Aircraft Engine Monitoring: How It Works

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When the passengers are informed that an aircraft cannot take off due to technical reasons, it usually means that the airline not only has to have the aircraft towed away for expensive emergency repairs, it has to make alternate arrangements to fly the passengers maybe even provide accommodation and food while the passengers are waiting. All put together, it can be one big frightful bill and just a few of these in a year would be enough to dent the airline's profitability.

The above is of course, is the better scenario when compared to an aircraft that develops a technical fault during flight. That one can be really scary. Modern well run airlines will go to great lengths to ensure such incidents are minimized if not totally eliminated and they do this through aircraft engine monitoring which happens right from the moment the engines are switched on.

Aircraft engine monitoring – how it works
Every modern aircraft has these little devices called “sensors” strategically placed at various locations inside (and a few outside) the aircraft body. These sensors are linked to monitoring / display units in the cockpit. So for example, if one of the engines is heating up, the display will not only indicate the rising temperature but will also engage an audio-visual alarm that will instantly grab the pilots attention.

The airlines and their maintenance team of course aim for the Fuel Gauges to never reach the stage wherein an audio-visual alarm gets triggered – especially during flight. They do this by remote monitoring. Modern wide-bodied aircraft not only display engine and aircraft data in the cockpit, the same data is also transmitted to ground based servers where it is analyzed by service engineers. More often than not, an alert service engineer can detect the beginnings of a technical

snag or problem long before it actually manifests itself as a audio-visual warning. The service engineer can instantly contact the pilots and inform them on the course of action that can be taken to stop the problem from getting bigger and becoming life-threatening. Of course, the transmission of aircraft engine monitoring data to the ground based server is not continuous but automatically occurs in bursts every few hours. Additionally, the pilots too can press a button and transmit the data to the ground crew so they have more up-to-date information especially if the pilots think there is some technical snag developing.

Smaller aircraft do not have remote monitoring feature but with Airplane Gauges alone, an alert (and knowledgeable) pilot can detect the beginnings of a technical snag. The difference here is that the ground maintenance crew also have assistance from sophisticated software whereas in the case of smaller aircraft, the pilots have to do all the grunt work. This is not as tough as it sounds because smaller planes are actually less complex when compared to larger ones. Also, the smaller planes have either one or usually, just two engines.

So next time you fly, remember that the aircraft engine is being constantly monitored and thanks to aircraft engine monitoring, flying is one of the safest modes of transport.

Portrait

J.P.Instruments was founded in 1986 in Huntington Beach, California, USA. J.P. Instruments is leader in aircraft engine data management systems and has added a whole line of reliable and cost effective aircraft instrumentation to its name.

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