

U-2 By The Numbers

Code One

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Q & A With Lloyd Mulligan

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U-2 Program



U-2 Stats are used at two levels. First to gauge activity across the program. Second to focus on areas requiring continuous improvements in affordability, availability, and reliability. Photo by Denny Lombard

How long have you been with the company and with the program?

I have been a Lockheed Martin employee for thirty-one years and have been working on the U-2 program for thirteen years.

What are your current responsibilities on the U-2 program?

I collect, analyze, and monitor aircraft, maintenance, and supply metrics as the RM&S Lead for the U-2 program to identify performance trends. From performance trends, I do further research to identify what's causing both positive and negative trends so we can take steps across the program to stop negative trends before they become problems. Another large area of responsibility involves history and data mining. When we get ready to develop a modification to the aircraft or its sensors, or add a new capability, I collect performance data from various US Government sources to help identify potential hot spots or cost drivers. That way we make sure we develop solutions that provide the right balance between cost and capability.

As the Department of Defense continues to address budget challenges, we continue to take positive steps to reduce U-2 cost of ownership. I am the lead for two cost reduction efforts. One, called the Top Degraders project, is an effort to eliminate the top maintenance issues

that lower aircraft availability by making intelligent design or process changes. The second, called the Aborts Drivers project, is focused on identifying and eliminating the causes for mission aborts. In addition, I analyze data and make recommendations for a host of other cost reduction efforts. Finally I prepare and present a monthly aircraft sustainment review briefing for both company and Government senior leadership.

What were your previous positions at Lockheed Martin?

I began my aerospace career in 1981 as a sheet metal mechanic and final assembly mechanic at Gates Learjet. I started my career at Lockheed Martin in 1983 as a logistics engineer on the US Army Aquila RPV program. In 1984 I was assigned for six months to the Precision Location Strike System with the TR-1s or U-2s at Beale AFB. New TR-1s were still rolling off the assembly line while I was there. After two years supporting the Aquila, I accepted a position as flight test pilot/test operator flying the Aquila manned aircraft test beds. In 1989 I transferred to Lockheed Aircraft Services in Ontario, California, to take an RM&S engineer position on special mission C-130 program. I was assigned to RM&S duties on the AC-130 Gunship program and on the Big Safari program. In 1997, the C-130 programs transferred from Ontario to Palmdale. As Big Safari work drew down in Palmdale in 2001, I transferred to the U-2 program. I transferred to the F117A program in 2003 until its retirement. I then returned to the U-2 program.

How does keeping track of U-2 stats fit into your current responsibilities?

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What statistics do you track?

- Flight Hours per month (by location and tail number)
- Sortie count per month (by type, location, and tail number)
- Aircraft Availability
- Mission Capability
- Maintenance Rates
- Supply Rates
- Break Rates (or Code 3 Landing Rates)
- Abort Rates
- Mission Reliability
- Utilization

How are metrics reported/gathered and how often?

Metrics are accessed through the Air Force portal and retrieved from various Air Force databases. We also use internal data sources. Information gathered from these databases is used to update a monthly top degraders list and an aircraft sustainment monthly report.

How are they used within the company and US Air Force?

The metrics and stats are used in several ways. First, they are used to assess performance to Air Force standards for Mission Capable, Not Mission Capable – Maintenance, and Not Mission

Capable – Supply. When performance doesn't meet the standard, we attempt to identify and correct the cause. Second, the metrics are used to identify trends so we can take steps to mitigate undesirable trends before they become much more expensive events. Third, we use these metrics as part of the Sustainment Review Briefing to senior leadership. Keeping both company and Government leadership aware of tempo, trends, and other relevant performance data helps create support for improvements.

The Top Degraded Report is also generated from performance metrics. The report is reviewed monthly by U-2 engineering with an emphasis on implementing and tracking effectiveness of any fix that leads to the removal of that item from the list. New degraded items are added as required and ranked based on impact to mission capability and mission reliability rates.

Which statistics get the most attention within the U-2 community?

Cost per flying hour, depot rates, and sensor performance.

What are some of the more impressive statistics for the U-2?

The fleet is young, just now approaching 500,000 total flight hours. The calendar age of the fleet is thirty-one years. The payload capability and time to altitude is very impressive. The U-2 set a weight-to-altitude record in 1998. Operational tempo has continually increased over the past seven years. The U-2 has the highest mission reliability and the lowest abort rate of all deployed Air Force reconnaissance mission aircraft – both manned and unmanned – for the last five years.

What are some of the more obscure U-2 statistics?

The last U-2 was delivered in 1989. The most obscure fact is that the aircraft has been carrier qualified.

How long have these statistics been collected?

Most statistics have been collected for the past twenty years. Other statistics have been collected for more than fifty-five years.

Are the statistics collected for all USAF aircraft types?

Yes, maintenance and supply performance metrics, sortie counts, and flight hours are recorded for all USAF weapon systems.

If you had to make a top five list of interesting stats for the U-2, what would be on it?

- 1) The U-2 fleet reported its best combined ranking of the top priority US Air Force metrics during FY13 for possessed aircraft since modern tracking began (last twenty years).
- 2) Seventy-five percent of all U-2 flight hours are expended in direct support of overseas military and NATO operations.
- 3) The U-2 airframe is one of the youngest in the inventory (average years vs inventory average years)
- 4) Joan London, James May, Gary Sinese, and Joe Montana have all flown above 70,000 feet on VIP flights in a TU-2S.

5) Two of the five existing TU-2S two-seat trainer aircraft were converted from single-seat mission aircraft.

What makes your job interesting? What do you like most about it?

Every project I am working on is different from the next. I also have a lot of variation in the work I do — from going onsite, to undertaking calculations, to reviewing data and requirements. I get to work with inspirational, smart, and experienced people in most all of the disciplines within the program.