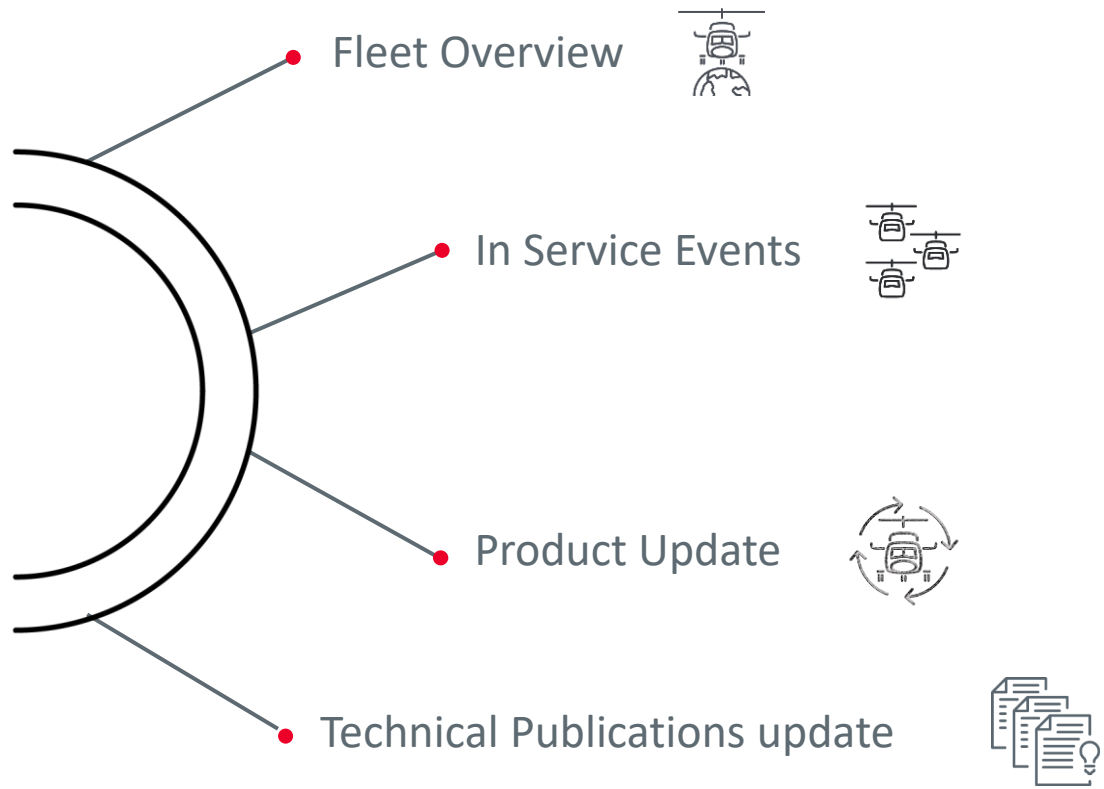


AW189 Technical Briefing
Dhanaraj Eliyathamby (Dhana)



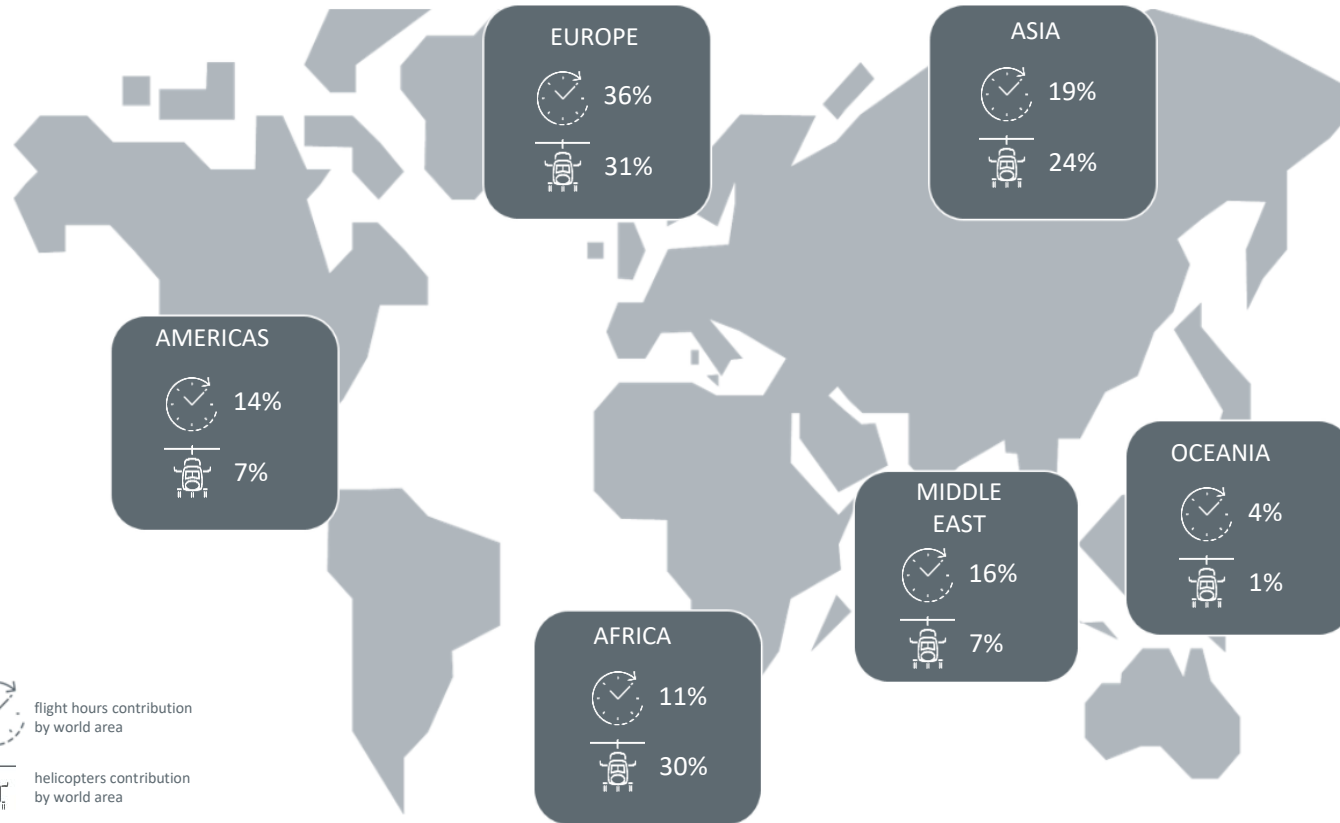
TABLE OF CONTENTS



Fleet Overview

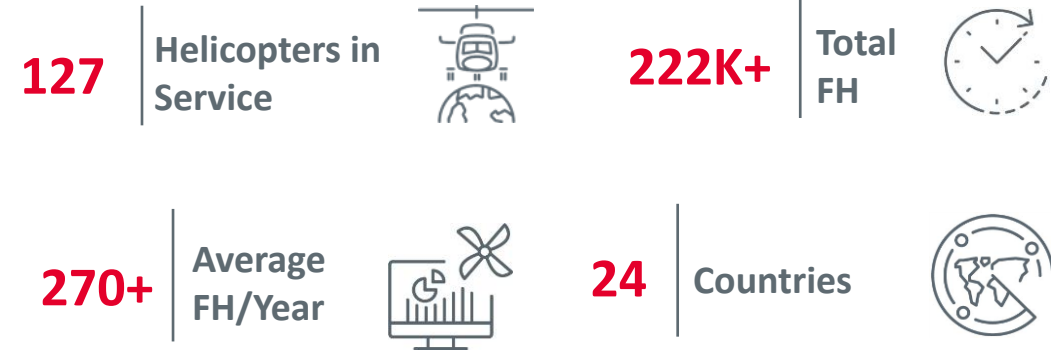


FLEET OVERVIEW

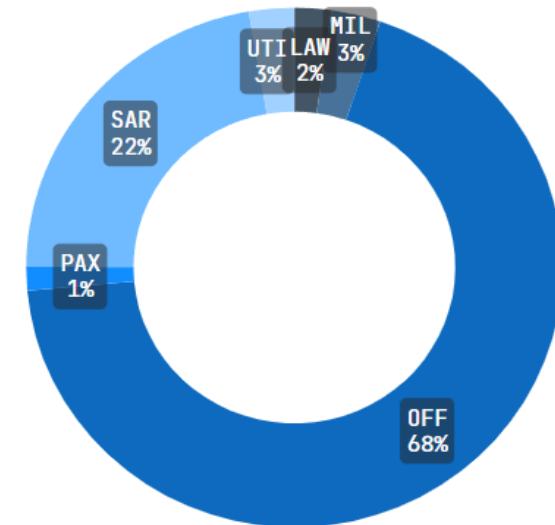


flight hours contribution by world area
 helicopters contribution by world area

SUMMARY

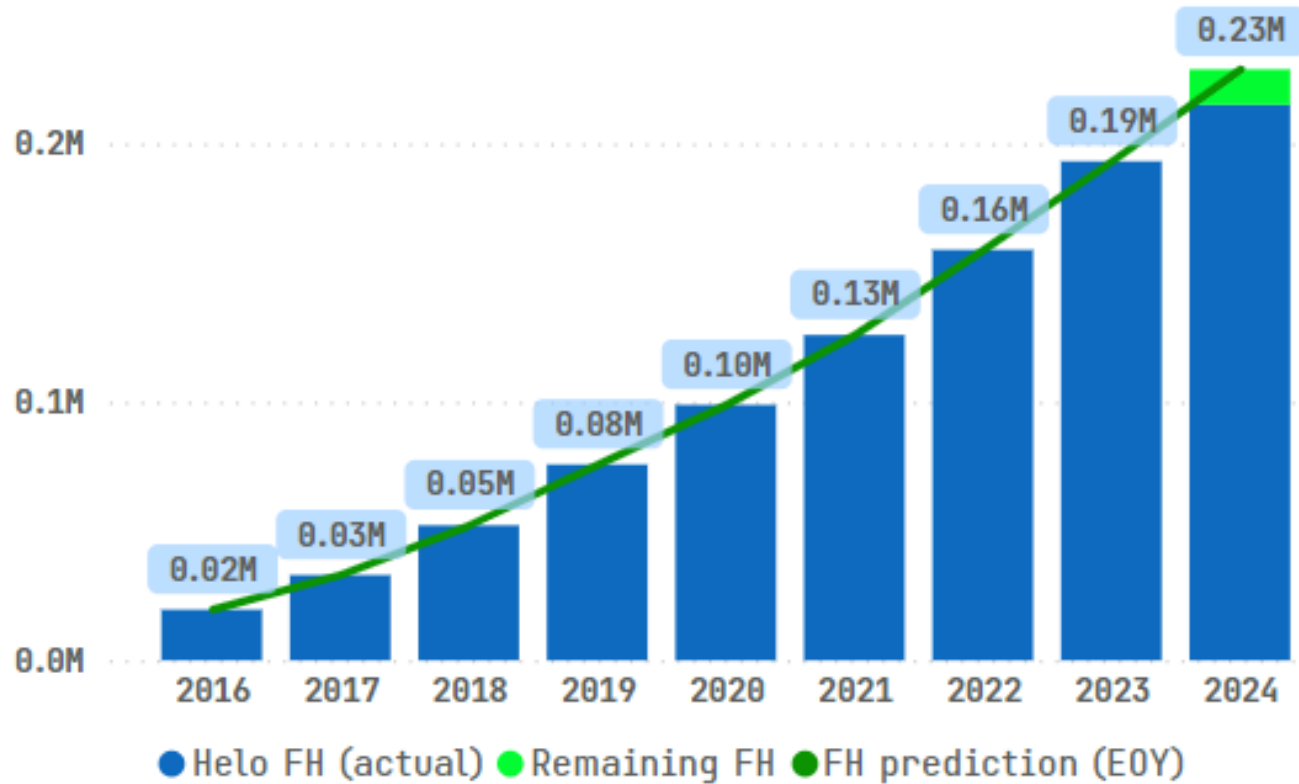


FLEET FH BY MISSION PROFILE



FLEET OVERVIEW

FLEET FH TREND AND FORECAST



2024 ACHIEVEMENTS

8.5%

Fleet growth
(Sept 2023-Sept 2024)



+10.4%

Δ FH/year
growth
(Sept 2023-Sept 2024)



+2.5%

Average FH/year growth per
single helicopter for main
mission profiles (OFF & SAR)
(Sept 2023-Sept 2024)

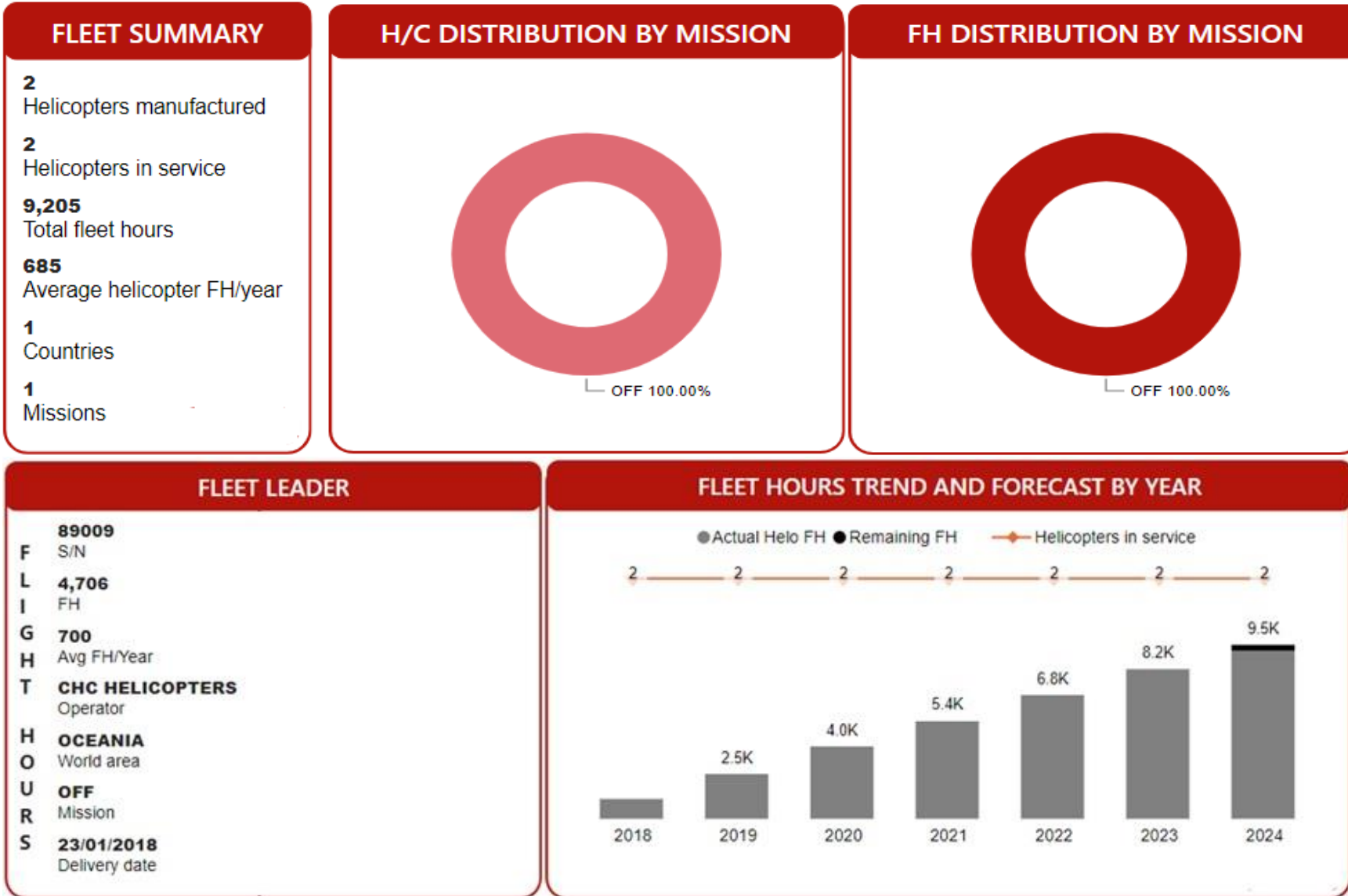


8K+

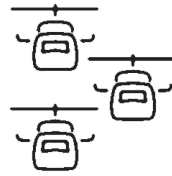
FH reached by
fleet leader



Oceania – AW189 Fleet Overview



In Service Events



Ejector Ducts Inspection

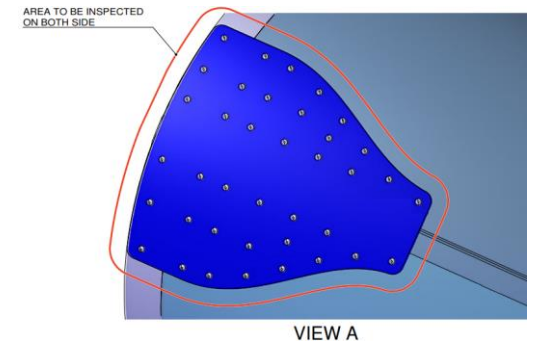
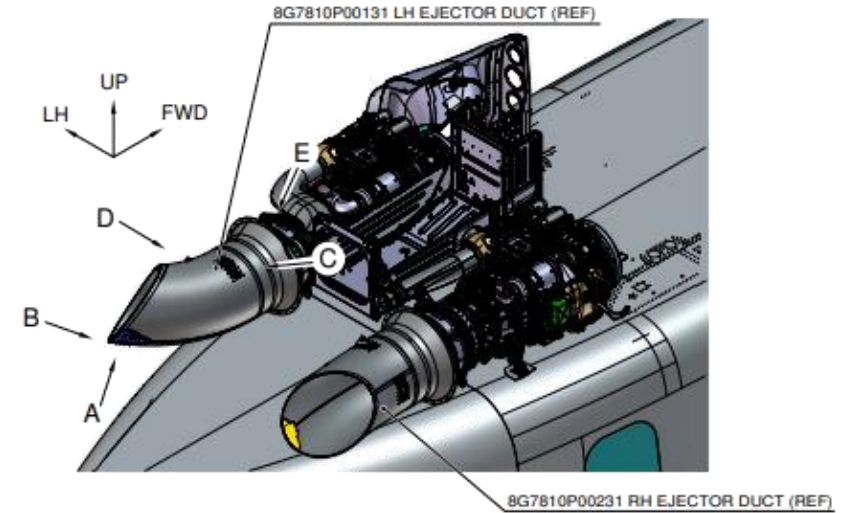


Background

- Cases of crack reported on the rear portion of the Ejector (LH P/N 8G7810P00131).
- The crack usually originates close to the edge line of the reinforcement plate.
- If undetected, the damage could lead to material detachment, as occurred to one Operator.

Current Status

- ✓ **SB189-384** was released in July 2023 as a precautionary measure to detect cracks.
- Investigation is currently ongoing on several cores returned to LH and on affected H/C.
- In light of feedback from the field, an **SB189-384 Rev.A** shall be published to introduce inspection of the exhaust brackets (**Q4 2024**).



Frame STA 5700, MLG Slant Beam Attachment

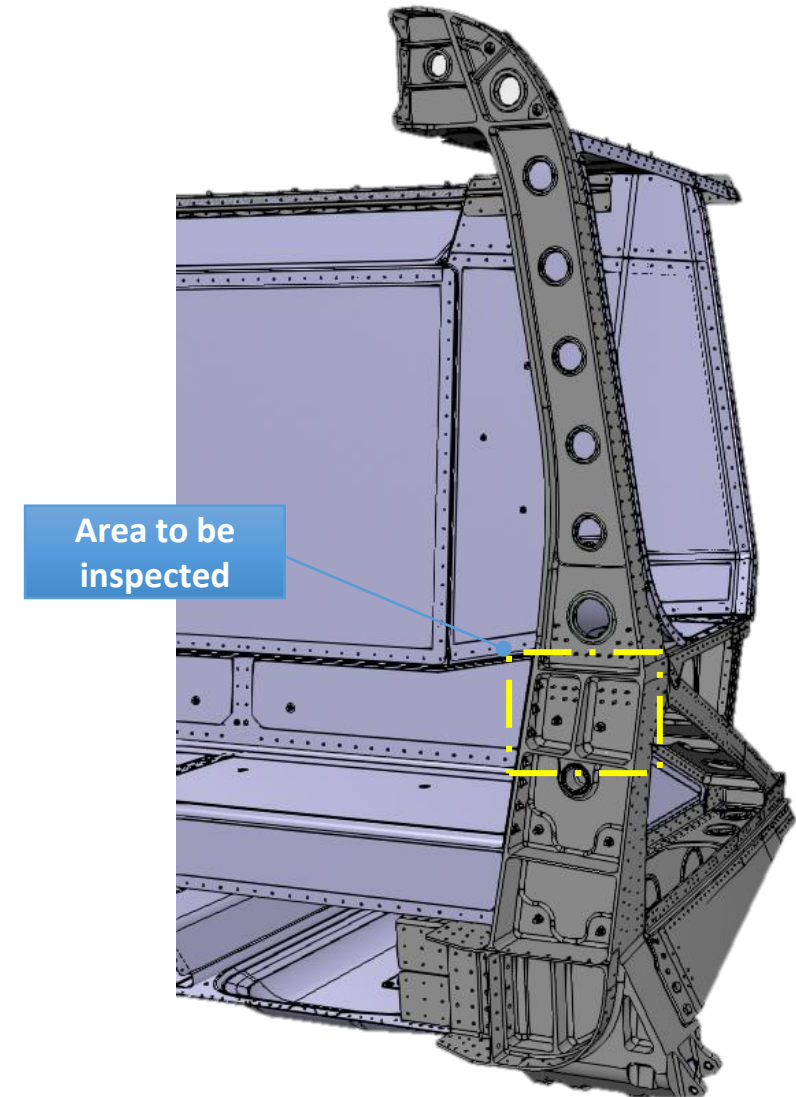


Background

- Following a review of AMPI Chapter 4 requirements, it was found an additional inspection of the frame STA5700 is required for helicopters with more than 14.765 landings.
- Technical Information Letter **T-189-24-003 released in July 2024** to inform all operators of the requirements.

Current Status

- ✓ **SB189-397 released in August 2024** providing instructions to all operators to perform the inspection.
- ✓ A repetitive inspections will be required each 1160 landings.
- The inspection will be introduced in AMPI Chapter 4 at the first favorable occasion.



Event in Brazil



Background

- During maintenance ground run, a fire developed involving the upper deck area in proximity of the engine number 1, on the left side of the helicopter.
- No injuries are reported among the aircraft crew.

Current Status

- ISEN-24-021 issued to inform the Community on this event and LH is supporting the local investigation authority to identify the root cause of the event.
- From the preliminary data analysis, ISEN-24-022 issued informing that

the event did not highlight any fuel leakage in the affected area.

- The fire propagation is compatible with the solely combustion of carbon-based materials (e.g. plastic and rubbers).
- Based on the evidences collected, LH also requested the shipment of some parts for dedicated investigation.



AgustaWestland Products

IN SERVICE EVENT NOTIFICATION

Reference: ISEN-24-022

Date: November 18, 2024

TO: All AW189 Owners / Operators

SUBJECT: AW189- In-Service Event in Rio de Janeiro, Brazil

References:

- Ref. [1] ISEN-24-021 dated November 06th, 2024

Dear Customer,

Hereby, Leonardo Helicopters (LH) would like to provide an update regarding the event that was previously reported with the communication at Ref. [1].

LH immediately supported the Operator during the preliminary inspections aimed to determine the root causes of the event. The preliminary data analysis did not highlight any fuel leakage in the affected area. The fire propagation is compatible with the solely combustion of carbon-based materials (e.g. plastic and rubbers). Based on the evidences collected, LH also requested the shipment of a limited number of parts for a dedicated analysis in our laboratory.

LH is not currently envisaging the need to take any immediate airworthiness action on the in-service fleet as a result of the information available at the present time. Further communications will follow through the usual official LH channels as necessary.

LH is also working with the Operator to complete the assessment of the damages caused by the fire in order to define all the necessary actions for a prompt return to service of the aircraft.

Should you need any additional information, please do not hesitate to refer to your usual contact within LH Engineering Support Team.

Yours Sincerely,

Marco D'Adamo
Leonardo Helicopters
Customer Support, Services & Training
Head of Product Support Engineering



Product Update



Product Update

STRUCTURES



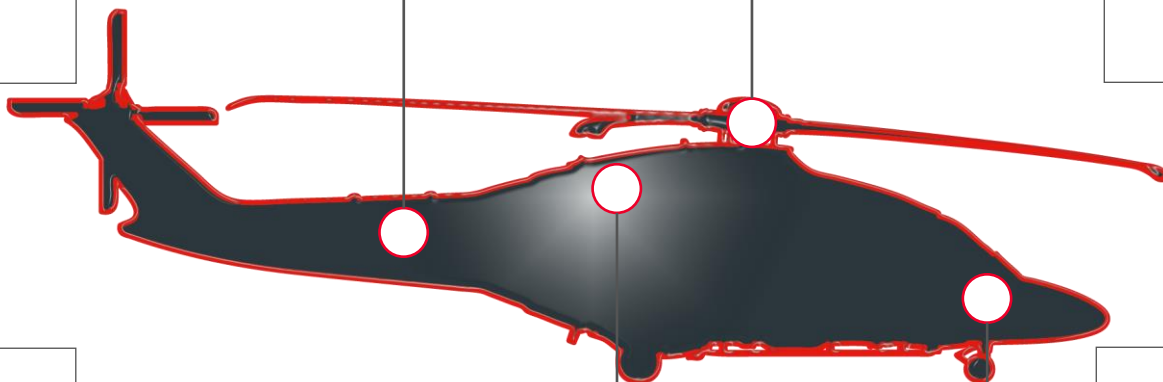
ROTORS & DRIVE SYSTEMS



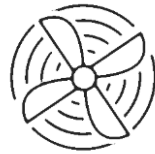
AIRFRAME SYSTEMS



ELECTRICAL & AVIONICS SYSTEMS



Rotors & Drive System



TRDS Paint Bubbling



Background

- Cases of paint bubbling on Tail Rotor Drive shaft have been reported from field.

Analysis

- Internal investigation performed on returned items identified weaknesses of XPD Primer and paint adhesion due to the sealed anodisation substrate when exposed on both high humidity and temperature.

Current Status

- Changed manufacturing treatment and painting process to guarantee a better adhesion between shaft and primer.
 - Dry and Wet adhesion tests are currently ongoing for improvement confirmation.
 - **Test completion: Q4 2024**



Electrical & Avionics System



AW189 TCAS II Targets

Background

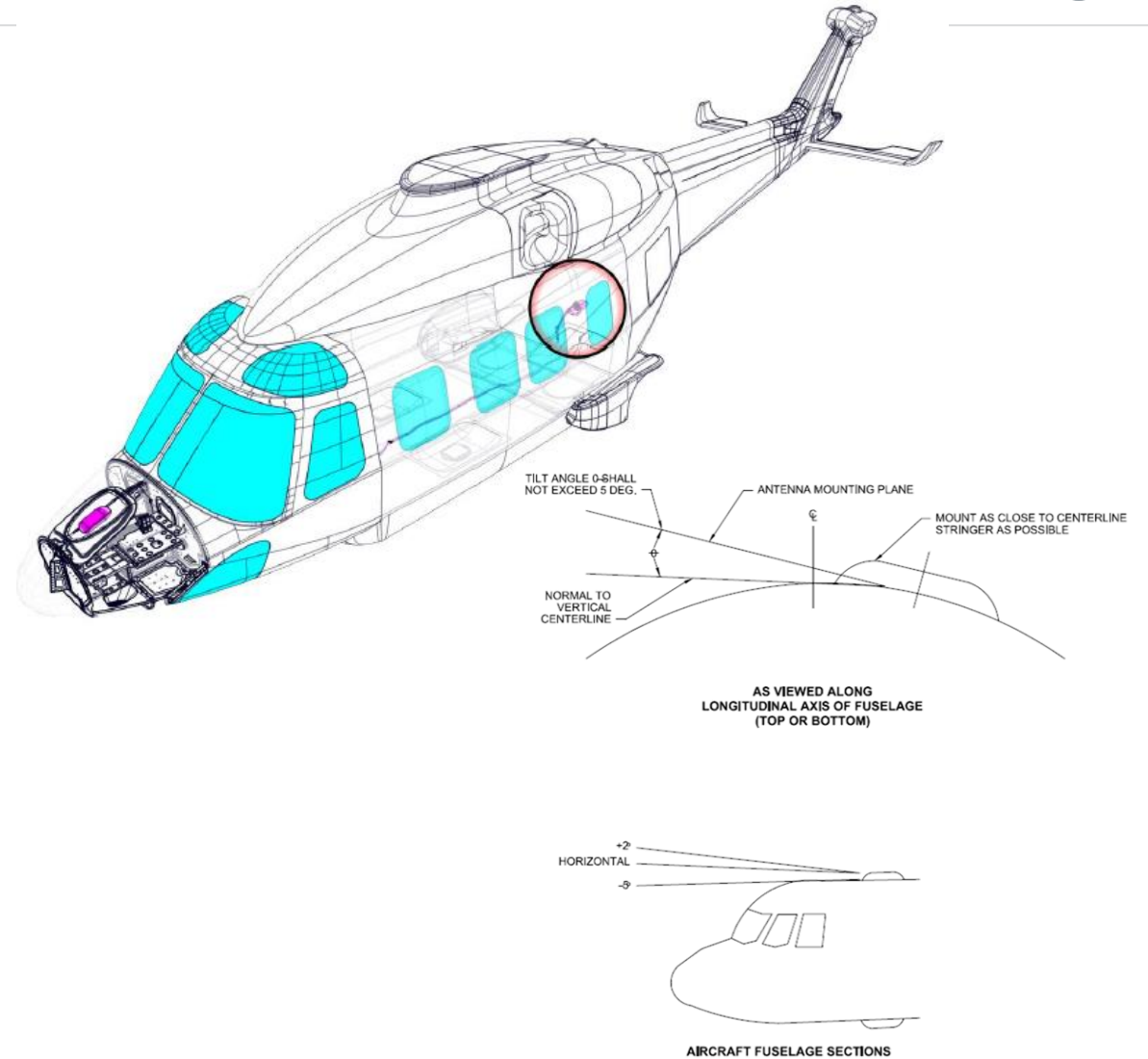
- Customer reported cases of TCAS II targets that disappear from the screen when the target is below the helicopter level and getting close.

Analysis

- An internal investigation lead to identify a possible improvement in the bottom antenna location for GER.

Current Status

- The bottom antenna in the new position is under testing.
 - **Certification Forecast: Q1 2025.**
- A retromod certification and subsequent SB will be planned only after the test results.



Avionic Software Phase 9.0 / 9.1 and AFCS Improvement



Background

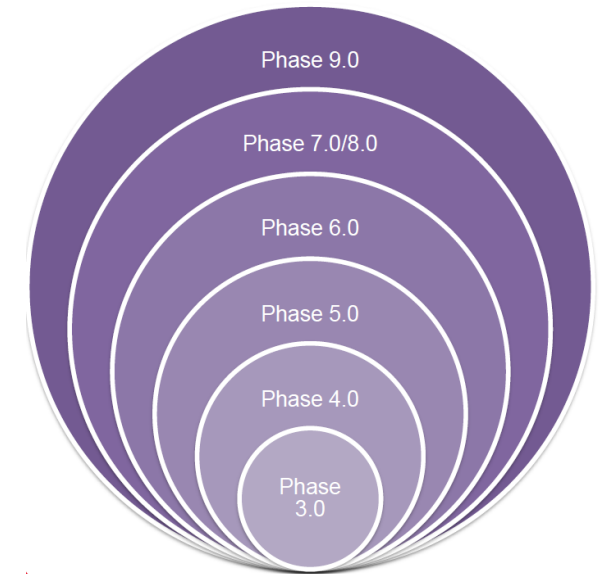
- Pre-requisite for additional kits (Silvus radio, new Cabin PC EVO, 3rd AMMC, AIS XPDR Secure Mode, optional management of other VHF radios as COM1/2).
- Improvement of HC positioning control in WTR mode from hoist pendant.
- Minor corrections and improvements (including the undesired pitch oscillations referred in T-189-22-001).
- Improvement of AFCS Hands-on qualities and Hover mode, with better accuracy and increased disturbance rejection.
- Improvements in MGB Pressure Low monitoring logic.

- Helo Performance DB management improvement.
- FMS waypoints symbols updated.

Current Status

- EASA Certified Phase 9.0 July 2022. FAA validation forecast: Q4 2024 (in conjunction with Phase 8.0).
- Scheduled to become the standard SW phase on production H/Cs.
- **SB189-336** for in-service upgrade released in July 2023. Only SW change from Phase 8.
- Phase 9.1, including AFCS Improvements: **SB189-393** ready for validation.

Incremental Content Philosophy



Structures



Heated Windshield Installation Improvement

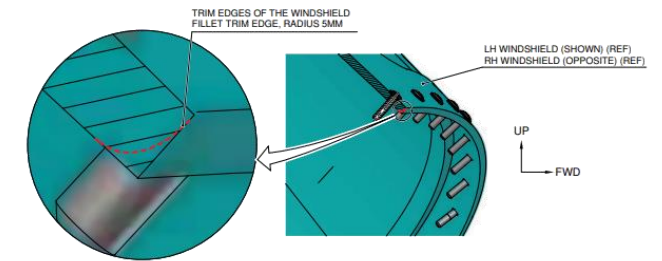
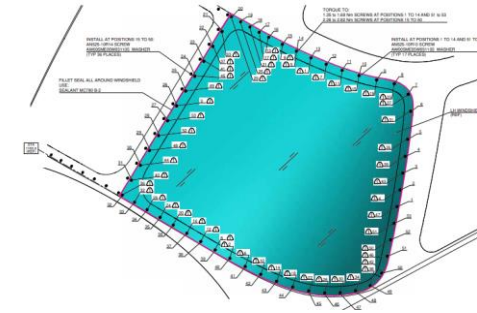


Background

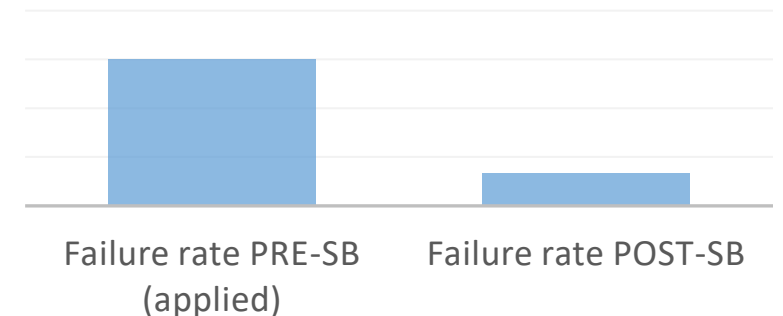
- Cases of cracked glass windshields reported from service.
- Residual strength analysis of the windshield completed with no finding.
- Existing installation demonstrated susceptibility to FOD impacts and canopy deformation.
- Torquing sequence influences the windshield preload.

Current Status

- ✓ Improved windshield installation in IETP and through **SB189-294** issued May 2022.
- ✓ In-service monitoring on the applicable fleet pre- and post-SB application showing a significant reduction of the windshield failure rate.
- ✓ Post-SB fleet leader accrued **2000+ FH** with no findings.
- Considering the positive feedback from AW189, similar solution is under development on AW139.



JAN 2019 - SEPTEMBER 2024



Improved Engine & APU Mounts

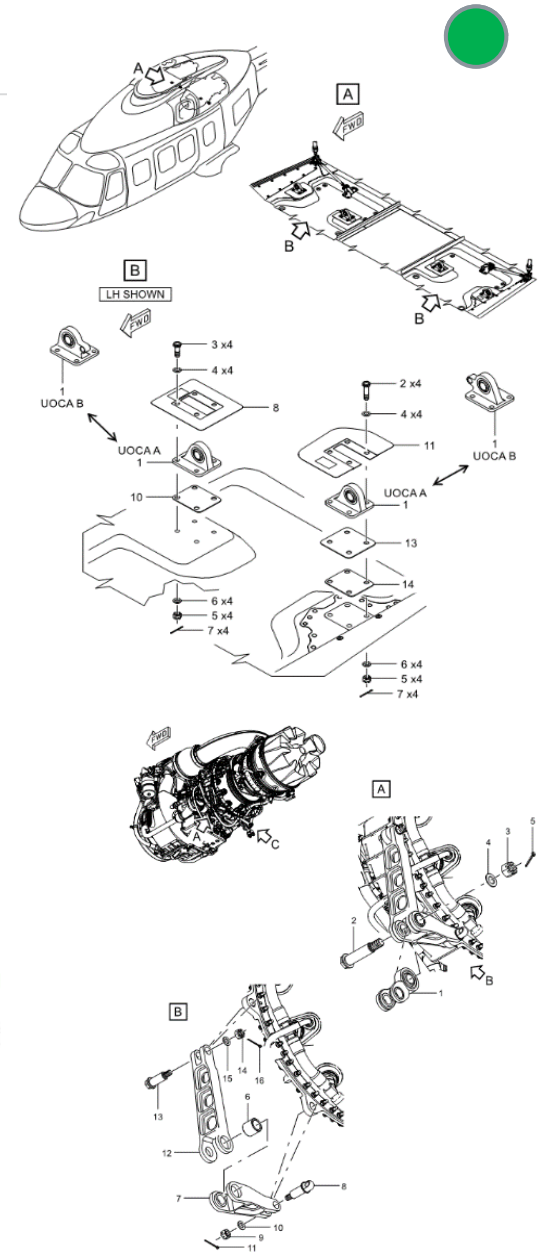
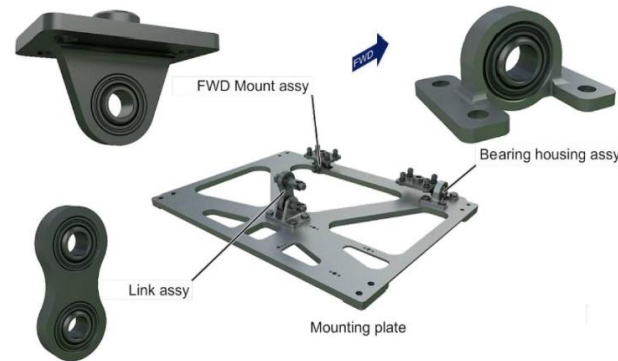
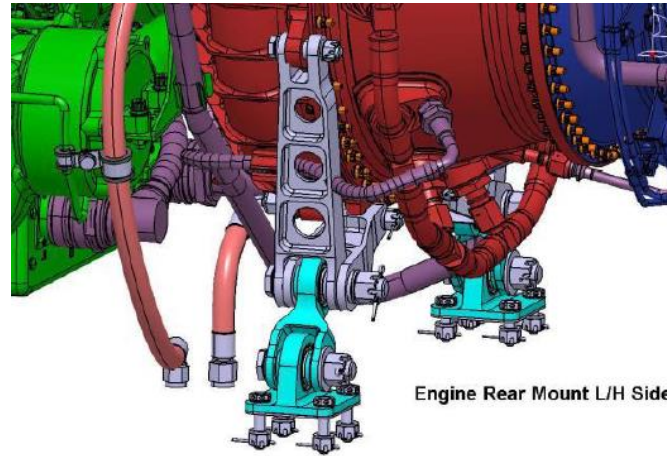
Background

- Cases of corrosion on Engine and APU mount bearings reported by Operators, leading to replacement of the mounts.

Current Status

- ✓ The current bearing, a standard MS14101 bearing with steel ball, has been replaced with a bearing with CREN ball and self-lubricating Teflon liner.
- ✓ The design is FFF with the current one (no SB required).
- ✓ New PNs introduced into

IETP issue 26 released in May 2024



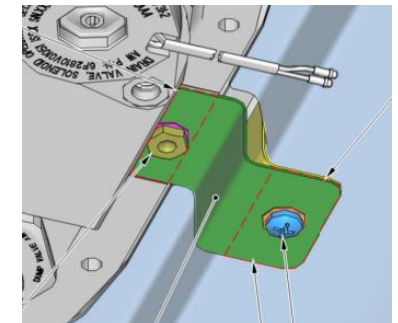
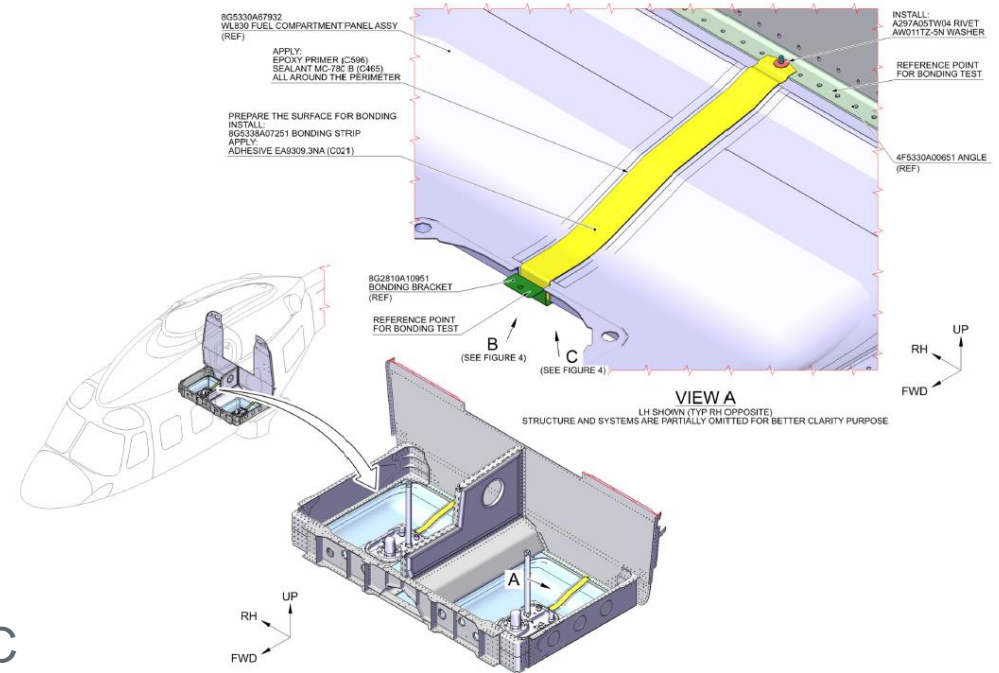
Sump Bonding Strip Installation Improvement

Background

- Cases of corrosion, damage and cracks on the main fuel tank sump bonding bracket reported from in-service during bracket removal.

Current Status

- ✓ Retromod P/N 8G5331P08111 developed in order to introduce an improved design of the fuel tank sump electrical bonding installation, allowing for a quicker replacement of the strip in case of damage.
- Deployment on new-built H/C and in-service through **SB189-370 issued November 2024**



Airframe System



New DART Integrated Floats and Life Raft Kit

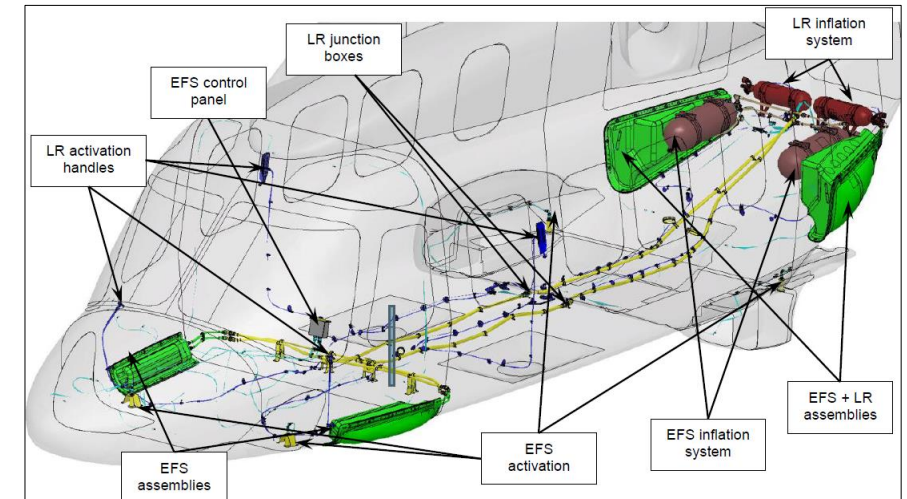
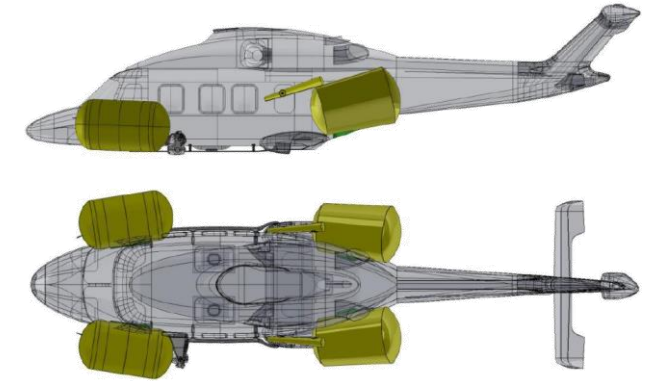


Background

- New design of Floats with Integrated Life Raft System.
 - Weight reduction ~30 kg.
 - Improvement of bottle reliability.
 - Compliant of activation system with new international regulations.
 - Enhanced bags protection and corrosion resistance.
 - Drains holes to avoid water accumulation.
 - Available in Floats+Rafts and Floats-only options.

Current Status

- To be certified under LH TC.
- **EASA Certification Forecast: 4Q 2024**
- FAA validation required.
- Optional SB for retrofit installation to be developed upon customer request.

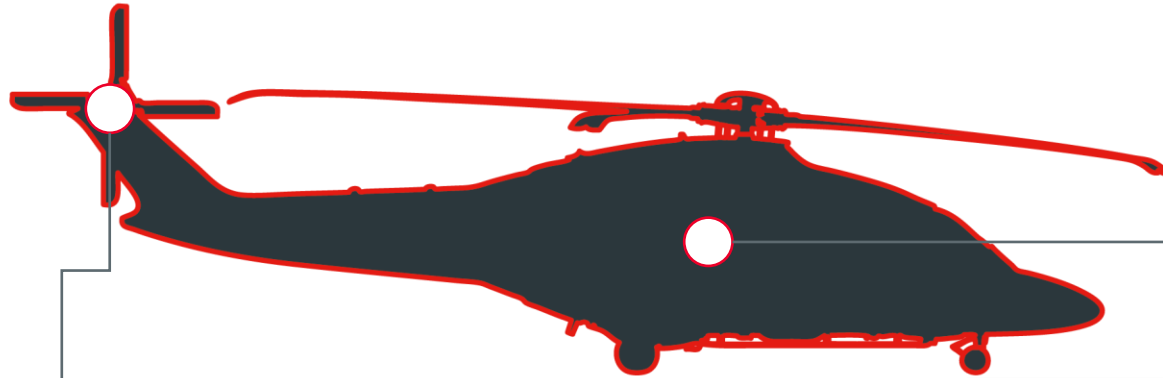


Technical Publication Update





Chapter 4 (EASA) – Airworthiness Limitations – Issue 28 (GE) / Issue 12 (Safran)



IMPROVED TAIL ROTOR GEARBOX FITTING



New RL072A

24,000 FH or 57,300 LDG

New MI53-17A

800 FH



New RL011A

24,000 FH or 57,300 LDG

New MI53-11A

800 FH

MAIN CABIN ASSY



RL006

15,200 FH or 24,300 LDG



23,300 FH or 32,600 LDG

RL006A

12,200 FH or 17,800 LDG



19,700 FH or 28,500 LDG



RL008

14,760 FH or 23,600 LDG



23,100 FH or 32,600 LDG



AMPI – Phased/Progressive Maintenance Plans



Background

- Definition of the Phased/Progressives program to be implemented, featuring balanced packages of maintenance tasks in terms of MMH, accessibility and work areas.

Phased maintenance plan:

- Packages, called “phases”, can be performed during a short downtime , in order to allow partial Release To Services (RTS) of the aircraft within the allowed interval tolerances.

Progressive maintenance plan:

- Packages cover the inspection requirements from 100 FH to 800 FH/2 years, distributing all the applicable tasks on a fixed interval basis, cyclically repeated.



This activity represents a harmonization of maintenance philosophy with other AW Family helicopters.



1st step

- ✓ Released the Phased maintenance plan within IETP Issue 24.

2nd step



Release of Progressive maintenance plan and definition of the transition programs which will allow the customer to switch between different maintenance plans, to be finalised within 2025.



MRBR – Sampling Program

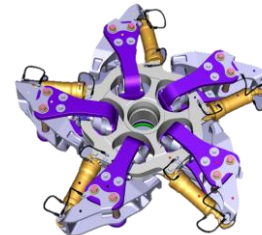


Background

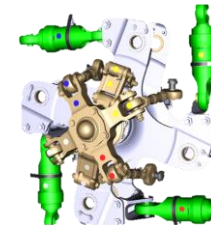
- The AW189 Maintenance Program has been developed according to the Maintenance Review Board (MRB) process, resulting in an MRB Report that forms part of the ICA as required by CS-29.
- The AW189 MRBR includes a Sampling Program for corrosion detection on certain Rotor and Transmission elements, addressing specific tasks outlined in AMPI Chapter 05.
- The Sampling Program is applicable to all operators worldwide.
- Sampling Reports are mandatory to support the inspection interval improvement plan within the MRB process.



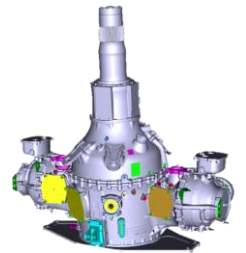
5 TASKS
ATA 62



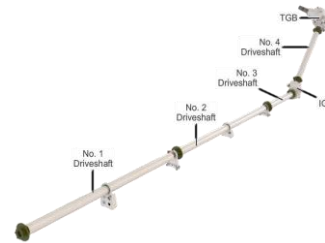
5 TASKS
ATA 64



1 TASK
ATA 63



5 TASKS
ATA 65



MRBR – Sampling Program



Current Status

- Sampling should be completed within 8 years from the initial entry into service.
- Sampling to be closed should analyse the sample fleet inspections conducted over the 8-year campaign.
- In case of not achievement (ie too frequent early findings), Sampling Program will be closed and tasks will become effective with the interval considered most effective.



41

Helicopters that should be under the Sampling Program, datum obtained iaw MRBR rules.



227

Inspections completed, datum obtained considering the HC delivery date.

**YOU SHARE TO ACHIEVE MORE
TOGETHER WE GROW**

REPORT RECEIVED



SAMPLING COVERAGE

Sampling Reports received by LH throughout the in Service Life of the AW189. Reports provided are related to 15 Helicopters.





THANK YOU
FOR YOUR ATTENTION

leonardo.com

