

# DUNCAN INTELLIGENCE

Dedicated to "Perfecting the Craft" • Edited by Jon Dodson • Fall '99

## Jet Care And Soap Program, The Value Of Engine Monitoring

Turbine engines can provide a history of operating conditions that is useful when identifying developing problems. In some cases it will indicate distress in advance of a malfunction. This characteristic can be exploited through the use of two programs offered by AlliedSignal.

One established inspection aid for monitoring TFE731 engines is the Spectrometric Oil Analysis Program (SOAP). Analysis of metal particles found in the oil and oil filter at routine inspection intervals can provide evidence of unusual wear. It is an important element in overall engine condition monitoring.

In April 1993, AlliedSignal announced the introduction of the TFE731 Jet-Care Engine Condition Trend Monitoring Program. The service provided by Jet-Care can be a key step in providing control over engine cost-of-ownership. For many years, airlines have enjoyed the benefits of engine condition trend monitoring in controlling engine cost and improving aircraft dispatch reliability. Industry experience has shown that recording and monitoring in-flight engine performance may provide early signs of problems that, if left uncorrected, could lead to unscheduled maintenance, costly repairs or canceled flights. The basis for engine condition trend monitoring is the understanding that component wear in certain areas of a TFE731 engine may cause performance shifts. Jet-Care has the ability of detecting gradual engine performance deterioration during cold weather operations that may cause an engine to be ITT limited as ambient temperatures increase.

The Jet-Care system utilizes cockpit data recorded by flight crew members while in stabilized cruise conditions, with anti-ice off. Typically, after recording data for three flights, the information is faxed to Jet-Care. It is important for users to understand that the effectiveness of the program, as it applies to their engines, is dependent upon the amount of data submitted and analyzed. Therefore, flight data should be recorded as often as reasonable to do so.

Data received by Jet-Care is entered into a computer and corrected to standard day, sea level conditions. This information is then plotted on a continuous scale for each engine parameter. If a trend indicates a performance shift beyond established limits, AlliedSignal Engines Customer Support is immediately notified. The operator is contacted by a customer support program manager to discuss the performance shift and determine if maintenance action is necessary.

We would like to emphasize that Jet-Care should not be considered an optional program. TFE731 operators are encouraged to participate for the reasons described above, and because AlliedSignal offers special economic programs designed to support engines that experience unscheduled maintenance events. These programs are available only to operators who actively participate in Jet-Care Trend Monitoring, maintain their engines to the current recommended service bulletin status for their particular model engine and within AlliedSignal's authorized service center network. In order for AlliedSignal to continue to offer such programs, it is essential to be able to identify and correct performance shifts as soon as a situation is identified, to minimize the potential cost to AlliedSignal/MSP and to operators.

For more information regarding Jet-Care, please contact Jon Dodson in LNK at 800.228.4277, E-mail Jon at [jon\\_dodson@duncanaviation.com](mailto:jon_dodson@duncanaviation.com) or contact Dan Arrick in BTL at 800.525.2376, E-mail Dan at [dan\\_arrick@duncanaviation.com](mailto:dan_arrick@duncanaviation.com)

*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, Doug Alleman, at 402.479.1689*

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

*In Battle Creek, MI, contact **Dan Arrick** at  
**616.969.8400** or **1.800.525.2376***

**Stop by and see us at booth # 5064 during the NBAA in Atlanta.**

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