



Intermittent usage and Twin Disc Transmission Oil Sample

The other day I was surprised by the results of an oil sample test. We had routinely done tests on a “gear” which had been with us for many seasons. These transmissions had very little hours on them as she was used sparingly. The transmissions never displayed any signs of trouble, but the oil sample showed high levels of copper, iron and lead. I reviewed the manual carefully and placed a call to Twin Disc in Racine, WI. They were most helpful.

At first I suspected the oil coolers were giving off copper and lead from the tubing and solder used in their fabrication. I spoke with one of their terrific technicians, Larry, describing the high levels, expressing my wonder that some wearing of internal parts might be occurring with so little use. We discussed things in detail and he told me the transmissions were most likely perfectly good. The single oil sample was not necessarily cause for alarm, as the model #506 clutch plates are not the regular organic type, but made of “sintered” bronze which contain iron. These plates don’t have quite as much grip as the organic plates,

but they withstand heat better and last longer. They obviously also won't compare with regular plate sample levels, being bronze. He further informed me that in order for an oil sample to be an accurate measure of condition there must be established a regular interval of tests under the same service conditions to create a pattern. In other words if one sample is taken at 50 hrs, then the second sample should be done at 100 hours, then 150 hours, etc. This establishes a pattern that will show the rate change in the element levels.

So in the case of this boat we not only need to look at the oil coolers, we also need to use this present oil sample as the starting point and after regular use of 50 hrs, take a second sample to begin our pattern.

Another thing he enlightened me about was that not only do different transmission makes and models give different readings, but the service and usage factors also affect readings. A transmission that is used to start and stop for short time/distance runs, versus long time/distance runs will give completely different readings.

Also, Twin Disc requires an oil change every 1000 and suggest changing oil every six months for normal usage and for a transmission which has low hour usage, it would still be good practice to change the fluid every other year.

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