TECHNOLOGY GUY NORRIS / LOS ANGELES

L-3 fits SOFIA to modified 747SP

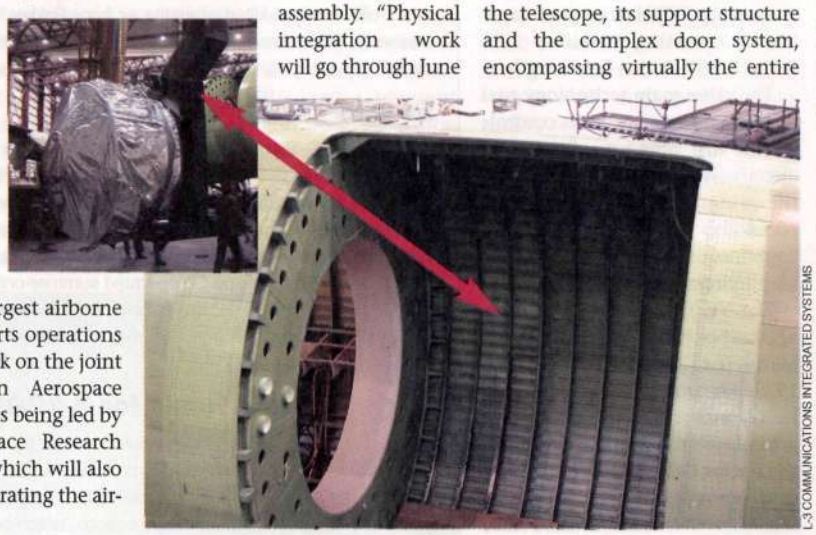
Aircraft carrying world's largest airborne telescope, suspended on 11t mounting, looks set to make first flight in 2004

L-3 Communications Integrated Systems has successfully installed the massive suspension assembly for the Stratospheric Observatory for Infrared Astronomy (SOFIA) telescope in a heavily modified Boeing 747SP at its Waco, Texas site.

Installation of the structure, weighing around 11,350kg (25,000lb), marks a major milestone towards completion of the SOFIA, which will be the world's largest airborne telescope when it starts operations in late 2004. L-3's work on the joint NASA and German Aerospace Centre (DLR) project is being led by the Universities Space Research Association (USRA), which will also be responsible for operating the aircraft for NASA.

Over the next four months L-3 plans to install the primary mirror assembly, weighing around 2,050kg, and the metering structure, weighing a further 900kg, which holds the secondary mirror assembly. "Physical integration work will go through June 2003, and we should be performing functional testing of the telescope in September," says L-3 SOFIA chief engineer John Fitch.

To reinforce the 747SP to take the telescope, its support structure and the complex door system, encompassing virtually the entire section 46, was rebuilt over a 14-month period, adds Fitch.



L-3 COMMUNICATIONS INTEGRATED SYSTEMS

The 11,350kg suspension assembly being installed in the modified 747SP

Following a four-month ground test phase, SOFIA is set to make its maiden flight in January 2004. Flight tests will last until mid-2004 when the aircraft is due to transfer to NASA Ames where it will be based for observing missions starting from September 2004.

Full scientific operations will not begin until the end of 2004, around three years later than originally planned when the SOFIA project was launched in the 1990s. The delay is attributed to slippages in the telescope timetable at MAN Technologies in Germany, and to deliberate programme slowdowns on both sides of the Atlantic.

When complete, SOFIA will conduct observations from altitudes of a minimum of 41,000ft (12,500m) and above 99% of the infrared-obscuring water vapour in the Earth's atmosphere.

AIR TRANSPORT

P&W readies surge kits

Pratt & Whitney is working to clear PW4000 surge prevention modification kits on Airbus A300/A310 and Boeing MD-11 and 767 aircraft following certification of the improvement for the 747.

US Federal Aviation Administration certification of the kit was achieved on the PW4056, 4060 and 4062 versions of the 2.38m (94in) fan diameter engine after more than 200 flight test hours on a company 747SP testbed, and over 2,500 cycles at maximum operating conditions. Clearance for the PW4052/56 and other versions powering the 767 will be certified by extension.

The modification is based on the "ring case" compressor design developed for the larger PW4084 powering the Boeing 777. It combats a take-off surge problem that has dogged the engine family for several years.

DEFENCE PAUL LEWIS / WASHINGTON DC

DoD cuts X-45B and revises UCAV roadmap in search of more range

The US Department of Defense is once again redrawing its development roadmap for unmanned combat air vehicles (UCAV) with a planned cancellation of the Boeing X-45B demonstrator programme in favour of a longer-range system capable of meeting the needs of the US Air Force and US Navy.

The move, while giving a boost to Boeing's redesigned X-45C, opens the door to fresh competition from Northrop Grumman and possibly Lockheed Martin.

Boeing has received the greenlight to begin designing the X-45C, which retains the X-45 fuselage, married to a bat-shape wing offering twice the range of the now stillborn X-45B. The joint Defense Advanced Research Projects Agency (DARPA)/USAF demonstration of the two smaller X-45As will continue, but the $460 million awarded to Boeing in 2002 to develop the X-45B as an initial operational system by 2008 will be diverted to the X-45C. Boeing has also briefed the navy on the X-45C.

The USN, like the USAF, has the need for extended endurance, but as vehicle size increases, there is the danger of outgrowing the available space on the navy's carriers.

"When you look at UCAV, the largest part of the system is the central nervous system and that certainly is going to be common. The challenge is: how much additional commonality can we get? Until the navy defines its requirements, I can't tell you what the vehicle will look like," said George Muellner, Boeing senior vice-president air force systems in an interview earlier this month.

The USN is keen to preserve competition for Phase IIB of the UCAV-N programme, a carrier compatibility demonstration. The navy plans to fund both the Boeing X-46 and Northrop Grumman X-47B. "The navy does not want to go the path of the USAF and commit too soon. With neither the X-45A or X-45B cutting it, the USAF wants more competition and the joint programme office is a way of revisiting this," says an industry official.

Whether Northrop Grumman plans to evolve the yet-unseen X-47B into a more robust joint design or pursue a different approach to challenge the X-45C is unclear. Another potential contender is Lockheed Martin, which has been shut out of both DARPA programmes and is looking for a way in. Northrop Grumman was meanwhile expected to fly its privately-funded X-47A Pegasus UCAV demonstrator over the weekend.