



A typical manned (or 'captive') mission is briefed two hours prior to the scheduled take-off time. The pilot performs all the normal ground checks through to taxiing out. The aircraft is then taxied to a particular spot on the dedicated runway for drones at Holloman, runway 22. Firstly, the groundcrews perform their last chance checks, after which the controllers execute system checks. To perform the latter, the simulated drone is engaged with the WSMR Drone Formation Control System (DFCS). Then it is into the mission.

While the QF-4s at Tyndall are controlled by the Gulf Range Drone Control System (GRDCS), at Holloman they use the Drone Formation Control System (DFCS). The latter is run by the US Army. BAE does not make two different modifications to the aircraft, but different ground software can be used by the jets. As Det 1 uses the Army's WSMR facility, the Army software is used to allow the aircraft to interlink into its telemetry systems.

During these types of missions, the pilot is merely a passenger. He provides feedback from the cockpit on the handling of the aircraft and can disengage the controls from the computer in case of uplink or downlink communication problems, or an emergency. Under normal circumstances, either the DFCS computer will fly the aircraft according to a pre-programmed profile, or the controller will do so using his joystick, throttle and other instruments on his console.

Once the mission profile has been accomplished, the drone is recovered

back to Holloman and landed 'hands off' by the DFCS computers using the autoland feature. The pilots only control the aircraft when they are taxiing it to and from the ramp.

For the missions that involve a live missile firing against the QF-4, the FSAT is usually given a certain profile to fly, meaning it has to be at a certain altitude, maintain a certain airspeed and if required include a specific maneuver which is developed prior to the actual test. The actual test is then done in pilotless or NULLO (Not Under Live Local Operation) configuration, and is obviously flown remotely, with a manned chase aircraft in attendance. For more information on QF-4 operations, see Volume 6.4 of *Combat Aircraft*.

If the drone has not been damaged or has sustained little damage, it will be recovered to Holloman using the autoland feature, with the chase pilot advising the controller on the drone's performance. Once landed, the QF-4 is disarmed and towed off the runway back to the ramp. Det 1 routinely flies two-ship NULLOs over the test area. The DFCS system is designed to handle up to six aircraft at the same time, for which the control van is equipped with six consoles. The range uses DFCS not only for FSAT operations, but also to control ground vehicles and sub-scale drones (SSATs). The system can track and control up to 48 ground vehicles or six aerial targets simultaneously in formation or in precisely-synchronized flight patterns.

