AIRCRAFT ACCIDENT FINAL REPORT

A 05/22P

Air Accidents Investigation Bureau (AAIB)

Ministry of Transport Malaysia

Eurocopter EC120B Registration N409HH

in Hutan Simpan Chikus, Bidor, Perak, Malaysia

on the 11 September 2022

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AIR ACCIDENTS INVESTIGATION BUREAU (AAIB)
MALAYSIA

ACCIDENT REPORT NO.: A 05/22

OPERATOR	**: FLYSTAR GLOBAL SDN BHD**
AIRCRAFT TYPE	**: EUROCOPTER EC120B**
NATIONALITY OF AIRCRAFT	**: UNITED STATES OF AMERICA**
REGISTRATION	**: N409HH**
PLACE OF OCCURRENCE	**: HUTAN SIMPAN CHIKUS, BIDOR, PERAK, MALAYSIA (4º 06' 13.8'' N, 101º 12' 45.1'' E)**
DATE AND TIME	**: 11 SEPTEMBER 2022 AT 1217 LT**

The sole objective of the investigation is the prevention of accidents and incidents. In accordance with Annex 13 to the Convention on International Civil Aviation, it is not the purpose of this investigation to apportion blame or liability.

All times in this report are Local Time (LT) unless stated otherwise. LT is UTC +8 hours.

INTRODUCTION

The Air Accident Investigation Bureau of Malaysia

The Air Accident Investigation Bureau (AAIB) is the air accident and serious incident investigation authority in Malaysia and is accountable to the Minister of Transport. Its mission is to promote aviation safety through the conduct of independent and objective investigations into air accidents and serious incidents.

The AAIB conducts these investigations in accordance with Annex 13 to the Chicago Convention and the Civil Aviation Regulations of Malaysia 2016.

It is inappropriate that AAIB reports should be used to assign fault or blame or determine liability, since neither the investigations nor the reporting processes has been undertaken for that purpose.

In accordance with ICAO Annex 13 paragraph 4.1, notification of the accident was sent out on 15 September 2022 to the National Transport Safety Board (NTSB), United States of America as the State of Registry; the *Bureau d'Enquêtes et d'Analyses pour la Sécurité de l'Aviation Civile (BEA)*, France as the State of Design and Manufacture and the Air Accident Investigation Authority, Hong Kong SAR of the People's Republic of China as the State which suffered a fatality to its citizen. A copy of the Preliminary Report was subsequently submitted to the Operator on 11 December 2022.

Unless otherwise indicated, recommendations in this report are addressed to the investigating or regulatory authorities of the State having responsibility for the matters with which the recommendations are concerned. It is for those authorities to decide what action is to be taken.

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A	Aircraft Damage Report
B	Airbus Helicopters Wreckage Examination Report
C	Safran On Site Examination Report

ABBREVIATIONS

AAIB	Air Accidents Investigation Bureau
ELT	Emergency Locator Transmitter
FEW018	1 to 2 Oktas Cloud Cover at 1,800 ft
KLARCC	Kuala Lumpur Aeronautical Rescue Coordination Centre
KLATCC	Kuala Lumpur Air Traffic Control Centre
LT	Local Time
METAR	Meteorological Aerodrome Report
POB	Persons on Board
SCT029	3 to 4 Oktas Cloud Cover at 2,900 ft
WMKI	ICAO Code for Sultan Azlan Shah Airport, Ipoh
WMSA	ICAO Code for Sultan Abdul Aziz Shah Airport, Subang

DEFINITIONS

Oktas Meteorological scale of cloud cover measured in eighths. Sky conditions are estimated in terms of how many eighths of the sky are covered in cloud, ranging from 0 oktas (completely clear sky) through to 8 oktas (completely overcast).

SYNOPSIS

On 11 September 2022, an Eurocopter EC120B with 1 person on board (POB) took off for a private flight from Sultan Abdul Aziz Shah Airport (WMSA), Subang at 1137 LT and was scheduled to land at 1237 LT at Sultan Azlan Shah Airport (WMKI), Ipoh.

Kuala Lumpur Air Traffic Control Centre (KLATCC) lost contact with the aircraft at approximately 1216 LT just before Bidor with KLATCC radar recording a sharp loss of altitude for the aircraft. Kuala Lumpur Aeronautical Rescue Coordination Centre (KLARCC) in KLATCC was then activated to determine the location of the helicopter. SAR helicopters deployed nonetheless were only able to find the wreckage of the aircraft the next morning with the pilot in command (PIC) unresponsive. The AAIB Chief Inspector was notified within the hour and an investigation team was dispatched.

1.0 FACTUAL INFORMATION

1.1 History of the Flight

On Sunday, 11 September 2022, at 1137 LT, the ill-fated helicopter took-off from WMSA for WMKI. The intended route as per the Flight Plan was WMSA – Rawang – Tanjong Malim – Slim River – Bidor – Kampar – WMKI with an expected flight time of one hour.

As the aircraft was approaching Bidor at 1216 LT, KLATCC tried to establish contact for the handover to Ipoh. After failing to contact the aircraft, further checks revealed that Ipoh also had no contact with the aircraft. It was also noticed that KLATCC radar had also recorded a sharp loss of altitude for the aircraft at approximately the same time according to the raw radar data obtained by investigators. The data indicates that the aircraft descended up to 6,000 ft/min just before it crashed.

SAR was initiated by KLARCC and SAR helicopters were deployed. Unfortunately, due to failing daylight hours and bad weather the search was called off and resumed at first light the very next day.

The wreckage of the aircraft was discovered in a forest reserve not far from Bidor at approximately 0818 LT that morning. According to the post mortem report the PIC was confirmed dead at the scene at 0844 LT on the 12 September 2022.

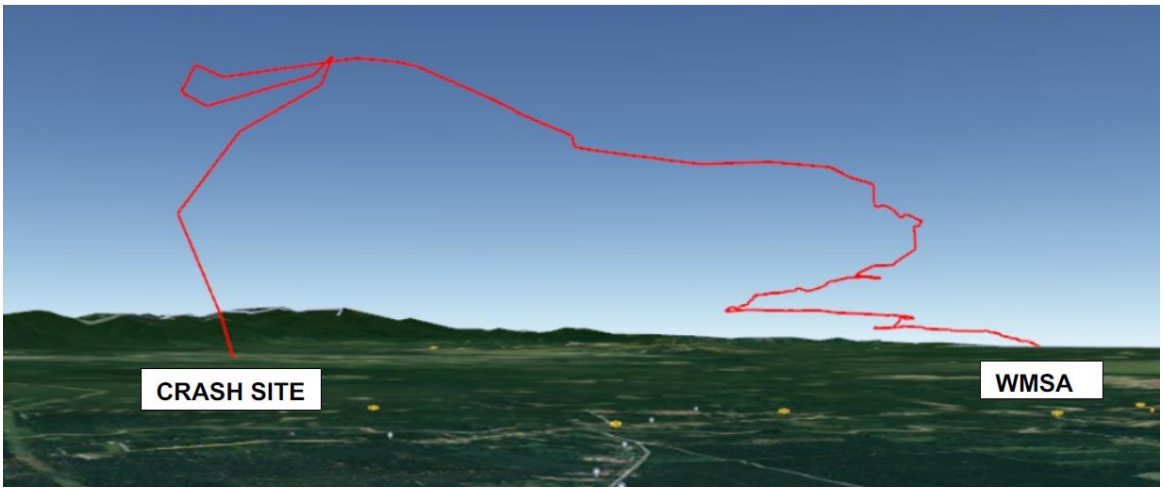


Figure 1: Aircraft Flight Path

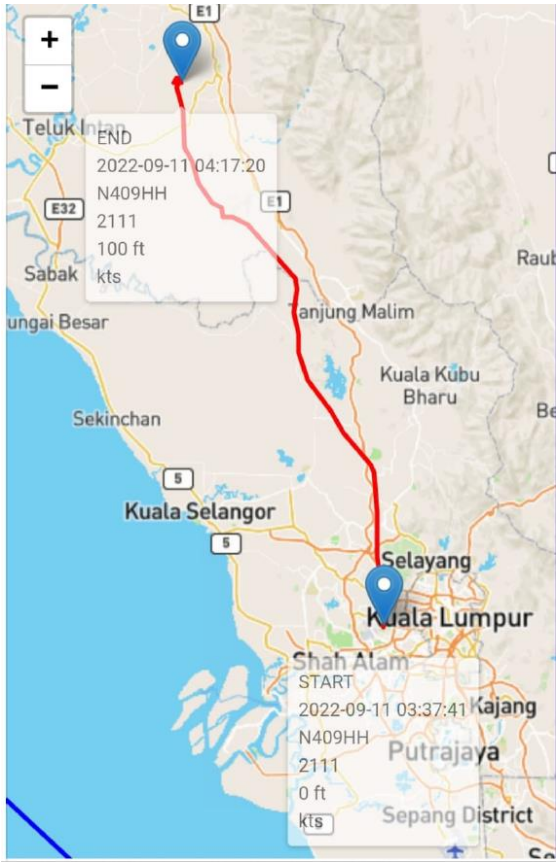


Figure 2: Aircraft Route

1.2 Injuries to Persons

The sole occupant of N409HH was fatally injured.

Injuries	Crew	Passengers
Fatal	1	-
Serious	-	-
Minor/None	-	-

1.3 Damage to Aircraft

The aircraft was extensively damaged. Detailed information of the damage to the aircraft is provided in the Aircraft Damage Report by the MRO of the aircraft, Hammock Helicopters Sdn Bhd, and the Wreckage Examination Report by Airbus Helicopters. The two reports are provided in **Appendices A** and **B** respectively.

1.4 Other Damages

The area into which N409HH crashed was secondary jungle located in a forest reserve. Multiple trees had their branches sheared off. The first tree to be hit was approximately 60 meters away from the wreckage. There was no post-impact fire.

1.5 Personnel Information

The PIC of N409HH was an FAA Licensed Commercial Helicopter Pilot. His flying hours are as below.

Nationality	Hong Kong SAR, PRC
Age	57
Gender	Male
License Type	FAA 3771824 (Valid)
Instructor Rating	FAA 3771824 CFI (Expired)
Flying Hours	**Total**: 1,152 Hrs **PIC**: 926 Hrs **Total Type**: 119 Hrs **Type PIC**: 14 Hrs **Last 90 Days**: 78 Hrs **Last 30 Days**: 11 Hrs

1.6 Aircraft Information

The helicopter was acquired pre-owned by its current owners in 2021 from India (previous registration VT-EAL) before it was re-registered to N409HH.

Aircraft	Eurocopter EC120B
Manufacturer	Airbus Helicopters
Year of Manufacture	2008
C of A Category	Normal
C of A Issue	6 November 2021

C of A Expiry	Nil
C of R Issue	19 August 2021
C of R Expiry	31 August 2024
Registration	N409HH
Serial No.	1561
Owner	Flystar Global Sdn Bhd
Airframe Flight Hours	1,427.1 Hours
Engine / Serial No	Arrius 2F / 34630
Engine Flight Hours	1,427.1 Hours
Landing Cycles	2,492
Fuel used	AvTur

1.7 Meteorological Information

On the day of the accident (11 September 2022) there was a thunderstorm warning in effect from Met Malaysia effective 1045 LT up until 1400 LT covering nearly all west coast states (Figure 3).

Amaran cuaca awam dikemaskini pada 10.45 pagi melibatkan pertambahan kawasan Bidor di daerah Batang Padang.

Figure 3: Thunderstorm Warning by Met Malaysia

With a storm cell fast approaching from the south-west (Figures 4 and 5) at the time of the accident, the aircraft would have begun to experience thunderstorms and rain with overcast skies, i.e. clouds at 1-2 oktas at 1700 ft and 3-4 oktas at 2900ft[1], as it approached the crash site (denoted by white circle).

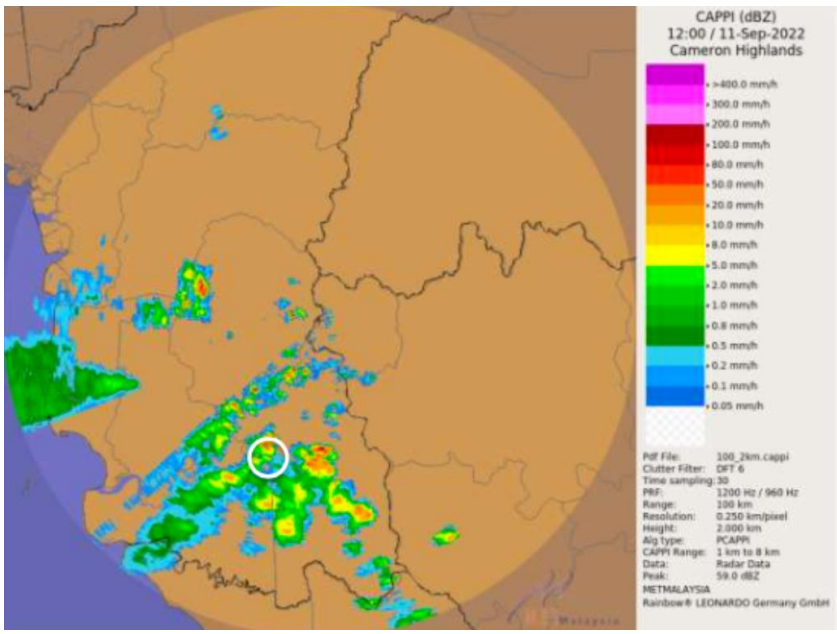


Figure 4: Weather Radar Image on 1200 LT, 11 September 2022

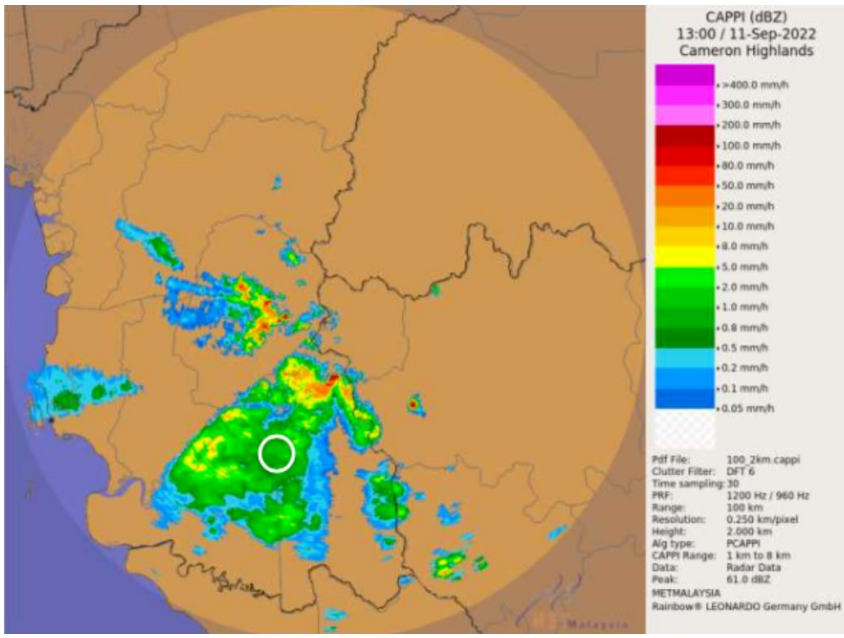


Figure 5: Weather Radar Image on 1300 LT, 11 September 2022

[1] Reference: METAR issued by the Perak Meteorological Office.

1.8 Aids to Navigation

The PIC had his personal hand-held navigation device mounted on the helicopter's instrument panel. The device (a Garmin Aera 660) was recovered from the crash site. However, it did not yield any important information to assist the investigation.

Figure 6: Garmin Aera 660 Recovered from the Wreckage

1.9 Communications

Up until KLATCC loss of contact with the aircraft, there were no abnormalities with the radio communication.

1.10 Aerodrome Information

Not applicable.

1.11 Flight Recorders

The Eurocopter EC120B helicopter with a Maximum Gross Weight (MGW) of 1,715kg was not equipped with flight recorders nor is it mandated by regulation to be so.

1.12 Wreckage and Impact Information

The wreckage examination confirmed that the aircraft had impacted the vegetation (canopy) with almost flat attitude with low vertical and longitudinal speeds. As the

result of the contact of the aircraft with the canopy (crash sequence), the engine had probably flamed out due to the FCU disconnection or the fuel supply hose pinched.

The aircraft ended its trajectory on a tree (stopped by the tree) on which multiple main rotor blade impacts were observed, before falling on the ground lying on its left-hand side. Information of the detailed examination of the wreckage is provided in **Appendices A** and **B**.

Figure 7: N409HH at the Crash Site

1.13 Medical and Pathological Information

The post-mortem report stated that the cause of death for the PIC was head injury due to an aviation accident. The majority of the serious injuries were to the left side of his head, left side of his chest and also to the left shoulder. This is consistent with the final resting position of the aircraft which was on its left side.

1.14 Fire

There was no post-impact fire.

1.15 Survival Aspects

As can be seen from the images of damage to the aircraft on-site, N409HH was extensively damaged by its impact on the trees. All the main rotor blades separated from the main rotor hub, the fenestron broke off and the cabin was totally destroyed by a tree trunk which penetrated the passenger cabin.

It must be noted that N409HH's fuel tank survived the impact intact. There were no fuel leakages which could have led to a post-impact fire. Additionally, N409HH's ELT was activated on impact and this assisted the SAR aircraft in locating the wreckage.

1.16 Tests and Research

In addition to the examination by the Hammock Helicopters Sdn Bhd as the MRO of the aircraft, technical experts from Airbus Helicopters and Safran were in Malaysia to examine the wreckage of N409HH from the 7th to 9th March 2023. Refer to **Appendices A, B** and **C** for the respective investigation and examination reports.

In summary, results from the wreckage investigation indicated that all the aircraft damage were the consequence of the accident. The engine examination showed that the engine was running during the accident sequence but the amount of power could not be determined. In conclusion, there was no evidence of pre-crash failure or discrepancy observed during the complete examination of the aircraft and the engine.

1.17 Organisational and Management Information

No anomalies were found with regard to the organisation and management of the flight.

1.18 Additional Information

Nil.

1.19 Useful or Effective Investigation Techniques

As the helicopter was not equipped with any flight recorder, investigators had to rely on ATC radar and weather radar data as well as eyewitness accounts to ascertain what transpired that day.

2.0 ANALYSIS

Based on the Meteorological Report at the time of the accident it appears that the weather was a highly probable contributing factor to the accident. Additionally, the radar data indicating that the aircraft had a very high rate of descent before impact suggests that the PIC had lost control of the aircraft prior to impact.

This is coupled by statements from the ground crew stating that the PIC was not too very well versed with the operation of certain switches in the aircraft. There were instances where he did not know how to switch off the landing light but worse still he at times flew without depressing the AVIONIC button on the console panel.

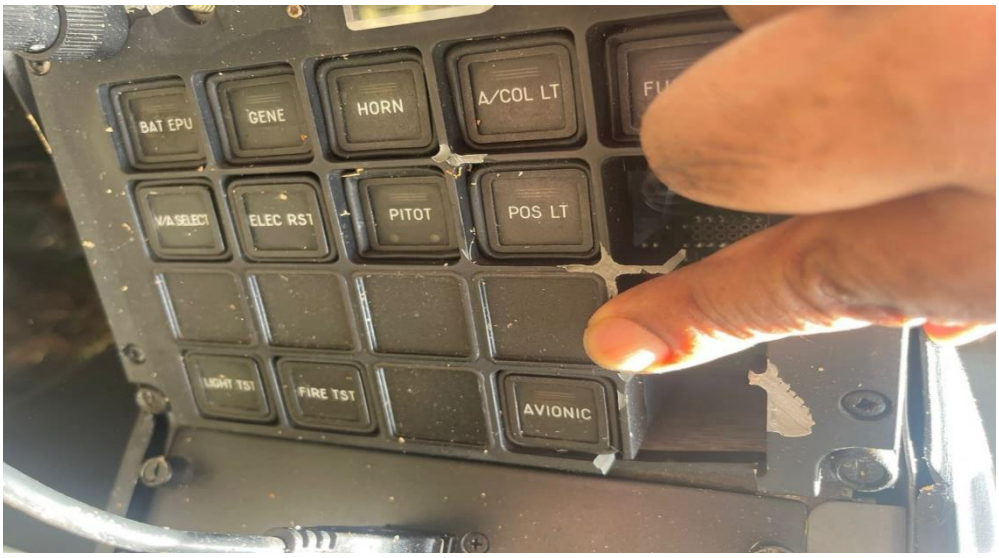


Figure 8:

Unfortunately, this was the case on the ill-fated day. The AVIONIC push button looked like it was depressed (Figure 8) because the faceplate of the console panel had detached slightly away from the console. However, the push button was not depressed, as examination by Airbus Helicopters found that the push button AVIONIC

was not activated, which led to the de-energising of the attitude indicator. This has very serious implications especially in weather since the AVIONIC button controls the Artificial Horizon.

Additional statements from pilots who had flown with the PIC also indicated that he was not too well-versed flying in local adverse weather conditions. One such instance was when he decided to climb when his path was blocked by weather instead of keeping low and in sight of the ground and potential landing sites in case the weather deteriorated further.

3.0 CONCLUSION

The accident was a combination of bad weather and a PIC who was not well versed with flying in adverse weather conditions nor fully capable of handling the aircraft he was in command of.

This accident is classified as **Unintended Flight in IMC (UIMC)** leading to **Loss of Control – Inflight (LOC-I)**.

4.0 SAFETY RECOMMENDATIONS

CAAM is to look into the shortcomings of its oversight regarding the training of FAA license holders flying in Malaysia.

INVESTIGATOR IN-CHARGE
Air Accidents Investigation Bureau
Ministry of Transport Malaysia

1. Aircraft Status

Aircraft Type	EC120B	Aircraft Serial Number	1561
Aircraft Manufacturer	AIRBUS HELICOPTERS	Date of manufacture	18 AUG 2018
Aircraft Registration	N409HH		
Type Certificate/Type Certificate Data Sheet	EASA TCDS NO R.508/ FAA TCDS NO R0001RD		

Total Airframe Hours	1427.1Hrs @11/09/22 BFF	Total Airframe Cycles	2492 @11/09/22 BFF
Aircraft MTWA	1715 KG	Date of Reweigh	22 APR 2022
Weigh Report and associated weight schedule	1078.5 KG	Observation: 409-W&B-2204-HH-1561 *Refer weight and balance result appendix 11*	
Record of compass system and magnetic compass swing	25 JUL 2022	Observation: 409-WO-2207G-HH-1561 *Refer compass swing result appendix 12*	
Last Track and Balance	01 MAR 2022	Observation: 409-WO-2202D-HH-1561 *Refer Track and Balance result appendix 1*	
Last Radio License	21 AUG 2021	Observation: Radio license no:0009669962 Next due 21 AUG 2031 *Refer Radio licence appendix 7*	
Last C of A inspection and issue	06 DEC 2021	Observation: FAA C OF A DESIGNATION NO:445946319 *Refer C of A Cert appendix 4*	

Engine Type	ARRIUS 2F	Engine Manufacturer	SAFRAN HELICOPTER ENGINE
Engine Serial Number	34630	Position	N/A
Date Installed	24 JUN 2008	Engine TBO	N/A
Engine TSN	1427.2	Engine CSN	NG: 2269.2/ NF:2363.75
Engine TSO	N/A	Engine CSO	N/A

Ensure the complete set of the following logbooks are available and updated.

a. Airframe Individual Inspection Log book	Present & updated till Aug 2022
b. Engine Log Book	Present & updated till Aug 2022
c. Propeller Log Book	Not Applicable
d. APU Log Book	Not Applicable
e. Other Log Book	Present & updated till Aug 2022

Aircraft History

Aircraft History (e.g.: detail initial registration and C of A, owner maintenance program and subsequent changes, major incident)			
Date	AF Hours	**Reg**	Remarks
18 AUG 08	0	**-**	Manufactured by Eurocopter
29 JAN 09	9:0	**-**	Aircraft disassembly and transport to India
7 FEB 09	9:0	***VT-EAL***	Aircraft Reassembly
11 FEB 09	9:0	***VT-EAL***	CoR issuance
13 FEB 09	10:04	***VT-EAL***	Flight Test for India CoA issuance. Operated by A2Z online services India.
19 AUG 21	1304.7	***N409HH***	N409HH, CoR issuance
6 NOV 21	1304.7	***N409HH***	N409HH Standard CoA issuance
1 SEPT 22	1415.9	***N409HH***	Captain Richard Chan, PIC single Pilot
11 SEPT 22	1427.1	***N409HH***	Last known hours as of 11 Sept prior to crash at Chikus Forest Reserve 35400 Perak

2. Airworthiness Directives and Service Bulletins Compliance

Applicable Airworthiness Directives Compliance	
a. EASA Airworthiness Directives	N/A
b. FAA Airworthiness Directives	FAA AD list updated till Bi-weekly report no.2022-19.
c. CAA Airworthiness Directives	N/A
d. Service Bulletin Compliance Status	Airbus Service Bulletin list provided updated till 03 OCT 2022. Open ASB: **ASB 32A014-** INSPECTION FOR CORROSION ON THE LANDING GEAR. To comply with paragraph 3 at the next annual inspection or no later than 23 MAR 2023. *Refer AD and SB list Appendix 10*
e. List of repetitive Airworthiness Directives / Service Bulletins	**ASB 05A019/FAA AD 2021-24-08** INSPECTION OF ROTATING AND NON-ROTATING SCISSORS BOLTS AND NUTS. To be carried out I.A.W ASB 05A019, §3.B.2.c. at interval 15 HRS/7 DAY. **ASB 05A020/FAA AD 2021-26-07** CHECK OF THE TAIL ROTOR HUB BODY. To be carried out I.A.W ASB 05A020 PARA 3.B.1 & 3.B.2 at interval 15 HRS/7 DAY. **ASB 53A015-** CHECK CORROSION ON THE TAIL BOOM. To be carried out at interval 13 Months. **ASB 53A017/FAA AD 2022-02-13-** CORROSION ON THE TAIL BOOM. To be carried out at interval 1320 HRS.

3. Modification Status

a. List of major/minor Modification	MINOR MODIFICATION: 1) **SB 71-001 REV 1-** INSTALLATION OF SAND FILTER KIT WITH UNIT COMPRESSOR WASH. 2) GARMIN GPS MOUNTING INSTALLED I.A.W. MTC 20-02-05-404 AND DRAWING NO HH-GPSH-001-EC120 UNDER WO# 409-WO-2204-HH-1561.
b. Any additional maintenance actions required for the modifications.	**SB 71-001 REV 1-** Every 12M/100H Inspect I.A.W. AMM 71-63-00, 6-1
c. List of Equipment fitted to the aircraft (including equipment not necessarily installed by the Manufacturer.	Not Applicable
d. Detail of any alterations which may have been embodied under Supplemental Type Certificate.	Not Applicable

4. Equipment, Component and Appliances

a. List of Equipment fitted	Refer Aircraft status list *Refer Appendix 9*
b. Detail of equipment constituting the navigation and communication installation	Refer Avionic Equipment List *Refer Appendix 8*
c. Component overhaul life summary - detail of life remaining and modification standards.	Refer to Individual Inspection Logbook and current aircraft status list *Refer Appendix 9*
d. Component and structure retirement life summary, including details of service life remaining	Refer to Individual Inspection Logbook and current aircraft status list *Refer Appendix 9*
e. List of Part number and serial number of major component and equipment	Refer to Individual Inspection Logbook and current aircraft status list *Refer Appendix 9*
f. Main Gearbox assemblies and critical rotating component history. (e.g. TSN/TSO, major repair if any)	Refer to Individual Inspection Logbook and current aircraft status list *Refer Appendix 9*
g. Cannibalised component with known history fitted to aircraft	Not applicable
h. Detail of ELT installed to aircraft (Compliance to TSO C126 or equivalent standards)	KANNAD 406 AF-H , P/N:S1822502-02, S/N:2617610-0003
i. Detail of CVR / FDR installed to aircraft	Not equipped.

5. Maintenance Program to which these aircraft have previously been maintained and evidence to show the aircraft has been maintained to the maintenance programme.

AIRBUS HELICOPTER EC120B MASTER SERVICING MANUAL REV NR007

6. Compliance with maintenance and structural inspection programme

a. Service Bulletins requiring structural inspection of specific area at certain interval	**ASB 53A015-** CHECK CORROSION ON THE TAIL BOOM. To be carried out at interval 13 Months. **ASB 53A017/FAA AD 2022-02-13-** CORROSION ON THE TAIL BOOM. To be carried out at interval 1320 HRS.
b. Supplément Structural Inspection Document (SSID)	Not Applicable
c. Ageing Aircraft Repair and Modification Programme	Not Applicable
d. Corrosion Prevention and Control Program (CPCP)	Not Applicable
e. Repair Assessment program (RAP)	Not Applicable
f. Last major maintenance inspection	**Airframe** 12 years inspections and below on 18 OCT 2021 under wo# 409-WO-2108-HH-1561 **Engine:**. 24M/600H inspections and below on 18 OCT 2021 under wo# 409-WO-2108-HH-1561

7. Aircraft Technical Document

a. Flight Manual Status:	FAA approved FLM. Latest update dated 07 OCT 2020
b. Aircraft Maintenance Manual Status	Online Aircraft Maintenance Manual, Rev NR030, Dated 18 JUL 2022
c. Illustrated Part Catalogue status	Online Illustrated Part Catalogue, Rev NR005, Dated 18 JUL 2022
d. Master Servicing Recommendation Status / Maintenance Planning Guide	Online Master Servicing Manual, Rev NR008, Dated 18 JUL 2022
e. Engine Maintenance Manual Status	Online Engine Maintenance Manual X292N54502, Dated Oct 2021

8. List of the defect, if any at the time of issue of the Export Certificate of Airworthiness which will require rectification by the operator.

None

9. Inspection Summary

Aircraft Type	EC120B	Aircraft Serial Number	1561
Aircraft Manufacturer	Airbus Helicopters	Date of manufacture	18 AUG 2008
Aircraft Registration	N409HH		
Total Airframe Hours	1427.1 @ 11/09/22 BFF	Total Airframe Cycles	2492 @ 11/09/22 BFF

Report Title	**Aircraft Damage Report EC120B SN1561 N409HH**

Report Summary

This Eurocopter EC120B single engine helicopter registered N409HH with one pilot on board took off from UniKL MIAT, Subang Campus at **10.49 am (UTC+8)** on Sunday **11/09/22** for refuelling operations at Sultan Abdul Aziz Shah Airport, Helicentre. After refuelling, the helicopter took off (from WMSA) at **11.37 am (UTC+8)** for a private flight to Penang (WMKP). It was scheduled to land at **12.37 pm (UTC+8)** at Sultan Azlan Shah Airport, Ipoh Perak (WMKI) for a second refuelling but **never arrived**.

The Civil Aviation Authority of Malaysia (CAAM) confirms that the helicopter had lost contact with Kuala Lumpur Air Traffic Control Centre (KLATCC) at **12:16PM (UTC+8)** over Tapah.

The wreckage and victim of the Eurocopter EC120B, registration marking N409HH was found by the Royal Malaysian Air Force (RMAF) helicopter, RESCUE01 in the Chikus Forest Reserve near Kampung Kenangan, Bidor at **8.18AM (UTC +8**) the following day, **12/09/22.**

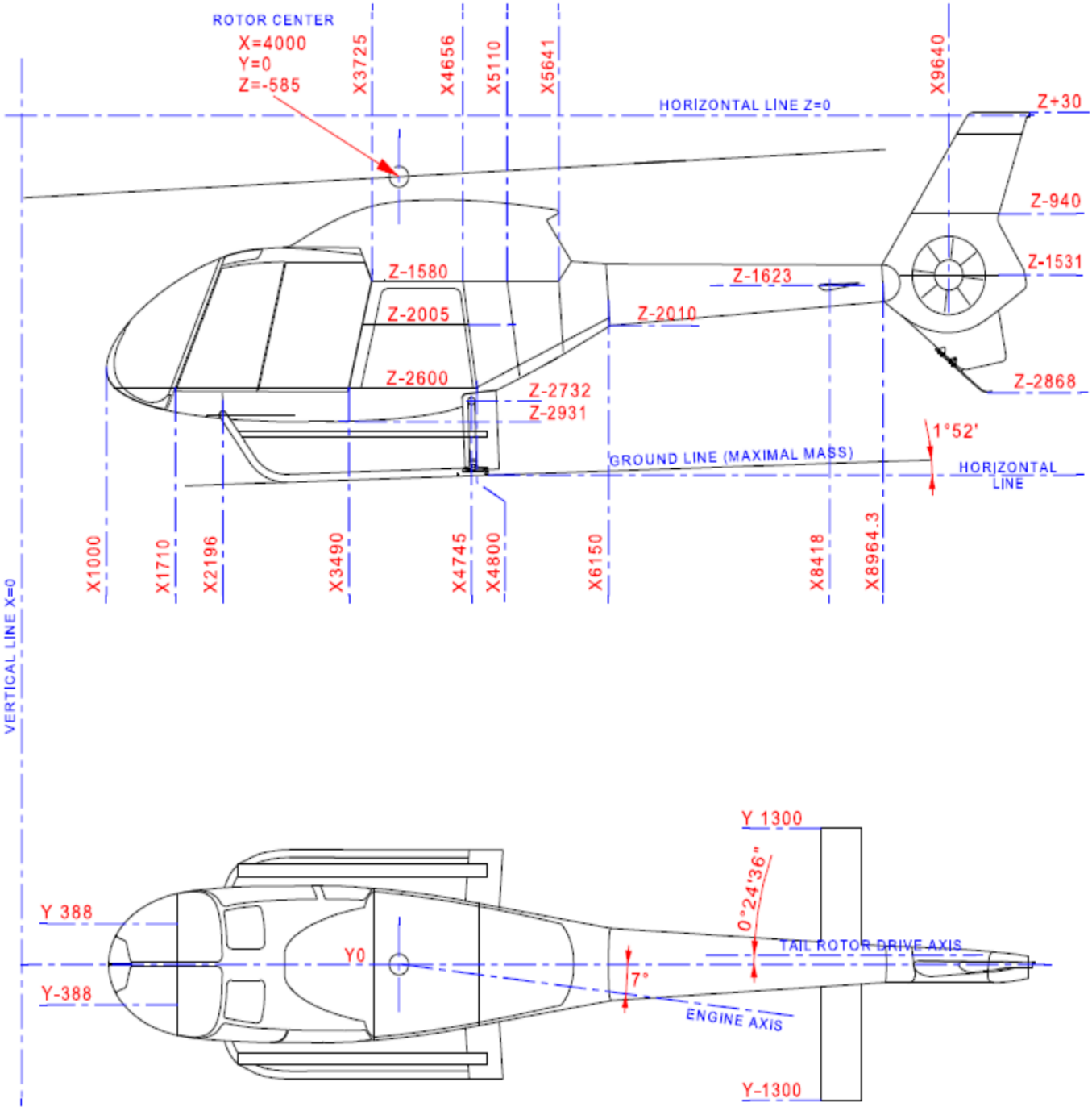
The Helicopter was found on the forest ground at approx. coordinates **4°06'13.9"N , 101°12'45.0"E** resting on the left side of the fuselage with the following initial damage assessment:

- Aircraft was resting on the left fuselage with the exhaust portion resting on a tree.
- A second tree had breached through the co-pilot door into the cockpit causing damage to the instrument consoles and canopy
- TheTail (with Fenestron) was broken at the Fenestron junction STA X8964.3 (no damage to tail rotor blades)
- The LH horizontal stabiliser was broken on impact (stabiliser buried in ground)
- All 3 blades were broken/scattered with roots intact (evidence of impact on surrounding trees)
- The Canopy frame and windshield were broken/breached STA X2196 to X1000
- The Windscreen was shattered/breached
- All major components were accounted for, scattered in the vicinity of the wreckage

For the purposes of the investigation, the VEMD was removed on **13/09/22** and GNS 430 was removed on **14/09/22** for analysis. Oil samples were also taken on the MGB, TGB, Engine and Hydraulic systems on **23/09/22**. A fuel sample was also taken on **23/09/22**. (results attached in this report)

The aircraft was over subsequent visits turned upright and removed by land from the wreckage site and trucked to the Hammock Helicopter Hangar in SZB on **19/10/22** for further examination. The findings of the examination are summarised in this damage report.

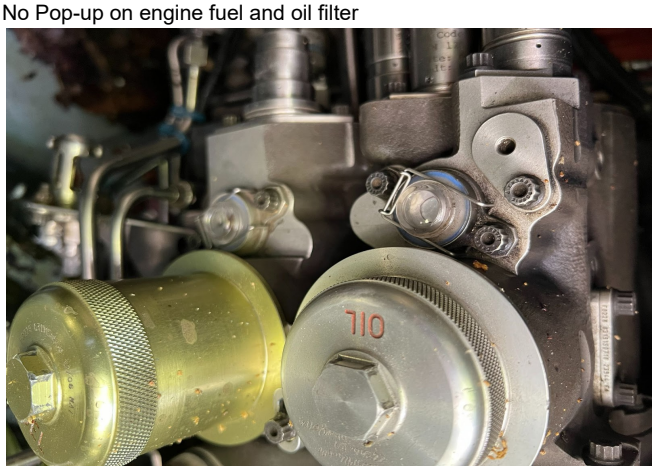
10. Aircraft Damage Report



05.00	The aircraft was found lying on the left fuselage with the exhaust area resting against a tree. The fenestron (Tail) had broken off and was found beside the tailboom. The broken LH horizontal stabiliser was found under the aircraft buried in the ground.

R/H Cowling

No Pop-up on engine fuel and oil filter

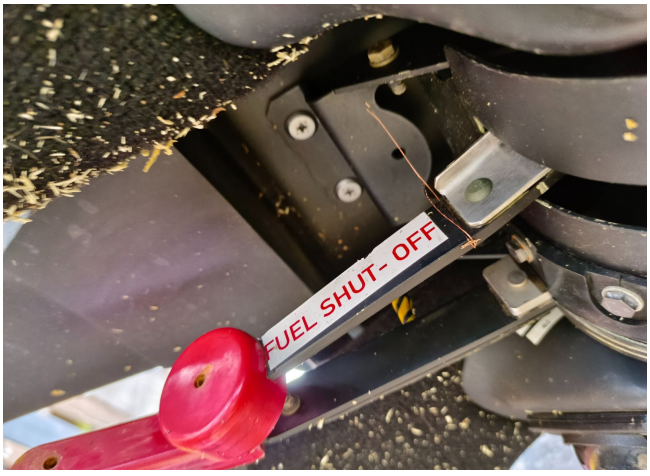


Twist grip at flight position. Collective control unlocked and up midway.

Twist grip at flight position

ELT in armed position

Fuel Shut Off Lever secured with wire and rotor brake off

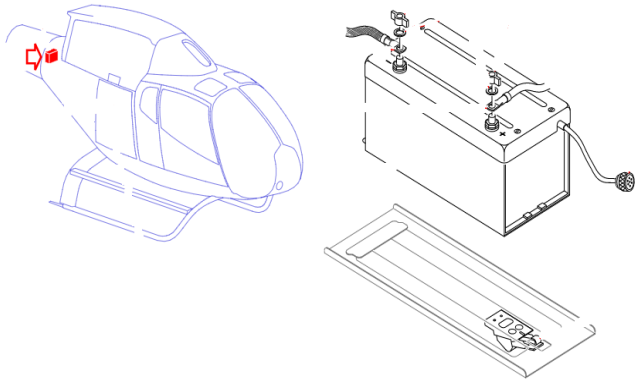


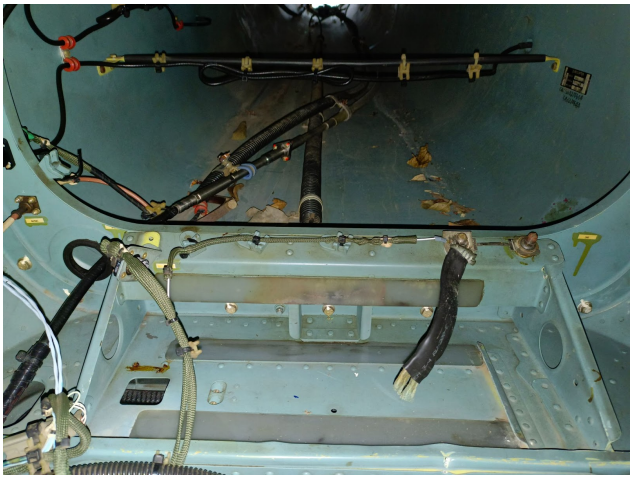
05.01	During the recovery of the aircraft, the surrounding foliage was cleared and the aircraft was winched upright for ease of removal from site. The main rotor blade roots were removed for ease of transport. The aircraft was also covered to protect from further damage in the elements during the recovery process.

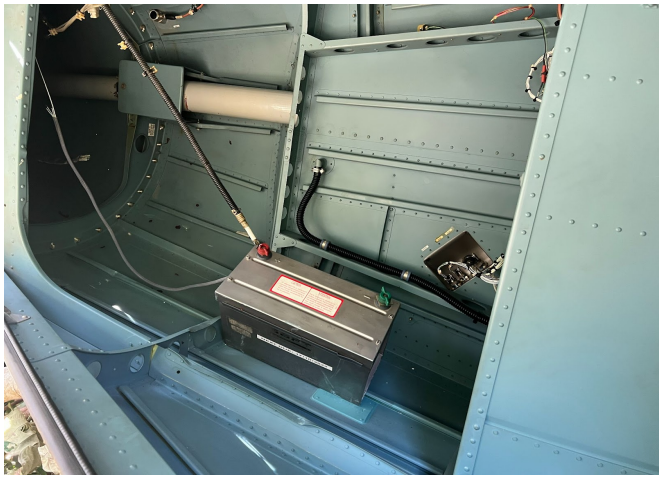
N409HH

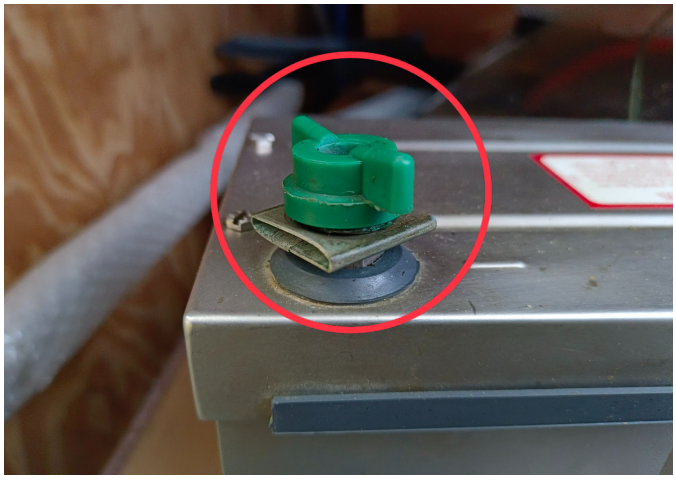
07.00	The aircraft was lifted by backhoe onto a low loader and transported back to the Hammock Helicopter facilities on the 19th of October 2022

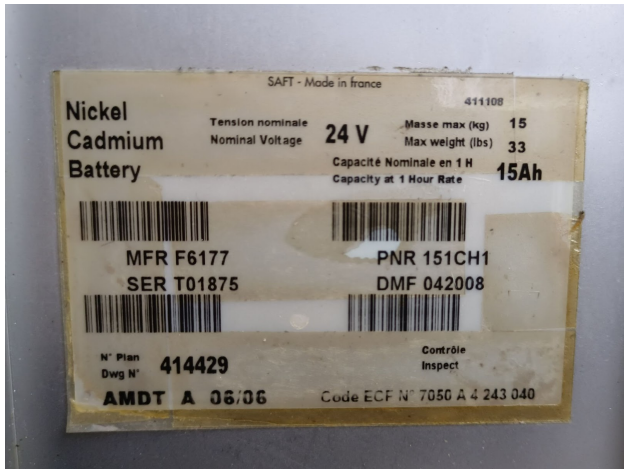
24.00	Battery found detached from the battery bay. Positive Battery connector terminal found broken.



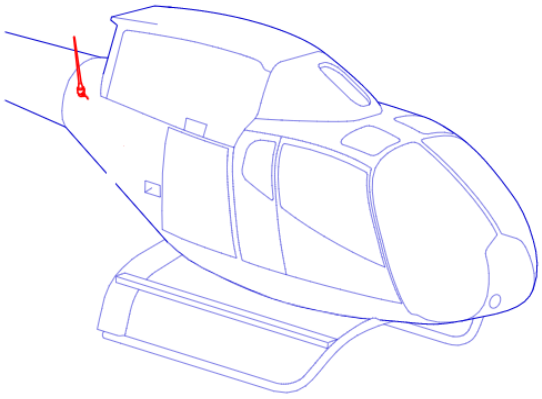




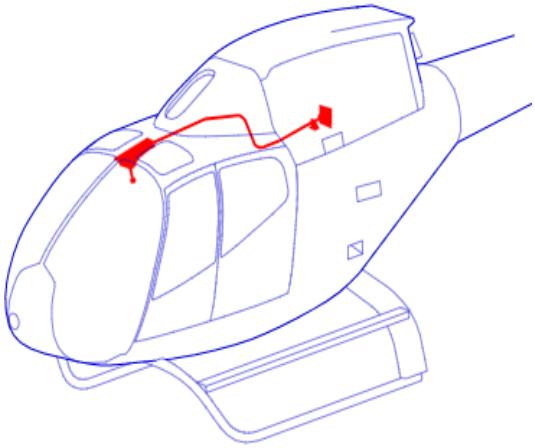




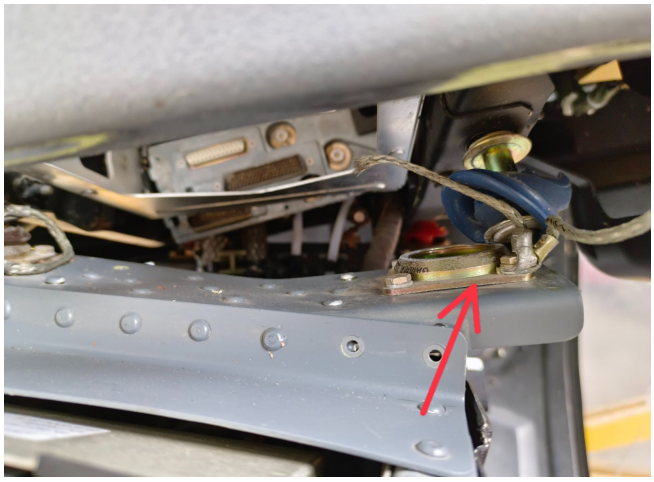
25.00	ELT External Antenna broken off from contact with tree (tree aircraft rested on)

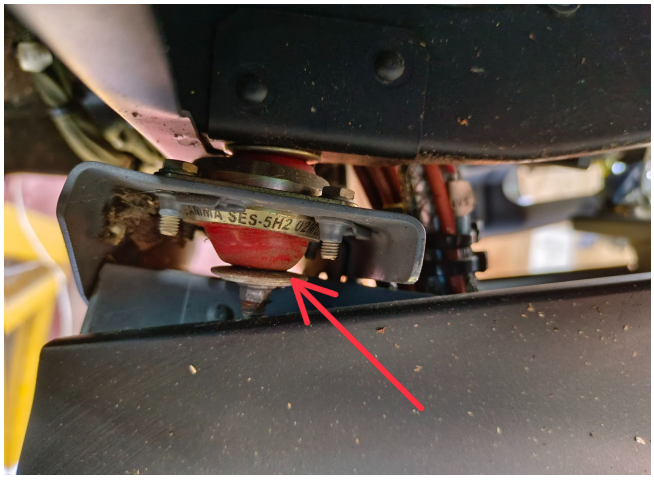


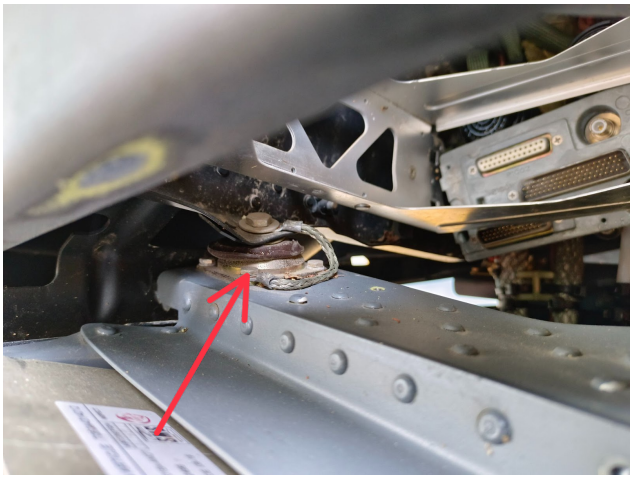
28.00	Emergency Fuel Shut Off Lever bent to the right from LH impact



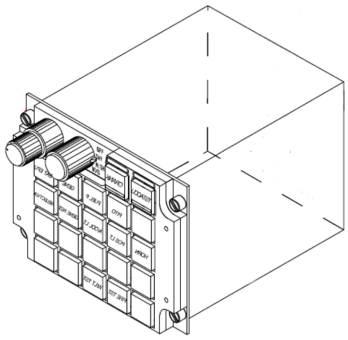
31.00	Instrument panel shock absorbers detached (VEMD & GNS430 removed for analysis)

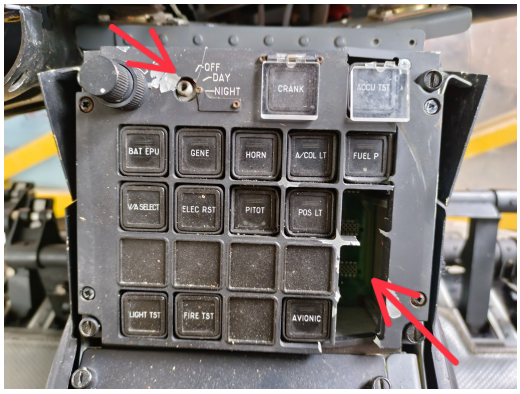




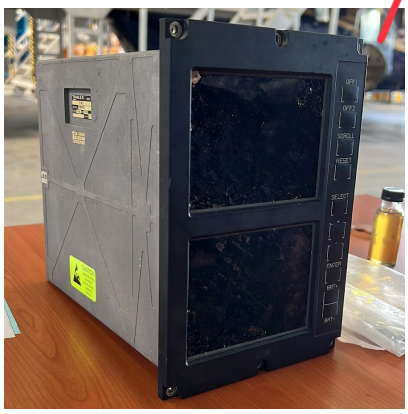


31.01	LACU panel missing 3 switch blanks and 1 light knob

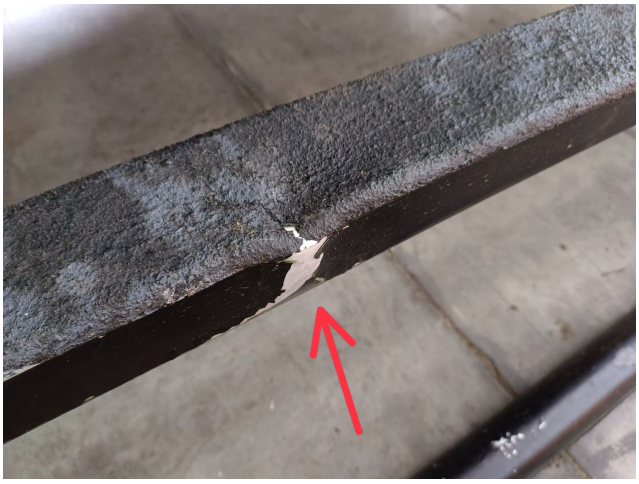




31.02	VEMD and Garmin GNS 430 removed from aircraft for analysis

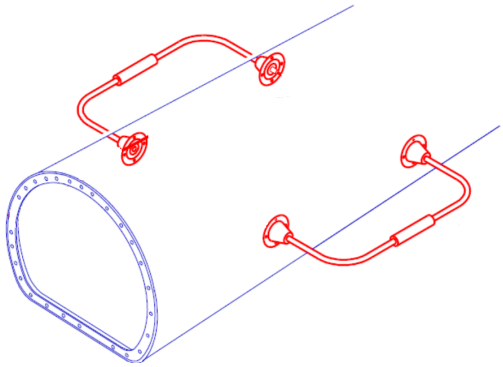


32.00	LH Skid Landing Gear step bent from LH impact

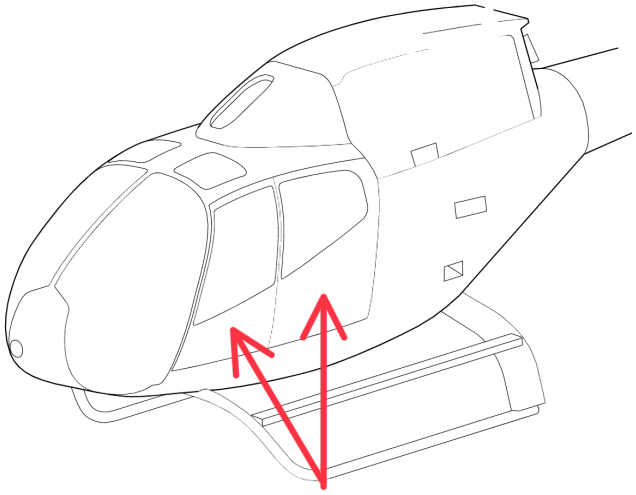


34.00	Attitude Direction Indicator(ADI) and Horizontal Situation Indicator(HSI) glasses cracked

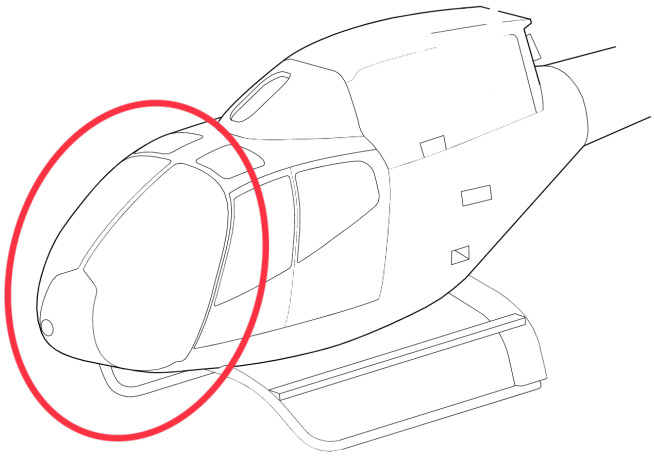
34.01	VOR Antenna deformed on both sides



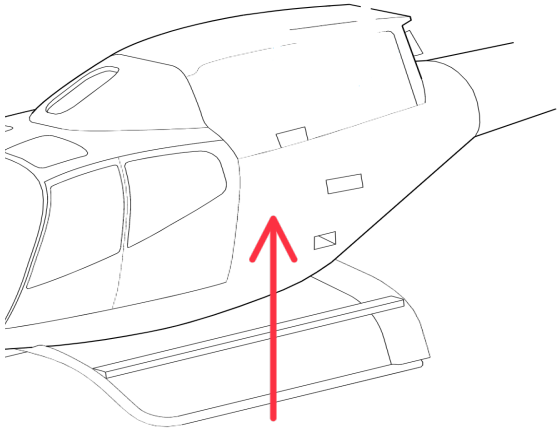
52.00	LH sliding door and co-pilot door with impact damage from LH impact



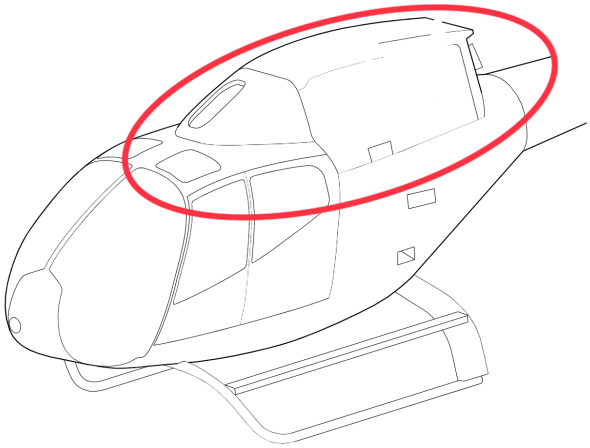
53.00	Windshield Canopy Posts found broken from STA X2196 to X1000 from impact with ground and tree.



53.01	Left main fuselage dented from LH impact with ground (resting side)

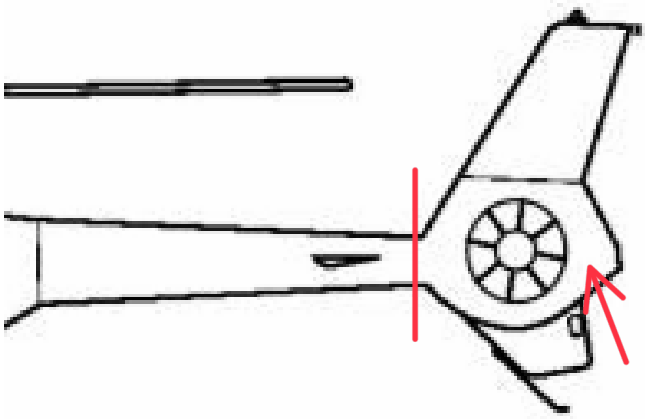


53.02	LH of MGB main cowling damaged from impact with large panels broken on the aft portion towards the engine. The FWD Cowling is also damaged with inserts debonded. The exhaust and the aft portion of main cowling were crushed by the tree the aircraft was resting on.

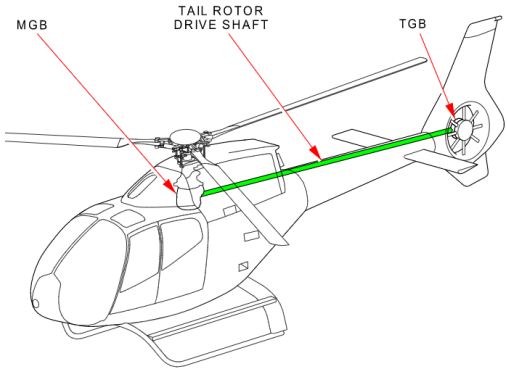


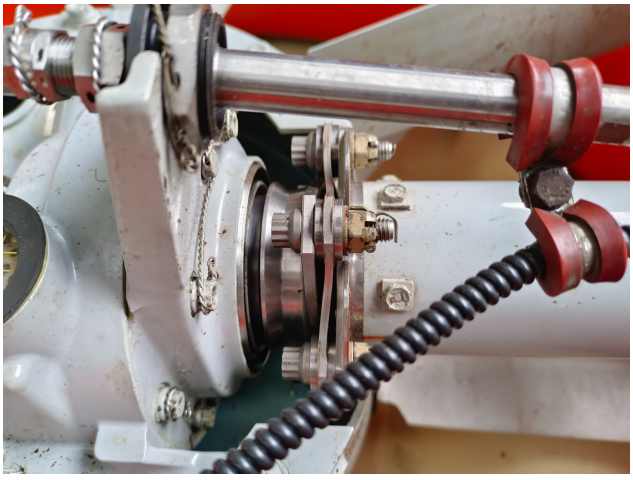
53.03	Tail boom skin found dented/cracked from impact with fallen tree

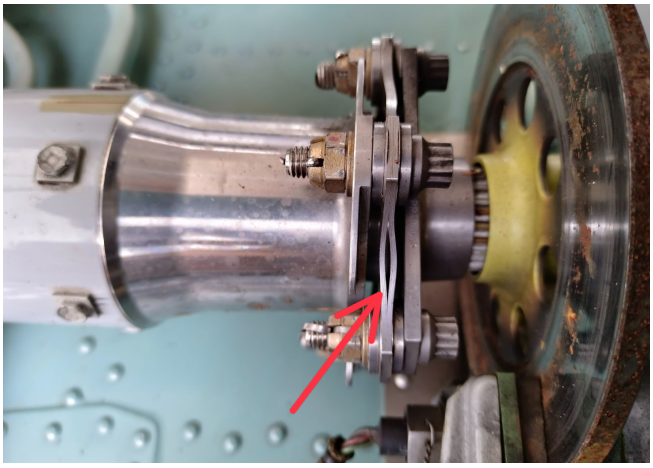
53.04	Vertical stabiliser assy (Fenestron) broken from LH side impact with impact marks on aft LH of Fenestron

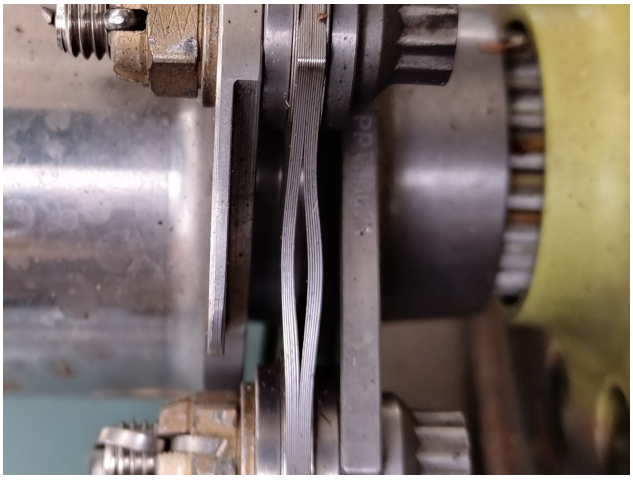


53.05	Tail Rotor Drive Shaft broken at TGB input (evidence of sudden stoppage/twisting). Forward and aft flexible couplings found twisted/bulging

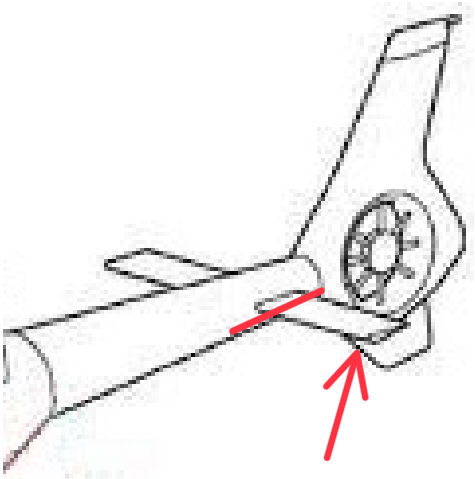






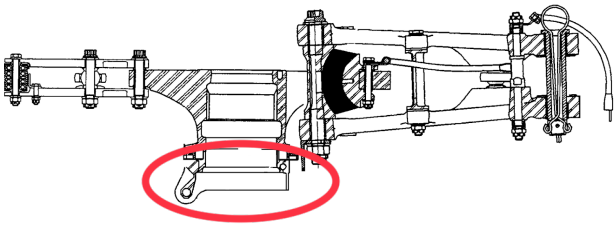


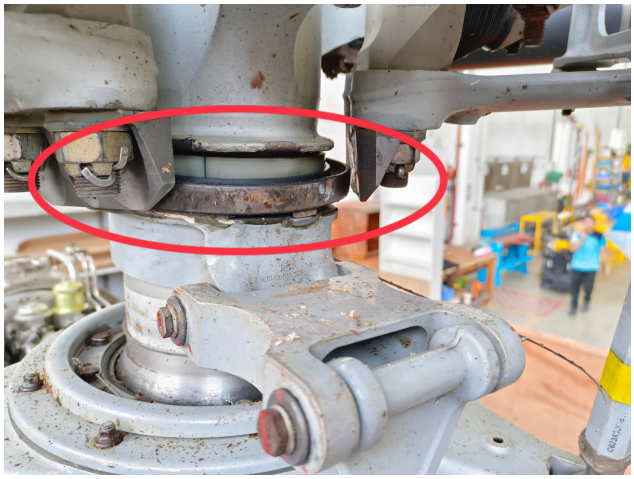
55.00	LH horizontal stabiliser broken from LH impact. The stabiliser was found buried in the ground

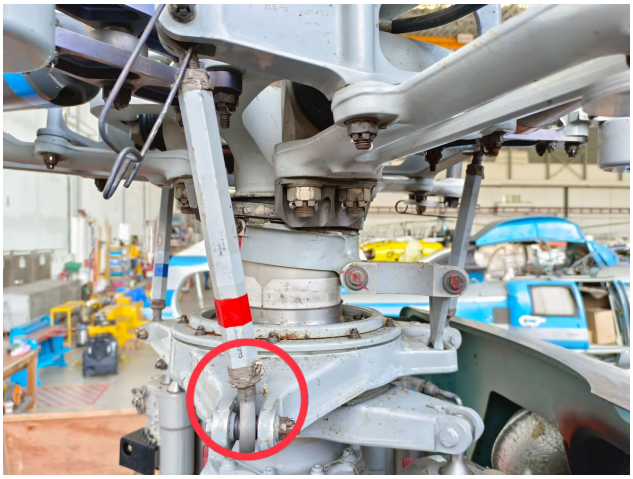


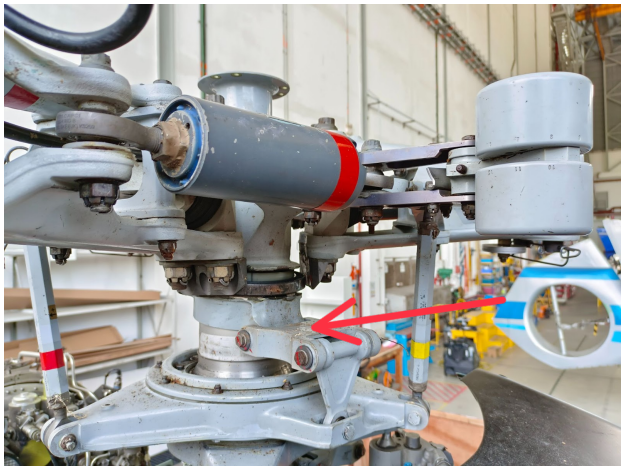
62.00	Main Rotor Blades were shattered and scattered around the aircraft. All blade roots were still intact on the main rotor sleeves when found.

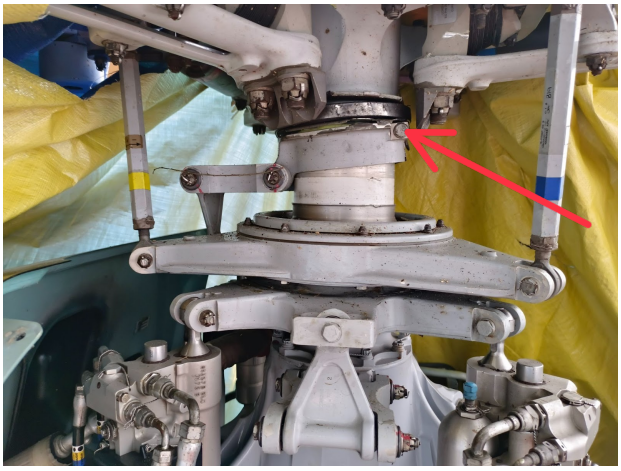
63.00	Rotating Scissor Drive Adaptor detached from sudden stop of rotating motion. Pitch links eye ends slightly bent.



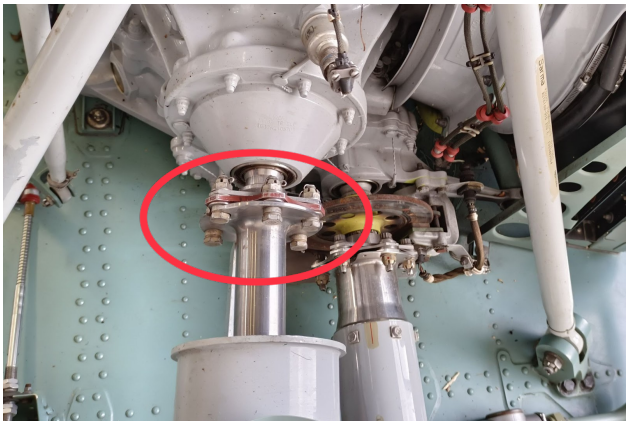


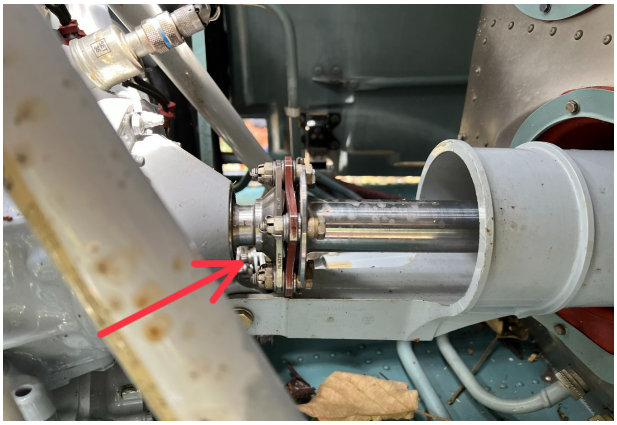


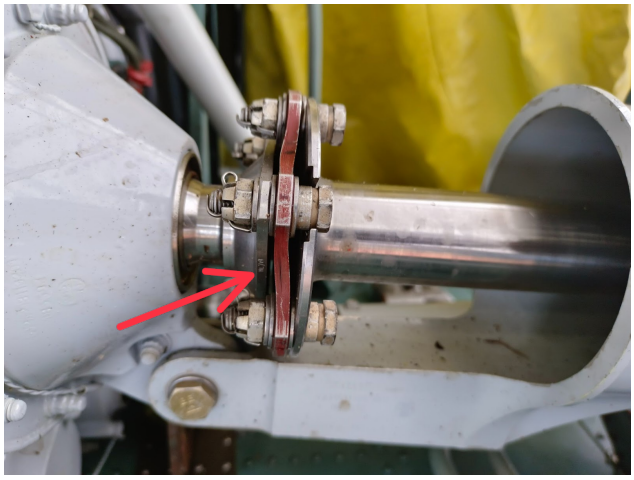


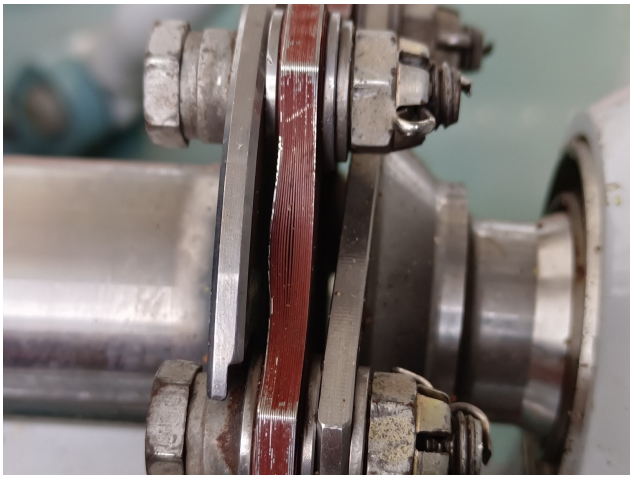


63.01	Main Gearbox to Engine Flexible Coupling twisted with broken layers

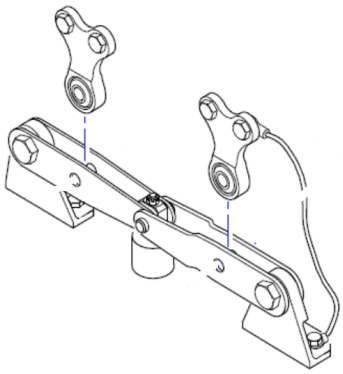


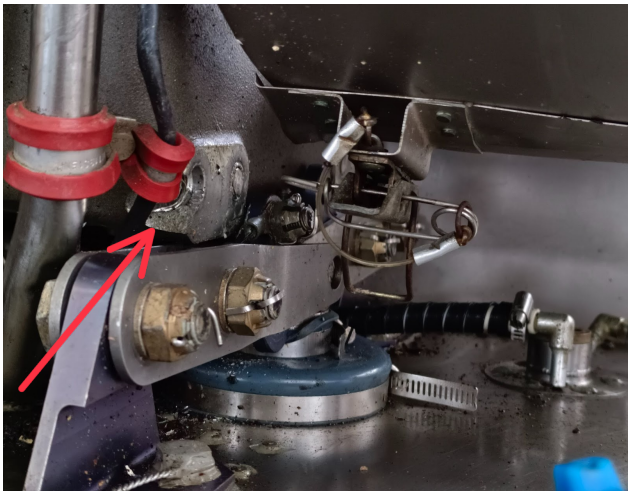


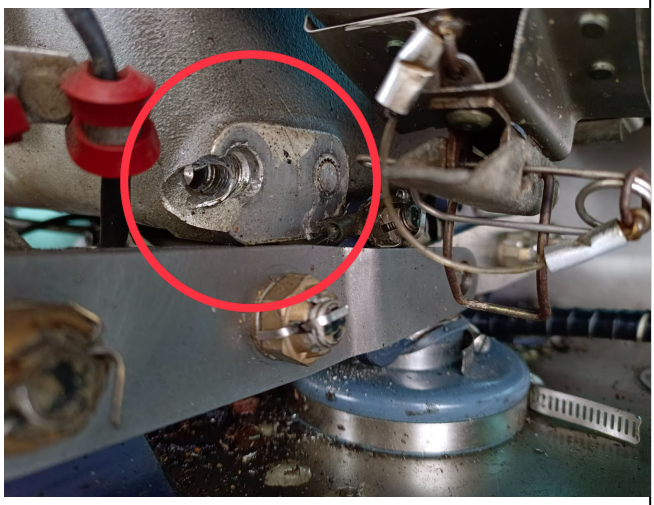


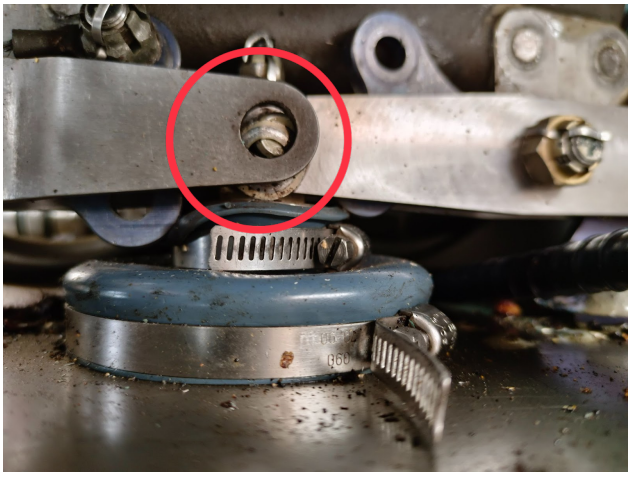


71.00	Engine Support Bracket Yoke Stud attachment broken from LH impact

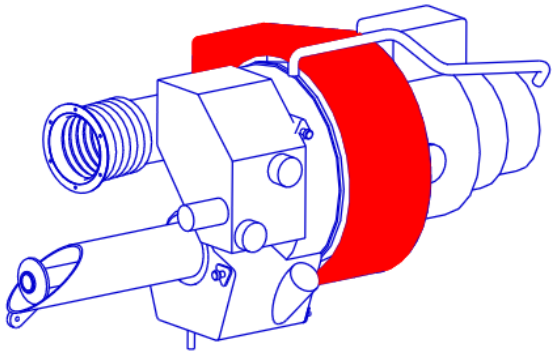


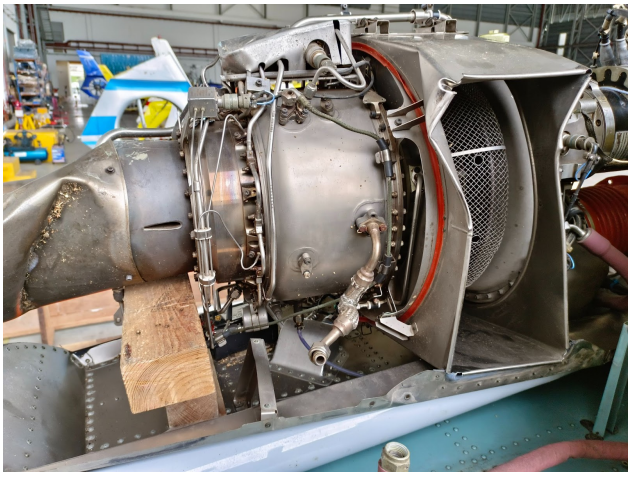


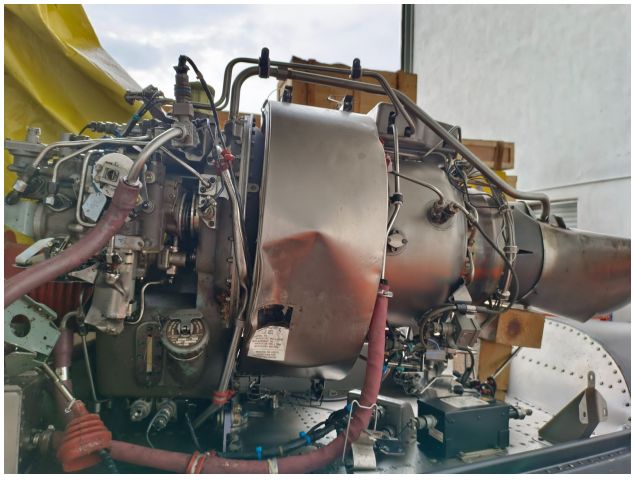


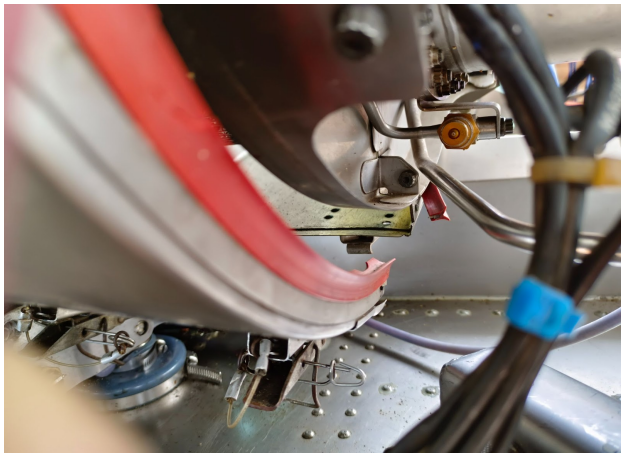


71.01	Engine Intake Plenum Dented from LH impact

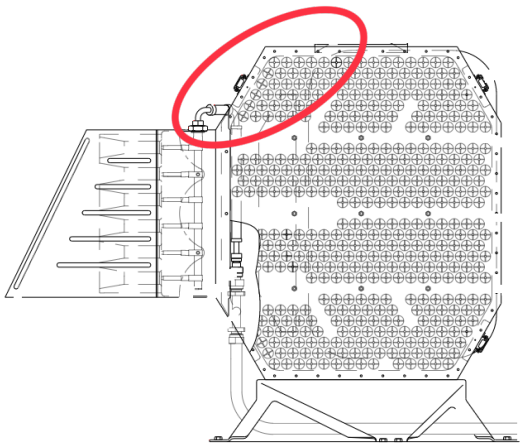


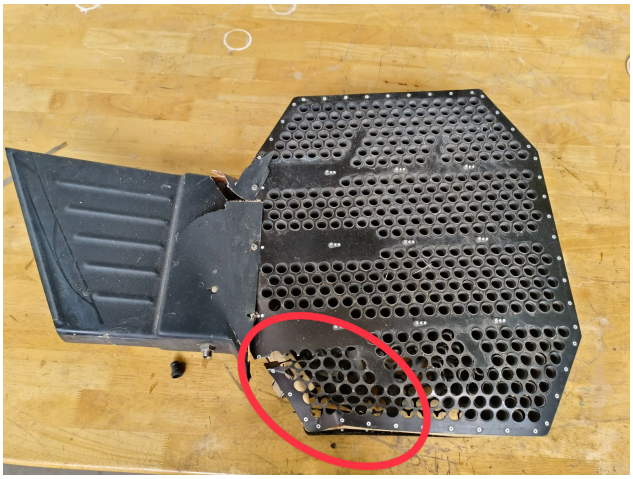


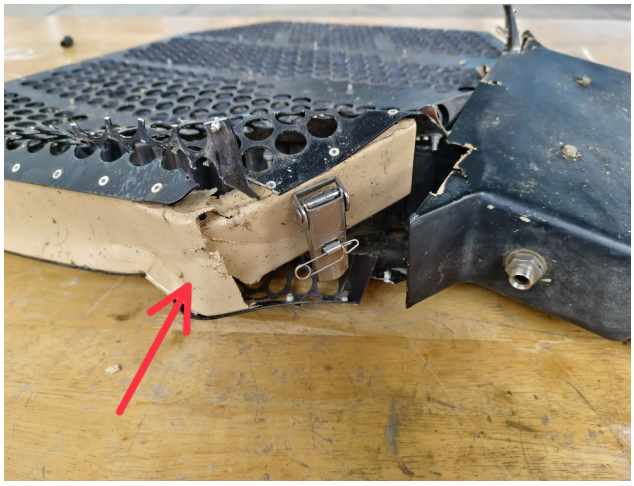




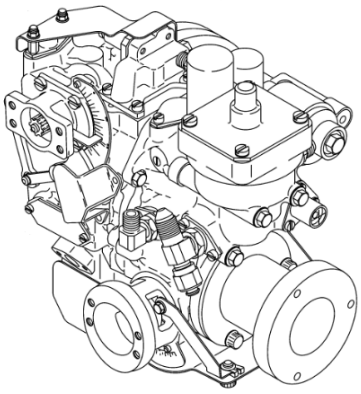
71.02	Sand filter damaged on top left corner from Top side impact with tree (tree aircraft rested on)

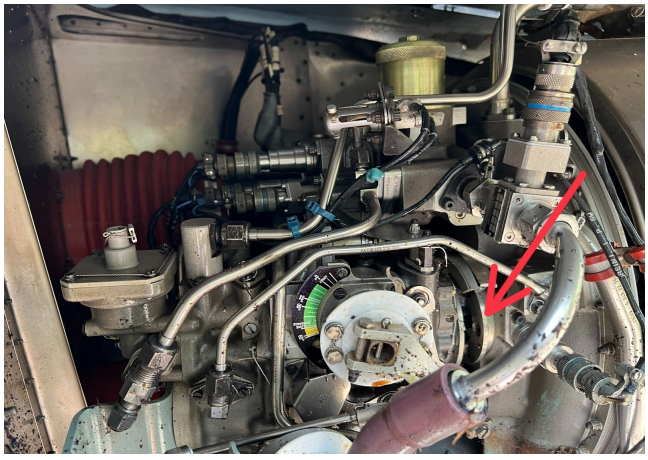


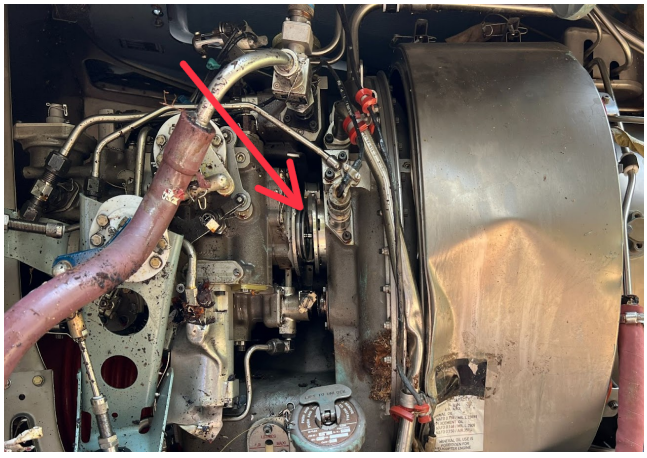


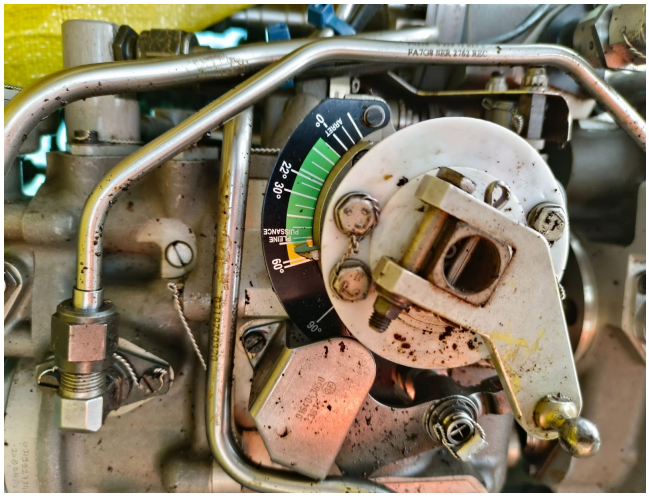


73.00	Fuel Control Unit clamps detached from LH impact

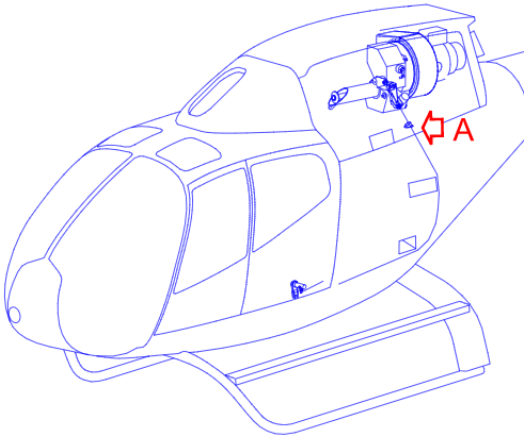


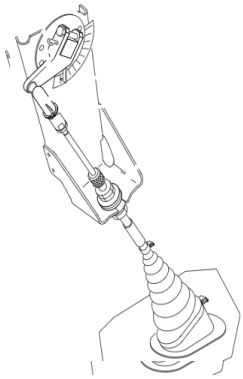


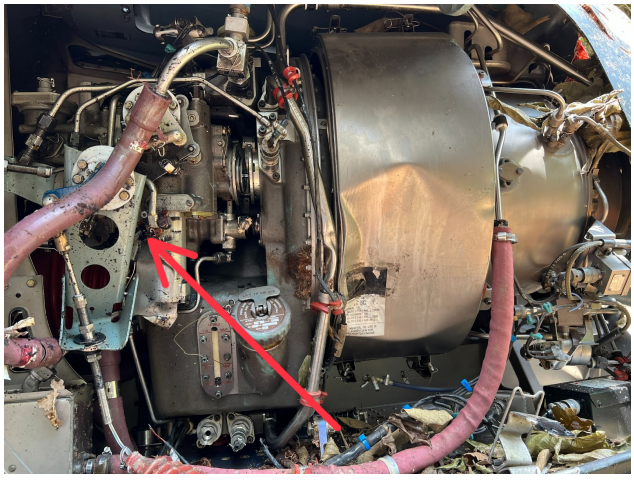


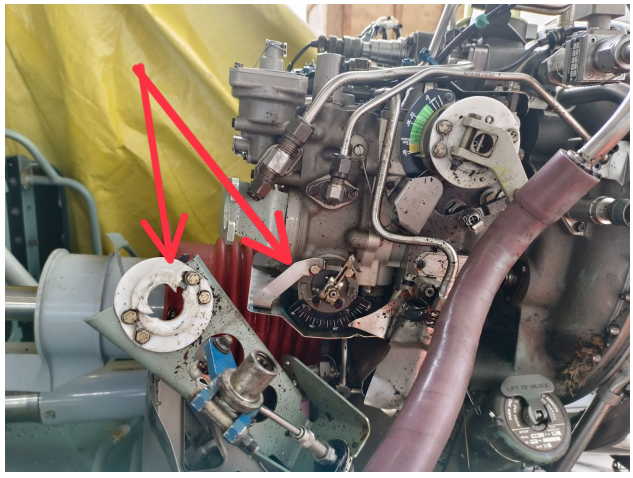


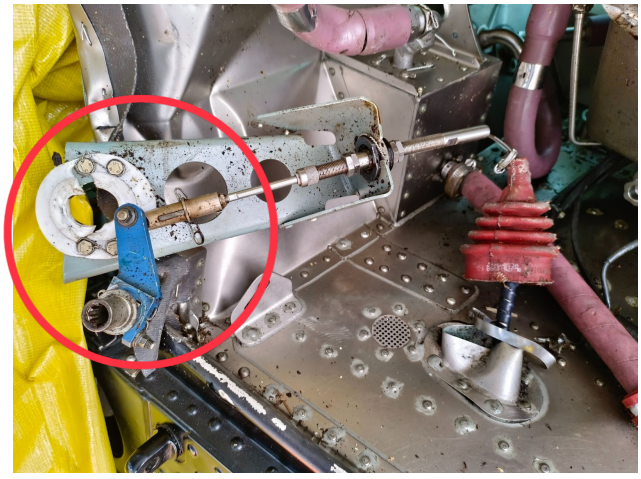
76.00	Engine Anticipator Control Cable Mount found broken from LH impact

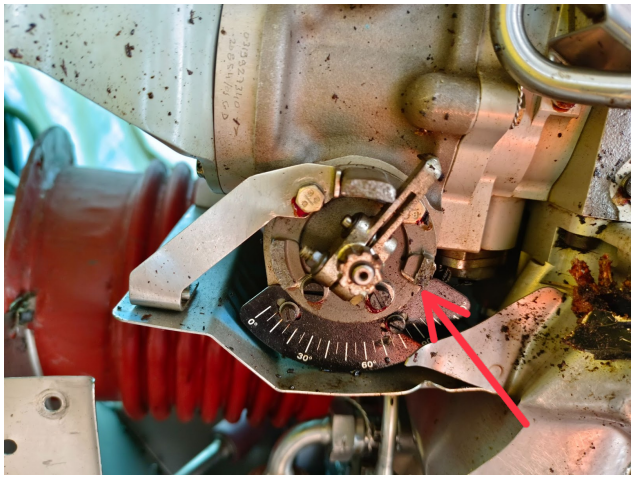




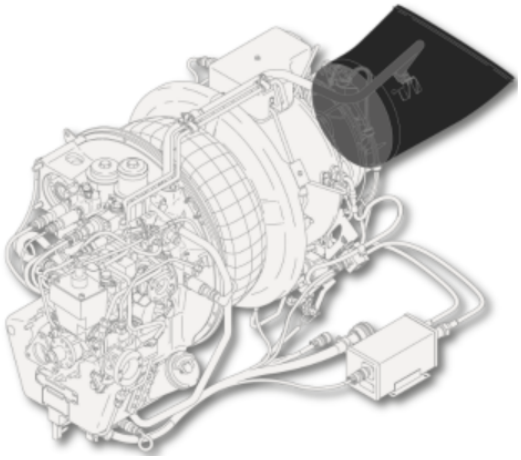


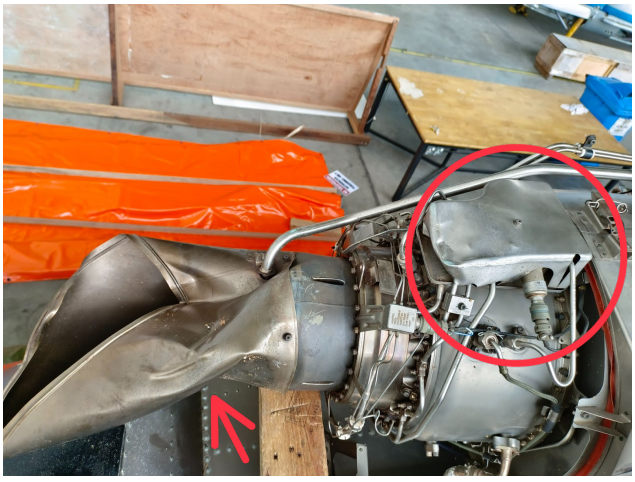


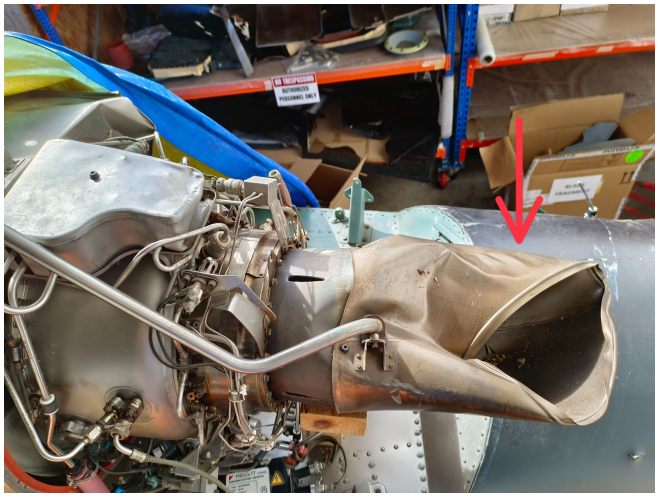




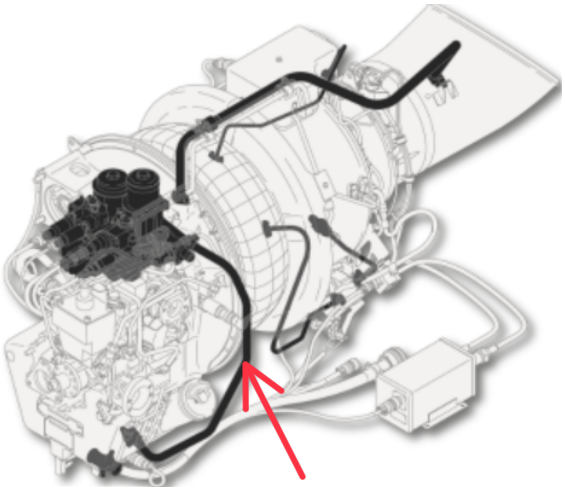
78.0	Engine exhaust and Fuel Valve Assy Cover flattened from top side impact with tree (tree aircraft rested on)

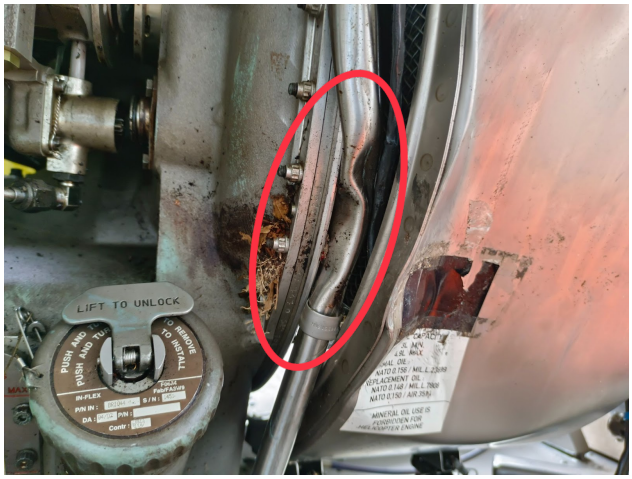


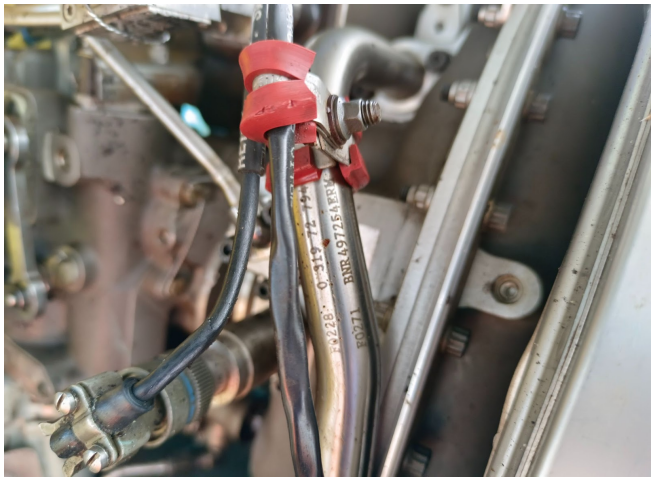


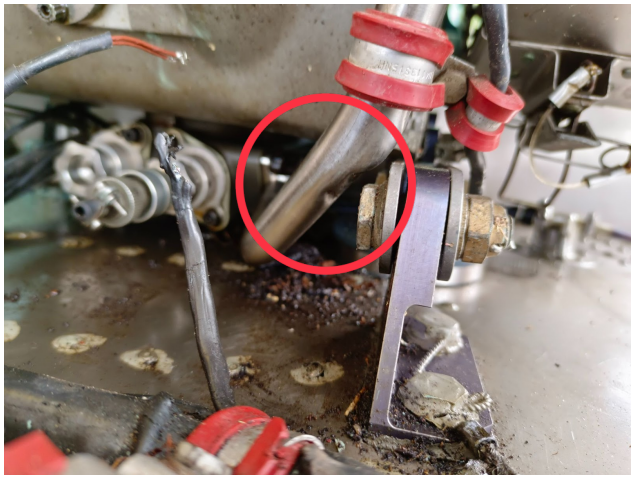


79.00	Engine Oil Return line flattened from LH impact









APPENDICES:

Appendix 1: Vibration Test Results
Appendix 2: Engine Power Check Trend (Last 2 Results)
Appendix 3: Certificate of Conformity
Appendix 4: C of A
Appendix 5: C of R
Appendix 6: Noise Certificate
Appendix 7: Radio Station License
Appendix 8: Avionics Equipment List
Appendix 9: Aircraft and Engine Status List
Appendix 10: AD/SB Status List
Appendix 11: Weight and Balance Report with aircraft inventory list
Appendix 12: Aircraft compass swing report
Appendix 13: SOAP Sample result

Appendix 1: Vibration Test Results

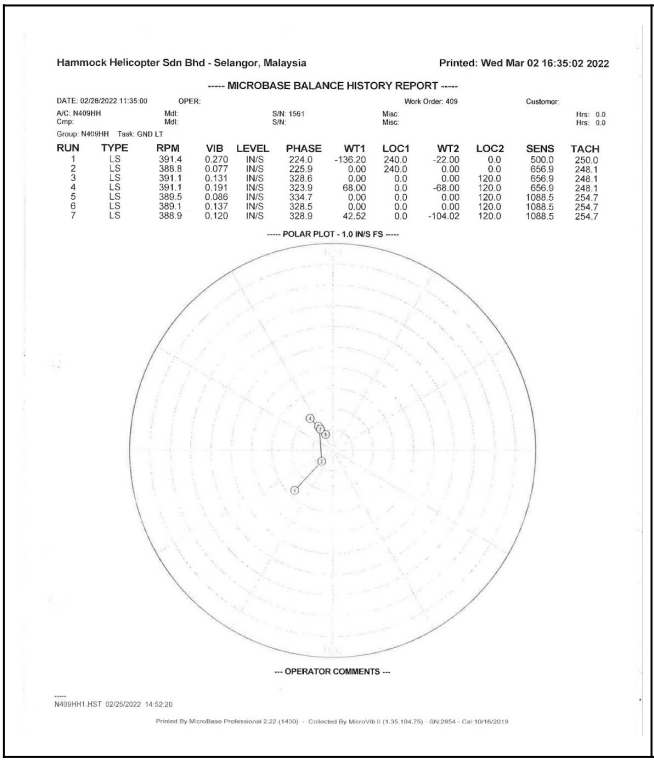
a) **Track and Balance** (Last carried out 01 March2022) (Fight Log: N409HH-000011)

Main Rotor

	LATERAL IPS	VERTICAL IPS	TRACK SPLIT
GROUND	0.120 @ 328.9º	0.043 @ 60.9º	3.000 mm
HOVER	0.039 @ 156.1º	0.022 @ 49.7º	5.269 mm
90 KTS	-	0.040 @ 105.0º	4.564 mm
120 KTS	0.038 @ 199.3º	0.075 @ 298.6º	2.965 mm

Tail Rotor

	LATERAL IPS
GROUND	0.153 @ 159.3º



Hammock Helicopter Sdn Bhd - Selangor, Malaysia — Printed: Wed Mar 02 16:35:02 2022

----- MICROBASE BALANCE HISTORY REPORT -----

DATE: 02/28/2022 11:35:00 OPER: Work Order: 409 Customer:
A/C: N409HH Mdl: S/N: 1561 Misc: Hrs: 0.0
Cmp: Mdl: S/N: Misc: Hrs: 0.0
Group: N409HH Task: GND LT

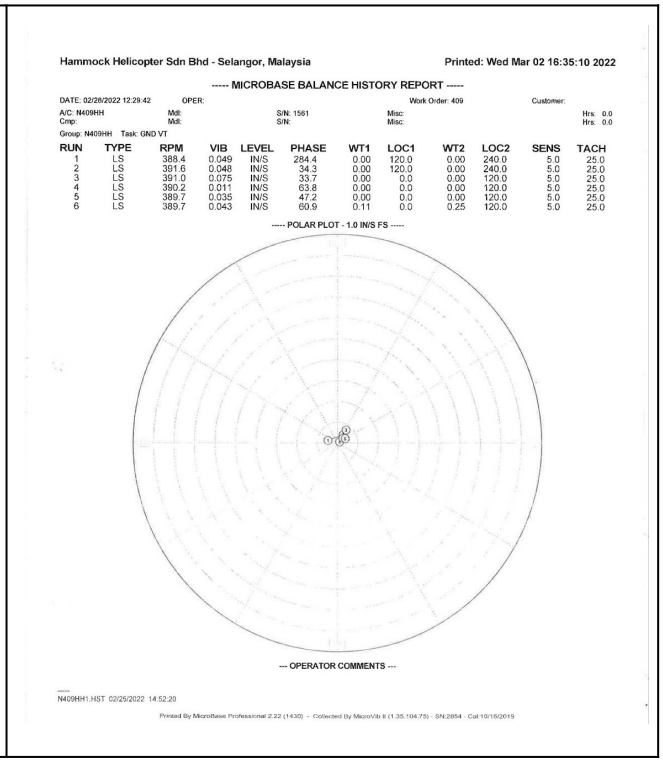
RUN	TYPE	RPM	VIB	LEVEL	PHASE	WT1	LOC1	WT2	LOC2	SENS	TACH
1	LS	391.4	0.270	IN/S	224.0	-136.20	240.0	-22.00	0.0	500.0	250.0
2	LS	388.8	0.077	IN/S	225.9	0.00	240.0	0.00	0.0	656.9	248.1
3	LS	391.1	0.131	IN/S	328.6	0.00	0.0	0.00	120.0	656.9	248.1
4	LS	391.1	0.191	IN/S	323.9	68.00	0.0	-68.00	120.0	656.9	248.1
5	LS	389.5	0.086	IN/S	334.7	0.00	0.0	0.00	120.0	1088.5	254.7
6	LS	389.1	0.137	IN/S	328.5	0.00	0.0	0.00	120.0	1088.5	254.7
7	LS	388.9	0.120	IN/S	328.9	42.52	0.0	-104.02	120.0	1088.5	254.7

----- POLAR PLOT - 1.0 IN/S FS -----

--- OPERATOR COMMENTS ---

N409HH1.HST 02/25/2022 14:52:20

Printed By MicroBase Professional 2.22 (1430) - Collected By MicroVib II (1.35.104.75) - SN:2854 - Cal:10/16/2019



Hammock Helicopter Sdn Bhd - Selangor, Malaysia — Printed: Wed Mar 02 16:35:10 2022

----- MICROBASE BALANCE HISTORY REPORT -----

DATE: 02/28/2022 12:29:42 OPER: Work Order: 409 Customer:
A/C: N409HH Mdl: S/N: 1561 Misc: Hrs: 0.0
Cmp: Mdl: S/N: Misc: Hrs: 0.0
Group: N409HH Task: GND VT

RUN	TYPE	RPM	VIB	LEVEL	PHASE	WT1	LOC1	WT2	LOC2	SENS	TACH
1	LS	388.4	0.049	IN/S	284.4	0.00	120.0	0.00	240.0	5.0	25.0
2	LS	391.6	0.048	IN/S	34.3	0.00	120.0	0.00	240.0	5.0	25.0
3	LS	391.0	0.075	IN/S	33.7	0.00	0.0	0.00	120.0	5.0	25.0
4	LS	390.2	0.011	IN/S	63.8	0.00	0.0	0.00	120.0	5.0	25.0
5	LS	389.7	0.035	IN/S	47.2	0.00	0.0	0.00	120.0	5.0	25.0
6	LS	389.7	0.043	IN/S	60.9	0.11	0.0	0.25	120.0	5.0	25.0

----- POLAR PLOT - 1.0 IN/S FS -----

--- OPERATOR COMMENTS ---

N409HH1.HST 02/25/2022 14:52:20

Printed By MicroBase Professional 2.22 (1430) - Collected By MicroVib II (1.35.104.75) - SN:2854 - Cal:10/16/2019

Hammock Helicopter Sdn Bhd - Selangor, Malaysia **Printed: Wed Mar 02 16:35:16 2022**

----- MICROBASE BALANCE HISTORY REPORT -----

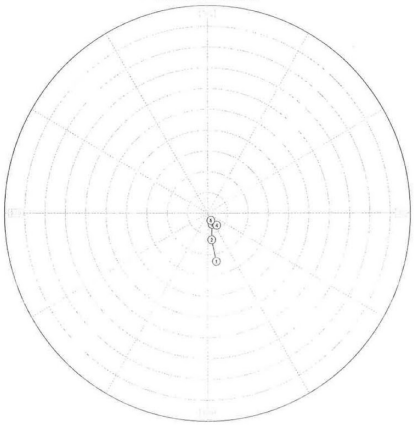
DATE: 02/28/2022 12:34:50 OPER: Work Order: 409 Customer:

A/C: N409HH Mdl: S/N: 1561 Misc: Hrs: 0.0
Cmp: Mdl: S/N: Misc: Hrs: 0.0

Group: N409HH Task: HOV LT

RUN	TYPE	RPM	VIB	LEVEL	PHASE	WT1	LOC1	WT2	LOC2	SENS	TACH
1	LS	405.4	0.236	IN/S	169.6	-90.00	240.0	-90.00	0.0	500.0	250.0
2	LS	407.8	0.129	IN/S	171.4	0.00	240.0	0.00	0.0	841.9	252.5
3	LS	409.1	0.058	IN/S	158.5	0.00	240.0	0.00	0.0	841.9	252.5
4	LS	407.3	0.073	IN/S	142.6	0.00	240.0	0.00	0.0	841.9	252.5
5	LS	408.2	0.039	IN/S	156.1	-28.29	240.0	-35.72	0.0	841.9	252.5

----- POLAR PLOT - 1.0 IN/S FS -----



--- OPERATOR COMMENTS ---

N409HH1.HST 02/25/2022 14:52:20

Printed By MicroBase Professional 2.22 (1430) - Collected By MicroVib II (1.35.104.75) - SN:2854 - Cal:10/16/2019

Hammock Helicopter Sdn Bhd - Selangor, Malaysia **Printed: Wed Mar 02 16:35:23 2022**

----- MICROBASE BALANCE HISTORY REPORT -----

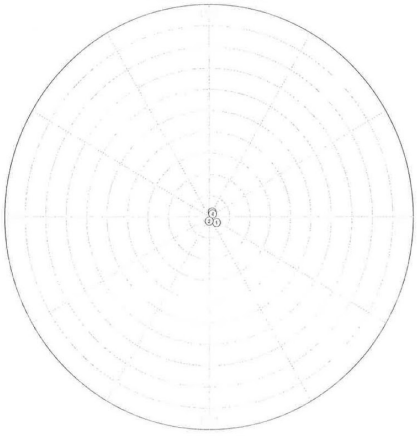
DATE: 02/28/2022 12:58:54 OPER: Work Order: 409 Customer:

A/C: N409HH Mdl: S/N: 1561 Misc: Hrs: 0.0
Cmp: Mdl: S/N: Misc: Hrs: 0.0

Group: N409HH Task: HOV VT

RUN	TYPE	RPM	VIB	LEVEL	PHASE	WT1	LOC1	WT2	LOC2	SENS	TACH
1	LS	407.3	0.045	IN/S	127.3	0.00	0.0	0.00	120.0	5.0	25.0
2	LS	407.9	0.020	IN/S	183.0	0.00	0.0	0.00	120.0	5.0	25.0
3	LS	407.2	0.027	IN/S	30.9	0.00	0.0	0.00	120.0	5.0	25.0
4	LS	409.2	0.022	IN/S	49.7	0.03	0.0	0.12	120.0	5.0	25.0

----- POLAR PLOT - 1.0 IN/S FS -----



--- OPERATOR COMMENTS ---

N409HH1.HST 02/25/2022 14:52:20

Printed By MicroBase Professional 2.22 (1430) - Collected By MicroVib II (1.35.104.75) - SN:2854 - Cal:10/16/2019

Hammock Helicopter Sdn Bhd - Selangor, Malaysia **Printed: Wed Mar 02 16:35:30 2022**

----- MICROBASE BALANCE HISTORY REPORT -----

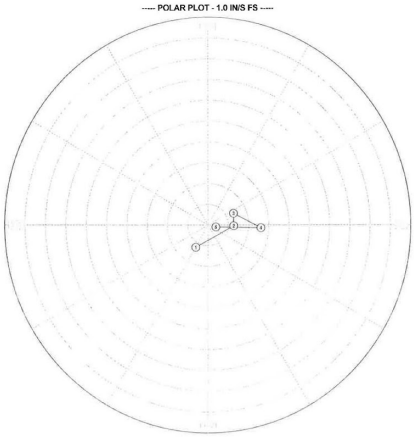
DATE: 02/28/2022 13:05:50 OPER: Work Order: 409 Customer:

A/C: N409HH Mdl: S/N: 1561 Misc: Hrs: 0.0
Cmp: Mdl: S/N: Misc: Hrs: 0.0

Group: N409HH Task: 90KT VT

RUN	TYPE	RPM	VIB	LEVEL	PHASE	WT1	LOC1	WT2	LOC2	SENS	TACH
1	LS	410.3	0.124	IN/S	209.5	0.00	240.0	0.00	0.0	10.0	315.0
2	LS	410.4	0.127	IN/S	91.9	0.00	240.0	0.00	0.0	10.0	315.0
3	LS	411.0	0.138	IN/S	65.6	0.00	0.0	0.00	120.0	10.0	315.0
4	LS	414.1	0.280	IN/S	93.0	0.00	0.0	0.00	120.0	10.0	315.0
5	LS	411.1	0.040	IN/S	105.0	-0.00	0.0	0.40	120.0	10.0	315.0

----- POLAR PLOT - 1.0 IN/S FS -----



--- OPERATOR COMMENTS ---

N409HH1.HST 02/25/2022 14:52:20

Printed By MicroBase Professional 2.22 (1430) - Collected By MicroVib II (1.35.104.75) - SN:2854 - Cal:10/16/2019

Hammock Helicopter Sdn Bhd - Selangor, Malaysia **Printed: Wed Mar 02 16:35:37 2022**

----- MICROBASE BALANCE HISTORY REPORT -----

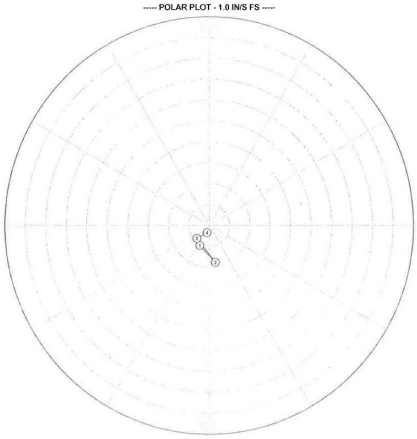
DATE: 02/28/2022 13:07:20 OPER: Work Order: 409 Customer:

A/C: N409HH Mdl: S/N: 1561 Misc: Hrs: 0.0
Cmp: Mdl: S/N: Misc: Hrs: 0.0

Group: N409HH Task: 120KT LT

RUN	TYPE	RPM	VIB	LEVEL	PHASE	WT1	LOC1	WT2	LOC2	SENS	TACH
1	LS	410.4	0.108	IN/S	206.4	0.00	240.0	0.00	0.0	500.0	250.0
2	LS	411.3	0.179	IN/S	170.8	0.00	0.0	45.00	120.0	500.0	250.0
3	LS	411.6	0.088	IN/S	224.9	0.00	0.0	0.00	120.0	307.5	278.5
4	LS	412.5	0.038	IN/S	199.3	11.33	0.0	11.84	120.0	307.5	278.5

----- POLAR PLOT - 1.0 IN/S FS -----



--- OPERATOR COMMENTS ---

N409HH1.HST 02/25/2022 14:52:20

Printed By MicroBase Professional 2.22 (1430) - Collected By MicroVib II (1.35.104.75) - SN:2854 - Cal:10/16/2019

Hammock Helicopter Sdn Bhd - Selangor, Malaysia **Printed: Wed Mar 02 16:35:47 2022**

----- MICROBASE BALANCE HISTORY REPORT -----

DATE: 02/28/2022 13:07:52 OPER: Work Order: 409 Customer:

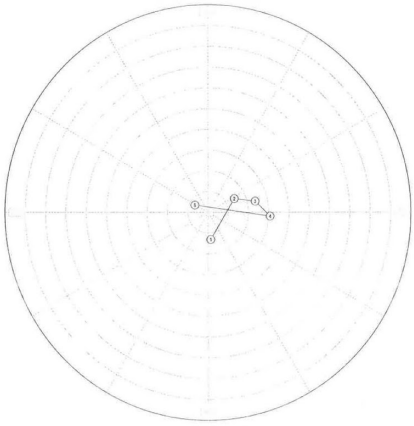
A/C: N409HH Mdl: S/N: 1561 Misc: Hrs: 0.0

Cmp: Mdl: S/N: Misc: Hrs: 0.0

Group: N409HH Task: 120KT VT

RUN	TYPE	RPM	VIB	LEVEL	PHASE	WT1	LOC1	WT2	LOC2	SENS	TACH
1	LS	411.3	0.132	IN/S	174.7	0.00	0.0	0.00	120.0	10.0	315.0
2	LS	451.8	0.145	IN/S	62.7	0.00	0.0	0.00	120.0	10.0	315.0
3	LS	410.9	0.239	IN/S	76.9	-1.00	0.0	1.00	120.0	10.0	315.0
4	LS	413.8	0.307	IN/S	93.4	0.00	0.0	0.00	120.0	16.7	75.5
5	LS	411.5	0.075	IN/S	298.6	-1.04	0.0	0.35	120.0	16.7	75.5

----- POLAR PLOT - 1.0 IN/S FS -----



--- OPERATOR COMMENTS ---

N409HH1.HST 02/25/2022 14:52:20

Printed By MicroBase Professional 2.22 (1430) - Collected By MicroVib II (1.35.104.75) - SN:2854 - Cal:10/16/2019

Hammock Helicopter Sdn Bhd - Selangor, Malaysia **Printed: Wed Mar 02 16:36:42 2022**

----- MICROBASE BLADE TRACK REPORT -----

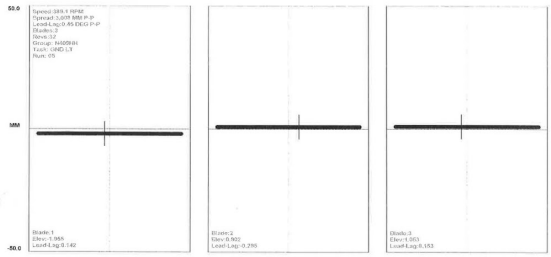
DATE: 03/01/2022 17:30:24 OPER: Work Order: 409 Customer:

A/C: N409HH Mdl: S/N: 1561 Misc: Hrs: 0.0

Cmp: Mdl: S/N: Misc: Hrs: 0.0

Group: N409HH Task: GND LT

----- BLADE TRACK PLOT -----



--- OPERATOR COMMENTS ---

PLOT0232.TRK 03/01/2022 17:31:02

Printed By MicroBase Professional 2.22 (1430) - Collected By MicroVib II (1.35.104.75) - SN:2854 - Cal:10/16/2019

Hammock Helicopter Sdn Bhd - Selangor, Malaysia **Printed: Wed Mar 02 16:36:10 2022**

----- MICROBASE BLADE TRACK REPORT -----

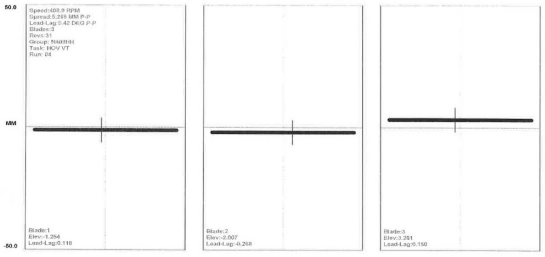
DATE: 03/01/2022 14:49:06 OPER: Work Order: 409 Customer:

A/C: N409HH Mdl: S/N: 1561 Misc: Hrs: 0.0

Cmp: Mdl: S/N: Misc: Hrs: 0.0

Group: N409HH Task: HOV VT

----- BLADE TRACK PLOT -----



--- OPERATOR COMMENTS ---

PLOT0227.TRK 03/01/2022 14:49:22

Printed By MicroBase Professional 2.22 (1430) - Collected By MicroVib II (1.35.104.75) - SN:2854 - Cal:10/16/2019

Hammock Helicopter Sdn Bhd - Selangor, Malaysia **Printed: Wed Mar 02 16:36:27 2022**

----- MICROBASE BLADE TRACK REPORT -----

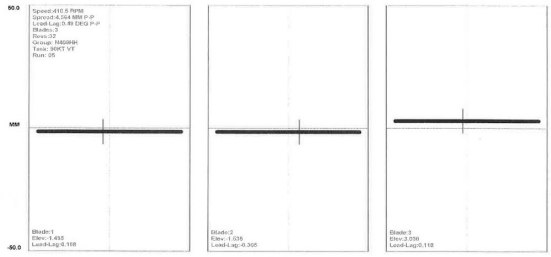
DATE: 03/01/2022 17:24:28 OPER: Work Order: 409 Customer:

A/C: N409HH Mdl: S/N: 1561 Misc: Hrs: 0.0

Cmp: Mdl: S/N: Misc: Hrs: 0.0

Group: N409HH Task: 90KT VT

----- BLADE TRACK PLOT -----



--- OPERATOR COMMENTS ---

PLOT0230.TRK 03/01/2022 17:24:44

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Hammock Helicopter Sdn Bhd - Selangor, Malaysia

Printed: Wed Mar 02 16:36:34 2022

----- MICROBASE BLADE TRACK REPORT -----

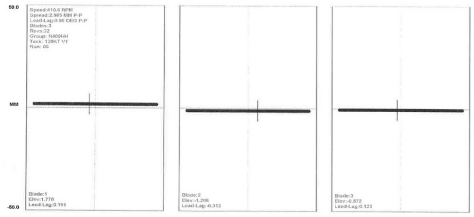
DATE: 03/01/2022 17:26:28 OPER: Work Order: 409 Customer:

A/C: N409HH Mdl: S/N: 1561 Misc: Hrs: 0.0

Cmp: Mdl: S/N: Misc: Hrs: 0.0

Group: N409HH Task: 120KT VT

----- BLADE TRACK PLOT -----



--- OPERATOR COMMENTS ---

PLOT0231.TRK 03/01/2022 17:26:38

Printed By MicroBase Professional 2.22 (1430) - Collected By MicroVib II (1.35.104.75) - SN:2854 - Cal:10/16/2019

409-WO-2110-HH-1561 (29.12.21)

Hammock Helicopter Sdn Bhd - Selangor, Malaysia

Printed: Mon Dec 27 15:37:10 2021

----- MICROBASE PEAK PHASE REPORT -----

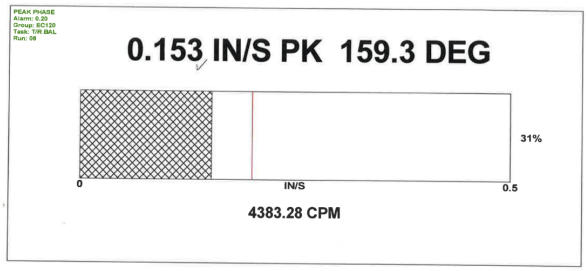
DATE: 12/27/2021 20:49:08 OPER: Work Order: 409 Customer:

A/C: N409HH Mdl: EC120 S/N: 1561 Misc: Hrs: 0.0

Cmp: Mdl: S/N: Misc: N/A Hrs: 0.0

Group: EC120 Task: T/R BAL

----- PEAK PHASE SCAN -----



--- OPERATOR COMMENTS ---

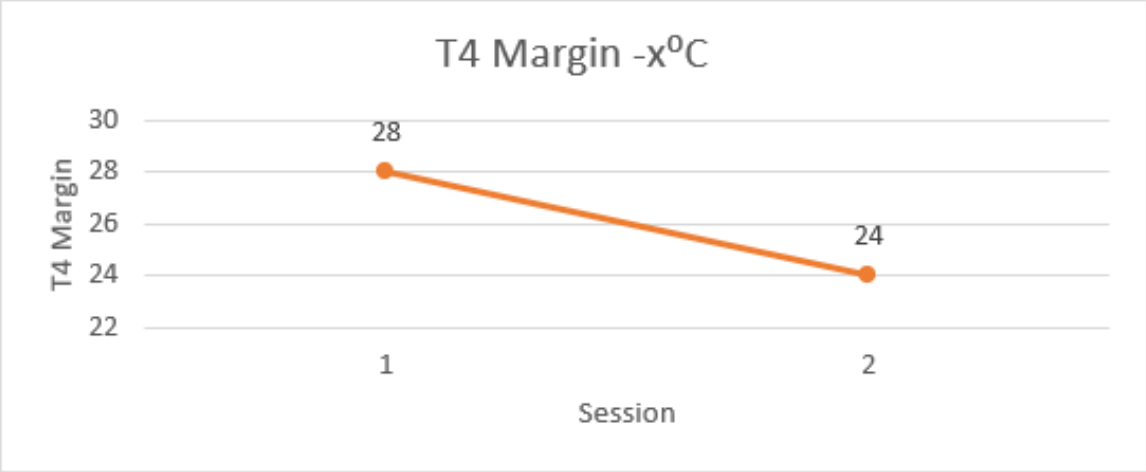
PLOT0182.PKP 12/23/2021 20:53:46

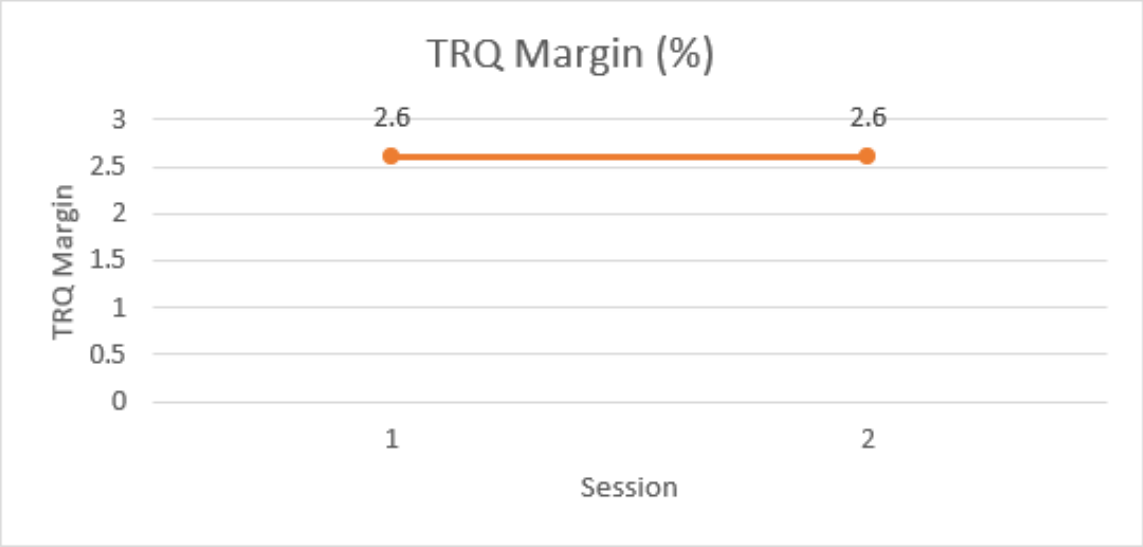
Printed By MicroBase Professional 2.22 (1430) - Collected By MicroVib II (1.35.104.75) - SN:2854 - Cal:10/16/2019

Appendix 2: Engine Power Check Trend (Last 2 Results)

EC120B
N409HH
SN 1561

Session	T4 Margin (-x^{o}C)	TRQ Margin (%)
1 (29 Dec 21)	28	2.6
2 (20 Jul 22)	24	2.6





Appendix 3: Certificate of Conformity

AIRCRAFT STATEMENT OF CONFORMITY

1. State of Manufacture FRANCE	2 Competent Authority of a Menber State of the European Union or EASA DIRECTION GENERALE DE L'AVIATION CIVILE	3 Statement Ref N° **CO 562**
4.Organisation: eurocopter	AEROPORT INTERNATIONNAL MARSEILLE PROVENCE 13725 MARIGNANE CEDEX – France	

5. Aircraft type : **EC120 B**	6. Type certificate Ref **DGAC N° 189 du 06/97**
7. Aircraft Registration or Marck : **INDE**	8. Manufactures Identification N°: **1561**
9. Engine / ~~Propeller~~ Details *:	**TURBOMECA 64511 BORDES FRANCE** **ARRIUS 2F S/N 34630**
10. MODIFICATIONS AND/OR SERVICE BULLETINS *:	**Refer to aircraft individual inspection log book - section 1**
11. AIRWORTHINESS DIRECTIVES :	**Refer to aircraft individual inspection log book - section 1**
12. CONCESSIONS :	**Refer to aircraft individual inspection log book - .section 1**
13. EXEMPTIONS, WAIVERS OR DEROGATIONS	**None**
14. REMARKS:	**None**
15. CERTIFICATE OF AIWORTHINESS	**EXPORT / ~~STANDARD~~**
16. ADDITIONNAL REQUIREMENTS:	**Design data accepted without complementary conditions.**

17. STATEMENT OF CONFORMITY

It is hereby certified that this aircraft conforms fully to the type certificated design and to items above in boxes 9, 10,11,12,13.
The aircraft is in a condition for safe operation
The aircraft has been satisfactorily tested in flight

18. SIGNED	19. NAME: H. JESSEL .	20. (DAY ,MONTH,YEAR) 18 AOUT 2008

21. PRODUCTION ORGANISATION APPROVAL REFERENCE

EUROCOPTER
Agrément de Production
Production Organisation Approval
Référence FR 21 G 0003

eurocopter
an EADS Company
Marignane Plant
13725 Marignane Cedex - France

Certified under ISO 9001, EN 9100 and AQAP 2110

Référence du certificat :
Certificate reference number :

120/1561

CERTIFICAT DE CONFORMITE
CERTIFICATE OF CONFORMITY

Fourniture :
Fourniture :

Appareil / *Aircraft type :* **COLIBRI EC 120 B**

N° de série / *serial N° :* **1561**

Nous déclarons que la fourniture citée est conforme aux exigences du contrat et que, aprés vérifications et essais, elle répond en tous points, aux exigences spécifiées, aux normes et réglements applicables (navigabilité comprise), sauf exceptions, réserves ou dérogations énumérées dans le présent certificat de conformité.

We hereby certify that the above mentioned supply complies with the contract requirements and that after completion of inspections and tests, it fully meets the specifications and applicable standards and regulations (including Airworthiness), except for the deviations, limitations and concessions listed thereunder.

Marché N° : *Contract N °:*	ECOPO/1180/05/07	Date du Marché : *Contract Date :*	24 Juin 2007

Exceptions, réserves ou dérogations :
Deviations, limitations or concessions :

VOIR LE REGISTRE INDIVIDUEL DE CONTROLE

REFER TO AIRCRAFT INDIVIDUAL INSPECTION LOG BOOK

Signature : *Signature :*	Nom : *Name :*	Date : *Date :*
	H. JESSEL.	18 AOUT 2008

eurocopter
COMMERCIAL HELICOPTERS
BUSINESS CENTER
QUALITY DEPARTMENT

Appendix 4: C of A

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION-FEDERAL AVIATION ADMINISTRATION

STANDARD AIRWORTHINESS CERTIFICATE

1 NATIONALITY AND REGISTRATION MARKS	2 MANUFACTURER AND MODEL	3 AIRCRAFT SERIAL NUMBER	4 CATEGORY
N409HH	EUROCOPTER EC120B	1561	Normal

5 AUTHORITY AND BASIS FOR ISSUANCE

This airworthiness certificate is issued pursuant to 49 U.S.C. § 44704 and certifies that, as of the date of issuance, this aircraft has been inspected and found to conform to its type certificate and be in condition for safe operation. This aircraft meets the requirements of the applicable airworthiness standards in Annex 8 to the Convention on International Civil Aviation, except as follows:

None

6 TERMS AND CONDITIONS

Unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the FAA, this airworthiness certificate is effective as long as maintenance, preventative maintenance, and alterations are performed per the applicable Federal Aviation Regulations and the aircraft is registered in the United States.

DATE OF ISSUANCE	FAA REPRESENTATIVE	DESIGNATION NUMBER
06/Nov/2021	//Signed by//Donald James Schoolcraft,09:10 AM, November 06, 2021	445946319

Any alteration, misuse, or reproduction of this certificate for a fraudulent purpose may be punishable by certificate revocation, fine, and / or imprisonment.

THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT PER THE APPLICABLE FEDERAL AVIATION REGULATIONS.

FAA Form 8100-2 (9-2019) Previous Edition May be Used Until Depleted

Appendix 5: C of R

REGISTRATION NOT TRANSFERABLE

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION – FEDERAL AVIATION ADMINISTRATION
CERTIFICATE OF AIRCRAFT REGISTRATION

This certificate must be in the aircraft when operated.

NATIONALITY AND REGISTRATION MARKS **N** 409HH

AIRCRAFT SERIAL NO. 1561

MANUFACTURER AND MANUFACTURER'S DESIGNATION OF AIRCRAFT
EUROCOPTER EC120B

ICAO Aircraft Address Code: 51147307

ISSUED TO

INTEGRITY AIRCRAFT TITLE HOLDINGS LLC
465 NE 181ST AVE STE 505
PORTLAND OR 97230-6660

LLC

This certificate is issued for registration purposes only and is not a certificate of title. The Federal Aviation Administration does not determine rights of ownership as between private persons.

It is certified that the above described aircraft has been entered on the register of the Federal Aviation Administration, United States of America, in accordance with the Convention on International Civil Aviation dated December 7, 1944, and with Title 49, United States Code, and regulations issued thereunder.

DATE OF ISSUE August 19, 2021
EXPIRATION DATE August 31, 2024

ADMINISTRATOR

U.S. Department of Transportation
Federal Aviation Administration

AC Form 8050-3 (10/2019) Supersedes previous editions

(CUT ON DOTTED LINE)

U.S. Department
of Transportation
Federal Aviation
Administration

Civil Aviation Registry
P.O. Box 25504
Oklahoma City, OK 73125-0504

Official Business
Penalty for Private Use $300

AC Form 8050-3 (10/2010) Supersedes previous edition 409HH

TO: INTEGRITY AIRCRAFT TITLE HOLDINGS LLC
465 NE 181ST AVE STE 505
PORTLAND OR 97230-6660

Appendix 6: Noise Certificate

CERTIFICAT DE LIMITATION DE NUISANCES

POUR EXPORTATION

(EXPORT NOISE CERTIFICATE)

1 - Marques de nationalité et d'immatriculation *Nationality & registration marks*	2 - Constructeur et désignation du type de l'aéronef *Manufacturer and designation of aircraft*	3 - Numéro de série de l'aéronef *Aircraft serial number*
	EUROCOPTER HELICOPTERE EC 120 B	1561

4 - L'aéronef désigné ci-dessus a été examiné, essayé et trouvé *(the above-mentioned aircraft has been examined, tested and found)* :

a) conforme au Certificat de Type : N189
(to conform to Type Certificate)

b) satisfaisant les exigences techniques de l'Annexe 16 de l'OACI, Volume I, Chapitre : 11
(to comply with the technical requirements of ICAO Annex 16, Volume I, chapter)

5 - Les conditions devant être remplies pour satisfaire aux exigences mentionnées au paragraphe précédent, ainsi que les niveaux de bruit atteints lorsque ces conditions sont satisfaites apparaissent dans le document suivant *(the conditions to be satisfied to comply with the above-mentioned requirements, as well as the noise level data, appear in the following document)* :
Manuel de vol

Voir également les déclarations complémentaires faites au verso *(see overleaf for complementary information)*

Délivré le : 30 JAN. 2009

Pour le Ministre chargé de l'Aviation Civile,

Benoit PINON
INQIAGR

Ce certificat correspond au certificat acoustique OACI

Appendix 7: Radio Station License

Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: INTEGRITY AIRCRAFT TITLE HOLDINGS LLC

ATTN: RICHARD ANDERSON
INTEGRITY AIRCRAFT TITLE HOLDINGS LLC
465 NE 181ST. AVE. # 505
PORTLAND, OR 97230

FCC Registration Number (FRN): 0021461512

FAA Number/FCC Call Sign	Radio Service	File Number
N 409HH	AC - Aircraft	0009669962
Type of License	**Number in Fleet**	**Classification**
Regular		Private Aircraft

Grant Date	Effective Date	Expiration Date	Print Date
08-21-2021	08-21-2021	08-21-2031	08-23-2021

Waivers/Conditions:

NONE

Official Copy

THIS AUTHORIZATION IS NOT TRANSFERABLE

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

FCC 605-A
August 2007

Page 1 of 1

Appendix 8: Avionics Equipment List

HAMMOCK HELICOPTER SDN. BHD. (643278-V)

AVIONIC LIST

EC120B, S/N 1561, N409HH

18-Oct-21

By: Mark D. McGREGOR

License No.: A&P 2523065

ATA	DESCRIPTION	PART NUMBER	SERIAL NUMBER
23	INTERPHONE CONTROL SYSTEM GMA340	011-00401-01	96202893
23	TRANSCEIVER ,VHF/AM, KY196 A	064-1054-60	33404
23	ANTENNA VHF/AM	1340-81	760
23	ANTENNA VHF/AM	1340-81	769
23	ANTENNA TRI FREQUENCY	2141	10265
23	ALTIMETER	5934PD3A130	452761
25	ELT, KANNAD 406AF-H	S1822502-02	2617610-0003
25	ELT, KANNAD 406AF-H	S1820506-01	373501
31	VEMD NOT NVG NEW LCD V9	B1903FC05	54000
31	ASU CARD 1	SE02990	736
31	ASU CARD 2	SE03010	515
31	LACU CONTROL	040101BA-AMDT	P022496
31	PANEL WARNING	022TA0101	0582
31	CHRONOMETER	B1894522000A	1095145
33	POWER SUPPLY UNIT	0130-2028-0010	265020
33	RED ANTICOLLISION LIGHT	6485200	0207
33	RED POSITION LIGHT	6490811	0376
33	GREEN POSITION LIGHT	6490821	0287
33	WHITE POSITION LIGHT	6490831	0234
34	HORIZON ARTIFICIAL	H321EGM	20427
34	OUTSIDE AIR TEEMP.PROBE	RP234-00	005811
34	TRANSPONDER GTX330	011-00455-00	84125980
34	GPS RECEIVER GNS430	011-00280-10	97141942
34	GYRO DIRECTIONNAL KG102A	060 0015 00	KG102A-54138
34	HIS KI 525A INDICATOR	066 3046 07	96975
34	VALVE, FLUX, KMT 112	071 1052 00	KMT112-75980
34	SYNCHRO BOX KA51B	071 1242 01	KA51B-40173
34	STAND BY COMPASS	1008KCA2	704667-24
34	ANTENNA	3101-80A	5159
34	GLIDE SLOPE ANTENNA	3117-82	1150
34	ALTIMETER INDICATOR	5934PD3A130	452761
34	AIRSPEED INDICATOR	8025B845	198807
34	ALTICODER	8800T	T9949
34	ANTENNA TACAN	241389	84130461
34	VERTICAL SPEED INDICATOR	7030C27	317016
34	TURN AND SLIP INDICATOR	UI9560N558	1250

Appendix 9: Aircraft and Engine Status List

HAMMOCK HELICOPTER SDN. BHD. (643278-V)

AIRFRAMME	AIRBUS EC120B, SN 1561	ENGINE	ARRIUS 2F	S/N: 34630			
Latest Tech Log :	09-Sep-22 N409HH-000044	ENG T.T :	1427.2	Hours (H)	VEMD	OWNER:	HAMMOCK HELICOPTER SDN. BHD.
A/C T.T :	1427.1 Hours (H)	NG CYC :	2269.20	Cycle (C)	634.15	A/C S/N:	1561
Flight Cycle :	2492 Landings (U)	NF CYC :	2363.75	Cycle (C)	564.3	REG No.:	N409HH
						D.O.M.:	18-Aug-2008

Date: 9-Sep-22

AIRBUS EC120B, MSM REV 007, 2021-07-05

ATA	DESCRIPTION	PART NUMBER	SERIAL NUMBER	DATE	TT / TC	TSN	TSO	T/CSN	T/CSO	INTERVAL		WORK / INSPECTION	NEXT DUE	REMAINING				CARD
AIRFRAME																		
05.20.02	AIRBUS HELICOPTER	EC120B	1561	6-Sep-22	1419.9	0.0	0.0	7.2	7.2	7	D	7D/15FH INSPECTION, MSM 05-20-02	13-Sep-22	4.00	D	0	D	
05.20.02	AIRBUS HELICOPTER	EC120B	1561	6-Sep-22	1419.9	0.0	0.0	7.2	7.2	15	H	7D/15FH INSPECTION, MSM 05-20-02	1,434.90	7.80	H	0	D	
05.25.02	AIRBUS HELICOPTER	EC120B	1561							25	H	25FH INSPECTION, MSM 05-25-00		N/A		NA		
05.25.01	AIRBUS HELICOPTER	EC120B	1561	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	3	M	3M/100FH INSPECTION, MSM 05-25-00	21-Oct-22	42.00	D	9	D	
05.25.01	AIRBUS HELICOPTER	EC120B	1561	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	100	H	3M/100FH INSPECTION, MSM 05-25-00	1,504.10	77.00	H	10	H	
05.21.01	AIRBUS HELICOPTER	EC120B	1561	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	100	H	100FH INSPECTION, MSM 05-21-01	1,504.10	77.00	H	10	H	
05.21.00	AIRBUS HELICOPTER	EC120B	1561	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	12	M	12M INSPECTION, MSM 05-21-02 & FAR PART 43.15. APPENDIX (D)	17-Oct-22	38.00	D	36	D	
05.21.03	AIRBUS HELICOPTER	EC120B	1561	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	12	M	12M/100FH INSPECTION, MSM 05-21-00	21-Jul-23	315.00	D	36	D	
05.21.03	AIRBUS HELICOPTER	EC120B	1561	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	100	H	12M/100FH INSPECTION, MSM 05-21-00	1,504.10	77.00	H	10	H	
05.25.03	AIRBUS HELICOPTER	EC120B	1561							12	M	12M/500FH INSPECTION, MSM 05-25-00		N/A		NA		
05.25.03	AIRBUS HELICOPTER	EC120B	1561							500	H	12M/500FH INSPECTION, MSM 05-25-00		N/A		NA		
05.25.04	AIRBUS HELICOPTER	EC120B	1561							18	M	18M INSPECTION, MSM 05-25-00		N/A		NA		
05.25.05	AIRBUS HELICOPTER	EC120B	1561							18	M	18M/500FH INSPECTION, MSM 05-25-00		N/A		NA		
05.25.05	AIRBUS HELICOPTER	EC120B	1561							500	H	18M/500FH INSPECTION, MSM 05-25-00		N/A		NA		
05.22.01	AIRBUS HELICOPTER	EC120B	1561	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	24	M	24M INSPECTION, MSM 05-22-02	17-Oct-23	403.00	D	73	D	
05.22.00	AIRBUS HELICOPTER	EC120B	1561	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	24	M	24M/500FH INSPECTION, MSM 05-22-00	17-Oct-23	403.00	D	73	D	
05.22.00	AIRBUS HELICOPTER	EC120B	1561	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	500	H	24M/500FH INSPECTION, MSM 05-22-00	1,804.70	377.60	H	50	H	
05.25.00	AIRBUS HELICOPTER	EC120B	1561	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	24	M	24M/1000FH INSPECTION, MSM 05-25-00	17-Oct-23	403.00	D	73	D	
05.25.00	AIRBUS HELICOPTER	EC120B	1561	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	1000	H	24M/1000FH INSPECTION, MSM 05-25-00	2,304.70	877.60	H	100	H	
05.25.06	AIRBUS HELICOPTER	EC120B	1561							24	M	24M/500SC INSPECTION, MSM 05-25-00		N/A		NA		
05.25.06	AIRBUS HELICOPTER	EC120B	1561							500	SC	24M/500SC INSPECTION, MSM 05-25-00		N/A		NA		
05.25.07	AIRBUS HELICOPTER	EC120B	1561							36	M	36M/1 OPC INSPECTION, MSM 05-25-00		N/A		NA		
05.25.08	AIRBUS HELICOPTER	EC120B	1561							60	M	60M/1 OPC INSPECTION, MSM 05-25-00		N/A		NA		
05.40.00	MAIN MODULE - DYNAMIC SYSTEM **TROPICAL & DA	EC120B	1561	13-Aug-21	1304.7	0.0	0.0	122.4	122.4	48	M	INSPECTION, MSM 05-25-00 & AMM 05-40-00, 6-1	12-Aug-25	1,068.00	D	146	D	
05.40.00	TGB - DYNAMIC SYSTEM **TROPICAL & DAMP	EC120B	1561	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	48	M	INSPECTION, MSM 05-25-00 & AMM 05-40-00, 6-1	17-Oct-25	1,134.00	D	146	D	
05.23.00	AIRBUS HELICOPTER	EC120B	1561	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	72	M	72M/1500FH INSPECTION, MSM 05-23-00	17-Oct-27	1,864.00	D	180	D	
05.23.00	AIRBUS HELICOPTER	EC120B	1561	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	1500	H	72M/1500FH INSPECTION, MSM 05-23-00	2,804.70	1,377.60	H	150	H	
05.24.20	AIRBUS HELICOPTER	EC120B	1561	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	144	M	MAJOR INSPECTION, MSM 05-24-02 & AMM 05-24-00, 6-1	17-Oct-2033	4,056.00	D	180	D	
	REPETITVE SERVICE BULLETIN																	
ASB 05A019	INSPECTION OF ROTATING AND NON-ROTATING SCISSORS BOLTS			6-Sep-22	1419.9	0.0	0.0	7.2	7.2	15	H	INSPECTION OF ROTATING AND NON-ROTATING SCISSORS BOLTS AND NUTS I.A.W ASB 05A019, §3.	1,434.90	7.80	H	NA		
ASB 05A020	CHECK OF THE TAIL ROTOR HUB BODY			6-Sep-22	1419.9	0.0	0.0	7.2	7.2	15	H	15FH CHECK OF THE TAIL ROTOR HUB BODY I.A.W. ASB 05A020 PARA 3.B.1 & 3.B.2	1,434.90	7.80	H	NA		
ASB 32A014	INSPECTION FOR CORROSION ON THE LANDING GEAR											COMPLY WITH PARAGRAPH 3 AT NEXT ANNUAL INSPECTION OR NO LATER THAN 23-MARCH-2023.	23-Mar-23	195.00	D	NA		
ASB 53A015	CORROSION ON THE TAIL BOOM			18-Oct-21	1304.7	0.0	0.0	122.4	122.4	13	M	13M CHECK CORROSION ON THE TAIL BOOM I.A.W. ASB 53A015	17-Nov-2022	69.00	D	NA		

	ATA 21																	
21.51.23	AIRCOND BELT	4PK730		18-Oct-21	1304.7	0.0	0.0	122.4	122.4	1500	H	OTL (21/51/00/000/000/050)	2,804.70	1,377.60	H	0	H
21.51.23	AIRCOND BELT	4PK730		18-Oct-21	1304.7	0.0	0.0	122.4	122.4	72	M	OTL (21/51/00/000/000/050)	19-Oct-27	1,866.00	D	0	D
21	EVAPORATOR, EQUIPPED	120-0252-1	K13118	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
21	CABIN FAN {120-0261-1}	705244219011	K65900	31-Aug-17	1022.5	0.0	0.0	404.6	404.6			ON CONDITION		OC		NA	
21	THERMOSTAT	763-273	2655	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
	ATA 23																	
23	INTERPHONE CONTROL SYSTEM GMA340	011-00401-01	96202893	30-Oct-17	1025.0	0.0	0.0	402.1	402.1			ON CONDITION		OC		NA	
23	TRANSCEIVER ,VHF/AM, KY196 A	064-1054-60	33404					1427.1	1427.1			ON CONDITION		OC		NA	
23	ANTENNA VHF/AM	1340-81	760	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
23	ANTENNA VHF/AM	1340-81	769	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
23	ANTENNA TRI FREQUENCY	2141	10265	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
	ATA 24																	
24.33.20	AIRCRAFT BATTERY	151CH1	T01875	25-Apr-22	1310.4	0.0	0.0	116.7	116.7	6	M	CAPACITY CHECK, CMM24.33.96,CHECK § 2.B	24-Oct-22	45.00	D	18	D
24.33.21	AIRCRAFT BATTERY	151CH2	T01876	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	12	M	DETAIL INSPECTION, CMM 24.33.96, CHECK § 2.2	17-Oct-22	38.00	D	36	D
24.33.22	AIRCRAFT BATTERY	151CH1	T01875	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	24	M	OVERHAUL, CMM 24-33-96,CHECK § 2.D, CHECK § 2.E, CHECK § 2.F	17-Oct-23	403.00	D	36	D
24	COCKPIT BREAKERS PANEL	001690	67	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
24	ELECTRICAL MASTER BOX	SE07113	437	12-Aug-19	1233.7	0.0	0.0	193.4	193.4			ON CONDITION		OC		NA	
24	BREAKER PANNEL	SE13451	201	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
	ATA 25																	
25	PILOT SEAT	1591718-06		18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
25	PILOT SEAT	1591718-06		18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
25	PASSENGER SEAT	FHEC1-31EC03-01		18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
25.63.10	ELT, KANNAD 406AF-H	S1822502-02	2617610-0003					1427.1	1427.1	1	OPH	OTL (25/63/03/000/000/100)				0	-
25.63.11	ELT, KANNAD 406AF-H	S1820506-01	TM0000163017					1427.1	1427.1	72	M	OTL, KANNAD	30-May-25	994.00	D	0	D
25.63.20	ELT, KANNAD 406AF-H	S1826502-02	2617610-0003	25-Aug-22	1415.9	0.0	0.0	11.2	11.2	1	M	SELF TEST, AMM 25-63-03, 5-1	24-Sep-22	15.00	D	3	D
25.63.21	ELT, KANNAD 406AF-H	S1826502-02	2617610-0003	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	100	H	12M/100FH INSPECTION, AMM 25-63-03, 6-1 & FAR 91.207	1,504.10	77.00	H	10	H
25.63.22	ELT, KANNAD 406AF-H	S1826502-02	2617610-0003	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	12	M	12M/100FH INSPECTION, AMM 25-63-03, 6-1 & FAR 91.207	21-Jul-23	315.00	D	36	D
	ATA 26																	
26.20.01	Cabin Fire Extinguisher	H1-10 AIR	1458101	16-Jul-14				1427.1	1427.1	120	M	OTL (26/22/00/000/000/100)	17-Jul-24	677.00	D	0	D
26.20.02	Cabin Fire Extinguisher	H1-10 AIR	1458101	25-Apr-22	1310.4	0.0	0.0	116.7	116.7	6	M	CHECK, MSM 05-25-00 & AMM 26-22-00, 6-1	24-Oct-22	45.00	D	18	D

	ATA 28																
05.20.03	AIRBUS HELICOPTER	EC120B	1561	25-Jul-22	1410.1	0.0	0.0	17.0	17.0	3	M	FUEL TANK TREATMENT MTC 20.08.06.401	24-Oct-22	45.00	D	36	D
28	DRAINING VALVE	B95B40-601	99639	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
28	SHUT-OFF VALVE	B97-12-601	93483	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
28	BLEEDING VALVE	L83C06-601	99358	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
28	ANTI SPILLAGE VALVE	L87G20-601	75397	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
28	STARTING PUMP	P94C16-618	6855	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
28	TRANSMITTER, FLOW	TNAS 1024 118	13672	23-Apr-09	75.55	0.0	0.0	1351.6	1351.6			ON CONDITION		OC		NA	
28	UPPER BLADDER	501099-7	107177	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
28	LOWER BLADDER	501101-7	107562	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
28	UPPER GAUGE	764590	01120	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
28	LOLWER GAUGE	764591	01138	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
28	VENTING HOSE	K91-16-001		18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			OC, INFORMATION NOTCE No. 2248-i-28, RN0, 2010-11-24		OC		NA	
28	VENTING HOSE	K91-16-002		18-Aug-08		0.0	0.0	1427.1	1427.1			OC, INFORMATION NOTCE No. 2248-i-28, RN0, 2010-11-24		OC		NA	
28	RETURN FUEL HOSE	K91B08-003		18-Aug-08		0.0	0.0	1427.1	1427.1			OC, INFORMATION NOTCE No. 2248-i-28, RN0, 2010-11-24		OC		NA	
28	GATE VALVE	4614 AA 01 A	03386	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
	ATA 29																
29	HYDRAULIC OIL			18-Oct-21	1304.7	0.0	0.0	122.4	122.4	72	M	HYDRAULIC CHANGE, AMM 29-00-00,3-2 (FLUID 31)	17-Oct-27	1,864.00	D	180	D
29	HYDRAULIC COMPACT	GHC1004	736	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
	ATA 31																
31	VEMD NOT NVG NEW LCD V9	B1903FC05	54000	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
31	ASU CARD 1	SE02990	736	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
31	ASU CARD 2	SE03010	515	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
31	LACU CONTROL	040101BA-AMDT	P022496	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
31	PANEL WARNING	022TA0101	0582					1427.1	1427.1			ON CONDITION		OC		NA	
31	CHRONOMETER	B1894522000A	1095145	12-Dec-19	1253.9	0.0	0.0	173.2	173.2			ON CONDITION		OC		NA	
	ATA 33																
33	POWER SUPPLY UNIT	0130-2028-0010	265020	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
33	RED ANTICOLLISION LIGHT	6485200	0207	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
33	RED POSITION LIGHT	6490811	0376	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
33	GREEN POSITION LIGHT	6490821	0287	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
33	WHITE POSITION LIGHT	6490831	0234	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	

Hammock Helicopters Sdn Bhd,
Has endeavoured to submit true and accurate data based on a visual inspection of the aircraft and documentation presented. Viewers shall remain responsible for confirming and substantiating such information.

Hammock Helicopter Sdn Bhd,
Express no opinion as to the airworthiness, merchantability, standards of workmanship or maintenance carried out.

	ATA 34																	
34.10.20	ALTIMETER	5934PD3A130	452761	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	24	M	24M PITOT STATIC LEAK TEST, AMM 34-10-00, 3-1 & FAR PART 91.411.	17-Oct-23	403.00	D	73	D
34.51.10	TRANSPONDER	011-00455-00	84125980	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	24	M	24M TRANSPONDER INSPECTION, FAR PART 91.413	17-Oct-23	403.00	D	73	D
34	HORIZON ARTIFICIAL	H321EGM	20427	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	OUTSIDE AIR TEEMP.PROBE	RP234-00	005811	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	TRANSPONDER GTX330	011-00455-00	84125980	18-Oct-21	1304.7	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	GPS RECEIVER GNS430	011-00280-10	97141942	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	GYRO DIRECTIONNAL KG102A	060 0015 00	KG102A-54138	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	HIS KI 525A INDICATOR	066 3046 07	96975	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	VALVE, FLUX, KMT 112	071 1052 00	KMT112-75980	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	SYNCHRO BOX KA51B	071 1242 01	KA51B-40173	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	STAND BY COMPASS	1008KCA2	704667-24	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	ANTENNA	3101-80A	5159	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	GLIDE SLOPE ANTENNA	3117-82	1150	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	ALTIMETER INDICATOR	5934PD3A130	452761	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	AIRSPEED INDICATOR	8025B845	198807	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	ALTICODER	8800T	T9949	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	ANTENNA TACAN	241389	84130461	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	VERTICAL SPEED INDICATOR	7030C27	317016	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
34	TURN AND SLIP INDICATOR	UI9560N558	1250	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
	ATA 53																	
53.30.10	LH COUNTER-TORQUE FITTING	C533C3207101	2007010	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	82000	C	SLL (53/30/00/000/000/050)	82,000.00	79,508.00	C	0	C
53.30.11	RH COUNTER-TORQUE FITTING	C533C3206101	2007008	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	82000	C	SLL (53/30/00/000/000/100)	82,000.00	79,508.00	C	0	C
53.30.12	LH MGB ATTACHMENT BAR FITTING	C533C3204103	2007015	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (53/30/00/000/000/150)	20,000.00	18,572.90	H	0	H
53.30.13	RH MGB ATTACHMENT BAR FITTING	C533C3203103	2007020	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (53/30/00/000/000/200)	20,000.00	18,572.90	H	0	H
53.30.14	REAR MGB ATTACHMENT BARFITTING	C533C3205102	2007042	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (53/30/00/000/000/250)	20,000.00	18,572.90	H	0	H
53.30.15	REAR MGB ATTACHMENT BARFITTING	C533C3205102	2007052	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (53/30/00/000/000/250)	20,000.00	18,572.90	H	0	H

ATA 62																		
62.10.01	MAIN ROTOR BLADES	C621A1006103	2213	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/11/00/000/000/050)	20,000.00	18,572.90	H	0	H
62.10.02	MAIN ROTOR BLADES	C621A1006103	2221	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/11/00/000/000/050)	20,000.00	18,572.90	H	0	H
62.10.03	MAIN ROTOR BLADES	C621A1006103	2225	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/11/00/000/000/050)	20,000.00	18,572.90	H	0	H
62.21.10	MAIN ROTOR HUB	C622A0101058	M697	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
62.21.11	EQUIPPED MAIN HUB	C622A1002104	M10120	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	6400	H	SLL (62/21/00/000/000/050)	6,400.00	4,972.90	H	0	H
62.21.12	EQUIPPED SCISSORS DRIVE	C622A1003103	MAP547	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/21/00/000/000/100)	20,000.00	18,572.90	H	0	H
62.21.13	LOWER ADAPTOR FITTING	C622A1006104	MAP1291	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	5200	H	SLL (62/21/00/000/000/205)	5,200.00	3,772.90	H	0	H
62.21.14	LOWER ADAPTOR FITTING	C622A1006104	MAP1292	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	5200	H	SLL (62/21/00/000/000/205)	5,200.00	3,772.90	H	0	H
62.21.15	LOWER ADAPTOR FITTING	C622A1006104	MAP1305	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	5200	H	SLL (62/21/00/000/000/205)	5,200.00	3,772.90	H	0	H
62.21.16	UPPER ADAPTOR FITTING	C622A1007104	MAP1189	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	4100	H	SLL (62/21/00/000/000/155)	4,100.00	2,672.90	H	0	H
62.21.17	UPPER ADAPTOR FITTING	C622A1007104	MAP1191	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	4100	H	SLL (62/21/00/000/000/155)	4,100.00	2,672.90	H	0	H
62.21.18	UPPER ADAPTOR FITTING	C622A1007104	MAP1204	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	4100	H	SLL (62/21/00/000/000/155)	4,100.00	2,672.90	H	0	H
62.21.19	EQUIPPED PITCH LEVER/PITCH HORN	C622A2002103	SD1375	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	11400	H	SLL (62/21/00/000/000/450)	11,400.00	9,972.90	H	0	H
62.21.20	EQUIPPED PITCH LEVER/PITCH HORN	C622A2002103	SD834	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	11400	H	SLL (62/21/00/000/000/450)	11,400.00	9,972.90	H	0	H
62.21.21	EQUIPPED PITCH LEVER/PITCH HORN	C622A2002103	SD946	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	11400	H	SLL (62/21/00/000/000/450)	11,400.00	9,972.90	H	0	H
62.21.22	BLADE PIN	C622A2006602	M2849	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9800	H	SLL (62/21/00/000/000/550)	9,800.00	8,372.90	H	0	H
62.21.23	BLADE PIN	C622A2006602	M2854	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9800	H	SLL (62/21/00/000/000/550)	9,800.00	8,372.90	H	0	H
62.21.24	BLADE PIN	C622A2006602	M2857	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9800	H	SLL (62/21/00/000/000/550)	9,800.00	8,372.90	H	0	H
62.21.25	BLADE PIN	C622A2006602	M2859	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9800	H	SLL (62/21/00/000/000/550)	9,800.00	8,372.90	H	0	H
62.21.26	BLADE PIN	C622A2006602	M2883	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9800	H	SLL (62/21/00/000/000/550)	9,800.00	8,372.90	H	0	H
62.21.27	BLADE PIN	C622A2006602	M2926	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9800	H	SLL (62/21/00/000/000/550)	9,800.00	8,372.90	H	0	H
62.21.28	UPPER SLEEVE FLANGE	C622A2008101	M1875	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	11000	H	SLL (62/21/00/000/000/355)	11,000.00	9,572.90	H	0	H
62.21.29	UPPER SLEEVE FLANGE	C622A2008101	M1914	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	11000	H	SLL (62/21/00/000/000/355)	11,000.00	9,572.90	H	0	H
62.21.30	UPPER SLEEVE FLANGE	C622A2008101	M1919	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	11000	H	SLL (62/21/00/000/000/355)	11,000.00	9,572.90	H	0	H
62.21.31	LOWER SLEEVE FLANGE	C622A2009101	M1756	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	11000	H	SLL (62/21/00/000/000/405)	11,000.00	9,572.90	H	0	H
62.21.32	LOWER SLEEVE FLANGE	C622A2009101	M1772	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	11000	H	SLL (62/21/00/000/000/405)	11,000.00	9,572.90	H	0	H
62.21.33	LOWER SLEEVE FLANGE	C622A2009101	M1774	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	11000	H	SLL (62/21/00/000/000/405)	11,000.00	9,572.90	H	0	H
62.21.34	ADAPTATOR END (1211023P)	7050A3622023	C447	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/21/00/000/000/600)	20,000.00	18,572.90	H	0	H
62.21.35	ADAPTATOR END	7050A3622023	C541	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/21/00/000/000/600)	20,000.00	18,572.90	H	0	H
62.21.36	ADAPTATOR END	7050A3622023	C599	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/21/00/000/000/600)	20,000.00	18,572.90	H	0	H
62.21.37	ADAPTATOR END (1211024P)	7050A3622024	C129	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/21/00/000/000/600)	20,000.00	18,572.90	H	0	H
62.21.38	ADAPTATOR END	7050A3622024	C714	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/21/00/000/000/600)	20,000.00	18,572.90	H	0	H
62.21.39	ADAPTATOR END	7050A3622024	C720	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/21/00/000/000/600)	20,000.00	18,572.90	H	0	H
62.21.40	SPHERICAL BEARING - METALLIC PART (LB4-1226-	7050A3622036	LK0725	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	7500	H	SLL (62/21/00/000/000/255)	7,500.00	6,072.90	H	0	H
62.21.41	SPHERICAL BEARING - METALLIC PART (LB4-1226-	7050A3622036	LK0732	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	7500	H	SLL (62/21/00/000/000/255)	7,500.00	6,072.90	H	0	H
62.21.42	SPHERICAL BEARING - METALLIC PART (LB4-1226-	7050A3622036	LK0752	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	7500	H	SLL (62/21/00/000/000/255)	7,500.00	6,072.90	H	0	H
62.21.20	SPHERICAL BEARING - METALLIC PART (LB4-1226	7050A3622036	ALL SN's	6-Sep-22	1419.9	0.0	0.0	7.2	7.2	15	H	CHK, AMM 05-30-00, 6-1	1,434.90	7.80	H	0	H

62.21.43	SPHERICAL BEARING SPECIAL SCREW	7050A3622037	4395	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9300	H	SLL (62/21/00/000/000/300)	9,300.00	7,872.90	H	0	H
62.21.44	SPHERICAL BEARING SPECIAL SCREW	7050A3622037	4500	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9300	H	SLL (62/21/00/000/000/300)	9,300.00	7,872.90	H	0	H
62.21.45	SPHERICAL BEARING SPECIAL SCREW	7050A3622037	4606	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9300	H	SLL (62/21/00/000/000/300)	9,300.00	7,872.90	H	0	H
62.21.46	SPHERICAL BEARING SPECIAL SCREW	7050A3622037	4701	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9300	H	SLL (62/21/00/000/000/300)	9,300.00	7,872.90	H	0	H
62.21.47	SPHERICAL BEARING SPECIAL SCREW	7050A3622037	4703	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9300	H	SLL (62/21/00/000/000/300)	9,300.00	7,872.90	H	0	H
62.21.48	SPHERICAL BEARING SPECIAL SCREW	7050A3622037	4714	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9300	H	SLL (62/21/00/000/000/300)	9,300.00	7,872.90	H	0	H
62.21.49	LEAD LAG DAMPER - METALLIC PART {E4069F22}	7050A3622059	1135	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/21/00/000/000/510)	20,000.00	18,572.90	H	0	H
62.21.50	LEAD LAG DAMPER - METALLIC PART {E4069F22}	7050A3622059	1144	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/21/00/000/000/510)	20,000.00	18,572.90	H	0	H
62.21.51	LEAD LAG DAMPER - METALLIC PART {E4069F22}	7050A3622059	1146	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/21/00/000/000/510)	20,000.00	18,572.90	H	0	H
62.21.21	LEAD LAG DAMPER - METALLIC PART {E4069F22}	7050A3622059	ALL SN's	6-Sep-22	1419.9	0.0	0.0	7.2	7.2	15	H	CHK, AMM 05-30-00, 6-1	1,434.90	7.80	H	0	H
62.21.52	THRUST SCREW	C622A1043201	1024	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	13900	H	SLL (62/21/01/000/000/050)	13,900.00	12,472.90	H	0	H
62.21.53	THRUST SCREW	C622A1043201	2053	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	13900	H	SLL (62/21/01/000/000/050)	13,900.00	12,472.90	H	0	H
62.21.54	THRUST SCREW	C622A1043201	2056	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	13900	H	SLL (62/21/01/000/000/050)	13,900.00	12,472.90	H	0	H
62.21.55	THRUST SCREW	C622A1043201	2099	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	13900	H	SLL (62/21/01/000/000/050)	13,900.00	12,472.90	H	0	H
62.21.56	THRUST SCREW	C622A1043201	2319	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	13900	H	SLL (62/21/01/000/000/050)	13,900.00	12,472.90	H	0	H
62.21.57	THRUST SCREW	C622A1043201	2392	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	13900	H	SLL (62/21/01/000/000/050)	13,900.00	12,472.90	H	0	H
62.20.52	ANTI-VIBRATOR	C622A5112052	SO1198	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	100	H	GREASING, MSM 05-25-00 & AMM 62-21-00, 3-1	1,504.10	77.00	H	10	H
62.20.52	ANTI-VIBRATOR	C622A5112052	SO1198	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	3	M	GREASING, MSM 05-25-00 & AMM 62-21-00, 3-1	21-Oct-22	42.00	D	10	D
62.20.52	ANTI-VIBRATOR	C622A5112052	SO1240	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	100	H	GREASING, MSM 05-25-00 & AMM 62-21-00, 3-1	1,504.10	77.00	H	10	H
62.20.52	ANTI-VIBRATOR	C622A5112052	SO1240	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	3	M	GREASING, MSM 05-25-00 & AMM 62-21-00, 3-1	21-Oct-22	42.00	D	10	D
62.20.53	ANTI-VIBRATOR	C622A5112052	SO1244	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	100	H	GREASING, MSM 05-25-00 & AMM 62-21-00, 3-1	1,504.10	77.00	H	36	H
62.20.53	ANTI-VIBRATOR	C622A5112052	SO1244	22-Jul-22	1404.1	0.0	0.0	23.0	23.0	3	M	GREASING, MSM 05-25-00 & AMM 62-21-00, 3-1	21-Oct-22	42.00	D	36	D
62.31.10	SWASHPLATE	C623A1110057	M718	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
62.31.11	EQUIPPED NON-ROTATING STAR	C623A1001105	CUR00110	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/31/00/000/000/000)	20,000.00	18,572.90	H	0	H
62.31.12	EQUIPPED ROTATING STAR	C623A1002104	CUR00069	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/31/00/000/000/010)	20,000.00	18,572.90	H	0	H
62.31.13	FAG BEARING	7050A3623013	0710531	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	3000	H	OTL (62/31/00/000/000/050)	3,000.00	1,572.90	H	0	H
62.32.10	EQUIPPED SCISSORS	C623A2110104	BRY407														
62.32.11	DIAPASON SCISSORS LINK	C623A2004102	BRY938	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/32/00/000/000/010)	20,000.00	18,572.90	H	0	H
62.32.12	SCISSOR LINK	C623A2005103	BRY407	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/32/00/000/000/000)	20,000.00	18,572.90	H	0	H
62.32.13	EQUIPPED SCISSORS	C623A2110104	BRY461														
62.32.14	DIAPASON SCISSORS LINK	C623A2004102	BRY1098	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/32/00/000/000/010)	20,000.00	18,572.90	H	0	H
62.32.15	SCISSOR LINK	C623A2005103	BRY461	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/32/00/000/000/000)	20,000.00	18,572.90	H	0	H
62.32.14	EQUIPPED BLADE ANGLE ROD	C623A3001102	807	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/32/00/000/000/020)	20,000.00	18,572.90	H	0	H
62.32.15	EQUIPPED BLADE ANGLE ROD	C623A3001102	809	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/32/00/000/000/020)	20,000.00	18,572.90	H	0	H
62.32.16	EQUIPPED BLADE ANGLE ROD	C623A3001102	819	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (62/32/00/000/000/020)	20,000.00	18,572.90	H	0	H

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63.11.10	SHAFT CONNECTING	C631A1102602	BRY095	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	89000	C	SLL (63/11/00/000/000/000)	89,000.00	86,508.00	C	0	C
63.11.11	ARM ASSY	C631A1101101	MAP510	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (63/11/00/000/000/010)	20,000.00	18,572.90	H	0	H
63.21.10	EPICYCLIC MODULE	C632A0101052	M493	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	5000	H	TBO (63/21/00/000/000/260)	6,304.70	4,877.60	H	300	H
63.21.10	EPICYCLIC MODULE	C632A0101052	M493	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	288	M	TBO (63/21/00/000/000/260)	17-Oct-2045	8,439.00	D	180	D
63.21.11	RING GEAR FIXED	C632A1102602	M294	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	20000	H	SLL (63/21/00/000/000/150)	21,304.70	19,877.60	H	0	H
63.21.12	PLANET GEAR EQ, SNR	C632A1103101	M1419	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	20000	H	SLL 63/21/00/000/000/200	21,304.70	19,877.60	H	0	H
63.21.13	PLANET GEAR EQ, SNR	C632A1103101	M1453	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	20000	H	SLL 63/21/00/000/000/200	21,304.70	19,877.60	H	0	H
63.21.14	PLANET GEAR EQ, SNR	C632A1103101	M1480	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	20000	H	SLL 63/21/00/000/000/200	21,304.70	19,877.60	H	0	H
63.21.15	PLANET GEAR EQ, SNR	C632A1103101	M1639	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	20000	H	SLL 63/21/00/000/000/200	21,304.70	19,877.60	H	0	H
63.21.16	MAIN ROTOR MAST	C632A1110102	M548	18-Oct-21	2332.0	0.0	0.0	160.0	160.0	78000	C	SLL (63/21/00/000/000/050)	80,332.00	77,840.00	C	0	C
63.21.17	TAPERED CASE	C632A1113101	M57	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	20000	H	SLL (63/21/00/000/000/100)	21,304.70	19,877.60	H	0	H
63.21.18	FOUR CONTATS BEARINGS	7050A3632256	NR0418	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	
63.21.19	ROLIER BEARING	7050A3632259	028216	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	
63.22.10	MGB, MAIN MODULE	C632A0201054	M744	18-Aug-08	1304.7	1304.7	1304.7	1427.1	1427.1	5000	H	TBO (63/22/00/000/000/630)	5,000.00	3,572.90	H	300	H
63.22.10	MGB, MAIN MODULE	C632A0201054	M744	18-Aug-08				1427.1	1427.1	288	M	TBO (63/22/00/000/000/630)	18-Aug-2032	3,631.00	D	180	D
63.22.11	SUN GEAR	C632A2106602	M572	18-Oct-21	1304.7	1304.7	1304.7	1427.1	1427.1	20000	H	SLL (63/22/00/000/000/200)	20,000.00	18,572.90	H	0	H
63.22.12	OUTPUT PINION	C632A2107602	M731	18-Oct-21	1304.7	1304.7	1304.7	1427.1	1427.1	8900	H	SLL (63/22/00/000/000/450)	8,900.00	7,472.90	H	0	H
63.22.13	OUTPUT WHEEL	C632A2108602	M824	18-Oct-21	1304.7	1304.7	1304.7	1427.1	1427.1	9500	H	SLL (63/22/00/000/000/500)	9,500.00	8,072.90	H	0	H
63.22.14	SHAFT FREE WHEEL	C632A2111601	M758	18-Oct-21	1304.7	1304.7	1304.7	1427.1	1427.1	20000	H	SLL (63/22/00/000/000/350)	20,000.00	18,572.90	H	0	H
63.22.15	INPUT FLANGE	C632A2112601	ML0379	18-Oct-21	2332.0	2332.0	2332.0	2492.0	2492.0	120000	C	SLL (63/22/00/000/000/400)	120,000.00	117,508.00	C	0	C
63.22.16	OUTPUT HOUSING / BOX OUTPUT	C632A2114103	ME0484	18-Oct-21	1304.7	1304.7	1304.7	1427.1	1427.1	20000	H	SLL (63/22/00/000/000/250)	20,000.00	18,572.90	H	0	H
63.22.17	LOWER HOUSING	C632A2117101	M1305	18-Oct-21	2332.0	0.0	0.0	160.0	160.0	70000	C	SLL (63/22/00/000/000/110)	72,332.00	69,840.00	C	0	C
63.22.18	MAIN HOUSING	C632A2118101	M917	18-Oct-21	2332.0	2332.0	2332.0	2492.0	2492.0	70000	C	SLL (63/22/00/000/000/160)	70,000.00	67,508.00	C	0	C
63.22.19	OUTPUT FLANGE	C632A2158201	PPT01165	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	20000	H	SLL (63/22/00/000/000/550)	21,304.70	19,877.60	H	0	H
63.22.20	BI-BEVEL WHEEL	C632A2175601	M963	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	20000	H	SLL (63/22/00/000/000/050)	21,304.70	19,877.60	H	0	H
63.22.21	INPUT PINION/INPUT BEVEL GEAR	C632A2176601	M531	18-Oct-21	1304.7	1304.7	1304.7	1427.1	1427.1	20000	H	SLL (63/22/00/000/000/300)	20,000.00	18,572.90	H	0	H
63.22.22	INPUT BOX	C632A2181102	MAP133	18-Oct-21	1304.7	1304.7	1304.7	1427.1	1427.1	20000	H	SLL (63/22/00/000/000/750)	20,000.00	18,572.90	H	0	H
63.22.23	BEARINGS, ROLLERS	7050A3632186	19103	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	
63.22.24	BEARINGS, ROLLERS	7050A3632188	19125	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	
63.22.25	BEARINGS, BALLS	7050A3632192	1210	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	
63.22.26	BEARINGS, BALLS	7050A3632195	NR1014	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	
63.22.27	FAN GEAR, BEARING	7050A3632201	NR0954	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	
63.22.28	BEARINGS, CYLINDRICS	7050A3632264	476	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	
63.22.29	4 CONTACT BEARING	7050A3632273	19-7071	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	
63.22.30	BEARING, BALLS	7050A3632276	20-13328	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	
63.22.31	RING OF BEARING	7050A3632288	1100	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	
63.22.32	SKEW ANGLE BEARING	7050A3632290	19-382	18-Oct-21	1304.7	0.0	0.0	122.4	122.4			ON CONDITION		OC		NA	

63.30.01	MGB, REAR BAR (B216100-015)	7050A3633015	1266	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (63/32/00/000/000/000)	20,000.00	18,572.90	H	0	H
63.30.02	MGB, REAR BAR (B216100-015)	7050A3633015	1257	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (63/32/00/000/000/000)	20,000.00	18,572.90	H	0	H
63.30.03	MGB, FORWARD BAR (B216100-016)	7050A3633016	1221	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (63/32/00/000/000/010)	20,000.00	18,572.90	H	0	H
63.30.04	MGB, FORWARD BAR (B216100-016)	7050A3633016	1240	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (63/32/00/000/000/010)	20,000.00	18,572.90	H	0	H
63	NR/NTL INDICATOR	788664-3	1094	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
63	NR SENSOR	788672	1126	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
63	COUPLING FLEXIBLE RING ASSY	C631A1103101	M1536	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
63	COUPLING FLEXIBLE RING ASSY	C631A1103101	M1538	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
63	PRESSURE RELIEF VALVE	CL1062	829	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
63	OIL PUMP	ML1001		18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
63	SWITCH PRESSURE OIL	S 1130 043 180	24369	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
63	THERMAL SWITCH	S1135-043-242	21793	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
	ATA 64																
64.20.00	TAIL ROTOR HUB	C642A0101052	M701	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
64.20.00	TAIL ROTOR HUB	C642A0100103	CUR00484	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	9500	H	SLL (64/21/00/000/000/010)	9,500.00	8,072.90	H	0	H
64.20.01	EQUIPPED BLADE	C642A0300103	M3372	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	8500	H	SLL (64/21/00/000/000/020)	8,500.00	7,072.90	H	0	H
64.20.02	EQUIPPED BLADE	C642A0300103	M3409	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	8500	H	SLL (64/21/00/000/000/020)	8,500.00	7,072.90	H	0	H
64.20.03	EQUIPPED BLADE	C642A0300103	M3518	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	8500	H	SLL (64/21/00/000/000/020)	8,500.00	7,072.90	H	0	H
64.20.04	EQUIPPED BLADE	C642A0300103	M3536	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	8500	H	SLL (64/21/00/000/000/020)	8,500.00	7,072.90	H	0	H
64.20.05	EQUIPPED BLADE	C642A0300103	M3537	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	8500	H	SLL (64/21/00/000/000/020)	8,500.00	7,072.90	H	0	H
64.20.06	EQUIPPED BLADE	C642A0300103	M3538	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	8500	H	SLL (64/21/00/000/000/020)	8,500.00	7,072.90	H	0	H
64.20.07	EQUIPPED BLADE	C642A0300103	M3550	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	8500	H	SLL (64/21/00/000/000/020)	8,500.00	7,072.90	H	0	H
64.20.08	EQUIPPED BLADE	C642A0300103	M3555	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	8500	H	SLL (64/21/00/000/000/020)	8,500.00	7,072.90	H	0	H
64.20.09	TENSION TORSION STRAPS STAR	C642A0402102	M327	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	1000	H	CHK, AMM 64-21-00, 6-8	2,304.70	877.60	H	100	H
64.20.10	STOPPED PIN OF TORSION STAR	7050A3642044	5461	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (64/21/00/000/000/030)	20,000.00	18,572.90	H	0	H
64.20.11	STOPPED PIN OF TORSION STAR	7050A3642044	5474	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (64/21/00/000/000/030)	20,000.00	18,572.90	H	0	H
64.20.12	STOPPED PIN OF TORSION STAR	7050A3642044	5475	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (64/21/00/000/000/030)	20,000.00	18,572.90	H	0	H
64.20.13	STOPPED PIN OF TORSION STAR	7050A3642044	5493	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (64/21/00/000/000/030)	20,000.00	18,572.90	H	0	H
64.20.14	STOPPED PIN OF TORSION STAR	7050A3642044	5497	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (64/21/00/000/000/030)	20,000.00	18,572.90	H	0	H
64.20.15	STOPPED PIN OF TORSION STAR	7050A3642044	5523	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (64/21/00/000/000/030)	20,000.00	18,572.90	H	0	H
64.20.16	STOPPED PIN OF TORSION STAR	7050A3642044	5527	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (64/21/00/000/000/030)	20,000.00	18,572.90	H	0	H
64.20.17	STOPPED PIN OF TORSION STAR	7050A3642044	5529	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (64/21/00/000/000/030)	20,000.00	18,572.90	H	0	H

	ATA 65																		
65.10.02	FRONT SHAFT, ASSY	C651A1101053	PPT761																
65.10.02	FRONT SHAFT, ASSY	C651A3101102	PPT-761	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (65/11/00/000/000/020)	20,000.00	18,572.90	H	0	H
65.10.03	SPLINED FLANGE	C651A1101201	PPT-842	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (65/11/00/000/000/000)	20,000.00	18,572.90	H	0	H
65.10.04	BEARINGS	7050A3651001	02-8608	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	3000	H	OTL (65/11/00/000/000/030)	3,000.00	1,572.90	H	0	H
65.10.02	REAR SHAFT, ASSY	C651A3102053	PPT00760																
65.10.05	REAR SHAFT, ASSY	C651A3102053	PPT00760	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (65/11/00/000/000/010)	20,000.00	18,572.90	H	0	H
65.21.10	TAIL GEAR BOX	C652A0101055	M1735	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	5000	H	TBO (65/21/00/000/000/060)	5,000.00	3,572.90	H	300	H
65.21.10	TAIL GEAR BOX	C652A0101055	M1735	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	288	M	TBO (65/21/00/000/000/060)	21-Aug-2032	3,634.00	D	180	D
65.21.11	INPUT FLANGE	C652A1005301	PPT00642	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (65/21/00/000/000/010)	20,000.00	18,572.90	H	0	H
65.21.12	BEVEL WHEEL	C652A1102602	M587	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (65/21/00/000/000/020)	20,000.00	18,572.90	H	0	H
65.21.13	BEVEL GEAR	C652A1103603	M457	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (65/21/00/000/000/030)	20,000.00	18,572.90	H	0	H
65.21.14	HOUSING ASSY	C652A1108101	ML934	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (65/21/00/000/000/000)	20,000.00	18,572.90	H	0	H
65.21.15	GEAR BEARING	7050A3-6520-05	08107	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
65.21.16	WHEEL BEARING	7050A3-6520-22	NR0706	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
65.21.17	CONTROL ROD BEARING	7050A3-6520-24	08134	18-Aug-08	0.0	0.0	0.0	1427.1	1427.1			ON CONDITION		OC		NA	
65	COUPLING FLEXIBLE RING ASSY	C65A2001101	M1032	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
65	COUPLING FLEXIBLE RING ASSY	C65A2001101	M2235	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
65	COUPLING FLEXIBLE RING ASSY	C65A2001101	M2250	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
	ATA 67																		
67.31.10	SERVOCONTROL	5C5091-1	2079	30-Apr-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (67/31/00/000/000/050)	20,000.00	18,572.90	H	0	H
67.31.10	SERVOCONTROL	5C5091-1	2079	30-Apr-08	0.0	0.0	0.0	1427.1	1427.1	4000	H	TBO (67/31/00/000/000/100) - TSM	4,000.00	2,572.90	H	300	H
67.31.10	SERVOCONTROL	5C5091-1	2079	30-Apr-08	0.0	0.0	0.0	1427.1	1427.1	240	M	TBO (67/31/00/000/000/100) - TSM	03-May-28	2,063.00	D	180	D
67.31.20	SERVOCONTROL	5C5091-1	2084	30-Apr-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (67/31/00/000/000/050)	20,000.00	18,572.90	H	0	H
67.31.20	SERVOCONTROL	5C5091-1	2084	30-Apr-08	0.0	0.0	0.0	1427.1	1427.1	4000	H	TBO (67/31/00/000/000/100) - TSM	4,000.00	2,572.90	H	300	H
67.31.20	SERVOCONTROL	5C5091-1	2084	30-Apr-08	0.0	0.0	0.0	1427.1	1427.1	240	M	TBO (67/31/00/000/000/100) - TSM	03-May-28	2,063.00	D	180	D
67.31.30	SERVOCONTROL	5C5091-1	2087	30-Apr-08	0.0	0.0	0.0	1427.1	1427.1	20000	H	SLL (67/31/00/000/000/050)	20,000.00	18,572.90	H	0	H
67.31.30	SERVOCONTROL	5C5091-1	2087	30-Apr-08	0.0	0.0	0.0	1427.1	1427.1	4000	H	TBO (67/31/00/000/000/100) - TSM	4,000.00	2,572.90	H	300	H
67.31.30	SERVOCONTROL	5C5091-1	2087	30-Apr-08	0.0	0.0	0.0	1427.1	1427.1	240	M	TBO (67/31/00/000/000/100) - TSM	03-May-2028	2,063.00	D	180	D
67	YAW CONTROL REAR PART	76CF8921	688	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
67	FLEXIBLE CABLE	76CF9085	713	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
67	BOX ELECTRIC	N2000028	1439	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
	ATA 71																		
71	COMPRESSION SPRING	7050A3710013		18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
	ATA 79																		
79	HOSE. OUTLET. ENGINE	70503792006	621	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
79	HOSE INLET ENGINE	70503792010	752	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
79	HEAT EXCHANGER	A0339	223-M06	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
79	HEAT EXCHANGER	A0507	197-F07	18-Aug-08	0.0	0.0	0.0	1304.7	1304.7			ON CONDITION		OC		NA	
	ATA 80																		
80.00.00	STARTER GENERATOR	1605G140Q	2049	6-Apr-15	890.5	0.0	0.0	536.6	536.6	900	H	TBO (24/36/01/000/000/050) - TSM	1,790.50	363.40	H	90	H
80.00.00	STARTER GENERATOR	1605G140Q	2049					1427.1	1427.1	60	M	TBO (24/36/01/000/000/050) - TSM & SB 24-017	21-Mar-24	559.00	D	90	H
80.00.01	STARTER GENERATOR	1605G140Q	2049	18-Oct-21	1304.7	0.0	0.0	122.4	122.4	300	H	BRUSH CHECK, AMM 24-36-01, 6-1, 6-3 & 6-5	1,604.70	177.60	H	30	H

ENGINE	SN 34630															
72.20.20	TURBOMECA - ENGINE	ARRIUS 2F	34630	6-Sep-22	1419.9	0.0	0.0	7.3	7.3	7	D	INSPECTION, EMM 05-20-10-201-810-A01	13-Sep-22	4.00	D	0
72.20.20	TURBOMECA - ENGINE	ARRIUS 2F	34630	6-Sep-22	1419.9	0.0	0.0	7.3	7.3	15	H	INSPECTION, EMM 05-20-10-201-810-A01	1,434.90	7.68	H	10
72.20.20	TURBOMECA - ENGINE	ARRIUS 2F	34630	22-Jul-22	1404.1	0.0	0.0	23.1	23.1	100	H	POWER CHECK, EMM 05-20-10-201-820-A01	1,504.10	76.88	H	10
72.20.20	TURBOMECA - ENGINE	ARRIUS 2F	34630	22-Jul-22	1404.1	0.0	0.0	23.1	23.1	12	M	POWER CHECK, EMM 05-20-10-201-820-A01	22-Jul-23	316.00	D	0
72.20.21	TURBOMECA - ENGINE	ARRIUS 2F	34630	18-Oct-21	1304.7	0.0	0.0	122.5	122.5	150	H	INSPECTION, EMM 05-20-10-201-825-A01	1,454.70	27.48	H	15
72.20.21	TURBOMECA - ENGINE	ARRIUS 2F	34630	18-Oct-21	1304.7	0.0	0.0	122.5	122.5	12	M	INSPECTION, EMM 05-20-10-201-825-A01	18-Oct-22	39.00	D	1
72.20.23	TURBOMECA - ENGINE	ARRIUS 2F	34630	18-Oct-21	1304.7	0.0	0.0	122.5	122.5	500	H	INSPECTION, EMM 05-20-10-201-846-A01	1,804.70	377.48	H	50
72.20.23	TURBOMECA - ENGINE	ARRIUS 2F	34630	18-Oct-21	1304.7	0.0	0.0	122.5	122.5	24	M	INSPECTION, EMM 05-20-10-201-846-A01	18-Oct-23	404.00	D	2
73.14.05	TURBOMECA - ENGINE	ARRIUS 2F	34630	24-Dec-21	1304.7	0.0	0.0	122.5	122.5	500	H	SEALING TEST OF THE START ELECTROVALVE, EMM 73-14-05-750-801	1,804.70	377.48	H	50
73.14.05	TURBOMECA - ENGINE	ARRIUS 2F	34630	24-Dec-21	1304.7	0.0	0.0	122.5	122.5	24	M	SEALING TEST OF THE START ELECTROVALVE, EMM 73-14-05-750-801	24-Dec-23	471.00	D	2
73.15.00	TURBOMECA - ENGINE	ARRIUS 2F	34630	24-Dec-21	1304.7	0.0	0.0	122.5	122.5	500	H	NON-EXTINGUISHING DUNCTION - TEST, EMM 73-15-00-700-801	1,804.70	377.48	H	50
73.15.00	TURBOMECA - ENGINE	ARRIUS 2F	34630	24-Dec-21	1304.7	0.0	0.0	122.5	122.5	24	M	NON-EXTINGUISHING DUNCTION - TEST, EMM 73-15-00-700-801	24-Dec-23	471.00	D	0
73.23.00	TURBOMECA - ENGINE	ARRIUS 2F	34630	24-Dec-21	1304.7	0.0	0.0	122.5	122.5	500	H	FUNCTIONAL POINT OF THE HYDROMECHANICAL GOVERNOR - TEST, EMM 73-23-00-700-801	1,804.70	377.48	H	50
73.23.00	TURBOMECA - ENGINE	ARRIUS 2F	34630	24-Dec-21	1304.7	0.0	0.0	122.5	122.5	24	M	FUNCTIONAL POINT OF THE HYDROMECHANICAL GOVERNOR - TEST, EMM 73-23-00-700-801	24-Dec-23	471.00	D	2
72.20.24	TURBOMECA - ENGINE	ARRIUS 2F	34630	18-Oct-21	1304.7	0.0	0.0	122.5	122.5	600	H	INSPECTION, EMM 05-20-10-201-850-A01	1,904.70	477.48	H	60
72.20.24	TURBOMECA - ENGINE	ARRIUS 2F	34630	18-Oct-21	1304.7	0.0	0.0	122.5	122.5	24	M	INSPECTION, EMM 05-20-10-201-850-A01	18-Oct-23	404.00	D	2
71.02.30	TURBOMECA - ENGINE	ARRIUS 2F	34630	24-Dec-21	1304.7	0.0	0.0	122.4	122.4	600	H	TURBINE CASING DRAIN VALVE - TEST, EMM 71-02-30-280-802	1,904.70	477.48	H	60
71.02.30	TURBOMECA - ENGINE	ARRIUS 2F	34630	24-Dec-21	1304.7	0.0	0.0	122.4	122.4	24	M	TURBINE CASING DRAIN VALVE - TEST, EMM 71-02-30-280-802	24-Dec-23	471.00	D	2
72.10.00	REDUCTION MODULE [MO1]	70EM018000	3097	18-Aug-08	0.0	0.0	0.0	1427.2	1427.2	3000	H	TBO, EMM 05-15-00-201-801-A01 [POST TF19]	3,000.00	1,572.78	H	0
72.10.01	DRIVING GEAR FRONT BEARING	9609000451	2753	18-Aug-08	0.0	0.0	0.0	1427.2	1427.2			ON CONDITION		OC		NA
72.10.02	DRIVING GEAR REAR BEARING	9609000451	2887	18-Aug-08	0.0	0.0	0.0	1427.2	1427.2			ON CONDITION		OC		NA
72.10.03	BREATHER GEAR FRONT BEARING	9609000555	1262	18-Aug-08	0.0	0.0	0.0	1427.2	1427.2			ON CONDITION		OC		NA
72.10.04	INTERMEDIATE GEAR FRONT BEARING	9609000435	4179	18-Aug-08	0.0	0.0	0.0	1427.2	1427.2			ON CONDITION		OC		NA
72.10.05	INTERMEDIATE GEAR REAR BEARING	7609000455	762	18-Aug-08	0.0	0.0	0.0	1427.2	1427.2			ON CONDITION		OC		NA
72.10.06	OUTPUT GEAR BALL BEARING	9609000456	624	18-Aug-08	0.0	0.0	0.0	1427.2	1427.2			ON CONDITION		OC		NA
72.10.07	OUTPUT GEAR FRONT BEARING	9609000457	785	18-Aug-08	0.0	0.0	0.0	1427.2	1427.2			ON CONDITION		OC		NA
72.10.08	OUTPUT GEAR REAR BEARING	9609000435	4204	18-Aug-08	0.0	0.0	0.0	1427.2	1427.2			ON CONDITION		OC		NA
72.10.09	REDUCTION GEAR, PISTON BEARING	9609000555	1262	18-Aug-08	0.0	0.0	0.0	1427.2	1427.2			ON CONDITION		OC		NA
72.40.00	GAS GENERATOR [MO2]	70EM028040	5563	15-Aug-14	788.7	861.4	861.4	1499.9	1499.9	3000	H	TBO, EMM 05-15-00-201-801-A01	2,927.30	1,500.08	H	0
72.40.00	GAS GENERATOR [MO2]	70EM028040	5563	15-Aug-14	788.7	861.4	861.4	1499.9	1499.9	180	M	CALENDAR INSPECTION, EMM 05-20-10-201-940-A01	17-Aug-29	2,534.00	D	18
72.40.01	CENTRIFUGAL IMPELLER	0319250580	1670TT	15-Aug-14	1633.47	1632.95	1632.95	2268.7	2268.7	14000	C	SLL, EMM 05-10-01-200-801-A01	14,000.52	11,731.32	C	0
72.40.02	HP TURBINE DISC	2319250280	9050UP	15-Aug-14	1633.47	1632.95	1632.95	2268.7	2268.7	8000	C	SLL, EMM 05-10-01-200-801-A01	8,000.52	5,731.32	C	0
72.40.03	HP TURBINE BLADE	231925A0J0	ALL SNs	15-Aug-14	788.7	861.4	861.4	1499.9	1499.9	7000	H	SLL, MM 05-15-00-201-802-A01	6,927.30	5,500.08	H	0
72.40.03	HP TURBINE BLADE	231925A0J0	ALL SNs	15-Aug-14	1633.47	1632.95	1632.95	2268.7	2268.7	10000	C	SLL, MM 05-15-00-201-802-A01 {NG}	10,000.52	7,731.32	C	0
72.40.04	POWER TURBINE DISC	2319411650	AZF8353UP	15-Aug-14	1707.2	1706.4	1706.4	2363.0	2363.0	14000	C	SLL, EMM 05-10-01-200-801-A01	14,000.80	11,637.05	C	0
72.40.05	POWER TURBINE BLADE	231945A0C0	ALL SNs	15-Aug-14	1707.2	1706.4	1706.4	2363.0	2363.0	14000	C	SLL, MM 05-15-00-201-802-A01 {NF}	14,000.80	11,637.05	C	0
72.40.05	POWER TURBINE BEARING	9609000454	1208	15-Aug-14	788.7	861.4	861.4	2436.5	2436.5			ON CONDITION		OC		NA
72.40.05	GAS GENERATOR REAR BEARING	9609000648	1477	15-Aug-14	788.7	861.4	861.4	2436.5	2436.5			ON CONDITION		OC		NA
72.40.05	GAS GENERATOR FRONT BEARING	9609000622	782	15-Aug-14	788.7	861.4	861.4	2436.5	2436.5			ON CONDITION		OC		NA
73.10.01	ADJUSTED VALVE ASSY	0319958240	712	15-Apr-08	0.0	0.0	0.0	1427.2	1427.2			ON CONDITION		OC		NA
73.15.01	L/H FUEL INJECTION HALF MANIFOLD	0319730420	3334ERM	12-Jan-19	1159.2	0.0	0.0	268.1	268.1	400	H	REPLACEMENT, EMM 05-20-10-201-840-A01 ('R) & EMM 73-15-00-900-801	1,559.15	131.93	H	0
73.15.02	R/H FUEL INJECTION HALF MANIFOLD	0319730410	1069T/RA	12-Jan-19	1159.2	0.0	0.0	268.1	268.1	400	H	REPLACEMENT, EMM 05-20-10-201-840-A01 ('R) & EMM 73-15-00-900-801	1,559.15	131.93	H	0
73.15.03	INJECTOR PIPE	0319730440	7968ERM/RA	12-Jan-19	1159.2	0.0	0.0	268.1	268.1	400	H	REPLACEMENT, EMM 05-20-10-201-840-A01 & EMM 73-15-00-900-801	1,559.15	131.93	H	0
73.20.01	ADJUSTED FUEL CONTROL UNIT	0319870100	295M	31-Jan-14	695.0	0.0	0.0	732.2	732.2	120	M	TBO, EMM 05-15-00-201-801-A01	02-Feb-24	511.00	D	0
73.20.01	ADJUSTED FUEL CONTROL UNIT	0319870100	295M	18-Oct-21	1304.7	609.7	609.7	732.2	732.2	3000	H	TBO, EMM 05-15-00-201-801-A01	3,695.00	2,267.78	H	0

Appendix 10: AD/SB Status List

HAMMOCK HELICOPTER SDN. BHD. (643278-V)

AIRBUS ALERT SERVICE BULLETINS

AIRBUS EC120B, S/N 1561, REG N409HH

TURBOMECA ARRIUS 2F, ENGINE S/N 34630

Prepared By : 1-Nov-22
Mark D.McGregor
A&P 2523065

EC120B Service Bulletin, Updated as per sb index 2022-05-16

* Only A (ALERT), E (EMERGENCY), M (MANDATORY), T (ALERT TELEX) listed

ASB	REV	DATE	FAA	EASA	SUBJECT	APPLICABILITY	AFTT	DATE	ORGANISATION		NOTE
01-001		8-Mar-99	-	-	CHECK OF THE TAIL ROTOR PITCH CHANGE CONTROL ROD INSIDE THE TAIL ROTOR GEARBOX FOR BINDING POINTS	SUPERSEDED BY ASB 04A001					
01-002		10-Jan-00	-	-	FLIGHT RESTRICTION FOR ENGINE-TO-MGB COUPLING TUBE ASSEMBLY AND ENGINE SUPPORT FITTING	SUPERSEDED BY ASB 04A002					
04A001		2-Aug-01	-	F-1999-151-001 R1	CHECK OF THE TAIL ROTOR PITCH CHANGE CONTROL ROD FOR BINDING POINTS INSIDE THE TAIL ROTOR GEARBOX	NOT CONCERNED. S/N > M126.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
04A002		2-Aug-01	-	F-2000-058-003 R1	FLIGHT RESTRICTION FOR ENGINE-TO-MGB COUPLING TUBE ASSEMBLY AND ENGINE SUPPORT FITTING	NOT CONCERNED. REF NOT INSTALLED.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
04A004		12-May-09	-	2009-0122 R1	SIREN LOAD RELEASE UNITS: LOAD JAMMED ON THE CARGO HOOK IN THE OPEN POSITION	NOT APPLICABLE AS SIREN LOAD RELEASE NOT INSTALLED ON THE HELICOPTER.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
04A005		16-Jul-03	2016-12-13	F-2003-325 R1	ENGINE MOUNT	NOT CONCERNED. AIRCRAFT S/N > 1170.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
04A006		27-Jan-06	-	F-2006-040	NON-AIRWORTHINESS DECLARATION FOR SPHERICAL THRUST BEARINGS, P/NO. 7050A3622036	S/N NOT CONCERNED.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
04A007	1	30-Jun-16	2017-26-04	2016-0180	EMERGENCY FLOATATION GEAR CONTROL ON THE LIGHTING AND ANCILLARY CONTROL UNIT (LACU)	NOT APPLICABLE. EQUIPMENT NOT INSTALLED.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
04A008		18-Jul-18	2020-12-02	2018-0183	INTRODUCTION OF A NEW PART NUMBER AND RE-IDENTIFICATION OF THE EQUIPPED BLADES OF THE TAIL ROTOR HUB	NOT APPLICABLE AS TAIL ROTOR HUB EQUIPPED BLADE S/N M3372, M3409, M3518, M3536, M 3580, M3550, M3555 INSTALLED.	1102.1	12-Sep-18	INDAMER AVIATION	IAPL CAMO	N/A
05A001		29-Sep-99	-	-	CHECK OF THE ENGINE-TO-MGB COUPLING TUBE ASSEMBLY	SUPERSEDED BY ASB 04A002.					

* Only A (ALERT), E (EMERGENCY), M (MANDATORY), T (ALERT TELEX) listed

ASB	REV	DATE	FAA	EASA	SUBJECT	APPLICABILITY	AFTT	DATE	ORGANISATION		NOTE
05A003	3	11-May-04	-	F-2003-325 R1	ENGINE-TO-MGB COUPLING TUBE ASSEMBLY – CHECK AND LIMITATION	NOT CONCERNED S/N AIRCRAFT > 1170.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
05A005	1	24-Apr-01	-	F-2005-285-005 R2	CABIN SLIDING DOOR ADJUSTMENT	NOT CONCERNED S/N AIRCRAFT > 1170.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
05A006	1	27-Sep-21	-	2007-0211	TAIL ROTOR DRIVE SHAFT: DAMPER FRICTION RING ON THE REAR DRIVE SHAFT	NOT CONCERNED P/N NOT FITTED.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
05A008	2	13-Nov-07	-	-	CRACK IN THE BELT BUCKLE	APPLIED.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
05A011		8-Jun-09	2013-16-19	-	EMERGENCY FLOATATION GEARS: PERIODIC CHECK OF THE FLOATS WITH INTERVALS IN HOURS	NOT APPLICBALE AS EQUIPMENT NOT INSTALLED.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
05A012	1	19-Feb-10	2010-05-51	2010-0026-E	CHECK FOR CRACK IN THE MAIN ROTOR HUB	ASB 05A012 REV 1, PARA 2B COMPLIED. FOUND SATISFACTORY.	420.4	9-Oct-11	INDOCOPTER PVT. LTD.	ICPL #10	INCORPORATED INTO MSM
05A019	1	5-Oct-20	21-Apr-21	!019-01392021-0046	INSPECTION OF ROTATING AND NON-ROTATING SCISSORS BOLTS	INSPECTION OF ROTATING AND NON-ROTATING SCISSORS BOLTS AND NUTS CARRIED OUT I.A.W ASB 05A019, §3.B.2.c. AT INTERVAL OF 15HRS/7 DAY	1427.1	6-Sep-22	BIRINDAVE SIGNH	A&P 3985230	INTERVAL 15 HRS // 7 DAYS
05A020	2	8-Feb-21	2020-11-05	2019-0272R1	CHECK OF THE TAIL ROTOR HUB BODY	TAIL ROTOR HUB BODY CHECK CARRIED OUT I.A.W 05A020 § 3.B.1 & § 3.B2, AT INTERVAL OF 15HRS/7 DAY	1427.1	6-Sep-22	BIRINDAVE SIGNH	A&P 3985230	INTERVAL 15 HRS // 7 DAYS
05A022	1	5-Nov-20	-	-	CHECK FOR CRACKS ON THE LANDING GEAR	NOT APPLICABLE BY AIRCRAFT S/N 1561.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
05A023		31-Mar-21	-	-	LIGHTING AND ANCILLARIES CONTROL UNIT (LACU) INSPECTION OF THE LACU	INSPECTION OF THE LACU CARRIED OUT I.A.W ASB 05A023 DURING 12Y INSPECTION. WORK CARRIED OUT UNDER 409-WO-2108-HH-1561	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	EVERY 1320H NEXT: 2624.7 H
24A012		22-Apr-10	2011-17-13	2010-0078-E	EMERGENCY SWITCH (EMER SW) WIRING	COMPLIED AS PARA 2B OF THE ASB AT 278:23 HRS ON 26 APRIL 2010. GROUND RUN GIVEN AND FOUND SATISFACTORY, CRS ISSUED.	278.4	26-Apr-10	INDOCOPTER PVT. LTD.	ICPL #10	ONE TIME
25A023		22-Nov-07	-	2007-0311	ELECTRICAL BONDING OF ENERGY- ABSORBING SEATS	NOT APPLICABLE, AIRCRAFT S/N > 1523	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
25A026		11-Jul-11	-	2011-0185	PROTECTOR INSTALLATION ON THE REAR BRACKET AND THE SUPPLY COUPLINGS	NOT APPLICABLE AS FLOATS NOT INSTALLED ON THE HELICOPTER.	412.7	26-Jul-11	INDOCOPTER PVT. LTD.	ICPL #10	N/A

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ASB	REV	DATE	FAA	EASA	SUBJECT	APPLICABILITY	AFTT	DATE	ORGANISATION		NOTE
25A030	2	23-Sep-20	-	-	INSPECTION OF THE FLOATATION BALLOON SUPPLY HOSES	NOT APPLICABLE AS EMERGENCY FLOATATION SYSTEM NOT INSTALLED.	1304.7	25-Sep-20	INDAMER AVIATION	IAPL CAMO	N/A
31A008		30-Jun-16	2017-26-04	2016-0180	REPLACEMENT OF PUSH-BUTTON FLOAT ARM OF SMS UNIT	NOT APPLICABLE AS AIRCRAFT NOT EQUIPPED WITH EMERGENCY FLOATATION GEAR	1022.4	11-Aug-17	INDAMER AVIATION	IAPL CAMO	N/A
34A006		25-Feb-04	-	F-2002-282-009 R1	HORIZONTAL SITUATION INDICATOR KI 525A	APPLIED.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
32A014		15-Feb-22			INSPECTION FOR CORROSION ON THE LANDING GEAR	COMPLY WITH PARAGRAPH 3 AT NEXT ANNUAL INSPECTION OR NO LATER THAN TO BE CARRIED OUT AT THE TIME OF 12M INSPECTION BUT NO LATER THAN 23-MARCH-2023.					NO LATER THAN 23-MARCH-2023
52A004	1	24-Apr-01	2001-24-08	F-2000-285-005 R2	INSTALLATION OF A STOP ON THE UPPER FRONT RAIL OF THE CABIN SLIDING DOOR	APPLIED AFTER S/N > 1170.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
52A014	2	28-Oct-13	-	2015-0020 2013-0093	DOORS - SLIDING DOOR ATTACHMENT OF THE SLIDING STAR SUPPORT	ASB EC120-52A014 REV 1 IS NOT APPLICABLE DUE TO DIFFERENT S/N OF AIRCRAFT.	665.2	21-Nov-13	EON AVIATION	AJAY PATIL CAM	N/A
52A017		3-Apr-14	-	-	CHECK OF THE INSTALLATION OF THE CREW DOOR ACTUATORS	ASB EC120-52A017 REVIEWED AND FOUND NOT APPLICABLE.	788.7	30-Sep-14	INDAMER AVIATION	IND/EQ/16	N/A
52A018	1	12-Jul-16	2020-25-11	2020-0095	REINFORCEMENT OF THE DOOR LOCKING/UNLOCKING MECHANISM	ASB EC120-52A018 REV 1 CARRIED OUT AND FOUND SATISFACTORY.	1097.9	6-Aug-18	INDAMER AVIATION	IAPL CAMO	ONE TIME
53A015	1	17-Nov-14	-	2014-0167	CORROSION ON THE TAIL BOOM	L/H AND R/H VOR ANTENNA, 13 MONTH CORROSION INSPECTION CARRIED OUT I.A.W ASB 53A015, §3. WORK CARRIED OUT UNDER 409-WO-2108-HH-1561	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	TROPICAL & DAMP ATMOSPHERE EVERY 13 MONTHS
53A017	1	26-Nov-20	-	-	CORROSION ON THE TAIL BOOM	CHECK FOR CORROSION AND CRACKS AT THE VHF ANTENNA ATTACHMENTS CARRIED OUT I.A.W. ASB 53A017 R1. WORK CARRIED OUT UNDER 409-WO-2108-HH-1561	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	EVER 1320 H NEXT: 2624.7 H
62A020		23-Aug-18	2021-04-21	2019-0139 2021-0046	CHECK OF THE SCISSORS BOLTS	ASB EC120-62A020 CARRIED OUT AND FOUND SATISFACTORY.	1100.7	10-Sep-18	INDAMER AVIATION	IAPL CAMO	ONE TIME

* Only A (ALERT), E (EMERGENCY), M (MANDATORY), T (ALERT TELEX) listed

ASB	REV	DATE	FAA	EASA	SUBJECT	APPLICABILITY	AFTT	DATE	ORGANISATION		NOTE
63A024		13-May-22	-	-	REPLACEMENT OF THE LOWER HOUSING S/N M1274 MANUFACTURER P/N (MP/N) C632A2117101 OF THE MGB	N/A, LOWER HOUSING P/N C632A2117101, S/N M1305 INSTALLED.			SPECIAL ISSUED		N/A
64A003		9-Feb-21	-	-	INSPECTION OF THE DRAIN HOLES ALIGNMENT OF THE TAIL ROTOR BLADES (TRB)	INSPECTION OF THE DRAIN HOLES ALIGNMENT OF THE TAIL ROTOR BLADES CARRIED OUT I.A.W. ASB 64A003. ALL BLADES TO BE CATEGORY A.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	ONE TIME
65A004		17-Jun-05	-	F-2003-465 R2	TAIL ROTOR DRIVE SHAFT DAMPER	NOT CONCERNED AIRCRAFT S/N > 1362.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
67A003		8-Aug-01	2003-08-04	F-2001-373-008	TO PROVIDE DOUBLE LOCKING FOR THE ATTACHMENT PINS OF THE CYCLIC PITCH STICK YOKES ON THE TORQUE TUBE	APPLIED AFTER S/N > 1030.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
67A005		1-Aug-01	2015-26-04	F-2001-386-007 R1	YAW CONTROL PROTECTION	NOT APPLICABLE BY AIRCRAFT S/N 1561.	0.0	4-May-16	EON AVIATION	MANUFACTURER	N/A
67A007		21-Dec-01		F-2001-386-007 R1	ROTOR FLIGHT CONTROL: YAW CONTROL PROTECTION	APPLIED AFTER S/N > 1279.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
67A008		2-Apr-04	-	F-2002-371-010 R1	LIMITED CYCLIC PITCH CONTROL STICK TRAVEL	APPLIED AFTER S/N > 1323.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
67A009		15-Dec-04	-	F-2002-606 R1	STIFFENING OF COLLECTIVE PITCH LEVER CONTROL	NOT CONCERNED. S/N > 1344.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
67A010	3	17-May-05	-	F-2003-322 R1	INTRODUCTION OF DOUBLE LOCKING OF FLIGHT CONTROL STOP SCREWS BY SEALING THE SCREWS	NOT CONCERNED. S/N > 1377.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
67A011	1	24-Oct-05	2011-21-18	F-2005-175	NEW THRUST WASHERS FOR CYCLIC STICK FRICTION	NOT CONCERNED. S/N >1385 AND S/N > 8001.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
67A014		23-Mar-05	-	F-2005-086	COLLECTIVE TORQUE TUBE ASSEMBLY	NOT CONCERNED. S/N >= 1383.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A
76A005	1	24-Sep-08	-	2008-0185	REPLACEMENT OF THE TWIST GRIP DRIVE TUBE	AIRCRAFT NOT CONCERNED.	5.6	9-Oct-08	EUROCOPTER	MANUFACTURER A3MQ	N/A
76A006	2	24-Sep-08	-	2008-0185	CHECK OF THE TWIST GRIP DRIVE TUBE AND CONTROL PINION ATTACHMENT	NOT APPLICABLE.	0.0	18-Aug-08	EUROCOPTER	MANUFACTURER	N/A

HAMMOCK HELICOPTER SDN. BHD. (643278-V)

FAA AD's COMPLIANCE LIST

AIRBUS EC120B, S/N 1561, Reg N409HH

TURBOMECA ARRIUS 2F, ENGINE S/N 34630

Prepared By : 1-Nov-22
Mark D.McGregor
A&P 2523065

FAA AD's checked Up to Bi-Weekly Report No. 2022-19

AIRFRAME : 1561

FAA AD'S	DATE	EASA AD'S	ASB/SB	SUBJECT	APPLICABILITY	AFTT	DATE	ORGANISATION		NOTE
2022-02-06	17-Mar-22	2021-0079	64A003	TAIL ROTOR BLADES	INSPECTION OF THE DRAIN HOLES ALIGNMENT OF THE TAIL ROTOR BLADES CARRIED OUT I.A.W. ASB 64A003. ALL BLADES TO BE CATEGORY A.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	ONE TIME
2022-02-13	17-Mar-22	2021-0015	53A017 R1	ROTORCRAFT TAIL BOOM	CHECK FOR CORROSION AND CRACKS AT THE VHF ANTENNA ATTACHMENTS CARRIED OUT I.A.W. ASB 53A017 R1. WORK CARRIED OUT UNDER 409-WO-2108-HH-1561	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	EVER 1320 H NEXT: 2624.7 H
2021-26-07	27-Jan-22	2021-0069	05A020 R2	TAIL ROTOR SYSTEM	TAIL ROTOR HUB BODY CHECK CARRIED OUT I.A.W 05A020 § 3.B.1 & § 3.B2, NO CRACK FOUND. AT INTERVAL OF 15HRS/7 DAY	1427.1	6-Sep-22	BIRINDAVE SIGNH	A&P 3985230	INTERVAL 15 HRS // 7 DAYS
2021-24-08	14-Jan-22	2021-0046	05A019 R1	MAIN ROTOR SYSTEM	INSPECTION OF ROTATING AND NON-ROTATING SCISSORS BOLTS AND NUTS CARRIED OUT I.A.W ASB 05A019, §3.B.2.c. AT INTERVAL OF 15HRS/7 DAY	1427.1	6-Sep-22	BIRINDAVE SIGNH	A&P 3985230	INTERVAL 15 HRS // 7 DAYS
2021-17-17	22-Nov-21	2020-0064	SB 025-69-18	CABIN EQUIPMENT/FURNISHINGS	NOT APPLICABLE EMERGENCY FLOATAION SYSTEM DOES NOT INSTALLED	1310.4	25-Apr-22	MARK D. McGREGOR	A&P 2523065	N/A
2020-25-11	21-Jan-21	2020-0095	EC120-52A018	DOORS	COMPLIED.	1097.9	6-Aug-18	INDAMER AVIATION	IAPL CAMO	ONE TIME
2020-12-02	13-Jul-20	2018-0183	EC120-04A008	TAIL ROTOR BLADES	NOT APPLICABLES AS TAIL ROTOR HUB EQUIPPED BLADE P/N C64A0300103 & S/N M3372, M3409, M3518, M3536, M3537, M3580, M3550, M3555 INSTALLED IN AIRCRAFT.	1304.7	16-Jun-20	INDAMER AVIATION	IAPL CAMO	N/A
2017-26-04	24-Jan-18	2016-0180	04A007, R1 EC120-31A008	EMERGENCY EQUIPMENT	NOT APPLICABLE AS FLOATING GEAR SYSTEM NOT INSTALLED.	1036.7	30-Dec-17	INDAMER AVIATION	IAPL CAMO	N/A
2017-06-11	8-May-17	-	EC120-111815, A	FAILURE OF AN AIR CONDITIONER COMPRESSOR DRIVE PULLEY (PULLEY) OR TAIL ROTOR OUTPUT WHEEL (WHEEL)	NOT APPLICABLE AS AIR COMM CORP. AIR CONDITIONING SYSTEM NOT INSTALLED REF AD 2015-24-51 REFER LOGBOOK ENTRY DATED 28 NOV 2015. (REFER AIRFRAME LOGBOOK NO. 04 PG NO. 116)	1022.4	27-Aug-17	INDAMER AVIATION	IAPL CAMO	N/A
2016-12-13	27-Jul-16	F-2003-325 R1	04A005 71-005	ENGINE/TRANSMISSION COUPLING--COUPLING TUBE, ENGINE MOUNT, AND ENGINE MOUNT BASE	NOT CONCERNED. AIRCRAFT S/N > 1170.	9.0	18-Aug-08	EUROCOPTER	MANUFACTURER A3MQ	N/A
2015-26-04	4-Feb-16	-	67A005	CABIN EQUIPMENT/FURNISHINGS	NOT APPLICABLE BY AIRCRAFT S/N 1561.	993.3	5-Apr-16	EON AVIATION	ZENAT KHAN CAM	N/A

Hammock Helicopters Sdn Bhd,
Has endeavoured to submit true and accurate data based on a visual inspection of the aircraft and documentation presented. Viewers shall remain responsible for confirming and substantiating such information.

Hammock Helicopter Sdn Bhd,
Express no opinion as to the airworthiness, merchantability, standards of workmanship or maintenance carried out.

FAA AD'S	DATE	EASA AD'S	ASB/SB	SUBJECT	APPLICABILITY	AFTT	DATE	ORGANISATION		NOTE
2013-16-19	27-Sep-13	-	05A011	EMERGENCY FLOTATION SECTION	NOT APPLICBALE AS EQUIPMENT NOT INSTALLED.	1304.7	18-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
2011-21-18	20-Dec-11	F-2005-175	67A011 R1	CYCLIC CONTROL STICK	NOT CONCERNED. S/N >1385 AND S/N >8001.	9.0	18-Aug-08	EUROCOPTER	MANUFACTURER A3MQ	N/A
2011-17-13	12-Sep-11	2010-0078-E	24A012	EMERGENCY SWITCH	COMPLIED AS PARA 2B OF THE ASB AT 278:23 HRS ON 26 APRIL 2010. GROUND RUN GIVEN AND FOUND SATISFACTORY, CRS ISSUED.	278.4	26-Apr-10	EON AVIATION	ICPL 10	ONE TIME
2011-11-04	17-Jun-11	2009-0277R1	863520-26-001 (L'Hotellier)	CONTAMINATED GAS	COMPLIED AS PER INSTRUCTION IN THE AD AT 295.17 HRS ON 14 JUN 2010. CRS ISSUED. REFER PAGE 105 OF AIRFRAME LOGBOOK FOR ITS COMPLIANCE.	295.3	14-Jun-10	INDOCOPTER PVT. LTD.	ICPL 10	DGCA/EC120/17R 1
2010-05-51	14-May-10	2010-0026-E	05A012, R1	MAIN ROTOR HUB	ASB 05A012 REV 1, PARA 2B COMPLIED. FOUND SATISFACTORY.	420.4	9-Oct-11	INDOCOPTER PVT. LTD.	ICPL #10	INCORPORATED INTO MSM
2008-10-01	21-May-08	-	-	SPHERICAL THRUST BEARINGS	NOT APPLICABLE AS SPHERICAL THRUST BEARING P/N INSTALLED NOT AFFECTED.	1304.7	18-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
2005-09-05	13-Jun-05	-	-	TAIL ROTOR DRIVE SHAFT (DRIVE SHAFT)	NOT APPLICABLE FOR THIS AIRCRAFT S/N.	1304.7	18-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
2003-22-10	10-Dec-03	-	-	ELECTRICAL BONDING BRAID (BONDING BRAID) THAT IS INSTALLED ON THE LEFT CYCLIC PITCH CONTROL STICK BASE	NOT APPLICABLE AS AIRCRAFT WAS MANUFACTURED ON 18 AUGUST 2018.	1304.7	18-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
2003-08-04	22-May-03	-	-	CYCLIC PITCH FLIGHT CONTROL TORQUE TUBE	NOT APPLICABLE AS AIRCRAFT WAS MANUFACTURED ON 18 AUGUST 2018.	1304.7	18-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
2002-15-08	6-Sep-02	-	67A003	CARGO HOOKS	APPLIED AFTER S/N >1030.	9.0	18-Aug-08	EUROCOPTER	MANUFACTURER A3MQ	N/A
2001-24-08	7-Jan-02	-	52A004 R1	CABIN SLIDING DOOR RAIL	APPLIED AFTER S/N >1170.	9.0	18-Aug-08	EUROCOPTER	MANUFACTURER A3MQ	N/A

HAMMOCK HELICOPTER SDN. BHD. (643278-V)

TURBOMECA SERVICE BULLETINS

AIRBUS EC120B, S/N 1561, REG N409HH

TURBOMECA ARRIUS 2F, ENGINE S/N 34630

Prepared By : 1-Nov-22
Mark D.McGregor
A&P 2523065

ARRIUS 2F SB No. X 319 L6 952 2, 2022-07-25

SERVICE BULLETIN CODE 1

ENGINE: 34630

SB, CODE 1	DATE	REV	EASA AD	FAA AD	SUBJECT	APPLICABILITY	ENG TT	DATE	ORGANISATION		NOTE
319 73 4002	22-Oct-99				REDUCTION OF THE CHECK VALVE SPRING STIFFNESS AND MIN. FUEL CONTROL UNIT ADJUSTED AT 29 L/H.	TF2 FOUND EMBODIED AT TIME OF MANUFACTURE.	0.0	15-Apr-08	TURBOMECA BORDES	MANUFACTURER	TF2 EMBODIED
319 72 4012	19-Sep-06	1	2007-0057	2008-13-27	MODULE M02 (GAS GENERATOR). GAS GENERATOR STOP SNFA BEARING.	MODULE 2 S/N: 5563, TF 12 (319 72 4012 R1) INCORPORATED.	MO2 TT: 861.4H	18-Apr-13	TURBOMECA USA	MANUFACTURER	TF12 EMBODIED
A319 75 4016	29-Jul-99				CLAMP SECURING THE FIRST SECTION OF THE P3 PIPE.	TF16 FOUND EMBODIED AT TIME OF MANUFACTURE.	0.0	15-Apr-08	TURBOMECA BORDES	MANUFACTURER	TF16 EMBODIED
319 73 4055	17-Mar-06	1	2006-0237	2007-11-06	FUEL CONTROL UNIT (FCU). TO ENSURE PROPER INSTALLATION OF CONSTANT DELTA P VALVE DIAPHRAGM.	FCU P/N 0319870100, S/N 295M, TF55 FOUND PREVIOUSLY EMBODIED.	FCU TT: 810.0 H	13-Oct-06	TURBOMECA CANADA	MANUFACTURER	TF55 EMBODIED
319 79 4075	10-Oct-08	C			LUBRICATION UNIT. CHECK VALVE WITH SEAL-FREE PISTON.	TF75 FOUND EMBODIED AT TIME OF MANUFACTURE.	0.0	15-Apr-08	TURBOMECA BORDES	MANUFACTURER	TF75 EMBODIED
319 73 4077	25-Jan-19	F	2016-0041		ADJUSTED FCU ASSEMBLY. ADDITION OF AN AUXILIARY DELTA P VALVE.	FCU P/N 0319870100, S/N 295M, TF77 FOUND EMBODIED.	FCU TSO: 25.0 H	MARS 2012	TURBOMECA USA	MANUFACTURER	TF77 EMBODIED
A319 79 4802	3-Sep-09	C			LUBRICATION UNIT. REPLACEMENT OF CHECK VALVE PISTON PREFORMED PACKING.	NOT APPLICABLE, TF75 FOUND EMBODIED AT TIME OF MANUFACTURE.	0.0	15-Apr-08	TURBOMECA BORDES	MANUFACTURER	TF75 EMBODIED
A319 73 4808	1-Sep-00		-	2003-11-10	FUEL CONTROL UNIT. INCREASE OF THE MAX FUEL FLOW "ON SITE".	NOT APPLICABLE, FCU P/N 0319870100, S/N 295M, INSTALLED.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
319 75 4810	25-Jan-11	B	2008-0134R1 2011-0182R1	2009-14-11 2012-07-09	INSPECTION OF CLEARANCE BETWEEN THE P3 AIR PIPE (FIRST SECTION) AND THE RH REAR HALF-WALL.	INSPECTION OF CLEARANCE BETWEEN P3 AIR PIPE (FIRST SECTION) AND RH REAR HALF-WALL CARRIED OUT I.A.W MSB 319 75 4810, REV B §.2.B.(1).(a) &§. 2.B.(1).(b), CLEARANCE FOUND TO BE MORE THAN 0.5MM AND IS WITHIN LIMIT. 409-WO-2108-HH-1561.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	ONE TIME CLEARANCE > 0.5 MM
A319 73 4823	11-May-05		2005-088	2005-17-15	CHECK OF CORRECT POSITION OF ADJUSTED FCU FUEL FILTER.	CHECK OF THE CORRECT POSITION OF THE ADJUSTED FUEL FILTER (FCU) CARRIED OUT I.A.W SB A319 73 4823, § 2.B, DIMENSION A 55.1MM IS WITHIN LIMIT. 409-WO-2108-HH-1561.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	ONE TIME
A319 73 4825	3-Aug-05		2006-0237		FUEL CONTROL UNIT. CHECK AND REPLACEMENT OF THE CONSTANT DELTA P DEVICE DIAPHRAGM.	NOT APPLICABLE, FCU P/N 0319870100, S/N 295M, INSTALLED.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A

Hammock Helicopters Sdn Bhd,
Has endeavoured to submit true and accurate data based on a visual inspection of the aircraft and documentation presented. Viewers shall remain responsible for confirming and substantiating such information.

Hammock Helicopter Sdn Bhd,
Express no opinion as to the airworthiness, merchantability, standards of workmanship or maintenance carried out.

HAMMOCK HELICOPTER SDN. BHD. (643278-V)

TURBOMECA SERVICE BULLETINS

AIRBUS EC120B, S/N 1561, REG N409HH

TURBOMECA ARRIUS 2F, ENGINE S/N 34630

Prepared By : Mark D.McGregor A&P 2523065

1-Nov-22

ARRIUS 2F SB No. X 319 L6 952 2, 2022-07-25

319 79 4834	21-Oct-14	B	2015-0049	2015-17-18	VISUAL INSPECTION OF THE DRIVE-LINK SPLINES OF THE LUBRICATING DEVICE	VISUAL INSPECTION OF LUBRICATION DEVICE DRIVE LINK SPLINES CARRIED OUT AND FOUND SATISFACTORY.	16-Dec-01	8-Mar-14	INDAMER AVIATION	IND/EQ/16	ONE TIME
319 79 4835	12-Feb-15	B	2015-0057	2015-10-07	LUBRICATION DEVICE. CHECK OF THE NOZZLE BONDING ON THE EJECTOR ASSEMBLY.	SB 319 79 4831 FOUND PREVIOUSLY COMPLIED WITH AT ENG TT 638.6H ON 2013-APR-02. SB 319 79 4835 NOT APPLICATBLE AS LUBRICATION UNIT S/N 225 NOT LISTED IN THE SB.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
319 72 4838	27-Sep-16	A			RETURN TO SERVICE FOR CIVIL OPERATION OF AN ARRIUS 2 F OR ARRIUS 2 R ENGINE ORIGINATING FROM AN OPERATOR NOT CONTROLLED BY A CIVIL AUTHORITY (MILITARY, PARAMILITARY, ETC.)	NOT APPLICABLE AS THE ENGINE/MODULE WAS NOT OPERATED BY OPERATOR NOT CONTROLLED BY CIVIL AUTHORITY.	1022.7	31-Aug-17	INDAMER AVIATION	IAPL CAMO	N/A
319 73 4839	13-Dec-16	A	2017-0070	2018-12-03	CHECK OF THE PREFERRED INJECTOR PIPE ASSY.	NOT APPLICABLE, PIPE INJECTOR P/N 0319730440, S/N ANR7968ERM/RA INSTALLED.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
A319 79 4840	27-Nov-17	A		2018-0012-E	INSPECTION OF THE MAGNETIC HEADS OF THE ELECTRICAL MAGNETIC PLUG ASSEMBLIES.	NOT APPLICABLE, POST MOD TF 34 & TF 36 EMBODIED.	1042.6	20-Jan-18	INDAMER AVIATION	IAPL CAMO	N/A
A319 79 4841	20-Nov-17	A	2018-0012-E	2018-05-03	REPLACEMENT OF THE MAGNETIC HEADS OF THE ELECTRICAL MAGNETIC PLUG ASSEMBLIES.	NOT APPLICABLE, POST MOD TF 34 & TF 36 EMBODIED.	1028.7	30-Nov-17	INDAMER AVIATION	IAPL CAMO	N/A

HAMMOCK HELICOPTER SDN. BHD. (643278-V)

FAA AD's ENGINE COMPLIANCE LIST

AIRBUS EC120B, S/N 1561, REG N409HH

TURBOMECA ARRIUS 2F, ENGINE S/N 34630

Prepared By : Mark D.McGregor A&P 2523065 — 1-Nov-22

FAA AD's checked Up to Bi-Weekly Report No. 2022-19

ENGINE: 34630

FAA AD'S	DATE	EASA AD'S	ASB/SB	SUBJECT	APPLICABILITY	AFTT	DATE	ORGANISATION		NOTE
2018-12-03	9-Aug-18	2017-0070	319 73 4839, REV A	FUEL CONTROLLING SYSTEM	NOT APPLICABLE, PIPE INJECTOR P/N 0319730440, S/N ANR7968ERM/RA INSTALLED.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
2018-05-03	21-Mar-18	2018-0012-E	A319 79 4841, REV A	ENGINE OIL SYSTEM (AIRFRAME FURNISHED)	NOT APPLICABLE, POST MOD TF 34 & TF 36 EMBODIED.	1028.7	30-Nov-17	INDAMER AVIATION	IAPL CAMO	N/A
2015-17-18	2-Oct-15	2015-0049	319 79 4834, REV B	OIL PUMP	VISUAL INSPECTION OF LUBRICATION DEVICE DRIVE LINK SPLINES CARRIED OUT AND FOUND SATISFACTORY.	16-Dec-01	8-Mar-14	INDAMER AVIATION	IND/EQ/16	ONE TIME
2015-10-07	12-Jun-15	2015-0057	319 79 4835, REV B	EJECTOR ASSEMBLY NOZZLE	SB 319 79 4831 FOUND PREVIOUSLY COMPLIED WITH AT ENG TT 638.6H ON 2013-APR-02. SB 319 79 4835 NOT APPLICATBLE AS LUBRICATION UNIT S/N 225 NOT LISTED IN THE SB.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
2012-07-09	24-May-12	2011-0182R1	319 75 4810, REV B	P3 AIR PIPE (FIRST SECTION) AND THE RH REAR HALF-WALL	INSPECTION OF CLEARANCE BETWEEN P3 AIR PIPE (FIRST SECTION) AND RH REAR HALF-WALL CARRIED OUT I.A.W MSB 319 75 4810, REV B §.2.B.(1).(a) &§. 2.B.(1).(b), CLEARANCE FOUND TO BE MORE THAN 0.5MM AND IS WITHIN LIMIT. 409-WO-2108-HH-1561.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	ONE TIME CLEARANCE > 0.5 MM
2009-14-11	19-Aug-09	2008-0134R1	319 75 4810	P3 AIR PIPE	SUPERSEDED BY FAA AD 2012-07-09					
2009-14-01	3-Aug-09	2008-0170	319 79 4075, REV B	CHECK VALVE PISTON	TF75 FOUND EMBODIED AT TIME OF MANUFACTURE.	0.0	15-Apr-08	TURBOMECA BORDES	MANUFACTURER	TF75 EMBODIED
2008-13-27	6-Aug-08	2007-0057	319 72 4012	PROPELLER	MODULE 2 S/N: 5563, TF 12 (319 72 4012 R1) INCORPORATED.	MO2 TT: 861.4H	18-Apr-13	TURBOMECA USA	MANUFACTURER	TF12 EMBODIED
2007-11-06	26-Jun-07	2006-0237	319 73 4055	CONSTANT DELTA PRESSURE (DELTA P) DIAPHRAGM	FCU P/N 0319870100, S/N 295M, TF55 FOUND PREVIOUSLY EMBODIED.	FCU TT: 810.0 H	13-Oct-06	TURBOMECA CANADA	MANUFACTURER	TF55 EMBODIED
2005-17-15	12-Sep-05	-	A319 73 4823	FUEL FILTER-HOLDER ASSEMBLY	CHECK OF THE CORRECT POSITION OF THE ADJUSTED FUEL FILTER (FCU) CARRIED OUT I.A.W SB A319 73 4823, § 2.B, DIMENSION A 55.1MM IS WITHIN LIMIT.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	EVERY TIME THE FCU IS REMOVED
2005-09-51	3-Jun-05	-	-	MODULE 2	NOT APPLICABLE BY ENGINE S/N 34630 WITH MO2 S/N 5563 INSTALLED.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A
2003-11-10	3-Jul-03	-	A319 73 4808	FUEL FLOW MECHANICAL STOP POSITION	NOT APPLICABLE, FCU P/N 0319870100, S/N 295M, INSTALLED.	1304.7	15-Oct-21	MARK D. McGREGOR	A&P 2523065	N/A

Hammock Helicopters Sdn Bhd,
Has endeavoured to submit true and accurate data based on a visual inspection of the aircraft and documentation presented. Viewers shall remain responsible for confirming and substantiating such information.

Hammock Helicopter Sdn Bhd,
Express no opinion as to the airworthiness, merchantability, standards of workmanship or maintenance carried out.

Appendix 11: Weight and Balance Report with aircraft inventory list

HAMMOCK HELICOPTER SDN. BHD. (643278-V)

WEIGHT AND BALANCE REPORT 0
409-W&B-2204-HH-1561

AIRCRAFT	
VERSION	EC120B
SERIAL No	1561
REG	N409HH
DATE	22-Apr-22

JACK POINTS	WEIGHT (Lb)	ARM (in)		MOMENT (Lb.in)	
		X	Y	MX	MY
LH FORWARD	750.3	120	-14.802	90036.00	-11105.94
RH FORWARD	731.7	120	14.802	87804.00	10830.62
TOTAL	1482				
AFT	888	242.02		214913.76	
TOTAL WEIGHT	**2370**			392753.76	-275.3172

LONGITUDINAL C.G X = *MOMENT (MX) / TOTAL WEIGHT*	165.72	
LATERAL C.G Y = *MOMENT (MY) / TOTAL WEIGHT*		-0.12

WEIGHING CORRECTIONS AND LONGITUDINAL CG CORRECTIONS

EQUIPMENT ITEMS	WEIGHT (Lb)	ARM (in)		MOMENT (Lb.in)	
		X	Y	MX	MY
UNUSABLE FUEL	7.7	13.5		103.79	

CORRECTED	WEIGHT (Lb)	ARM (in)		MOMENT (Lb.in)	
		X	Y	MX	MY
	2377.72	**165.22**	**-0.12**	**392857.55**	**-275.32**

Mark D McGREGOR

A&P 2523065

HAMMOCK HELICOPTER SDN. BHD. (643278-V)

WEIGHT AND BALANCE REPORT 1

AIRCRAFT VERSION	EC120B
SERIAL No	1561
REG	N409HH
DATE	22-Apr-22

INVENTORY AT TIME OF AIRCRAFT WEIGHING

MISCELLANEOUS		**RADIO COMMUNICATION**	
AIRCRAFT TOOL KIT		**RADIO NAVIGATION**	
FIRST AID KIT	✓	**AVIONICS**	
FLIGHT MANUAL	✓		
FIRE EXTINGUISHER	✓	VOR1/VHF1/GPS (GARMIN GNS 430)	✓
		VOR2/VHF2	✓
		U.H.F	
		VHF/FM	✓
EQUIPMENT			
SWIVELLING LANDING LIGHT		HOMING	
BATTERY	✓	ADF	
2 nd BATTERY		IFF TRANSPONDER	✓
CABIN HEATING SYSTEM (AIR BLOWING)	✓	ICS 2 LANES INTERPHONE PASSAGER	✓
DUAL CONTROL	✓	RADIO ALTIMETER	
SAND FILTERS	✓	GYRO HORIZON	✓
STOWING INSTALLATION		STAND-BY COMPASS	✓
FUEL FLOWMETER		GYRO COMPASS	
EMERGENCY FLOATATION GEAR		EMERGENCY LOCATOR	✓
CARGO SLING (FIXED PARTS)		GLOBAL POSITIONING SYSTEM (GPS)	
CARGO SWING (REMOVAL PARTS)		HEADSET (QTY 2)	✓
ELECTRICAL REAR VIEW MIRROR			
ELECTRICAL HOIST			
AGRICULTURAL SPRAYING SYSTEM			
GYROSTRABILIZED INSTALLATION FOR CAMERA			
SLIDING DOOR (LH)	✓		
DRIP TRAY			
CABIN TRIMMING	✓		
GROUND POWER RECEPTACLE	✓		
CARPET	✓		
FULL OPTIONS ELECTRICAL MASTER BOX			
VERY COLD WEATHER STARTING KIT			
EXTREME WEATHER STARTING KIT			
FLIGHT CONTROL PILOT ON THE LEFT	✓		
SKIS			
CABLE CUTTER WIRE STRIKE PROTECTION SYSTEM			
BALLAST FOR BALANCING	✓		
WINDSHIELD WIPERS			
ENGINE WASHING INSTALLATION			
AIR CONDITIONING SYSTEM	✓		
AUXILIARY FUEL TANK			

Appendix 12 : Aircraft Compass Swing Report

HAMMOCK HELICOPTER SDN. BHD. (643278-V)

AIRCRAFT COMPASS SWING

A/C REG N409HH A/C SN _____ DATE 25/7/2022 PLACE OF SWING SZB MAIN COMPASS TYPE _____

DETECTOR UNIT SERIAL No. _____ GYRO UNIT SERIAL No. _____ MAGNETIC INDI. SERIAL No. _____

AMP SERIAL No. _____ S/BY COMPASS TYPE 1008 KCA2 S/BY COMPASS SERIAL No. 704667.24

CORRECTING SWING

		STANDBY COMPASS			MAIN COMPASS (REMOTE)		
APPROX HDG	DATUM HDG (A)	COMPASS HDG (C)	DEV (A) – (C)	COEFFICIENTS	COMPASS HDG (C)	DEV (A) – (C)	COEFFICIENTS
N	0	0	0	$C = \frac{DEV(N) - DEV(S)}{2}$			$C = \frac{DEV(N) - DEV(S)}{2}$
E	90	90	0				
S	180	180	0				
COEFF. C (SIGN CHANGED		0	= 0 / 2 =			= / 2 =	
MAKE COMPASS READ		180					
W	270	270	0	$B = \frac{DEV(E) - DEV(W)}{2}$			$C = \frac{DEV(N) - DEV(S)}{2}$
COEFF. B (SIGN CHANGED		0	= 0 / 2 =			= / 2 =	
MAKE COMPASS READ		270					

CALIBRATION SWING

APPROX HDG	DATUM HDG (D)	COMPASS HDG (E)	DEV (D) - (E)	RESIDUAL DEV (DEV – A)	COMPASS HDG (F)	DEV (D) – 9 (F)	RESIDUAL DEV (DEV – A)
000	000	000	0	0			
030	030	30	0	0			
060	060	60	0	0			
090	090	90	0	0			
120	120	120	0	0			
150	150	150	0	0			
180	180	180	0	0			
210	210	210	0	0			
240	240	240	0	0			
270	270	270	0	0			
300	300	300	0	0			
330	330	330	0	0			
		TOTAL= 0 / 12 = A A = 0			TOTAL= / = A A =		

TO REMOVED +A, TURN LUBBER LINE OR DETECTOR UNIT CLOCKWISE
TO REMOVED -A, TURN LUBBER LINE OR DETECTOR UNIT ANTI CLOCKWISE

COMPASS CARD

FOR	000	030	060	090	120	150	180	210	240	270	300	330	
STEER	000	030	060	090	120	150	180	210	240	270	300	330	

THE WORK RECORDED ABOVE HAS BEEN CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE * MCAR / FAA _____ FOR THE TIME BEING IN FORCE AND IN THAT RESPECT THE AIRCRAFT / EQUIPMENT IS CONSIDERED FIT FOR RELEA TO SERVICE

* Delete as appropriate

Signed _____ Auth. No. _____ Date: 25/7/2022

HH-MRO-FRM-005 Rev 0

Appendix 13: SOAP Sample Result

ALS

ALS Technichem (S) Pte Ltd
121 Genting Lane #04-01
ALS Building, Singapore 349572
T: +65 6589 0118 F: +65 6283 9689
Co. Reg. No.: 199403076R

CERTIFICATE OF ANALYSIS

HAMMOCK HELICOPTER SDN. BHD.		Unit/Vessel:	N409HH	Source:	Hyd Reservoir
		Seal No:	1561	Sampling Point:	
		PO No:		Capacity:	
Lab No:	20004197469	Date Sampled:	23-Sep-22	Fluid Manufacturer:	Shell
UIN:	09987A9	Date Received:	29-Sep-22	Fluid Type:	Aeroshell FL31
SIF No:	43313818	Date Reported:	03-Oct-22	Fluid Grade:	-

TEST/METHOD	UNITS	RESULT
Physical / Chemical		
Water (ASTM D6304-A), ppm	ppm	380
Viscosity at 40°C (ASTM D445)	mm2/s	14.31
AN (ASTM D974) mgKOH/g	mgKOH/g	0.07

DIAGNOSIS:

PO: 409-PO-025-2209-ALS. A/C TT: 1427.1. GENERAL Comments:Results apply to the sample(s) as submitted and tested. This report supersedes any previous report(s) with this reference. This report should not be reproduced except in full, without written approval from the management of ALS Technichem (S) Pte Ltd. RESULT Comments: Analysis as requested.

Diagnosed by: szuthing.poh

Page 1 of 2

Hydraulic Reservoir Oil sample result

ALS Technichem (S) Pte Ltd
121 Genting Lane #04-01
ALS Building, Singapore 349572
T: +65 6589 0118 F: +65 6283 9689
Co. Reg. No.: 198403076R

CERTIFICATE OF ANALYSIS

HAMMOCK HELICOPTER SDN. BHD.		Unit/Vessel:	N409HH	Source:	Main Gear Box
		Seal No:	1561	Sampling Point:	M744
		PO No:		Capacity:	
Lab No:	20004197468	Date Sampled:	23-Sep-22	Fluid Manufacturer:	NYCO
UIN:	09987A6	Date Received:	29-Sep-22	Fluid Type:	NYCOLUBE 3525
SIF No:	43313817	Date Reported:	03-Oct-22	Fluid Grade:	-

TEST/METHOD	UNITS	RESULT
Metals (ppm)		
Silver (Ag)	ppm	0.2
Aluminium (Al)	ppm	0.2
Chromium (Cr)	ppm	0.1
Copper (Cu)	ppm	0.4
Iron (Fe)	ppm	1.3
Magnesium (Mg)	ppm	1.9
Nickel (Ni)	ppm	0.1
Silicon (Si)	ppm	0.8
Titanium (Ti)	ppm	<0.1

DIAGNOSIS:

PO: 409-PO-025-2209-ALS. A/C TT: 1427.1. GENERAL Comments:Results apply to the sample(s) as submitted and tested. This report supersedes any previous report(s) with this reference. This report should not be reproduced except in full, without written approval from the management of ALS Technichem (S) Pte Ltd. RESULT Comments: Analysis as requested.

Diagnosed by: szuthing.poh

Page 1 of 2

Main Gearbox Oil sample Result

ALS Technichem (S) Pte Ltd
121 Genting Lane #04-01
ALS Building, Singapore 349572
T: +65 6589 0118 F: +65 6283 9689
Co. Reg. No.: 198403076R

CERTIFICATE OF ANALYSIS

HAMMOCK HELICOPTER SDN. BHD.		**Unit/Vessel:**	N409HH	**Source:**	Tail Gear Box
		Seal No:	1561	**Sampling Point:**	M1735
		PO No:		**Capacity:**	
Lab No:	20004197394	**Date Sampled:**	13-Sep-22	**Fluid Manufacturer:**	NYCO
UIN:	099654A	**Date Received:**	27-Sep-22	**Fluid Type:**	NYCOLUBE 3525
SIF No:	43313618	**Date Reported:**	03-Oct-22	**Fluid Grade:**	-

TEST/METHOD	UNITS	RESULT
Metals (ppm)		
Silver (Ag)	ppm	0.3
Aluminium (Al)	ppm	0.3
Chromium (Cr)	ppm	0.4
Copper (Cu)	ppm	0.2
Iron (Fe)	ppm	3.9
Magnesium (Mg)	ppm	0.2
Nickel (Ni)	ppm	0.3
Silicon (Si)	ppm	0.9
Titanium (Ti)	ppm	<0.1
Zinc (Zn)	ppm	0.4

DIAGNOSIS:

PO: 409-PO-024-2209. A/C TT: 1427.1 Part No.: C652A0101055. GENERAL Comments:Results apply to the sample(s) as submitted and tested. This report supersedes any previous report(s) with this reference. This report should not be reproduced except in full, without written approval from the management of ALS Technichem (S) Pte Ltd. RESULT Comments: Analysis as requested. Diagnosis not applicable.

Diagnosed by: szuthing.poh

Page 1 of 2

Tail Gearbox Oil sample result

ALS Technichem (S) Pte Ltd
121 Genting Lane #04-01
ALS Building, Singapore 349572
T: +65 6589 0118 F: +65 6283 9689
Co. Reg. No.: 198403076R

CERTIFICATE OF ANALYSIS

HAMMOCK HELICOPTER SDN. BHD.		**Unit/Vessel:**	N409HH	**Source:**	Engine
		Seal No:	1561	**Sampling Point:**	34630
		PO No:		**Capacity:**	
Lab No:	20004197467	**Date Sampled:**	23-Sep-22	**Fluid Manufacturer:**	Mobil
UIN:	09987A4	**Date Received:**	29-Sep-22	**Fluid Type:**	Jet Oil 254
SIF No:	43313816	**Date Reported:**	03-Oct-22	**Fluid Grade:**	-

TEST/METHOD	UNITS	RESULT
Metals (ppm)		
Silver (Ag)	ppm	**1.1**
Aluminium (Al)	ppm	**0.5**
Chromium (Cr)	ppm	**0.2**
Copper (Cu)	ppm	**0.6**
Iron (Fe)	ppm	**0.6**
Magnesium (Mg)	ppm	**0.1**
Nickel (Ni)	ppm	**0.3**
Silicon (Si)	ppm	**1.2**
Titanium (Ti)	ppm	**<0.1**

DIAGNOSIS:

PO: 409-PO-025-2209-ALS. A/C TT: 1427.1. GENERAL Comments:Results apply to the sample(s) as submitted and tested. This report supersedes any previous report(s) with this reference. This report should not be reproduced except in full, without written approval from the management of ALS Technichem (S) Pte Ltd. RESULT Comments: Analysis as requested.

Diagnosed by: szuthing.poh

Page 1 of 2

Engine Oil sample result

ALS Technichem (S) Pte Ltd
121 Genting Lane #04-01
ALS Building, Singapore 349572
T: +65 6589 0118 F: +65 6283 9689
Co. Reg. No.: 198403076R

CERTIFICATE OF ANALYSIS

HAMMOCK HELICOPTER SDN. BHD.		**Unit/Vessel:**	N409HH	**Source:**	Fuel Tank
		Seal No:	1561	**Sampling Point:**	
		PO No:		**Capacity:**	
Lab No:	20004197470	**Date Sampled:**	23-Sep-22	**Fluid Manufacturer:**	Unidentified
UIN:	09987AC	**Date Received:**	29-Sep-22	**Fluid Type:**	Jet A1
SIF No:	43313819	**Date Reported:**	03-Oct-22	**Fluid Grade:**	-

TEST/METHOD	UNITS	RESULT
Physical / Chemical		
Water (ASTM D6304-A), ppm	ppm	**85**

DIAGNOSIS:

PO: 409-PO-025-2209-ALS. A/C TT: 1427.1. GENERAL Comments:Results apply to the sample(s) as submitted and tested. This report supersedes any previous report(s) with this reference. This report should not be reproduced except in full, without written approval from the management of ALS Technichem (S) Pte Ltd. RESULT Comments: Analysis as requested.

Diagnosed by: szuthing.poh

Page 1 of 2

Fuel sample result

APPENDIX B

WRECKAGE EXAMINATION REPORT

Report EQAI n°: EQAI 16_2023JF
Date & place of examination: 7th and 8th of March 2023
Attendees : AAIB of Malaysia, Hammock Helicopters, SafranHE & AH representatives

AIRCRAFT

Type of helicopter: EC120 B
SN and registration: SN1561 / N409HH
Customer: HELI OUTPOST SDN BHD
Date of the accident: 11/09/2022, near Kampung Kenangan, Bidor – MALAYSIA

EQUIPMENT EXAMINED

Designation: Wreckage Examination (H/C **without** CVFDR, **without** Vision1000)

REASON FOR EXAMINATION

General examination of the wreckage to determine the condition of the aircraft at the moment of the impact and to find all pieces of evidence which could give information on the crash sequence.

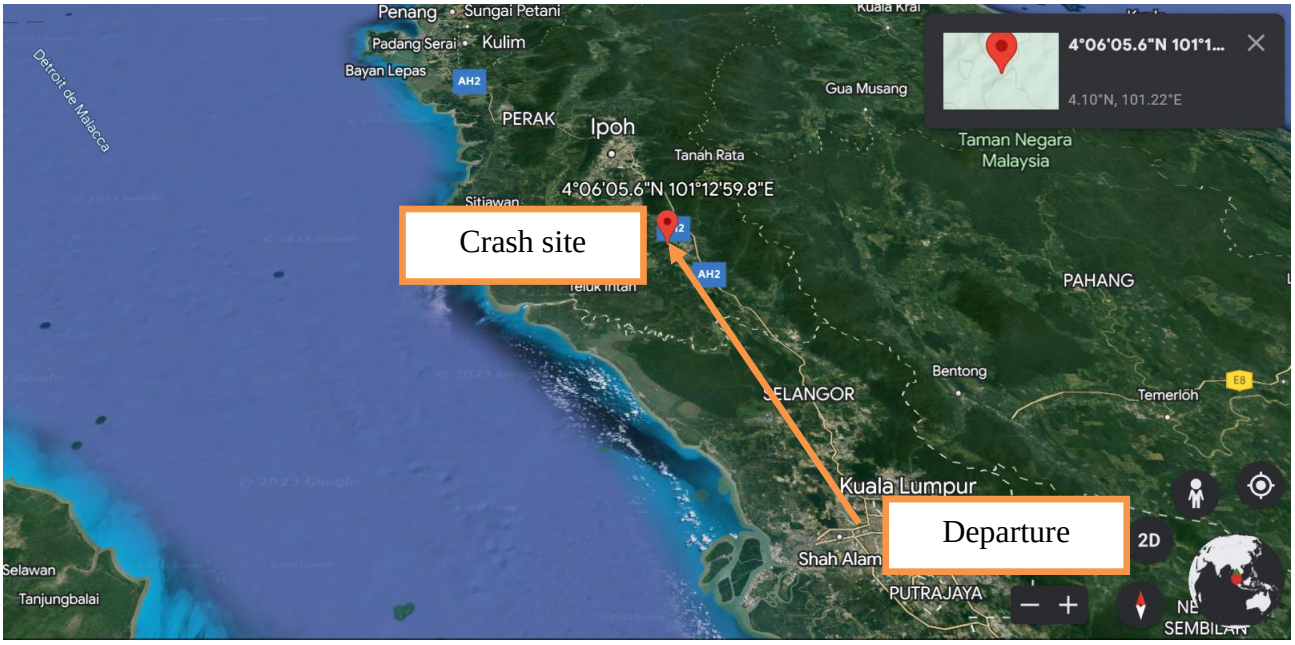
In Accordance with the ICAO annex 13, this document written by Airbus Helicopters as Technical Advisor of the BEA is exclusively intended to the BEA as Investigator In Charge or Accredited Representative.

The BEA is the only authorized to diffuse this document outside BEA & Airbus Helicopters.

1. CIRCUMSTANCES:

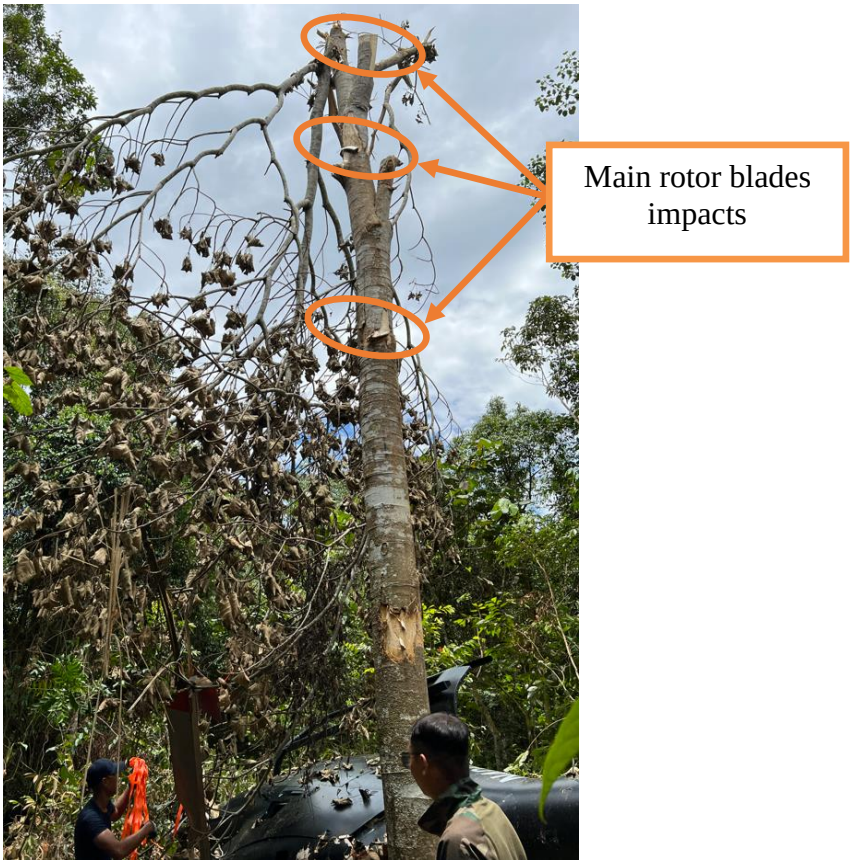
According to information reported by the AAIB Malaysia, the helicopter was performing a private flight from Sultan Abdul Aziz Shah Airport to Sultan Azlan Shah Airport when the contact was lost with Kuala Lumpur Air Traffic Control Centre (KLATCC) at about 12:16 pm (September 11th) just before Bidor.
Radar data from KLATCC had recorded a significant loss of altitude (2800ft in approx. 40s) of the helicopter. The ATC controller tried to make contact with the pilot, without success.
A search and rescue operation was launched, the wreckage and the pilot were found on 12 September 2022 at 08:18am near Kampung Kenangan, Bidor.
The pilot, sole occupant, was found alive but later died from his injuries during the evacuation.
A tropical rain weather was confirmed at the time and in the area where the aircraft crashed.

2. CRASH SITE MAPS:



The aircraft was found in the canopy (forest) lying on its left hand side.

The aircraft ended his trajectory on a tree (stopped by the tree) on which multiple main rotor blade impacts were observed.



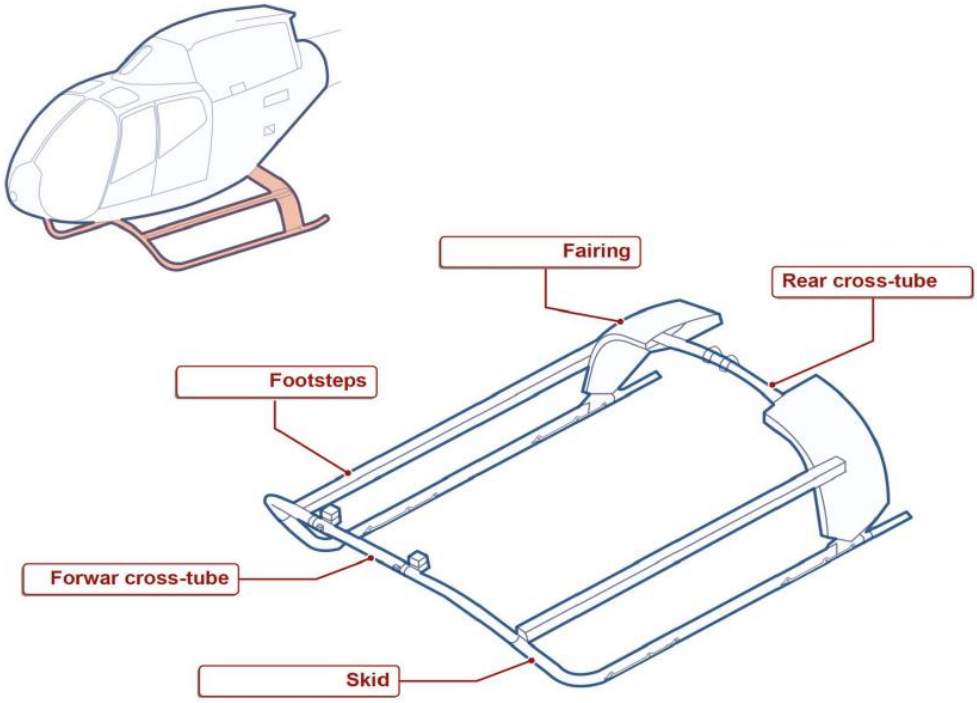
3. GENERAL WRECKAGE EXAMINATION:

The wreckage examination took place in the hangar of Hammock Helicopters close to Kuala Lumpur.

3.1. Equipment recovered and preserved before the wreckage examination:

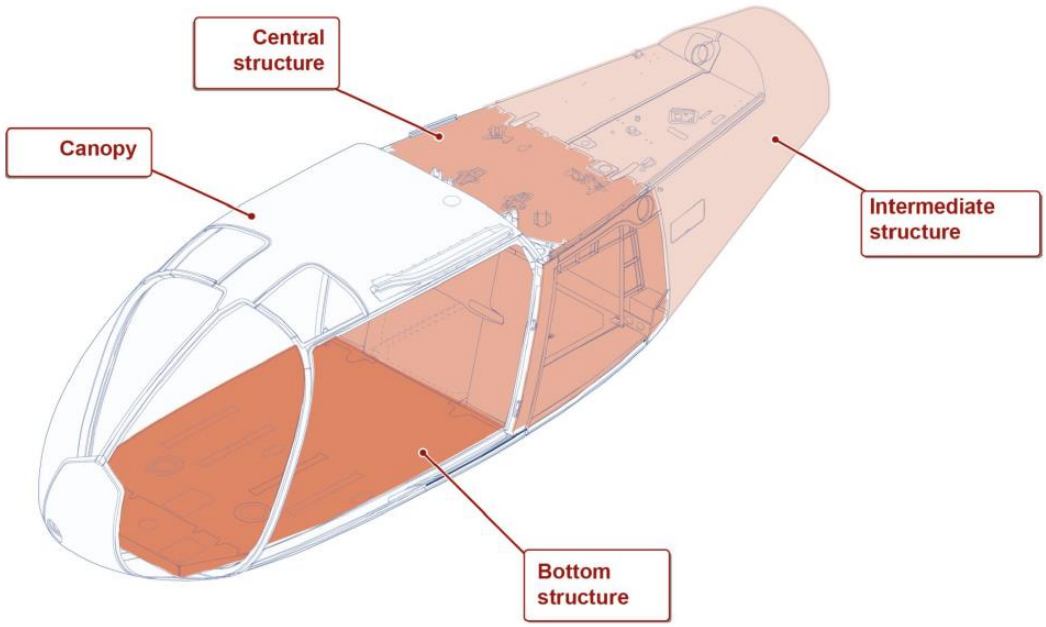
The VEMD was removed by the AAIB Malaysia investigator in charge and sent to the BEA for examination purpose. As the equipment was in good condition, the readout session was performed at Airbus Helicopters facility (refer to technical note ref. EQAI 23_2022JF).

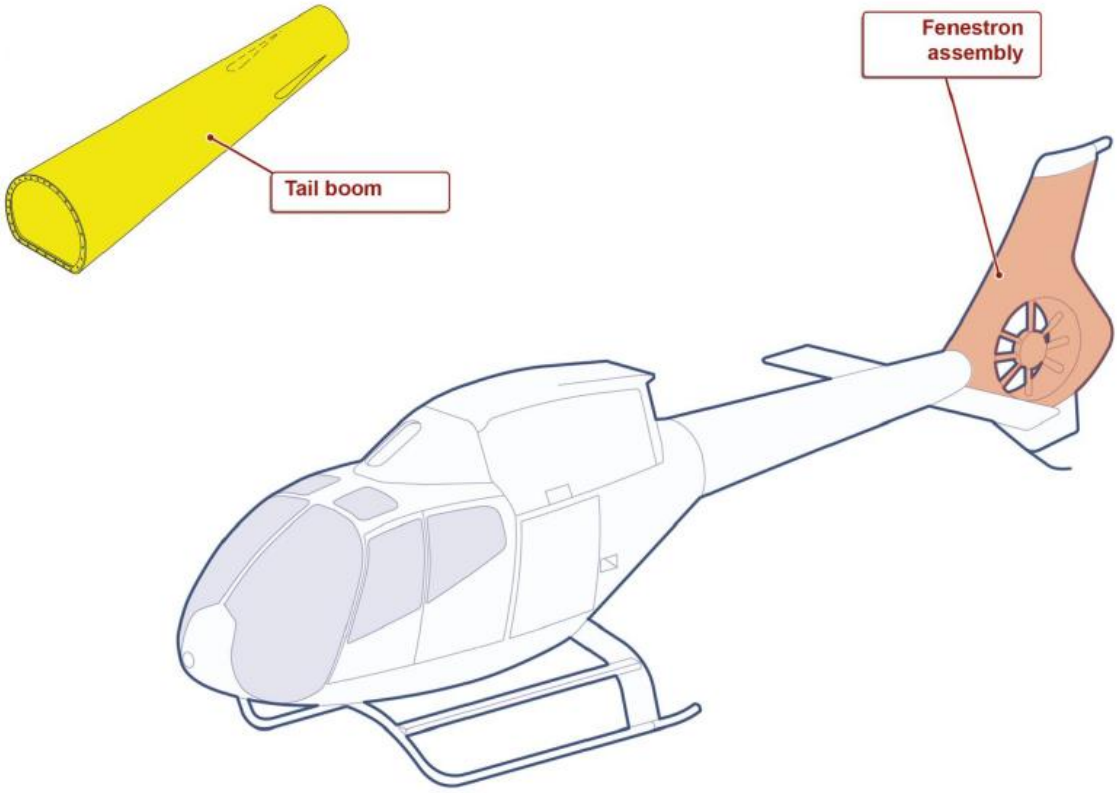
3.2. Landing skids:



The landing skids were in good condition, with no visual deformation observed.
Two contact marks were observed: one on the left hand skid and one on the left hand footstep (see explanation in the next chapter).

3.3. Fuselage:

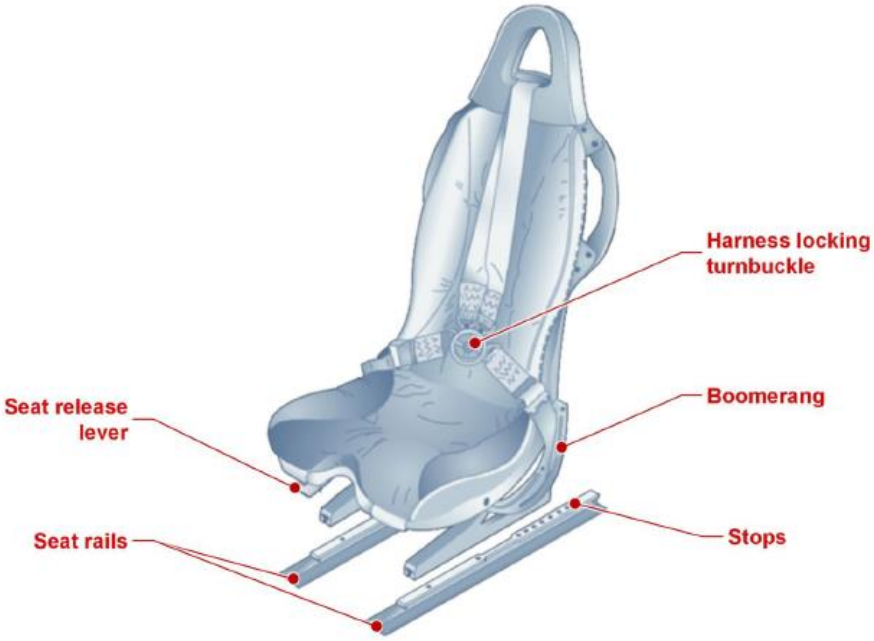

Central structure
Canopy
Intermediate structure
Bottom structure


Fenestron assembly
Tail boom

The helicopter canopy was completely destroyed: the windshield and its junction frames were broken in pieces, the two front doors were separated from the airframe as a result of the crash sequence.
The central structure exhibited deformations on its left hand side, must probably as a result of the tree that stopped the aircraft at the very end of its trajectory.

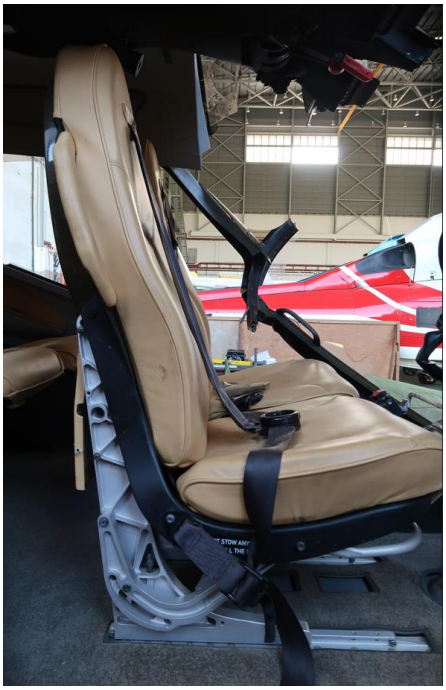
The tail boom was still connected to the intermediate structure, but the Fenestron was separated from the tail boom.
The horizontal stabilizer was broken on the left hand side at its junction with the tail boom.

3.4. Seat:



The pilot was the sole occupant of the aircraft and was sat on the front right seat.
The helicopter was equipped with high energy absorption seats.

The pilot seat didn't exhibit deformation.
The safety belt was found open, but the harness locking turnbuckle was tested and operate as expected.



3.5. Conclusion of the general wreckage examination:

The damage observed during the general wreckage examination is consistent with an aircraft that impacted the canopy of the forest with:

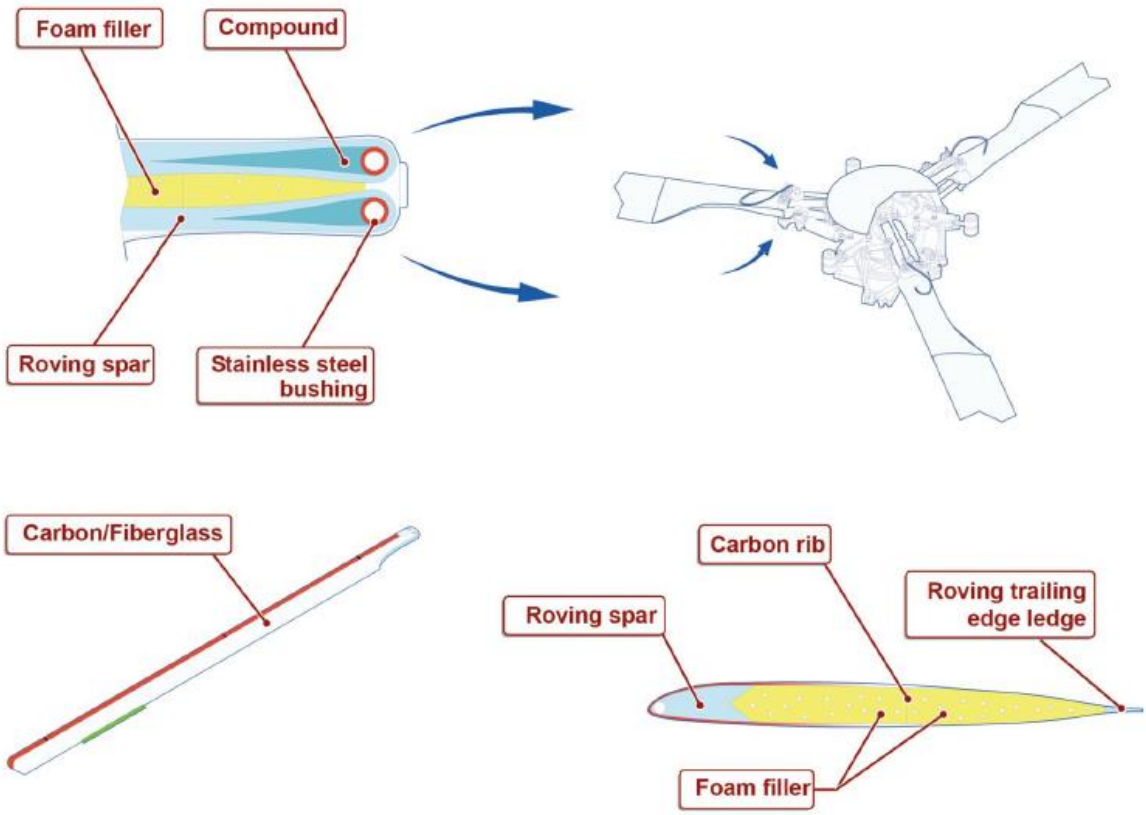
- low vertical speed,
- low forward speed,
- left roll attitude,
- and ended his trajectory on a tree which stopped the aircraft.

No evidence of pre-crash failure / anomaly was observed.

4. DYNAMIC COMPONENTS EXAMINATION:

4.1. Main Rotor (MR) Blades:

Schematic diagram of the Main Rotor Blades:



General condition of the Main Rotor Blades:

Main rotor blades – Suction surface (top surface):

Main rotor blades – Pressure surface (bottom surface):

Red blade:
The roving of the red blade was broken at its junction with the stainless steel bushes. Approximatively one third of the red blade was missing at its extremity.
Top surface and bottom surface of the blade were separated at trailing edge level.
Some pieces of carbon/fiber glass skin and foam were missing as a result of the crash sequence.

Blue blade:
Approximatively two third of blue blade was missing at its extremity.
Top surface and bottom surface of the blade were separated at trailing edge level.
Some pieces of carbon/fiber glass skin and foam were missing as a result of the crash sequence.

Yellow blade:
The yellow blade was broken in two pieces at its root.
Approximatively one half of yellow blade was missing at its extremity.
Top surface and bottom surface of the blade were separated at trailing edge level.
Some pieces of carbon/fiber glass skin and foam were missing as a result of the crash sequence.

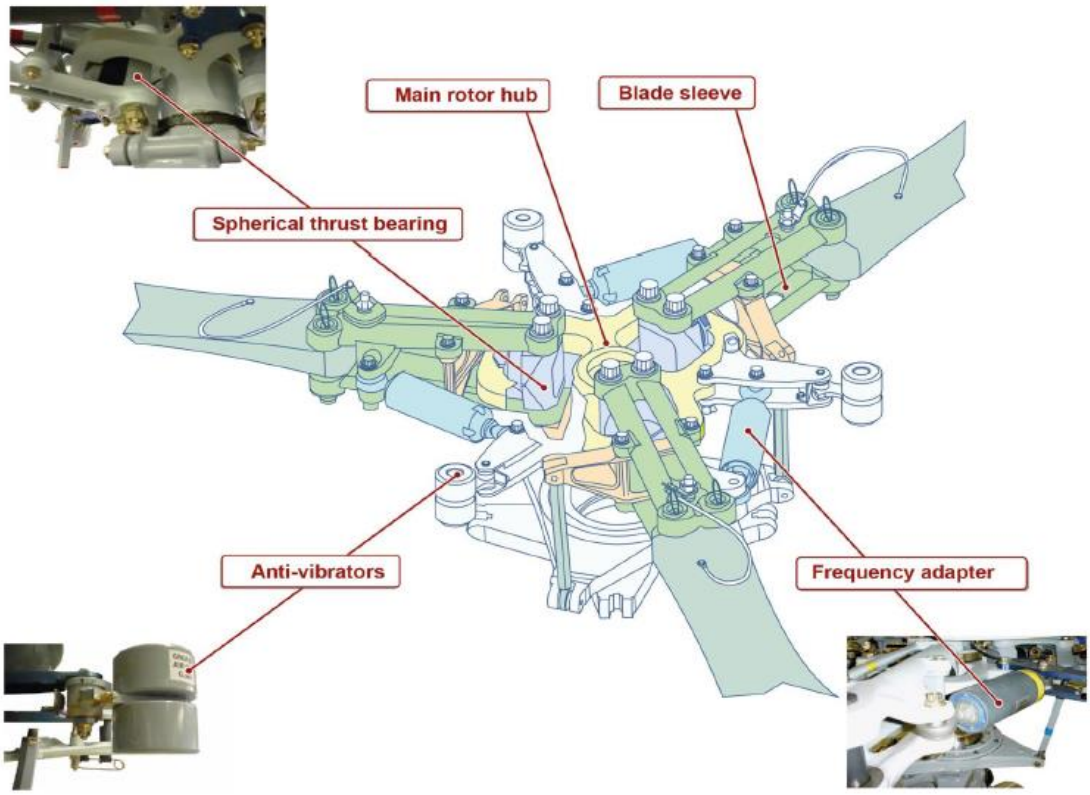
Conclusion concerning the Main Rotor Blades examination:

The damage observed on the main rotor blades is consistent with an aircraft impacting obstacle with a main rotor spinning.
The damage observed on the main rotor blades is the consequence of the crash sequence (main rotor blades impact with trees and ground).

No evidence of pre-crash failure / anomaly was observed.

4.2. Main Rotor Head:

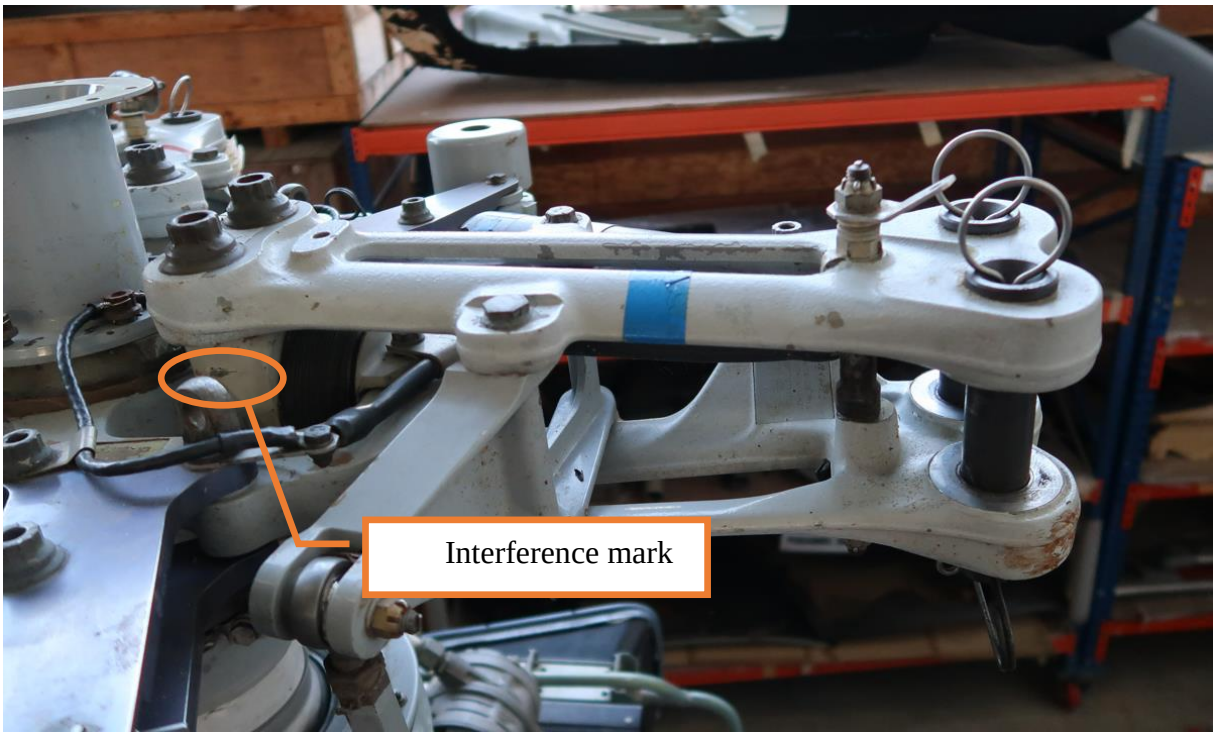
Schematic diagram of the Main Rotor Head:



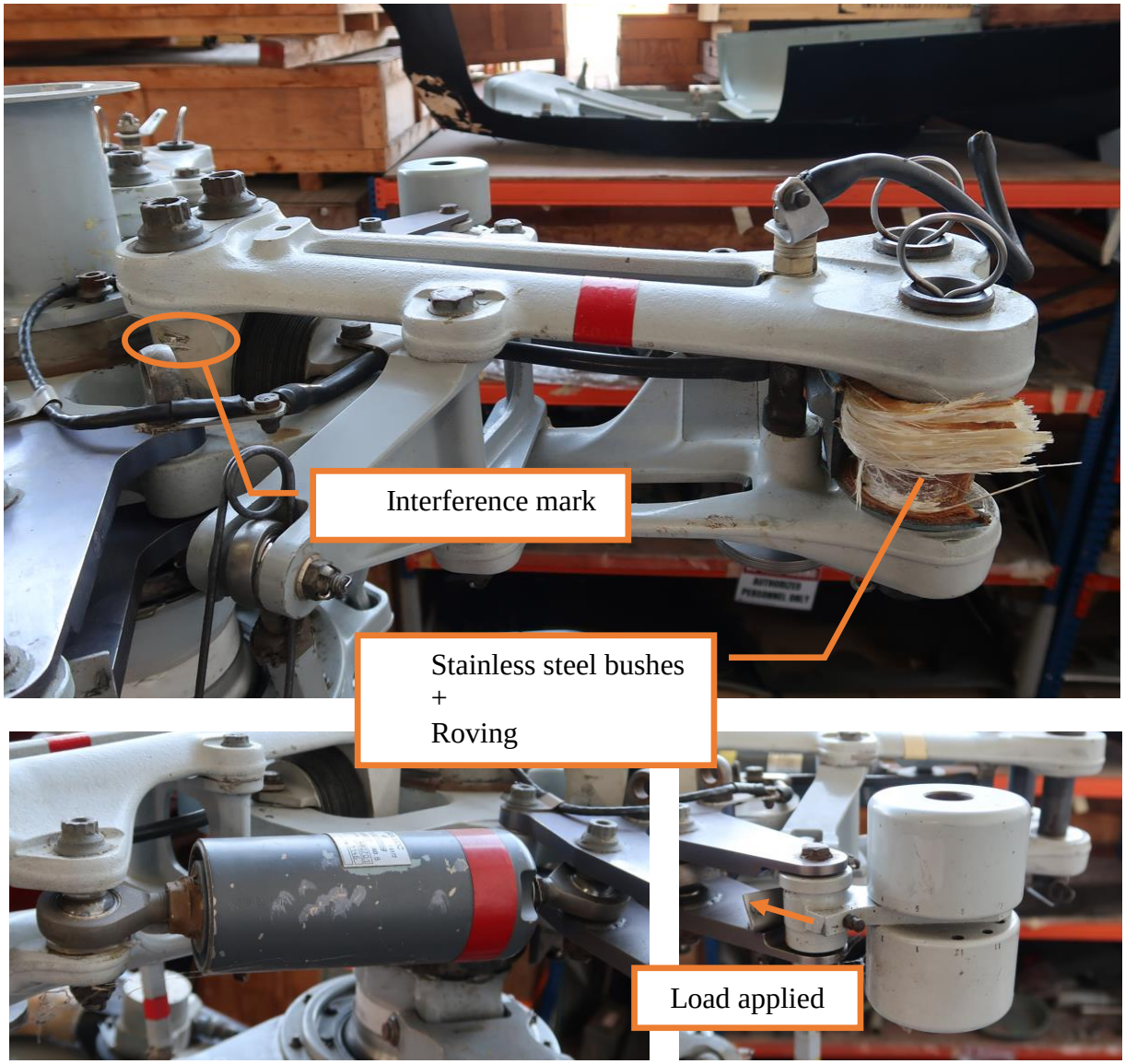
General condition of the Main Rotor Head:

The main rotor head didn’t exhibit significant damage.
The main rotor head top fairing was already removed by the AAIB Malaysia investigator in charge for aircraft transportation purpose.

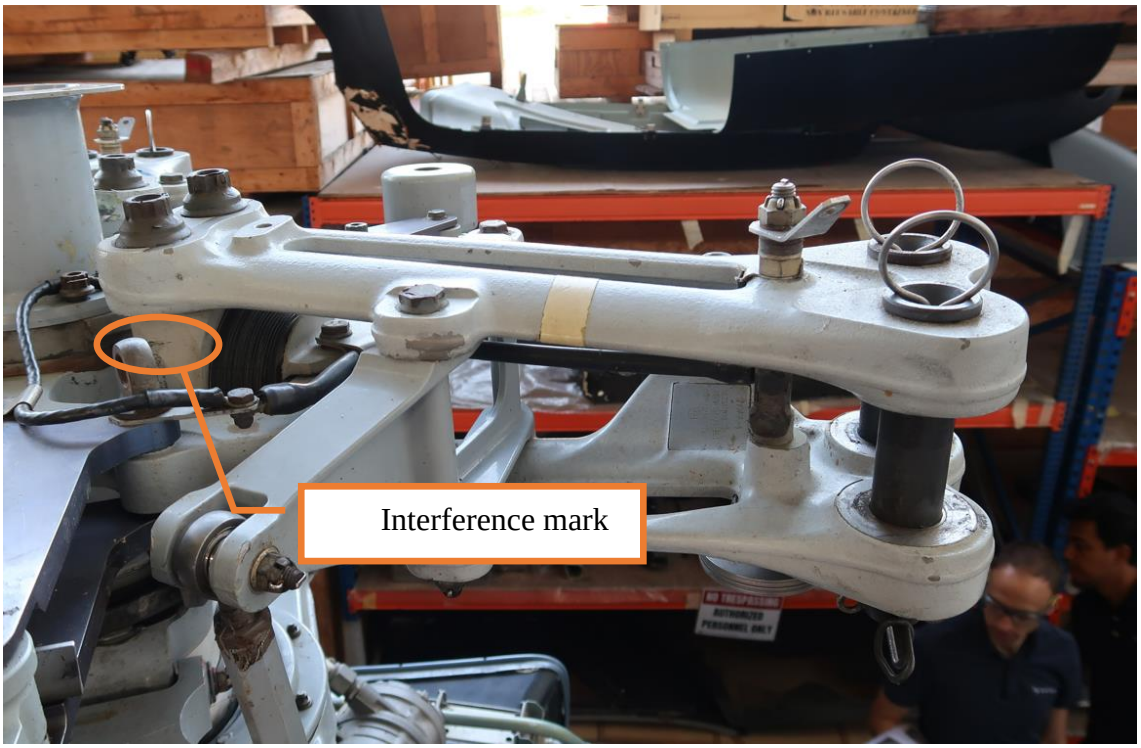
<u>Blue sleeve assembly:</u>
The blue sleeves didn't exhibit visible damage.
Slight evidence of interference with the main rotor hub body was visible on the thrust bearing.
The pitch rod was properly attached to the pitch arm.
The anti-vibrator stop exhibited deformation that was consistent with a sudden main rotor deceleration (inertial movement of the anti-vibrator).
The frequency adapter didn't exhibit significant damage.



Red sleeve assembly:
The red sleeves didn't exhibit visible damage.
Slight evidence of interference with the main rotor hub body was visible on the thrust bearing.
The pitch rod was properly attached to the pitch arm.
The anti-vibrator stop exhibited deformation that was consistent with a sudden main rotor deceleration (inertial movement of the anti-vibrator).
The frequency adapter didn't exhibit significant damage.
The stainless steel bushes and a piece of main rotor blade roving was still attached on the main rotor blade pins.



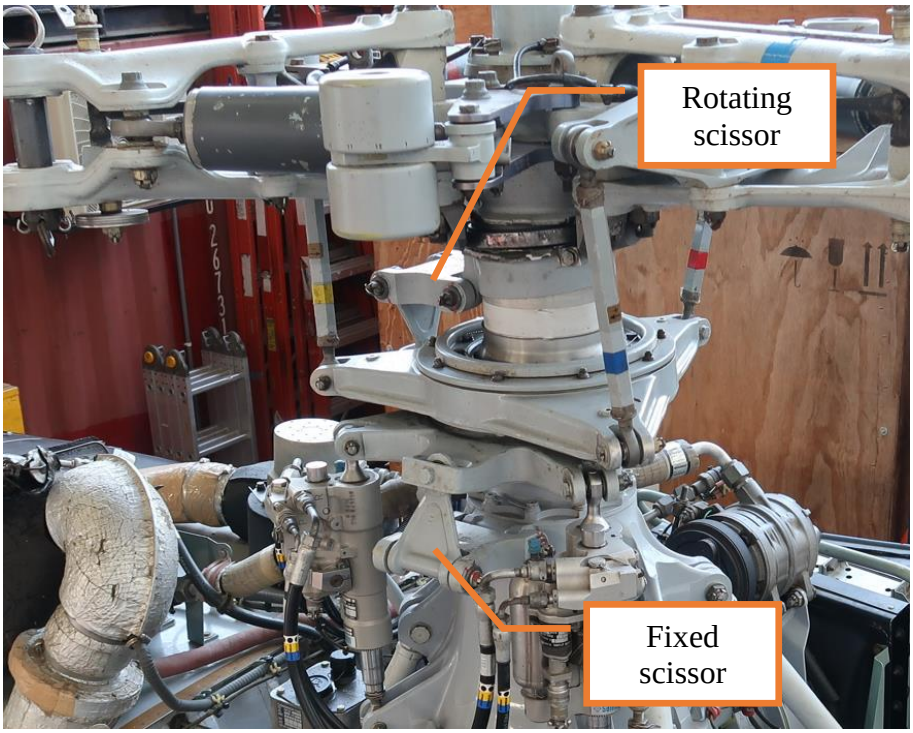
<u>Yellow sleeve assembly:</u>
The yellow sleeves didn't exhibit visible damage.
Slight evidence of interference with the main rotor hub body was visible on the thrust bearing.
The pitch rod was properly attached to the pitch arm.
The anti-vibrator stop exhibited deformation that was consistent with a sudden main rotor deceleration (inertial movement of the anti-vibrator).
The frequency adapter didn't exhibit significant damage.



Droop restrainer ring:
The droop restrainer ring and the main rotor blades lower stops exhibited contact marks.
The droop restrainer was moved down against the support of the mobile scissor, leading to its displacement.

The pitch rods:
The pitch rods were in good condition. There were correctly installed and respectively connected to the pitch horn and the rotating swashplate.

The scissors:
The rotating scissor exhibited slight damage and was displaced down at its junction with the mast.
The fixed scissor didn't exhibit visible damage, was still correctly connected to the fixed swashplate and the conical housing.



The sliding tube didn't exhibit damage, except a slight indent at its extremity.
The swashplate and its spherical joint didn't exhibit visible damage.

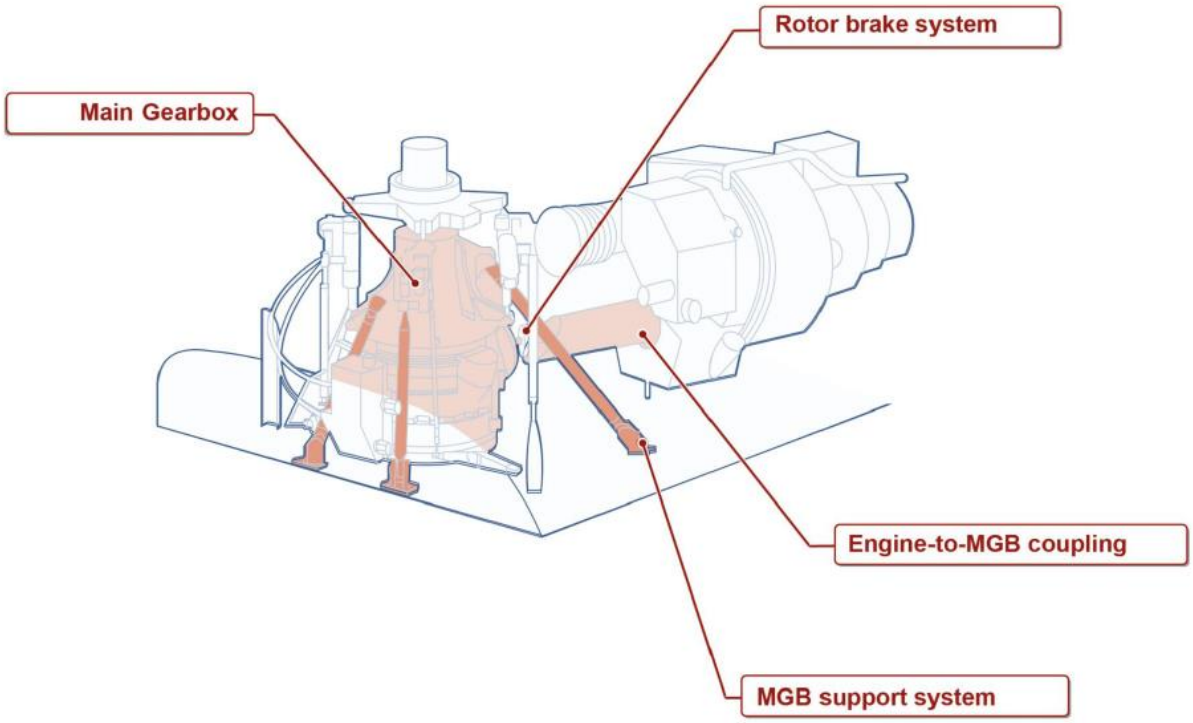
Conclusion concerning the Main Rotor Head examination:

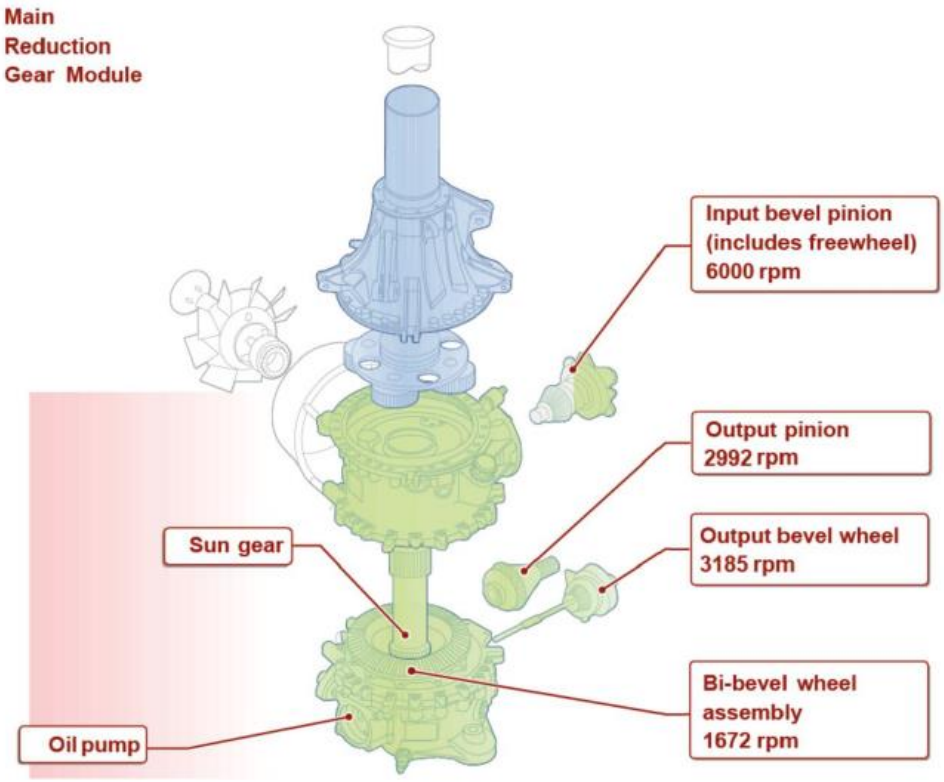
The damage observed on the main rotor head is consistent with an aircraft contact on ground with a main rotor spinning.

No evidence of pre-crash failure / anomaly was observed.

4.3. Main Gear Box (MGB):

Schematic diagram of the Main Gear Box:



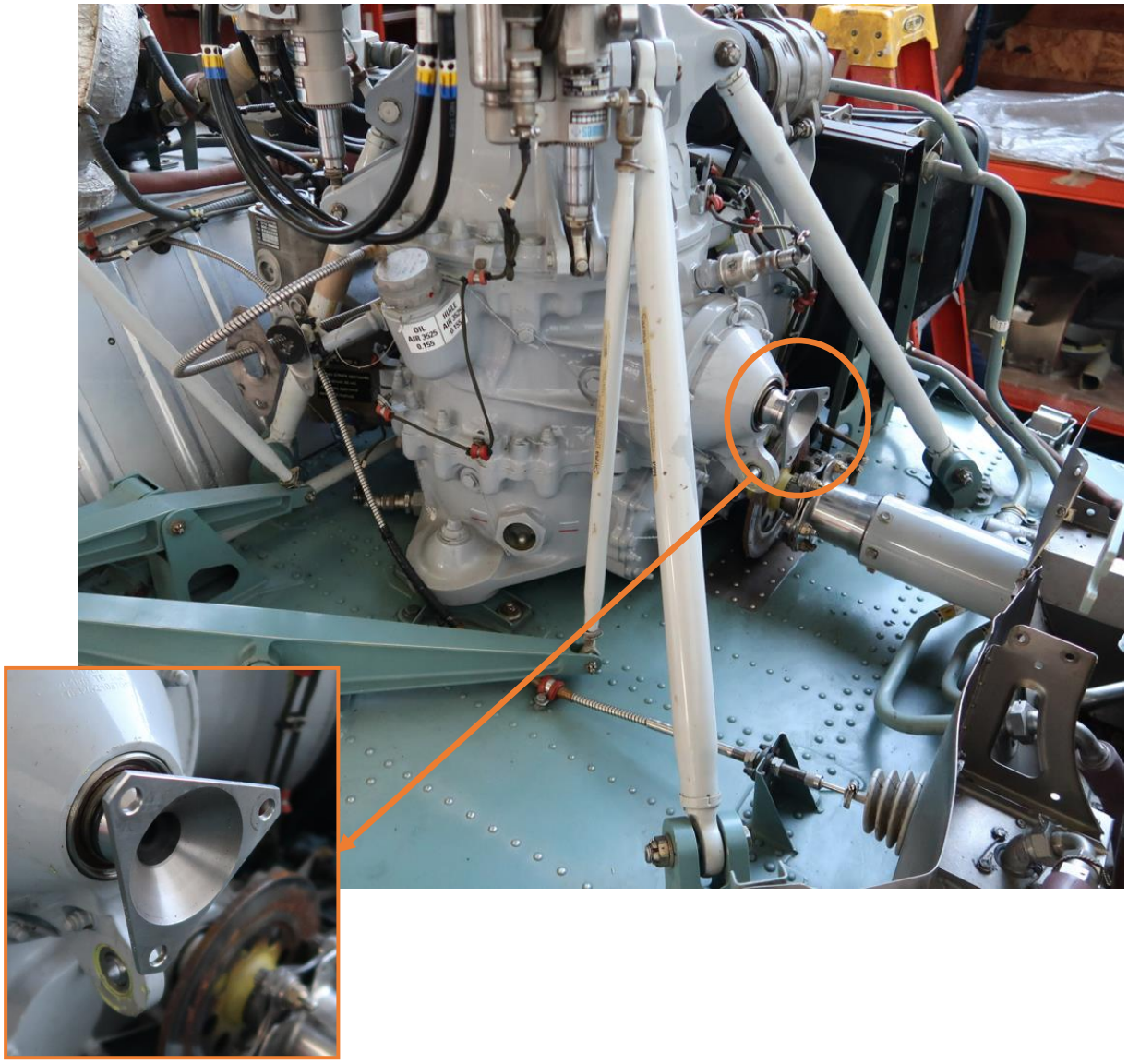


General condition of the Main Gear Box:

The MGB didn't exhibit visible damage.
The engine to MGB drive shaft assembly was already removed by the AAIB Malaysia investigator in charge for inspection purpose.
The MGB input flange didn't exhibit visible damage.

The kinematic continuity between the MGB engine input flange and the main rotor head was checked and confirmed.

The freewheel (located on MGB side) was checked and was operating properly.



The main gear box filling port was open. The strainer was checked and found exempt of external particle.
No remaining oil was visible through the glass sight.
The magnetic plug was inspected and found exempt of any metallic particle.

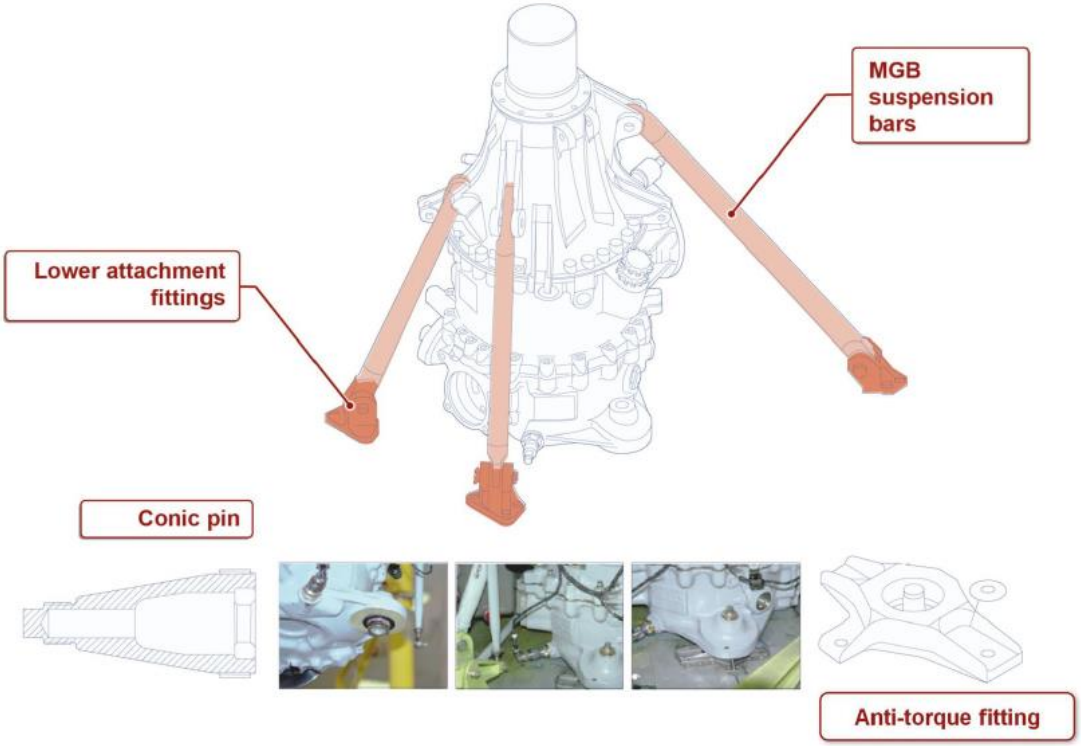
<u>Conclusion concerning the Main Gear Box examination:</u>

The kinematic continuity between the MGB engine input flange and the main rotor head was checked and confirmed.
No marks of overheating have been observed.

No evidence of pre-crash failure / anomaly was observed.

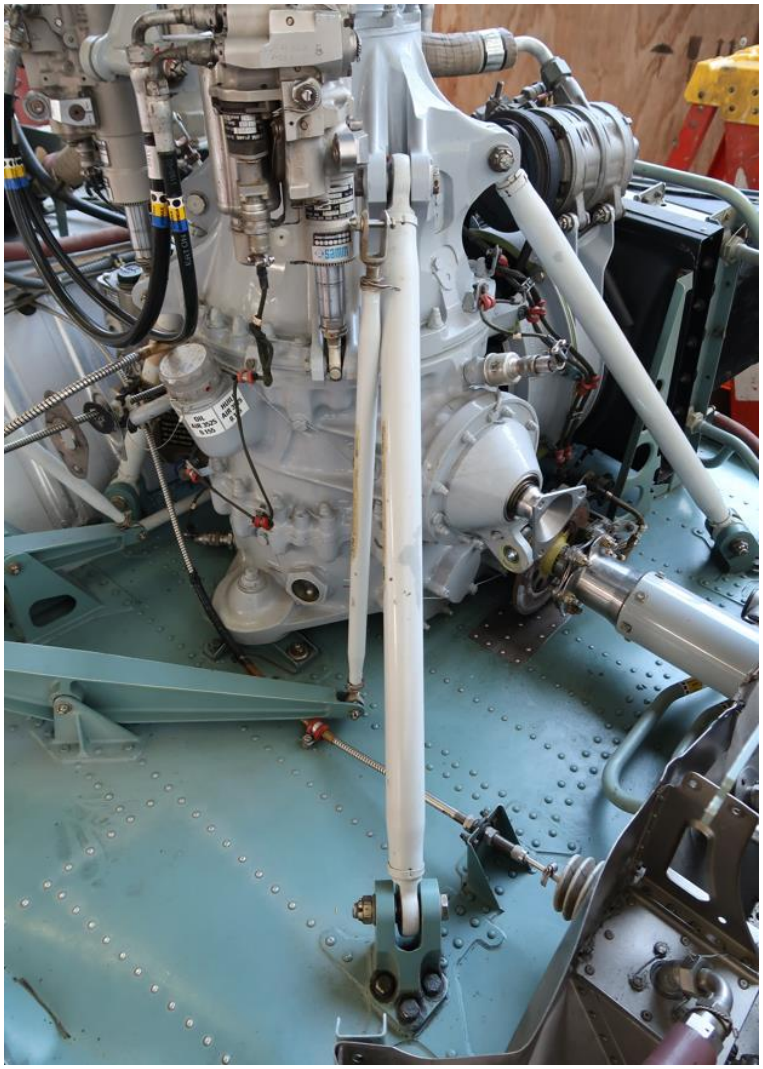
Main Gear Box suspension:

Schematic diagram of the Main Gear Box suspension:



General condition of the Main Gear Box suspension:

The four suspension bars didn't exhibit visible damage.
The anti-torque fitting didn't exhibit visible damage.



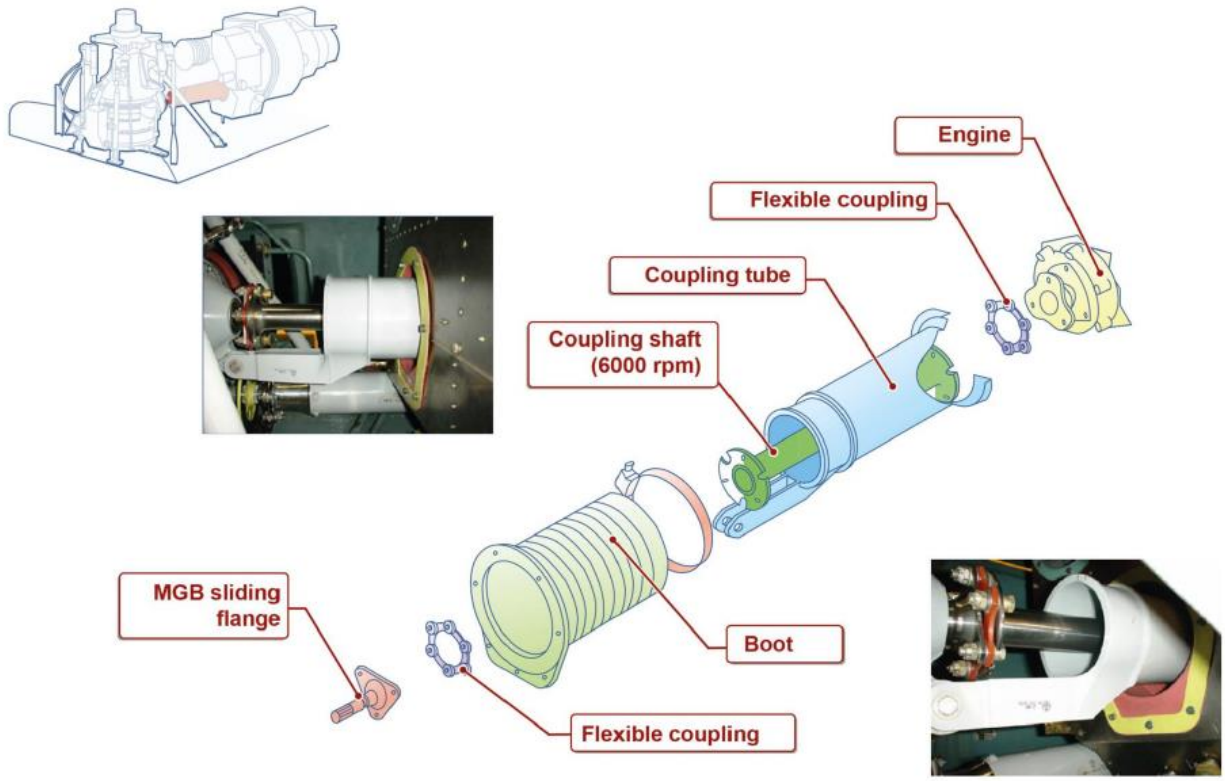
Conclusion concerning the Suspension examination:

The main gear box suspensions didn't exhibit damage.

No evidence of pre-crash failure / anomaly was observed.

4.4. Engine to main gear box (MGB) coupling assembly:

Schematic diagram of the Engine to main gear box (MGB) coupling assembly:

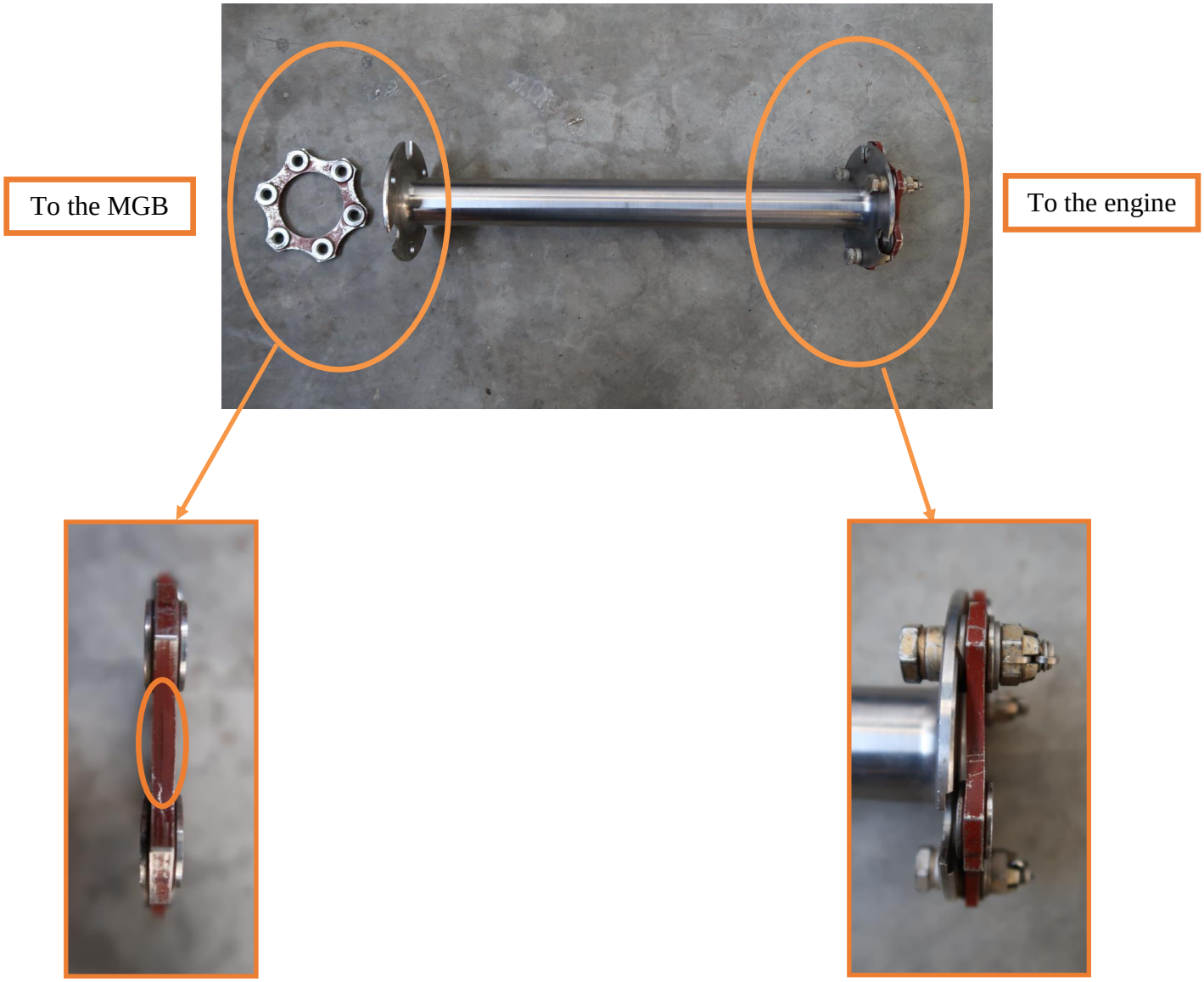


General condition of the Engine to main gear box (MGB) coupling assembly:

The engine to MGB drive shaft assembly was already removed by the AAIB Malaysia investigator in charge for inspection purpose.

The coupling tube exhibited overload rupture at its junction with the engine, as a result of engine lateral displacement on the right hand side during the crash sequence.

Except a slight buckling on both flexible couplings located at both transmission drive shaft extremities, no visible damage was observed on the engine to MGB drive shaft assembly.
This bucking is most probably the result of a torque variation load and displacement applied to the flexible coupling during the crash sequence.



<u>Conclusion concerning the Engine to main gear box (MGB) Coupling examination:</u>

The engine to MGB coupling shaft was still connected on both sides and evidenced damage consistent with an engine lateral displacement on the right hand side during the crash sequence.

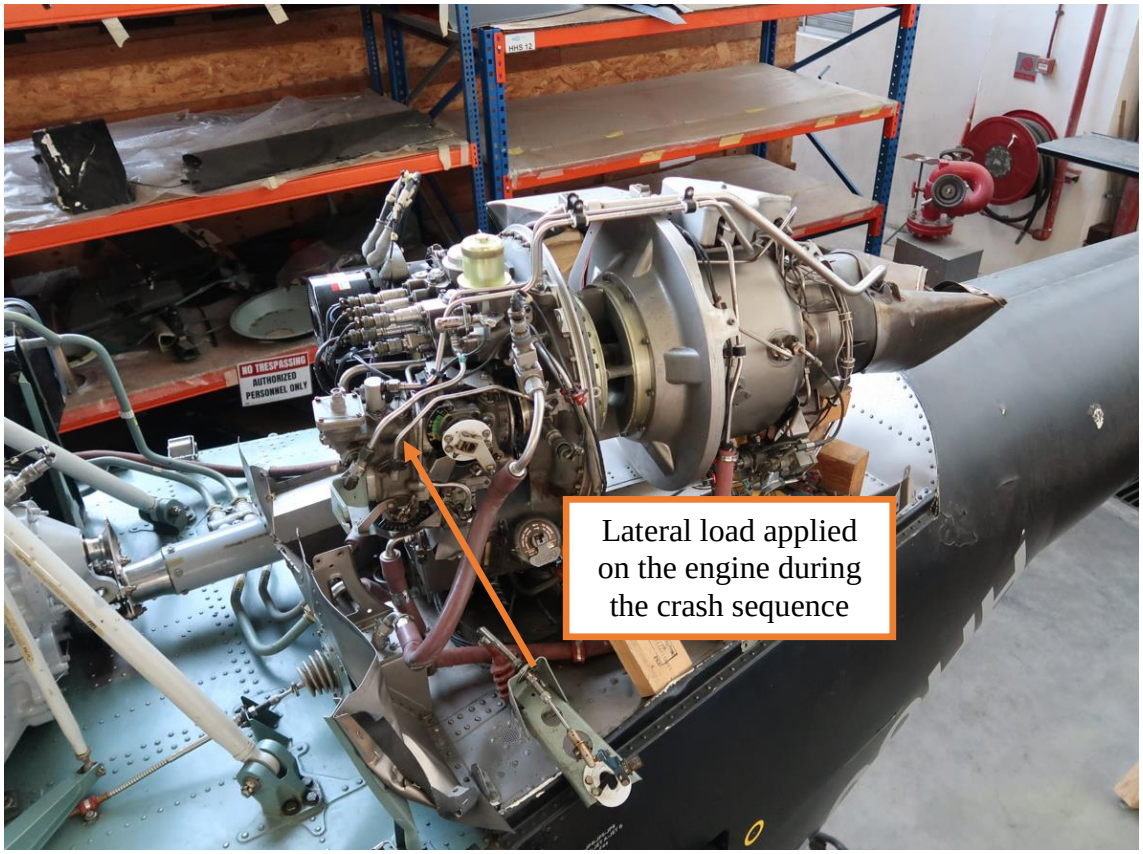
No evidence of pre-crash failure / anomaly was observed.

4.5. Engine and engine installation:

A detailed examination report of the engine was performed by SafranHE representative.
Refer to RA 2022/254.

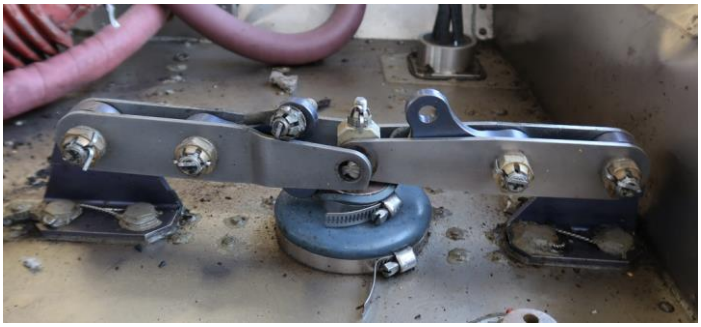
During the crash sequence the engine has most probably being pushed on its right hand side leading to following main damage:

- Rupture of the engine to MGB coupling at its junction with the engine (refer to previous chapter)
- Rupture of the engine front mounting attachments
- Indent on engine compartment firewall and tail rotor transmission shaft (refer to next chapters)
- Disconnection of engine Fuel Control Unit (FCU)
- Pinching of the fuel supply line (refer to next chapter)

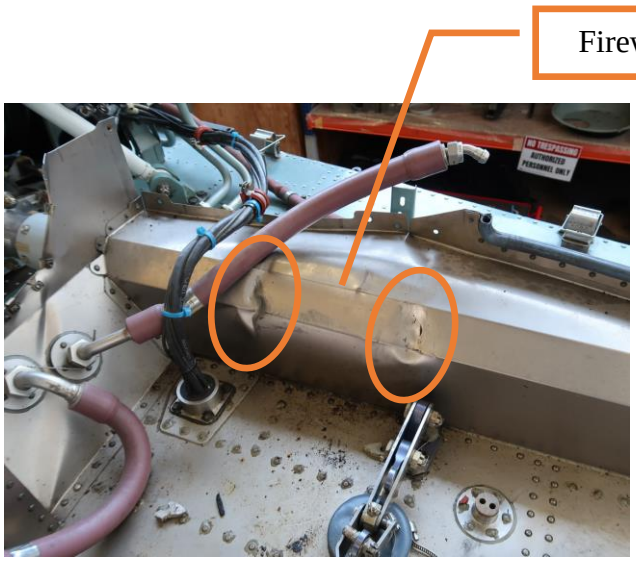


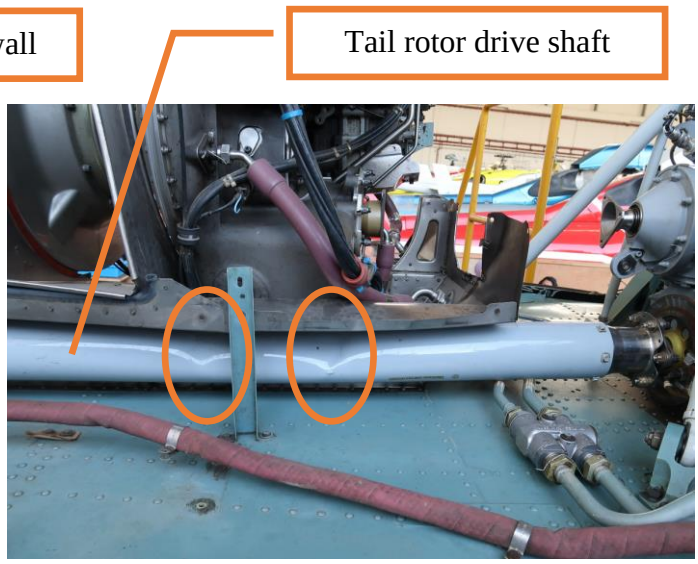
Engine front mountings:
The four studs fitted on engine casing were broken:

- one was torn off creating an engine oil leakage through the casing
- three were sheared



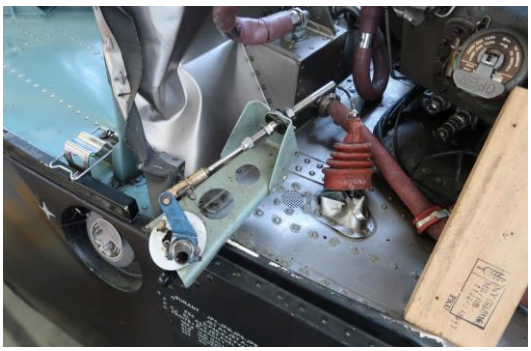
Engine compartment firewall:
The engine impacted the firewall, and the tail rotor drive shaft.
Two indent marks were visible on the internal face of the firewall and on the tail rotor drive shaft.

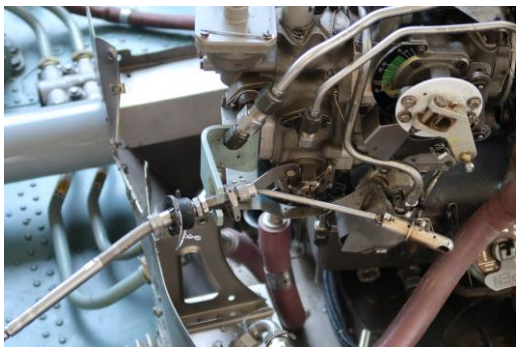




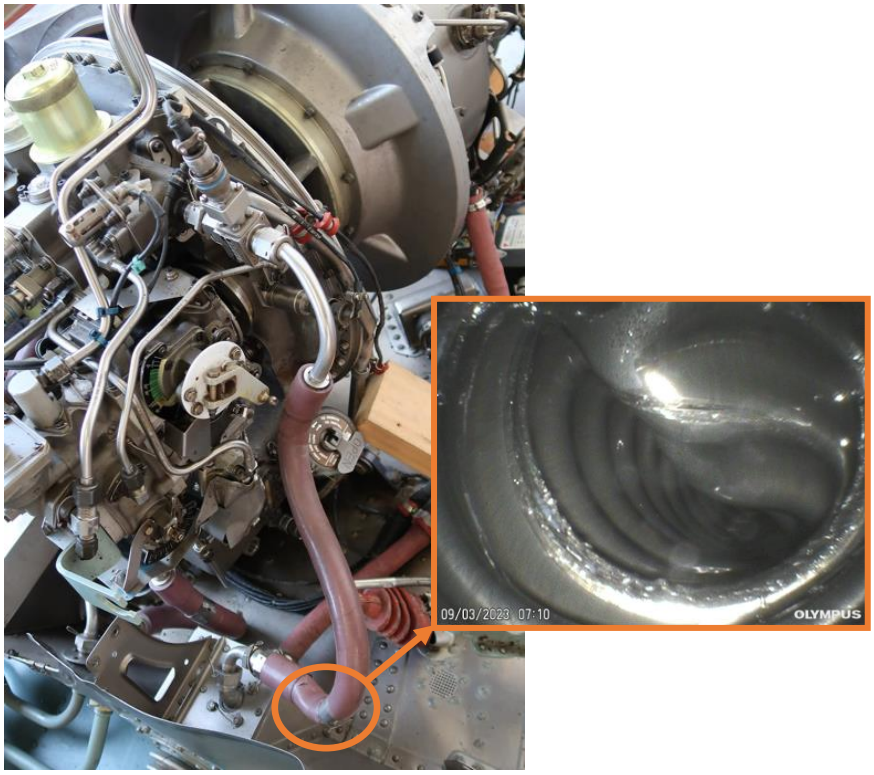
Fuel Control Unit (FCU):
The FCU was disconnected at its junction with engine Module 01 (Accessories gear box).

Fuel flow and anticipator controls:
The fuel flow control was disconnected at its junction with the fuel flow control lever and the anticipator control was torn out with its support as a result of the crash sequence.

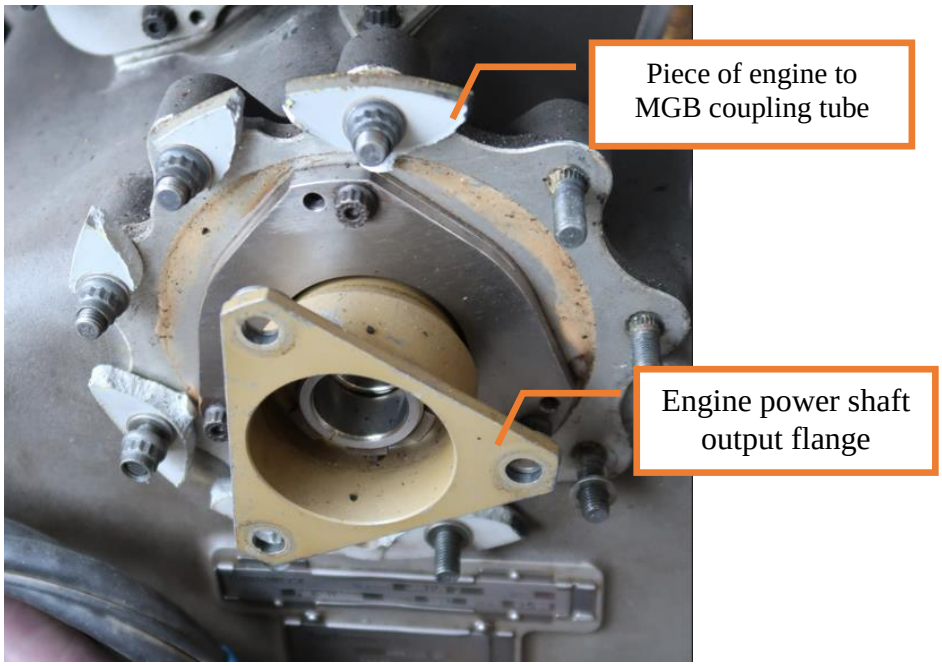




Fuel supply line:
The fuel supply line was pinched as a result of the crash sequence.
A boroscope inspection was performed, the pinch of the line has consequently reduced its internal section.

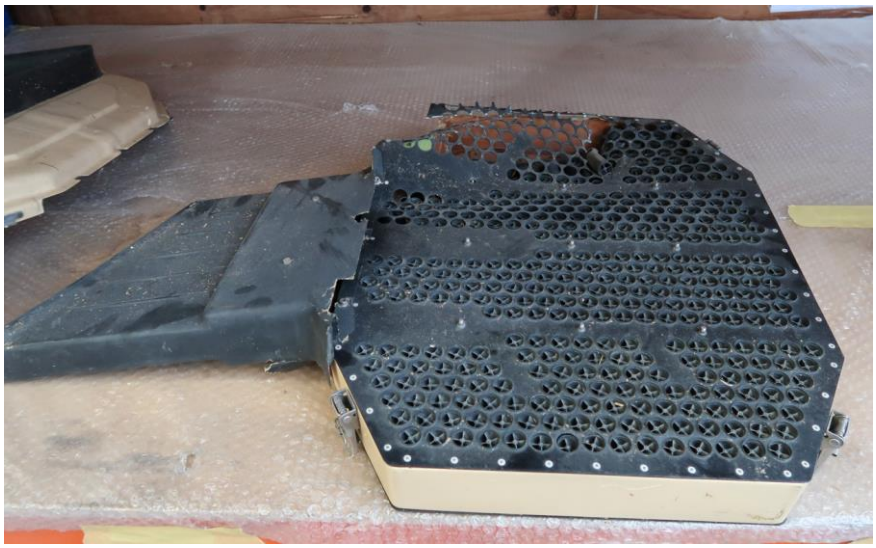


The engine power shaft output:
The engine power shaft output flange didn't exhibit visible damage.
Remains of the engine to MGB coupling tube were still attached to the engine casing.



<u>The engine air intake:</u>
The engine air intake was already removed by the AAIB Malaysia investigator in charge for inspection purpose.

The aircraft was equipped with anti-sand filter installation that was partially damaged during the crash sequence. Some vortex tubes were missing.



The two grids were clean and didn't exhibit damage.

The plenom exhibited bucking on its top parts.

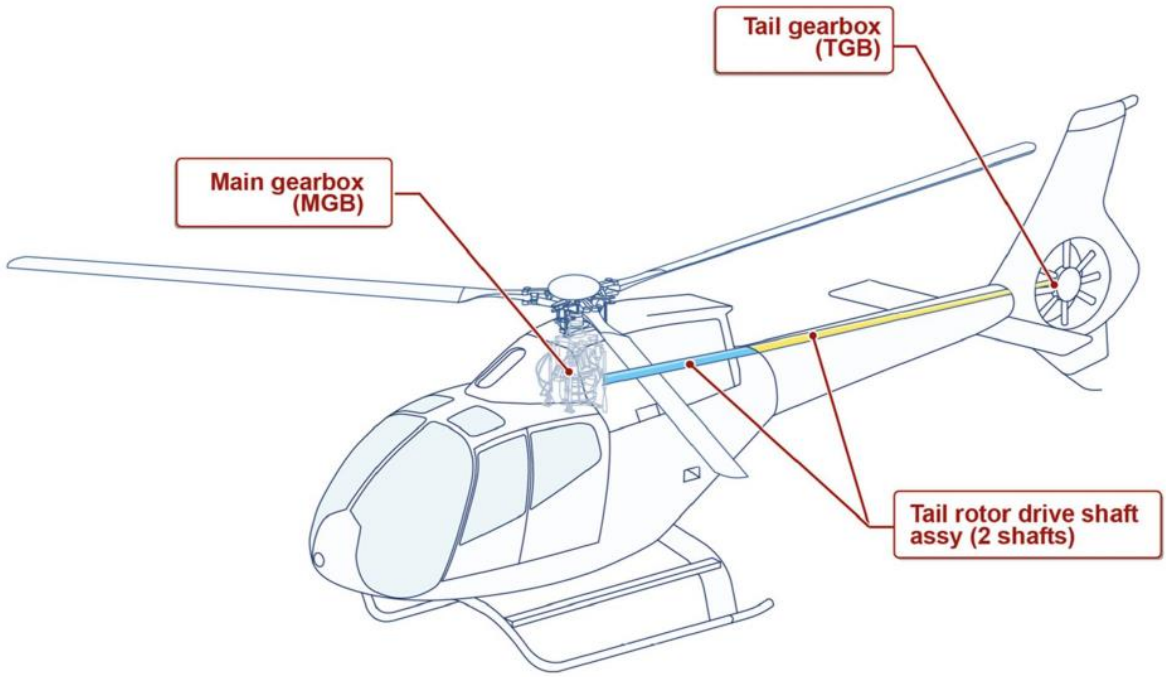
Conclusion concerning the engine and the engine installation:

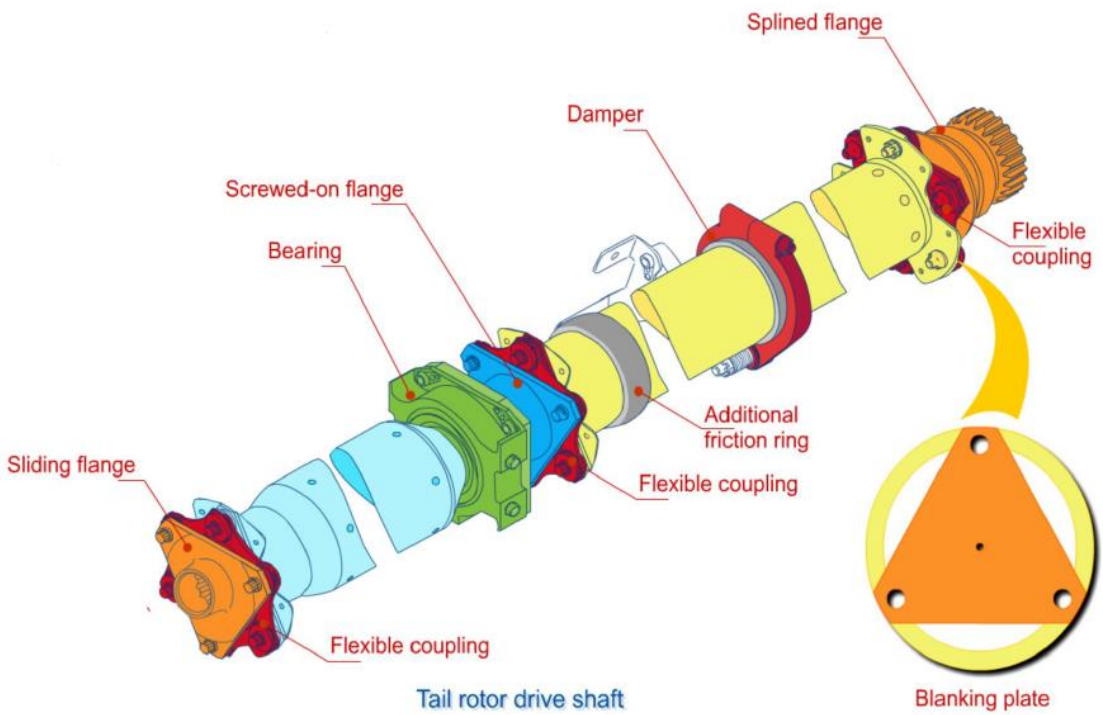
The damage of the engine installation is consistent with an engine hit on its left hand side and thus pushed to the right hand side.
No significant evidence of rotation nor power was observed on the engine output shaft. Nevertheless, the engine examination showed that the engine was running during the accident sequence but the amount of power could not be determined (refer to SafranHE examination report RA 2022/254).

No evidence of pre-crash failure / anomaly was observed.

4.6. Tail Rotor Drive shaft assembly:

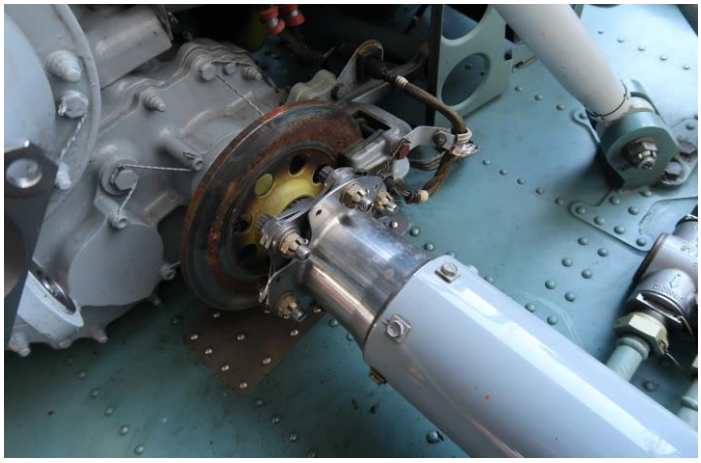
Schematic diagram of the Tail Rotor Drive shaft assembly:

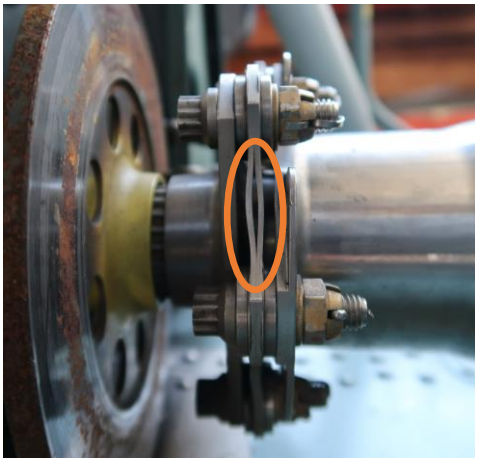




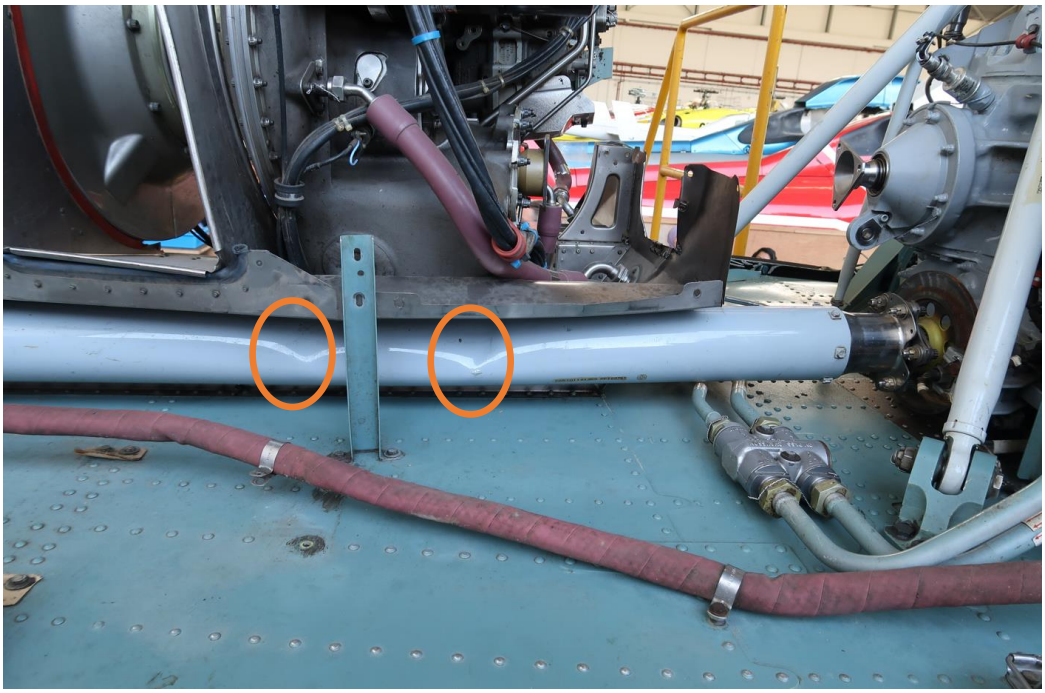
General condition of the Tail Rotor Drive shaft assembly:

The forward drive shaft was correctly installed on its both extremities.
The flexible coupling installed between the forward sliding flange and the forward drive shaft exhibited bucking. This bucking is most probably the result of a torque variation load and displacement applied to the flexible couplings during the crash sequence.

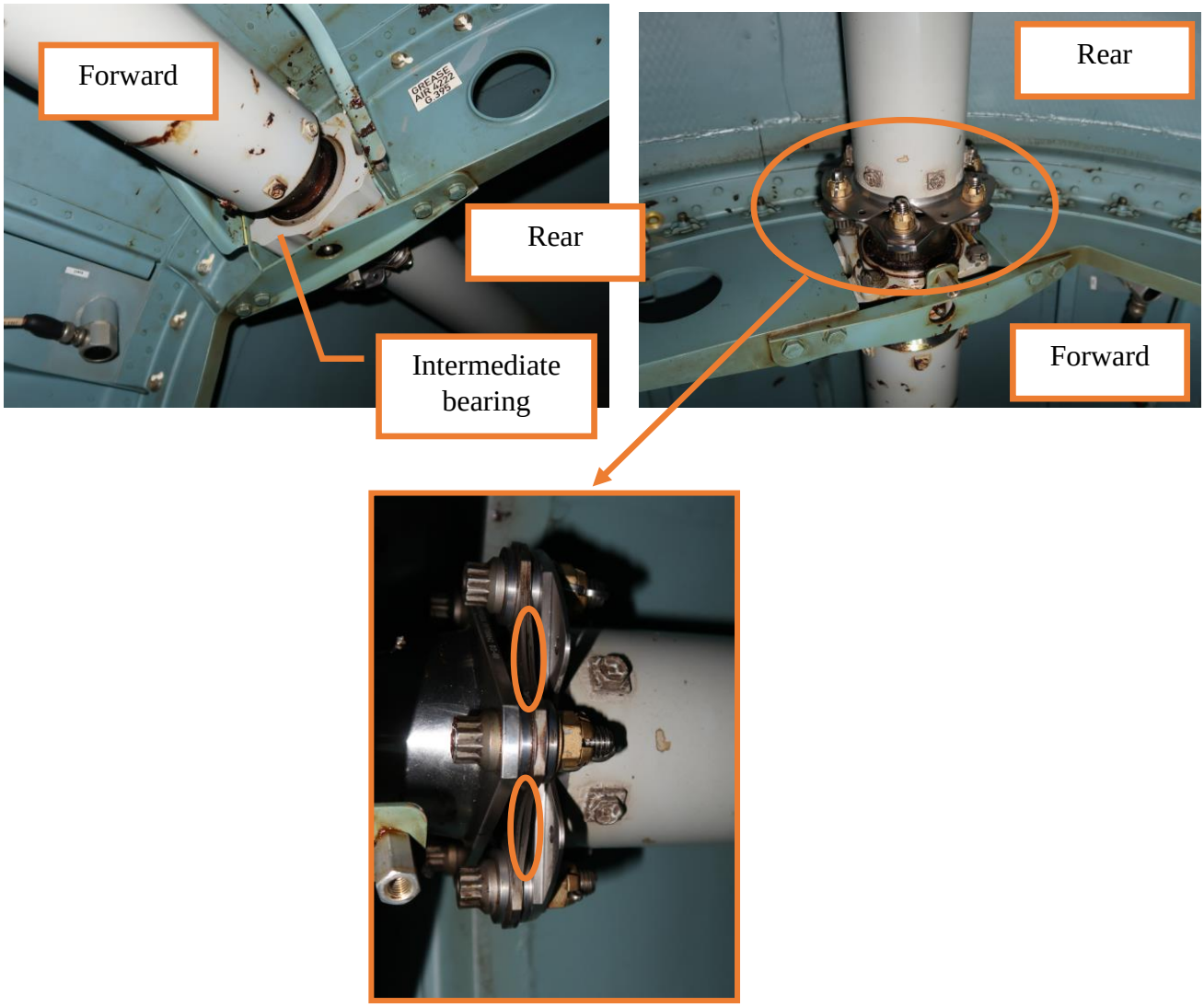




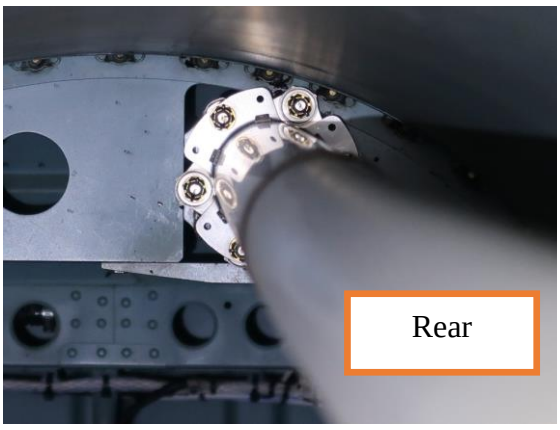
The forward drive shaft exhibited two indent marks consistent with an engine lateral displacement on the right hand side during the crash sequence (refer to engine installation chapter).
The two indent marks were most probably done at the very end of the crash sequence, when aircraft has hit the ground on its left hand side.



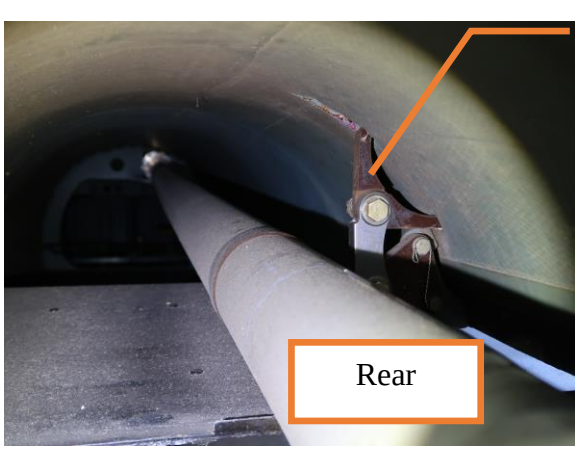
Except a slight bucking of the flexible coupling, no visible damage was observed at the junction between the forward and rear drive shaft.
This bucking is most probably the result of a torque variation load and displacement applied to the flexible coupling during the crash sequence.
The intermediate bearing was rotating freely.



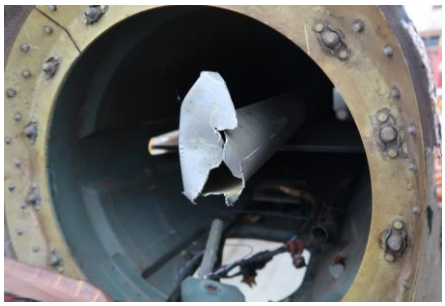
The rear drive shaft was correctly connected to the flexible coupling located at its junction with the forward drive shaft.

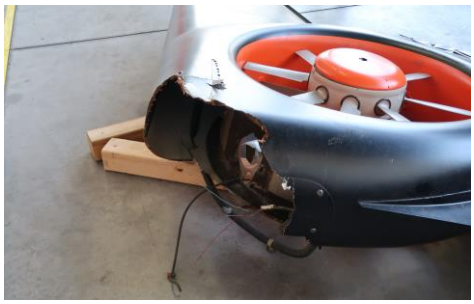


The damper installed on the rear drive shaft was broken in two pieces. One of them was found trapped into the tail boom honeycomb.

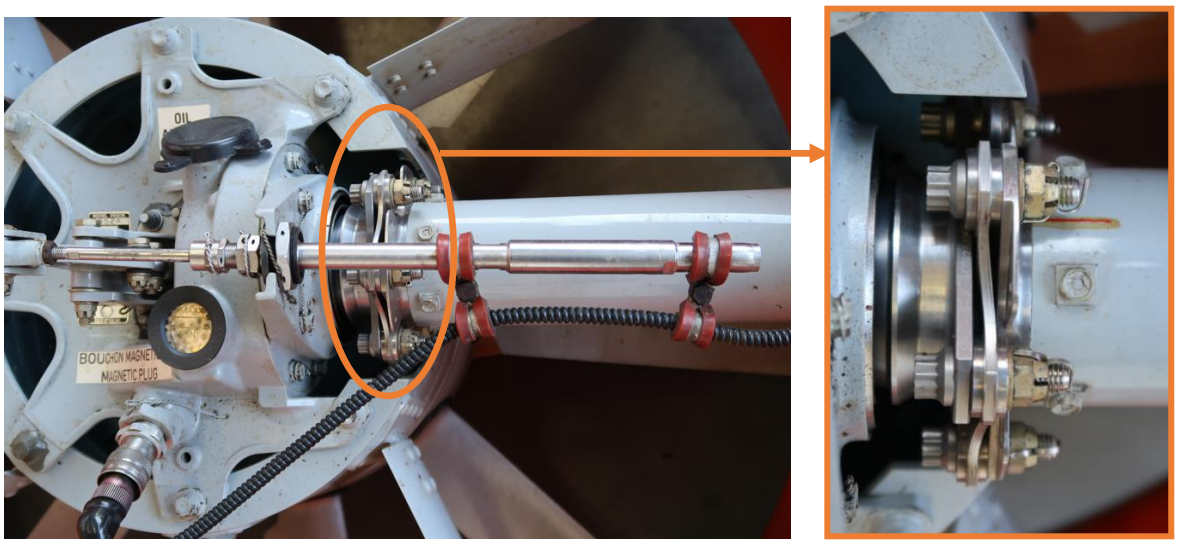


The rear drive shaft was broken in the vicinity of the junction between the Fenestron and the tail boom.





The end of the rear drive shaft was correctly connected to Tail Gear Box (TGB).
The flexible coupling located at the junction between the rear drive shaft and the TGB input flange exhibited bugling consistent with relative axial displacement or misalignment of the two conjugate flanges.



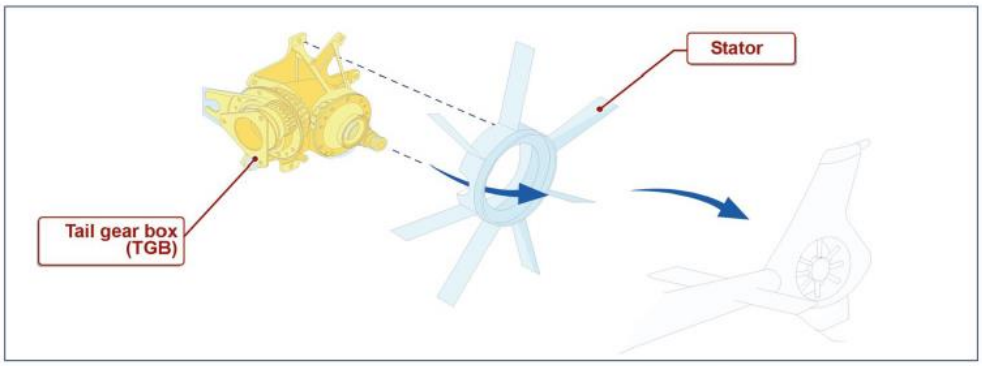
Conclusion concerning the Tail Rotor Drive shaft assembly:

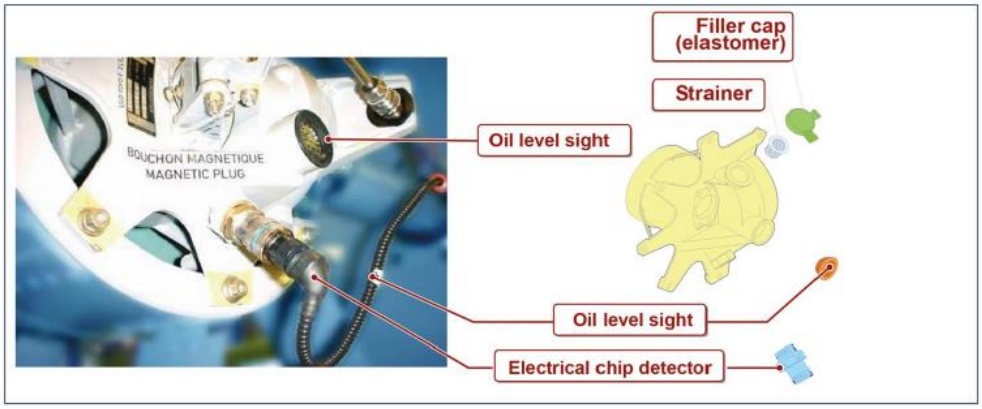
The damage observed on the tail rotor drive shaft assembly allows demonstrating that the dynamic chain was almost stopped at the very end the crash sequence. Indeed, when the engine has been shifted to the right hand side at impact with the ground, the engine casing get into contact with the engine compartment firewall leading to damage (two indent marks without rotational marks) the forward tail rotor drive shaft. This damage type is consistent with a tail rotor drive shaft which was no longer rotating at the time of the contact with the ground.

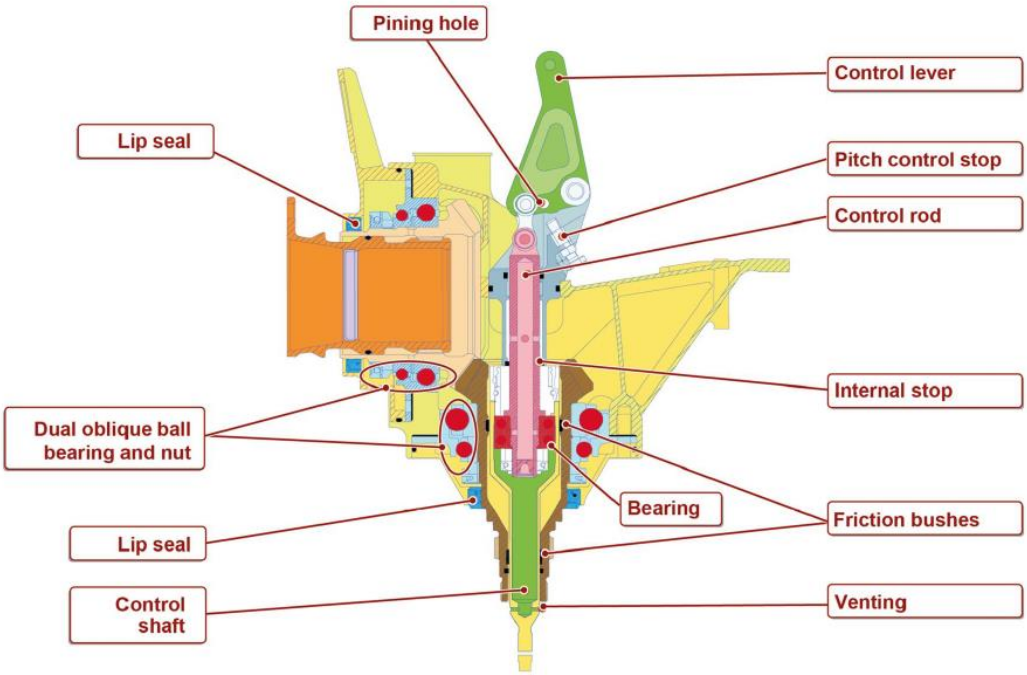
No evidence of pre-crash failure / anomaly was observed.

4.7. Tail Rotor assembly:

Schematic diagram of the Tail Rotor assembly:

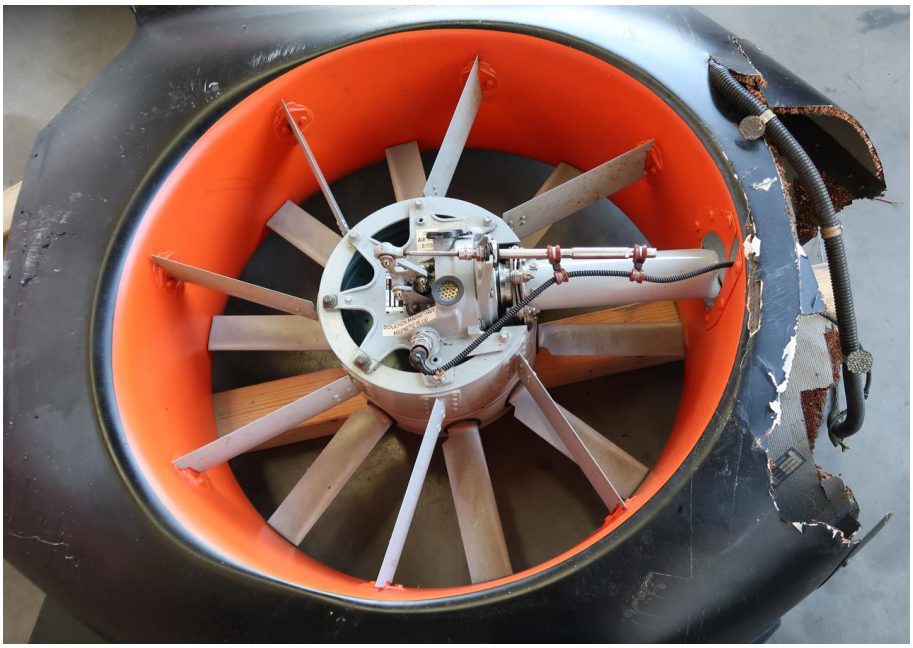


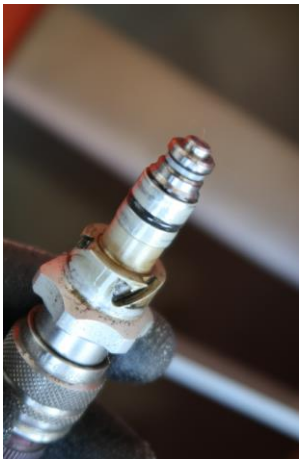




General condition of the Tail Rotor assembly:

The tail gear box didn't exhibit any visible damage.
The kinematic continuity of the tail gear box was checked and confirmed.
The stator which supports the tail gear box was also in good condition.
The filler cap has been removed and no external pollution was found in the strainer.
No remaining oil was visible through the glass sight.
The magnetic plug was inspected and found exempt of any metallic particle.





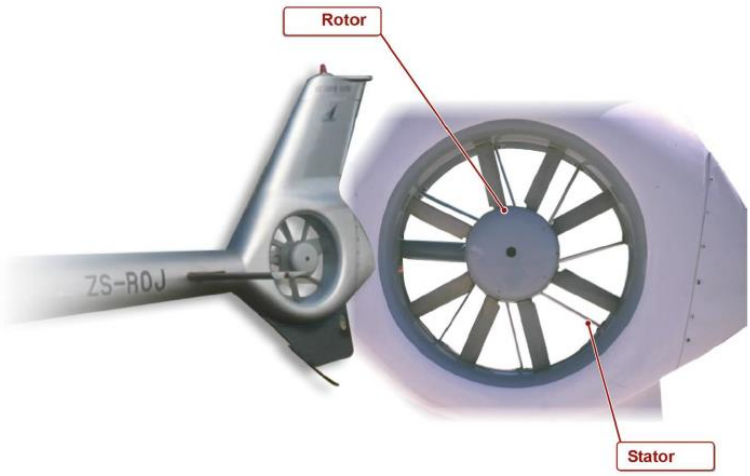
Conclusion concerning the Tail Rotor assembly:

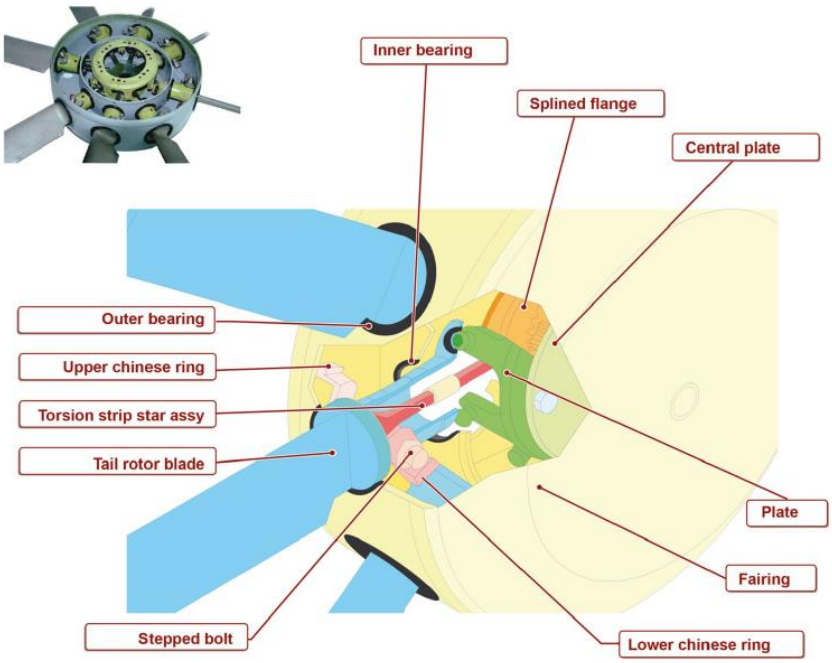
The kinematic continuity between the tail gear box engine input flange and the tail rotor head was checked and confirmed.
No marks of overheating have been observed.

No evidence of pre-crash failure / anomaly was observed.

4.8. Tail Rotor Head:

Schematic diagram of the Tail Rotor Head:





General condition of the Tail Rotor Head:

The tail rotor head didn’t exhibit any visible damage.

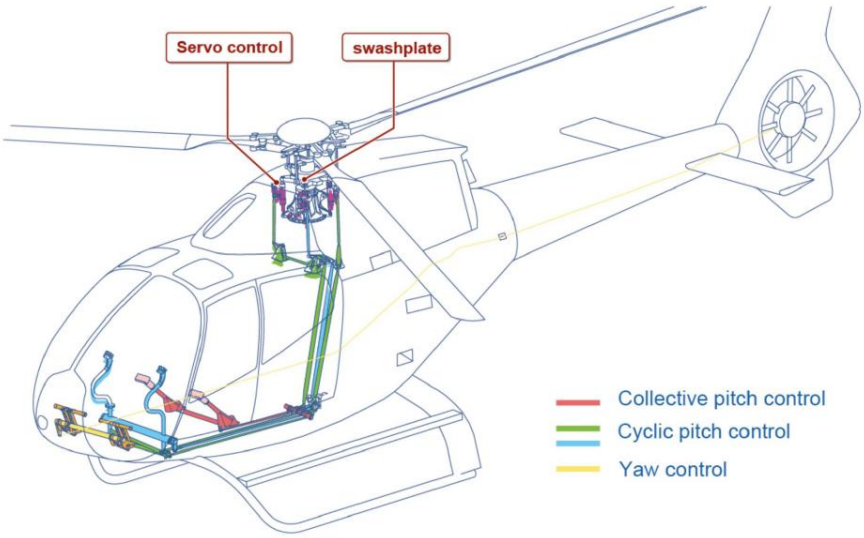
Conclusion concerning the Tail Rotor Head:

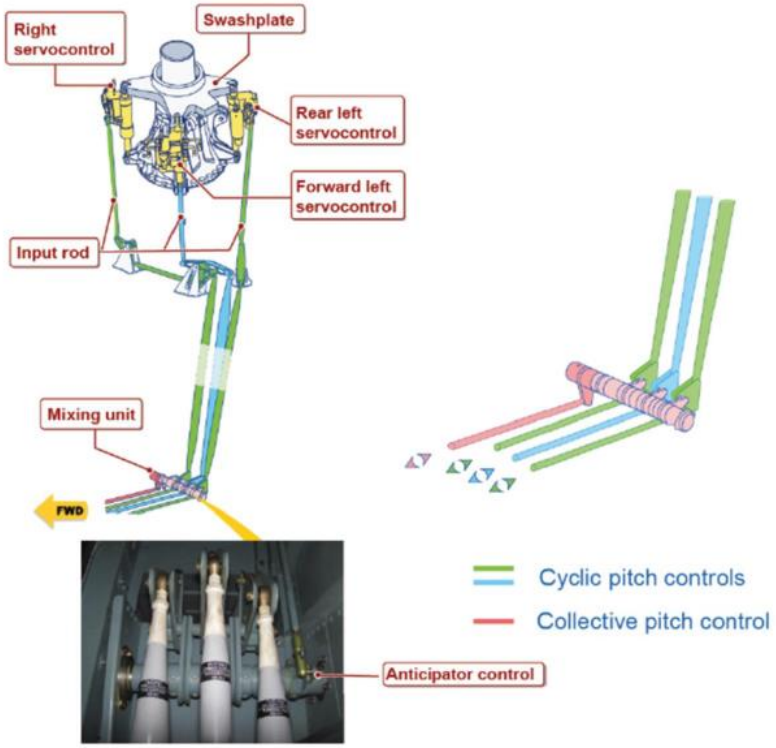
No evidence of rotation was observed on the tail rotor head.

No evidence of pre-crash failure / anomaly was observed.

4.9. Flight controls:

Schematic diagram of the Main rotor Flight controls:



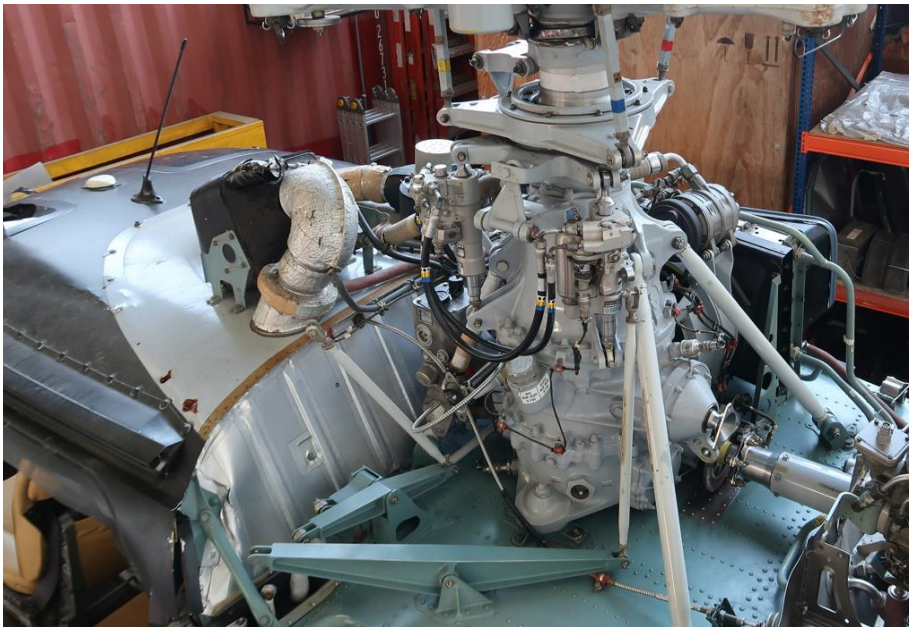


General condition of the Main rotor Flight controls:

The aircraft was equipped with dual flight controls (Pilot / Co-pilot).

Some control rods of the main rotor flight controls were already disconnected by the AAIB Malaysia investigator in charge for inspection purpose.

The kinematic continuity between the cyclic/collective stick and the servo controls was checked and confirmed.

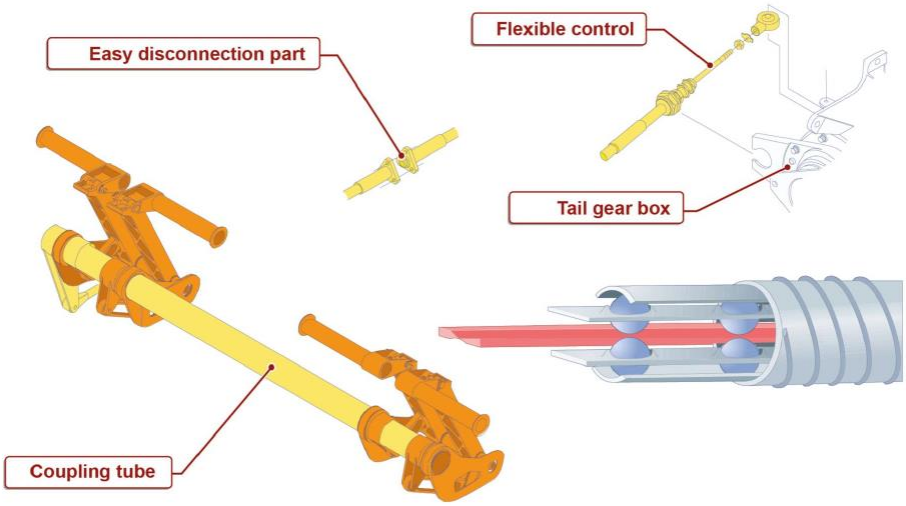


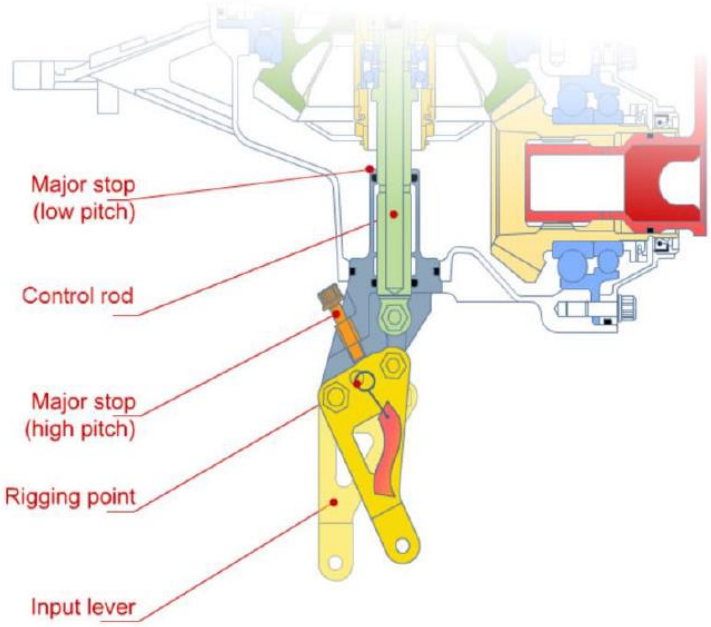
Conclusion concerning the Main rotor flight controls:

The kinematic continuity between the cyclic/collective stick and the servo controls was checked and confirmed.

No evidence of pre-crash failure / anomaly was observed.

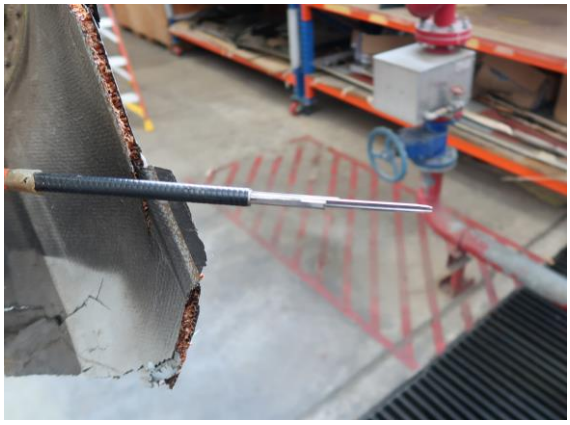
Schematic diagram of the Tail rotor Flight controls:





General condition of the Tail rotor Flight controls:

The kinematic continuity between the yaw pedals (Pilot and Co-pilot) and the tail rotor input control lever was checked.
The flexible ball cable exhibited an overload rupture in the vicinity of the junction between the Fenestron and the tail boom.
No other damage was observed on the complete tail rotor flight control chain.



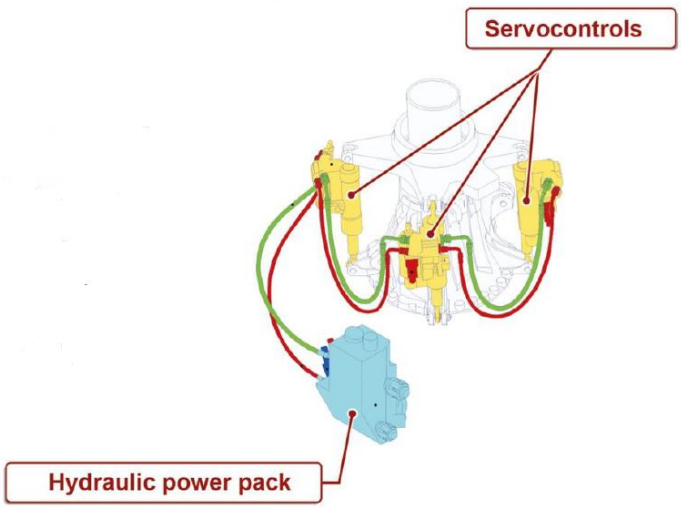
Conclusion concerning the Tail rotor flight controls:

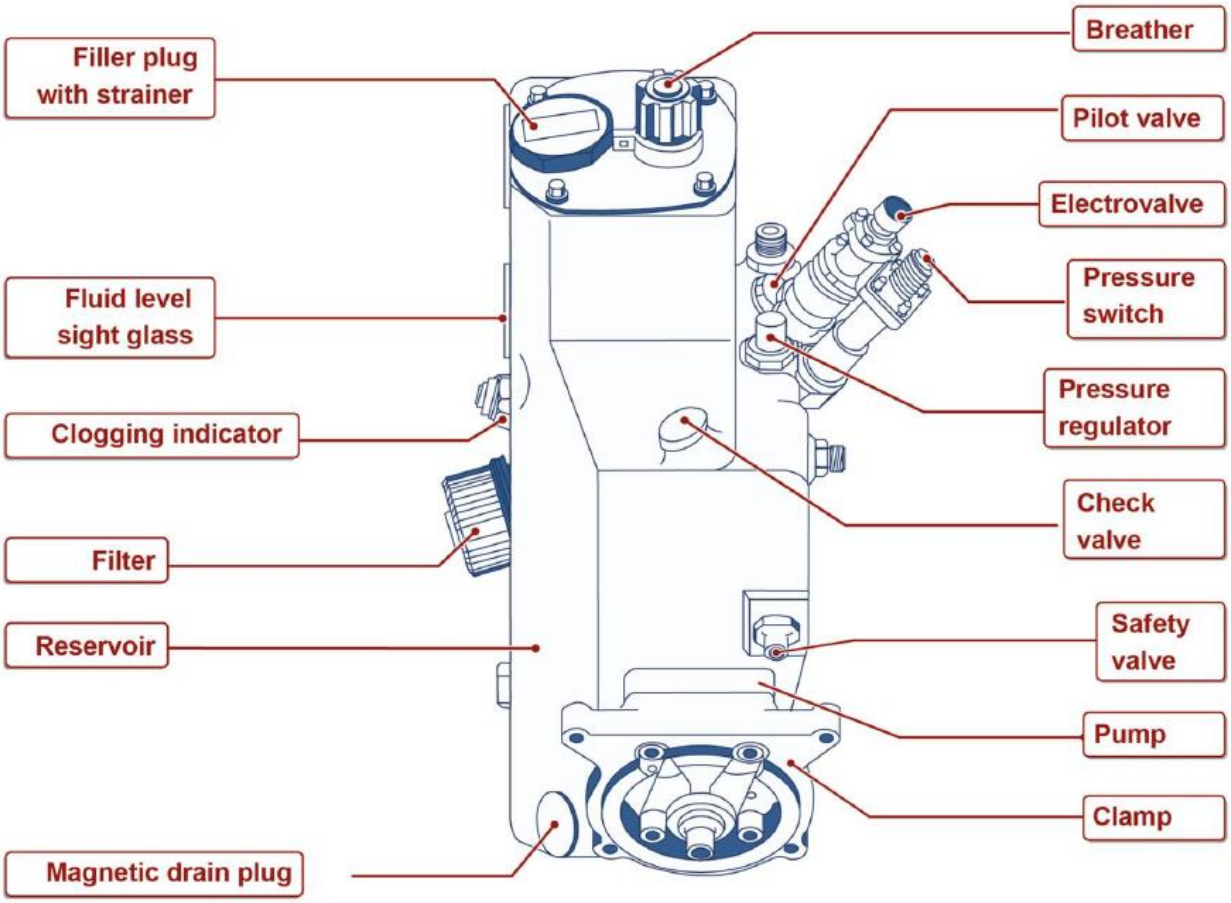
The kinematic continuity between the yaw pedals (Pilot and Co-pilot) and the tail rotor input control lever was checked and confirmed before the impact with the ground.

No evidence of pre-crash failure / anomaly was observed

4.10. Hydraulic circuit:

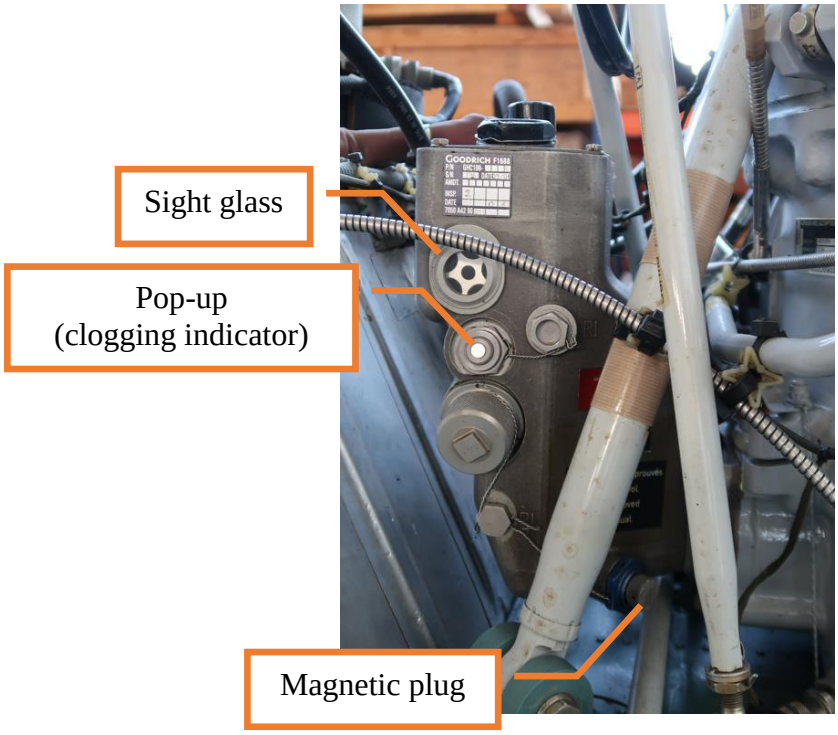
Schematic diagram of the Hydraulic circuit:





General condition of the Hydraulic circuit:

The hydraulic circuit didn't exhibit any visible damage.
All the pipes of the hydraulic circuit were correctly installed. No leak was visible.
No hydraulic fluid was visible by their glass sights.
The pop-up dedicated to filter clogging monitoring didn't activate (no clogging).
The magnetic plug was inspected and found exempt of any metallic particle.

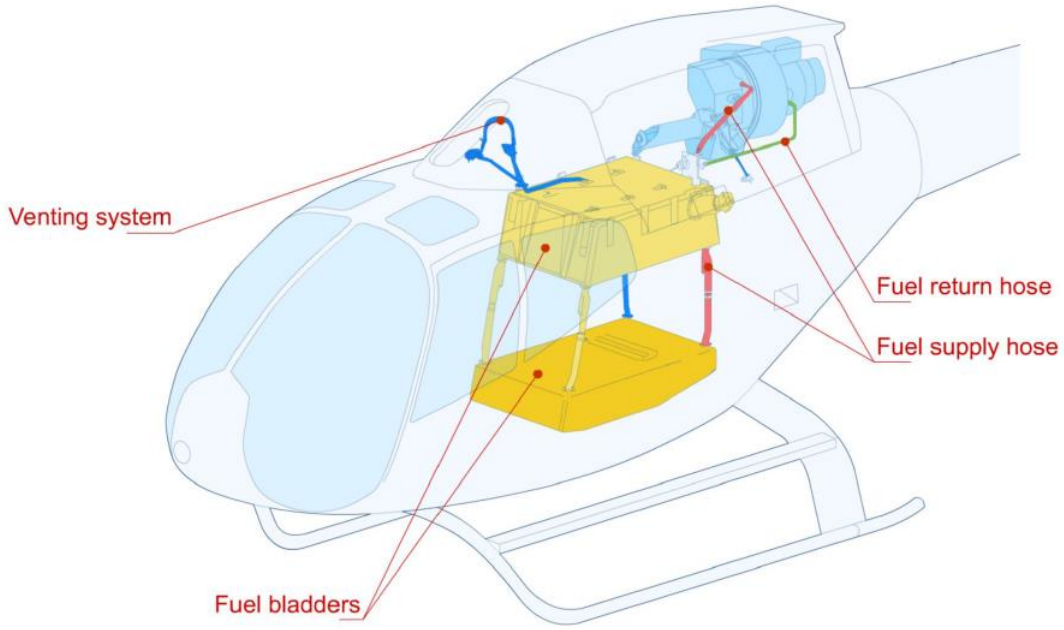


Conclusion concerning the Hydraulic circuit:

No evidence of pre-crash failure / anomaly was observed.

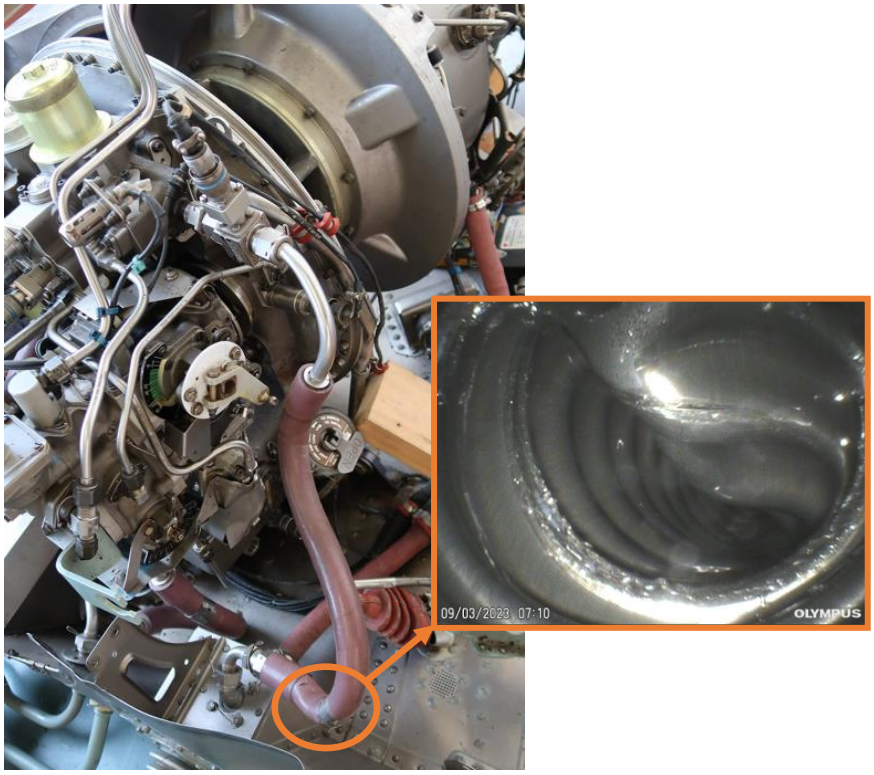
4.11. Fuel system:

Schematic diagram of the Fuel system:

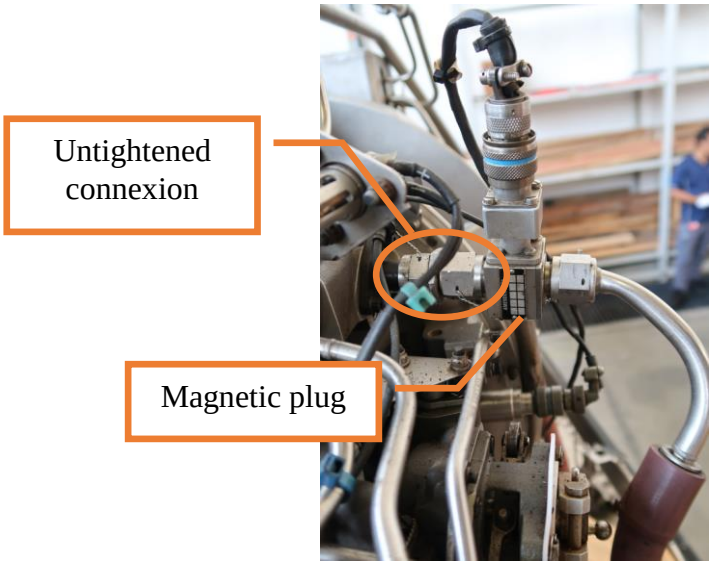


General condition of the Fuel system:

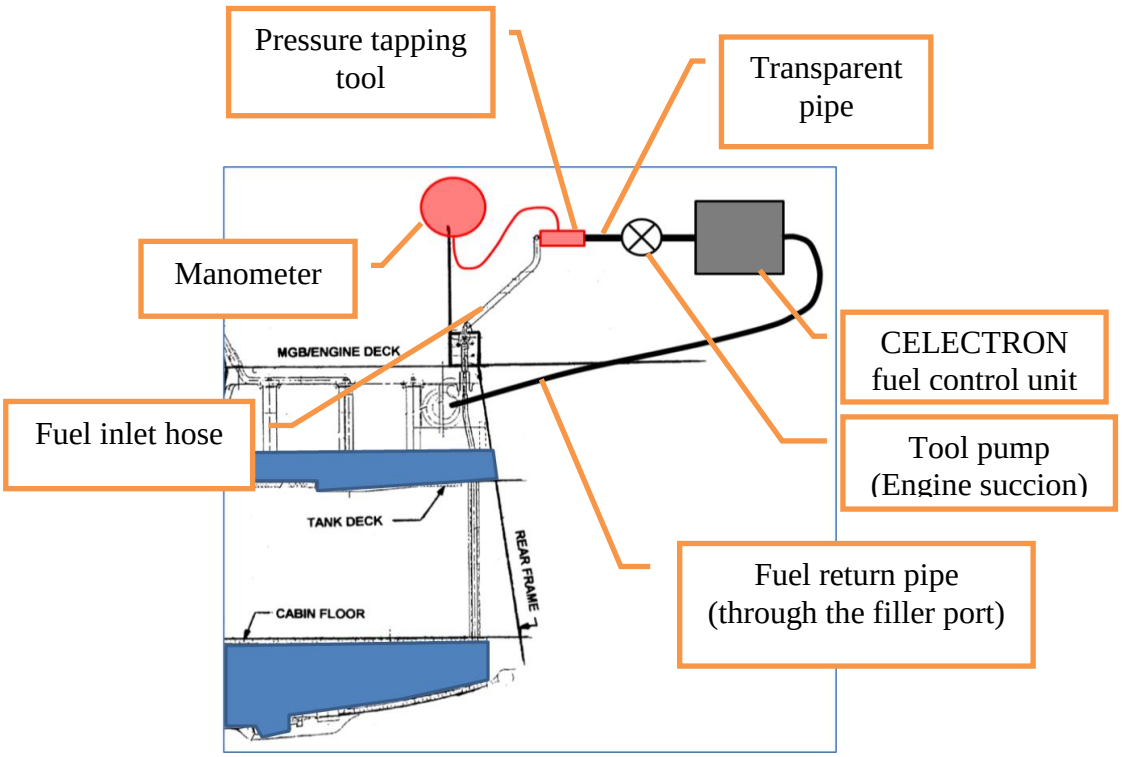
Except the fuel supply hose that was pinched as a result of the crash sequence, the aircraft fuel circuit didn't exhibit visible damage.
A boroscope inspection of the fuel supply hose was performed, the pinch of the line has significantly reduced its internal section.



The fuel circuit was equipped with a fuel flow meter.
During the fuel circuit inspection, it was detected this assembly was slightly untightened. This was most probably the result of the crash sequence.



In order to check the absence of any anomaly on the aircraft fuel circuit, the complete circuit was checked.
A specific Airbus Helicopters test bench (CELECTRON) was installed as described here after:



CELECTRON test bench installed:

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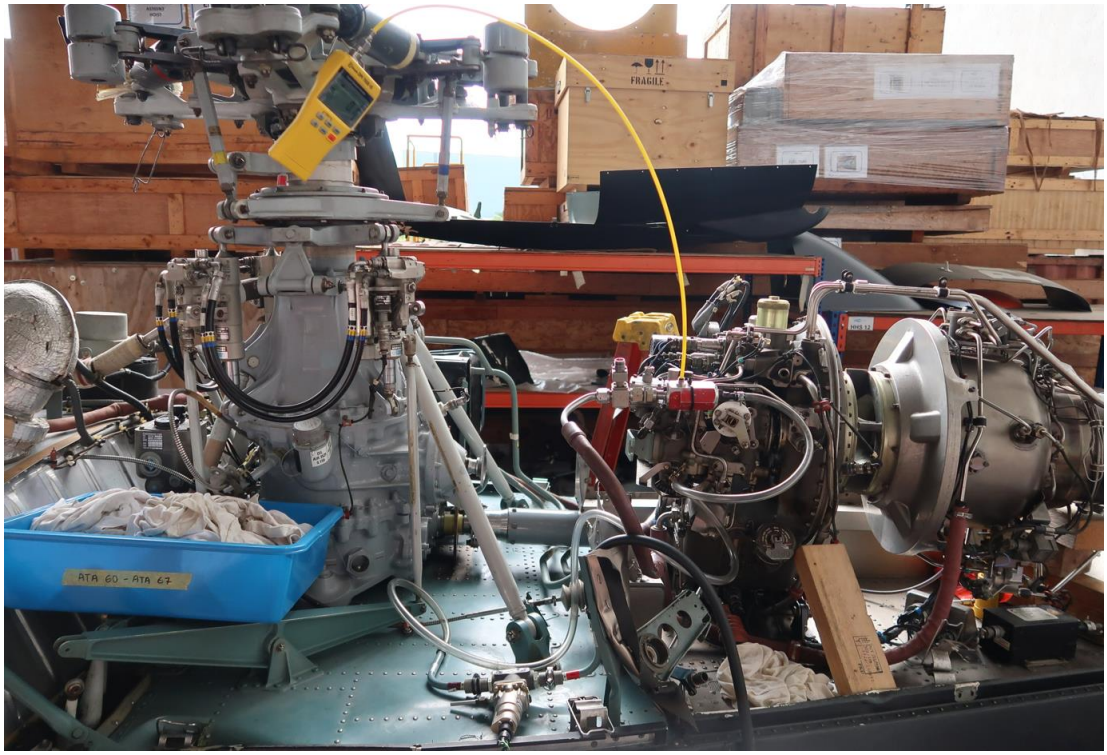


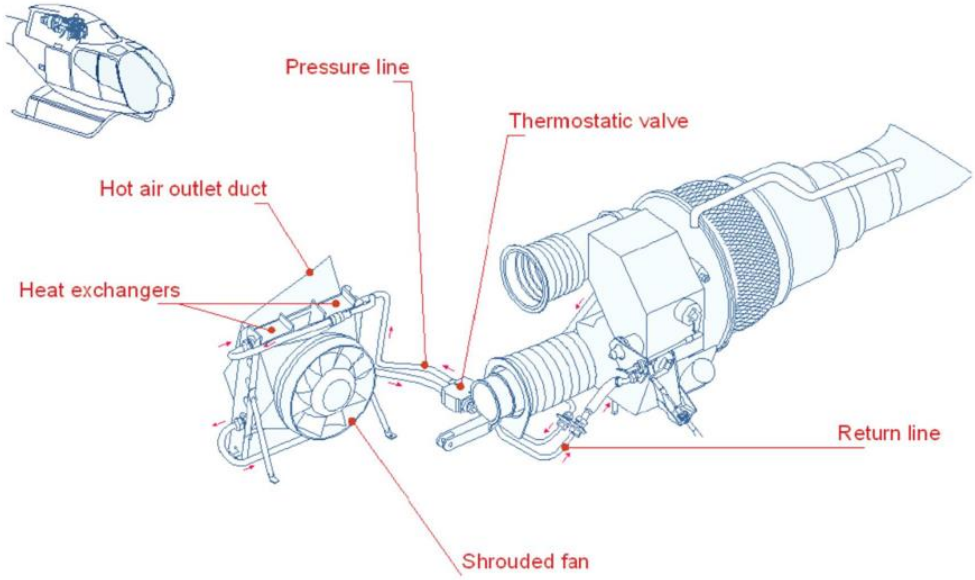
All the tests requiered by the Airbus Helicopters inspection protocol were performed, no anomaly was detected.

<u>Conclusion concerning the fuel system:</u>

No evidence of pre-crash failure / anomaly was observed.

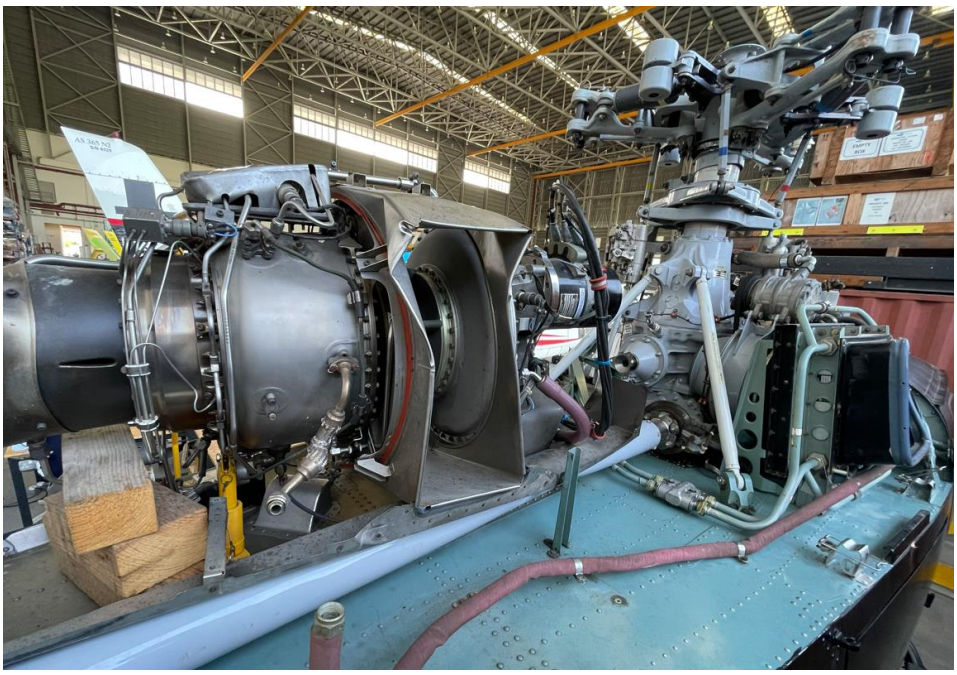
4.12. Oil system:

Schematic diagram of the Oil system:



General condition of the Oil system:

The oil circuit didn't exhibit visible damage.
No leakage was observed.

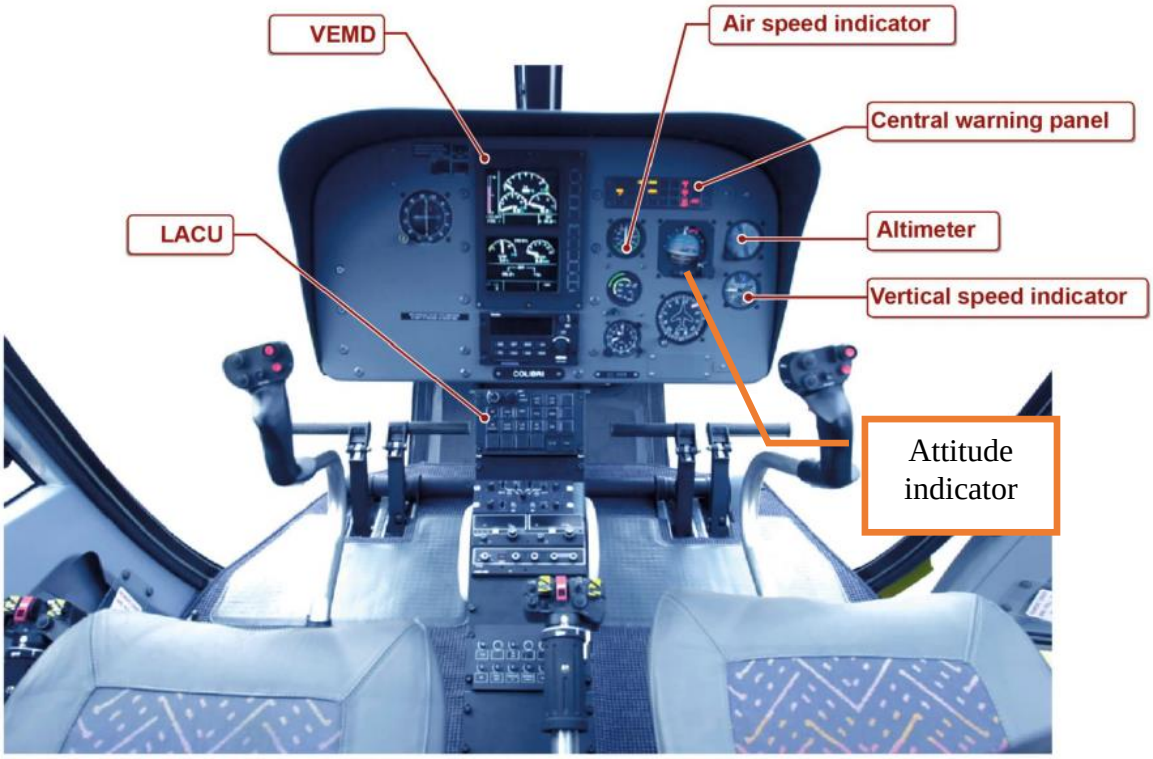


Conclusion concerning the Oil system:

No evidence of pre-crash failure / anomaly was observed.

4.13. Controls and displays:

Schematic diagram of the Controls and displays:



General condition of the Controls and displays:

During the crash sequence the indicating and control panel has most probably been pushed on its right hand and lifted.
The VEMD was removed by the AAIB Malaysia investigator in charge and sent to the BEA for examination purpose.
The ELT was in armed position.
The twist grip (Pilot and Co-pilot) was in the Flight notch.

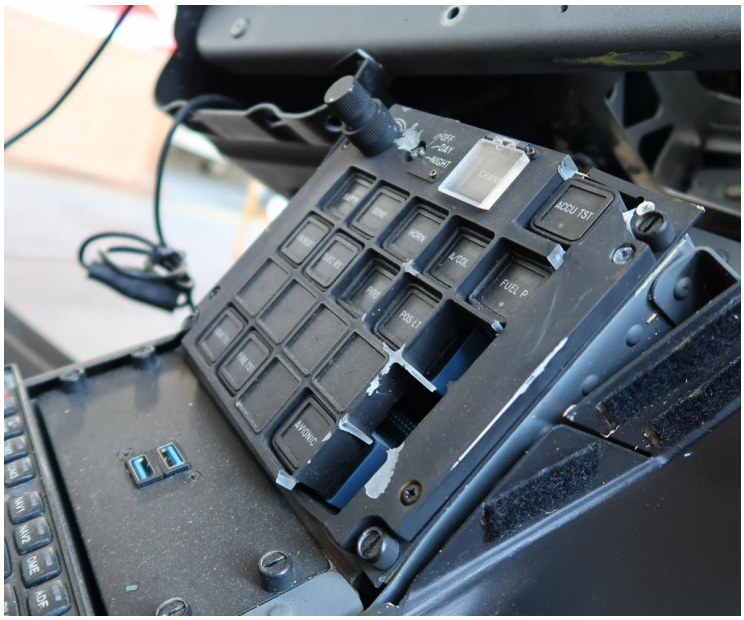
The fuel shut off valve was not activated (lever full forward position), but the safety wire was broken.
The rotor brake was not activated (lever full forward position).

The Lighting and Ancillary Control Unit exhibited damage on its right hand side and some push button were missing.
The following push buttons were activated:

- BAT (battery)
- Horn
- A/Col (anti-collision light)
- Fuel P (booster pump)
- Pitot
- Pos Lt (position lights)

Notes:

- The Fuel P button for booster pump activation is supposed to be on off position for flight (only used for engine starting purpose).
- The push button Avionic was not activated, leading to the de-energizing of the attitude indicator.



<u>Conclusion concerning the Controls and displays:</u>

The damage observed on the controls and displays are most probably the result of the crash sequence.

Some push buttons of the Lighting and Ancillary Control Unit were not in the correct position:

- The Fuel P button for booster pump activation is supposed to be on off position for flight (only used for engine starting purpose).
- The push button Avionic was not activated, leading to the de-energizing of the attitude indicator.

No evidence of pre-crash failure / anomaly was observed.

5. GENERAL CONCLUSION:

The general wreckage examination confirms that the aircraft has impacted the vegetation (canopy) with:

- Almost flat attitude,
- Low vertical speed,
- Longitudinal speed.

As the result of the contact of the aircraft with the canopy (crash sequence), the engine has probably flamed out due to the FCU disconnection or the fuel supply hose pinched. Then the aircraft has ended his trajectory on a tree (stopped by the tree) on which multiple main rotor blade impacts were observed, before to fall on the ground lying on its left hand side.

No evidence of pre-crash failure or discrepancy has been observed during the complete examination of the aircraft and the engine.

C2 - Confidential

On site examination report – Kuala Lumpur, Malaysia
N409HH – March 7th to 9th 2023

Event date	**September 11th 2022**
Location	**Malaysia**
Operator	**Private**
Aircraft	**EC120B**
Serial Number:	**1561**
Registration:	**N409HH**
Engines type	**Arrius 2F**
Serial numbers:	**34630**

Référence : RA 2022/254

Written on march 17th 2023, by :

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Adressees

Name	Company or country
AAIB Malaysia	**Malaysia**
Airbus Helicopter France	**France**
BEA	**France**

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On site examination report – Kuala Lumpur, Malaysia
N409HH – March 7th to 9th 2023

1 Introduction

The purpose of this document is to provide a factual account of the inspection carried by M. Paul-Etienne Jactat, from Safran Helicopter Engines, on the engine mentioned here-below.
Safran Helicopter Engines attended the investigation as Technical Advisor to the Bureau d'Enquêtes et Analyses pour la Sécurité de l'Aviation Civile (BEA), French investigation board.

1.1 Date and localisation of the wreckage examination

Date : started March 07th 2023, ended 09th March 2023.
Localisation : Kuala Lumpur, Malaysia.

1.2 Attendees :

- AAIB Malaysia
- Airbus Helicopters France
- Hammock Helicopters
- Safran Helicopter Engines

2 Initial circumstances reported to SafranHE

During a private flight between two airports, the air traffic control lost contact with the pilot.
The aircraft is reported to have lost altitude rapidly. There was no "Mayday" call.
Bad weather conditions were reported at the time of the event.

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On site examination report – Kuala Lumpur, Malaysia
N409HH – March 7th to 9th 2023

4 Updated information.

According to first information reported by the local authority, the helicopter was performing a private flight from Sultan Abdul Aziz Shah Airport, Subang, Selangor to Sultan Azlan Shah Airport, Ipoh, Perak when the contact was lost with Kuala Lumpur Air Traffic Control Centre (KLATCC) at about 12:16 pm (September 11th).
The radar system of the KLATCC had recorded a large loss of altitude of the helicopter in less than 1 minute. The ATC controller tried to make contact with the pilot, however, there was no distress call made.

A search and rescue operation was launched, the wreckage and the pilot were found on 12 September 2022 at 8:18am near Kampung Kenangan, Bidor. The pilot, sole occupant, was found alive but later died from his injuries during the rescue mission.
A tropical rain weather was confirmed by the IIC at the time and in the area where the aircraft crashed.

The pilot was 118fh on type and 14fh as pilot in control.
The avionic navigation system seemed not having been turned on.
No landing zone was available in the area where the aircraft crashed.
The accident scene showed an impact with the trees on a length of approximately 60 to 100m.
The helicopter ended its course into a tree where it was probably stopped and on the bottom of which it fell vertically, before it rest on its left side.
The ELT activated automatically which allowed to launch the rescue and to localize the wreckage.

On the crash site, the oil filter pre-blockage visual indicator and fuel filter blockage visual indicator were checked in NOT ACTIVATED position.

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5 Conclusion

Following the wreckage investigation, all the damage were the consequence of the accident.
The engine examination showed that the engine was running during the accident sequence but the amount of power could not be determined.

The aircraft high rate of descent recorded just before the accident possibly combined with high NR overlimit events recorded during the accident flight, would have led to a low power demand and a low fuel flow out of the hydromechanical Fuel Control Unit. With this low fuel flow, the engine torque would not have been significant at impact.
The fast disconnection of the FCU during the impact of the helicopter with a solid obstacle would possibly explain that the mechanical kinematic was preserved from severe damage during the crash sequence, and the subsequent engine flame out.

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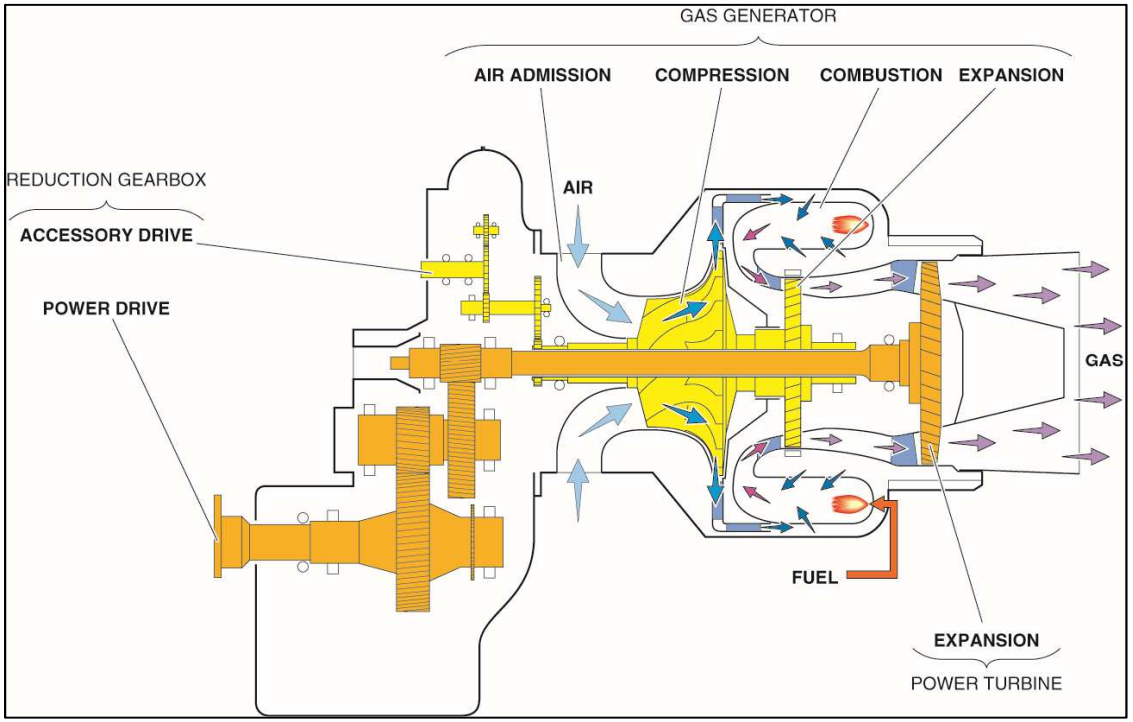
On site examination report – Kuala Lumpur, Malaysia
N409HH – March 7th to 9th 2023

6 General presentation of Arrius 2F

The Arrius 2F is a turboshaft engine with a single-stage centrifugal compressor, a reverse flow annular combustion chamber, a single stage high pressure turbine, a single stage power turbine, and a reduction gearbox with a nominal output at 6000 rpm.
The engine is composed of 2 modules and a Fuel Control Unit.
The engine is rated at 376 KW at takeoff power and 335 KW at maximum continuous power.
The dimensions of the engine are 0,950 m long, 0,488m wide and 0,674 m tall. Its dry weight is 103 kg.



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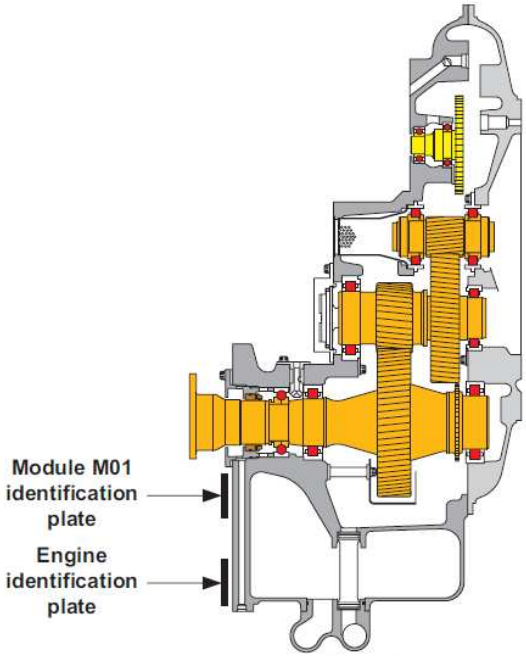
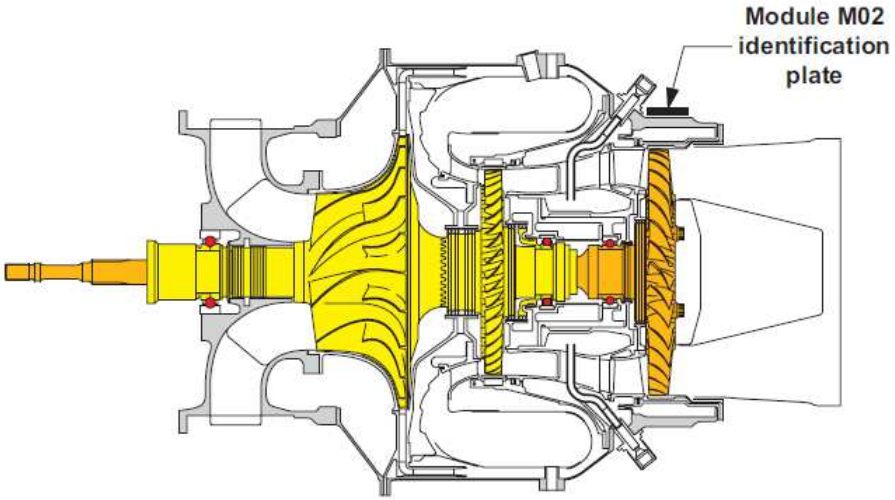
On site examination report – Kuala Lumpur, Malaysia
N409HH – March 7th to 9th 2023

6 General presentation of Arrius 2F



MODULE M01
REDUCTION GEARBOX



MODULE M02
GAS GENERATOR AND POWER TURBINE

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On site examination report – Kuala Lumpur, Malaysia
N409HH – March 7th to 9th 2023

7 Engine examination

7.1 Engine logbook overview

7.2.1 Engine data

Engine	TSN	TSO	CSN1	CSN2	Observation
Arrius 2F SN 34630	*1427*	*n/a*	*2260.3 at 1415.9h*	*2354.4 at 1415.9h*	*M02 repaired at 788,39hrs (engine tsn)*

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On site examination report – Kuala Lumpur, Malaysia
N409HH – March 7th to 9th 2023

7 Engine examination

7.1 Engine logbook overview

7.2.2 Modules and FCU data

Modules Equipment	P/N	S/N	Observation
M01	70EM018000	3097	Set on engine (new) on 15th April 2008 Calendar limit : June 2023
M02	70EM028040	5563	Set on engine on 15th August 2014 at 788h engine tsn (M02 was 861h tsn) Calendar limit expected in 2029
FCU	0319870100	295M	Installed at 1304hrs engine TSN Eqt tsn was 609,7hrs. Tf77 Tf66

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On site examination report – Kuala Lumpur, Malaysia
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7 Engine examination

7.1 Engines data

7.2.3 Last main maintenance operations on the engine

Operation	TSN	Date	Observation
Accident flight	*1427,2*	*Sep 11th 2022*	
Last 7D/15H check Ground run	*1415,9*	*Aug 26th 2022*	*Last record.*
Last engine Power Check	*1404,1*	*July 22nd 2022*	*24°C of Temperature margin; 2,6% of torque margin.*
Last chemichal cleaning	*1392,1*	*July 18th 2022*	*The engine chemical cleanings were made regularly.*
FCU replacement	*1392,1*	*December 24th 2021*	*Post installation ground run iaw 71-02-13-280-801-A01.*
Last 150h/500h/600h/24M	*1304,7*	*November 1st 2021*	*The 500h scheduled maintenance task includes a flame-out test.*

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7 Engine examination

7.1 Engines data

7.2.3 Priviledged injector

Priviledged injector was set on the engine with the half fuel manifolds at engine TSN=1159h.

According to the logbook analysis :

- It was 268 flight hours at the accident time.
- It was still 132 flight hours of potential before the next replacement at scheduled maintenance task at 400h (EMM).
- It was tested 148 flight hours before the accident within the 500H/24M scheduled maintenance, which included a flame out test.
- It was not concerned by the SB 319 73 4850 as it was above 100 flight hours in August 2022 (already 120 flight hours in october 2021 at the 150/500/600FH/24M scheduled maintenance).

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7.2 Engine – Aircraft Inteface checks

7.2.1 General inspection

The general inspection mainly revealed significant damage on both engine sides (pipes, exhaust, firewalls, mountings) which was the sign of the strengh of the impact.

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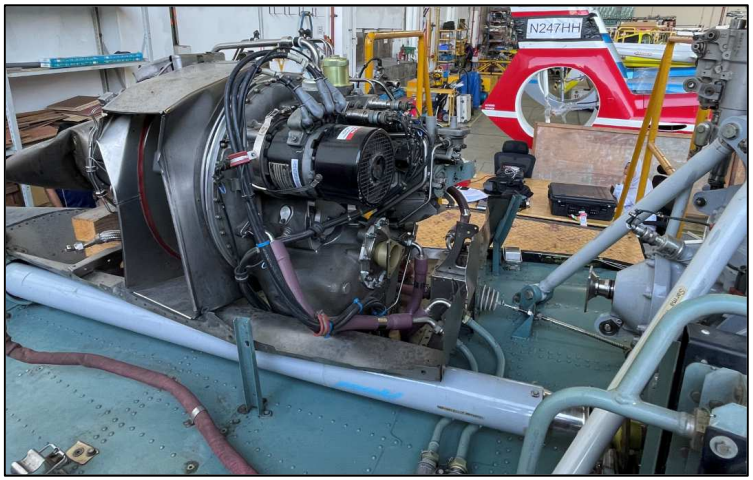
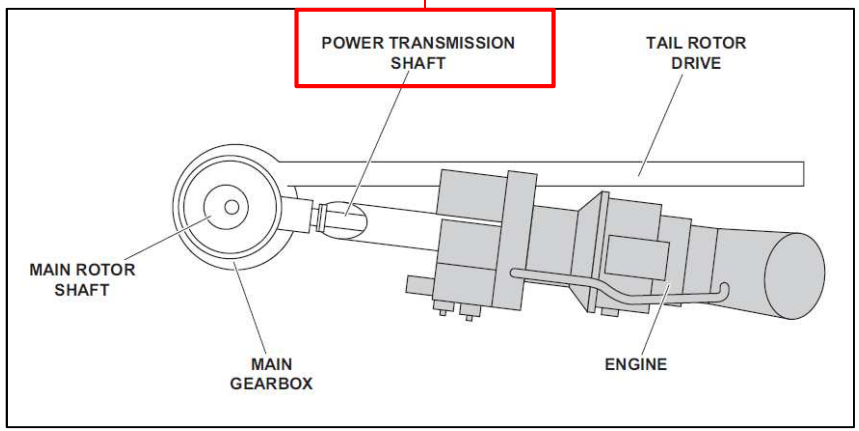
7.2 Engine – Aircraft Inteface checks

7.2.2 Engine power shaft

Engine power shaft was removed before the wreckage examination. The flectors and the shaft were in good condition.
Free wheel (AH component) check was performed directly on the helicopter main gear box. It was found functionnal.





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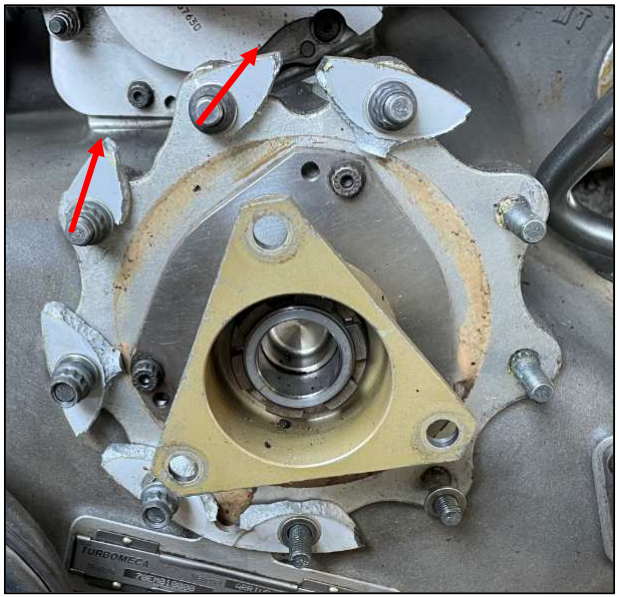
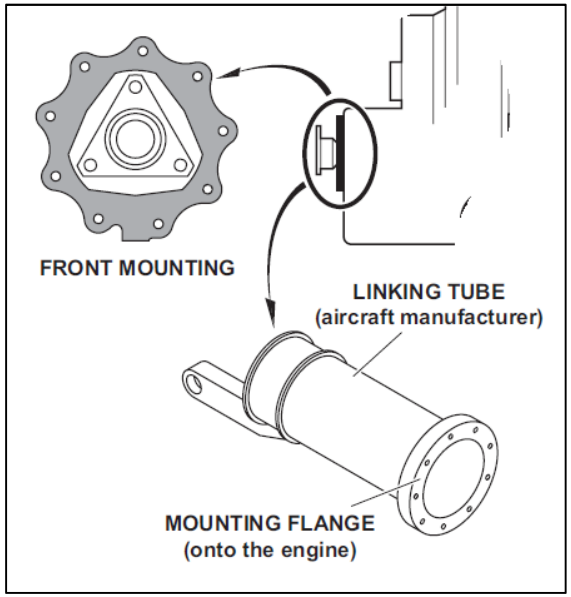
7.2 Engine – Aircraft Inteface checks

7.2.3 Engine mountings

The engine front and rear mountings were totally broken.
Front linking tube damaged/teared off (static stress due to disalignment during the accident sequence).
The screws of the engine casing were found bent towards the left hand side of the engine. It was later a difficulty to set the engine on the interface tool of the engine frame because of that reason (refer to §8). Considering the torn off at two screw middle axis, the force direction was probably towards the up-left side of the engine.





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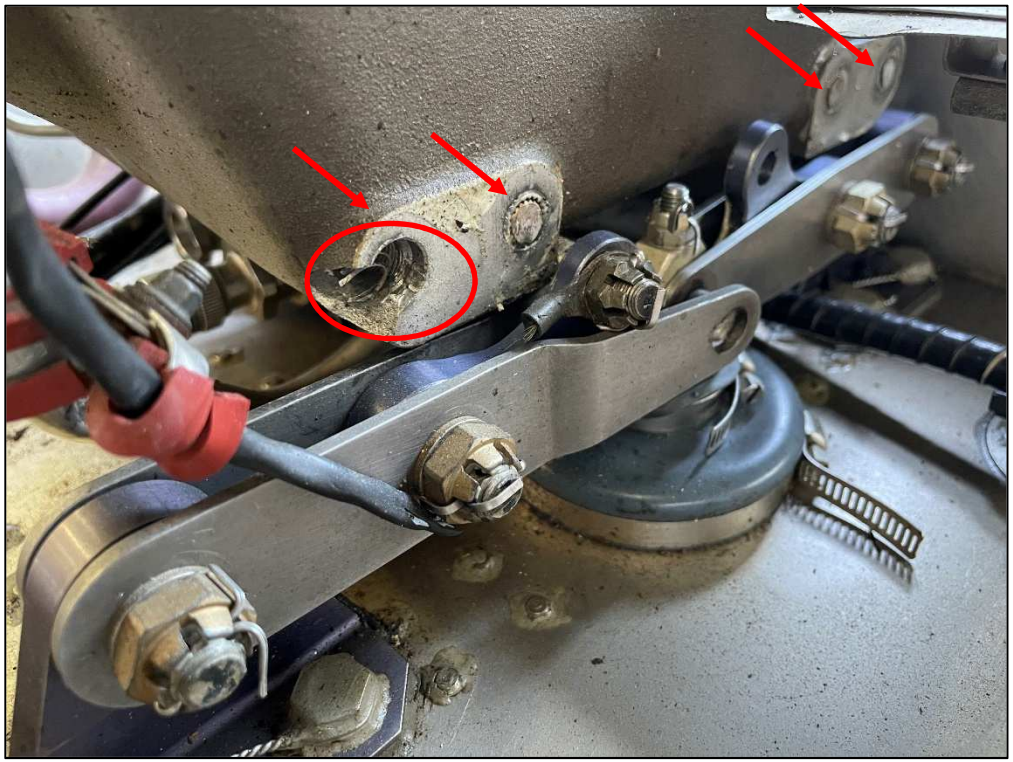
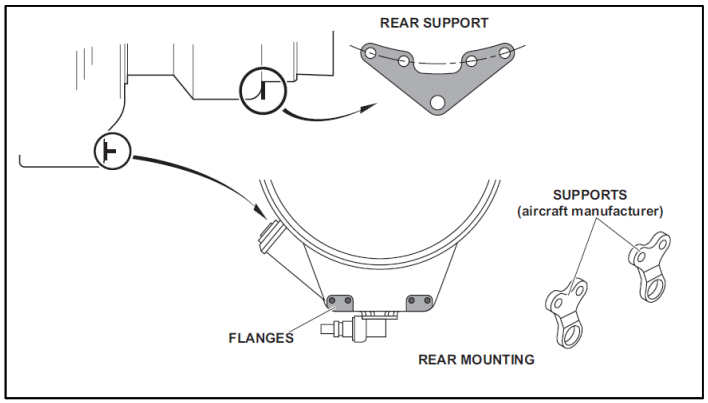
7.2 Engine – Aircraft Inteface checks

7.2.3 Engine mountings

The engine front and rear mountings were totally broken, both flanges were missing.
Casing rear left mounting was damaged (torn off), creating a hole into the casing and into the oil tank, which emptied.





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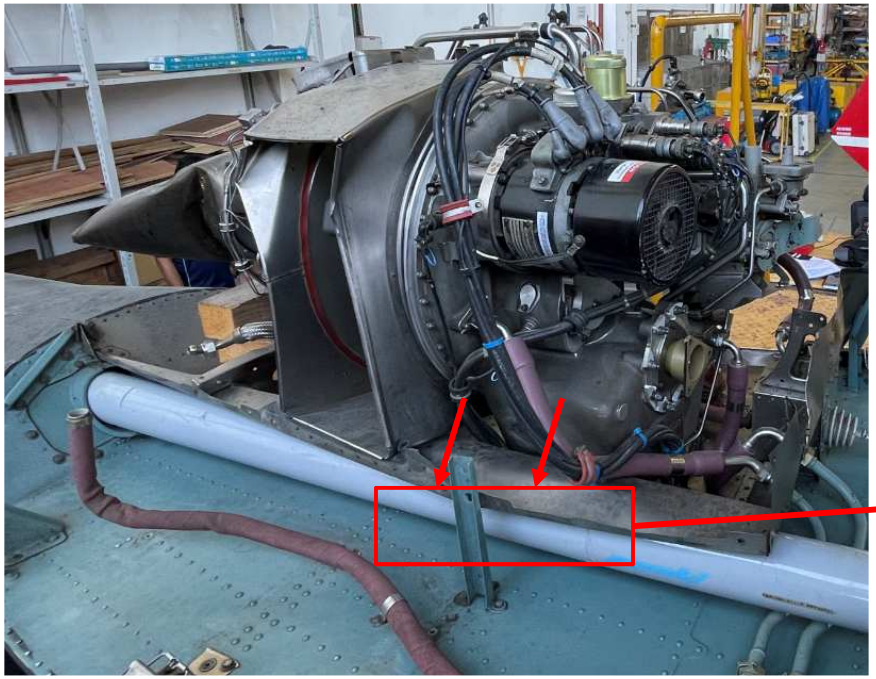
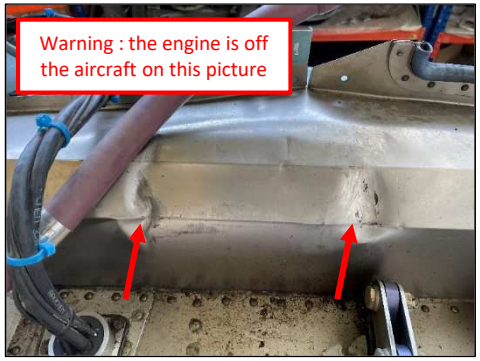
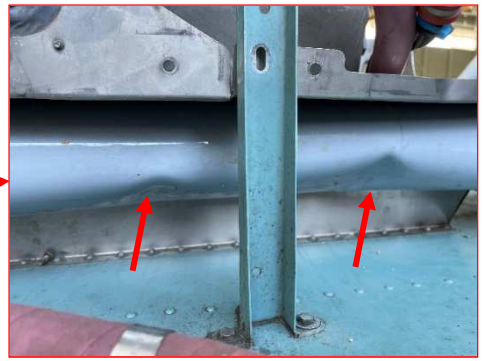
7.2 Engine – Aircraft Inteface checks

7.2.3 Engine mounting

The engine impacted the left firewall, and the rear transmission shaft.
Two indent marks were visible on the internal face of the firewall and on the shaft. Rotation marks came from post crash manipulation.
Possibly, these indents were done most probably during the accident sequence.







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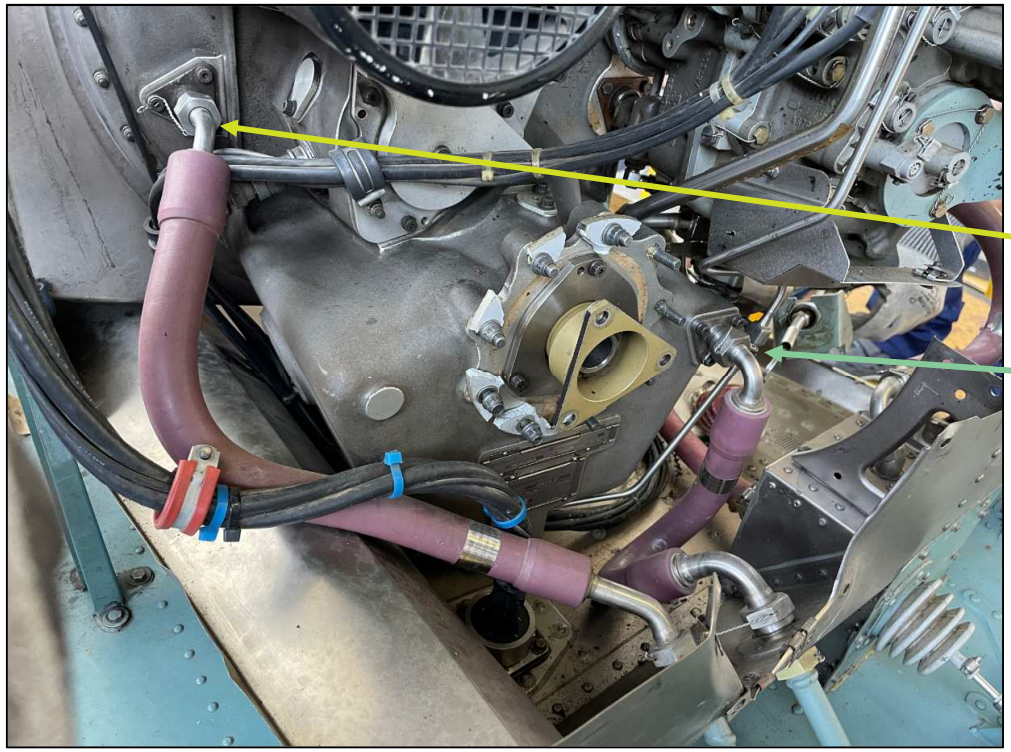
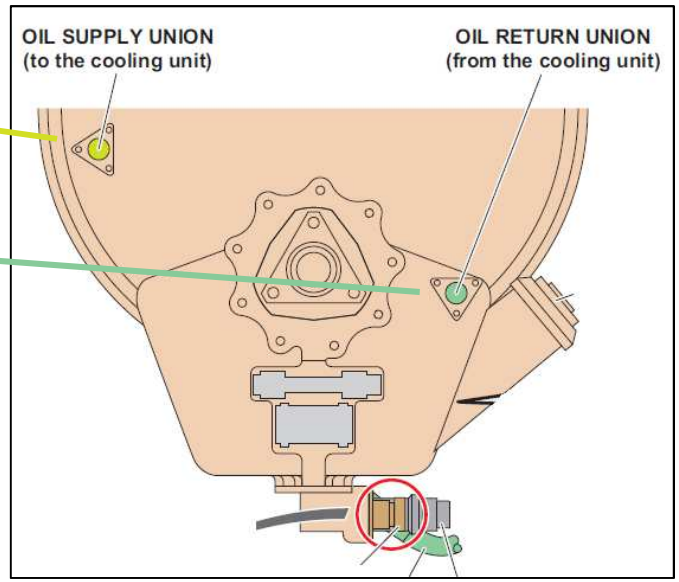
7.2 Engine – Aircraft Inteface checks

7.2.4 Engine to aircraft oil cooling system

Oil supply (input and output) to the engine were set and properly tighened and secured.





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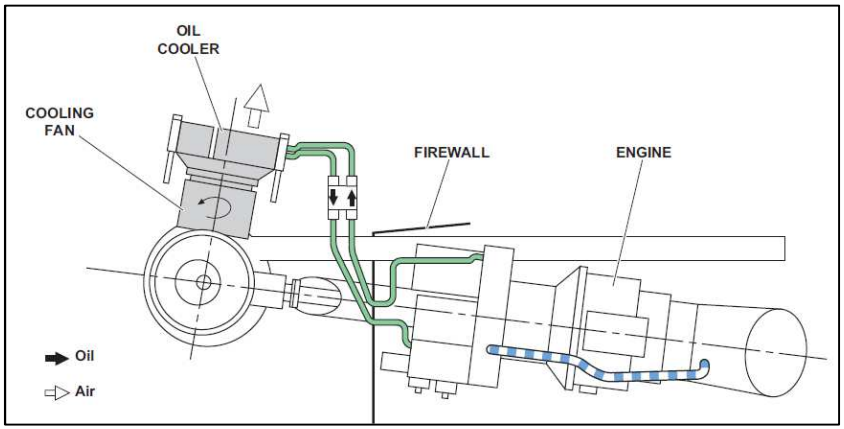
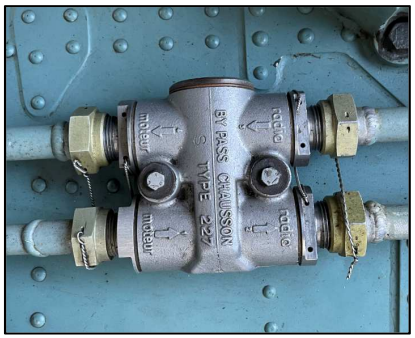
7.2 Engine – Aircraft Inteface checks

7.2.4 Engine to aircraft oil cooling system (aircraft manufacturer device)

Oil cooling system interface was set and properly tighened and secured.





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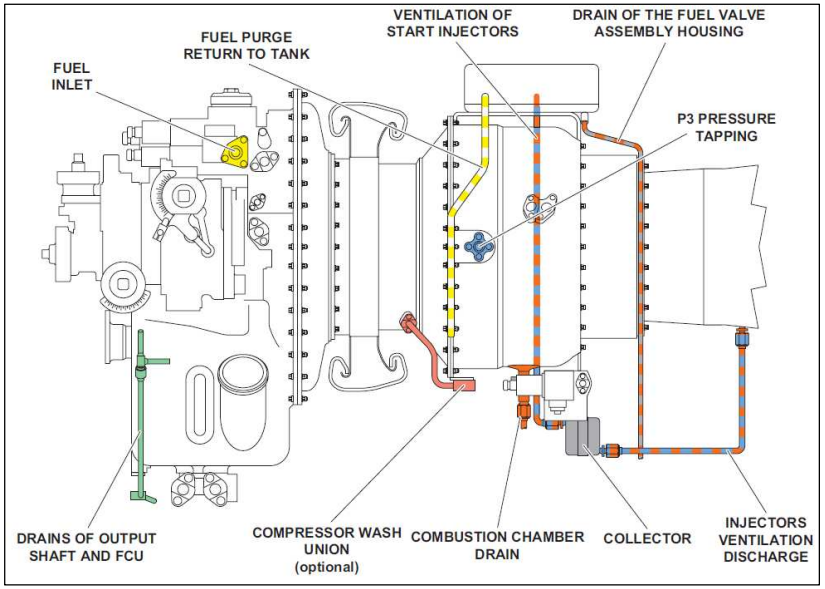
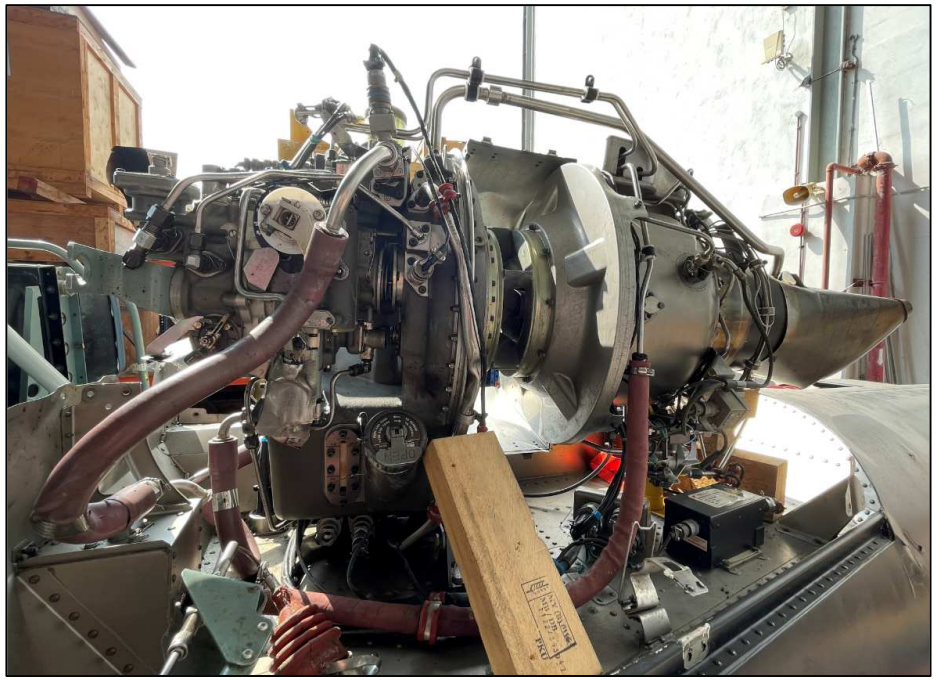
7.2 Engine – Aircraft Inteface checks

7.2.5 Aircraft to engine fuel supply

The fuel input and output were found well connected to the engine, tighened and secured.
However :
- the fuel inlet pipe (from firewall to the fuel flow meter inlet) was compressed as a consequence of the accident ;
- the fuel flow meter outlet was sligtly untighened;

NB : fuel flow meter, and inlet and outlet pipes are in aircraft manufacturer perimeter.





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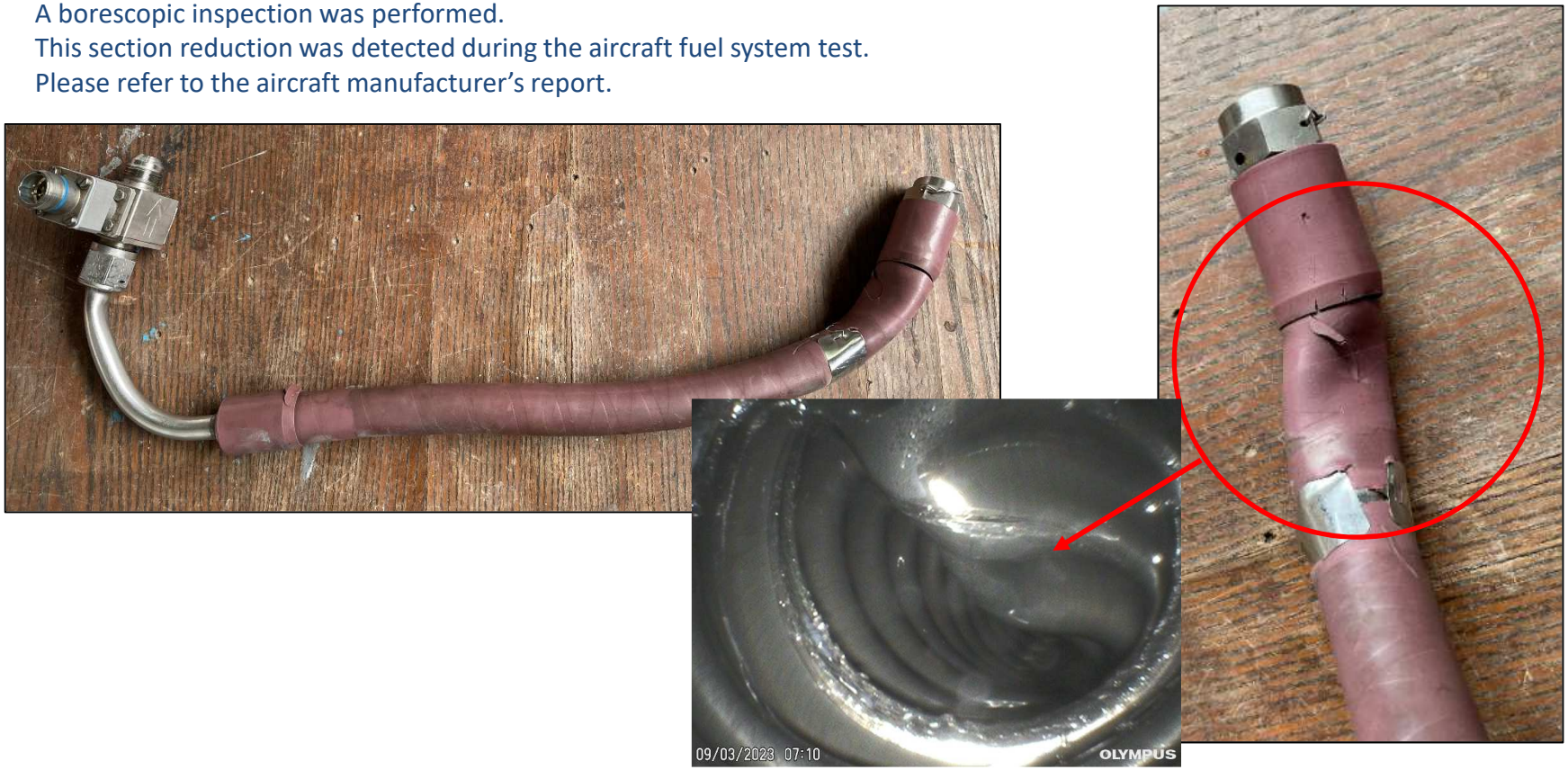
7.2 Engine – Aircraft Inteface checks

7.2.5 Aircraft to engine fuel supply

FCU inlet fuel pipe (AH part) was on the left hand side of the engine and was pinched at impact.
A borescopic inspection was performed.
This section reduction was detected during the aircraft fuel system test.
Please refer to the aircraft manufacturer's report.



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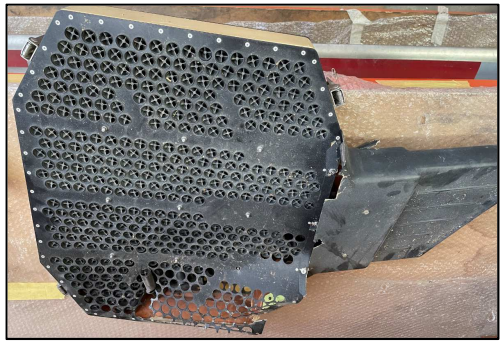
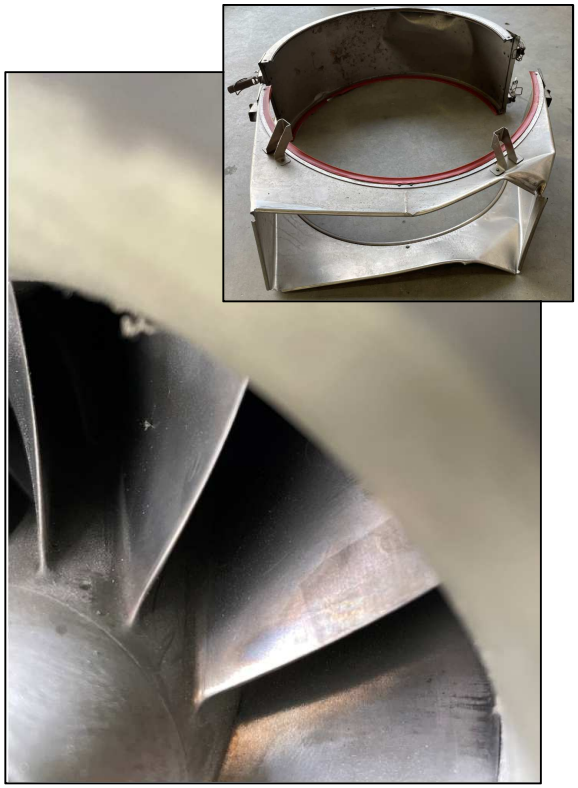
7.2 Engine – Aircraft Inteface checks

7.2.6 Air intake and exhaust

A sand filter was set at the aircraft air intake, which can explain that the airpath was free of foreign object damage.
The airpath of the engine air intake was free of extenal pollution, and the impeller leading edge was free of damage.
Air intake, air intake grid and plenum were removed before investigation.





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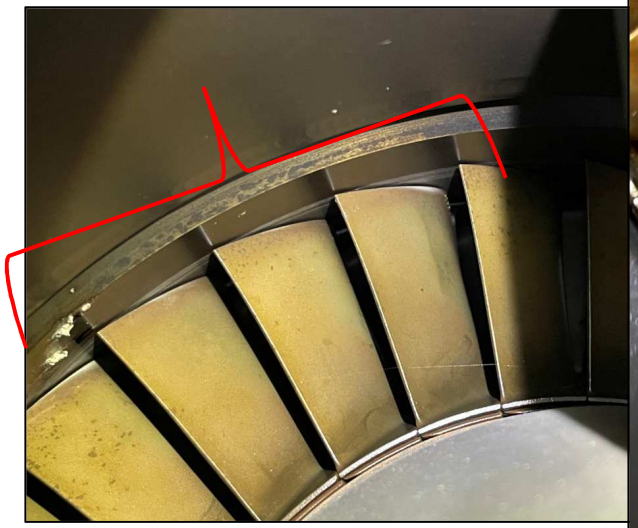
7.2 Engine – Aircraft Inteface checks

7.2.6 Air intake and exhaust

Exhaust was found severly damaged by a tree at the end of the accident sequence.
Power turbine shaft was not accessible from behind when engine was ON the aircraft.
While OFF the aircraft, the exhaust was removed and power turbine was inspected : rubbing marks were found at 3 o'clock (~3 blades wide angular sector) and at 11 o'clock (~5 to 6 blades wide angular sector).



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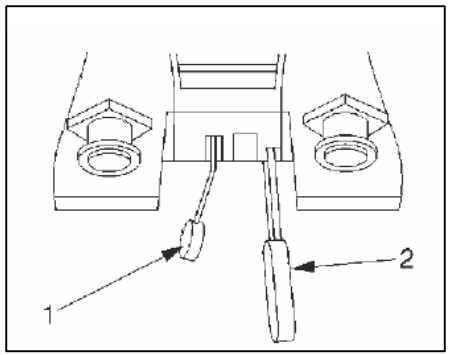
7.2 Engine – Aircraft Inteface checks

7.2.6 Engine controls in cockpit

1 – fuel shut off cock (forward position = OPEN)
2 – rotor brake lever (forward position = NOT ACTIVATED). The snapwire was still unbroken at the crash site, however it was manipulated afterwards during the exams.



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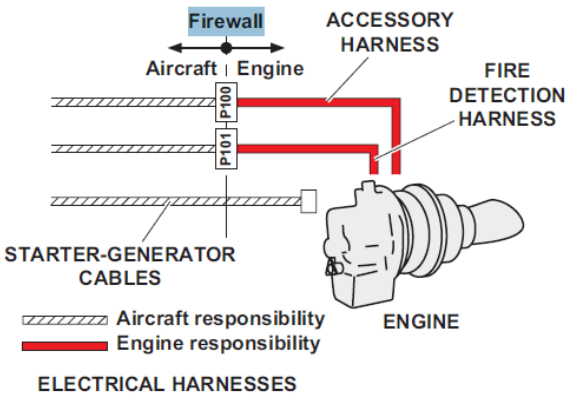
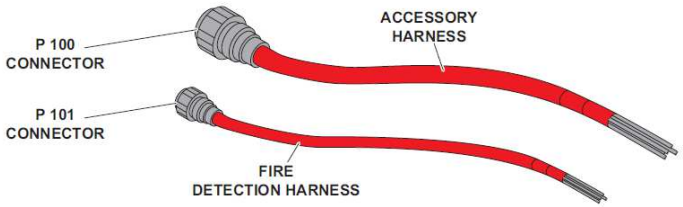
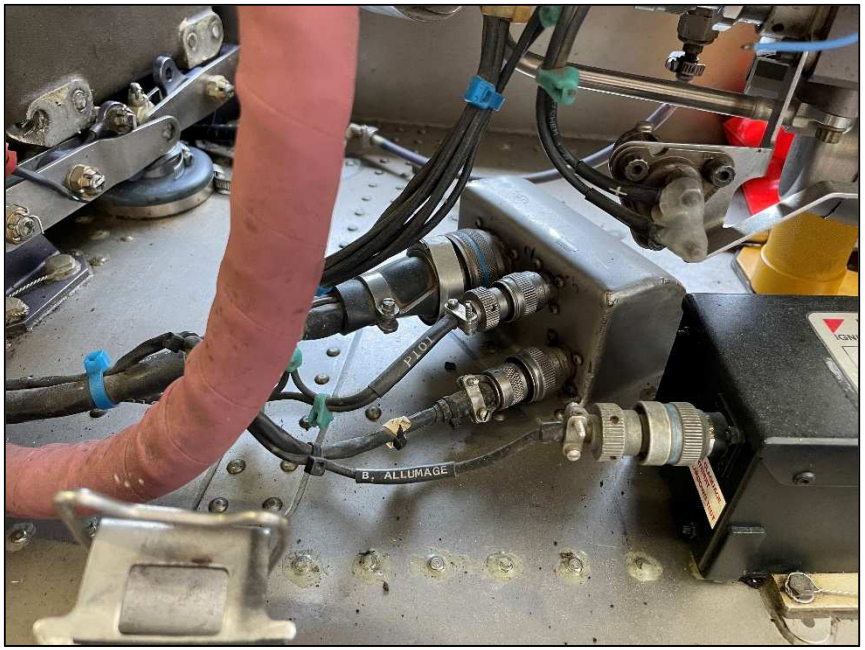
7.2 Engine – Aircraft Inteface checks

7.2.6 Engine harness

Electrical harnesses was connected and properly tighened.







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7.3 Engine examination

7.3.1 Engine shafts free rotation

Gas generator shaft (N1) check : rotating, sound of rubbing but no hard point.

Power turbine shaft (N2) check : rotating freely.

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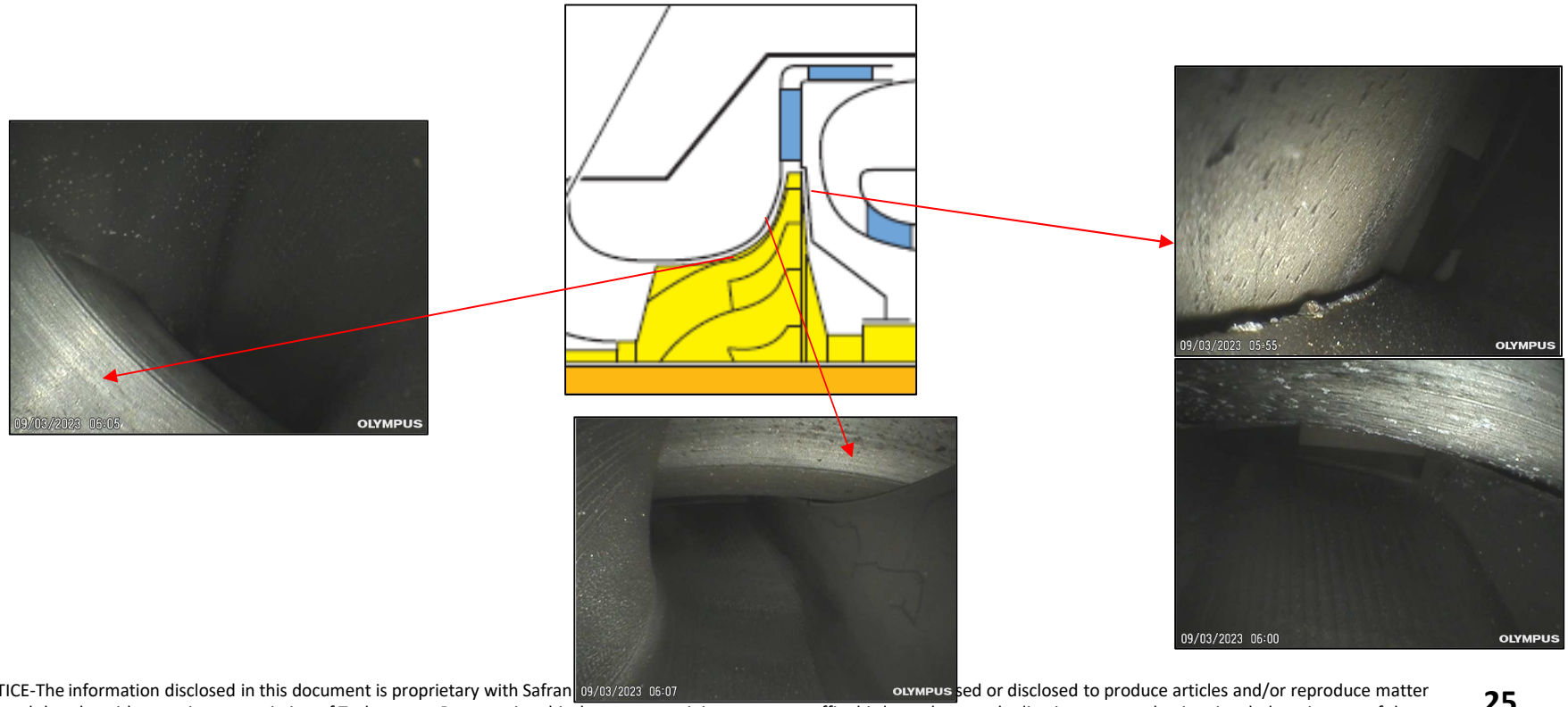
7.3 Engine examination

7.3.2 Engine airpath – borecopic inspection

Impeller blades were found in good condition with no damage. The borescopic inspection shown the presence of :

- rubbing marks on the internal surface of the compressor cover, at the impeller's trailing edge side, and on the compressor elbow area, and on the impeller's leading edge ;
- an aggregation of compressor cover abradable coating deposit (made of aluminium) on several blades' top.



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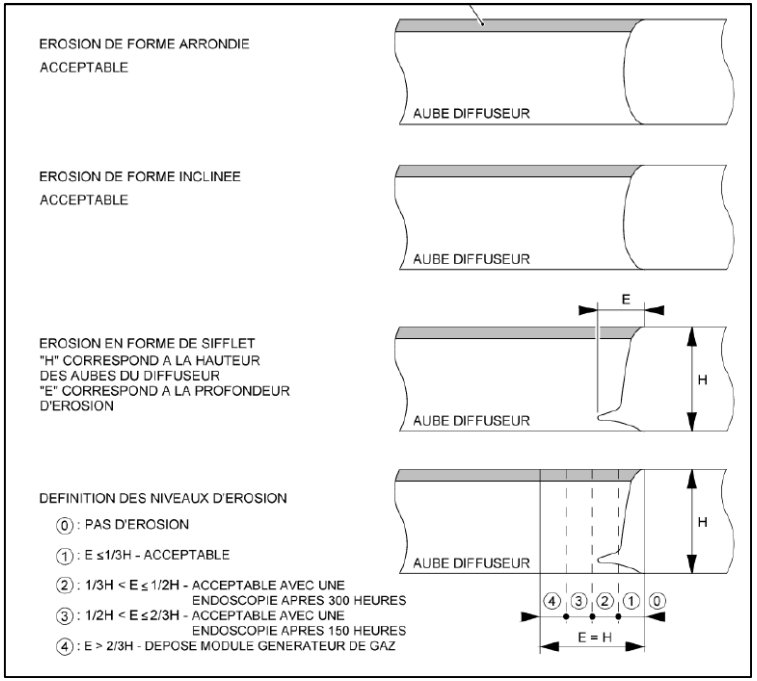
7.3 Engine examination

7.3.2 Engine airpath – borecopic inspection

No erosion was found on the leading edges of the radial compressor diffuser.

Exctract of borescopic inspection task of EMM 71-02-30-280-806-B01



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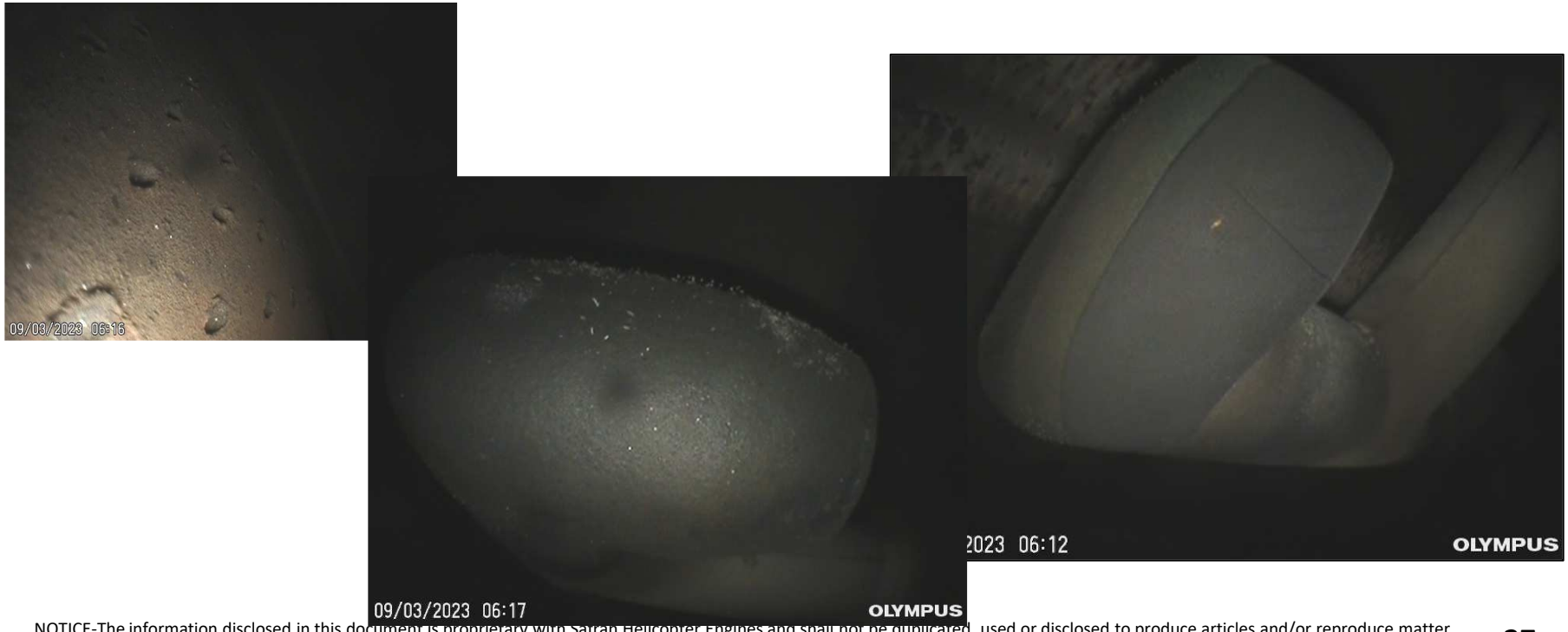
7.3 Engine examination

7.3.2 Engine airpath – borecopic inspection

The inspection of the combustion chamber did not reveal any discrepancy.
A mark was visible prevaporisation tubes. Post on-site exam, this was discussed internally at SafranHE : as the part seems free of thermal damage nor geometrical damage, it does not seem to be a crack.
Some shiny particles were pointed out on a prevaporisation tube.



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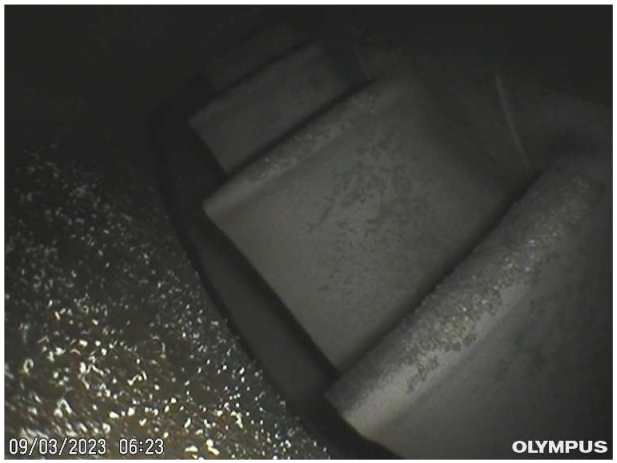
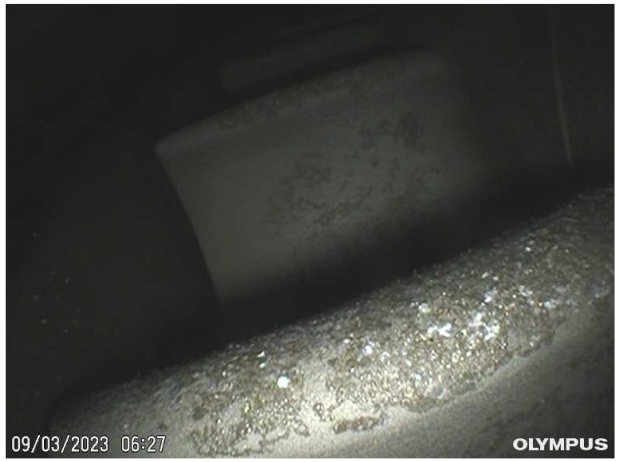
7.3 Engine examination

7.3.2 Engine airpath – borecopic inspection

The borescope inspection of the HP Nozzle Guide Vane and the HP turbine showed that both parts were in good condition.
The presence of shiny particles was pointed out, on the airpaths of the HP NGV and the leading edges of the HP turbine blades.





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On site examination report – Kuala Lumpur, Malaysia
N409HH – March 7th to 9th 2023

7.3 Engine examination

7.3.2 Engine airpath – borecopic inspection

The borescope inspection of the HP Nozzle Guide Vane and the HP turbine revealed the presence of solidifed oil mainly on one HP blade pressure side but also on the leading edges of adjacent HP blades.

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7.3 Engine examination

7.3.2 Engine airpath – borecopic inspection

The borescope inspection of the power turbine guide vane leading edge also revealed the presence of the shiny particles deposit, which were « glued » to the surface.

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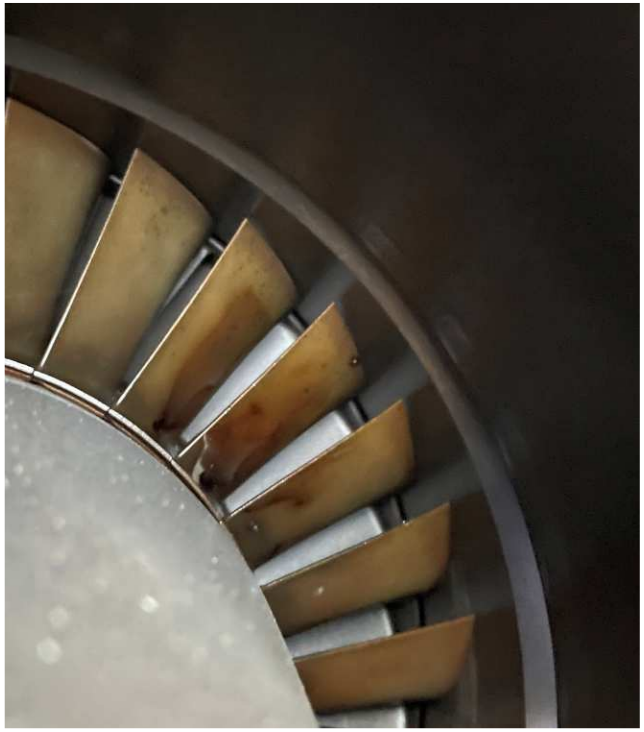
7.3 Engine examination

7.3.2 Engine airpath – borecopic inspection

The borescope inspection of the power turbine blades also revealed the presence of solidified oil deposit locally on two to three blades and on the stator.



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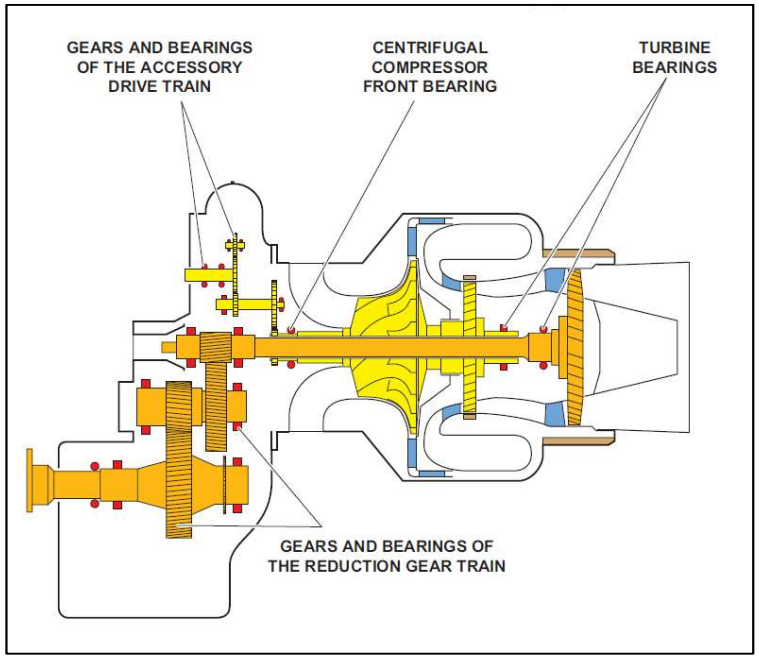
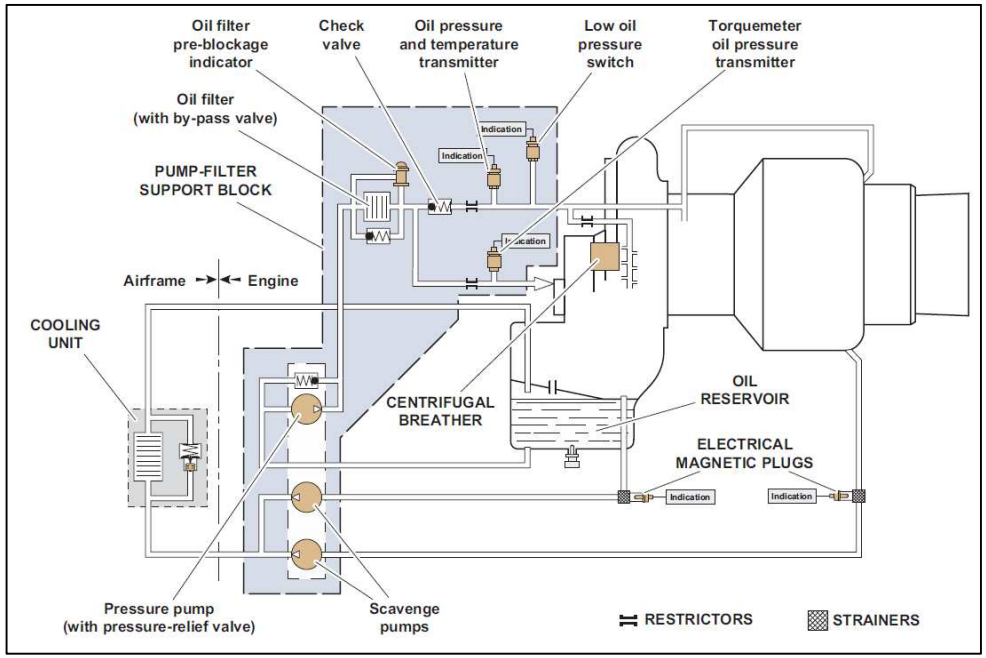
7.3 Engine examination

7.3.3 Oil system





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7.3 Engine examination

7.3.3 Oil system

The oil tank was found empty.

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7.3 Engine examination

7.3.3 Oil system

Oil filter check free of particles nor pollution.

Visual pre-blockage indicator check not activated.

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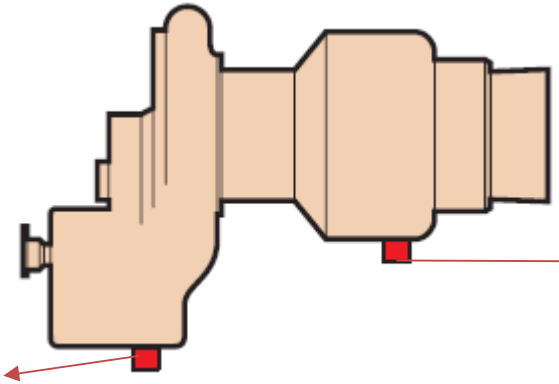
7.3 Engine examination

7.3.3 Oil system



M02 Electrical magnetic plug check : clean

M01 Electrical magnetic plug check : clean

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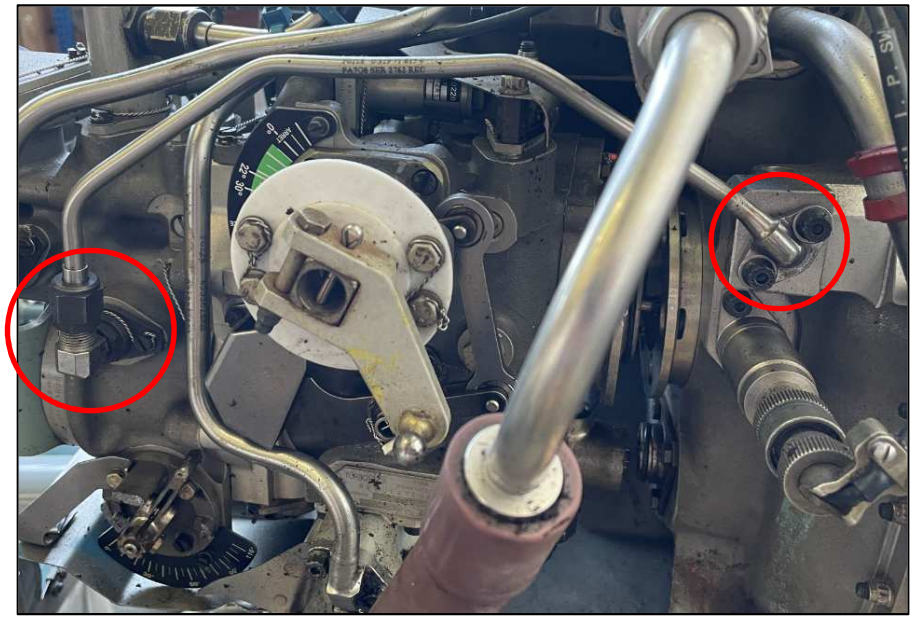
7.3 Engine examination

7.3.4 Secondary air system

A/C P3 air picking : already removed.
P2 FCU (acceleration controler) : set properly on the FCU.



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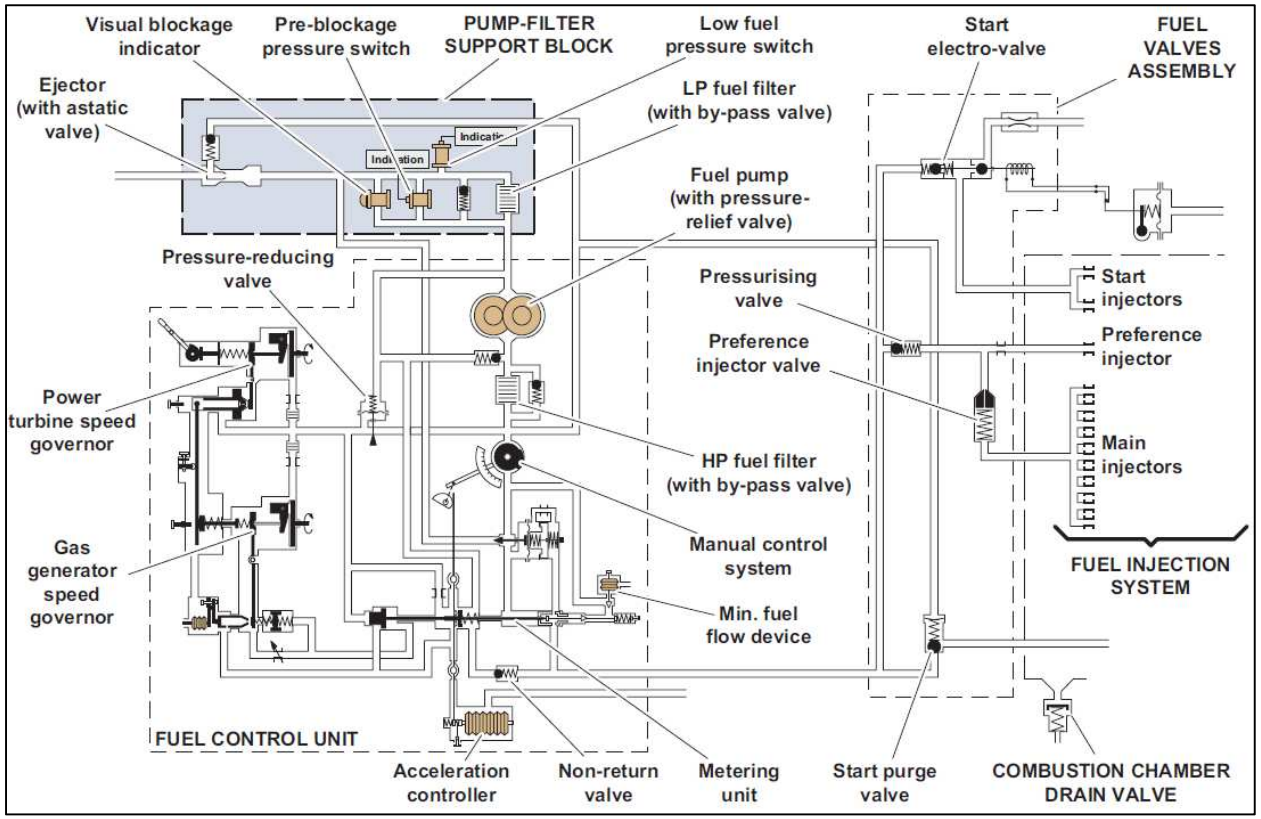
7.3 Engine examination

7.3.5 Fuel system



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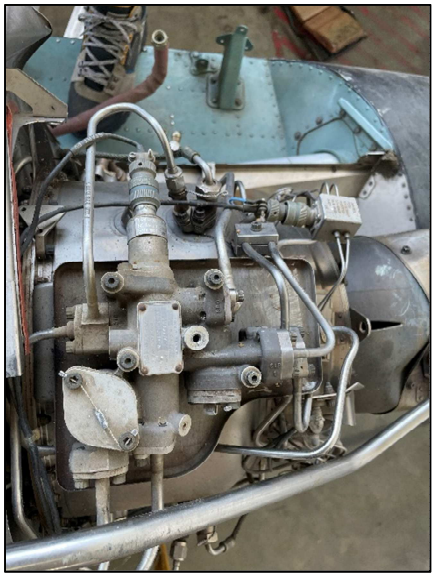
7.3 Engine examination

7.3.5 Fuel system

The fuel filter was not checked to preserve it into the accident condition (in case of later test or analysis).
The blockage indicator was NOT activated.
Fuel valve asy : fire cover was found damaged, all pipes set correctly.



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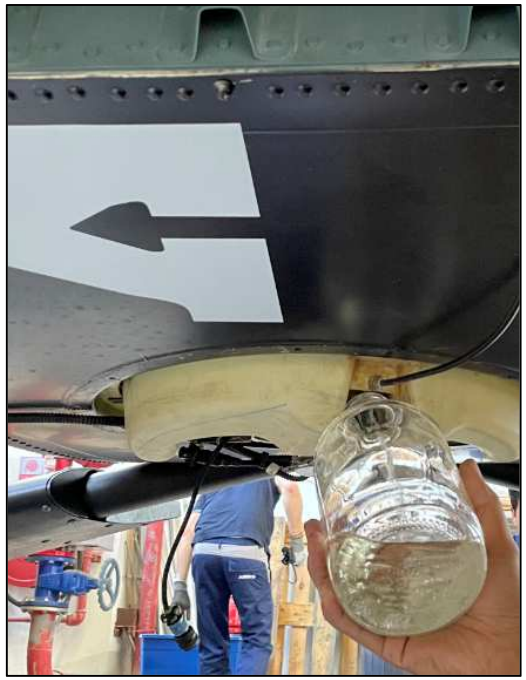
7.3 Engine examination

7.3.5 Fuel system

Fuel samples of 2x 1L were picked from the aircraft fuel tank, for possible later analysis and test.
The fuel looked clear and not polluted.



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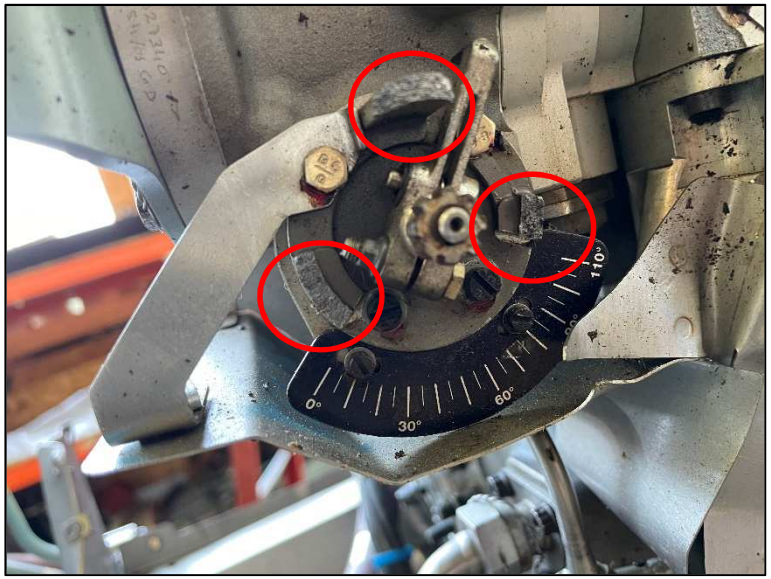
7.3 Engine examination

7.3.5 Fuel system

FCU anticipator lever disconnected and the support was torn off in a static rupture.



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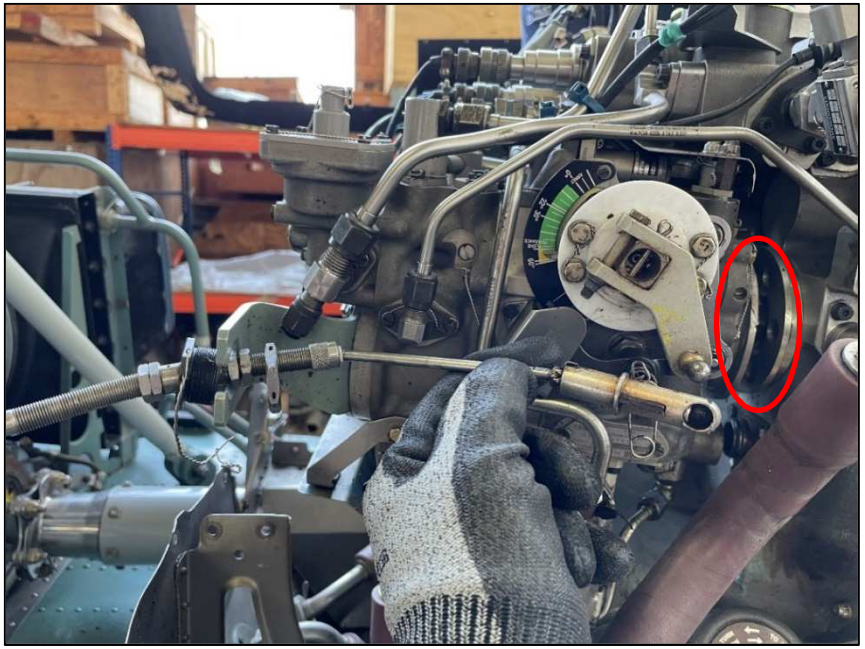
7.3 Engine examination

7.3.5 Fuel system

FCU was found separated from the M01 casing. In such case, the fuel pump does not work anymore an no fuel can go into the combustion chamber. The clamp was broken : one half attachement device was missing but the mettalic tape was in good condition. The fuel control lever was found disconnected and torn off from the FCU. The FCU could not be set back as all the pipes were deformed. It was decided not to remove the pipes in order to preserve them as they were during the accident.



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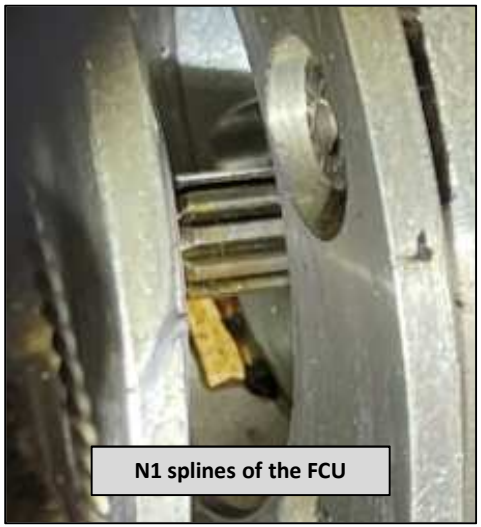
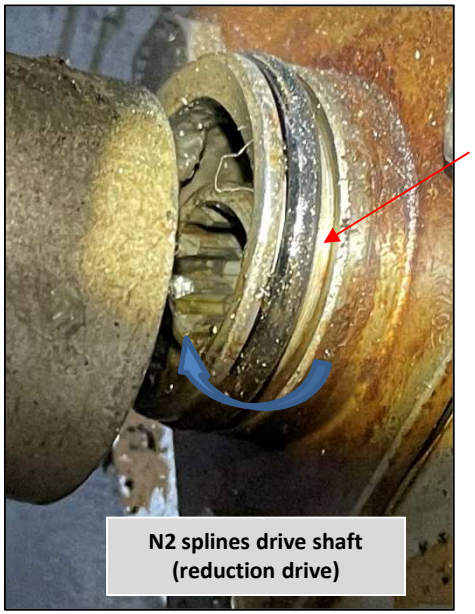
7.3 Engine examination

7.3.5 Fuel system

N1 and N2 splines shaft of the FCU were found without clear visible damage.
However, the N2 drive on the casing side was found in contact with its housing: it seems that the external diameter of the housing was compressed and had deformed. Indeed, the o-ring groove seemed to have enlarged, and bent the external diameter back towards the inside.





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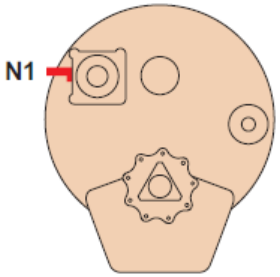
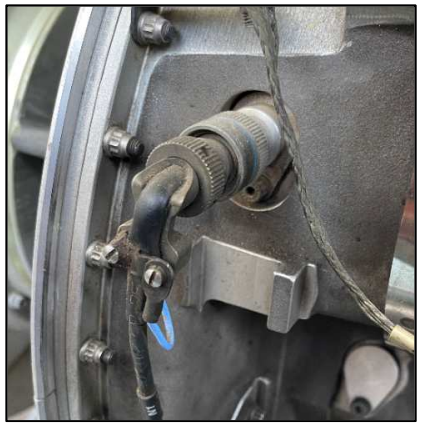
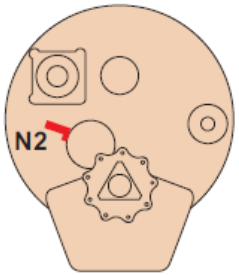
7.3 Engine examination

7.3.6 Measurement system

N1 and N2 sensors were correctly tighened.







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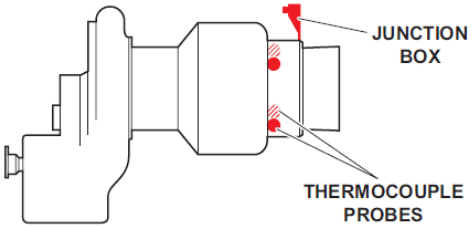
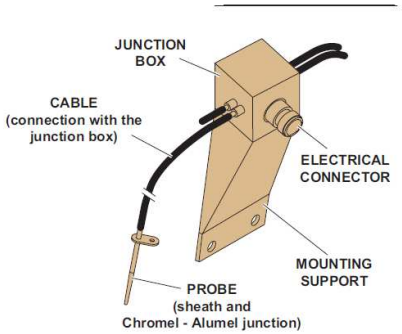
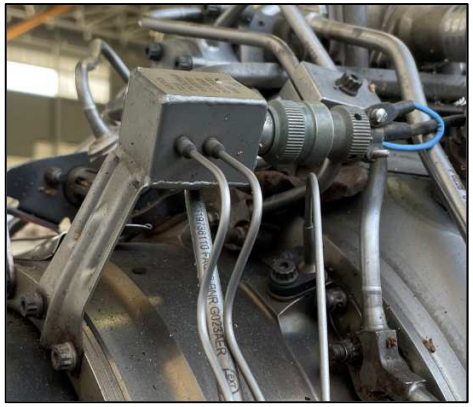
7.3 Engine examination

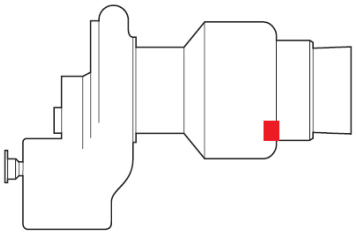
7.3.6 Measurement system

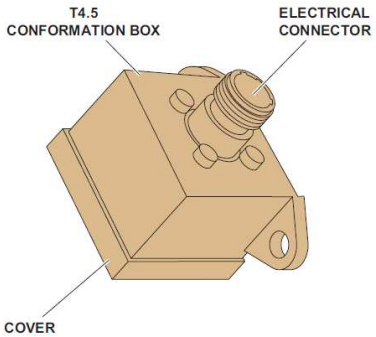
Temperature probes, junction box and conformation box were set corretly, although presenting damages related to the accident.











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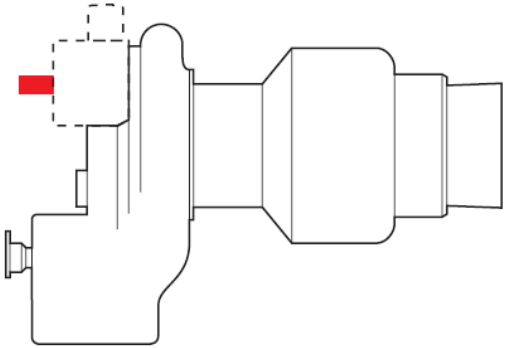
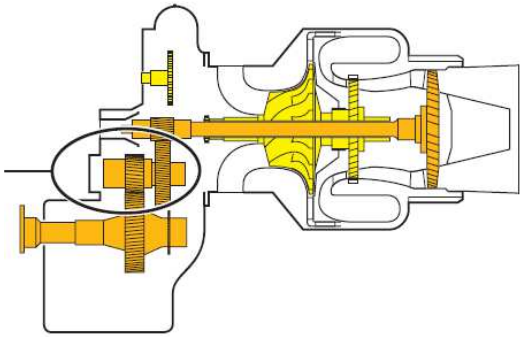
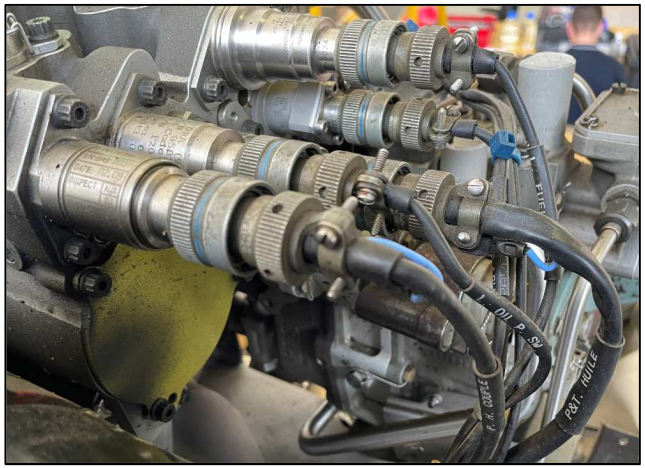
7.3 Engine examination

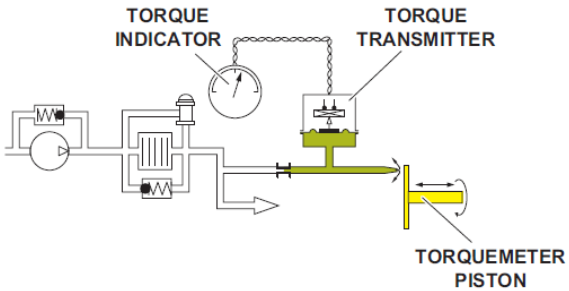
7.3.6 Measurement system

Torque sensor was connected and tighened.









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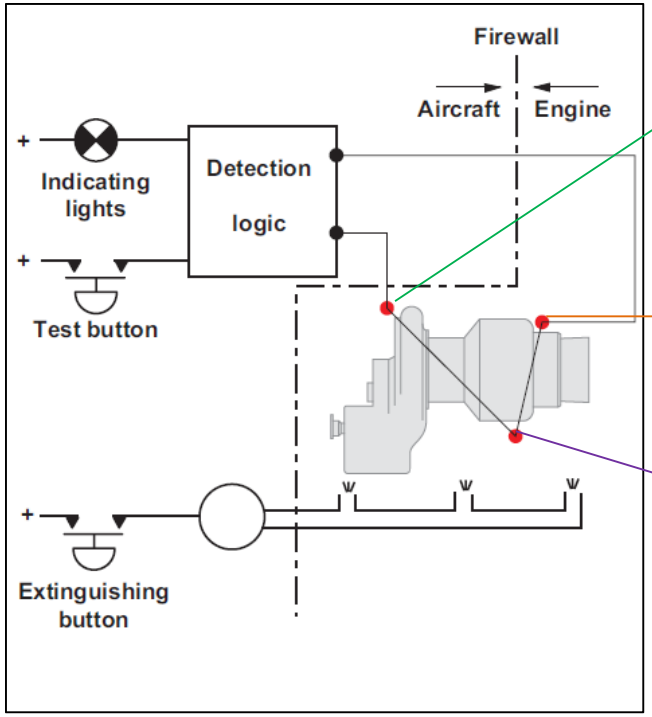
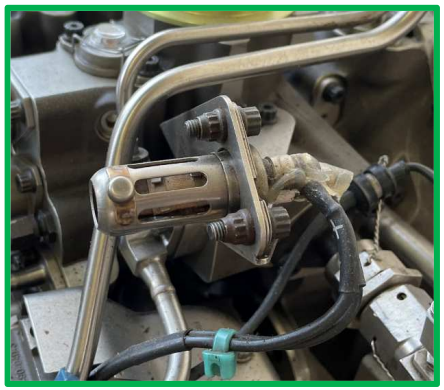
7.3 Engine examination

7.3.6 Measurement system

Fire dectectors present and set.





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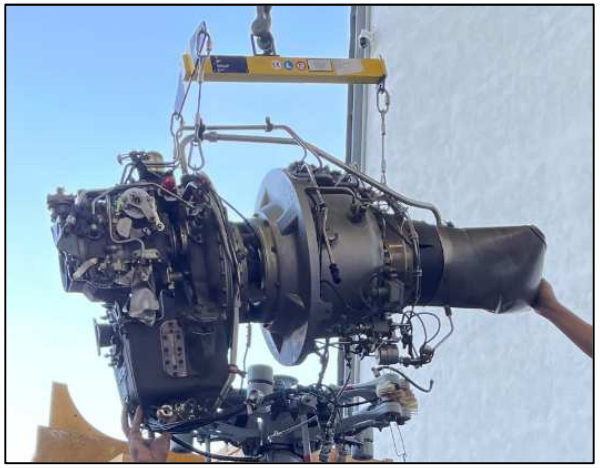
8. Engine removal from the wreckage.

Engine was removed from the wreckage without difficulties.



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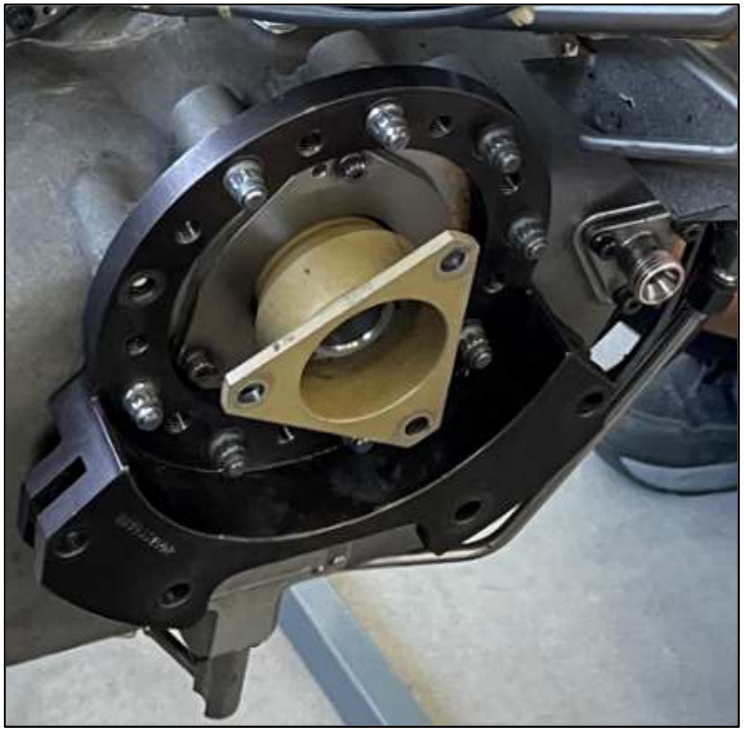
8. Engine removal from the wreckage.

It was difficult to set the tool interface a the front of the engine as all the srews used to set the linking tube were bend (towards the left hand direction). They had to be bent back straight, which led to one screw rupture in the process.



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9. Analysis and discussion

During the investigation, and following the examination of N409HH wreckage and its engine, the following statements and associated analysis was discussed :

- ✓ The engine maintenance was up to date and the engine was airworthy;
- ✓ The engine was correctly set to the aircraft (fuel, oil, air, mountings, shafts) and all the damages were the result of the accident sequence;
- ✓ No engine failure were recorded into the VEMD;
- ✓ Two NR overlimit were exceeded and recorded in the VEMD log;
- ✓ On addition, the radar trajectory of the aircraft in its final moments was very steep : the power need in this phase would be low, which means the engine FCU would probably delivering a limited controlled amount of fuel, possibly the minimum fuel flow. This would explain that at the time of impact, the damages would have been limited for the whole mechanical chain, especially the engine output shaft to the MGB ;
- ✓ The engine was externally damaged, mainly on the left hand side, which correspond to two impacts of the helicopter during the accident sequence :
    - ✓ The first impact was into a tree that stopped the aircraft momentum;
    - ✓ And then a second impact occured when the aircraft fell on the ground.

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9. Analysis and discussion

- ✓ During these impacts :
  - ✓ the impeller rub into the compressor cover axially and radially : this was a sign of rotation of the N1 shaft;
  - ✓ this was followed by the spray towards the rear of the engine of what was most probably the aluminium coating of the compressor cover that was detached by the impeller;
  - ✓ those particles were solidified directly on the parts (prevaporisation tube of the combustion, HP turbine, Power turbine) which is a sign of a hot engine and possibily signifying there was a flame into the combustion chamber ;
  - ✓ the engine mountings were torn off (front and rear; linking tube bent screws into the left direction, broken flange of the linking tube);
  - ✓ the FCU connections were torn off, and the FCU detached from the module M01 casing, causing the engine fuel starvation (no fuel pump anymore), and therefore led to the engine flame out;
  - ✓ N2 power turbine blades made contact with its casing;
  - ✓ The amount of power can not be determined from these statments.

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9. Analysis and discussion

- ✓ Post crash :
  - ✓ The oil tank flow away from the tank through the hole created in the M01 casing by the rupture of the rear left mounting;
  - ✓ Oil present into the oil circuit (supply or scavenge lines) flow away by gravity on the hot parts of the HP or Power turbines.
    - ✓ Solidified and shiny oil deposit is a sign of hot parts, but not as hot as a running engine where blisters would have been visible and color would not be shiny but matte.

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10. Conclusion

Following the wreckage investigation, all the damage were the consequence of the accident.
The engine examination showed that the engine was running during the accident sequence but the amount of power could not be determined.

The aircraft high rate of descent recorded just before the accident possibly combined with high NR overlimit events recorded during the accident flight, would have led to a low power demand and a low fuel flow out of the hydromechanical Fuel Control Unit. With this low fuel flow, the engine torque would not have been significant at impact.
The fast disconnection of the FCU during the impact of the helicopter with a solid obstacle would possibly explain that the mechanical kinematic was preserved from severe damage during the crash sequence, and the subsequent engine flame out.

11. SafranHE's Actions

It is assumed that the engine was running and that the level of power is unknown.

1 - An engine disassembly will provide additionnal information to help to understand the sequence of events and make hypothesis on the scenario, but it will not be possible to determine the level of power at impact. There is no suspicion on the fuel injection system, however, the fuel injection system could be examined and possibly tested following an engine disassembly.

2 - Considering the state of the engine, it can not be test bench.

3 - Fuel analyis could possibly rule out any fuel pollution that could have an impact on the engine power, however, according to SafranHE fuel specialist, the fuel look visually clear and clean.

4 - The FCU could possibly be tested on bench, but a detailed evaluation of its condition would be necessary prior to any SafranHE engagement. It could possibly, unless internally damaged, be determined that the FCU was capable of the maximum fuel flow and that the fuel control was properly governed.

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