



## ROYAL AUSTRALIAN AIR FORCE E-7A WEDGETAIL

For more than 2 decades, MTI has served as a trusted advisor and key wedgetail contractor to the Royal Australian Air Force.

MTI has served as an “above the line” contractor – a similar role to a SETA (Systems Engineering Technical Assistance) contractor in the US – for the Commonwealth of Australia (CoA) since 1999 on the AIR 5077 Wedgetail AEW&C (Airborne Early Warning & Control) program. MTI systems engineering, human factors engineering, and subject matter experts have been continuously providing technical support to the CoA in Australia, and at Boeing project facilities in Seattle and Oklahoma City, ably representing the CoA’s interests on a wide variety of technical issues, ensuring that the CoA is getting mission systems on the Wedgetail aircraft that provide cutting edge capabilities to the warfighter while meeting the contractual performance requirements. MTI has supported the CoA in both prime and subcontractor roles over the past 23 years.

MTI provided multiple technical personnel to the Australian RPT (Resident Project Team) in Seattle from 2001 through approximately 2011 when the CoA shut the RPT down. MTI continues to provide this technical support to the CoA in Seattle after the closure of the RPT, as the sole Seattle-based technical support activity on the Wedgetail program, reporting directly to the Wedgetail SPO (System Program Office) at RAAF Base Williamtown, NSW, Australia. As Boeing began to move its military programs from Seattle to Oklahoma City, MTI expanded technical support to include an office at the Boeing facility in Oklahoma City, where we continue to provide direct technical support to the CoA on the Wedgetail program.

MTI has also provided direct Wedgetail program support in Australia. This work began in September of 2000, where MTI provided technical personnel, human factors engineering expertise and SME support in Adelaide, South Australia, at the DSTO (Defence Science & Technology Organization) facility, where MTI personnel assisted the CoA in the development of Wedgetail performance specification documents. MTI provided further assistance directly to the Wedgetail SPO at RAAF Base Williamtown from 2005 through 2007, where MTI provided engineering and SME personnel, specifically assigned, in country, for two years to support the Wedgetail program.



### 1990s Initial Concept and Project Initiation

MTI bids as subcontractor for Australian Wedgetail IV&V contract  
1998 / Q2

MTI bid as a subcontractor as a part of the Ball Solutions Group (Australian subsidiary of Ball Aerospace) to serve as an “above the line” contractor (similar to a SETA contractor in the US) for the Wedgetail 737 AEW&C contract.

Ball Aerospace team selected to serve as the above the line IV&V contractor for the Australian Wedgetail AEW&C program  
1999 / Q1

Ball Solutions Group won the competitive contract to serve as the IV&V contractor for the Wedgetail 737 AEW&C development program. MTI was one of two key subcontractors as a part of the BSG team.

### 2000s Engineering and Development

BSG tasks MTI to assist in writing Wedgetail specifications  
2000 / Q2

MTI personnel spend 6 weeks in Australia supporting the Wedgetail program office by writing and/or reviewing and modifying several A specifications and B specifications that would serve as the development framework for the Wedgetail mission system.

MTI assigned to provide data links engineer to the Australian Wedgetail RPT  
2001 / Q1

The Australian Wedgetail RPT in Seattle WA tasked MTI to provide an onsite engineer to provide engineering support to the Wedgetail program for mission systems data links.

MTI tasked by Wedgetail PM to provide full time SME / technical support at RAAF Base Williamtown  
2005 / Q1

The Australian Wedgetail Program Office tasked MTI to provide two full time support personnel at the Program Office location on RAAF Base Williamtown NSW Australia. MTI personnel provided SME (Subject matter expert) services on AEW&C systems and other technical support as required.

MTI assigned to provide systems engineering support to the Wedgetail RPT  
2005 / Q3

The Australian Wedgetail RPT tasked MTI with providing systems engineering expert for mission computing verification, approval of test procedures, witnessing of test conduct, review and approval of test reports, validation of test article configuration data, resolving anomalies identified during the test activity, and other activities as directed by the RPT Mission Computing Team to assist them to manage the Commonwealth Design Acceptance of Mission Computing Subsystem products and the integration of all system software in support of acquiring the Wedgetail AEW&C Capability.

MTI assigned to develop full mission system training scenarios  
2006 / Q1

MTI was assigned by the CoA Wedgetail PM to develop 10 full mission crew training scenarios to be delivered by Q1 2007, to include the scenarios that would be run on the Wedgetail mission system trainer, student guides, instructor guides, role player guides, and all relevant scenario support material.

MTI delivers 10 full mission system training scenarios to Wedgetail PM  
2007 / Q1

MTI delivered 10 full mission system training scenarios to the Wedgetail PM, and temporarily installed a Wedgetail mission simulation system to demonstrate the scenarios using RAAF 2 Squadron crews at RAAF Base Williamtown, NSW Australia.

## 2010s Testing, Verification and Delivery

MTI assigned to provide all Wedgetail RPT test scheduling  
2010 / Q1

MTI was tasked to manage and maintain the master test scheduling for all Wedgetail mission system testing evolutions.

MTI assigned task to perform HMI Analysis and deliver report on HMI improvements to DSTO  
2011 / Q1

MTI was assigned a task by the Australian DSTO (Defence Science & Technology Office) to perform human factors engineering mission analysis, task analysis and workloads/workflows analysis to generate a report documenting Wedgetail HMI issues with recommendations for implementing changes to improve the Wedgetail mission crew HMI.

MTI assigned responsibilities for Design Engineer and Project Engineer for Wedgetail Mission System development  
2011 / Q2

MTI engineering staff were assigned roles as Project Engineers and Design Engineers for Wedgetail mission computing system, data links development including responsibility for review and CoA signoff on mission software testing.

MTI assigned as Test Director for the final acceptance testing prior to E-7 delivery and contract closure  
2012 / Q1

After being formally designated as the Test Director for the CoA, MTI assumed responsibility to approve all test procedures, review and certify test results, track failures and provide advice to the Program Manager concerning the criticality and disposition of the test/requirements failures.

MTI tasked by DSTO to deliver HMI Usability and Workload Plan  
2012 / Q3

MTI was tasked by the Australian DSTO to perform analysis and deliver the Wedgetail mission crew HMI Usability and Crew Workload plan.

MTI assigned as mission lead for Wedgetail RPT  
2012 / Q3

MTI was assigned a project to serve as the lead for the Mission System Integrated Product Team (IPT) to manage requirements, acquisition, certification and transition of the aircraft to the ADF (Australian Defence Force).

Acquisition Project officially closed, but MTI designated to facilitate Requirement Short-fall remediation efforts between the CoA and Boeing  
2013 / Q2

Based on our tracking of test failures and requirements shortfalls, MTI was designated to lead the remediation effort. This effort involved allocating nearly 10,000 engineering hours from Boeing to compensate for the requirements shortfalls of the E-7 system. The effort included prioritizing tasks (with support from the Operational Community), tracking progress, verifying test procedures, and recommending acceptance by the CoA once a task was completed. This process of allocating engineering hours to address the most significant issues identified by the operators was instrumental in improving the Wedgetail capability to a point where it is now considered the premier C2 Platform in the world. As the head design engineers, MTI contractors were able to certify the final system saving the CoA time and manpower.

## 2010s (continued)

MTI assigned as the primary interface between Boeing and the CoA for the first major upgrade program for the E-7  
2014 / Q4

As the remediation effort closed, MTI was once again selected as the US lead for the first major upgrade program, designated "phase 5A". This program involved the installation of all new mission radios, a completely upgraded data-link system, new mission computers and major improvements to the Mission Computing System. The Phase 5A project is still ongoing with 3 of the 4 major increments delivered. The final portion is due to be completed in the 2023 timeframe.

MTI assigned as the primary US lead for the Wide-Band Integrated SATCOM installation (WICS) on the E-7  
2014 / Q4

Associated with the Phase 5A upgrade, but largely a separate program was a complete re-design of the Satellite Communications Capability on the E-7. MTI was assigned as the US lead on the WICS project as well and participated in detailed design reviews, planning, testing, and procurement efforts.

MTI designated as the CoA representative to the Boeing facility in Oklahoma City  
2018 / Q1

Throughout the procurement and initial Phase 5A effort, Boeing operated from their facilities in Kent (Seattle) Washington. However, in 2017, Boeing chose to close those facilities and move their operations to Oklahoma City, OK. As the move progressed, MTI was asked by the CoA to provide on-site representation in Oklahoma. Over the next 2 years, the primary focus of effort moved from Seattle to OKC and, with MTI's support, the CoA maintained constant representation.

## 2020s Wedgetail Upgrade Projects

COVID-19 halted all international travel and face-to-face meetings  
2020 / Q1

While COVID-19 certainly impacted the E-7 project, MTI's role as the primary US representative enabled the CoA to maintain a presence at all testing events and at those as classified meetings where in-person attendance was required for security reasons, but impossible due to travel restrictions. As a result, both the second and third increments of the Phase 5A project were successfully tested and delivered despite COVID-19 restrictions.

MTI assigned to continue representing the CoA for future upgrade efforts  
2021/Q2

As part of the contract renewal in 2021, MTI was assigned additional tasks in preparation for the Phase 6 upgrade program. This phase includes a major upgrade to nearly every mission system including a completely re-designed radar, all new datalink systems, and a comprehensive self-protection capability for the aircraft. The project is expected to take 10 years to complete after contract award in late 2022.

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