

Genesis Case Study #: J10106-001  
Application: Robotic Ultrasonic Non-Destructive Inspection (NDI)  
Market Segment: Aerospace  
Product: Composite Aircraft Components  
Cycletime: Varies



### Summary

Composite aircraft components are manually loaded into customer supplied fixtures located in front of a track mounted KUKA KR210 robot. The operator selects a robot program via the Acquisition Software and starts the scan cycle. The robot manipulates a Carbon Fiber Yoke operating in dual-channel TTU or PE in a raster scan pattern over the part while triggering the Acquisition PC to take data. Water from the squirters is reclaimed by a sump pump located in a pit in the floor; the water is then sent to a filtration system located outside the robot work envelope to clean the it for reuse.

### Project Challenges

- >20 different part models
- Complex part geometries
- Yoke design/weight/part accessibility
- High Accuracy and Repeatability for Motion System
- Installation space constraints
- Water reclamation

### Genesis Solution

- NSpect 115 Robotic NDI System (1 station, 1 robot, Servo Track)
- KUKA KR210 robot with ATI Automatic Tooling Changer package
- Integration with Customer-specified acquisition software
- Custom designed Carbon Fiber Yoke with 60" throat depth
- Adjustable squirters mounted to yoke that operate in dual-channel Pulse Echo (PE) and Through-Transmission (TTU)