Project Data Summary Sheet[128]

Project Number	**AIR 5402**
Project Name	**AIR TO AIR REFUELLING CAPABILITY**
First Year Reported in the MPR	2008-09
Capability Type	New
Acquisition Type	Developmental
Service	Royal Australian Air Force
Government 1st Pass Approval	N/A
Government 2nd Pass Approval	May 03
Total Approved Budget (Current)	**$1,821.7m**
2015-16 Budget	**$74.5m**
Project Stage	**MAA Closure**
Complexity	ACAT II



Section 1 – Project Summary

1.1 Project Description

This project has provided the Australian Defence Force (ADF) with five new generation Airbus A330 Multi Role Tanker Transport aircraft (MRTT), to be known as the KC-30A in Royal Australian Air Force (RAAF) service. The MRTT will be equipped with both hose and drogue and boom refuelling systems capable of in-flight refuelling of current and future aircraft, including F/A-18 Classic and Super Hornets, Hawk Lead-In Fighter, Wedgetail Airborne Early Warning and Control, C-17 Globemaster III, and Joint Strike Fighter (JSF). The MRTT will also provide significant Air Logistics Services capability for carriage of up to 270 passengers and cargo. The acquisition also establishes the infrastructure necessary to deliver services including engineering, maintenance, spares management, technical data, software and training support for the new fleet.

1.2 Current Status

This project was removed from the Project of Concern list in February 2015.

Cost Performance

In-year

The ($5.9m) variance is due to savings associated with the Future Modification Program ($1.2m), Additional Work Tasking Orders (AWTO) ($0.2m) and savings against various other minor contracts including service providers and legal ($0.5m), a slippage in spares ($0.8m), a reduction in the value of non-cash liquidated damages expense ($0.5m), and an unsettled FOREX gain of ($2.7m).

Project Financial Assurance Statement

As at 30 June 2016, project AIR 5402 has reviewed the approved scope and budget for those elements required to be delivered by the project. Having reviewed the current financial and contractual obligations of the project, current known risks and estimated future expenditure, Defence considers, as at the reporting

128 Notice to reader

Forecast dates and Sections: 1.2 (Materiel Capability Delivery Performance), 1.3 (Major Risks and Issues), 4.1 (Measures of Materiel Capability Delivery Performance), and 5 (Major Risks and Issues) are excluded from the scope of the ANAO's review of this Project Data Summary Sheet. Information on the scope of the review is provided in the *Independent Assurance Report* by the Auditor-General in **Part 3** of this report.

date, there is sufficient budget remaining for the project to complete against the agreed scope.

Contingency Statement

The project has **not** applied contingency in the financial year.

Schedule Performance

All five KC-30A MRTT aircraft and Simulation Devices have been delivered with both Final Accreditation and Acceptance of the KC-30A Simulation Devices and Contract Final Acceptance achieved in November 2015.

FMR **was achieved in** May 2016 **with FOC declared in July 2016;** 39 **and 64** months **respectively** behind the original planned dates.

Materiel Capability Delivery Performance

To meet Defence strategic goals, the project worked closely with Airbus Defence and Space to ensure that the initial configuration at acceptance provides; essential capability for Air Logistics Support (passengers and cargo) and pods (hose and drogue) air to air refuelling. A suitable framework to enable contractual acceptance of aircraft with non-critical non-conformances has been established. This framework also ensures that full compliance will be achieved by Final Materiel Release (FMR) in order to achieve Final Operational Capability (FOC). **The KC-30A capability has been contractually accepted and delivered to Air Force with FMR achieved in May 2016 with FOC declared in July 2016.**

Note

Forecast dates and capability assessments are excluded from the scope of the review.

1.3 Project Context

Background

Government gave the equivalent of second pass approval in May 2003 for a new generation air to air refuelling capability.

An open Request for Tender was released in June 2003 for both the Acquisition and Through Life Support (TLS) Contracts. In April 2004, Government announced that the Military Transport Aircraft Division of the European Aeronautic and Space Company Construcciones Aeronauticas S.A. (EADS CASA), teamed with Qantas Defence Services, had been selected as the preferred tenderer for the supply of five Airbus A330 MRTT aircraft and their associated support.

The Acquisition Contract was signed with Spanish company EADS CASA in December 2004. The TLS Contract was signed with Qantas Airways Limited in February 2007.

In April 2009, the Military Transport Aircraft Division of EADS was amalgamated with the Airbus Military Division, and commenced trading as Airbus Military. In February 2014, Airbus Military was rebranded and commenced trading as Airbus Defence and Space.

The A330 MRTT is based on the Airbus A330-200 medium/long-range twin aisle commercial aircraft. The first (prototype) aircraft was modified and tested by Airbus Defence and Space in Madrid, Spain. The remaining four aircraft were modified by Qantas, under subcontract to Airbus Defence and Space, at the Australian Conversion Centre, located at Brisbane Airport, Australia.

A Contract Change Proposal (CCP) was signed in March 2006 for the procurement of a Full Flight Mission Simulator, Integrated Procedures Trainer and a Simulator Training Facility.

Another CCP was signed in December 2006 for changes to the cockpit layout to accommodate redesign of the refuelling operator console and associated changes to the cockpit access door and forward lavatory. Implementation of these changes on the first aircraft required the conversion and test activities to be divided into two phases:

1. Phase 1 involved the structural modification of the aircraft, including installation of boom and pods for civil certification.
2. Phase 2 involved the installation of the military systems, installation of the refuelling operator console and completion of cabin modifications for full military certification and qualification of the modified aircraft.

Uniqueness

AIR 5402 is the lead customer of the A330 MRTT platform, including the lead customer for the Airbus Defence and Space developed ARBS. Whilst Airbus Defence and Space has previously developed and delivered underwing pod equipped A310 MRTT aircraft to the German and Canadian Air Forces, the A330 MRTT is a significantly more complex developmental effort to design, build and test the first of type, highly integrated military mission and refuelling systems. In parallel, Airbus Defence and Space is required to develop the publications, training devices and training material to support introductory training of aircrew and maintenance staff and for transition to the TLS Contractors for ongoing support of the new tanker capability. Subsequent sales to Saudi Arabia, United Kingdom, United Arab Emirates and Singapore have bolstered the Airbus Defence and Space commitment to the program and helped amortise development costs.

Major Risks and Issues

All of the project's risks and issues have been retired.

Other Current Sub-Projects

Project AIR 7403 Phase 3 for the purchase of two A330 aircraft and conversion to MRTT aircraft, was implemented in June 2015 through a CCP to the current contract.

Note

Major risks and issues are excluded from the scope of the review.

Section 2 – Financial Performance

2.1 Project Budget (out-turned) and Expenditure History

Date	Description	$m		Notes
	Project Budget			
May 03	Original Approved		2,076.6	
Jun 04	Real Variation – Budgetary Adjustment	(149.4)		1
Aug 04	Real Variation – Budgetary Adjustment	(1.2)		2
Aug 05	Real Variation – Budgetary Adjustment	(3.0)		3
Nov 05	Real Variation – Transfer	(135.5)		4
			(289.1)	
Jul 10	Price Indexation		484.1	5
Jun 16	Exchange Variation		(449.9)	
Jun 16	**Total Budget**		1,821.7	
	Project Expenditure			
Prior to Jul 15	Contract Expenditure – Airbus Defence and Space	(1,526.1)		
	Contract Expenditure – Northrop Grumman Integrated Defence Services	(6.8)		
	Other Contract Payments / Internal Expenses	(158.9)		6
			(1,691.8)	
FY to Jun 16	Contract Expenditure – Airbus Defence and Space	(47.0)		
	Contract Expenditure – Northrop Grumman Integrated Defence Services	(16.6)		7
	Other Contract Payments / Internal Expenses	(5.0)		8
			(68.6)	
Jun 16	**Total Expenditure**		(1,760.4)	
Jun 16	**Remaining Budget**		61.3	

Notes	
1	Defence Capability direction regarding currency mix at approval and Government decisions.
2	Administrative Savings harvest.
3	Skilling Australia's Defence Industry harvest.
4	Transfer to **Defence Estate and Infrastructure Group** for delivery of MRTT infrastructure at RAAF Amberley and at other RAAF bases.
5	Up until July 2010, indexation was applied to project budgets on a periodic basis. The cumulative impact of this approach was $473.9m. In addition to this amount, the impact on the project budget as a result of out-turning was a further $10.2m having been applied to the remaining life of the project.
6	Other expenditure comprises: operating expenditure, contractors, consultants, contingency, other capital expenditure not attributable to the aforementioned prime contract and minor contract expenditure. The major component of this amount is for Tanker Hire costs ($26.4m) incurred in Financial Year 2009-10**,** associated with the delay to the program.
7	The Northrop Grumman Integrated Defence Services **(NGIDS),** contract covers work under the modification program to upgrade three aircraft to the final configuration via a Through Life Support contract.
8	Other expenditure comprises: operating expenditure, contractors, consultants, contingency, other capital expenditure not attributable to the aforementioned prime contract and minor contract expenditure. **This amount includes $0.7m for Discrete Tasking Orders, $1.4m for contractor and legal support, $2.7m for non cash liquidated damages expense and $0.2m for other miscellaneous orders.**

2.2A In-year Budget Estimate Variance

Estimate PBS $m	Estimate PAES $m	Estimate Final Plan $m	Explanation of Material Movements
67.3	**74.5**	**74.5**	**The variation between PBS and PAES estimates is due to a slippage of prime contract milestones from FY2014-15 to FY2015-16, delays in the delivery of spares, cost savings associated with contract changes and additional material handling equipment that is no longer being procured.**
Variance $m	**7.1**	**0.1**	Total Variance ($m): **7.2**
Variance %	**10.6**	**0.1**	Total Variance (%): **10.7**

2.2B In-year Budget/Expenditure Variance

Estimate Final Plan $m	Actual $m	Variance $m	Variance Factor	Explanation
		(1.6)	Australian Industry	**The variance of $5.9m is due to savings associated with the Future Modification Program ($1.2m), Additional Work Tasking Orders (AWTO) ($0.2m), savings against various other minor contracts including service providers and legal ($0.5m), a slippage in spares ($0.8m), a reduction in the value of non cash liquidated damages expense ($0.5m) and an unsettled FOREX gain of $2.7m.**
			Foreign Industry	
			Early Processes	
		(4.3)	Defence Processes	
			Foreign Government Negotiations/Payments	
			Cost Saving	
			Effort in Support of Operations	
			Additional Government Approvals	
74.5	**68.6**	**(5.9)**	**Total Variance**	
		(7.9)	**% Variance**	

2.3 Details of Project Major Contracts

Contractor	Signature Date	Price at		Type (Price Basis)	Form of Contract	Notes
		Signature $m	30 Jun 16 $m			
Airbus Defence and Space	Dec 04	1,413.4	**1,573.2**	Variable	ASDEFCON	1,2
Northrop Grumman Integrated Defence Services	Jan 15	15.0	**18.1**	Fixed	ASDEFCON	1,3,**4**

Notes

1	Contract value as at 30 June 2016 is based on actual expenditure to 30 June 2016 and remaining commitment at current exchange rates, and includes adjustment for indexation (where applicable).
2	The increase in contract value is due primarily to a number of major CCPs including CCP-001 Simulator, CCP-074 Support and Test Equipment, CCP-078 Spares, CCP-053 Flight Management System, CCP-060 Training Course Development and CCP-102 Boom Enhancements.
3	The contract price includes a provision for direct materiel purchases and additional labour.
4	**Contract value as at 30 June 2016 includes a 3 month extension due to impacts resulting from prime contract schedule slippage.**

Contractor	Quantities as at		Scope	Notes
	Signature	30 Jun 16		
Airbus Defence and Space	5	5	Provision of a new generation air to air refuelling capability comprising five A330 MRTT aircraft and associated supplies and support.	1
Northrop Grumman Integrated Defence Services	3	3	Modification to upgrade three aircraft to the final configuration.	

Major equipment received and quantities to 30 Jun 16

Final Acceptance of the KC-30A Simulation Devices and Contract Final Acceptance were both achieved on 27 November 2015.

NGIDS completed the modification program to upgrade three KC-30A aircraft to final fleet configuration on 30 March 2016.

Notes

1	CCP 131 - purchase of two A330 aircraft and CCP 132 - conversion to MRTT aircraft, raised and signed to update the existing acquisition contract with Airbus Defence and Space for the two aircraft and associated conversion at a cost of AUD $408m. This acquisition will be managed under Project Air 7403 Phase 3.

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System / Platform Variant	Original Planned	Current Planned	Achieved /Forecast	Variance (Months)	Notes
System Requirements /Design	MRTT Aircraft	Feb 05	Feb 05	Mar 05	1	
System Requirements	Simulation Devices	May 06	May 06	Oct 06	5	
Preliminary Design	MRTT Aircraft	Jun 05	Jun 05	Jun 05	0	
	Simulation Devices	Sep 06	Sep 06	Jun 07	9	
	Simulation Devices Facility	Sep 06	May 07	Jul 07	10	
Critical Design	MRTT Aircraft	Feb 06	Mar 06	Jun 06	4	1
	Simulation Devices	Mar 07	Jan 08	Jan 09	22	2
	Simulation Devices Facility	Apr 07	Nov 07	Jan 09	21	3

	Aerial Refuelling Boom System	Sep 11	Sep 11	Dec 11	3	4
Final Design	MRTT Aircraft	Sep 06	Sep 06	Jul 07	10	1
	Aerial Refuelling Boom System	Dec 11	Dec 11	Jul 12	7	4

Notes	
1	The MRTT Aircraft Critical Design Review (CDR) was conducted over a series of meetings from February to May 2006. Although design for the majority of the aircraft systems had been satisfactorily completed, the design for key elements of the aircraft mission system was not yet mature. “Practical Completion” of the CDR Milestone was achieved in June 2006; with a follow-on milestone designated as the Final Design Review (FDR). Concurrently, evaluations of the new Remote Aerial Refuelling Operator console identified the need for changes to the cockpit layout. These changes were agreed as part of the CDR close-out and required a change to the conversion and test process, which was split into two phases: Phase 1 for structural conversion and civil certification, and Phase 2 for installation of the military avionics and military certification. Closure of the residual activities to achieve the FDR proved problematic. These were progressively completed over the following 12 months.
2	Delays to completion of the MRTT Aircraft design process had a knock-on impact to completion of the Simulation Devices CDR.
3	Completion of the CDR for the Simulation Devices Facility was delayed due to redesign to accommodate increased security requirements.
4	Additional design review milestones were added for development of improvements to the ARBS. As with previous design reviews, closure of the contract milestone has lagged conduct of the design review activity in order to complete approval of documentation in accordance with the milestone exit criteria.

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System / Platform Variant	Original Planned	Current Planned	Achieved /Forecast	Variance (Months)	Notes
System Integration	MRTT Aircraft	Aug 08	Dec 08	May 11	33	1
	Simulation Devices	Feb 09	Dec 09	Apr 11	26	2
Acceptance	MRTT Aircraft – Milestone 18 - Acceptance of First Aircraft	Dec 08	Oct 10	Jun 11	29	1
	Simulation Devices and Simulation Devices Facility	May 09	Dec 11	Dec 11	31	2
	Full Mission Simulator Final Accreditation	Feb 10	Feb 14	**Nov 15**	**69**	2
	Aerial Refuelling Boom System	Dec 12	Dec 12	Dec 14	24	3
	Contract Final Acceptance	Feb 11	Jul 15	**Nov 15**	**57**	4

Notes	
1	Originally planned as a single-phase activity, the system integration test program for the first-of-type A330 MRTT was split into two phases to accommodate changes to the Remote Aerial Refuelling Operator console. The first phase, for civil certification of the modified aircraft, was successfully completed in February 2008. The second phase, for military certification and qualification of the modified aircraft, commenced end of December 2008, approximately six months late due to the combination of delays to the first and second conversion phases. Unexpected and continued delays experienced in the development test phase during 2009 delayed commencement of the formal certification ground and flight testing program. A Technical Certificate for certification of the A330 MRTT was issued by the Spanish military certification authority Instituto Nacional de Tecnica Aerospacial (INTA) in October 2010 and reissued in April 2011 to certify changes introduced following a serious in-flight incident and loss of the boom in January 2011 during a training flight with Portuguese F-16 fighters. Qualification testing was completed in December 2010; although two additional flights were necessary, and completed in May 2011, to complete test evidence necessary to demonstrate compliance with the contract specification. Acceptance Test and Evaluation of the first MRTT Aircraft (MRTT#3) was conducted during May 2011 as part of the Customer Acceptance Process following completion of all system integration testing and aircraft preparation for delivery.
2	Delays to completion of the MRTT Aircraft test process **had** a knock-on impact to completion of testing of the Simulation Devices as the data required for its final accreditation **was** dependent on a targeted flight test phase conducted at the end of the formal test program. The Simulation Devices were introduced in phased manner to recover schedule due to delays in the aircraft test program, enabling initial acceptance to be completed in 2011 and training to commence on the devices in 2012. Final accreditation was delayed due to the need for development and testing of further improvements to meet full capability and flow-through of changes to the Simulation Devices.
3	The ARBS program was delayed due to continued development of the ARBS. The Milestone schedule was rebaselined at Deed 4 to allow for further testing.
4	Rectification of all non-conformances at initial acceptance and provision of service bulletins for upgrade of delivered aircraft **was** completed by Contract Final Acceptance

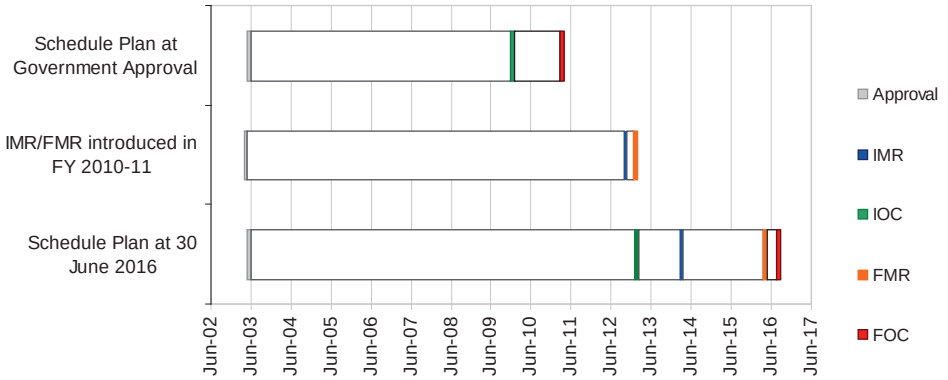
3.3 Progress Toward Materiel Release and Operational Capability Milestones

Item	Original Planned	Achieved /Forecast	Variance (Months)	Notes
Initial Materiel Release (IMR)	Oct 12	May 14	19	1, 5
Initial Operational Capability (IOC)	Dec 09	Feb 13	38	2
Final Materiel Release (FMR)	Feb 13	May 16	39	3, 5
Final Operational Capability (FOC)	Mar 11	**Jul 16**	**64**	4

Notes	
1	Defence milestone for delivery and acceptance of two aircraft, and issue of a Special Flight Permit (SFP) for Air Logistics Support and air to air refuelling for pod refuelling only in support of an IOC. Although IOC achievement **was** declared, declaration of IMR was delayed pending approval of the IMR report.
2	IOC required demonstration of an effective capability for Air Logistics Services (passengers and cargo) and pods (hose and drogue) air to air refuelling. Variance from the original planned date was due to delays to the development, certification and qualification of the first-of-type aircraft and refinement of planning and identification of additional training and operational test and evaluation requirements. Delays to Acceptance of the first aircraft required alternative arrangements for provision of aerial refuelling and air logistics services to meet Air Force operational and training commitments.
3	Defence milestone for delivery and acceptance of five aircraft and mature support system, including training devices, training materials, publications, spares and support and test equipment.

4	Completion of the KC-30A fleet modification program **was** delayed due to a combination of impacts from supporting operations and contractor performance. Scheduling of the Airworthiness Board for Service Release of the Boom Capability in March 2016 **impacted** achievement of FOC, albeit operations **were** conducted under the boom SFP and the impacts are therefore minor.
5	In 2004, Government approved the IOC and FOC Original Planned dates. In 2010 Defence introduced the IMR and FMR milestones. The Original Planned dates for IMR and FMR were aligned with the then Forecast dates for IOC and FOC.

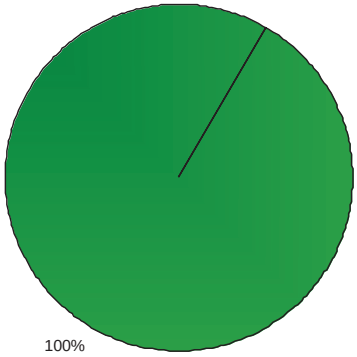
Schedule Status at 30 June 2016



Note
Forecast dates in Section 3 are excluded from the scope of the review.

Section 4 – Materiel Capability Delivery Performance

4.1 Measures of Materiel Capability Delivery Performance

Pie Chart: Percentage Breakdown of Materiel Capability Delivery Performance	
	**Green:** **The capability requirements expressed in the MAA have been met. FMR was achieved in May 2016.** **Amber:** N/A **Red:** N/A

Note
This Pie Chart represents Defence's expected capability delivery. Capability assessments and forecast dates are excluded from the scope of the review.

4.2 Constitution of Initial Materiel Release and Final Materiel Release

Item	Explanation	Achievement
Initial Materiel Release (IMR)	The acceptance of two MRTT aircraft and SFP for Air Logistics Services and AAR (pods only). IMR was declared in May 2014.	Achieved
Final Materiel Release (FMR)	The acceptance of five MRTT aircraft with KC-30A type capable of achieving all Measures of Effectiveness requirements, acceptance of Simulation Devices, and Australian Military Type Certificate (AMTC) and Service Release (SR) achievement. FMR was achieved on 31 May 2016.	Achieved

Section 5 – Major Risks and Issues

5.1 Major Project Risks

Identified Risks (risk identified by standard project risk management processes)	
Description	Remedial Action
N/A	N/A
Emergent Risks (risk not previously identified but has emerged during 2015-16)	
Description	Remedial Action
N/A	N/A

5.2 Major Project Issues

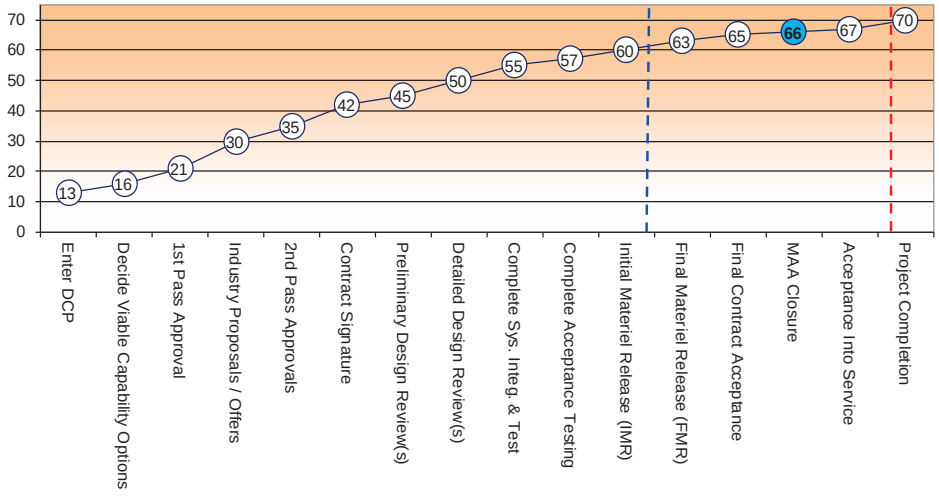
Description	Remedial Action
N/A	N/A

Note
Major risks and issues in Section 5 are excluded from the scope of the review.

Section 6 – Project Maturity

6.1 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage	Benchmark	10	9	10	10	9	9	9	66
MAA Closure	Project Status	10	9	10	10	10	10	10	69
	Explanation	The project has completed acceptance and hand over to Air Force of five aircraft in a configuration able to support achievement of Final Operational Capability. • **Technical Difficulty:** The design and validation of the KC-30A has been proven and accepted using the ASDEFCON Verification and Validation testing process and certified by the various Technical Regularity Authorities. • **Commercial:** Apart from some residual long lead spares, all contract requirements in accordance with the MAA have been met which means the KC-30A system has full capability and has been transitioned to the sustainment organisation with NIL caveats. • **Operations and Support:** The KC-30A has transitioned into operational service.							



2014-15 MPR Status - - - - 2015-16 MPR Status - - - -

Section 7 – Lessons Learned

7.1 Key Lessons Learned

Project Lesson	Categories of Systemic Lessons
The development and introduction into service of a first-of-type military (aircraft) mission and support system is always harder than it first appears. At contract signature the project appeared a reasonably low risk venture. However, over the course of the project, it became apparent to both Defence and the contractor that the integration of the fuel delivery systems and military systems on a commercial aircraft introduced many challenges including: software integration issues, underestimation of developmental and certification testing schedule. As a result, a higher effort for a greater period of time was required by Defence to support the program.	First of Type Equipment.
Technical (design) maturity assessment: a tender definition activity was undertaken following selection of the preferred supplier and prior to contract negotiations. However, due to time constraints and the breadth of review activities, it was not possible to conduct a comprehensive technical review and maturity assessment. As a consequence, an aggressive system design schedule was agreed that subsequently proved difficult to achieve due to lower design maturity - and hence higher development effort - on some systems. The additional development effort was accommodated under the change to a two-phased conversion and test process. In hindsight, once it became apparent that Australia was the lead customer for the A330 MRTT, a more robust design maturity assessment should have been undertaken under a funded design development process prior to contract award.	First of Type Equipment Schedule Management
Whilst this project preceded improvements in the capability definition documents (Operational Concept Document, Function and Performance Specification and Test Concept Description), the intent of these documents was included in tender documentation and refined during contract negotiation for inclusion in the Acquisition Contract. The Contractor's internal requirements management process did not adequately support a robust process for customer clarification of the operational intent leading to protracted development and rework. There is a need to ensure that a robust process exists to achieve a common understanding of derived requirements and operational intent, and that it is agreed in the early stages of the project life-cycle.	Requirements Management

Section 8 – Project Line Management

8.1 Project Line Management in 2015-16

Position	Name
Division Head	AVM Leigh Gordon **(to Mar 16)** **AVM Catherine Roberts (Mar 16–current)**
Branch Head	AIRCDRE Philip Tammen
Project Director	Mr Luke Brown
Project Manager	Mr Grant Cameron