

DUNCAN INTELLIGENCE

Know Your Engines

• *By Dan Arrick*

When discussing an overhaul or hot section event with customers, the question that always comes up is “How much will it cost?” The first step towards answering that question is determining the condition of the engine at the time of the overhaul or hot section inspection. By knowing the history of your engines an accurate estimate for your event can be produced.

Accurate times and cycles on the engines and cycle/time limited components are essential to the accuracy of the estimates. If this information is accurate, careful logbook research will tell you if any major components will need to be replaced. There may have been a previous entry into the engine that may have replaced one or more of these components. A bird strike or any number of things may cause an early entry into the engine. If a cycle limited component such as an Impeller or a High Pressure Turbine Disk requires replacement, it could impact the cost to overhaul an engine by \$100,000 or more.

Other expensive items to consider when overhauling or completing a hot section inspection on your JT15D are the High Pressure Turbine Blades. Depending on the part number of the blades, they are non-life limited, life limited or may require replacement due to a service bulletin. Be sure to understand that a set of non-life limited HT Blades may have been previously ground, damaged or worn and might not pass dimensional checks during an overhaul or hot section inspection. A set of HT Blades can impact a hot section inspection or overhaul by \$65,000 or more depending on the model of your engine.

Service bulletins are another major factor when estimating overhauls and hot sections. Some service bulletins are very expensive and may have been waived by a previous owner. Some may be required to be completed during the next event if they

haven't already been complied with.

Remember, you can avoid surprises by understanding that each engine is an individual and may be different than the one on the other side of the airplane. Careful research and an accurate estimate for each engine is necessary.

If you would like any information or need help estimating your next event, please feel free to call me at 800.525.2373 ext. 8453.

Fan Rotation

• *By Ken Kuchenreuther*

Spinning the fan before starting an engine is important, especially in the winter months when snow or rain can enter the inlet during a wait time. A precipitation puddle in the low pressure compressor case will very likely freeze and lock the fan. The best practice is to look in engine inlets and exhausts and spin fans just prior to entering the aircraft for a flight.

Trivia Question

• *By Dan Arrick*

The previous question was: What changes will you see in ITT, N2 and Fuel Flow indications if high turbine tip clearances are excessive?

The answer: A decrease in N2 and an increase in ITT & Fuel Flow are indications of excessive high turbine tip clearance.

This edition's question is: What is the maximum allowable time to operate a JT15D-5A that has fan blade damage, within fly back limits, prior to completing repairs?

The first 10 people who respond with the correct answer will receive a small prize. Please respond to Dan Arrick by phone at 800.525.2376 or e-mail at Dan.Arrick@DuncanAviation.com.

