

WARBIRD NOTES # 11 23 Aug 95 (14)
FULL RATED POWER FOR TAKEOFF

This is another subject that is almost certain to create a fair amount of controversy among the operators of old "piston pounders". The most often heard explanation is, "Old Joe told me to always baby my engine!" Good idea! But sometimes with unintended results, sometimes financial, sometimes tragic and sometimes both. Or else, commonly heard, "This 100LL is lower in octane than 100/130 so I need to reduce the power because of it!" Again, just another example of an Old Wives' Tale (OWT) leading to misguided thinking – and (likely) unintended results.

One particular operator, the CAF, began the requirement for the use of full power for takeoff many years ago. This is in the form of a flight regulation but, even after being in effect for all those years, it seems to be either forgotten in many cases – or worse – disregarded! This regulation was adopted many years ago specifically due to an takeoff accident involving an engine that knowledgeable observers knew was malfunctioning. However, it wasn't detected during the takeoff roll by the pilot (unintentionally, I'm sure) since it succeeded in masking its troubles – until very shortly after liftoff!

If one has occasion to visit a carburetor overhaul shop to talk to the person responsible for accomplishing this work, it'd probably be enlightening in obtaining a "feel" or understanding of the gasoline flow rates. And remember, the flow rate is NOT dependent upon throttle position (as some have erroneously stated), it is simply dependent upon the mass airflow through the carburetor.

Also, a perusal of the Pratt & Whitney / Curtiss-Wright / Bendix-Stromberg / military / airline handbooks of that era dealing with this exact problem may prove to be truly instructive! In addition, P&W published a letter to all operators [stating] very specifically that – while they realized that in the past some operators may have misconstrued P&W's policy – they specifically wanted it known that they DID NOT support or condone in any way the use of reduced takeoff power. They then went on to list several reasons where they saw very definite problems if a reduced power was used on takeoff in a misguided/misinformed attempt to "baby the engine."

OWTs are always a reinventing of the wheel, a new idea that no one else could possibly ever have thought of before or investigated before! Everyone in this biz wants to save a buck and operate these airplanes as cheaply as possible! "Save our engines!" Not new, but a thousand OWTs are enabled by it.

Reminds me of what Ray Stits told me a long time ago, "Randy, I'd ten times rather have a preacher or a librarian re-cover an airplane with my stuff, he'll follow the book!" "But if a Grade A mechanic does it, he'll always "know better" somewhere and then blame me when it doesn't work out right!"

Experienced operators might say – "xxxxxxx"! Unh-huh, they make any other changes at the same time – like pre-oiling? <grin> Does anyone here know what the performance is with an arbitrarily reduced power setting? What is the certification basis for using it? What altitude would you be at with normal power if an engine fails and you've been using reduced power? Who's gonna have to explain it to the FAA when an accident happens?

Once this mentality or idea is induced, then it is only natural for many to assume that "the engine will blow up if I go to full power!" Or to believe that the engine will disintegrate if the 1 minute takeoff power limit is exceeded by even one second!

I think that the factory, the overhauler, the engineer, etc., are far smarter than Lt. Sohn is in this matter! I'll bow to their combined knowledge.