Australian Government
Department of Defence
Capability Acquisition and Sustainment Group

Australian F-35A Project Update

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19 July 2017

Australian F-35A Project – Key Messages

F-35A is the **right capability** for Australia

F-35A capability is **far beyond** 72 aircraft.

The F-35 Program is **transforming Australian industry** and growing the Australian economy

We are **on track** to achieve Initial Operating Capability by December 2020

The risks that remain in the project are being **proactively managed**.

F-35A – The Right Capability for Australia

- F-35A Capability - What it is.
- More than just the aircraft
- The Global Program
- Australian Industry Involvement
- Major Milestones

F-35A Conventional Take-Off & Landing (CTOL)

F-35A Specifications

Length	51.4 ft / 15.7 m
Height	14.4 ft / 4.38 m
Speed	Mach 1.6
Wingspan	35 ft / 10.7 m
Wing Area	460 ft^2 / 42.7m^2
Combat Radius (internal fuel)	>590 n.mi / 1,093 km
Max Take-Off Weight	~70 000lbs
Range (internal fuel)	>1,200 n.mi / 2,200 km
Internal Fuel Capacity	18,250 lb / 8,278 kg
Max g-rating	9.0
Weapons Payload	18,000 lb / 8,160 kg
Propulsion	F135-PW-100
Thrust*	40,000 lb / 25,000 lb Mil

*Max Power (Max) = with afterburner / Military Power (Mil) = without afterburner

F-35A The Right Choice – Pillars of Capability

PILLARS OF CAPABILITY

- The F-35 is the most capable and affordable aircraft to meet Australia's future threat environments. Why?

– Lethal

– Affordable

– Survivable

– Supportable

Next Generation Technology = Total Air Dominance

What is 5th Generation

Jet Fighter Generations

Generation 4.5

The United States Government defines 4.5 generation fighter aircraft as fourth generation jet fighters that have been upgraded with AESA radar, high capacity data-link, enhanced avionics, and "the ability to deploy current and reasonably foreseeable advanced armaments

Mikoyan MiG-35

Saab JAS 39 Gripen

Sukhoi Su-30

Sukhoi Su-33

Dassault Rafale

Boeing F/A-18E/F Super Hornet

Sukhoi Su-34

Sukhoi Su-35

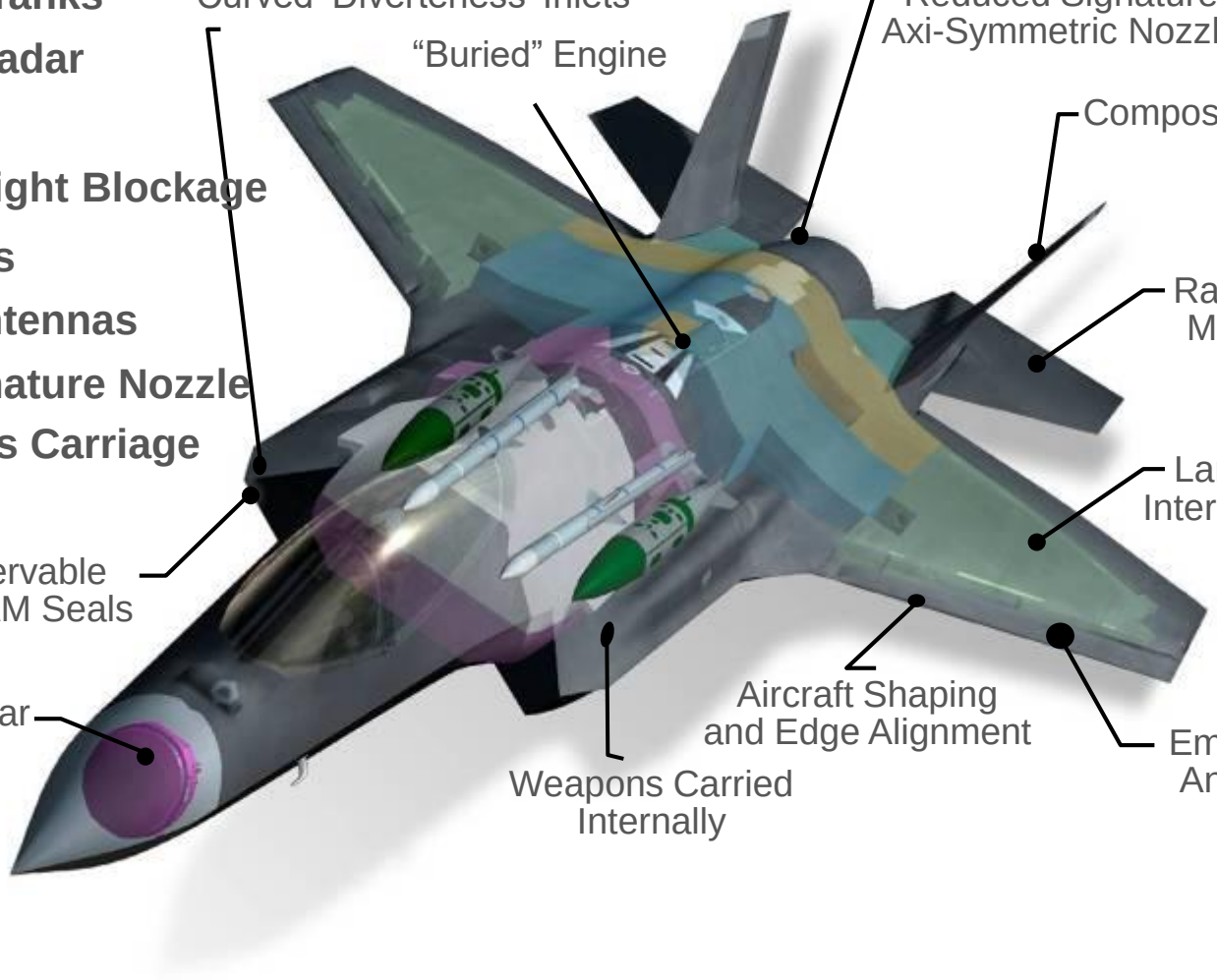
Eurofighter Typhoon

McDonnell Douglas F15E Eagle Strike

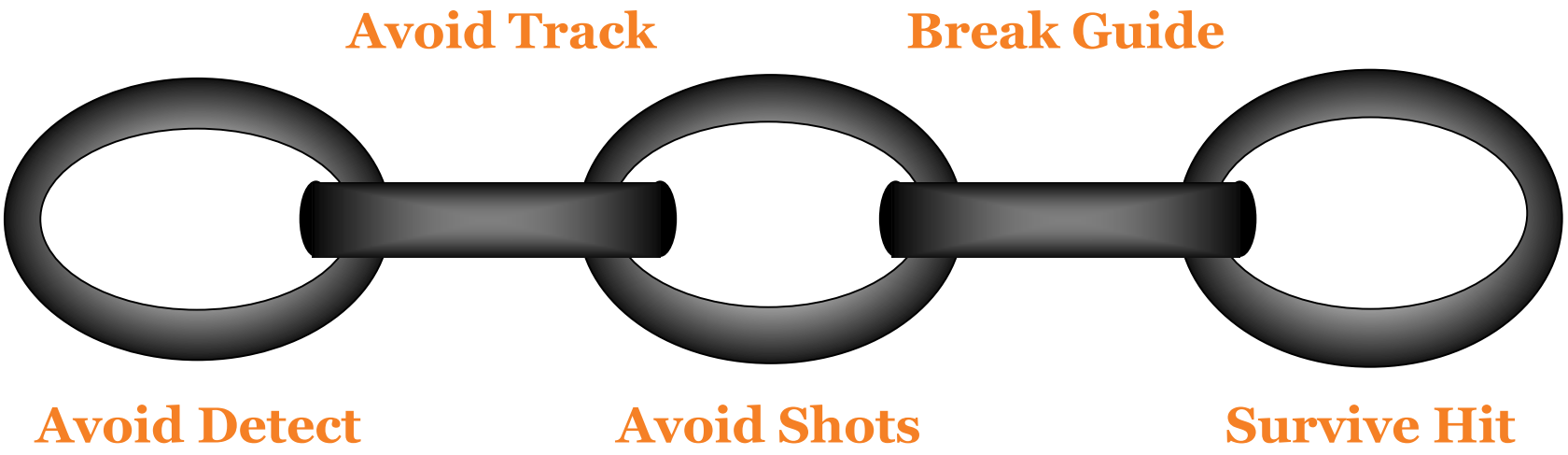
Sukhoi Su-37

Fundamental 5TH Gen Design Features Can Not Be Retrofitted

Internal Fuel Tanks
Fixed Array Radar
Engine Inlets
Full Line-of-Sight Blockage
Aligned Edges
Embedded Antennas
Reduced Signature Nozzle
Internal Stores Carriage



Survivability Kill Chain –
Break ***Any Link*** to Survive, Earlier is Better



VIDEO – F-35 Smart Fighter for the Warfighter

More than Just an Aircraft

What is ALIS?

The Autonomic Logistics Information System (ALIS)

- The off-board information system for the F-35;
- Essential to F-35 operations;
- Provides the information system infrastructure (hardware, software and data) that performs:
  - Flight Scheduling
  - Mission planning / debriefing
  - Maintenance Management
  - Fault diagnostics
  - Supply support
  - Training Management

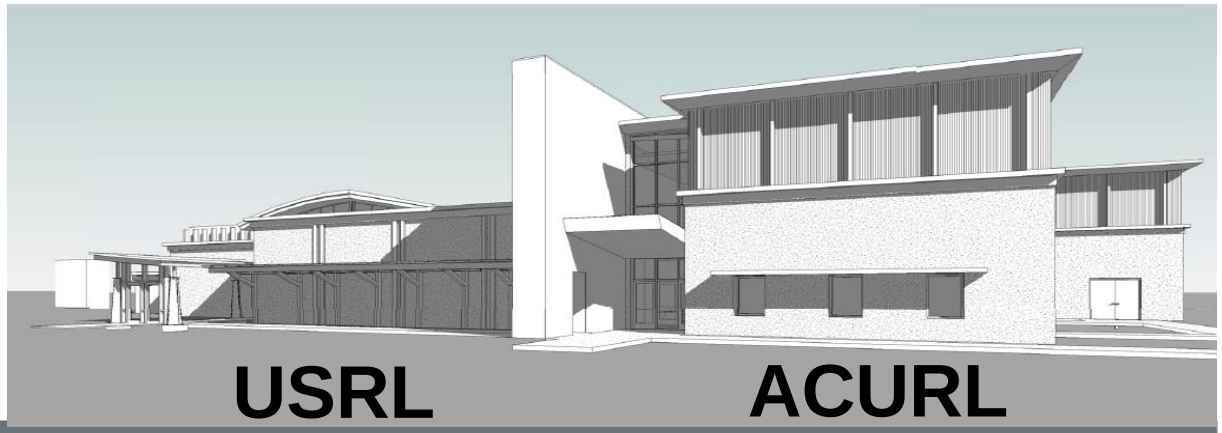
The Off Board Information Support Centre (OBISC)

- A ‘Sand Pit’ for ALIS
- Provides a safe test environment for upgrades
- Development of Procedures
- Integration into Defence Networks
- Opened 5 July 2017 – JSF’s first Australian Facility
  - Williamtown

Video: Keeping the F-35 Mission Ready

What is ACURL?

- Australia Canada United Kingdom Reprogramming Lab (ACURL)
- Mission Data Files (MDFs) enable the F-35 to be a “smart” aircraft
- MDF compiles information about the threat environment (eg other assets in the area) and is loaded onto the aircraft via a “brick”
- Enables the clearest battle space picture of any modern platform
- The Reprogramming facility that produces the MDFs is due to be operation by the end of 2018
- Located at Eglin Air Force Base, Florida co-located with US Reprogramming Lab



F-35 Global Program

- US Government Leading – Joint Program Office (JPO)
- Nine Partner Nations
- Foreign Military Sales
- Production will reach 200 F-35s by the end of 2017
- Global F-35 fleet of around 3,000 by 2035
- F-35 Global Support Solution (GSS)
- Global Industry opportunities
- Collaboration and competition with Partners

F-35 Customers

US Services (USAF, USN, USMC)

- US (2443 F-35s)

Partners (signatories to PSFD MoU) < 1000

- UK (135 F-35s)
- Italy (60 F-35A's / 30 F-35Bs)
- Australia (100 F-35As)
- Turkey (100 F-35As)
- Netherlands (37 F-35As)
- Canada (65 F-35As)
- Norway (52 F-35As)
- Denmark (27 F-35As)

- **FMS**
  - Israel (50 F-35As)
  - Japan (42 F-35As)
  - South Korea (40 F-35As)

A Maturing Program

- Complex Program – developing, building, operating and sustaining aircraft all at the same time
- Production ramp starting now
- Still in development phase of Program
- Early technical challenges being overcome

Egress	Helmet	Weapons/MS Integration	Engine
			

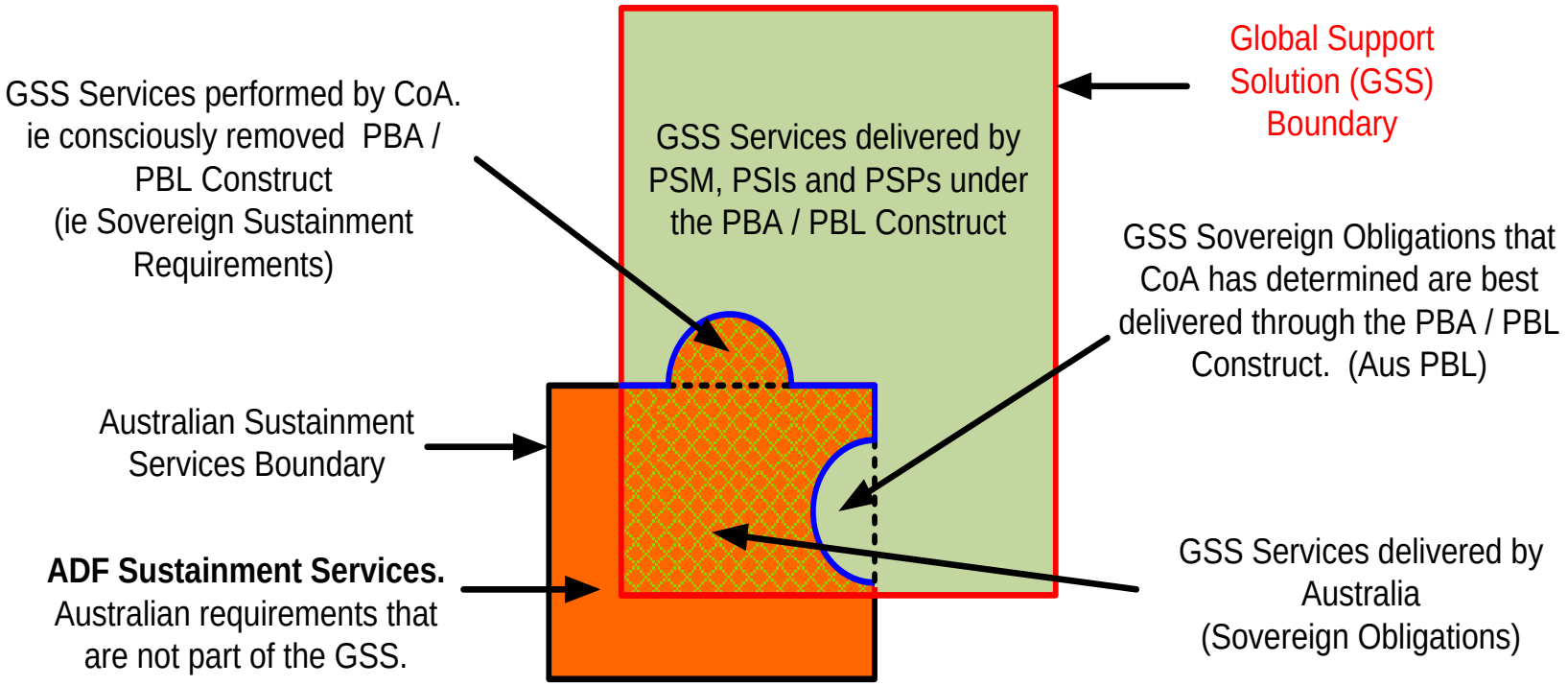
A Maturing Program

- 46 F-35s delivered in 2016
- The F-35 is now operating from 12 different locations
- Collectively, the F-35 fleet has flown over 95,000 flight hours
- Around 200 F-35s in operational service
- More than 400 pilots trained
- Almost 4,000 maintainers trained
- System Development and Demonstration (SDD) phase 95% complete by April 2016
- 229 jets on contract

The Global Support Solution (GSS)

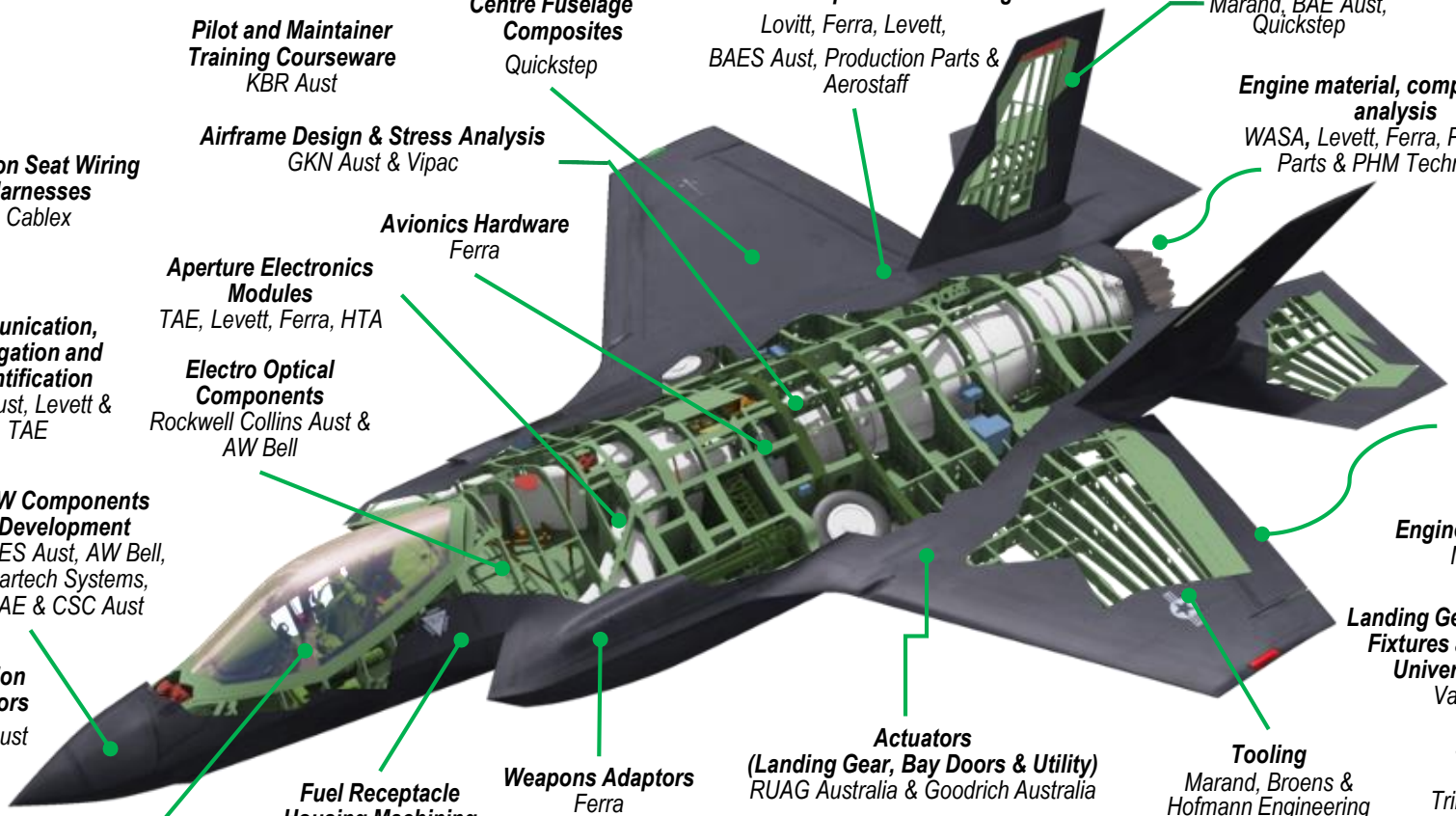
- Partners in the F-35 Program have invested in a Global Support Solution (GSS)
- Three broad regions – Europe, US and the Asia-Pacific
- Best value, available and common support system for F-35s worldwide
- JPO is challenging Partner nations to find mutually beneficial ways to reduce costs
- Performance based construct
- Overall objective of the GSS is to improve cost, schedule and performance
- Australia leveraging the GSS but also ensuring sovereign support requirements are maintained
- This is a transformational way of doing business

The Global Support Solution (GSS)



F-35 Australian Industry Participation

More than $800 million worth of contracts to date



Vertical Tails
Marand, BAE Aust, Quickstep

Airframe Component Machining
Lovitt, Ferra, Levett, BAES Aust, Production Parts & Aerostaff

Centre Fuselage Composites
Quickstep

Pilot and Maintainer Training Courseware
KBR Aust

Engine material, components & analysis
WASA, Levett, Ferra, Production Parts & PHM Technology

Airframe Design & Stress Analysis
GKN Aust & Vipac

Ejection Seat Wiring Harnesses
Cablex

Avionics Hardware
Ferra

Aperture Electronics Modules
TAE, Levett, Ferra, HTA

Active Inceptor System
Levett

Communication, Navigation and Identification
BAES Aust, Levett & TAE

Electro Optical Components
Rockwell Collins Aust & AW Bell

Flares
Chemring Aust

Radar, EW Components & TPS Development
Cablex, BAES Aust, AW Bell, Micreo, Partech Systems, Levett, TAE & CSC Aust

Engine R&I Trailer
Marand

Landing Gear Handling Fixtures and Canopy/ Universal Slings
Varley

Corrosion Sensors
BAES Aust

Actuators (Landing Gear, Bay Doors & Utility)
RUAG Australia & Goodrich Australia

Tooling
Marand, Broens & Hofmann Engineering

Shipping Containers & Packaging
Trimcast & Integra Packaging

Fuel Receptacle Housing Machining
Ferra

Weapons Adaptors
Ferra

Voice Recognition Software
Adacel

Engineering and technical support
Thales Aust, BAE Aust, Marand

JSF Studies
Calytrix, BAES Aust, Marand, QinetiQ, CAE Aust, Tenix

Thermal processing
HTA

Coatings, Platings & Finishes
Electromold, SEC Plating & RUAG Australia

Engine Main Gearbox Lift System
Broens

Electronic Warfare Components
BAE Aust

Australian industry involvement in F-35 production is expected to reach $2 billion by 2023.

Facilities - RAAF Base Williamtown

Australian Industry Participation

- Further opportunities expected as F-35 production rates triple
- Performing better than initial Defence forecasts
- Value of Australian contracts increased by 23% (Dec 15 – Dec 16)
- Further opportunities in F-35 Sustainment

F-35 Program Industry Export Opportunities

The F-35 Program is driving innovation and efficiency and opening up export opportunities for Australian industry.

- PwC Economic Impact Report released March 2017.
- Participation in the F-35 production program has supported an additional 2,400 jobs across the Australian economy.
- At peak production workload, forecasts indicate AUD$1 billion (real GDP) contributed to the Australian economy with an additional 5,000 jobs supported across the Australian economy.
- By 2038, Australian economy will be AUD$1.2 billion (real GDP) greater with an additional 6,300 jobs supported.

Australian F-35A Project Update

- First two jets delivered December 2014
- Over 1,000 combined flying hours to date by Australian F-35A's
- Four qualified Australian pilots and two more in training
- Collaboration with Partners

- On schedule to achieve IOC by December 2020
- Total approved budget for Australian F-35A Project is AU$17.7 billion
- Includes 72 F-35A aircraft along with infrastructure, training and support systems, and weapons.

Australian F-35A Project Milestones

- 2014 – Delivery of first to jets in the United States
- 2015 – Training starts in the United States
- 2018 – First aircraft arrive in Australia
- 2020 – Initial Operating Capability
- 2023 – Final Operating Capability

Australia has one of the most aggressive F-35 integration schedules of any Partner nation outside the United States

Australia's acquisition profile:

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
2	0	0	0	8	8	15	15	15	9	72

Areas of Focus / Challenges

- Support systems in place ready for first ferry in 2018
- Adapting F-35 Program training systems to meet Australian requirements
- Integrating the F-35 Autonomic Logistics Information System (ALIS) into the Defence Information Environment (DIE)
- Achieving Australian industry outcomes
- Being a smart customer and supplier of the Global Support Solution (GSS)
- Reprogramming
- Sovereign Data Management (SDM)
- Global Program spares issues
- Training

Summary

- We are working together to deliver the largest global Defence acquisition Program in ADF history – challenging and exciting times
- Addressing challenges head on
- 32 full time qualified Australian personnel based in the United States as part of the global Program
- Making steady progress to reach Initial Operating Capability by 2020
- Multi-level advocacy of Australian Industry capability will be crucial to achieving industry outcome

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Questions?