and Touch and GOs	

LANDING TIME (Z)

Z

Post Flight:

Secure Aircraft – normal shutdown and secure checklist.	
Aircraft Inspection – inspect for signs of oil? Consult picture from preflight. Inspect all openings, fasteners, and connections available Report findings to AMO.	
Cold engine oil level (1 hour post shutdown) CAUTION - HOT ENGINE! – wait at least 1 hour to determine post flight oil level - record that level here.	

IMPORTANT!! REPORT ALL RECORDINGS at THIS LINK:

<https://app.smartsheet.com/b/form/630e9e4368b34a84ab74cd0d131c7bda>

If the link is not working, please email a copy of this completed sheet to: LGPSD@capnhq.gov