

DUNCAN INTELLIGENCE

CF34 OIL CONSUMPTION

• *Bill Walker*

In previous Duncan Intelligence articles, we have discussed some of the more common oil leaks on the CF34 engine. There are still questions and concerns when the oil leaks are from the fan area. Aside from smelling oil in the cabin, oil consumption would be the prime concern.

It is the assumption that if any oil is seen near or around the inner fan support it requires immediate attention. This is not so. If a log that charts the amount of oil being added to your engines is not kept, brief mechanics and flight crews to begin doing this. This will help track the actual amount of oil being consumed.

Here are some initial questions to ask: Is oil making its way to the Coalescer Sock? Is the oil smell making it to the cabin? Has the system been isolated to verify which engine the smell is coming from or if it's actually the APU?

The Service Manual allows for a leakage rate of up to two quarts of oil overall per a 10-hour period, which is a huge amount of oil compared to the average leak rate of one quart per 15–20 hours. If you are smelling oil in the cabin, visually inspect the outside of the compressor cases for oil on the variable geometry spindles. With a borescope, look for oil at the inlet guide vanes and / or the first stage compressor blades at 6 o'clock. This will be more noticeable if the aircraft has been sitting for a couple of days. Oil in these locations indicate a #3 bearing carbon seal is leaking. This is an on-wing repair and should be performed at the earliest time. This condition will only get worse and the mess will get bigger.

If, however, you don't have an oil smell in the cabin and the oil is not inside the compressor, the tendency is to change the #1 carbon seal. Again, revert back to your consumption rate. It is normal for the #1 carbon seal to leak on some engines and not on others. Replacing this seal may stop or slow the leak rate or it could make it worse. In many cases, leakage from the #1 carbon seal is a static leak and not an operational one. Oil trapped in the #1 carbon seal housing at shutdown will run down to the bottom of the housing and leak by the carbon segments. These segments are only pressurized when the engine is running. When the engine is started, the fan will sling this oil outward and for the most part out of the bypass. So it is common to see oil on and behind the #1 bearing support plate as well as on the core cowlings.

Monitor your oil consumption, visually determine where the oil is coming from, notice smells and operationally, isolate the engine. A change in oil consumption shouldn't be sudden. Establish a good practice of charting your oil usage. To discuss this topic or other CF34 engine issues, don't hesitate to contact your CF34 Engine Tech Rep, Bill Walker at (800) 228.4277, ext 4269 or via email at: Bill.Walker@DuncanAviation.com.

