



Above: Many of the test fixtures are carried on the centerline pylon of the AT-38B, but in this case the aircraft carries an ALQ-167 'Squeaky' programmable ECM pod. Jamming is required for many of the tests performed by the 580th FTTS. Inflight controls for centerline stores can be fitted in the rear cockpit.

Left: Current commanding officer of the 580th Flight Test Squadron is Lieutenant Colonel Dawn Dunlap, pictured here with one of the unit's AT-38Bs.

gation and global positioning input to develop a reference for the required Time-Space Position-Information, essential for testing, and is capable of providing an accuracy of less than 1 m (10-sq ft).

Each aircraft also received radar altimeters and moving map displays, giving it a 200-ft (61-m) MGL, low-level navigation and target support capability. An on-board instrumentation system is integrated with the navigation/display system to capture real-time display information for the pilot. When required, additional clip-on GPS are added. For specialized tests, oversized test equipment can be rack-mounted and installed in the rear cockpit, replacing the ejection seat.

Dual C-band radar beacons are permanently installed for ground air radar tracking, whereby the frequencies are switched based on requirements. In addition, the aircraft are equipped with Mode 4 HF and dual UHF radios, and all three aircraft have been modified to provide multiple format photographic and film coverage when they are used for chase missions. For this purpose DC power connections have been installed in the rear cockpit for hand-held film and video cameras, but the unit also utilizes a specially constructed helmet-mounted video camera. Video from either the front or rear cockpit can be encrypted and downlinked in real time, or stored on the internal high-speed 8-mm video tape recorder.

Located in the spine of the aircraft aft of the cockpit, a test equipment bay has been configured to allow installation of additional test support systems and GPS/navigation test articles. Data from test equipment can be stored by the instrumentation system, along with the time-space-position information from the navigation system, to permit post-flight evaluation of test equipment performance, but can also be downlinked together with the video images in real time.

Externally, the aircraft has a single modified centerline pylon to enable the carriage of different types of test and operational stores ranging from pods for chaff, flares, Global Positioning System (GPS) navigation, precision data recording and telemetry, to electronic countermeasures (ECM) and Air Combat Manoeuvring Instrumentation (ACMI). For some particular stores, electronic control needs to be executed by the operator in the back seat.

In addition, all three aircraft are capable of carrying the ALQ-167 ECM pod – affectionately dubbed 'Squeaky' – which is a modular jammer programmable with a wide variety of electronic jamming techniques. Additionally, an ALQ-40 chaff and flare pod is available for carriage.

Towed targets

Another test capability is offered by the Low Radar Cross Section Tow Target (LRCSTT) system that supports many different types of towed targets. Based at Redstone Arsenal, Alabama, the US Army Simulation, Training and Instrumentation Command (STRICOM) Targets Management Office (TMO), a division of STRICOM's Project Manager for Instrumentation, Targets and Threat Simulators (PM ITTS), provides most of these targets for the Tow Target Program, such as the Patriot Omni-directional Training Aerial – Tow (POTA-Tow), Very Low RCS Tow Target, Inflated Tow Target and the Aerial Gunnery Tow Target.

Once airborne, the target is lowered by cable from the pod and trailed behind the aircraft. Upon completion of the test, the target is dropped at XSMR for recovery, after which the test aircraft returns to Holloman. Depending on the type of test article and its characteristics, these are dropped at a pre-determined location on the range at a speed of around 250 kt (463 km/h) and 500-ft (152-m) altitude, to make a controlled drop possible.

Another new and unique capability offered by the squadron is the Low Observable Instrumented Tow (LOIT), being an instrumented low-observable tow target used for signature evaluation. For this capability, a specially modified pod is used, covered with laser reflective material allowing the cross-section to be varied in flight by extending or