

How to Destroy a Perfectly Good Fighter

by

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The United States Air Force has and still uses full scale aerial targets for both combat crew training as well as testing. These "Drones" are designated "QF." There have been several drones to include the QF-106, QF-100 and most recently the QF-4. QF-4 numbers are rapidly depleting and the U.S. Air Force identified a need for a new full scale aerial target capable of simulating modern fourth generation threats. The Aerial Targets Program Office at Eglin AFB defined the requirements and formally initiated a competitive process for selection of a contractor to build the QF-16. The Boeing Company was selected and is currently executing the contractor pre-Engineering Manufacturing and Development (Pre-EMD) test program at Cecil Field, Jacksonville, FL. The Pre-EMD phase started with engineering at Boeing St. Louis and manufacturing at the Boeing Cecil Field facility. The government dictated utilizing the current Gulf Range Drone Control System (GRDCS). This system has been used since the 1950's and depends on a number of towers for triangulation and telemetry. The government also dictated that no modification would impact basic F-16 performance capabilities. Ultimately Boeing's challenge was to develop a system that could receive commands from GRDCS, translate those commands and then communicate these commands with the F-16 Flight Control System (FLCS). The QF-16 is designed for automatic takeoff, flight to the airspace, full F-16 capability for fourth generation threat simulation to include vector scoring, flight termination system if required, visual augmentation as required, and return to base for a fully automatic landing. This paper will detail the unique challenges faced by a non-OEM contractor with respect to engineering solutions that meet operational requirements, operational requirements that were not properly transmitted or translated into specification requirements, modification and manufacturing challenges and finally problems encountered during initial flight test and how those problems were overcome in an extremely efficient flight test program with a superior customer that helped overcome many of these challenges. My first fighter, the F-4 Phantom was made into a drone, and now the F-16. If they ever threaten to make the Raptor a drone - I quit!!!