



# On-time, on-budget Global Air Traffic Management (GATM) upgrade makes KC-135 operational for global airspace.

**Problem:** In the late 1990s, the United States Air Force (USAF) KC-135 tanker fleet was facing flight restrictions in worldwide commercial airspace due to expanding Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) airspace mandates. The fleet's outdated avionics equipment was not capable of meeting the new procedures and requirements dictated by the Federal Aviation Administration (FAA) and International Civil Aviation Organization (ICAO).

The KC-135 fleet needed to be upgraded with communication, navigation and surveillance equipment to meet these new CNS/ATM requirements. The system also needed enough growth to meet future airspace requirements. Additionally, the KC-135 aircraft faced aging components (obsolescence) issues affecting the fleet's overall fully mission capable (FMC) rate, which needed to be addressed to allow the aircraft to continue to fly well into the 21st century.

**Solution:** In 1999, Rockwell Collins was awarded the C/KC-135 GATM contract, the precursor to CNS/ATM. Rockwell Collins has a long history of avionics integrations on a variety of commercial and military aircraft, and had won the earlier KC-135 Pacer Compass, Radar and GPS (CRAG) contract in 1995.

Our C/KC-135 GATM program included: the integration of a new flight management system; new inertial navigation units; military flight planning (with tanker-unique patterns); integration to the existing analog autopilot; full CNS/ATM capability for Required Navigation Performance (RNP); Area Navigation (RNAV); Controller Pilot Data Link Communications (CPDLC); and Air Operations Center functionality.

With the award of GATM, Rockwell Collins developed, manufactured, integrated and installed a fully compliant GATM solution that meets airspace mandates while addressing critical obsolescence issues.

The USAF C/KC-135 GATM fleet was the first fleet of Department of Defense aircraft to be CNS/ATM certified worldwide. The Rockwell Collins C/KC-135 GATM avionics modernization program was the launch program for our shared commercial/military modular open system approach.

Our C/KC-135 GATM system is fielded and operational, with 419 aircraft delivered on time and on budget, meeting 100 percent of C/KC-135 GATM documented systems requirements.

We have upgraded more than 600 tanker/transport aircraft to meet worldwide CNS/ATM mandates. With the Rockwell Collins Flight2™ system avionics upgrade, the C/KC-135 is able to transit all civil and military airspace unrestricted, with the KC-135 accumulating more than 1 million flight hours of global, operational experience, including combat zones.

The C/KC-135 Flight2 avionics system also provides additional mission capability, improved reliability and maintainability, and increases mean time between failure (MTBF) rates, resulting in increased aircraft availability.

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To date, Rockwell Collins has delivered more than 10,000 line replaceable units for the C/KC-135 GATM program. These units are demonstrating an average reliability three times greater than originally predicted.

The final, 419th C/KC-135 GATM aircraft was delivered to the USAF in September 2011, marking 12 years from contract award to final delivery. The program was completed on budget and was delivered more than two years ahead of the original baseline schedule.

Today, the Rockwell Collins C/KC-135 GATM program remains a premier and model acquisition program for the Air Force, its Air Force Materiel Command and the Oklahoma City Air Logistics Center.

#### Results:

- ▶ C/KC-135 fleet was the first Department of Defense GATM program to deploy full GATM capability, allowing unrestricted access to worldwide airspace
- ▶ Completed on budget and was delivered more than two years ahead of the original baseline schedule
- ▶ Reduced obsolescence issues, resulting in increased mission readiness
- ▶ Provides access to GPS approaches, Standard Instrument Departures (SIDs) and Standard Terminal Arrival Routes (STARs)
- ▶ Improved MTBF rates: on the legacy baseline KC-135 program, the system MTBF increased from 49 hours to almost 600 hours – more than a 1,000 percent improvement – between August 1999 and November 2006

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Rockwell Collins delivers smart communication and aviation electronic solutions to customers worldwide. Backed by a global network of service and support, we stand committed to putting technology and practical innovation to work for you whenever and wherever you need us. In this way, working together, we build trust. Every day.

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