

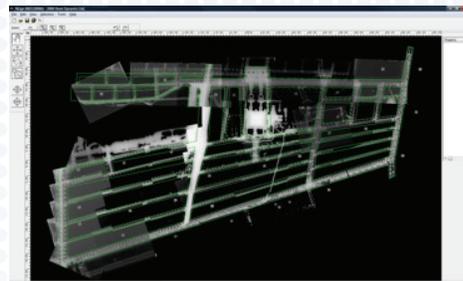
PROBLEM:

Older high-performance Air Force aircraft require regular wing inspections because of their age and mission profiles. This process requires placing 80 x-ray plates across the wing one at a time, capturing 80 analog radiography images, and inspecting the resulting images.

In the past, images were inspected and annotated and the data was archived, but unused thereafter. This process frequently missed faults in the wing, made it difficult to perform root cause analysis when faults were detected, and provided no means of detecting fleet-wide problems. The complexity of the process could also create gaps in inspection data.

WHAT NLIGN PROVIDES:

Using Nlign, the digital x-rays were aligned to the original 2-D drawings of the aircraft wings. Next, individual images for each wing were “stitched” together to form a digital image of the entire wing, aligned with and overlaid on the 2-D drawing. This process was performed for 122 airframes (244 wings).

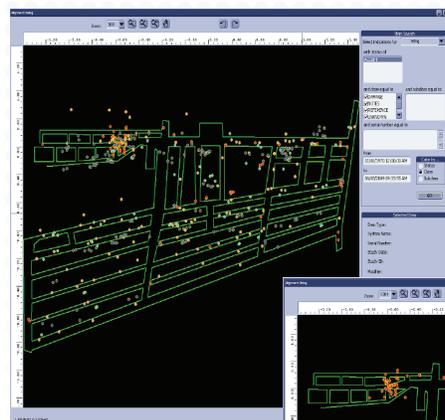
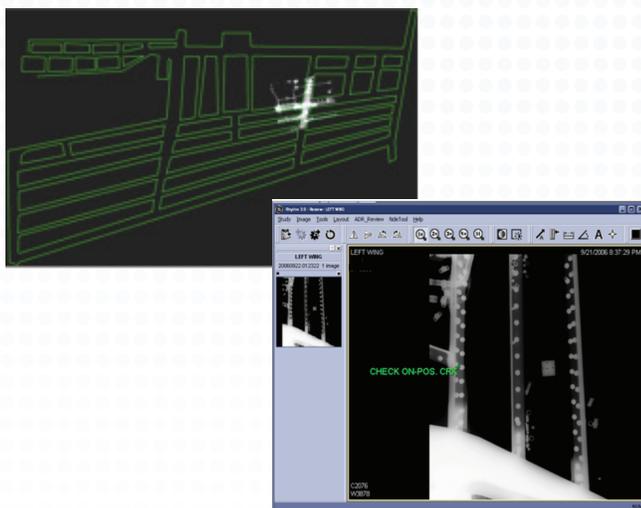


Align and fuse data

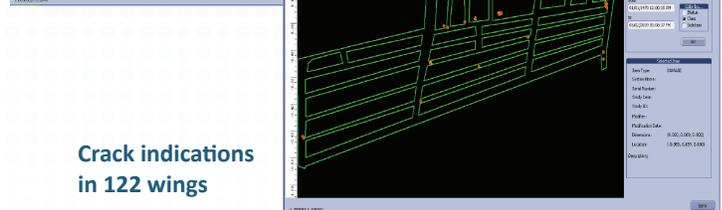
THE RESULT:

- Fault patterns that were very difficult to detect in individual images were more evident when visualized on the digital wing image.
- By fusing the digital images with inspectors’ annotations and the geometry of the wing, inspectors were able to interactively “drill down” to the details of faults.

- Overlaying data from all 122 airframes (144 wings) on the wing model identified fleet-wide problems.
- Areas of missed inspection were quickly identified.



Color-coded inspector annotations for 122 wings



Crack indications in 122 wings

SOLUTION:

Nlign gave the Air Force a tool for discovering valuable insights in previously-unused inspection data by aggregating fleet data, interactively filtering, drilling down, and analyzing the findings in two dimensions.

For Further Information, Contact:
 Bill Ashton
 Phone: 513-631-0579 x 116
 Mobile: 513-519-6929
 Email: bill.ashton@nalign.com