



CHECK YOUR Lycoming GO-480 GEARBOX

Long-time Seabee Club member Bruce Hinds sent the following article to me. The information is from a Twin Bonanza Club newsletter but should be of interest to you if you have any Lycoming GO-480 series engine.

Lycoming engine gearbox backlash and internal oil leakage

Care and operation of a geared engine is always a consideration of any Twin Bonanza operator. They are trouble-free and will run a full TBO cycle of 1400 hours when operated properly. The following information was gleaned from Dave McKee of San Diego, who has over 30 years experience with the overhaul of the geared-engines series we use. He states, "A field check of backlash (amount of play in the gear train) on the GO, GSO, and IGSO series Lycoming's can be done by moving the propeller gently back and forth in the plane of rotation, without turning the engine. This must be done with very light feel so that play in the engine area is not mistaken for backlash. More than ½ inch of play at the 30-inch propeller station demonstrates excessive wear and the gearbox should be overhauled.

(ED note: The gearbox can be removed from your Seabee very easily. No need to remove the engine. The propeller must be removed as well as anything attached to the gearbox case. Remove the six or eight nuts that hold it on the engine and it should come right off. It is rather heavy so get a friend to help hold it.)

It should be noted that the Lycoming engine overhaul manual calls out ½-inch at a 48-inch radius. This is a tighter spec than used by McKee. Logic dictates that Lycoming's limit is established for the time at which the engine was overhauled and clearances would continue to increase as flying time is placed upon the engine.

McKee also states, "One of the quickest ways to develop excessive backlash is to idle the engine for prolonged periods of time. They aren't designed to idle for long. The gear reduction results in an excessively low RPM at the propeller, and there's not enough inertia to keep the propeller moving smoothly at low speeds. AS a result, it bounces back and forth as it spins around – beating the gears and shaft. Idling speed should only be used to slow the aircraft enough to get it on the ground, and then brought up to (engine) speed for taxi. Wearing out a few sets of (brake) linings as a result of higher engine RPM is a cheaper alternative to frequent gearbox overhaul."



Another technique which will tell if there is the possibility of excessive wear on the propeller shaft ring seals is easily accomplished. These excessive wear symptoms are as follows:

1. Propeller blades feather on roll-out after landing (not applicable to Seabees I don't think)
2. Propeller goes into high pitch during a low power approach.
3. Rated RPM cannot be attained on takeoff. There is a "leak-down" check which is easily accomplished following the guidelines set up in AVCO Lycoming Service Bulletin Number 290.

(Ed Note: As of this writing Lycoming Service Bulletin 290 is deactivated.)

As a side note the article lists a few good maintenance places for engines and accessories. Accuracy is not guaranteed.

Engine overhauls: Aviation Engines Co., Centreville, Alabama (205) 926-5186
Custom Airmotive, Tulsa, Oklahoma (918) 836-6836*

Engine accessories: Accessories Inc., Wichita, Kansas (800) 827-0701
Mikes Aircraft Fuel Metering, Tulsa, Oklahoma (918) 838-6217**
Aero Accessories, Inc., San Antonio, Texas (800) 728-7852

* - As of this writing, June 2021, Custom Airmotive was out of business.

** - Mikes Fuel Metering does fuel injection and PS5-BD carburetors (flow bench)