

# Air Accident Investigation Sector

## Accident

## - Final Report -

AIFN/0015/2012

## Loss of Control Inflight [LOC-I]

Operator: Horizon International Flight Academy Type: Agusta Bell 206-3B Registration: A6-FTB Location: Al Ain Training Area Six Date of Occurrence: September 04, 2012





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Air Accident Investigation Sector General Civil Aviation Authority The United Arab Emirates

### **Incident Brief**

GCAA AAI Report No: Operator: Aircraft Type Registration Engine [s] Location Category Persons on Board Iniuries AIFN/0015/2012 Horizon International Flight Academy AB206-3B A6-FTB One Rolls Royce M250 Al Ain Training Area Six Air Transport Two Crew None

## **Investigation Objective**

This Investigation is performed pursuant to the United Arab Emirates (UAE) Federal Act 20 of 1991, promulgating the Civil Aviation Law, Chapter VII, Aircraft Accidents and Article 48.

It is in compliance with Part VI, Chapter 3 of the UAE Civil Aviation Regulations, in conformity with *Annex 13 to the Convention on International Civil Aviation* and in adherence to the *Air Accidents and Incidents Investigation Manual*.

The sole objective of this Investigation is to prevent aircraft accidents and incidents. It is not the purpose of this activity to apportion blame or liability.

## **Investigation Process**

The Accident was notified to the General Civil Aviation Authority (GCAA) Air Accident Duty Investigator on the 4<sup>th</sup> September 2012.

An Investigation Team was immediately dispatched to the accident site.

The team coordinated with all authorities on site by initiating the accident investigation process according to prepared and previously exercised plans.

In accordance with ICAO Annex 13, the ANSV<sup>1</sup> (Agenzia Nazionale per la Sicurezza del Volo) were notified and appointed an Accredited Representative [AR] to the investigation and nominated Technical Advisors from the Original Equipment Manufacturer [OEM] of the airframe. Rolls Royce, the engine manufacturer, appointed a Technical Advisor [TA] who travelled to the site.

The Air Accident Investigation Sector (AAIS) of the GCAA is llead the investigation, as the United Arab Emirates (UAE) is the State of Occurrence.

<sup>&</sup>lt;sup>1</sup> The ANSV [Agenzia Nazionale per la Sicurezza del Volo ] is the Italian authority responsible for safety investigations into accidents or incidents in civil aviation.





## **ADREP Classification**

Primary	Abnormal Runway Contact [ARC]	
Secondary	Loss of Control - Ground [LOC-G]	

Note:

The Accident/Incident Data Reporting (ADREP) system is operated and maintained by ICAO. The ADREP reporting system is based on the use of a common reporting taxonomy, States use this taxonomy in their national reporting to achieve international harmonisation and thereby enable the exchange and aggregation of occurrence information.

## Aircraft Data

The AB206-B3 is a single pilot, five place, light helicopter with a two-blade semi-rigid main rotor, and a tail rotor that provides directional control.

The airframe is a semi-monocoque<sup>2</sup> fuselage with an aluminium alloy and fiber glass aerodynamic fairings, an aluminium alloy monocoque tail boom supporting the vertical fin, fixed horizontal stabiliser, tail rotor assembly and tail rotor drive train.

The primary load carrying structures are two built in cabin bulkheads, a vertical control tunnel from the floor to the cabin roof and a pair of longitudinal beams in the cabin roof.

The landing gear is tubular aluminium skids mounted laterally.



Figure 1: Augusta Bell [AB] 206B [exemplar]

<sup>&</sup>lt;sup>2</sup> In design engineering, stressed skin is a type of rigid construction, intermediate between monocoque and a rigid frame with a non-loaded covering. A stressed skin structure has its compression-taking elements localized and its tension-taking elements distributed.





### **Accident Synopsis**

During a training flight from AI Ain International Airport [OMAL], an Agusta-Bell 206-3B helicopter operating in the north western training area with an instructor and a student pilot were completing a training flight involving practice autorotation onto the training area six heliport, northwest of AI Ain International Airport.

During the second autorotation exercise, an unstable condition developed in close proximity to the ground due to a loss of control. This resulted in the instructor taking control of the aircraft and attempting to recover the situation and re-stabilise the aircraft to a level flight attitude and arrest the sink rate.

The aircraft contacted the ground with a high rate of descent and minimal forward speed resulting in significant deformation of the primary structure, a rotor strike on the aft of the tail boom, followed by the separation of major primary structural components and the transmission/rotor assembly from the aircraft.

There was no post-accident fire.





## **1. Factual Information**

#### 1.1 History of the Flight

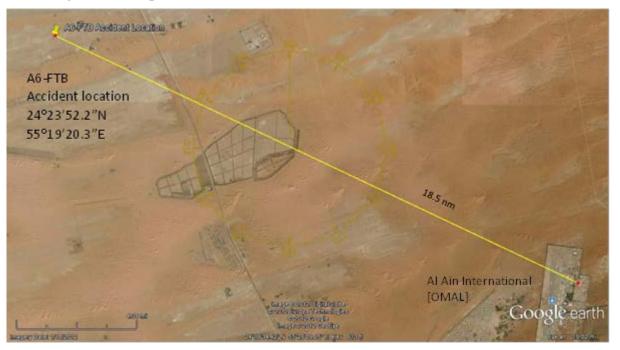


Figure 2 - Google Earth Overview - Accident location/airport proximity

The Instructor briefed the student pilot for a revision exercise involving Engine-Out Landing [EOL] autorotation exercises to a fixed point on the ground.

The student was the handling pilot for the departure from the fixed operating base at Al Ain International Airport [OMAL] to the training area to the northwest of the airport designated as Training Area 6 [TA6]; engine start was at 0715 UTC.

Upon arrival at TA6, the instructor demonstrated several procedures relating to the training flight and the revision exercises.

Due to passing IFR traffic, the training flight was height restricted to 1500 ft for the majority of the training session up until the time that a limited five minute window was available to operate to 2500 ft or below; this time at approximately 0722 UTC when the clearance to operate up to 2500 ft was acknowledged.

The student executed the first of two planned 360° autorotation exercises successfully.

During the second autorotation exercise, an unstable condition developed in close proximity to the ground resulting in the instructor taking control of the aircraft and attempting to recover the situation and return the aircraft to a stable, level flight attitude and arrest the sink rate.

The aircraft contacted the ground with a high rate of descent and minimal forward speed resulting in significant deformation of the primary structure, a rotor strike on the aft tail boom, followed by the separation of major primary structural components and the transmission/rotor assembly from the aircraft.

There was no post-accident fire.





#### 1.2 Injuries to Persons

Both crewmembers were uninjured and the egress from the habitable occupied space was without incident.

Further information on the type of injury, crew protection and the cabin survivability is detailed later in this report.

Injuries	Crew	Passengers	Others
Fatal	0	0	0
Serious	0	0	0
Minor	2	0	0

Table 1: Injuries to Persons

#### **1.3 Damage to the Aircraft**

The aircraft was substantially damaged due to the rapid descent and abnormal contact with the training area followed by the uncontrolled rotation of the helicopter on the training area circumference.



Figure 3: Accident Site Overview

#### 1.4 Other Damage

No additional damage was evidenced or recorded. The TA6 area is an unmonitored training site.

#### 1.5 Personnel Information

The Instructor was licensed and current on type. GCAA CPL [H] #31529





#### **1.6** Aircraft Information

Aircraft Data

- Type: Agusta-Bell AB206-3B
- Registration: A6-FTB
- Manufactured: 1983
- Engine: 1 x Rolls Royce M250

The aircraft was airworthy at the time of the accident. GCAA Airworthiness certificate was revalidated on 29 April 2012.

#### 1.7 Meteorological Information

#### OMAL AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA

1	ARP coordinates and site at AD	241542N 0553633E, Mid - point of RWY, on CL
2	Direction and distance from (city)	8 NM WNW of Al Ain
3	Elevation/Reference temperature	866 FT / 39° C
4	Geoid undulation at AD ELEV PSN	-104 FT

#### Table 2: Aerodrome Data

Meteorological data for AI Ain International Airport [OMAL] 04 September 2012 was as follows:

In summary: light variable winds, no significant clouds, good visibility.

METAR/SPECI/AI Ain/OMAL/04th September 2012
201209040100 METAR OMAL 040100Z 32003KT 8000 NSC 31/23 Q1002 A2959=
201209040200 METAR OMAL 040200Z 03003KT 340V060 6000 NSC 30/24 Q1002 A2960=
201209040300 METAR OMAL 040300Z 05004KT 6000 NSC 30/24 Q1002 A2961=
201209040400 METAR OMAL 040400Z 15010KT 7000 NSC 32/21 Q1003 A2962=
201209040500 METAR OMAL 040500Z 16010KT 7000 NSC 34/20 Q1003 A2963=
201209040600 METAR OMAL 040600Z 16009KT 8000 NSC 36/19 Q1003 A2963=
201209040700 METAR OMAL 040700Z 17006KT 110V220 8000 NSC 38/19 Q1003 A2962=
201209040800 METAR OMAL 040800Z 12003KT 030V200 8000 NSC 40/16 Q1002 A2960=
201209040900 METAR OMAL 040900Z 21004KT 160V260 CAVOK 42/14 Q1001 A2957=





OMAA LOW LEVEL WINDS for 0000UTC on 04 <sup>th</sup> September 2012	
Surface WIND: 27004KT TEMP: 33.0 C	
0500FT WIND: 24503KT TEMP: 32.1 C	
1000FT WIND: 30505KT TEMP: 30.6 C	
2000FT WIND; 30506KT TEMP: 32.7 C	
3000FT WIND: 25502KT TEMP: 31.6 C	
4000FT WIND: 20002KT TEMP: 29.5 C	
5000FT WIND: 14005KT TEMP: 28.4 C	
6000FT WIND: 17504KT TEMP: 26.9 C	
7000FT WIND: 17506KT TEMP: 24.7 C	
8000FT WIND: 19508KT TEMP: 22.1 C	
9000FT WIND: 17506KT TEMP: 19.5 C	
10000FT WIND: 13504KT TEMP: 16.6 C	
TAF OMAL 032300Z 0400/0506 29006KT CAVOK/04th September 2012	
BECMG 0402/0404 16010KT	
BECMG 0409/0411 35011KT	
PROB30 TEMPO 0412/0415 VRB18G30KT 3000 BLDU FEW045TCU	
BECMG 0417/0419 05005KT	
BECMG 0502/0504 16007KT	

Table 3: Meteorological Information OMAL 04 September 2012

During the high temperature months the operator limits the flying during the peak temperature times around mid-day and early afternoon to avoid the performance limitations imposed by the high ambient temperatures.

The accident occurred at 07:59 UTC, or 11:59 Local time, so at the limit of the high ambient temperature zone. The high ambient temperature and the reduced density altitude will affect the helicopter power and aerodynamic performance.

#### Fixed Base Meteorological Station [FBMS]:

There is no portable or fixed meteorological station at the unmonitored training areas<sup>3</sup>, subsequently the wind strength and direction is determined by the handling pilot for each operation.

There are no windsocks or other visual aids to indicate to the pilot the local areas conditions.

#### **1.8** Aids to Navigation

Not required

<sup>&</sup>lt;sup>3</sup> There is no GCAA requirement for a fixed meteorological station





#### 1.9 Communications

#### **VHF Communication**

The radio communications were standard. All transmissions between the accident aircraft and OMAL Approach were recorded.

The accident aircraft [H0] contacted OMAL Radar at 0721:58 requesting clearance to operate at 2500 ft and below.

Another aircraft [H1] operating in the same training area contacted OMAL Radar at 07:59:22 to advise the accident aircraft was damaged and that the crew of the accident aircraft had been collected from the accident site.

Time [UTC]	Freq	Aircraft/Grnd Stn	Text
7:22:19	9 133.55 H0 Alright ah no problem, two thousa below		Alright ah no problem, two thousand five hundred and below
7:45:53	133.55	33.55 H1 Approach ah H1	
7:59:20	133.55	Al Ain Radar	H1 go ahead
7:59:22	133.55	H1	H1 completed [inaudible] and sir I'd like to inform you that H0 aircraft alpha six foxtrot tango bravo, ahh he had emergency landing, eleven forty five local time, area six, the cause sir aircraft damage.
7:59:22	133.55	Al Ain Radar	H1, report X-ray, I understand H0 on the ground

Table 4 - VHF Radio Communication – abridged transcript

#### 1.10 Aerodrome Information

The training area is an unmonitored heliport, used for training purposes only.

The training area is defined by a circle of tyres and there are no fixed visual aids or fire fight/rescue facilities available.

- The accident location is in a defined training area 18.25nm north west of the aerodrome
- The GPS location for the accident in OMAL Training Area 6 [TA6]:
- o LAT 24° 23' 52.2" N/ LONG 55° 19' 20.3" E
- TA6 is 500 ft above sea level
- Landing Site Density Altitude [DA]<sup>4</sup>

Elevation/Reference temperatures 866ft/39°C<sup>5</sup>, with the Geoid undulation at -104ft, at 1003 hPa, gives a corrected value of 1062ft. Based on the observed actual temperatures at the time of the accident [39°C], the DA for the T6 area elevation was approximately 4000ft.

<sup>&</sup>lt;sup>4</sup> Density Altitude

Density altitude represents the combined effect of pressure altitude and temperature. It is defined as the height in the standard atmosphere that has a density corresponding to the density at the particular location (on the ground or in the air) at which the density altitude is being measured

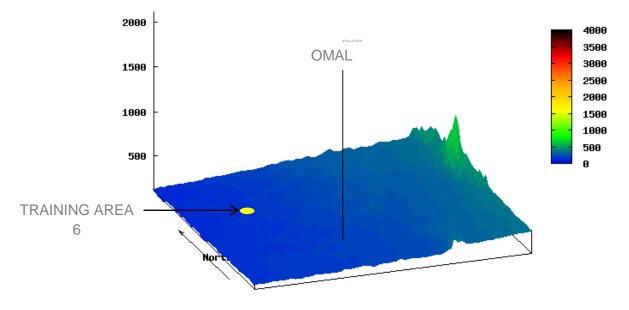
<sup>&</sup>lt;sup>5</sup> AERODROME REFERENCE TEMPERATURE

An aerodrome reference temperature shall be determined for an aerodrome in degrees Celsius.

The aerodrome reference temperature should be the monthly mean of the daily maximum temperatures for the hottest month of the year (the hottest month being that which has the highest monthly mean temperature). This temperature should be averaged over a period of 2 years.









The training area is an unmonitored training area, northwest of OMAL. The area is level, with firm impacted sand, a circular arrangement of tyres indicate the landing area and there are no wind socks or other obstacles present.

Wind direction and speed judgement was at the discretion of the handling pilot.

#### 1.11 Flight Recorders

For this category of transport aircraft flight data recorders and cockpit voice recorders are not mandatory.

The requirement for cockpit cameras, under current international regulations also do not require video recording of the crew area.

#### 1.12 Wreckage and Impact Information

The location of the accident was in TA6.

The accident site was 18.25 nm from OMAL on a radial of 295° from the operators fixed base.

The accident site surface is level compacted sand, with an estimated CBR<sup>6</sup> of 3-4, with a blown and drift sand accumulations scattered locally.

The wreckage is localised to the immediate area of impact in an approximate 70x70 meter grid. Various structural parts and components were found up to 70 meters from the accident site; the majority of the wreckage is localised in one location.

There was pooling of leaking fuel from fuel tank with large areas of hydraulic fluid scattered or pooling around the engine and detached transmission/rotor blade assembly.

The LH aft skid stay of the LH skid had failed under the high induced loads during the heavy landing puncturing the fuel bladder tank.

<sup>&</sup>lt;sup>6</sup> California Bearing Ratio (CBR) is a test for evaluation of the compressive/mechanical properties of terrain substrata material.





#### 1.13 Medical and Pathological Information

Both crewmembers were conscious and mobile following the accident.

Both the instructor and the student pilot were transported to a hospital.

GCAA CAR Ops requires that all crew are to provide an alcohol and drug test following an accident or incident. This was completed following the hospitalisation.

#### 1.14 Fire

There was no fire.

#### 1.15 Survival Aspects

Both crew survived the impact and deceleration loads with minor injuries.

The available living space in the cockpit remained intact with significant buckling of the support structure immediately aft of the two crew seats.

There was limited deformation of the floor structure, seat retention fasteners, console, seat structure and overhead panel.

The crew seats remained intact as did the crew restraints/harnesses and support fittings.

Neither crewmembers was wearing Aviation Life Support Equipment [ALSE] such as a combined communications systems and cranial protective helmet.

The left hand (LH) landing skids deformed during the heavy landing.

The Skid puncturing the LH side of the fuel bladder resulting in fuel spillage.

The Emergency Locater Transmitter (ELT) did not trigger.

#### 1.16 Test and Research

The engine was sent to the manufacturer's test and repair facility for detailed analysis<sup>7</sup>.

High temperature operational limitations have been analysed with the manufacturer to determine if there is a requirement to add an addendum to the performance limitations criteria.

<sup>&</sup>lt;sup>7</sup> The engine function report is attached in the appendix to this report





#### 1.17 Organizational and Management Information

#### 1.17.1 Horizon International Flight Academy

Horizon International Flight Academy [HIFA] is an approved Flying Training School [FTS] in accordance with CAR Part IV/Section A – *Approved Flying Schools*.

The operator is based at OMAL in the United Arab Emirates. The academy provides both fixed wing and rotary wing training utilizing a fixed wing fleet of Cessna 172SP, Diamond DA42, and a rotary Bell 206 and Bell 407 aircraft.

The training courses cover the scope of flight crew licensing<sup>8</sup> from Private Pilot to Airline Transport Pilot License and Flight Instructor Ratings. The academy also provides training to the military and police sectors. Since its establishment, the academy has trained more than 800 pilot and instructor graduates.

The training programs follow the European Aviation Safety Agency (EASA) syllabus. The training courses for both fixed wing and rotary wing are approved by the UAE General Civil Aviation Authority (GCAA), and the fixed wing training courses are also approved by EASA.

At the time of the accident, HIFA had a complex organizational structure involved in training both civilian and military cadet pilots in rotary and fixed wing flying utilizing four different aircraft types.

#### 1.17.2 HIFA Safety Management System

#### Safety Manual Review

The HIFA Safety Manual was accepted by the GCAA in 2011 and it formed the basis for the Safety Management System. Based on the documentary evidence, a gap analysis was not undertaken by HIFA's accountable managers prior to producing the Safety Manual. The manual was not complete at the time of its acceptance by the GCAA as the safety management procedures had not been included in the initial version and these were to be developed and implemented gradually by the organization.

#### **Emergency Response Plan Review**

The HIFA Emergency Response Plan (ERP), sent to the GCAA in January 2013, but issued prior to its approval, is a generic ERP designed to an Occupational Health and Safety instruction manual standard, and not an integrated ERP plan as defined by ICAO.

#### 1.17.3 GCAA Oversight of the Operator

Regulatory oversight by the GCAA is conducted by Safety Affairs.

As of December 31<sup>st</sup> 2011, a UAE based flight training organisation which is certified under CAR PART IV- *Special Purpose operations*, Section "A", shall show a complete compliance with this regulation by establishing a safety management system that is acceptable to the GCAA, maintaining it and completing its implementation by establishing and complying with the requirements of this Part.

The operator is required under CAR Part X to have a functioning and proficient Safety Management System. See below:

Safety Management Systems

CAR Part X- Safety Management System Requirements

<sup>&</sup>lt;sup>8</sup> Per CAR Part IV/SUB-SECTION 1.0 – GENERAL/1.4





(d) An Air Operator/Private Operator that holds a certificate issued under CAR OPS 1 or CAR OPS 3, or a flight training organisation certificate and at the same time holds a Maintenance Organisation Approval issued under CAR 145 shall establish an integrated Safety Management System.

The operator is required under CAR Part X/Section 8 to develop and maintain an ERP.

8. EMERGENCY RESPONSE PLAN: The Organisation shall develop and maintain, or coordinate, as appropriate, an emergency response plan (ERP) that outlines what actions are to be taken following an accident or an emergency situation. The overall objective of Emergency response Plans is the safe continuation of operations or the return to normal operations as soon as possible. Where it is not reasonably practical for an Organisation to establish an ERP, the GCAA may accept removal of this requirement on a case by case basis.

#### 1.18 Additional Information

#### **Civil Aviation Advisory Publication – CAAP 70**

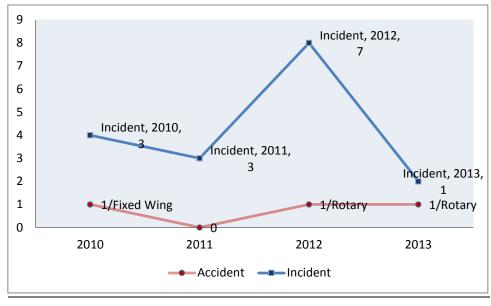
CAAP 70 - Heliports: Air Service and Private Use/(Not Air Service): Standards, Guidance and Information Regarding Heliports (Issued June 2014), was published as a result of the ICAO adoption of Amendment 6 to Annex 14 Volume II. This amendment was effective on 14<sup>th</sup> July 2014 and will become applicable as of 13<sup>th</sup> November 2014.

CAAP 70 makes reference to guidance and information regarding helicopter operations, in particular reference should be made to Landing Area Acceptance [LAA] and the self-assessment risk matrix referred to in the CAAP.

#### Accidents and Incidents

Over the period from October 2011 to January 2013 there was an increase in the accident and incident rate with the operator.

The operator had an increasing number of incidents/accidents during the period from 2010 to 2013.



The figure below illustrates a summary of the incidents/accidents for this operator.

Figure 5 - Accident Rate 2010 - 2013





The time interval between the occurrence of this accident and the publication of the report was delayed as the operator was in the process of implementing various organisational and safety initiatives.

The aircraft used by the training school are not equipped with GPS location devices.

The aircraft are not equipped with radar altimeters [RADALT]<sup>9</sup>. All height above ground calculations are determined by the handling pilot based on the altimeter barometric setting and mentally deriving the height through a process of subtracting the height above sea level from the indicated altimeter setting.

#### 1.19 Useful or Effective Investigation Techniques

Standard investigative techniques where used.

The GCAA completed an organisational audit of the operator to determine the safety standards and accepted best practice.

The investigation reviewed the Adoption of the International Helicopter Safety Team [IHST] and Gulf Flight Safety Committee [GFSC] initiatives to reduce accidents, including the following: Manoeuvre Initiation Envelope [MIE].

<sup>&</sup>lt;sup>9</sup> A radar altimeter, electronic altimeter, reflection altimeter, radio altimeter (RADALT), low range radio altimeter (LRRA) or simply RA, used on aircraft, measures altitude above the terrain presently beneath an aircraft or spacecraft by timing how long it takes a beam of radio waves to reflect from the ground and return to the plane. This type of altimeter provides the distance between the antenna and the ground directly below it, in contrast to a barometric altimeter which provides the distance above a defined datum, usually mean sea level.





## 2. Analysis

#### **Safety Manual**

The Safety Manual had not been through an implementation and validation process from the initial submission and acceptance by the GCAA.

The acceptance of a partially completed Safety Manual by the GCAA did not encourage the operator to produce a manual that met the requirements of the regulator.

The review of the safety manual resulted in a finding resulting from the content clarity and the SMS format and purpose.

It is recommended practice to undertake a gap analysis of the existing safety system versus the documented SMS requirements before writing the SMS Manual prior to devising a plan to implement an SMS. There is no documentary information available from the operator indicating a gap analysis was performed.

The end result was a dysfunctional SMS that lacked coherence and direction and was incapable of fostering a reasonable safety culture.

The operators SMS was not considered sufficient for the purpose of safety management and accident prevention when reviewed against international best practice.

#### **Change Management**

The academy has grown significantly since its foundation in 2009. It has been subjected to the stresses associated with a fast growing aviation business in ensuring its ability to offer services which meet the needs of the training Industry and also comply with regulations and maintain the highest level of safety.

During this period, there have been a number of organizational changes which have added to the constant state of change. This has led to inconsistency and uncertainty across the organization.

From 2009, there have been three Accountable Managers, two Heads of Training for the Fixed Wing Division, two Chief Flight Instructors for the Fixed Wing Division, two Chief Operating Officers, and a number of instructor level changes. With each change among the Post Holder and senior management body there were operational, procedural and organizational cultural changes. Since the organization has little or no change management processes in place this has led to corporate identity confusion. The establishment of a safety culture in this environment was problematic.

#### **Regulatory Audits**

The GCAA audits from 2009 to 2013 indicate insufficient focus on Standardization and Change Management. The audit findings indicated that the training manuals were to be updated to meet regulatory requirements.

One manual was approved in a format acceptable to the GCAA. This was the Integrated Airline Transport Pilot License (ATPL) Manual for the Fixed Wing Division, which was accomplished in 2011. Up to the time of the accident, no further manuals have been submitted to the GCAA that meet the regulators standard, either in content or format.

Regulatory audits findings highlighting non-compliance with the operators Standard Operating Procedures [SOP's] with reference to GCAA guidance. Failure to close audit findings by the operator resulted with a warning being issued to the organization by the GCAA. A number of the findings, year-





on-year, were repetitive in nature, and the corrective actions implemented by operator failed to prevent repeated occurrences.

#### **Emergency Response Plan**

The operator's Emergency Response Plan (ERP), provided to the GCAA in January 2013, and issued by the operator prior to GCAA approval was a generic corporate ERP designed to an Occupational Health and Safety instruction manual standard, and not an integrated ERP plan as defined by ICAO suitable for aviation regulatory approval.

No gap analysis was performed prior to the drafting and formulation of the ERP. The result of this approach to drafting the ERP is a document that is not sufficiently detailed to effectively manage a dynamic situation such as an aircraft accident or serious incident.

The operators ERP is not integrated into the aerodrome ERP plan. Although the plan contains some references to the provision of ERP training for the operator's personnel these functions are not specified or allocated.

All aviation ERP's include checklists and contact lists. The checklists are coordinated with each other and are essential to allow correct execution of the plan. The operators ERP contains no checklists or contact lists or any reference to these items.

The operators ERP states that a single integrated emergency response plan has been developed. This plan is intended to be implemented for any emergency affecting the operator. The plan does not specifically deal with the response to an aircraft accident or serious incident in sufficient detail. There is no reference to ICAO Annex 13 nor is it included as an appendix.

The ERP contains no definition of aircraft accident. The operator has redefined an aircraft accident as an incident in their ERP terminology. To avoid ambiguity standardized ICAO definitions shall be used for all ERP documents.

The review indicated that the ERP does not have detailed policies, procedures or a coordinated response action plan. In the event of an aircraft accident this could cause confusion regarding the initial notification and vital actions required to coordinate, respond and execute a workable response to a significant event.

#### **Accident Sequence Analysis**

- A. AB206 designation 'H Zero' [H0] was cleared to climb then to vacate 2500 ft due to traffic.
- B. H0 completed two 360° turns then set up a 180° turn for the entry into the practice auto rotation onto TA6..
- C. The AB206 is in the descent to the TA6 landing zone, the student is the handling pilot.
- D. The SOP is to open the throttle at 500ft Above Ground Level (AGL).
- E. Flare initiated at 250ft AGL. Pilot report states 'Low RRPM and Warning Light on'.
- F. Instructor assumes command and pushes the cyclic forward at 50ft.
- G. Throttle opened to the Flight indent.
- H. Aircraft attitude in nose high, the tail guard and skids contact the ground the same time as the throttle is opened. The rotor blades deflected down due the hard landing and contact the tail boom, the tail boom then separates.
- I. Aircraft becomes airborne while yawing clockwise, sever vibration results from the damaged rotor. The aircraft contacts the ground as the throttle is closed
- J. The rotor assembly and gear box separate from the top of the fuselage.





- K. Aircraft is then at a full stop position, upright.
- L. The crew evacuate the aircraft.

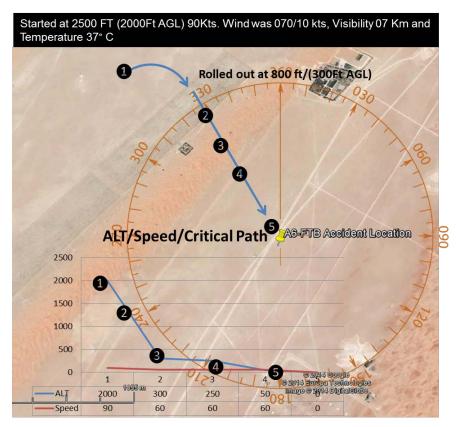


Figure 6 - Accident Event Sequence and Descent Profile

#### **Safety Elements**

The Manoeuvre Initiation Envelope [MIE] identifies seven safety elements pilots should consider prior to initiating any performance based manoeuvre.

These safety elements address both internal and external factors effecting the safety of flight.

The seven elements are the following:

- 1. Aircraft Limitations.
- 2. Operational Limitations.
- 3. Weather.
- 4. Air Traffic Control (ATC) Goodwill.
- 5. Practical Test Standards (PTS).
- 6. Human Factors (HF).
- 7. Terrain.

These safety elements are dynamic and constantly challenge pilots to maintain a keen sense of situational awareness at all times. It is critical for pilots to always be aware of situations that can change any of these safety elements, whereby breaching the safety confines of the MIE.





#### **Flight Planning**

The tasking for the flight was straight forward, the session lasted up until the flying limitation period restriction which is imposed due to the ambient heat conditions and aircraft performance limitations.

Due to the 2500ft altitude limitation and the necessity to complete the dual session, the time pressure limitation may have been contributory.

The Instructor's monitoring of the aircraft performance and the student entry into the autorotation and the subsequent corrective action, when the low RRPM audible signal was heard, was a contributing factor to this event.

#### **Performance Management – Engine Power Checks**

The operator's current SOP does not require a power check prior to commencing operations or periodically during the training operations on a daily basis.

Conditions at take-off/landing sites differ from what has been allowed for during Flight Manual [FM] performance calculations.

In order to take this into account and to confirm the amount of excess power available, the pilot should make an operational assessment by conducting a power check before committing to a take-off or a landing at the training location, in particular if the ambient heat conditions are reaching the outer limits of the performance tables.

All flights should be verified with an actual power check under the ambient conditions that exist at the point of intended operation.

Accident prevention relies on thorough pre-flight preparation, of which the FM performance chart calculations are an integral part.

Because the ambient conditions at the intended point of operation can be quite different from those planned for, , calculated values must always be verified with an actual power check under the ambient conditions that exist at the operating site.

The AB206 FM/Section IV/4.1- Performance, provides the pilot with the power check procedures for reference during operations and should be considered in the operators SOP prior to commencing operations in high ambient temperatures where the high temperatures could affect the helicopters aerodynamic and engine performance.





## 3 Conclusions

#### 3.1 Findings

The findings are statements of all significant conditions, events or circumstances in the [occurrence: accident, serious incident or incident] sequence. The findings are significant steps in the accident sequence, but they are not always causal or indicate deficiencies.

- The flight crew were licensed, medically fit and qualified for the flight in accordance with existing regulations.
- The aircraft had a valid Certificate of Airworthiness [CofA] and had been maintained in compliance with the regulations.
- The aircraft was airworthy when dispatched for the flight.
- There was no evidence of airframe failure, system or engine malfunction prior to the accident.
- The flight planning was conducted in accordance with the procedures in the company Operations Manual.
- The flight exercise was not conducted in accordance with the SOP, i.e. the throttle was not opened at the hard ceiling altitude limitation.
- There is no requirement in the operators SOP for an engine power performance check.
- Limited time at the required height [2500ft] to complete the required tasks/actions.
- The performance limitation for hot weather operations was proximate given the time of the event and the ambient weather conditions.
- There was insufficient altitude available to effect a recovery from the mismanaged power off approach.
- The ELT did not transmit through the SAR Cospas-Sarsat System following the impact.
- No Wind Direction Indicator [WDI] is installed at the training areas, in accordance with CAR Part IX/Appendix 17/17.1- Wind Direction Indicator.
- Student to Instructor ratios requires course planning that contributes to high instructor utilisation.
- The instructor failed to intervene with sufficient time prior to the event sequence developing.
- The operator's Emergency Response Plan [ERP] was inadequately planned and organised.

#### 3.2 Causes

Are actions, omissions, events, conditions, or a combination thereof, which led to this (occurrence: accident, serious incident or incident.

The air Accident Investigation Sector determines that the causes of the accident are:

- Instructor monitoring of the developing flight condition was insufficient to plan an effective recovery.
- The throttle remained in the retarded position below the SOP requirement of 500ft AGL.
- The instructor intervened at the point on the critical path where an effective recovery was not possible from the intervention decision altitude.





#### 3.3 Contributing Factors

These are actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident occurring, or mitigated the severity of the consequences of the accident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil or criminal liability.

- The Standard Operating Procedure for opening the throttle at 500ft AGL was not followed.
- The student pilot allowed the rotor RPM to decay
- The Standard Operating Procedure for the non-handling pilot to monitor the progress of the approach was not effective in preventing the pilot flying from descending below the recommended approach profile.
- The Instructor's monitoring of the student and the delayed intervention beyond the point where a recovery was possible.
- There was insufficient time and height above the ground to complete all of the tasked actions
- The positioning of the throttle in the 'Flight' indent position just prior to the uncontrolled landing resulted in the aircraft entering an uncontrolled yawing motion following the separation of the tail boom and the complete loss of tail rotor effectiveness.
- Possibility to confuse the decision height using barometric altimeters which are set to QNH where the altimeter will read altitude above mean sea level, not above ground level. The additional workload associated with cross referencing the QNH altimeter setting with the TA6 elevation altitude of 500ft ASL requires constant cognitive mental calculation.

#### 3.4 Non Contributing Safety Factors

These are the actions, omissions, events, conditions, or a combination thereof, which had no direct contribution to this accident, but are risks in their nature, that were identified during this Investigation. List the findings, causes and contributing factors established in the investigation. The list of causes should include both the immediate and the deeper systemic causes:

- Mixed Military and Civil Students and Instructors with differing operational requirements, instruction methodology and institutional behaviour.
- An aging fleet of AB/BHT 206 helicopters (radar altimeter installation)
- No air-conditioning equipment in the helicopters.





## 4. Safety Recommendations

#### 4.1. General Information

The safety recommendations listed in this Report are proposed according to paragraph 6.8 of Annex 13 to the Convention on International Civil Aviation6, and are based on the conclusions listed in section 3 of this Report; the General Civil Aviation Authority (GCAA) expects that all safety issues identified by the Investigation are addressed by the receiving States and organizations.

#### 4.2. Safety Actions Taken

Safety Actions Taken by the operator include the following. The following safety actions were implemented by the operator following the accident that is the subject of this report:

- a) The operator engaged consultants to evaluate the Safety Management System and provide recommendations for safety management improvements.
- b) An additional Safety Officer will be employed to assist the Safety Manager.
- c) The operator's Safety Manual was re-written and re-issued in June 2013.
- d) The Emergency Planning Manual was re-written and re-issued in June 2013.
- e) A full emergency exercise was held in September 2013 to verify the new ERP.
- f) All management and staff have received SMS training. This program includes recurrent training.
- g) Training manual updated on 1<sup>st</sup> February 2014 to include the following in the Autorotation exercise and EOL exercise: Throttle Open by 1500 QNH; no Engine Off Landings [EOL].
- h) Introduction to power checks has been implemented while doing the HASEL checks.
- i) The operator has installed a form of Wind Direction Indictor [WDI] as per CAR Part IX, Appendix 17/ Appendix Indicators and Signalling Devices/17.1- *Wind Direction Indicator*.
- j) Crew Resource Management (CRM) training has been implemented.
- k) The ratio of instructors to students has been set at  $1 \le 3$ .
- I) Improvements to safety briefings have been implemented.
- m) The operator is installing air-conditioning in the rotary wing AB and BHT 206 training fleets.
- n) Staffing level in the Safety Officers department has been reviewed. It is in the process to recruit one employee to assist in the Safety office.
- O) CRM courses provided for students. HIFA conducted four courses for students in 2013. Although CRM training for pilots and students is not required for FTO according to the GCAA regulation, HIFA planned to conduct the CRM course for pilots and students.





#### 4.3. Final Report Safety Recommendations

The Air Accident Investigation Sector recommends the following:

#### To The Operator

#### SR 04/2015

Install GPS or a Satellite Tracking System [STS] onto the aircraft with the ability to monitor and record aircraft position in real time.

#### SR 05/2015

Assure that for practice autorotation the hard floor limitation in the SOP shall be 1500' QNH, this action shall also require the throttle is set to 'Flight' indent position prior to continuation of the descent and no EOL, with an exercise performance power check if required.

#### SR 06/2015

It is recommended in line with industry best practice, that the operator adopt the International Helicopter Safety Team [IHST] Safety Management System Toolkit, and Gulf Flight Safety Committee initiatives to reduce accidents, including the adoption of the IHST and Gulf Flight Safety Committee initiatives to reduce accidents, to include the following:

- Manoeuvre Initiation Envelope (MIE) philosophy,
- Integrating current international best practice into a comprehensive SMS based training environment.

#### The General Civil Aviation Authority of the United Arab Emirates

#### SR 07/2015

Examine its SMS acceptance process to ensure that appropriate standards are applied from the inception of an operators SMS until final acceptance and that the GCAA should ensure that audits of operator SMS are audited with sufficient frequency and in a robust manner.

#### SR 08/2015

Consider mandating that Flight Training Organisations [FTO] incorporate CRM training into the core flight training syllabus for all pilots and students.

#### SR 09/2015

GCAA to confirm the Emergency Location Transmitter [ELT] satellite interface with the UAE Mission Control Center (AEMCC Cospas-Sarsat Sytem] is functioning for civil ELT transmission on the following frequencies 406.025 MHz ±2 kHz, 121.5 MHz ±6 kHz or 243.0 MHz ±12 kHz.

### 5. Appendices

#### **Rolls Royce Engine Test and Performance Evaluation**

Engine Investigation Report - Rolls Royce

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## **Engine Investigation**



Allison M 250-C20J Engine CAE 270185

Agusta/Bell 206BIII Registration: A6-FTB

Horizon International Training Academy Omal Area 6 United Arab Emirates

David W. Riser

David W. Riser Air Safety Investigator

Accident date: September 4, 2012 Investigation date: September 18-20, 2012 Rolls-Royce, Indianapolis, Indiana: November 27, 2012 Report date: November 28, 2012 **Report Enclosures:** 

**Report Narrative** 

Appendix A, Photographs at Recovery, Horizon, UAE

Appendix B, Engine Records and Test Log

#### **Background Information:**

On September 4, 2012 an Agusta/ Bell 206BII helicopter, registration A6-FTB was involved in an accident in Omal Area 6, United Arab Emirates. The helicopter was owned and operated by Horizon International Training Academy and was on a local training flight. The helicopter was occupied by a student pilot and a flight instructor. Day visual meteorological conditions prevailed. The student pilot and instructor had been practicing auto rotations when on the accident approach the helicopter landed hard resulting in the separation of the tail boom, separation of the main transmission along with the main rotor head and main rotor blades from the airframe. Following touchdown the pilot reported the engine was still running. No injuries were reported.

#### **Airframe/Engine Observations at Recovery:**

On September 18, 2012 an investigation was conducted at the helicopters maintenance hangar located in Al Ain under the auspices of the GACC IIC. The helicopter was positioned upright on its landing skids which were slightly spread. With the exception of both front wind screens being broken, the fuselage exhibited little damage. The main transmission had been torn from its mounts during the accident sequence resulting in damage to the left side transmission cowling and transmission mounts. (Fig 1) One main rotor blade had fractured approximately eighteen inches inboard from the tip with the balance of the blade having been manually cut just outboard of the doublers for transport purposes. The second blade fractured just outboard of the doublers. Both blades exhibited chord wise scratches and striations across the leading edges and blades surfaces.(Fig 2) The tail boom had separated at the fuselage with a second separation just forward of the tail rotor gearbox. The left side horizontal stabilizer sustained crush damage. Both tail rotor blades remained in position and exhibited no damage. (Fig 3)

The engine which was being operated with inlet barrier filters installed, remained in position and securely attached to the airframe. No visible impact damage was noted to the engine. (Fig 4) A visual and tactile examination of all engine pneumatic, fuel and oil lines was conducted where all "B" nuts and connectors were found to be at least finger tight. Oil and fuel line interface connections between the engine and airframe were examined where all were found at least finger tight. The engine was then removed from the airframe. Manual rotation the N1 drive train was free and continuous from the starter generator pad to the compressor. Manual rotation of the N2 drive train revealed it to be free and continuous from the power take off gear to the #4 power turbine wheel. The IIC requested the engine be sent to Rolls-Royce Indianapolis for run as received testing of the engine.

#### Engine Investigation at Rolls-Royce:

On November 27, 2012 "Run as Received" testing was conducted on the subject engine at Rolls-Royce Indianapolis, Indiana to new engine specifications set forth in Rolls-Royce Production Test Standards 788 Rev K. Testing was conducted under the auspices of the NTSB accredited representative on behalf of the GCAA IIC.

The engine was removed from the container and placed onto an engine stand where preparation and pre run examination of the engine was conducted during which nothing was discovered which would preclude operational testing. (Fig 5) The engine was then placed into the test cell where the engine was started within specification time and temperature. Following engine warm up and with vibration scans being within specification, the engine was accelerated to a flight idle power. The engine was then taken through a series of timed accelerations; decelerations and a governor droop check where the engine preformed within specification. A five point power calibration was conducted where the engine met specification for Take Off Power, Cruise A and Cruise B power settings. At Cruise C and Normal Cruise setting the engine was slightly low at -10.3% and -8.6% respectively. Testing resulted in a total engine run time of 1 hour and twenty five minutes where at completion of the testing the engine was shut down normally.

#### **Engine Information:**

An Allison M250-C20J gas turbine engine, S/N CAE 270185, powered the helicopter. The engine was installed on the helicopter May 21, 2012 at 4015.4 ETT.

Manufacturer	Allison
Engine Model	250-C20J
Rating:	420 Shaft Horsepower
Serial Number	CAE 270185
Engine Total Hours	4157.7
Last 100-Hour Inspection	4141.8
Last 300-Hour inspection	4141.8

Component	Serial Number	Part Number	TSO	Total Time
Engine	CAE 270185	6899400	New	4157.7
Gearbox	CAG 27187	23001923	New	4167.5
Compressor	CAC 24077	6890550	2785.5	4151.6
Turbine	CAT 22773	23038241	142.3	3637.7
Fuel Control	322476	23070606	109.6	3889.2
Governor	HR46774	23086749	New	975.7
Fuel Pump	T101422	6899253	335.2	Unknown
Fuel Nozzle	0463	6890917	1627.8	3229.0
Bleed Valve	FF33005	23053176	499.7	Unknown

\*All times taken from engine log records or daily status sheets.

#### Summary of Findings:

Testing of the engine to Rolls-Royce new engine production test specification revealed the engine to meet specification power for Maximum Take Off and all cruise settings with the exception of a slightly low Cruise C and Normal Cruse power points where the engine produced -10.3% and -8.6% respectively as compared to new engine performance specification. Nothing was discovered during testing which would preclude the engine from normal operation.

# Appendix A, Photographs at Recovery Horizon, Al Ain UAE



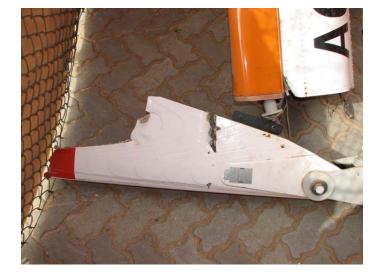
Airframe as Recovered



(Return)

Fig 1





(Return)

Fig 2

Fig 3



Tail boom as Recovered



(Return)



Right side engine as recovered. (Return)

# Appendix B, Photographs at Rolls-Royce Indianapolis, Indiana



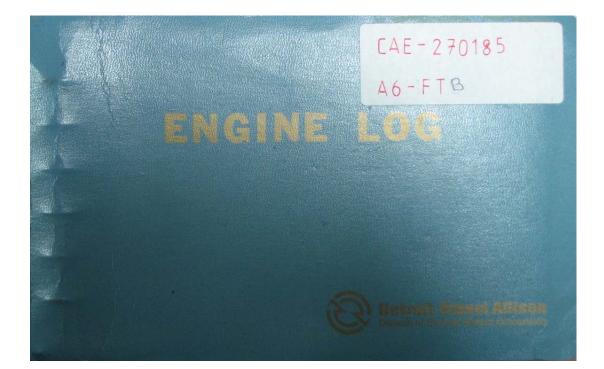
Engine as received - Rolls-Royce



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# Appendix C, Engine Test Log Engine Log Records

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TRUE BAR. OUTSIDE TEMP. RELATIVE HUMI	DATA REQUIRED	AE MIL.	NVEH S	DVNE SPEED			N. FOR	N. FOR	GINE T	RR. SH			SERVE	ELINLE	ARR. FU			H. STAT	G. COM	ST CEL	VENTURI A P	IIIIII	DI CALINA A D	MP. DIS	MP. DIS	ARBOX	MP. SE	IND. MGT	CORR. MGT		IN OIL	AVENG	INLET	AVENG	- INLET	OIL FLOW		NE VIB	ARBON	MPRES	ART AC	START NUMBER	DOWN				
TRUE BAR OUTSIDE T RELATIVE I	M		2							8				130		-	N N		Į	· .					8	B	8	_	ВЯ		M	S	j			ō	Ц		1981 1981		ST	ST	8	Ц		OILAT	START



			POLICE WIN	G and THIRD	PARTY			Date: 24/08
escriptio NGINE ASS			Merial No MAE-270185	TSN 1357.10	TSO 1357.10	Fit FTG	ted To	Time: 12:33
	mponents Installe escription	eð:- Part No	Serial No	TSN	TSO	Life Type	Hours	Remaining
COMPRE	SSOR CASE INSPECT	C. 300HR/6MTH-COMPRESS	. CAC-23931.	0.00	0.00	IN	300	300.00
	ONTROL STRAINER	1500HR/FCU STRAINER		1326.10	1326.10	IN	1500	173.90
	OX MODULE	23001923	CAG-27185	1357.10	1357.10	CO	0	0.00
	ESSOR MODULE	6890550	CAC-23931	1357.10	0.00	OH	3500	3500.00
	LLOR - COMPRESSO		KR-101122	0.00	0.00	RT	3550	3550.00
	NE MODULE -HMI	6898735 HMI	CAT-23236.	1357.10	0.00	IN	1750	1750.00
	NE MODULE	6898735	CAT-23236	1357.10	1357.10	OH	3500	2142.90
	STAGE WHEEL	6886407	X-150023	0.00	0.00	RT	1775	1775.00
	STAGE WHEEL	6898782	HX-131004	0.00	0.00	RT	1775	1775.00
	STAGE WHEEL	23001967	HX-95498	0.00	0.00	RT	4550	4550.00
	STAGE WHEEL	6853279	HX-51260	1357.10	1357.10	RT	4550	3192.90
FUEI		6899253	T-104000	1124.80	1124.80	OH	4000	2875.20
	BENDIX	23007857	336496	1326.10	1326.10	OH	2500	1173.90
	GOVERNOR - BENDIX	23007506	29250	1357.10	1357.10	OH	2000	642.90
	, NOZZLE		- <del>NG-93444</del>	1272.50	1272.50	OH	2500	1227.50
	ED VALVE	23036668	FF-45028	1297.00	1297.00	HO	1500	203.00
	ABSORBING RING	CEB A-1253	CAT-23236.	0.00	0.00	RT	1750	1750.00
	ABSORBING RING	CEB A-1254	CAT-23236.	0.00	0.00	RT	1750	1750.00
	OF NEW FUEL NOZZ		AG-93441.	0.00		RT	-0	0.00
187 8	FAGE NOZZLE SHIEL	D CEB A-1370 REV 2	CAT-23236.	1673.10	1673.10	IN	0	0.00
			*** End of Re	eport 111				

CERTIFICATE OF CONFORMAN Detroit Diesel Allison certifies that the 250 Series Turboshaft Engine shipped herewith was manufactured in accordance with all applicable specifications, drawings and procedures. This certificate shall be of no force or effect upon expiration of the warranty provision applicable to this purchase order. Engine Serial No. CAE-270185 Purchase Order No.\_ 5 Och Quality Assurance Department January 21, 1983 Date F-9538 (12-79) D. D. HALLA YES HORIZON AIRCRAFT COMPLIANCE STATUS E NO BORRION W.B.B. antipeting to -5.2 (1130C T/B File No 0205 EB A-Date HORAQANDO? Page 1 of 3 Raw 0 Apr 07 YES 24-07 140 -1397 NO 6

	INSTALLED _A/C or	Engine Since OH 00.00	Time Total 00.00	En	gine Mo Engine Since OH	REMOVE	
6-6-86 U.A.E. 4-1-88 U.A.E. 13-3-89 U.A.E.	A/C or Eng. S/N 8685 (144) -8685	Since OH	Total		12000000000	Time	
6-6-86 U.A.E. 4-1-88 U.A.E. 13-3-89 U.A.E.	8685 (144) - <del>8685</del>	Since OH	Total		12000000000		Reason
6-6-86 U.A.E. 4-1-88 U.A.E. 13-3-89 U.A.E.	8685 (144) - <del>8685</del>				Since OH	Total	Reason
4-1-88 U.A.E. 13-3-89 U.A.E.P	-8685-	00.00	00.00	61.00			
13-3-89 UAER	/			61.00			LON POWER : HIGH TA
	100-0-8687 1100			1.1.08	50100	341:35	SAND BULDUP ON TURBINE AREA
	100.00 8182 1100				-	/	The dial period
6-12.90 UAE AN	1000000 (02)	GALE NEW	341:35	1-12-90	-	704:25	To SERVICE A/C 173
THE REAL PROPERTY AND ADDRESS OF THE PARTY O	R FORCE 8675(173)	704:25	Text and an international statements		100.00	767:55	ENGINE UNDER POW
3-12-90 UAE AIRFO	RZE 8687/166)	\$67-5	767-55	10.4.99	1005063	1357:0	ON TORMINE AR
	@1673_1 TAT	1	1				FNG. START. CYCER
26-JAN-04 HORIZON	@1673.1 TAT A6-FTG	1357.1	1357.1	0915109		4015.8	
2115/12 HORIZI	ON AR-FTB	-	4015.4				
					1000		
						14 Barriel	
RM 2782A-1 (4-79) ine Serial Number			R RE(	Engine	Model	250- c2	Part II Page No
	SHIPPED						The second second
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		346 de 17	Since OH	Total	Da	te	Du
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	To AGUS	TA	NEW	0.0	-		ICOTTENI MERIDIONALI
21-83 DDA-GMC F-86 ELICOTTERI MERIDIBHA	AGUS	rA	NEW	0.0	-		
21-83 DDA-GMC	AGUS	TĂ	NEW			EL	HOOTTERI MERIDIONALI Freskiane - Italia
21-83 DDA-GMC F-86 ELICOTTERI MERIOIRIA Frotinone - Halia 1-88 AL-DHAGRA UA	AGUS' III U.A.E.  AE A4057A.	ra	NEW	8.10	- 10-8	El 3-86 AL	COTTEN MERIDIONALI Freshane - Nalia -DHAFRA (UAE)
21-83 DDA-GMC 7-86 ELICOTTERI MERIDIANA Frosinona - Italia 1-88 AL-DHAFRA U.F	AGUS' III U.A.E.  AE A4057A.		NEW	8.10 8:10 341:35	4-+-	8-86 AL	ICOTTEN MERIDIONALI Freekone - Nalie -DHAFRA (UAE, -DHAFRA (OAE)
21-83 DDA-GMC 7-86 ELICOTTERI MERIOINNA Frozinano - Nalia 1-88 AL-DHARDA U/A NOV. 88 ANGOTERI ALEIDIONA BOOLONG - Itelia 8-91 AL-DHARDA U/AE	AGUS U U.A.E. AE A4057A. AGU-DHA/ AGUSTA		NEW	8:10 8:10 341:35 341:35	21-2	8-86 AL 8-8 AL 8-8 AL -89 AL	EBITERI MERIDICHALI Frietanne - Halia -DHAFRA (UAE) -DHAFRA (UAE) -DHAFRA UAE
21-83 DDA-GMC F-86 ELICOTTERI MERIOIBHA Frozinano - Halia 1-88 AL-DHAFRA U.A NOU 88 SECTERI MERIOISA 8-91 AL-DHAFRA U.A.E. SJ.M. 92 DICOTTERI MERIOISA	AGUS U U.A.E. AE A4057A. AGU-DHA/ AGUSTA	31	NEW	8.10 8:10 341:35 341:35 767:55	21-2 20- MAI	El 3-86 AL 28 Al -89 Al 2.92 Marc	ESTIGN MESIDIONAL Frietanne - Nalis -DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA) (UAE, DHAFRA (UAE, DHAFRA) (UAE, DHAFRA (UAE, DHAFRA) (UAE, 
21-83 DDA-GMC 7-86 ELICOTTERI MERIOIRMA FIDEIRARO - Halia 1-88 AL-DHAFRA U.A NOU 88 SECTERI MERIOIRMA 8-91 AL-DHAFRA U.A.E. SJ.M. 92 DICOTTERI MERIOIRMA	AGUS           UI         U.A.E.	31	NEW	8.10 8:10 341:35 341:35 767:55 767:55	21-2 20-MAI 3-11-	El 3-86 AL 28 AL 28 AL 28 AL 28 AL 29 AL 292 AL	EBITERI MERIDIONALI FINITAME - Halim -DHAFRA (UAE) -DHAFRA (UAE) -DHAFRA UAE
21-83 DDA-GMC 7-86 ELICOTTERI MERIOIRMA Frozinana - Halia 1-88 AL-DHARPA U.F. NOV 83 SECTERI ACRIDISMA 8-91 AL-DHARPA U.F.	AGUS           U         U.A.E.	31	NEW	8.10 8:10 341:35 341:35 767:55	21-2 20-MAI 3-11- 14.4	El 3-86 AL 3-86 AL 3-87 AL 2.92 AL 92 AL 03 AL	ESTIGN MESIDIONAL Frietanne - Nalis -DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA (UAE, DHAFRA) (UAE, DHAFRA (UAE, DHAFRA) (UAE, DHAFRA (UAE, DHAFRA) (UAE, 

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DATE	E ENG TAT	BT	ISSUE DATE	PART C/WITH	DESCRIPTION / COMMENTS	Rept	LAE AUTH SIGN DATE
27-Jul-0	4 1357.05	CEB-A-1040 Rev2	1-Sep-94	N/A NOT INSTALLED	FUEL SYSTEM CLAMP CECO	NO	
27-Jul-0	4 1357.05	CEB-A-1049 Rev 2	10-Feb-82	FE Ref Engine Mod Record	G/BOX ASSY oil filter housing assy All CEB's Carried out up to 6-Jun-86	NO	1 and
27-Jul-0	4 1357.05	CEB-A-1051 Rev 3	1-May-89	N/A By Fuel Pump PN	DUAL ELEMENT FUEL PUMP	NO	
27-Jul-0	4 1357.05	CEB-A-1095 Rev 3	15-Apr-82	N/A CECO NOT INSTALLED	FUEL SYSTEM HP FUEL FILTER	NO	
27-Jul-0	4 1357.05	CEB-A-1144 Rev 5	1-Sep-94	N/A CECO NOT INSTALLED	FUEL SYSTEM HP FUEL ELEMENT AND BYPASS VALVE CECO,FAA AD 82-13-03	NO	Wy man 22102104
27-Jul-0	4 1357.05	CEB-A-1173	15-Apr-81	N/A BY ENG MODEL #	P T SHAFT REPLACEMENT INNER AND OUTER	NO	W0 102104
27-Jul-0	4 1357.05	CEB-A-1174 Rev 6	1-Aug-89	N/A BY ENG MODEL #	THIRD STAGE WHEEL REPLACE FAA AD-83-03-02R1	NO	2210
27-Jul-0	4 1357.05	CEB-A-1206	15-Oct-82		FCU,PTG inspection bushing assy,FAA AD 82-24-05	NO	
27-Jul-0	4 1357.05	CEB-A-1211 Rev 3	15-Oct-96	N/A PART NOT INSTALLED	QUICK DISCONNECT CHIP PLUGS	NO	
27-Jul-0	4 1357.05	CEB-A-1224 Rev 2	30-Nov-91		P T SHAFT INNER AND OUTER nickel plate	NO	
27-Jul-0	4 1357.05	CEB-A-1226 Rev 4	12-Aug-99	N/A at this time	G/BOX through bolt retention of Idler gears C/O @ NEXT REPAIR or O/H	NO	
Aircraft/Ai	ertify that the wor rcraft Equipment C.A.A. Approval	is considered fit for i	is been carried ou release to service	it in accordance with the re	quirements of the UAE Federal Civil Aviation La	w, and that in	that respect the
Part C/	With N/A - I	lot Applicable	E	- Embodied	FE - Found Embodied		
-							

		ALLISON	CEB'S				
DATE	ENG TAT	BT REF	ISSUE DATE	PART C/WITH	DESCRIPTION / COMMENTS	Rept	LAE AUTH SIGN DATE
7-Jul-04	1357.05	CEB-A-1233 Rev 2	1-Aug-91	SOC/03/A/013	IMPROVED STRENGTH Pc FILTER HOUSING	NO	
27-Jul-04	1357.05	CEB-A-1234 Rev 3	15-Apr-92		INSPECT PC SCROLL TO PC FILTER TUBE ASSY	NO	
27-Jul-04	1357.05	CEB-A-1253 Rev 4	21-May-04	N/A at this time	ENGINE TURBINE ASSY MOD. TO INCORPORATE INTERNAL ENERGY ABSORBING RING DUE COMPLIANCE AT NEXT DISSASEMBLY OR NO LATER THAN 1750 TSO/TSN	NO	
27-Jul-04	1357.05	CEB-A-1254 Rev 3	21-May-04	N/A at this time	ENGINE TURBINE ASSY MOD. TO INCORPORATE INTERNAL ENERGY ABSORBING RING DUE COMPLIANCE AT NEXT DISSASEMBLY OR NO LATER THAN 1750 TSO/TSN	NO	10 muss
27-Jul-04	1357.05	CEB-A-1255 Rev 3	21-May-04	N/A at this time	ENGINE TURBINE ASSY MOD. TO INCORPORATE INTERNAL ENERGY ABSORBING RING DUE COMPLIANCE AT NEXT DISSASEMBLY OR NO LATER THAN 1750 TSO/TSN	NO	
27-Jul-04	1357.05	CEB-A-1269	1-Oct-88	N/A BY ENGINE MODEL #	ENGINE COMPRESSOR IMPROPER CLAMPING OF #1 BRNG PRES OIL TUBE ASSY C20S ONLY	NO	
27-Jul-04	1357.05	CEB-A-1272 Rev 2	1-Sep-94	N/A BY FCU PN	FCU BELLOWS INSP FAA AD 88-17-01	NO	
Aircraft/Aircr	aft Equipment	rk recorded above h is considered fit for No.: EM/ADA/89	as been carried or release to service	ut in accordance with the re	quirements of the UAE Federal Civil Aviation Law	e, and that in t	hat respect the
U.A.E. G.C./		Not Applicable		- Embodied	FE - Found Embodied		

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	(	ng Engine) Co	CEB'S	the second second		Rept	LAE AUT
DATE	ENG TAT	BT	ISSUE DATE	PART C/WITH	DESCRIPTION / COMMENTS	Rept	SIGN DA
27-Jul-04	1357.05	CEB-A-1281 Rev 3	15-Apr-92	N/A Ref CEB-A- 1289 and Eng Assy Mod Record	PTG Py CASTING AREA ASB 206-89-45	NO	
27-Jul-04	1357.05	CEB-A-1283 Rev 7	29-Feb-96	FE REF TURBINE	P T INNER AND OUTER SHAFT ALSEAL COATING Rev 5 EMBODIED	NO	
27-Jul-04	1357.05	CEB-A-1289	15-Apr-92	FE REF ENG ASSY MOD RECORD	PTG REMOVAL OF Py ACCUMULATOR ASB 206-89-45	NO	
27-Jul-04	1357.05	CEB-A-1292 Rev 1	15-Jul-91	N/A AT THIS TIME	SPLINE ADAPTER Pn 6898784 replace certain adapters C/O @ NEXT REPAIR or O/H	NO	Wy much
27-Jul-04	1357.05	CEB-A-1294 Rev 2	31-Oct-96	FE REF ENG ASSY MOD RECORD	FCU TUBE ASSY 6848471 AND 23051141 REPLACEMENT	NO	~~~
27-Jul-04	1357.05	CEB-A-1295 Rev 2	15-Feb-92	N/A BY FCU SN	FCU THROTTLE SPRING	NO	
27-Jul-04	1357.05	CEB-A-1304	15-Oct-91	N/A BY BLEED VALVE SN	REMOVAL OF BLEED VALVE PLASMA SPRAYED COATING ASB 206-91-65 AVIAL O/H only	NO	
27-Jul-04	1357.05	CEB-A-1305 Rev 1	15-Feb-92	N/A BY FCU SN	FCU MAX FUEL FLOW SETTINGS ASB 206-91-63	NO	
27-Jul-04	1357.05	CEB-A-1319	30-Jul-92	N/A BY MANF. DATE	FUEL HOSE 23005205 REPLACEMENT	NO	The same
27-Jul-04	1357.05	CEB-A-1323 Rev 3	15-Jun-97	N/A BY ENG MODEL #	FCU TUBE ASSY PN 6848471 REPLACEMENT C20F only	NO	
Aircraft/Aircn	aft Equipment	t is considered fit for No.: EM/ADA/89	as been carried o release to service	ut in accordance with the n e.	equirements of the UAE Federal Civil Aviation La	w, and that in t	hat respect the
		Not Applicable	1	E - Embodied	FE - Found Embodied		

		ng Engine) Co ALLISON		1 Marine Marine Marine			LAE AUT
DATE	ENG TAT	BT REF	ISSUE DATE	PART C/WITH	DESCRIPTION / COMMENTS	Rept	SIGN DAT
27-Jul-04	1357.05	CEB-A-1327	30-Oct-93	MODEL #	FIRE SHIELD RETAINING NUTS TQ C20S only	NO	
27-Jul-04	1357.05	CEB-A-1328	31-Mar-93	N/A BY ENGINE SN	SPUR ADAPTER GEARSHAFT ASSY PN 23034784 INSPECTION	NO	
27-Jul-04	1357.05	CEB-A-1329 Rev 4	9-Oct-01	FE REF FCU MOD RECORD	ENGINE FUEL CONTROL BELLOWS REPLACEMENT FAA AD 98-24-28	NO	
27-Jul-04	1357.05	CEB-A-1336	15-Aug-94	N/A BY ENG MODEL #	FCU MAX FUEL FLOW SETTINGS C20C only	NO	
27-Jul-04	1357.05	CEB-A-1340 Rev 1	30-Nov-95	N/A BY ENG & G/BOX SN	G/BOX PINON GEAR REMOVAL	NO	No mund
27-Jul-04	1357.05	CEB-A-1341 Rev 2	15-Oct-97	N/A BY BUILD DATE or record of Replacement	1st NOZZLE DOME SHIELD insp condition	NO	and a solution
27-Jul-04	1357.05	CEB-A-1342 Rev 2	12-May-99	N/A BY BUILD DATE or record of Replacement	1st NOZZLE DOME SHIELD	NO	
27-Jul-04	1357.05	CEB-A-1349	30-May-97	N/A PART NOT INSTALLED REF MWO SOC/03/A/013	TURBINE PRESSURE LUBE CHECK VALVE 23062087 POSITION,CLAMPING	NO	
27-Jul-04	1357.05	CEB-A-1351 Rev 2	2-Feb-04		G/BOX OIL DELIVERY TUBE REPLACE TO BE CARRIED OUT NEXT TIME G/B OPENED	NO	
27-Jul-04	1357.05	CEB-A-1352	21-Aug-97	N/A CECO FUEL PUMP NOT INSTALLED	CECO FUEL PUMP SPLINE INSP ASB 206-97-91	NO	
I hereby cert	ify that the wo	rk recorded above h is considered fit for	as been carried o	ut in accordance with the re	quirements of the UAE Federal Civil Avlation Law	, and that in th	at respect the

		ALLISO		A State of the			
DATE	ENG TAT	BT REF	ISSUE DATE	PART C/WITH	DESCRIPTION / COMMENTS	Rept	LAE AU SIGN DA
27-Jul-04	1357.05	CEB-A-1353 Rev 2	28-Jun-00	N/A by SN	FUEL CONTROL UNIT INSPECTION OF CAM FOLLOWER LEVER	NO	
27-Jul-04	1357.05	CEB-A-1371	9-May-00	N/A at this time	Replace Turbine Tie Bolt Due for compliance 3-31-2005	NO	
27-Jul-04	1357.05	CEB-A-1372	15-Feb-00	N/A BY ENG + G/BOX SN	ENGINE GEARBOX INSPECTION FOR INST. OF TORQUEMETER RETAINING RING	NO	
27-Jul-04	1357.05	CEB-A-1374 Rev 1	2-Aug-00	FE REF AGUSTA WORK REPORT 240023/1	COMPRESSOR SCROLL PROBE EIBOW INSP	NO	AN <sup>20</sup>
27-Jul-04	1357.05	CEB-A-1361 Rev 2	29-Aug-01	FE REFER FCU HIST RECORD	FCU AND PTG INTERNAL SPRING REPLACEMENT ASB 206-98-92	NO	NY Maria
27-Jul-04	1357.05	CEB-A-1370 Rev 1	26-Sep-00	E REF W/C Z0500T011	1st NOZZLE DOME SHIELD insp	NO	~31°,
27-Jul-04	1357.05	CEB-A-1375	24-Oct-00	N/A at this time	2nd STAGE NOZZLE DIAPHRAGM REPLACEMENT C/O @ NEXT REPAIR or O/H	NO	
27-Jul-04	1357.05	CEB-1382	13-May-02	FE REF MWO SOC/03/A/013	ONE TIME SCREW INSPECTION FOR FCU	NO	
27-Jui-04	1357.05	CEB-1384	13-Jun-01	N/A BY PN & SN	TEE FILTER INSPECTION	NO	
27-Jul-04	1357.05	CEB-A-1386 Rev 1	16-Jan-02	N/A BY HRS IN SERVICE	TQ meter Gearshaft insp FAA AD 2001-24-12	NO	
Aircraft/Aircn	aft Equipment	k recorded above has s considered fit for No.: EM/ADA/89		t in accordance with the re	quirements of the UAE Federal Civil Aviation Lav	v, and that in t	hat respect the
Part C/WI	th N/A - M	lot Applicable	E	- Embodied	FE - Found Embodied		144

	Laure a car	ALLISON	and the second s	PART	DESCRIPTION / COMMENTS	Rept	LAE AUTH
DATE	ENG TAT	BT REF	ISSUE DATE	C/WITH	DESCRIPTION/COMMENTS	Rept	SIGN DATE
27-Jul-04	1357.05	CEB-A-1392	9-Sep-03	N/A at this time	ENGINE COMPRESSOR ADAPTER COUPLING TO BE CARRIED OUT AT NEXT REPAIR OR O/H	NO	
27-Jul-04	1357.05		4-Sep-03	N/A at this time	ENGINE FUEL NOZZLE CHANGE DUE BY 31-AUGUST 2004	NO	
27-Jul-04	1357.05	06			E WITH ALL MANDATORY BULLETINS RD ENGINE ASSEMBLY		
27-Jul-04	1357.05	FAA 88-17-01	15-Aug-88	N/A BY FCU PN	FCU BELLOWS INSPECTION REF CEB-A-1272	NO	11/4 10° 4
27-Jul-04	1357.05	FAA 96-19-01	26-Sep-96		NO 8 BEARING REPLACEMENT SUPERIOR REPT EVERY 100 HRS	YES	Why was
27-Jul-04	1357.05	FAA 98-24-28	7-Jan-99	FE REFER FCU HIST RECORD	FCU BELLOWS ASSY LEAKAGE CEB-A-1329	NO	
27-Jul-04	1357.05	FAA2001-24-12	19-Dec-01	N/A BY G/BOX HRS	TQ meter Gearshaft insp	NO	1 Martin Cart
Aircraft/Aircra	aft Equipment	k recorded above has is considered fit for re No.: EM/ADA/89	been carried ou lease to service.	t in accordance with the re-	quirements of the UAE Federal Civil Aviation Law	v, and that in th	at respect the
Part C/Wi	th N/A-I	Not Applicable	E	- Embodied	FE - Found Embodied	Se the	

FORM 2783A-1	(4-79)	MODIFICATION RECORD ENGINE ASSEMBLY		Part III / Page No.
Engine Seria	I Number CAE	- 270185 Engine Mo	del <u>250- c2</u>	0J
Compliance Date	Bulletin or Directive No.	Title	Signature	Organization
6-5-83	CEBA1206	ENGINE FUEL AND CONTROL, BENDIN F.C. ASSENBLIES AND P.T.C. ASSY INSPECT BUSHING ASSEND	uer Cnizzi	ELICOTTECT ALTRIBUMA
6-6-86		Engine up to date with all mandatory	0	ELICOTTERI MERIDIA
21.7.86	CEB A 1234	bulletins. Engine fuel lube and air system Pc scroll to Pc filter tube assy inspect	Topin Pres	Fractiona - Italia Stichtfoll MERIALA Fractiona - Italia
15-NOV 88	CEB 1260	ENGINE AIR SISTER, BLEED VALVE INPROVED VALVE STEM RUSHING INSTALL	Sizi	AGOTTEEL ACCIOTON
7-6-89	CEB A1281	Engine control system pendix power turbing Governor, Inspect PY. Port area	Anjoyan	UAE AIR FOR
9.JUN.92	CEB A1294	ENG.FUEL AND CONTROL REPLACE P/N 6848471 AND 23051141 TUBE ASSEMBLIES.		Prosinens - India
9.JUN.92	CEB 1299	ENGINE TURBINE ASS. COMBUSTION LINER	EWORK .	ALICOTTERI MEMORO
9.JUN.92	CEB A1294	ENGINE FUEL CONTROL BENDIX P.T.G.	-	
	89	REMOVAL OF PY ACCUMUL .OR.	4000	ALCONTRACTOR OF

FORM 2783A-1(	(4-79)	MODIFICATION RECORD ENGINE ASSEMBLY		Part III 2 Page No
Ingine Seria	I Number	Engine Mo	del <u>250- c2</u>	0J
Compliance Date	Bulletin or Directive No.	Title	Signature	Organization
12. DEC. 2000	CEB 1311	ENGINE FORL LUBE AND AIR	A Star Star 1	
		SYSTEM RELEASE OF NER ANT AR	AGUS	in S.P.A.
12.2.4.	-	ICING VALVE RODIEY. (10000	1 /	ento di Frosinona
12-9=C-2000	e=B 1321	ENGINE COMPRESSOR ASS. RELEASS OF	A AGUST	S.P.A.
12 050 20	PC 2 2 1 2 22	NEW. COHP. ROTOR ARS. HOSIE/ GOOD	Joub supilines	to di Froshors
(- )=(. 2003	CEB A 1374	ENG. COMPRESSIR ARS. VISUAL INSPACE	MAR DAS	work S. P. S.
14-05-2007	CEB A 1386	OF COMPRESSOR SCROLL PRESSURE PASSE ELBO	6. 4008 Jour	bilimento di reshort
27 JUL 2004	CEB-A-1233 R.2	NOT AFFECTED. IMPROVED STRENGTH PC FILTER HOUSING		S.O.C. ABU DAM
27 JUL 2004	CEB-A-1234 R.3	INSPECT PC SCROLL TO pc FILTER TUBE ASSY		
27 JUL 2004	CEB-A-1349	N/A PART NOT INSTALLED.	stillen	
7 JUL 2004	CEB-A-1340	N/A BY BUILD.	ADA	WS SOC/03/A/013
27 JUL 2004	CEB-A-1370	1st NOZZLE DOME SHIELD INSPECTION	TR3	

limonk		ENGINE ASSEMBLY		
Engine Seria	I Number	CAE-270185 Engine Mo	odel	J
Compliance Date	Bulletin or Directive No.	Title	Signature	Organizat
27 JUL 2004	CEB-A-1382	ONE TIME SCREW INSPECTION FOR FCU	Thillow ADA	SOC/03/A/
24Sep04	CEB-A-1361R3	FCU & PTG Internap Spring repl. PCW. (FCU S/N 336496 & PTG S/N 336496).	HA TRI	TSF C20/0
15Aug04	ŒB A-1394	Fuel Nozzle Replacement.	OR NER 2	SCC/03/A/
15DEC04	AD2004-24-09	Fuel Nozzle Inspection & Replacement Previously complied with Ref.CEB-A-1394.	UMC TRIDA	TSF C20/0
20DEC04	CEB-A-1394 Rev.1	Previously complied with.	TRI TRI	TS File C20,
07Dec04	FAA AD 96-19-01	#5 & #8 Bearing Serviceability check.	JAN TRI	WS FICOOO30
OI FEB 05	FAR AD 96-19-01	#5 \$ #8 BEARING SERVICEABILITY CHECK.	2 THADA	WS FTG 0000
15 MAR 05	FAA AD96-19-01	It's \$ # 8 BEARING SERVICEABILITY CHECK.	TR 5	NS 576 0008
14 MAY 05	FAA AD 96-19-01	#5 ## 8 BEARING SERVICEABILITY CHECK.	TR S	WS FTG DO LA
28 Jun 05	FAA AD 96-19-01	\$5,3 # BEARING SERVICE ABILITY CHECE.	Tibo	WS PIGeon
14 144 05	FAA AD 96-19-01	#33 #8 BEARING SERVICEABILITY CHECK.	2 NOR	NS FTG DOL
19 Aug 06	FAA AD 2006-16-10	and Company	Thomas I	WIS FTET OW
27 June 06	FAA AD 2006-13-06	TURBINE TIERORT REPLACEMENT . N/A .		us =10 00

Armak	5011	MODIFICATION RECORD	)	Part III Page No
Compliance Date	Bulletin or Directive No.	Title	Signature	
30 MAY 06	CEB 1391	POWER THREEWE GOVERNOR INCREASED	Junature	Organization
		DARABILITY DEGIGN.	Bange	SAL - 1 59350
			Land and	
			and the second of	

	01 - 01	1011-	MAINTENANCE - OVERHA	AUL REC	URD
			ENGINE ASSEMBLY		
	4A-1 (4-79		270185 Engine Mr	del 250- C2	0.T
Engine Se	rial Numi	Jer <u>CAE</u>	Engine Mic	Juer 230- 02	00
	Engin	e Time			
Date	Since OH	Total	Remarks	Signature	Organ
1-21-83	NEW	0.0	FUEL SYSTEM PRESERVED WITH	10	- 2000
			MIL-0-6081 OIL.	X Simmo	DDA-0
S 1116 1986		-	Preservation checked and condition	A	ELICOTTER
			found satisfactory.	1 giort	Frasinar
			Engine considered airworthy.	for	
27-10-86	-	101:50	100 HRS INSP PERFORMED M.M. TARLE TO	-7 spert \$ 700	AL-DH
18-1-87		A MARKED AND A MAR	200 HRS INSP PERFORMED_ M.M. TANEE	- F-750	14
8-6-87	-	296:00	300 HRS INSP PERFORMED AS PER M.M.	1042 9AL&	v
3-11-87		341:35	LOW POWER -HIGH . T. OT . 780CONHOVE	R. Endels F.Tor	AL-DHA
19-11-87		341:35	ENGINE COMPRESSOR PRESERVED.	Luddur F. Tos	AL-SHA
19-11-87		341:35	ENGINE QUEL SYSTEM PRESERVED WITH		1000
		1.000	016 NATO-0-133.	Endder F. 700	AL-SHAFE

ingine Se	erial Num	ber <u>CAE</u>	Engine M	odel 250- 0	C20J
	Engi	ne Time	1	15	-
Date	Since OH	Total	Remarks	Signature	10
1.1.88	-	341:35	ENGINE BEING DESPATCH LOR REPAIR	Signature	Organization
	Little -			ALCE L	ZEM KAMEL
			AS NECESSORY LATEST MODIFICATION	UNSTC W	R. Dada
S-NOV.88	-	341.22	AND BULLITON ARE TO COMPLIED WITH .	SIGN:	Alinter
		T	ENGINE REPAIRED, PRESERVED		/
			WITH OIL: HIL-C-23611 AND		
-9-89		1	MIL-L- 6081-6 RADE 1010	Jizzi	BANOIOBIN GETONI
-6-90		451105	100 HAS IN SPECTION PERFORMED, PER	Q AD an	AS DUAGOD and C
-10-90		221:02	SOO HAS INSPECTION PEREORNED PO		ALDHAFRA - UAE
STATES OF TAXABLE PARTY.					
		70/1.05	CEA BIEL WIN	studentes KKIT	AL DUAFRA UN
-12-90		104-25	BOO HAS INSPECTION CIW AS MAN IOW 2.	100	the sector with

		ION —	MAINTENANCE – OVERH		Part IV
2784A(11- Engine Se		ber CAE		odel <u>250-</u>	c2a1
		e Time			
Date	Since OH	Total	Remarks	Signature	Organization
13.8.91		767:55	ENGINE LOW POWER. ENGINE DESPATCH	CAP:RASHED A. AL AWADHI	JET RANGERS
Land and and			FOR REPAIR. NO OF STARTS. 1127-	Contrat	UAE AIR FORCE
9.JUN.92		767:55	ENGINE REPAIRED, PRESERVED WITH	1	
			OIL: MIL-L-6081-GRADE 1010, AND	-	Street and the second
			MIL-C-23411.	AZ	AUCOTTEN MERIDIONA
13-1-93	-	822:35	TOD HRS INSPECTION CHUAS PER MM 10002	Ampar Dreno	R JET RANGER SO
11-9-93		911=30	300 HRS MSP. GWAS PER MM 10W2	Angel	1R SAN
16-4-94		1010:55	100 HRS INSP. 910 AS PER MM 10102	6 Hole .	JR SRON.
31-7-94		1110145	100 HRS LALP. You AS PER MAS CON?	agent 2	JR SQAN
25-9-94		<ul> <li>MADE STREET AND COMPANY</li> </ul>	300 HRS loved gou AS PER MM 10202	attan wa	TRADION
15.4.98			100-ARS INSPECTION COUT.	ti a to un	Exil-
28.9.98		A REAL PROPERTY AND A REAL OF	100 HRS INSPECTION CLOUT	Mayand -	Cale
				TELIA	A A A A A A A A A A A A A A A A A A A

R 2/04A(11-	11)		MAINTENANCE - OVERH ENGINE ASSEMBLY	AUL RE	Part IV Page No. <u>4</u> CORD
Engine Se			<u>€ 270185</u> Engine M	odel <u>250-</u> 0	201
Date	Engin Since OH	e Time			
03.5.99	Since OH	Total	Remarks	Signature	Organization
42.2.44		1357:05	ENG PRESERVED WITH OIL MIL 6081 GRADE	1 And b	
1 = ===	1	and the second s	1010	Angal	HAE AIR FORK
4.5.99		1357:05	LOW POWER AND HIGH T.O.T.		-AL-AIN
12.DEC.00		1357:05	ENGLISHED DESPATCHED TO FACTORY A REPAIR-AS NECESSARY LATEST BULLITONS ARE TO BE COMPLIED W ENCINE ACEMINES 300 HAS.	1 m	UAE AIR FORS
22 AUG 04	-	1357.1	Instantion PERFORMED, PRESERVED KITH OIL: MIL.C. 6081 674 03 1213 Ans MIL.C. 23411 100H/12M, 200H/6M (OIL CHG), 300H AND 300H/6M (CMPR INSP) CARRIED OUT.	ADA	ADA

	27. 20.		<u>€ 270185</u> Engine Mo	odel	201
Date	Engin Since OH	ne Time Total			
5.5.99		135- 5	Remarks	Signature	Organization
~		103/205	ENG PRESERVED WITH OIL MIL 6081 GRADE	Andal	UAE AIR F
4.5.99		1257	1010	10	-AL-AIN
		123/:0	LOW POWER AND HIGH T. O.T.	7	
			ENG-BEING DESPATCHED TO FORTHEY	oR	UAE AIR
		r	REPAIR-AS NECESSARY LATEST	1 m	9 AL-AIN
DEC.00		12-1-	DOLLIONS AND TO BE CADING	ITH.	
		775 1.07	ENGINE REPAIRED 300 HRS.		
			INSPECTION PERFORMED PRESERVED		
			WITH OIL: MIL.L. 6081 GRADS 1212	1	
AUG 04		the second s	Ang MIL. C. 23/11 (AD)	NAG	<u>s.l.4</u>
			TOOH TEM, ZUOH/GM (OIL CHG), 300H AND	Stabiline	nto di Froshuum
			300H/6M (CMPR INSP) CARRIED CUT.	ADA	ADA
* * 1			des / change out.	TR3	WS SOC/03/A/013

	Engin	e Time			
Date	Since OH	Total	Remarks	Signature	Organization
15Aug04	-	1359.6	Fuel Nozzle AG-93441 Replaced by S/N 1010	M 082	Abu Chabi Aviati
05DEC04	-	1452.9	100H/12M, 100H/6M INSP. CARRIED OUT.	M 086	Abu Dhabi Aviatio
			Bost eng. installation tongue check Ya/ -	-M 070-	WS FIGO0030
07Dec04	-	1452.9	FAA AD 96-19-01 #5  Brg Serv. chk. c/out.	M 053	WS FTG00030
09Jan05	-	1525.1	1500hr FCU strainer replaced.@1841.1TAT	HOR GLADA	WS FTG00053
DI FEB 05	-	1549.9	FAA AD 96-19-01 #5 3 #8 B2G. SERV. CHK. C/05-		WE FIGODOST
01 FEB 05	-	1549.9		Buero TRS	NSFTG00052
01 FEB 05	-	1549.9	IDONE/GHTH, IDONE/IZNIH + 200000 1058. Chat.	E Hog TR.5	WS FTGODUST
19 442 05		1649.5	100 MR/6 HTH, 100 MR/12 MTH \$ 300 ME TASP. C/OUT	R IRS	WS FIR 10084
30 MAR 05	-	1669.1	THEBRUE REPLACED S/N OFF DATA3236-S/N ON-	TETADA	WS PTE DOUBL
			CAT 12811. 77 2070-5. 50 TAT 1985-1. TAC 1691.	TRS	N. States
01 FOB 05	-	1549.9	BOUNR/LINTH (COMP. INSP.) CARRIED OUT.	P ADA	WS FTG 000 60
27 APR 05	and the second	1718.9	P.T. GOVEDNOR REPLACED. P/N OFF 23007506.	20 ADA	Into ATTORNA

			ENGINE ASSEMBLY		
	Engir	ne Time			-
Date	Since OH	Total	Remarks	Signature	Organization
17 MAY 05	-	1748.6	100012/6424, 10002/124924 \$ FAA AD 96-19-01	ADA	anganization
			#5 \$ # 8 BEARING SERVICEABILITY CAR. c/o.	TRS	10
17 HAY 05	-	1748.6	ENGINE CHIP DETECTORS INSPECTION 0/0.	CA I I I I I I I I I I I I I I I I I I I	WS FTG BOILI
A MAY 05	-	1769.9	ENGINE ON PETECTORS ENGRECTION C/0.	TR 5	WS 57401123
Billin 05	-	1818.7		D ADAT	413PTGOOBO
JAN 05	-	1840.3	ENGINE CHIP DETECTORS INSPECTION C/0.	ADARS	AB FTE WEEEE
JUN 05		1847.0	ENGINE CHIP DETECTORS INSPECTION C/O.	TRA	WS FTGOOLSS
Sult 05		1851.8	FAR AD 96-19-01 #5 3 #8 BEARING CHK. C/0.	TRS	NS FTG00157
		1831.8	100H2/6HTH, 180HE/12HTH & COMPRESSOR CASE	ADA	
			Insp. c/o. @ TAT 2167.8	TRS	WS FTGOOIGI
8 JAN 08		1847.0	10 To EXTENTION ON ICOME/ONTH, IOINE/IZMEN \$	ADA	
	A CONTRACTOR OF THE OWNER		COMPRESSOR PASE JAISP. @ TAT 2163.0	TR 5	NO FIGURIET
AUG 05		1955-8	100H2/6MTH, 100H2/12MTH \$ 300 HR JMSP. Cout		NO FIRE DE
8617 05			AT TAT 21718	NOR	
OCT OS	-	2097.0		008	WS PTG apino
			2-7 TO EXTENTION ON INCRE/GATA & INDUS/INTA		WS FTG00222

INS	PECTI	ON - M	IAINTENANCE - OVERHAUI	F	Part IV Page No. <u>7</u> RD
2784A (11-77			ENGINE ASSEMBLY		
	Contract of the				T
Engine Ser	rial Numbe	er_ <i>CAE</i> -	270135 Engine Mo	odel <u>250-0</u>	
Date	Engin	e Time	Remarks	Signature	Organization
	Since OH	Total	1 1 2	HOR	
09 007 05	-	2051.3	100HR/GHTH & 100HR/12MTH INSP. C/OUT @	TRANS	
			TAT 2367.3.	Hund	WS FT \$ 00220
09760 05	-	21433	100HR/GHTH, 100MR/12MTH & COMPRESSOR CASE	008	
01 00		New Section	TASPECTIONS C/OUT @ TAT 24593.	R	WS F1300249
09 FEB 06	-	2136 6	100 HR/GHTH, 100 HR/12 MTH \$ 300 HR INSP. C/out	HOR	
DY P20 00		12500	@ TAT 2552.6.	2008	NBFTG00265
		2330-1	100 HE/GATH & 100 HE/12 MTH INST. Spart Q	HOR	
11 APR 06		20201	TAT 2646 1.	008	NSF7 \$ 00277
		-	FUEL CONTROL SIN 336496 REPLACED	HOR	- I the second
03 HAY 06		2364.8	BY 3/N 336474 @ TAT 2680.8.	2008	WS FT& 00282
			ICONE/ENTH, ICONE/ENTH & CONTRESSOR CARE	HOR	
10 Jan 00		2422.7		800	WLS FIG00 291
-		-	TASP. C/out @ TAT 2738.7	170	
				1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	

INS	SPECT	ION - M	AINTENANCE - OVERH		Part IV Page No
2784A (11-7			ENGINE ASSEMBLY	IOL HEOU	
Engine Se	rial Numb	er_ <u>CAE-</u> a	Engine	e Model _250 -	-C20J
Date	Engin	ne Time			
Date	Since OH	Total	Remarks	Signature	Organization
I JAN OG	_	2423.2	BLEED VALVE S/N FF37516 REPLACED	HOR	
			BY S/N FF32777 @ TAT 2739.2	2008	140 FF 8 - 0 - 01
27 JUN 06	-	2439.8	AD 2006-13-06 TRREINE THE BOLT. N/A	BBB	NLS FTG20296
9 AKG 00		2499.9	AD 2006-16-04 FUEL NORZLE INSP. N/A	SHOR	WS FTG 00301
S SEPT DO		2520.6	100HR/12WTH & 300HR INSP. C/aut	79008	WWS F1400541
			Q TAT 2836 2.	2008	w/S FTG 00 324
NOV 06	-	2617.7	100HE/12MTH, 200HE/6MTH & COMPERSOR CAR	E 7 HOR	1- 500 300
JAN 07			HALVES REPLACEMENT C/OUT @TAT 2933.7	2008	W/2 FTG 50 537
and of		2714-2	100 HE for Mith & Leu S/N 336477	HOR	44337
JAN 07		2001	REPLACED BY S/N 380341 @ TAT 3033	3 \$ 2008	m/s = 74 00 35
		2781.0 (	PEB A- 1400 ENG. STEADY STATE OPS.	D	1
				HOD	
			AVOIDANCE RANGE IS NOT AFFECTE	D C HOR 008	
			AVEIDANCE RANGE IS NOT AFFECTE Q TAT 3097.0.	HOR 008	MAR FIG 00 36
 2784A (1			AVOIDANCE RANGE IS NOT AFFECTE	- Aleren	Part IV Page No9
2784A (1		CTION -	MAINTENANCE - OVERI ENGINE ASSEMBLY	- Aleren	Part IV Page No. <u>9</u> CORD
2784A (1	Serial Nu	CTION - mber	MAINTENANCE - OVERI ENGINE ASSEMBLY CAE - 270185 Eng	HAUL REC	Part IV Page No. 9 CORD
2784A (1 Engine Date	Serial Nu	CTION - mber	MAINTENANCE - OVERH ENGINE ASSEMBLY CAE - 170185 Eng Remarks	HAUL REC	Part IV Page No. 9 CORD
2784A (1 Engine	Serial Nu	CTION - mber	MAINTENANCE - OVERI DIAT 3097.0. MAINTENANCE - OVERI ENGINE ASSEMBLY CAE-270185 Eng Remarks 2 100412/12 MTH, 200412 / 6MTH, Sectil	HAUL REC	Part IV Page No. 9 CORD
2784A (1 Engine Date	I1-77) Serial Nui Since ( 07 -	CTION - mber Engine Time OH Tota 28/5 · 2	AVAIDANCE RANGE IS NOT AFFECTA         D TAT 3097.0.         MAINTENANCE - OVERHENGINE ASSEMBLY         CAE-270185         Eng         Remarks         I         I         I         I         I         I         I         I         I         I         I      <	HAUL REC	Part IV Page No. 9 CORD
2784A (1 Engine Date	I1-77) Serial Nui Since ( 07 -	CTION - mber Engine Time DH Tota 2815 · 2	AVAIDANCE RANGE IS NOT AFFECTA         D TAT 3097.0.         MAINTENANCE - OVERHENGINE ASSEMBLY         CAE-270185         Eng         Remarks         Image: Internet for the Base of the Control Science	HAUL REC	Part IV Page No. 9 CORD 50-020T re Organization 92 FTG 00372
2784A (1 Engine Date	I1-77) Serial Nui Since ( 07 -	CTION - mber Engine Time OH Tota 28/5 · 2	AVAIDANCE RANGE IS NOT AFFECTE         D TAT 3097.0.         MAINTENANCE - OVERHENGINE ASSEMBLY         CAE-270185         Eng         Remarks         I         I         Remarks         I         Remarks         I         Remarks         I         Rest A 1398         Rest A 1398         Rest A 26 (D) TAT 3         I         I         I         I         I         I         I         I         I         I         I	HAUL REC	Part IV Page No. 9 CORD
2784A (1 Engine Date 1 <u>9 FEB (</u> <u>20 FEB - 0</u>	II-77) Serial Nur Since ( 07	CTION - mber	AVAIDANCE RANGE IS NOT AFFECTE         D TAT 3097.0.         MAINTENANCE - OVERHENGINE ASSEMBLY         CAE-270185         Eng         I         Remarks         I         Remarks         I         Remarks         I         Remarks         I         I         Remarks         I         Remarks         I         Remarks         I         Remarks         I         Remarks         I         Remarks         I         REB A- 1398 BENT. 0/0 @ TAT 3         I         REB A- 1398 LENT. 0/0 @ TAT 3         I         I         I         REB A- 1398 LENT. 0/0 @ TAT 3         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I      <	HAUL REC ine Model Signatur 3 3 3 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Part IV Page No. 9 CORD
2784A (1 Engine Date	II-77) Serial Nur Since ( 07	CTION - mber Engine Time OH Tota 28/5 · 2	AVAIDANCE RANGE IS NOT AFFECTE           0 TAT 3097.0.           MAINTENANCE - OVERHENGINE ASSEMBLY           CAE-270185           Eng           Remarks           2           IMAINTENANCE / CONTRACT           Remarks           2           IMAINTENANCE / CONTRACT           Remarks           2           IMAINTENANCE / CONTRACT           Remarks           IMAINTENANCE / CONTRACT	HAUL REC ine Model Signatur 3 3 3 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Part IV Page No. 9 CORD 50-C20T re Organization 92 FTG 00372 92 FTG 00372
2784A (1 Engine Date 1 <u>8 FEB (</u> <u>29 MAR</u>	11-77) Serial Nui Since 0 07	CTION - mber Engine Time OH Total 28/5 · 2 28/7 · 2 28/7 · 2 28/7 · 2	AVAIDANCE RANGE IS NOT AFFECTE         D TAT 3097.0.         MAINTENANCE - OVERHENGINE ASSEMBLY         CAE-270185         Eng         Remarks         I         Remarks	HAUL REC ine Model signatur 2 \$ N3/2 N2/2 NCED 3 5 NOR NOR NOR NOR NOR NOR NOR NOR NOR NOR	Part IV Page No. 9 CORD SO-CLOT re Organization 92 FTG00372 92 FTG00372 92 FTG00373
2784A (1 Engine Date 1 <u>9 FEB (</u> <u>20 FEB - 0</u>	11-77) Serial Nui Since 0 07	CTION - mber	AVAIDANCE RANGE IS NOT AFFECTE         D TAT 3097.0.         MAINTENANCE - OVERHENGINE ASSEMBLY         CAE-270185         Eng         Remarks         I         Remarkssy	HAUL REC ine Model signatur 2 \$ N3/2 N2/2 NCED 3 5 NOR NOR NOR NOR NOR NOR NOR NOR NOR NOR	Part IV Page No. 9 CORD 50-020T re Organization 90 FTG 00372 91 FTG 00373
2784A (1 Engine Date 19 FEB 0 29 MAR 0	11-77) Serial Nui Since ( 07 -	CTION - mber Engine Time OH Tota 25/15 - 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	AVAIDANCE RANGE IS NOT AFFECTE         D TAT 3097.0.         MAINTENANCE - OVERHENGINE ASSEMBLY         C9E-270185         Eng         I         Remarks         Remarks         I         Remarks	HAUL REC ine Model signatur 2 \$ 35 35 1000 1000 1000	Part IV Page No. 9 CORD 50-020T re Organization 90 FTG 00372 91 FTG 00373
2784A (1 Engine Date 1 <u>8 FEB (</u> <u>29 MAR</u>	11-77) Serial Nui Since ( 07 -	CTION - mber Engine Time OH Total 28/5 · 2 28/7 · 2 28/7 · 2 28/7 · 2	AVAIDANCE RANGE IS NOT AFFECTE         D TAT 3097.0.         MAINTENANCE - OVERHENGINE ASSEMBLY         C9E-270185         Eng         I         Remarks         Remarks         I         Remarks	HAUL REC ine Model signatur 2 \$ N3/-2 HOR 35 HOR 5000 5000 5000 5000 5000 5000 5000 50	Part IV Page No. 9 CORD 50-020T re Organization 92 FTG00372 92 FTG00372 92 FTG00373 10 10 10 10 10 10 10 10 10 10
2784A (1 Engine Date 19 FEB 0 29 MAR 0	11-77) Serial Nu	CTION - mber Engine Time OH Tota 25/15 - 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	AVAIDANCE RANGE IS NOT AFFECTE           D TAT 3097.0.           D TAT 3097.0.           B TAT 3097.0.           B TAT 3097.0.           CAE-270185           Eng           Remarks           I           Rest Assy CAT-& & Restit Rese	HAUL REC ine Model signatur 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Part IV Page No. 9 CORD 50-020T re Organization 92 FTG00372 92 FTG00372 92 FTG00373 1 1 1 1 1 1 1 1 1 1 1 1 1

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1110	DEOT				ge No
INS	PECTI	ON - M/	AINTENANCE - OVERHAUL	RECOF	1D
2784A (11-77	)		ENGINE ASSEMBLY		
					_
ngine Ser	ial Numbe	er <u>CAE</u>	E- 270185 Engine Mod	lel _250-	C2.0J
	Ender				
Date	Engine Since OH	Time	Remarks	Signature	Organization
2 9505			march - a la la D	HOR	
SEPT 04		32083	100HE/12MTH, 200HE/6NTH & COMPLESSOR	008	
SEPT 07	-	22.2 1	CASE INSP. COUT @ TAT 3524.3:	LUDD	FTG00427
		3213.1	P.T. GotECNOR S/N BR36366 REPLACED 2	ACR	
DEC 07	-	3290.9	BY S/N HR46774 @ TAT 3529 1.	000	FT6,00428
SFEB 08		3377.3	WORKE/EMTH JASP. COUT @TATS606.9	The age	FTG 00 436
			Conference Case INSP. c/out Q	HOP	
		the second s	TAT 3693.3.	008	
APR 08	-		180 A E/2 MTN INSP. C/OUT @TAT 37896	HUK	FTG00454
5 JAN 08			HOUR /2 MTH & 200HR/6MTH INSP. Chat	008	7400.465
			Q TAT 3880.1.	HOR	
4-AUL-08	_	8640.9		CONTRACTOR OF THE OWNER OF	ETG 80444
			200 Ha/ 6 MTH Compression case Ingh of a.	-1007	FTG. 00490
		1	P mi obvi		19 - US
		1			1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -
		, ,			
		,			Part IV //
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INS	SPECT	ION - M	AINTENANCE - OVERHAU		Page No//
		ION - M			Page No//
2784A (11-7	7)		AINTENANCE - OVERHAU ENGINE ASSEMBLY	L RECO	Page No// RD
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		AT- 22773 Engine M	Aodel _ 250- (	20B
Compliance Date	Bulletin or Directive No.	Title	Signature	Organization
5.NOV.91	CEB A1224	ENG.TURBINE ASS.INNER AND OUTER P.T.	and the state of the	
		SHAFTS THICKER ELECTROLESS NIKEL PLA		PALCOTTER AREIDIONAL
5.NOV.91	CEB 1239	ENG.TURBINE ASSEMBLY "U" RING	Tent	- President - Date
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5.NOV.91	CEB 1267	ENG.TURB.ASS.SECOND STAGE TURB.WHEEL		Personne - diatra
		REDUCED DIAMETER BALANCE PISTON SEAL		DICOTTERI MERDIONALI
5.NOV.91	CEB 1251	ENG.TURBINE ASS.NEW OPTIMIZED P.T.		Fragmann + Malia
		SUMP CLEARANCES.	EM 8	ANCOTON MERCHONALS
5.NOV.91	CEB A1283	ENG.TURB.ASS.ALSEAL COATING OF P.T.		Frecienza - Halle
		INNER AND OUTER SHAFTS.	TEM .	And a second sec
TA LIGHT TA			8	COTTER MERIDIONAL
OINOVOS	FAA AD 96-19-0	1 #5 & #8 Bearing Seviceability check.	MA ADA	
01Apr03	CEB-A-1341 & 1370	1st SIG Nozzle Dame Shield - N/A by P/N.	MAN ADA	ADA WO SOC/OB/A/ODE
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Turbine Seria		MODIFICATION RECORD TURBINE ASSEMBLY XAT-22773 Engine M		Page No. 3
Compliance Date	Bulletin or Directive No.	Title	Signature	Organization
01Nov03	FAA AD 77-15-12 CFB-A-1060	PT Coupling Nut P/N 6846278 N/A by P/N	the ADA	ADA WO SOC/03/A/002
29Aug04	CEB A-1370R2	1st SIG Nozz Shield insp. c/out.	EMCTR LADA	WS FTA 00078
12-4-05	PRPL 1-43	Coexhaul Snopeetin, 1, 2, 3 stage wheele.	TRI	N
12-4-05	A1253 R4	lat 1 2nd Ste. Nonster - Modify for Internal Energy Alberting ring.	(AII	12
	A1254.R3	C.P. Suggert - Mortify & Sneet, Secternal Energy Alboorburg Ring.	Has	( all
and the second second	A1255R4	Souternal Energy officianting (ling -110	T/	N
	1276 R3	GP Support-Addition of brazed a-Welled Wear Pade.		1000
	A1292RI	Turline Splined Adapter 6898784, Replace Certain Suspect Adaptere.		1 mg
	A1342R2	Eropoetion of Isl. Sta. Norse Shield Dome Detail for UMI or Everhaul.	Ð	M

)RM 2783D(11	-77)	MODIFICATION RECORD TURBINE ASSEMBLY		Part III Page No.
urbine Seri	al Number	AT 22773 Engine M	odel 250	-C20B
Compliance Date	Bulletin or Directive No.	Title	Signature	Organization
	A1370R2	Supertion & Replacement of /ol. Stage Norgale Shield, (6890040 relited).	Deli	
	137/RO	C. P Rotor Ascemble-Replace Tie Bolt.	Hast	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	A1375Ro	Redacement of Ind Stage Norse	1028	( and
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		PTG TALREASED RELIABILITY.	HOR	FTE 00420
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Turbine Seria	Number CM	5-22333 Engine M	1odel	
Compliance Date	Bulletin or Directive No.	Title	Signature	Organizatio
04/01/10	CEBAISTSR2	COMPLIANCE CHECK CLO. FOUND ) EMBODIED.	HOR	FTEOO62
04101110	CEBA-1375R3	COMPLIANCE CHECK CLO. FOURD ] EMBODIED.	HOR	FTEOCOZ
03/5/10	CEB-1078E1	FIRST STY NOZZLE SHIELD ALSY RECORL HOT COUS AT THIS TIME. TO BE CLOUT ( HEAT OH).	7 525	FTEODEY
03/05/10	CEB-1360	RECONTING & OF POWER TURBINE INNER SHAFT NOT CLOUT AT THIS TIME . TO BE CLOUT PHENT HM3/0H.	f wester	ELECCEA.
14 FEB 2012 14 FEB 2012 14 FEB 2012	CEB 1333R6	RELEASE DY NO. 8 BRG & RETNG PLATE REIDENTIFY SEMI-FINISHED JAD STG NOTZLES RECORTING OF PT INNER SHAFT.	2/10	Estampeno

urbine Seria	I Number G	AT 22773 Engine N	Nodel _250	-C20B
Compliance Date	Bulletin or Directive No.	Title	Signature	Organization
14 FEB 2012	CEB 1399R1	INSPECTION PASSY, OIL - GASTFIER	7	h
		TURB BRG SHPPORT. (MEASURED WALL		1/
		THICKNESS: 0.018")	11	2
4 FEB 2012	CEB 1406R1	REPLACEMENT & TURB GP FORWARD LABY	2/4/20	C AND C
		SEAL.	SAAP	( Sr
FEB 2012	CEB-A-1370R6	INSPECTION & IST STG NODZLE DOME	1 13	
4FEB 2012	CEB-A-1375R3	REPLACEMENT of 2ND STG NOTZLE DIAPHRAGM	)	
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FORM 27841			MAINTENANCE — OVERHA TURBINE ASSEMBLY - 22773 Engine Mo	F	
A PART	Turbine Since OH	Time Total	Remarks	Signature	Organization
Date 24.10 85		40:47	DURING STARTING TOT LIGHT	0	AMIRI CUARD
14.10 05	10		CAME AT 8502 (HOT START INSP	6.	AIR WING SH
			CARRIED OUT TA.W. MM	27.	
5.NOV.91		851:20	TURBINE ASSY HAS BEEN VISUAL INSPECT	ED	EUCOTTER ASSISTONAL
12-4-85	New	1745:42	scordonce will PRPLI-25 and rected. The Bolt NM 346 86965 Free length 6.882", Jack. Sta. Northe Shield	Has 1028	and a co
			6890040 fitted 1000 encles available. Ht SAviation Project 6201770 refers.		

IN FORM 27841 Turbine S	D-1 (4-79)		MAINTENANCE — OVERH TURBINE ASSEMBLY - 22773 Engine Mo	AUL RE	
	Turbin	and the second se			
Date	Since OH	Total	Remarks	Signature	Organization
25/10/08	-	2341-0	SPECIAL INSPECTION your JANI 2R		
		1.881.16 s.	MM CHAP. 72-00-00 page 020 TRBLE bay		
			(Exceedes 927 C FOR HORE THAN I SEE)	No. State With	
	-		Q TAT 3718.5.	HOR	PTE 500001
				1000	EN STRATES
11/11/09	/	2986.6	CEB 1370 REV 6 (1St STALE NOZZ)	ROH	T-
25-619/18-1	many it lies		SHIELD DOME INSP.) CLOUT.	02210	FIECOLOZ
04/01/10	1	3081.0	LEB A-1400R3 COMPLIANCE CHER	HOR	
Surger and			clout. Found HIA By PlN.	1 100220	FTEODGIG
4101/10	-	3081.0	CEB-1365R3 COMPUTANE CHECK	HOR	11000016
	N. Bassie	M. Martin	clo. Found of THE DAL. HOT SULVERO -	w.alt	FTECCE24
14111	-		PATES AT THIS TIME	-	
		3495.4	TURBIAL ASAY States TIME: TURBIAL ASAY States CAT-22773	HOR	
			LENALES HARD FRE CHE-JA118 . 1	dot to the	FTE 00685

tion of Part IV 3 INSPECTION - MAINTENANCE - OVERHAUL RECORD TURBINE ASSEMBLY 2784D(11-77) Turbine Serial Number CAT 22773 Engine Model 250-C20B Turbine Time Date Since OH Total Remarks Signature Organization 3445.4 CYC 3471 OVERHANNED & MODIFIED IAW RR250-14 FEB 2012 0.0 C20 SERIES OHM, 10W3, EDTN 4, REV7 Sta AS 4 DTD ANG 15/11. (REFERENCE WORK DRDER LG254170)

Turbine Seri	1(4-79)	or CAT -	- 2277	RBINE			Model	250- C20B	
							REMOVED	1	
	Part	Serial		INSTALLED	This Item		Turbine Total	This Item	
Nomenclature	Number	Number	Date	Turbine Total Time	Cycles	Date	Time	Cycles	Reason
LST STG.WHL.	6886407	x78750	5-26-82	0.0	0.0	5-NOU.91	C. 932 851:20	851 10 982	
2ND STG.WHL.	6898782	HX60813		0.0	0.0	5. Nov 91	C. 982 851'20	851:10	
RD STG.WHL.	6899373	HX58514	н	0.0	0.0	29 AU 6 2011		34954	
TH STG.WHL.	6853279	HX50949	10	0.0	0.0	2994462011	3495.4	3495.4	
1stste Xhl.	6926607	× 119962	S.NOV H	C. 982 85120	00100	12-4-00	1745:42	894:22	Here
200 STG Whl				6. 982	C2:00	1	1745:42	894:22	Hott
Ist. Starkfil.		X			0.0 New	29AUG 2011		1749.7	
and any serve	23073654	X			0.0		3495.4	1749.7 1467	

FORM 2785D-:	L(4-79)			EMBL					Part V 2 Page No.
Turbine Ser	ial Numb	er <u>CAT</u>	- 2277	73		Engine	Model_	250-C20	В
				INSTALLE	D		REMOVED		1
Nomenclature	Part Number	Serial Number	Date	Turbine Tota Time	This Item TT Cycles	Date	Turbine Tota Time	This item TT Cycles	Reason
Tie Bolt	23068265	NM 86965	12-4-05	1745:42	0.0 New	29 AUG2011	3495.4	1749.7	
IST STG WHL		X	The second second	C COMPANY				1401	
2NDSTG WHL	23073854	× 600885	14FEB 2012	3495.4	0.0				-
3 RD STG WHL	1000	HX	14.FEBZON	The second second	3495.4				-
ATH STG WHL	6853279	HX 50949	14 FEB ZOD	3495.4	3495.4	and the second s	- Andrews		
	23068265				0.0				
157 STG NO2715	23084382	NO	14FEB202		0.0				
	a Sura						Section 1		

		386-1(4-79) Serial Number		CYCLE FURBINE (Refer to Life 22773	ASSEMBLY Limiting CSL	)		art VI age Nol
	and the second	Inst	alled				Removed	
	Date	Owner	Eng S/N	Cycle Counter Reading	Do Not Exceed Cycle Counter Reading	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Cycle Counter Reading	Cycles This Instaliation
5-3	26-82		834984			5/11/91	-	982 TOTAL
	San State					7/3/05		1022004 TOTAL).
19	Jon. 07	and the second second second	CAE 270178	2004		114/11		(1967 (3971 TOTAL)
			-			-		
3.10			-					
					and the second second	1		
			and the second					
				and the second second				
			STREAM IN THE			10-3		

LIFE LIMI PART NAM	TED 2ND ST		PART	R 230	84419	;	SERIAL NUMBER YG	15351
Date Installed	Date Removed	Engine and Module S/N	Engine Model	and the second sec	Cycles	Overspeed Events* (as app)	d Commen	tts Signature And Certificate #
147EB2012		CAT 22773	C20B	0.0	0	1	-	/h V
								1
							the Comments L	

-		Imber _car		1077		ngine Mo	2	
and the	INST	ALLED		REMOVED				
Date	Owner	A/C or Eng. S/N	Compressor Since OH	Time	Date	Compressor Since OH	Total	Reason
3-27-83		270187	NEW	0.0	06.11.00	1382:00	1382.00	crosion
	MTU-München	270187	00:00	1382:00	Contraction of the local division of the loc			
1/08/04	HORIZON	270187	00:00	1382.0	c5]6/11	2643.2	4025.2	HORES CORO
115/12	HORIZON	270185	2643.2	4025.2			1000	
				-				
						100000		

FORM 27	82B-1 (B)(4-79)	TRANSFE	ER REC	ORD		Part II Page No
Compress	or Serial Numb	oer <u>CAC - 24077</u>	7	Engine N	Aodel 250-	C20J
		SHIPPED			R	ECEIVED
Date	From	То	Compressor Since OH	Time Total	Date	-
3-27-83	DDA-GMC	AGUSTA	NEW	0.0		By

FORM 2783B-1 Compressor	(4-79) Serial Number	MODIFICATION RECORD COMPRESSOR ASSEMBLY CAC - 24077 Engine Mo	odel <u>250-</u>	Part III Page No
Compliance	Bulletin or Directive No.	Title	Signature	Organization
17. DEC. 87	CEB A1234	ENGINE FUEL LUBE AND AIR SYSTEM PC		-
		SCROLL TO RE FILTER TUBE ASSY INSPECTION.	Sizzi	ELICOTTERI MERIDIONALI Prosinone - Itelle
28. MAY 90	CEB A1234	ENGINE FUEL WEE AND AIR SYSTEM PE SEROLL TO RE FILTER TUBE ASSY IN SPECTION.	E 11	LICOTTON MERIDIONA Traineus - Italia
28. MAY. 90	CEB 41233 (PART. 12)	ENG. FUEL LUBE AND AIR SYSTEM IMPROVED STRENGTH PETICICA HOUSING		EUCOTTUN ACTIDIONA Provincia - Italia
4.0CT.93	CEB A1234	ENGINE FUEL LUBE AND AIR SYSTEM PC SCROLL TO PC FILTER TUBE ASSY INSPEC		SICOTTERI MERIDIONO Fraslana - Italia
21.12.00	(EB 1321 (EB 1325	New Compressor Rotor Assy New Compressor Capting Adapter	(ara)	MTU-Münche MTU-Münch
21.12.06	CEB 1317	Compressor Case, New Material Plastic, Add.	10	

FORM 2783B-1 ( Compressor \$	4-79) Serial Numbe	MODIFICATION RECORD COMPRESSOR ASSEMBLY r CAC - 24077 Engine M	/lodel _ <u>250-c</u>	Part III Page No
Compliance Date	Bulletin or Directive No.	Title		
30 JAN 2008			Signature	Organization
		INSPECTION. P.C.W WIDER 22.	HOR	1978 00619
			Ture	
				1
				1000
	A CALSSON AND READ READ IN			A THE SHOW OF THE

111	SPECI	ION - I	MAINTENANCE - OVERHA	AUL REC	ORD
			COMPRESSOR ASSEMBLY		
FORM 2784B		lumber	cac 24077 Engine Mo	del _250- C20	J
Compresso	or Serial r	reamure	CAC - Lighte Mic		ANTINA PROVID
Date	Compressor Since OH	Time Total DE	Remarks	Signature	Organization
		ENGHRS	COMP. CASE P.NO 6877410, REPLA	-Ch	
6 APR ST	NEW	277.33	WITH S.No 20226 (PLASTIC EROSION		U.A.E.AUDHAE
			OLD CASE NO 15-29146)	- And Kin	
17. DEC. 87	-	302:55	THE COMPRESSOR ASSY HAS BEEN		NEW YORK
1 200.01			VISUAL INSPECTED.	Gizzi	Eroalaone - Halle
22-2-89	·NEW	503:15	COMP CASE S.NO. 20226 REPLACED		
			WITH NEW CASES NO 26961 CASE	Amaread	VAE ALDE
		-	1+RS 1=25.	H" TRRI	
28 HAY 90	-	575:15	COMPRESSOR ASSY HAS BEEN VISUAL	[EM]	LICOTTEN MULLIONA
			INSPECTED AND REPAIRED.	8	Bennya - Bala
4.0CT.93		1110:40	COMPRESSOR ASSY HAS BEEN VISUAL	TAR	EUCOTHE MERICICA
	PASSER . W. Sal		INSPECTED AND REPAIRED.	4000	Presigona - Italia

FORM 2784E			MAINTENANCE — OVERH COMPRESSOR ASSEMBLY CAC - 24077 Engine M	IAUL RE	
Date	Compressor Since OH	Time			
	SILLE OH		Remarks	Signature	Organization
21.04.00		175:10	COMP. CASE ASSY S. No. SET 20701	(Jul 1)	JR. MART. SEC.
			ERCADED INSTALLED. "U/S'	1 Str	
21.12.00	00:00	1382:00 1835 Cy	Compressor overhauled in acc. with Pub. 10W3 3. Edit.	(414)	Mitty-München
27 AUG 05	211.5 194-52	1593.000 1669 58	G. Rev. 7197 COMPRESSOR CASE FINSPECTION 960 TAT 8213.9	HOR	2120 A
17 FEB 06	499.9	1881.9	CONFRESSOR CASE TASPECTION CONT @	HOR	WS FT BOOSTS
BAUG eb	750.7	2182.7	TORIATION GRANTED FOR COMPRESSOR CASE	HOR	KSF7800404
			TUSPECTION Q TAT 3753 1	6000	\$ 178 10 478

IN	ISPECT	-10N	MAINTENANCE-OVERHA	AUL REC	Page No
2784B(11-7			COMPRESSOR ASSEMBLY		
		Number _	CAC-24077 Engine Mo	del 250-02	ат
Date	Compresso Since OH	r Time Total	Remarks	Signature	Organization
28 AUG 06	755.4	2137.4	Contresso 2 Case INSPECTION Cloui	HOR	organización
			@ TAT 5457.8 .	1008	WS FTB00483
14 PEB OF	997.7	2379.7	COMPRESSOR CASE INSPECTION SPAT	7 HOR	
			Q TAT 4000.1.	Lage	FTB00530
17 JUL 07	1277.4	2659.4	COMPRESSOR CASE INSPECTION YOUT	7 HOR	
			@ TAT \$2798 FOUND U/S CASE	Corge	FTBRESTI
			HALVES REPLACED. S/N OFF SET 20701	1	
			S/N ON SET SI046.	)	
14 JAN 08	1805 F	2887.7	Compresser Case Inspection clout	HOR	
			@ 141 4508.1.	A BOSI	F180617
10 Jul 48	1700.4	3082.4	ComPRESSOR CASE INSPECTION CANT	LUOD	
		a kalendersalet	@ TAT 4702.8.	THUR	FIBURGET

2784B(11-)	77)		MAINTENANCE — OVERHA		
Compress			CAC - 24077 Engine Mo	odel <u>250</u> -	e20J
Date	Compressor Since OH	Total	Remarks	Signature	Organization
19 Ax6 08	1742 2	3120 2	COMPRESSOR CASE INSPECTION	HOR	100. 120
09/2/09	1901-0	3283.0	COMPRESSOR CASE TASP. CLOUT AT 4903.4 TAT.	HOR	FTB 00694
09/08/09	2154.9	3536.9		HOR 022	81500317
27/6/110	2397.0	3779.0	COMPRESSOR CASE SIN SETSIONE REPLACED BY SIN SET 28607 ( 4129.5 TAT.	1 m. 0.7.5	F7F00420
2/12/10	2550.4	3932.4	COMPLESSOR CALE 7.458 C/OUP @4282.9 T.A.T.	f molt	FTFOOTHS

4-79)	mbor (			R ASSI		Model 2		ge No
			State State		Lugine		.50 020	
Part	Serial		Comp. Total	This Item			This Item	
Number	Number	Date	Time	Cycles	Date	Time	Cycles	Reason
6890501	KR61905	3-27-83	0.0	0.0	17-DEC.81	302:55	302:55	
6890502	C44790	н	0.0	0.0	-28-MAY 90	575:15	575:15	
6876654	C43689	11	0.0	0.0			575:15	
6876655	ER34798	IJ	0.0	0.0		Section Section	302:55	
		u	0.0	0.0		Berley and	575.15	and the
6876873	KR58409		0.0	0.0			1382:00	erosion
6891625	тн6 3009		0.0	0.0			1382:00	modify
6871259	39181		0.0	0.0			1382100	Corrosia
	Part Number 6890501 6890502 6876655 6876655 6876656 6876873 6891625	Part Number         Serial Number           6890501         KR61905           6890502         c44790           6876654         c43689           6876655         ER34798           6876656         KR28941           6876873         KR58409           6891625         TH63009	4-79) Part Serial Number CAC - 24 Part Number Number Date 6890501 KR61905 3-27-83 6890502 C44790 " 6876654 C43689 " 6876655 ER34798 " 6876656 KR28941 " 6876656 KR28941 " 6876673 KR58409 " 6891625 TH63009 "	44-79)         Gerial Number CAC - 24077         INSTALLED         Part Number       Serial Serial Number       INSTALLED         Part Number       Serial Serial       Date       Comp. Total Time         6890501       KR61905       3-27-83       0.0         6890502       C44790       ''       0.0         6876654       C43689       ''       0.0         6876655       ER34798       ''       0.0         6876656       KR28941       ''       0.0         6876873       KR58409       ''       0.0         6891625       TH63009       ''       0.0	44-79) Part Serial Number $CAC - 24077$ Part Serial Number $Date Comp. Total This Hem Time Cycles 6890501 KR61905 3-27-83 0.0 0.0 6890502 C44790 " 0.0 0.0 6876654 C43689 " 0.0 0.0 6876655 ER34798 " 0.0 0.0 6876656 KR28941 " 0.0 0.0 6876656 KR28941 " 0.0 0.0 6876657 TH63009 " 0.0 0.0$	Berial Number _CAC - 24077       Engine         Part Number       Serial Number       INSTALLED       Date       Date <td>44-79)         Engine Model _2         Engine Model _2         Number CAC - 24077       Engine Model _2         Part       Serial       Date       REMOVED         Part       Serial       Date       Comp. Total         Number       Date       Comp. Total         Number       Date       Comp. Total         Number       Date       Comp. Total         Number       Date       Comp. Total         Mumber       Date       Comp. Total         Number       Date       Comp. Total         Mumber       Comp. Total       This term         6890502       c44790       "       0.0       28 May 90 SF5: 75         6876655       ER34798       0.0       0.0       28 May 90 SF5: 75       6876656         6876656       KR28941       0.0       0.0       28 May 90 SF5: 75       687655       &lt;</td> <td>44-79)         Engine Model <math>250 220</math>         Engine Model <math>250 220</math>         Part Serial Number       INSTALLED       REMOVED         Part Number       Serial Date       Time Time Time Time Time Time Time Time</td>	44-79)         Engine Model _2         Engine Model _2         Number CAC - 24077       Engine Model _2         Part       Serial       Date       REMOVED         Part       Serial       Date       Comp. Total         Number       Date       Comp. Total         Number       Date       Comp. Total         Number       Date       Comp. Total         Number       Date       Comp. Total         Mumber       Date       Comp. Total         Number       Date       Comp. Total         Mumber       Comp. Total       This term         6890502       c44790       "       0.0       28 May 90 SF5: 75         6876655       ER34798       0.0       0.0       28 May 90 SF5: 75       6876656         6876656       KR28941       0.0       0.0       28 May 90 SF5: 75       687655       <	44-79)         Engine Model $250 220$ Engine Model $250 220$ Part Serial Number       INSTALLED       REMOVED         Part Number       Serial Date       Time Time Time Time Time Time Time Time

#### ASSEMBLY RECORD COMPRESSOR ASSEMBLY

Part V Page No. \_\_\_\_\_

FORM 2785B-1(4-79)

Compressor Serial Number \_\_\_\_\_\_ CAC - 24077

Engine Model \_\_\_\_\_ 250- C20J

STATISTICS SALES	CONTRACTOR OF		INSTALLED			REMOVED		
Part Number	Serial Number	Date	Comp. Total Time	This Item TT Cycles	Date	Comp. Total Time	This Item TT Cycles	Reason
6876655	C-23165	17-DEC.81	302:55	302:55	28. MAYCAC	SFS:15	272.20	
6877410	29345	28-11Ay/90	575:15	T-S.0.90/00		833:45	258:30	ERODED .
				20:00			535:15	
							535:25	
6876654	ER.58387	-28. MAN 90	575:15	00:00			806-45 358	erosion
				001.00	06.11.00	1382:00	806:45 358	Prosich
6876656	WR-28683	28 HAY 90	575:15	00:00	06.M.00	1382:00	806:45	erosion
6877410	17085	12-10-91	833:30	00:00	4.007.83	1110:40	277:13	
	Number 6876655 6877440 23033724 23033725 6876654 23033725 6876656	Number         Number           6876655         c-23455           6877440         29345           23033721         kg-4469           23033722         kg-6058           6876654         c-8583           6876654         c-8583           6876654         c-8583           6876654         c-8583           6876654         c-8583	Part Number         Serial Number         Date           68 76655         C-23165         17. Dec. 81           68 7440         29345         28. HAY90           230 33724         VR-7160         28. HAY90           230 33724         VR-40568         28. HAY90           230 33725         KR-60568         28. HAY90           6876654         CR-5888         28. HAY90           6876654         CR-5888         28. HAY90           6876654         CR-5888         28. HAY90           6876654         CR-5888         28. HAY90           6876654         CR-58680         28. HAY90	Part Number         Serial Number         Date         Comp. Total Time           68 76655         c-23165         17.9ec.81         302:55           68 77410         29365         28-114/94         575:45           23033721         KR-4056         28-114/94         575:45           13033721         KR-6056         28-114/94         575:45           6876654         c.R:5887         28-114/94         575:45	Part Number         Serial Number         Comp. Total Date         This tiem Time         This tiem Cycles           6876655         c-23165         17. Dec. 81         302:55         302:55           6876655         c-23165         17. Dec. 81         302:55         302:55           6877440         29345         28-11Ay/90         575:45         00:00           23033724         We-7160         28-11Ay/90         575:45         00:00           23033725         We-60588         28-11Ay/90         575:45         00:00           23033725         ERA5630         28-11Ay/90         575:45         00:00           6876654         ER-5838         28-11Ay/90         575:45         00:00           6876654         ER-5830         28-11Ay/90         575:45         00:00           6876654         ER-5830         28-11Ay/90         575:45         00:00           6876655         IR-28683         28-11Ay/90         575:45         00:00	Part Number         Serial Number         Comp. Total Date         This fee Time         Date           68 76655         c-23165         17-9ec.81         302:55         302:55         28.11/1/40           68 76655         c-23165         17-9ec.81         302:55         28.11/1/40         12-10-91           68 76655         c-23165         17-9ec.81         302:55         12-10-91         12-10-91           230 33721         WR-74669         28-11/1/90         575:15         60:90         4.007.93           230 33722         KR-60568         28-11/1/90         575:15         60:90         4.007.93           230 33725         ER/5630         28-11/1/90         575:15         00.100         0.0100           6876656         KR-28683         28-11/1/90         575:15         00.100         0.0100           6876656         KR-28683         28-11/1/90         575:15         00.100         0.0100	Part Number         Serial Number         Comp. Total Date         This Hem Time         Date         Comp. Total Time           68 76655         c-23165         17. Dec. 81         302:55         302:55         28. MAY 90         575:45           68 76655         c-23165         17. Dec. 81         302:55         302:55         28. MAY 90         575:45           68 77440         29345         28. MAY 90         575:45         15. 0. 9000         12-10-91         833:45           230 33724         We-71607         28. MAY 90         575:45         00:900         12.00-91         833:45           230 33724         We-71607         28. MAY 90         575:45         00:900         10.00-93         110:40           230 33725         KR-60588         28. May 90         575:45         00:900         14.00-93         110:40           6876654         c.R.5838         28. May 90         575:45         00:900         00. M.00         R82:000           6876654         c.R.5838         28. May 90         575:15         00:900         00. M.00         1882:00           6876656         18. May 90         575:45         00:900         00. M.00         1882:00           6876656         18. 28683         28. May 90	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

			ASS	EMBL	Y REC	ORD		Par Par	t V ge No	
FORM 2785B (1	1-77)		COMF	PRESSO	R ASSE	MBLY				
Compressor	Serial Nu	mber_	CAE-2	24077		Engine I	Model	25002		
The second s				INSTALLED			REMOVED			
Conversion of the second	Part	Serial	Data	Comp. Total	This Item	Date	Comp. Total Time	This Item TT Cycles	Reason	
Nomenclature	Number	Number	Date	Time	Cycles	Date	Thing	167:45		
Compassor Case	6877410	26181	4.0CT.97	110:40	13,0,00,00	22-3-99	1278:25		ERRODED	
Contract of the local division of the					00'.90		45-0	271:20	0 - 1 0	
1st st 6. uhl	23033721	KR-85-186	4.0c7.93	1110:40		06.11.00	1382:00	224	Prosion	
2-3-576-Khl.	6893612	Ve to cal	1 012 82	1110'1.0	00:00	ex. 12.00	1382:00		erosion	
63-516-Wal	6013012	IK-10526	17 Ver. 12	11110 1010	T.S. 0 0 : 00					
COMP-CASE	930571412	29626	22-3-99	12.78:25	0:00	21-6-99	52:50	52:50	ERRODED	
				1	0:00	22.8.00	50:45	50:50	TO SERVICE AN OTHER ENGINE	
COMP. CASI	2305714	2 42.906	21.6.99	1331-13	T.S.N. TCH: (WIK)		30.43	20.20	OTHER CITE	
SOMP. CASE	23053142	SET2840	27/6/10	8779.0	T50= 0-0					
TO HIT CH SE								-	Carl Martin	
	Ny Sente					-	-			
								Const and		
and the spectrum.	State 1				The second second		and a set	A second second		
			ASSI	EMRLY	REC	ORD			art V	
500H 07050 /1	1 771	ASSEIVIBLY RECURD Page No								
FORM 2/858 (	FORM 2785B (11-77) COMPRESSOR ASSEMBLY									
Construction of the second second second			COMF	RESSO		-1009 31 4				
-					R ASSE	MBLY				
Compressor		mber (			R ASSE	MBLY	/lodel			
Compressor		mber (	<u>AC 24</u>	670	R ASSE	MBLY Engine N				
Compressor	Serial Nu		<u>AC 24</u>	OTT	R ASSE	MBLY Engine M	REMOVED	250-1		
Nomenclature		serial Number	<u>AC 24</u>	670	R ASSE	MBLY Engine M				
Nomenclature	Serial Nu Part Number	Serial Number	Date	OTT INSTALLED Comp. Total Time	This Item This Item T Cycles New	Engine M	REMOVED	250 -	(203	
Nomenclature	Serial Nu Part Number 23057444	Serial Number KR 87335 E	Date 21, 12, 00	OTT INSTALLED Comp. Total	This Item Cycles	Engine M	REMOVED	250 -	(203	
Nomenclature	Serial Nu Part Number 23057444	Serial Number KR 87335 E	Date 21, 12, 00	OTT INSTALLED Comp. Total Time	This Item This Item T Cycles New	Engine M	REMOVED	250 -	(203	
Nomenclature <u>1ST STG.WHL</u> 2-3 STG.WHL	Serial Nu Part Number 230531111 230531112	Serial Number KR 87335 E 78749 F	Date 2 1, 12, 00 2 1, 12, 00	NSTALLED Comp. Total Time 1382:00 1382:00	This item This item Cycles New DOCO New DOCO New	Engine M	REMOVED	250 -	(203	
Nomenclature <u>1st stg.WHL</u> 2-3 stg.WHL 4TH SG.WHL	Serial Nu Part Number 23057111 23057112 23057114	Serial Number KR 87335 E 78743 E 84572	Date 2 1. 12. 00 2 1. 12. 00 2 1. 12. 00	INSTALLED Comp. Total Time	This item Cycles New DOCO New DOCO New DOCO	Engine M	REMOVED	250 -	(203	
Nomenclature <u>1st stg.WHL</u> 2-3 stg.WHL 4TH SG.WHL	Serial Nu Part Number 23057111 23057112 23057114	Serial Number KR 87335 E 78743 E 84572	Date 2 1. 12. 00 2 1. 12. 00 2 1. 12. 00	077 INSTALLED Comp. Total Time 13.82:00 13.82:00 13.82:00	This item Cycles New DOCO New DOCO New DOCO New DOCO New	Engine M	REMOVED	250 -	(203	
Nomenclature <u>1ST_STG_WHL</u> 2-3_STG_WHL <u>4</u> TH_StG_WHL STH_STG_WHL	Serial Nu Part Number 23057444 23057444 23057445	Serial Number KR 87335 E 78743 E 84542 KR 5488 V0	Date 2 1. 12. 00 2 1. 12. 00 2 1. 12. 00 2 1. 12. 00 2 1. 12. 00	077 INSTALLED Comp. Total Time A3 82:00 A3 82:00 A3 82:00 A3 82:00	This item Cycles New DOCO New DOCO New DOCO	Engine M	REMOVED	250 -	C2O3 Reason	
Nomenclature <u>1st stg.WHL</u> 2-3 stg.WHL 4TH SG.WHL	Serial Nu Part Number 23057444 23057444 23057445	Serial Number KR 87335 E 78743 E 84542 KR 5488 V0	Date 2 1. 12. 00 2 1. 12. 00 2 1. 12. 00 2 1. 12. 00 2 1. 12. 00	077 INSTALLED Comp. Total Time 13.82:00 13.82:00 13.82:00	This Item Tycles New OOCO New OOCO New OOCO New OOCO New OOCO New OOCO	Engine M	REMOVED	250 -	C2O3 Reason	
Nomenclature <u>1ST_STG_WHL</u> 2-3_STG_WHL <u>4TH_SG_WHL</u> <u>5TH_STG_WHL</u> <u>6TH_STG_WHL</u>	Serial Nu Part Number 23057444 23057444 23057445	Serial Number KR 87335 E 787435 E 845722 KR S3488 KR S3488 KR S34322 KR	Date 2 1. 12. 00 2 1. 12. 00	077 INSTALLED Comp. Total Time 1382:00 1382:00 1382:00 1382:00	This item This item Cycles New OOCO New OOCO New OOCO New OOCO New OOCO New	Engine M	REMOVED	250 -	C2O3 Reason	

	9387-1(4-79) assor Serial Num	(	Refer to Life	R ASSEMBI Limiting CSL)			rt VI ge No
		talled				Removed	
Date	Owner	Eng S/N	Cycle Counter Reading	Do Not Exceed Cycle Counter Reading	Date	Cycle Counter Reading	Cycles This Installation
3-27-83		270187					
		-					
-							
		_					
		-	-				

		2C-1 (F) (4-79) Serial Numbe				ECOR SSEMBL	Y	del _250	Part 1 Page No
		INICT	ALLED					REMOVED	
		11131	ALLED	Gearbox	Time		Gearbox	Time	
			A/C or Eng. S/N	Since OH	Total	Date	Since OH	Total	Reason
	Date	Owner	270187	NEW	0.0	06.11.00	1382:00	1382:00	modity
3	-27-83	MTU- Hünchen		1382.00	1382:00				
		HURIZON	270187	1282:00	1382:00	3/0/11	-	4025.2	HORWSCOTOS
	108/01	HORIZON	220185	NEW	4025.2				
	Itstre								
					-				
					-				
				-					a state of the second
			1. 1. 1. 1. 1. 1.		-	-		The second	

	C-1 (B) (4-79)	TRANSFI	ER REC			Part II Page No. <u>X</u>
	erial Number	SHIPPED		Engine M	odel _250-c2	and the second second
		SHITLD			R	ECEIVED
Date	From	То	Gearbo Since OH	x Time Total	Date	Ву
-27-83	DDA-GMC	AGUSTA	NEW	0.0	Durc	
	HORIZON	STANDARD	NEW		175412011	STANDARD
DEC2011	STANDARD AERO	HORIZON	NEW	4025.2	TTUNKOU	ALNO
Made No.				El un		-
						The second second
	R. C. S. Market Street St.					
		Contraction of the second second				and and a state

FORM 2783C-1(4-79)		MODIFICATION RECORD GEARBOX ASSEMBLY		Part III Page No. <u>ZI</u>
Gearbox Ser	ial Number _CAG	<u>3 – 27187</u> Engine M	odel <u>250-</u>	C20J
Compliance Date	Bulletin or Directive No.	. Title	Signature	Organization
21.12.00		CEB-A-1211, A1340, A1351 A1372 hot applicable.	(ata)	MTU-Nu-la
21.12.00		(EB1075, 182, 118, 122, 131, 1152, 1135, 1965, 1966, 1977 1935, 1218, 1241.		MTU-Hünchen
		Previously Complied		
21.12.00	CEB-A-1226	Through Balt Retention of Idler Gears	(a1a)	Mru-hicken
21.12.00	CEB 1274	Installation of new Sandy Peller Bearings	(and)	Mr.Minche
21.12.00	CEB 1288	New Pressure Oil Tube	(lais)	MTW-München

FORM 2783C-J Gearbox Ser	.(4–79) ial Number <u>.CA</u>	GEARI	ATION RECOR		dal 250	Part III Page No. <u>#2</u>
Compliance		ie wo	del	6203		
Date	Bulletin or Directive No.	Constant in	Title		Signature	Organization
21.12.00	CEB 1307		of Gil Filter Tube	2 6	3	MTU-München
21.12.00	CEB 1201	Inspect C	the second se		HIA)	MTU-Mürchen
004/05/10	CEB 1363 R2		ENEW HELICAL TOM			
		MEAR SHAFT	FALST. FOUND DETTOR	HAL	are signer	FTF00412
0415110	CEB-1226 R5		OF IDLER GEARS.		(UKK)	
			E CHECK CLOUT. FOU		HOBL	04/5/10
		PREVIOUSLY	LOMPLIED WITH.	T		FTF00414
				-		
A Destanting				-		
		A HERE A				
		State Spinster and				territika a alite
GT-2787		CEB MO	NOTE COMPLIANC AND DDIFICATION REC EARBOX ASSEMBLY			Part III 3
		~ 7.67			050 60.07	
Gearbox Ser	ial Number <u>CAG</u>	- 2+18+	Engine M	-	250- (20]	
AD #	Applicable CEB #	Date Hours @ Comp.	Method of Compliance	Recurring One Time	Next Comp. Dat Next Comp. @ Hrs	
-	CEB 1218	7 DEC 2011 4025.2	EMBODIED	X	NEXT REMOVA	HL ) Saw
-	CEB 1395	7 DEC 2011 4025.2	EMBODIED	X	NEXT REMOVA	7/-0
-	CSL1238RI	7 DEC 2011 4025-2	EMBODIED	X	NEXT ALLES	S STANDARB AERO

FORM 2784	ISPECT c-1(4-79) Serial Nurr		MAINTENANCE — OVERHA GEARBOX ASSEMBLY - 27187 Engine Mo		
	Gearbox				
Date	Since OH	Total	Remarks	Signature	Organization
21.12.00	1382:00	1382:00	Gearbox repaired in acc. OMM NOW2 G. Edit. 4. Rev. 8100		MTU-Müncher
OF NON DF		2807.4	VENT ORIFICE CHANGED TO SIRE-3		10
			DIAMETER & VENT BREATHER TUBE REMACED (TAT 4427 3	A Contraction	FTB 00 599
7-DEC 2011	NEW	4025.2	INSPECTED (INCLUDING 3500 HR MPI OF	)	7
			GEARS), REPAIRED & MODIFIED IAW RR250-C20 SERIES OHM, 10W3, EDTN	4 AAP	
			4, REU 7 DTD ANG 15/11.	1/ XY	19.1
			(REFERENCE WORK ORDER LG254110)	1	1