



EWTS Lear: The Flexible System

Above:
Raytheon Australia's EWTS
Lear 35A VH-ESM in flight

Raytheon Australia has successfully provided airborne Electronic Warfare Training Services (EWTS) to the Royal Australian Navy (RAN) and other Australian Defence Force (ADF) assets since February 2001. Raytheon Australia EWTS provides this service utilising highly modified, Raytheon owned and operated, Lear 35A jet aircraft, fitted out with state of the art electronic warfare systems. These jets are capable of delivering basic to advanced Electronic Warfare (EW) training and simulation to the ADF throughout Australia and around the world.

Raytheon Australia EWTS currently has two civil registered Lear 35A jet aircraft in Australia, VH-ESM, and VH-ESW, both capable of delivering electronic warfare training and other airborne services that require a special mission platform. VH-ESM is available to the ADF for provision of services through RAN contract N260395, while VH-ESW is available for special mission work outside the existing EWTS contract.

The contract to provide EWTS to the RAN was awarded to Raytheon Australia in 2001, and shortly thereafter, an interim capability was put in place using a leased Lear jet LR35A with an EW mission system designated 'Smart Crow Plus'.

This interim EWTS jet is piloted by two Raytheon Pilots and crewed by up to two EW Tactical Coordinators who plan, conduct and debrief the missions. The jet features single channel forward/aft noise jammers in three bands (C/D, E/F, G/H/I), a Radar Attack Threat Simulator (RATS), a single transceiver communications jammer and communications deception, a single channel coherent radar jammer within C/D or G/H/I bands (replacing the noise channel in the relevant band), and up to 11 minutes of continuous chaff.

The Interim EWTS capability was successfully employed in support of the RAN fleet between February 2001 and January 2005. During this period, the interim EWTS flew approximately 1200 hours, achieving 570 successful missions with no missed missions. Due to the success of the Interim EWTS capability, a decision was made in early 2005 to purchase N99FN (now registered VH-ESW).

Between 2002 and 2004, the Mature EWTS solution was engineered and certified by Raytheon Australia and subcontractor personnel in the US.



Above:
Raytheon Australia's Lear 35A's are flexible platforms that are capable of delivering basic to advanced Electronic Warfare (EW) training and simulation to the ADF throughout Australia and around the world

In October 2004, N611TW (now registered VH-ESM) was flown from the US to Australia where it began the Australian integration phase of the build program. In January 2005, the Mature EWTS solution, with an EW mission system designated 'Smarter Crow' completed acceptance testing and began services with the RAN.

The Mature EWTS capability, crewed by up to two EW Tactical Coordinators who plan, conduct and debrief the missions, features a computerised mission management and recording system with integrated electronic support. Also included is a forward/aft radar jammer with two coherent channels and one noise channel, integrated across a high power TWT amplifier network covering bands C to J. It has two independent RATS systems, one TWT based with highly programmable outputs and one magnetron based with high power outputs, as well as a multiple transceiver communications jammer with frequency hopping and communications deception. The Mature EWTS also features a communications DF, up to 11 minutes of continuous chaff, and secure Voice communications.

Between January 2005 and December 2010, the Raytheon EWTS Team flew 2,510 hours, achieving 910 successful missions under the Mature Services

Contract. This year, the Mature EWTS Team aims to achieve the significant milestone of 1,000 successful missions.

Mission payloads for both aircraft include missile and air-intercept radar threat simulators, radar and communications jammers, chaff deployment systems and mission recording equipment. These systems provide realistic simulation of the majority of tactical capabilities likely to be encountered in a modern EW environment. Both aircraft mission systems have been designed and built for subsystem expansion and/or upgrade in order to cater for training against emerging threats.

Raytheon EWTS services all Australian Exercise Areas and regularly deploys internationally in support of multinational exercises. Services routinely provided by Raytheon EWTS to the ADF vary from EW technique demonstrations, Rules of Engagement (ROE) scenarios (Warning off / Harassment / ROE Escalation) and capability briefings. Sea riders, exercise/trial planning support, mission debriefs, and EW system test and evaluation trials are also provided by EWTS to the ADF. The Integrated Strike Packages incorporate Escort radar jamming, Chaff, Deception radar jamming, Communications Denial and Deception, and Radar Attack Threat Simulation (RATS).

Over the 10 year period of Interim and Mature EWTS operations, from February 2001 through to February 2011, the Raytheon team has achieved nearly 1,500 successful missions in support of ADF tasking. Customer satisfaction has been high over this period with Raytheon Australia receiving numerous accolades from the ADF for services provision.