

DUNCAN INTELLIGENCE

Edited by Jon Dodson & Lanny Renshaw • Winter 2004

Removal Authorization For Margin Restoration

By Mike Healzer

This article is a condensed version of a letter and detailed procedure available at Honeywell's website www.e-engines.honeywell.com. Once at this site, select Communications, then TFE731 Communications and several documents will appear. The title of this document is Performance Removal Policy (Operators).

There have been occasions in which TFE731 engines have been removed from aircraft due to low performance indications without proper troubleshooting procedures being conducted. Without conducting proper troubleshooting steps, the margin restoration process can become more difficult, and in some cases, engines may be removed needlessly due to non-engine-related issues. This letter is intended to clarify and document the appropriate procedures to be followed by operators and Service Centers when there is an engine ITT or N2 low performance problem reported.

Low Performance Troubleshooting Process

1. Interview operator to determine where and what performance limitations exist; be specific. Identify which parameter, N2, ITT or both and under which operating condition the limiting occurs, i.e. ITT on takeoff on hot day conditions.
2. Contact Jet-Care to determine if this is a recent adverse trend.
3. Troubleshoot aircraft systems (See attached sheet - Appendix A in the e-engine website)
4. If Aircraft systems check out okay, proceed with Engine troubleshooting process
5. Obtain engine troubleshooting guidelines (from e-engine website: e-engine.honeywell.com - SPOTLIGHT)
6. Complete in-flight data sheet with anti-ice off (See attached sheet - Appendix C in the e-engine website)
7. Conduct 5 point run with bleeds off (un-blocked)
8. Conduct 5 point run with bleeds blocked at engine
9. Obtain and evaluate any 5 point data from previous events
10. Obtain and evaluate last test cell data
11. Contact Honeywell Customer Support or your local FSE to discuss the issues "PRIOR TO" removing the engine in question
12. Document all actions taken to resolve problem

Failure to adhere to the approved troubleshooting procedures described in this letter may result in a rejection of warranty claims filed for the associated event.

The TFE731 experts at Duncan Aviation can assist you through this process. For help at any time, please contact our TFE731 technical representatives 800.228.4277 in Lincoln or 800.525.2376 in Battle Creek.

Service Bulletin TFE731-72-5168

By Mike Healzer

Honeywell has released a service bulletin (SB) applicable to TFE731-60-1C engines installed on Falcon 900EX aircraft.

This SB was created due to cracking/separation of the bleed/service strut boss from the fan bypass duct shell at the 3 and/or 9 o'clock positions. Movement of the bleed/service strut boss relative to the fan bypass duct shell can allow disengagement or damage of the oil transfer tube o-rings, with subsequent loss of engine oil.

The SB provides instructions to inspect the adhesive fillet interface at these strut bosses. The inspection is required at the next opportunity, not to exceed the next 150 hour routine periodic inspection.

The SB requires completion of an 'engineering feedback worksheet,' which is to be faxed to Honeywell within 24 hours of the inspection. Results of the inspection vary from replacement of the fan bypass duct prior to next flight to a reinspection of the area at intervals specified by the SB. Fan bypass duct replacement requires removal of the engine.

If the engine is still under warranty, and the fan duct requires replacement, Honeywell covers the price of the part and labor to replace it. New engine warranty for the dash 60 engines is seventy-eight (78) months from the date of shipment by Honeywell or sixty (60) months from the date aircraft is put into commercial use or three thousand (3,000) engine operating hours after initial operation, whichever occurs first.

A Honeywell Special Program is available for engines out of warranty.

For TFE731 technical info, we have the experts with whom you should speak.

Our 731 Engine Teams consist of technicians with hundreds of combined years of experience.

Need technical advice? Call Duncan's 731 Tech Rep, Lanny Renshaw, at 402.479.4246

*In Lincoln, NE, contact **Jon Dodson**
at 402.475.2611 or 1.800.228.4277*

*In Battle Creek, MI, contact **Dan Arrick** at
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Special Informational Newsletter • January 2004

Oil Pressure Spikes During Cold Weather Operation With 3060785-1/2 Oil Pump

By: John Pursell (Honeywell)

Duncan Aviation editor's

note: The following information, provided directly from Honeywell, provides excellent, timely information for our TFE731 operators.

With the introduction of the 3060785-1/2 oil pump, reports of high oil pressure spikes during engine start and occasionally initial high power settings have been reported. Such occurrences are typically associated with low outside air temperatures which influence the engine oil temperatures. In some instances, the reported oil pressure spikes exceeded the applicable flight manual recommendations.

The 3060785 pump was introduced primarily to improve transfer gearbox scavenge thus improving the carbon seal buffering pressure during engine start. Also during the redesign, the lube discharge passages were enlarged to

improve cavitation erosion resistance and overall lube capacity. As a result of this passage enlargement, there is an internal pressure drop within the pump. With this internal pressure drop, the transient pressure rise of the regulated pressure is faster.

The oil pressure regulator contains an orifice which is intended to dampen the response of the pressure regulator in hot oil conditions. The orifice was added to eliminate pressure oscillations initially experienced with the 3060785 pump.

This same orifice with cold oil temperatures (high viscosity) is slow to respond to the 3060785 oil pump increased capacity can result in pressure spikes during low outside air temperatures and cold oil situations.

The cold oil pressure spikes observed have been as high as

110 PSI with ambient temperatures near 0 degrees F. The oil pressure regulator features a cold start relief valve that bypasses oil at 200 PSI. This valve is sized to be well within the proof pressure of the lube system. Therefore, the start pressure does not represent a condition which could harm the engine or related oil systems.

Furthermore, the oil pressure transducer which communicates with the cockpit indication system is routinely designed for 4X of full-scale proof pressures (above which the transducer requires calibration.)

Honeywell Engine manuals will be revised to note that higher than maximum oil pressures may be observed during start and initial engine operation with cold oil conditions, when equipped with the 3060785-1/2 oil pump.

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