



CDG helps United Airlines digitize their extensive library of engineering drawings and other maintenance records, giving UAL engineers and maintenance personnel online access to mission-critical information.

United Services is the maintenance and engineering services division of United Airlines. It operates as a global full-service maintenance, repair, and overhaul (MRO) provider, specializing in repair and reconditioning of avionics, engines, landing gear, and aircraft line maintenance operations. To keep their fleet up and running to meet on-time performance goals, United Services maintenance technicians and engineers must have access to the latest engineering data in order to perform aircraft maintenance tasks accurately and in a timely manner.

Challenge

The United Services records library maintains nearly 400,000 engineering drawings for the entire United Airlines fleet, both past and present. These records include drawings of parts, systems, and components for the aircraft in the UAL fleet, with both original drawings created by United engineers as well as others created by suppliers. Many airlines, including United, had typically stored these types of drawings in paper or microfilm format.

When an aircraft required maintenance, mechanics would request the latest engineering drawings for the particular aircraft on which they were working. Library staff would print hard copies of these drawings using aperture card reader/printers. These hard copies would then be distributed to the maintenance technicians. If maintenance was being performed at off-site facilities, hard copies were sent via overnight courier, incurring additional expenses and delays. These delays associated with processing paper drawings resulted in hundreds of thousands of dollars in lost revenue for every

day an aircraft was grounded waiting for maintenance.

“Back then, it was especially challenging whenever engineering drawings were needed outside the maintenance operations center facility,” says United Services Engineering Supervisor, Andy DeWild. “It was very time consuming to print these drawings using our microfilm reader equipment. The reader equipment was aging, and it was very difficult to get parts or repair services when the equipment failed, which could cause additional delays. Also, because we relied on hard copies, United ran the risk that mechanics or engineers would unknowingly use an outdated engineering drawing that had recently been revised. We needed to find a way to distribute these drawings electronically to speed up this process and avoid these risks and delays.”

Solution

Looking ahead, United recognized that these paper-based approaches would not be able to support their rapidly growing global maintenance operations. They adopted a more progressive and forward-thinking approach, by searching for technology-based solutions that could provide the convenience and security they needed to deliver their critical engineering drawings electronically. United turned to CDG, a Boeing Company, to help digitize their extensive library of engineering drawings and load these records onto CDG’s 24/7 online document repository solution, CDG *Secure On-Demand*™.

“United told us that they were looking for a solution that met three objectives: Reduce risk, prevent revenue losses, and protect proprietary data,” commented CDG Account

Industry:

Commercial Airline

Customer:

United Airlines – United Services Division

Scope:

- Scan more than a quarter million aperture cards containing engineering drawings for the United Airlines fleet.
- Ensure that documents and files are not lost or damaged in transit or processing.
- Load digital image files into a secure network environment accessible to United Airlines personnel and selected suppliers worldwide.
- Establish security provisions to control and limit access to specific documents based on individual user profiles.

Solution:

- Establish a CDG imaging production center on-site at United Services facilities in San Francisco.
- Load digital files onto CDG’s secure hosted web portal solutions, CDG *Secure On-Demand*™.
- Set up stringent security provisions to control access to files and integrate with United’s internal network user authentication system.
- Result: Eliminated risks associated with loss of critical documents, achieved significant improvements in productivity and maintenance turn times, reduced overall costs associated with accessing engineering and maintenance documents.

Executive, Bradley Morrison. “United needed to get engineering drawings into the hands of their maintenance operators as quickly as possible so aircraft could be repaired and returned to service to generate revenue. They needed to ensure that maintenance personnel were always referencing the latest engineering drawings. And finally, they needed to protect proprietary data belonging to their suppliers. We were able to help them accomplish all of these objectives, without compromising regulatory compliance requirements.”

CDG deployed a team of specialists trained to manage large-scale imaging and conversion projects on-site at customer facilities. The CDG team set up scanning equipment and personnel on-site at United Services headquarters at San Francisco International Airport. Within 2 months, CDG’s team scanned more than a quarter of a million drawings from United’s engineering archives. Once the aperture cards were scanned and indexed, CDG loaded the digital drawing files into CDG’s *Secure On-Demand™* online document management portal, customized specifically for United Airlines maintenance operations.

Security was also a top priority. United wanted to ensure that only authorized personnel had access to engineering data. CDG Project Manager Tom Spangler recalls, “To meet United’s security requirements, we applied security layers down to the ‘document’ and ‘end user’ level. This allowed United to share files with its users, managers, and suppliers in a controlled environment. We also took steps to ensure that a maintenance technician would only have access to the latest ‘current’ drawings, and not outdated versions of drawings. We then tied the entire system into United’s own internal network user authentication system. As technicians, engineers and authorized vendors join or leave the United network, their access privileges to *Secure On-Demand™* are also updated instantly.”

Andy DeWild states, “Today, authorized mechanics, engineers and other airline personnel at United can search and retrieve these maintenance drawings instantly from anywhere in the world. It was a huge process improvement for us, and it helped us see a significant time savings and a reduction in our overall costs associated with retrieving this information.”

United Airlines is the launch customer for CDG’s *Secure On-Demand™* solution for airlines. This FAA-accepted solution has proven to be so successful that United is considering adding additional maintenance records and files to the system. The long-term vision is that United Services will have a single, centralized resource to help manage and maintain their library of engineering-related documents.

About CDG

CDG, a Boeing Company, is a world-class strategic partner for engineering-driven organizations that develop, support, and maintain complex equipment. By relying on CDG to improve the overall effectiveness of equipment support and maintenance processes, CDG’s partners are able to concentrate on their core business, increase efficiency, and ultimately provide enhanced value to their customers.

CDG offers more than 40 years of experience and highly skilled global engineering and data management teams to deliver high quality services and solutions for aerospace and defense, commercial aviation, manufacturing and other engineering-focused industries. CDG’s customers benefit from its ability to structure flexible solutions based on unique customer requirements.

For more information, visit the CDG website at www.cdgnow.com, or send e-mail to marketing@cdgnow.com.



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