

Classic Hornet Aged Aircraft Sustainment



Presenters:

Mr Stephen Jones
Mr Matt Sprakel

AIR FORCE



Milestones

- Next Tactical Fighter announced 20 Oct 1981, Contract Nov 1981
- Instrumented Test and Evaluation Aircraft A21-032 & A21-101
- A21-103 & A21-104 rolled out Apr 1984 in St Louis, Missouri USA, transported to Aust in Jun 1984 and re-assembled by Government Aircraft Factories (GAF)
- A21-101 and A21-102, ferried non-stop on 17 May 1985 from US Naval Air Station Lemoore, California to RAAF Williamtown.
- Lex fitment
- Hornet Critical Modification Program (HCMP) I and II
- Air5376 Hornet Upgrade Program (HUG)
- Classic Hornet Planned Withdrawal Date – December 2021

Upgrade Programs

Air5376 Hornet Upgrade Program (HUG):

- Phase 1: Communications, Navigation & Identification upgrade
- Phase 2.0: Avionics upgrades including Mission Computer software
- Phase 2.1: APG-73 radar
- Phase 2.2: Colour DDIs, Joint Helmet Mounted Cueing System (JHMCS), plus Mission Computer software

Upgrade Programs

- Phase 2.3: Electronic Warfare (EW) - RWR ALR-67(V)3, SAAB BOL CMD5, ELTA EL-L/8222 jammer pod
- Phase 2.4: Replace AN/AAS-38A Nitehawk FLIR with Northrop Grumman AAQ-28(V) Litening AT Forward-Looking Infra-Red (FLIR) pods
- Phase 3: Structural Repairs and modifications to airframe
- Phase 3.1: Various discrete modifications to airframe structure conducted across fleet concurrent to other phases of the HUG program.
- Phase 3.2: Centre Barrel Replacement (CBR) on 10 aircraft and 'delta' discrete structural modifications on the remainder of the fleet.

Classic Hornet an Aged Platform

- Planned Withdrawal Date (PWD) of your program
 - From an engineering perspective, PWD changes impact your decisions
 - These decisions should be reviewed when circumstances change
- Question – What year was the planned withdrawal date of the Classic Hornet?
 - 2013, 2015, 2017, 2019, 2020, 2021.....

Classic Hornet an Aged Platform

Fatigue v's Air Frame Hours (AFHRs)

- With continued PWD extensions, it was identified that the fleet did not have sufficient AFHRS to achieve 2021 PWD fleet requirements. This started the Life Of Type Extension (LOTEX) activity.
- Engineering developed a package of inspections that would allow the aircraft life to be extended from
 - 6000 to 6600 AFHRs
 - 5000 to 6000 Ground Air Ground Cycles
 - 8300 to 9300 Field Landings
- Inspections completed do not extend the life limits, it is the analysis of the results of these inspections
- No LOTEX planned for dual seat aircraft
- Major change under DASR

Classic Hornet an Aged Platform

LOTEX Inspection areas

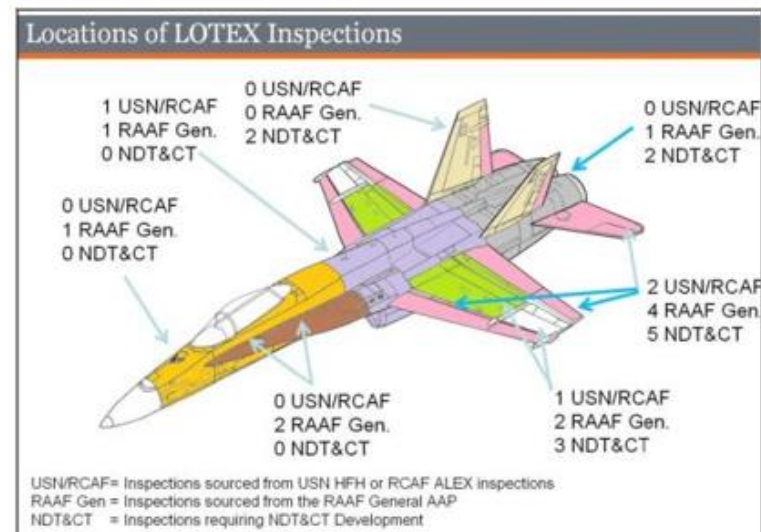
- **Fuselage (All Issued approx. May 17):**
- STI-HORNET-1464 Y470.5 MLG Trunnion Inspection
- STI-HORNET-1454 Issue 1- LEX Inspection
- STI-HORNET-1460 Upper Outboard Longerons Inspection
- STI-HORNET-1462 Stub Former Inspection
- STI-HORNET-1463 HSTAB Spindle Inspection
- CHDMS-EB-000026 Bootstrap Replacement & Y615 OB Former Cap Splice Repair
- NDT Instruction 120 Amended - Y557.500 Dorsal Deck Arch

Inner Wing /Outer Wing (All Issued Jun 17):

- STI-HORNET-1466 Inner Wing TEF Hinge Inspection (Done during DM)
- STI-HORNET-1473 LH & RH Inner Wing Upper Skin to Forward Spar (Zone 1)
- STI-HORNET-1474 LH & RH Inner Wing Lower Skin to Forward Spar (Zone 6)
- STI-HORNET-1475 LH & RH Inner Wing Upper Skin to Wing Fold Rib (Zone 2)
- STI-HORNET-1476 LH & RH Inner Wing Lower Skin to Wing Fold Rib (Zone 7)
- STI-HORNET-1477 LH & RH Inner Wing Upper Skin DR 76, 77 AND 106 (Zones 3, 4 & 5)
- STI-HORNET-1478 LH & RH Inner Wing Lower Skin Pylon Air & Fuel Conx Points (Zones 8 & 9)
- STI-HORNET-1479 LH & RH Inner Wing Lower Skin Inboard Pylon Splice Plate (Zone 1)
- STI-HORNET-1480 LH & RH Inner Wing Lower Skin Outboard Pylon Splice Plate (Zone 2)
- STI-HORNET-1481 LH & RH Inner Wing Upper Skin Outboard Pylon Splice Plate (Zone 3)
- STI-HORNET-1482 LH & RH Outer Wing Upper Skin
- STI-HORNET-1483 LH & RH Outer Wing Lower Skin

Flight Control Surfaces

- STI-HORNET-1506 Horizontal Stab Spindle cavity Inspection (Supersedes STI-1468)
- STI-HORNET-1504 Inboard Leading Edge Flap LOTEX Inspection
- STI-HORNET-1510 Outboard Leading Edge Flap LOTEX Inspection
- STI-HORNET-1515 Horizontal Stabilator Skin to OB Rib Bondline LOTEX Inspection
- [STI-HORNET-NNNN Aileron LOTEX Inspection \(not yet released\)](#)
- [STI-HORNET-NNNN Trailing Edge Flap LOTEX Inspection \(not yet released\)](#)



Classic Hornet an Aged Platform

Technical Hazards

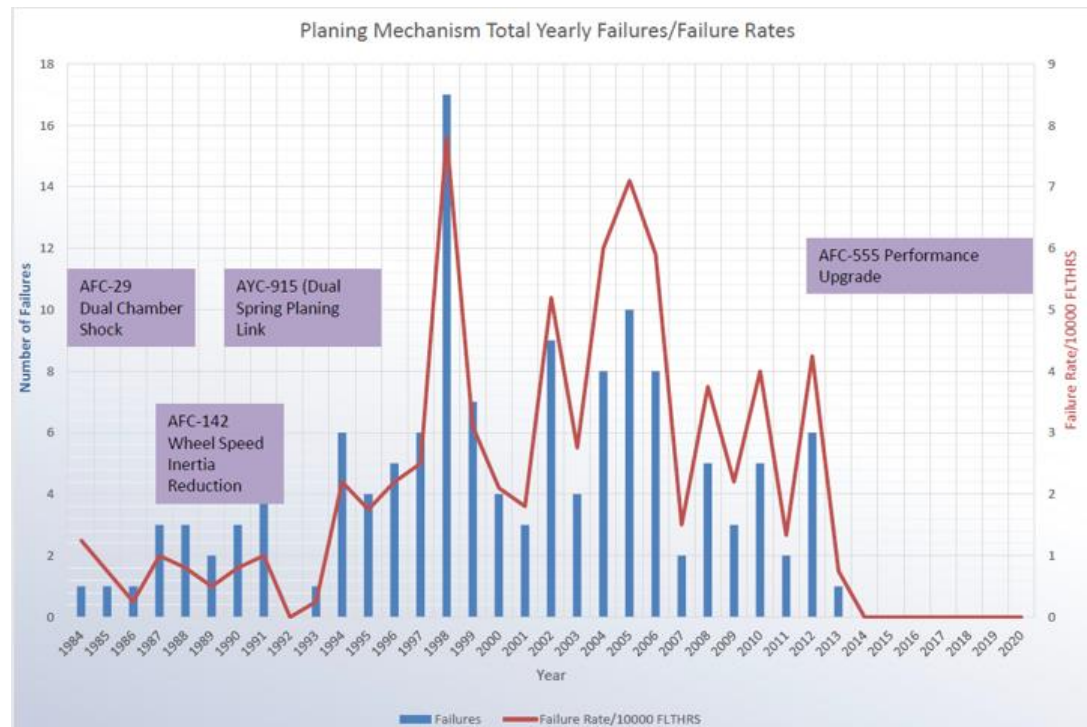
- Like all RAAF platforms, Classic Hornet has an active System Safety Program.
- One of the higher technical hazards currently retained is the landing gear planing link failure.
- Classic Hornet has had several minor planing link failures during its history.
- USN has had 300+ and six leading to CAT A/B mishap.



Classic Hornet an Aged Platform

Technical Hazards

- USN released several Airframe Changes (AFC's) and Accessory Changes (AYC's) to attempt to remediate the planning link failure hazard.
- Decision was made to not proceed with AYC 915 as was not economically viable.



Classic Hornet an Aged Platform

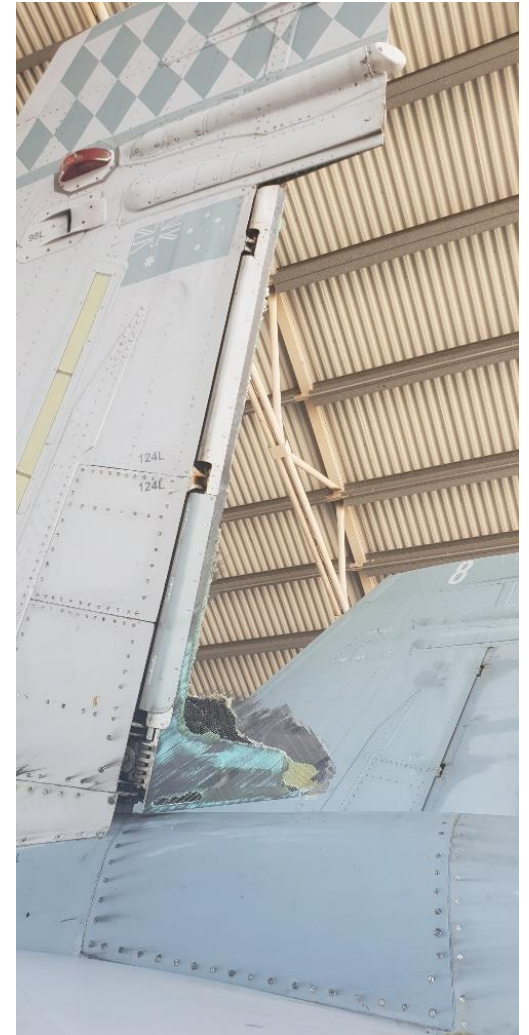
Support Systems and infrastructure are important

- Structural Condition Monitoring System (SCMS)
 - Brought in to replace paper repair records
 - Initially introduced in the early 2000's
 - By 2015, Defence network changes has impacted SCMS capacity with latency issues
 - By 2019 a replacement was obtained
 - 28000+ aircraft repairs
- Configuration Data Recovery Management System (CDRMS)
 - Stores the entire Hornet fleet drawings
 - Stand alone system that has limitations

Classic Hornet an Aged Platform

Decisions made during fleet service need to be reviewed when circumstances change.

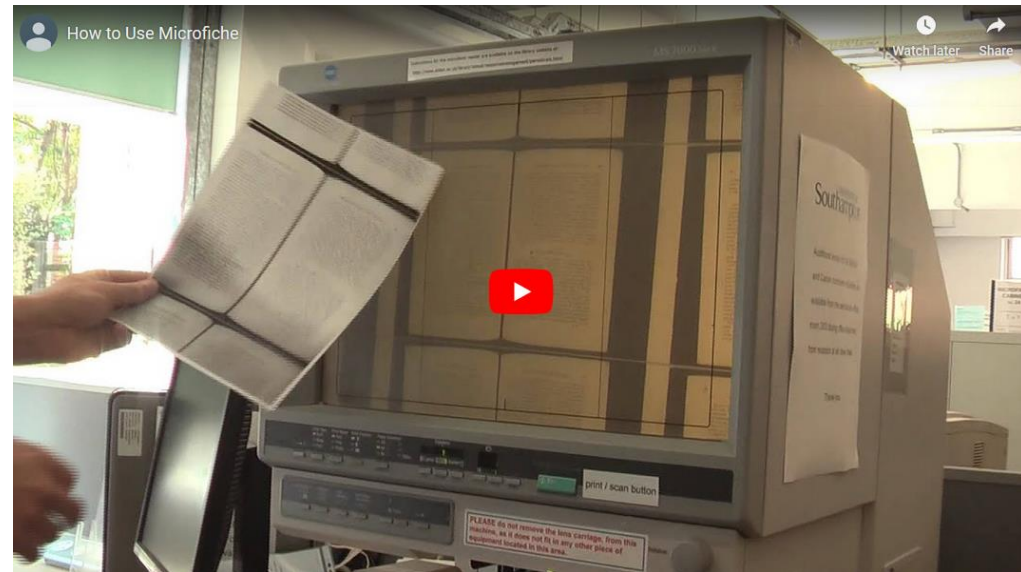
- RAAF Rudder departure in November 2018
- Several occurrences in the USN fleet
 - attributed to moisture induction through the bonding lead studs attached through the spar
- USN inspection regime released in 2011, detailing a different inspection technique
- TI Assessment of USN Inspection recommended inspection of the USN F/18 rudders upon reaching 6000 AFHRS. “RAAF assets unlikely to reach this AFHR count for some time (if at all)”



Classic Hornet an Aged Platform

Where is your data stored?

- Obviously in your PLM tool right!
- Classic Data Locations
 - Microfiche
 - CDRMS
 - SCMS
 - Objective
 - EMERALD
 - Peoples Inbox
 - H drive

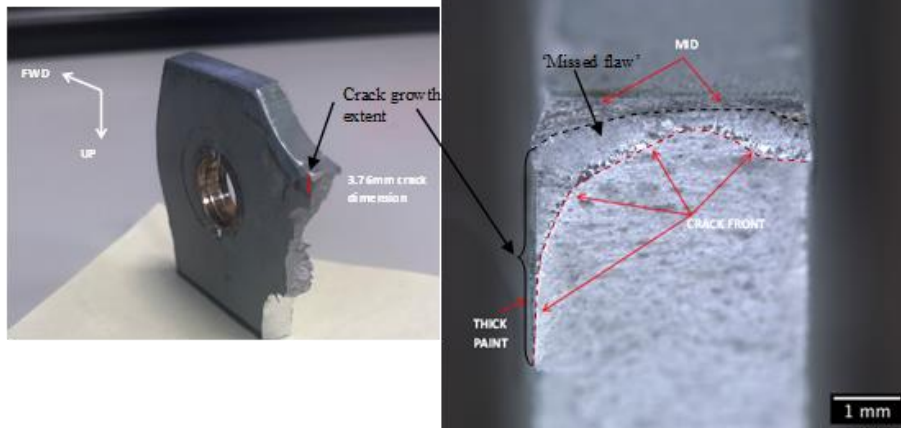


Key point – ensure data is stored in official systems, maintain data integrity / discipline and migrate all data during upgrades

Classic Hornet an Aged Platform

Data Retention example

- Maintenance Induced Damage
 - 130 OW's inspected
 - 53 instances of MID <0.030" (39.6%)
 - 8 with cracking initiated at MID (6%)
 - 4 unrepairable outer wings. (3.8%)
- No repairs or maintenance action could be found



Lean SPO Concept & Transformation



Challenges

- Civilianisation in 2000, uniformed numbers reduced, APS recruitment
- Transition in 2009, HUG elements cease
- Transformation in 2017, BDA become the Weapon System Support Intergrator
- Classic Hornet workforce retention across the enterprise
- CHAMU closure planned for end 2021

A Collaborative Approach



TFSP0 and Boeing Defence Australia

TFSP0 Transformation

- Uniformed and APS positions released to support 5th generation introduction
- Initial focus on ensuring BDA was functioning as a Weapon System Support Integrator (Aircraft in theatre)
- Recent focus on Asset Management and governance requirements
- Governance
 - What, why and when
 - Understand what you are attempting to govern and why (Policy, regulation, capability requirement or contract)
 - Risk managed approach



Questions ?

AIR FORCE

