A350 XWB: A NEW ASSEMBLY PROCESS FOR A BRAND NEW AIRCRAFT

The A350 XWB Final Assembly Line (FAL) has been set up close to the A330 final assembly line in Toulouse, in order to optimise the industrial processes associated with an entirely new FAL dedicated to widebody twin-engine aircraft.

The A350 XWB “Roger Béteille” FAL covers a total area of 11 hectares and is the “greenest” ever built by Airbus (recycling of the material on site during earthworks, natural lighting wherever possible, photovoltaic roof producing the equivalent of 55% of the power needed for the building to function...).

The main building, dedicated to aircraft assembly, is L-shaped with impressive dimensions: 300 metres large, 125 metres long and 35 metres tall, and covers a surface of 7.2 hectares, including 53,000 square metres of aircraft halls, 21,000 square metres of ancillary buildings (supply chain services, stores, workshops and offices) plus 20,000 square metres of taxiways and runways.

A second building and its annexes cover a surface of 3.8 hectares, including a 32,000 square metre aircraft hall for indoor ground testing and cabin pre-customisation, a 4,000 square metre logistics hall, 6,000 square metres of offices, a restaurant and a technical centre.

The A350 XWB final assembly process has been thought out with efficiency in mind, in order to reduce the assembly time compared to current programmes. Unlike Airbus’ other programmes, the A350 XWB passenger cabin installation is started in parallel with the assembly of the fuselage, wings and tailplane.

The A350 XWB sections arrive at the FAL from the various Airbus sites in Europe already fitted out - including cockpit - and tested, reducing the amount of work required on the systems in the FAL.

The big cabin monuments such as galleys, crew rest compartments and toilets, are first of all installed inside each of the three fuselage sections at Station 59, before aircraft final assembly begins.

Final assembly starts at Station 50, with the joining of the forward, centre and aft fuselage sections. The nose landing gear is also installed at this station.

During the next step, at Station 40, the aircraft has its first fuselage power-on, which enables the functional tests to take place, in parallel with the wing-fuselage junction, the installation of the tailplane (horizontal and vertical fins) and tailcone, and the main landing gear and engine pylons. The first phase of cabin fitting is also carried out at station 40, when the floor, sidewalls, overhead bins and ceiling panels are installed.
Assembly continues at Station 30, with ground testing of mechanical, electrical and avionics systems, first aircraft power-on, cabin furnishing (seats and main pieces of equipment) and final structural activities (belly fairing, landing gear doors, ...).

The aircraft is then moved to station 18 (shared with the A330), where external tests are performed (cabin pressurisation, communication systems, calibration and testing of the fuel gauges, adjustment of all cargo and passenger doors).

The next step, at Station 20 (facilities shared with the A330), consists of cabin furnishing completion (In Flight Entertainment, curtains, safety equipment, special seats such as mini suites, trim and finish ...), as well as cockpit furnishing and engine installation.

The last step before the aircraft is transferred to the flight line consists of painting the aircraft. In Toulouse there are four paint halls dedicated to A330, A350 XWB and A380 families—three on the Clément Ader site and one on the Jean-Luc Lagardère site. The paint used complies with environmental regulations: polyurethane paints and solvents with a low VOC (Volatile Organic Compound) content. The paint operators use spray guns with an electrostatic spray system. Because it is more evenly spread, less paint is used, enabling weight savings on the aircraft.

Finally, in flight line, the aircraft conducts final tests (including engine tests) and performs its first flight, before starting its acceptance phase at the Henri Ziegler Delivery Center in Toulouse where the aircraft will be handed over to the airline customer.

When A350 XWB production reaches full production rate, the number of Airbus employees working on this site should be around 1,800 people and the complete process, from the beginning of final assembly through to delivery to the customer, will take two and a half months.