



U.S. AIR FORCE

Controlled Unclassified Information (CUI)

2024 F-15 Worldwide Review



Engineering Topics



**John Woodington
AFLCMC/WAQE**

Controlled Unclassified Information (CUI)



U.S. AIR FORCE

Controlled Unclassified Information (CUI)

Disclosure Statement



“This information is furnished on the condition that it will not be released to another nation without specific authority of the Department of the Air Force of the United States, that it will be used for military purposes only, that individual or corporate rights originating in the information, whether patented or not, will be respected, that the recipient will report promptly to the United States any known or suspected compromise, and that the information will be provided substantially the same degree of security afforded it by the Department of Defense of the United States. Also, regardless of any other markings on the document, it will not be downgraded or declassified without written approval of the originating US Agency, AFLCMC/WAQIB - TCP, 320 Richard Ray Blvd, Robins AFB GA 31098-1670”.

This briefing is for information only. No US Government commitment to sell, loan, lease, co-develop or co-produce defense articles or provide defense service is implied or intended.”

“This information is furnished on the condition that it will be given substantially the same degree of security protection given to it by the United States and will not be released to another nation without USAF authorization.”
(DAFMAN 16-201 AFMC SUP, Para 5.5.2.3.1)

FDO Case # WR-24-744-XX

Controlled Unclassified Information (CUI)



U.S. AIR FORCE

Overview



- **F-15E Longeron Repair Initiative**
- **IAT 49: Front Spar Tooling Hole Cracks**
- **Certified Service Life Re-Certification for F-15C/D and F-15E**



F-15E Longeron Repair Initiative



U.S. AIR FORCE

- F-15E aircraft will receive a planned Longeron Repair Initiative (LRI) involving the replacement of the main longerons due to the complexity and burden of required inspections
 - Approximately 1700 manhours to accomplish
- Holes in new longerons will be 100% coldworked and corrosion preventatives will be applied
 - This helps to ensure maximum life of the parts and reduce future inspections
- FTE-10 did reach the end of the test with the original longerons
 - LRI is being accomplished to reduce the maintenance and engineering burden of aging safety of flight parts and increase aircraft availability
- Parts will be procured through DLA
- First aircraft successfully completed LRI Oct 2024

QTY	NSN	Part Number	Name
1	1560-01-600-0804	68A313171-2001	Canopy Sill Longeron
1	1560-01-600-0803	68A313171-2002	Canopy Sill Longeron
1	1560-01-620-6730	68A321024-2063	Upper Inboard Longeron
1	1560-01-620-6724	68A321024-2060	Upper Inboard Longeron
1	1560-01-696-1626	68A324501-2011A	IAT 6 bracket
1	1560-01-696-1624	68A324501-2012A	IAT 6 bracket
1	1560-01-696-1428	68A324501-2009A	IAT 6 bracket
1	1560-01-697-5562	68A324501-2010A	IAT 6 bracket
1	1560-01-706-8000	68A321085-2009	IAT 6 bracket
4	1560-01-696-1440	68A321085-2007	IAT 6 bracket
1	1560-01-633-9979	68A316075-2007A	IAT 69 bracket
1	1560-01-634-0307	68A316075-2008A	IAT 69 bracket
1	1560-01-425-4076	68A318024-2049	Skin
1	1560-01-425-4075	68A318024-2050	Skin
1	1560-01-425-4079	68A318024-2053	Skin
1	1560-01-425-4080	68A318024-2054	Skin
1	1560-01-673-0775	68A350605-2003	Windscreen fairing
1	1560-01-673-0778	68A350605-2004	Windscreen fairing
1	1560-01-711-1143	201873455-01	Repair Bracket
1	1560-01-711-1141	201873455-02	Repair Bracket
1	1560-01-628-3989	68A318015-2031	Longeron clip
1	1560-01-628-3995	68A318015-2032	Longeron clip
24	5340-01-535-4789	FTR-3-0-1-.250-S	Windscreen Force-Tec Retainers
1	1560-01-714-1474	68A321309-2003	Beam (FWD)
1	1560-01-714-1490	68A321309-2004	Beam (FWD)
1	1560-01-714-1266	68A321028-2029	Angle
1	1560-01-714-1271	68A321028-2030	Angle
1	1560-01-714-1279	68A321028-2051	Stringer
1	1560-01-714-1285	68A321028-2052	Stringer



IAT 49 Front Spar Tooling Hole Cracks



U.S. AIR FORCE

- IAT 49.0 – Outboard Front Spar Tooling Holes
 - 10” crack found at IAT 49.0 during unrelated field level inspection – prompted installation of outboard front spar splice
 - TCTO released in Dec 2022 to inspect forward side of front spar at IAT 49.0
- Repairs Approaches:
 - Large cracks into upper/lower flanges: Outboard front spar splice installed or spar replacement
 - Smaller cracks: Temporary double L-Angle repair installed by field units with front spar splice installed at depot
- Between Dec 2022 and Oct 2024, 240 wings have been inspected
 - 45 wings had at least one crack indication
 - In the same period, configuration updates show 72% of wings already had or just received a front spar splice/new front spar





Certified Service Life for F-15C/D



U.S. AIR FORCE

- Engineering has submitted an airworthiness package to extend the service life of F-15C/D fleet to $\frac{1}{2}$ of the Test Demonstrated Life (TDL), 14016.5 FTA-7 EFH
 - The timeframe for completion is no later than FY25
 - The goal is to re-certify the fleet prior to needing a new risk acceptance for continued flight
 - Known mitigating actions required for re-certification
 - Canopy sill longeron, Upper aft longeron, and Upper inboard longeron must be replaced
 - All IAT inspections must continue to be done
 - Additional mitigating actions may be required





Certified Service Life for F-15E

U.S. AIR FORCE

- Engineering has recertified the USAF F-15E fleet to a new service life to 1/3 of the TDL, 16,332 FTE-10 EFH
 - Interim extension utilized a risk-based approach that incorporated USAF F-15E fleet usage, IAT inspection results, updated DTA analysis, and FTE-10 “in-test” findings as the basis for recertification
 - Mechanical components and avionics were also addressed in the recertification but did not require any mitigating actions
 - USAF F-15E aircraft required structural mitigating actions to be certified to the new 16,332 life
 - All IAT’s must continue to be performed
 - All holes in IAT 69 must be coldworked IAW 1F-15-1679





U.S. AIR FORCE

Controlled Unclassified Information (CUI)

Certified Service Life for F-15E



- Recertification to 1/2 TDL, 24,498 FTE-10 EFH is in work but may be several years before completed
- FTE-10 Teardown has been completed by S&K and all findings have been sent to Boeing
 - Boeing is using these findings to create or update DTA's
 - USAF will then use these new DTA's to form updated inspection criteria and/or PDM tasks
- Recertification to 24,498 may have additional mitigating requirements that must be complied with to take advantage of the new certified life
 - These mitigating actions are unknown at this time and will be established during the recertification process



Controlled Unclassified Information (CUI)



U.S. AIR FORCE

Questions?

