



## Project: Airbus Germany Assembly station 40 / FAL 'Final Assembling Line'

Utmost precision and extreme reliability are required in assembly station 40 of Airbus Industries in Hamburg to insert the wings of the Airbus into the wing boxes of the fuselage.



It is here where the Airbus 'learns' to fly and to 'stand for the first time on its own feet' before leaving assembly station 40. Assembly station 40 is the place where the aircraft of the 'single aisle series' from the A318 to the A321 are being assembled.

The electrical equipment and the top-level computer and control system for this assembly station were supplied by the team of VMT Process Technology GmbH & Co. KG. For installation of the fuselage, the assembly station must be aligned with a precision down to the tenth of a millimeter. For this procedure, 24 servo-controlled axes are set to the correct position. The positioning data are supplied from the pre-assembly station via the Airbus network.

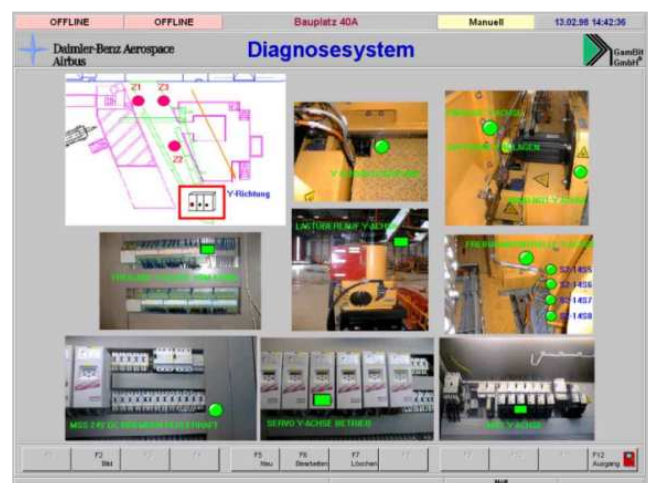
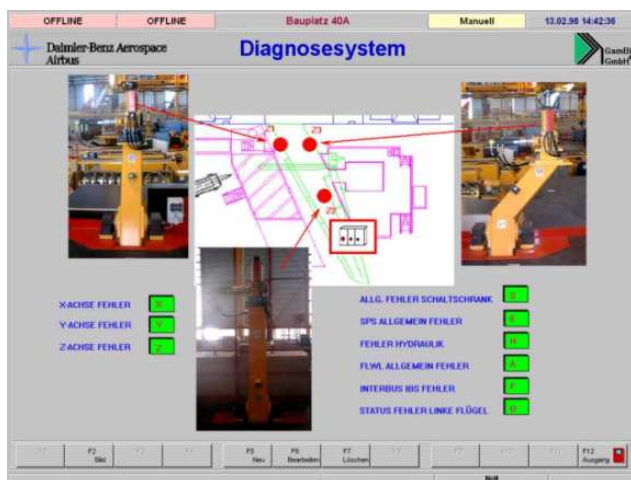
hundreds of a millimeter, the 6-axle wing assembly devices with the wing on them move towards the fuselage of the 'big bird'.

The wings are positioned for 'best fit', measured and prepared. The positioning data of the axes are stored. For the final joining procedure the wing table is once again retracted. The joining and contact faces are treated with corrosion protection agents and the wing is then moved into the stored positions and fastened to the aircraft.



The production process including the individual functions is monitored by means of a diagnosis system.

Even the slightest deviation from the predefined production plan causes the production process to be stopped and corresponding fault messages to be displayed on the monitors.

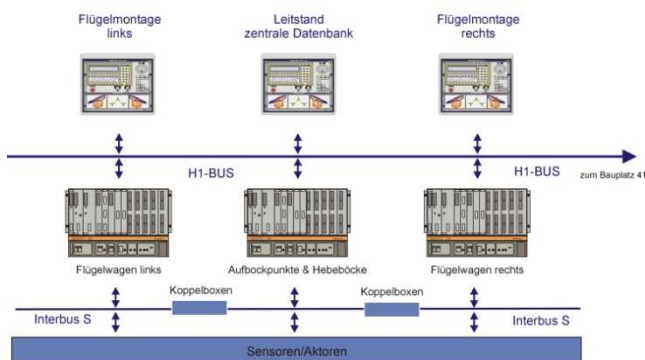


All positioning moves are monitored and stored in log files so that each step of the assembly procedure can later be repeated. With a repeat accuracy in the order of a few

The messages are animated by photos of the assembly station directly instructing the operator what is to be done and where. From a forgotten cap nut via a non-closed access flap down to a defective sensor: everything is analyzed. The solution required for the rectification of each fault can moreover be stored by the operators in a corresponding database.

The control stand accommodates the central ORACLE database where all machine parameters, QA requirements, fault messages and log files are stored. The files can be sorted and issued on request.

### Control system design



The central fuselage supporting points are controlled from the control stand and the wing assembly devices are controlled by an additional computer on each side. In the event of one of the computer systems failing, the control function can be taken over by the second system (redundant control).

### Technical characteristics

- › PC-based assembly bay operation and management supported by ORACLE database
- › Collection of operation, component and QA data
- › Data exchange via Siemens Industrial Ethernet, Interbus S to the periphery
- › 32 servo-controlled axes in the overall system
- › Two drive groups with 3 servo-controlled axes in a master-slave configuration with changing master

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