How the SOFIA C-Check is proceeding

There is a very special guest in Hangar 7 in Hamburg right now: SOFIA, the airborne observatory

The colleagues from VIP & Special Mission Aircraft Services in Hamburg are used to special guests; they take care of the technical requirements for VIP and government aircraft from all over the world. But SOFIA (Stratosphere Observatory for Infrared Astronomy) is unusual even for them — and the work on the Boeing 747SP, specially modified for the task it fulfils, is a welcome challenge.

Major work package

Three years after the major overhaul (D-Check), also carried out by Lufthansa Technik in Hamburg, the so-called C-Check consists mostly of many inspections and repairs on the structure of the aircraft. The mechanics also change the engines and remove various components (circulating parts) for servicing. At the same time, NASA technicians themselves are conducting tests on the communications and radio systems.

Complex structural work

The C-Check on the SOFIA cannot be compared to regular checks. It is not just technologically unique; the 40-year-old aircraft, with some 80,000 flying hours on the clock, presents very different challenges. A regular C-Check, depending on the aircraft model, requires a maximum of 4,500 working hours over up to ten days; for the SOFIA overhaul, more than 13,000 working hours have been estimated. The technical work should be completed before Christmas; based on the current status, the plane will depart Hamburg again at the start of January. Up to 60 personnel from all trades are working on SOFIA every day — in some cases, working three shifts around the clock. The number of customer representatives in attendance is unusual, too. In total, there are more than 50 representatives here. A small container village was established especially for them in Hangar 7.

Intensive preparation

NASA and Lufthansa Technik were already working shoulder-to-shoulder in the preparation. NASA defined the work packages for the major SOFIA check. Lufthansa Technik’s planners spent months working on the agreed plans and the job cards to prepare for the layover. The most demanding task will be the repair of a pressure bulkhead in the middle of the fuselage, located in a landing gear bay. This repair has
only ever been carried out once on this rare aircraft model, and the special equipment installed in this airborne observatory make it particularly complicated.

**Surprises cannot be ruled out**

The team is highly motivated — and thrilled to be part of this extraordinary project, even if that does mean that there are sure to be some surprises. Project Lead Sven Hatje still recalls an incident from the layover three years ago: “The heavy tungsten plates installed as floor panels in the front part of the aircraft to balance the weight of the telescope surprised the team back then — and left them sweating. They had to get reinforcements. Luckily, we don’t have to remove them this time round.”