Turbomeca On Site Examination Report

Submitted By:		Approved By:	
DVO/TEA	Date: 24MAY2013		Date:

NTSB Reference:	***ERA13LA242***
TM USA Reference:	***(A-2013-006)***
TM FR Reference:	***(RA/13/112)***
Event Date/Time:	***(08MAY2013) /(0925)***
Event Location:	***(South Bay, FL, USA)***
Operator:	***Mile High Inc.***
Aircraft Type:	***AS318C***
Aircraft S/N:	***2031***
Aircraft Registration:	***N318DB***
Engine 1	***0236045100***
Variant:	***Astazou IIA2***
Engine S/N:	***678***
Engine 2	
Variant:	
Engine S/N:	

Accident Site Photo

Date(s) of On Site Investigation:			
Arrive:	16MAY13	Depart:	17MAY13

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Participants

Name	Company	Position	Phone Number	E-Mail
1. Doug Dymock	FAA	Investigator	[redacted]	[redacted]
2. Lindsay Cunningham	AEC	ASI	[redacted]	[redacted]
3. Bryan Larimore	Turbomeca	ASI	[redacted]	[redacted]
4.				
5.				
6.				
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9.				
10.				
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12.				
13.				
14.				

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- **Circumstances reported to Turbomeca:**
  During a wildlife survey flight, the helicopter was hovering at 20 feet when the pilot reported a decrease in the engine power. The aircraft crashed into a marsh and came to rest on its right-hand side.

Additional Circumstances reported by Pilot:

I maneuvered into the wind 30 yards NE of the intended target area 20 - 25 AGL over saw grass after obtaining a stable hover I side stepped the helicopter to my right toward the willow tree island, as I reached the willow trees I had a yaw to the right and a noticeable descent, I corrected the yaw and added collective pitch, there was no noticeable change in the rate of descent, at this point I lowered the nose to gain some ETL and the rate of descent continued. I pulled more collective pitch and slight nose down and keeping the aircraft skids level until we were about on the ground and I pulled collective pitch into the spring stop. We impacted the ground softly and as the rotor blades impacted the trees the aircraft rolled on to its right side. I pulled the fuel cut and master switch to lessen the possibility of fire

From initial loss of power or lift to ground contact was maybe 5 seconds.

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Engine Information

Engine as Found Photos

Engine # 1 Variant	Astazou IIA2
Part Number	0236045100
Serial Number	678
Time since new (TSN)	6359.6
Time since overhaul (TSO)	1879.6
NG Cycles since new (NGCC)	3757
NTL Cycles since new (NTLCC)	N/A
NG Cycles since overhaul	1595
NTL Cycles since overhaul	N/A

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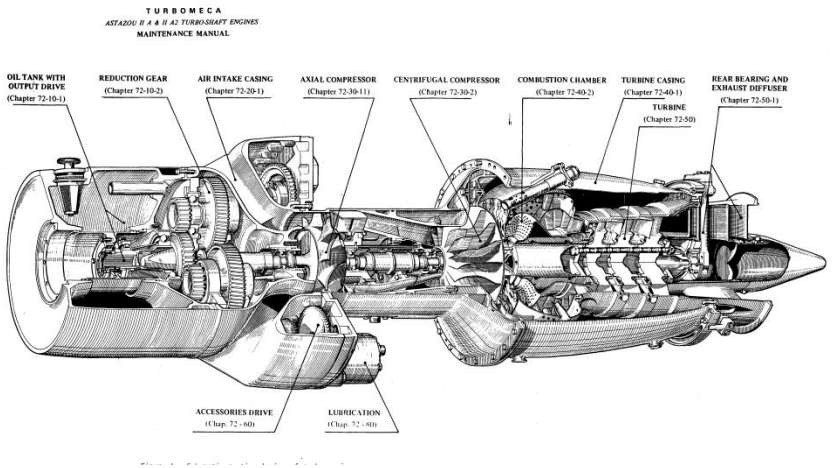
Astazou IIA2 Technical Information

RATING	ROTATION SPEED	SHAFT POWER			FUEL SPECIFIC CONSUMPTION		
	R.P.M.	kW	ch	shp	g/kW.h	g/ch.h	lb/ shp.h
Take-off	43 500	390	530	523	385	283	.631
Maximum continuous	43 500	353	480	473	392	288	.643



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Engine On Site Examination

Narrative of On Site Engine Examination:

Other than a distorted exhaust pipe the engine appeared to be undamaged. The air intake cowling was removed and the gas generator could be easily turned by hand. All fuel, oil, and air lines were tight and secured properly. No engine anomalies could be found that would prevent normal operation.

The logbook shows no engine activity between 27SEP2004 and 26FEB2011 at which time it was installed on the accident helicopter. Even with long term storage preservation, there is a requirement to check preservation bi-annually and to remove the engine every 5 years to ground run either on a helicopter or test bench. No record of this was found. According to Turbomeca records the last overhaul of this engine was performed on 28NOV1991. As per the Astazou IIA2 Maintenance manual there is a 15 Year calendar limit for the overhaul of this engine. In addition the last repair of this engine was performed in 1995 for the Belgium Army which operates as a military operation. Turbomeca has no record of this engine being certified for civil use.

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Engine 1 On Site Examination

Equipment	Condition
Magnetic Plug	Clean

Magnetic Plug Photo

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Engine 1 Overall Engine Photo

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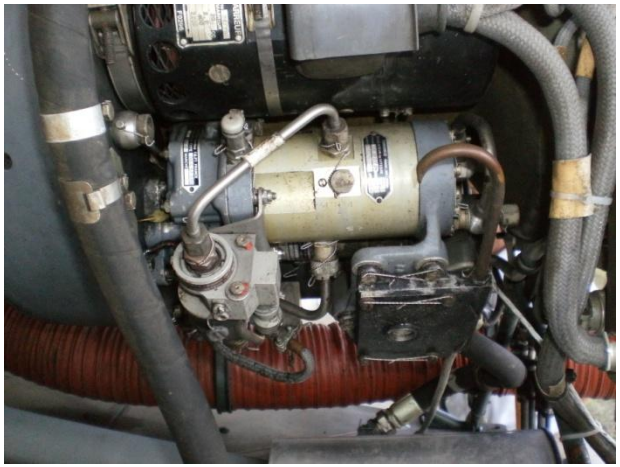
Engine 1 Fuel and Oil Connections Photos



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Engine 1 Axial Compressor Photo

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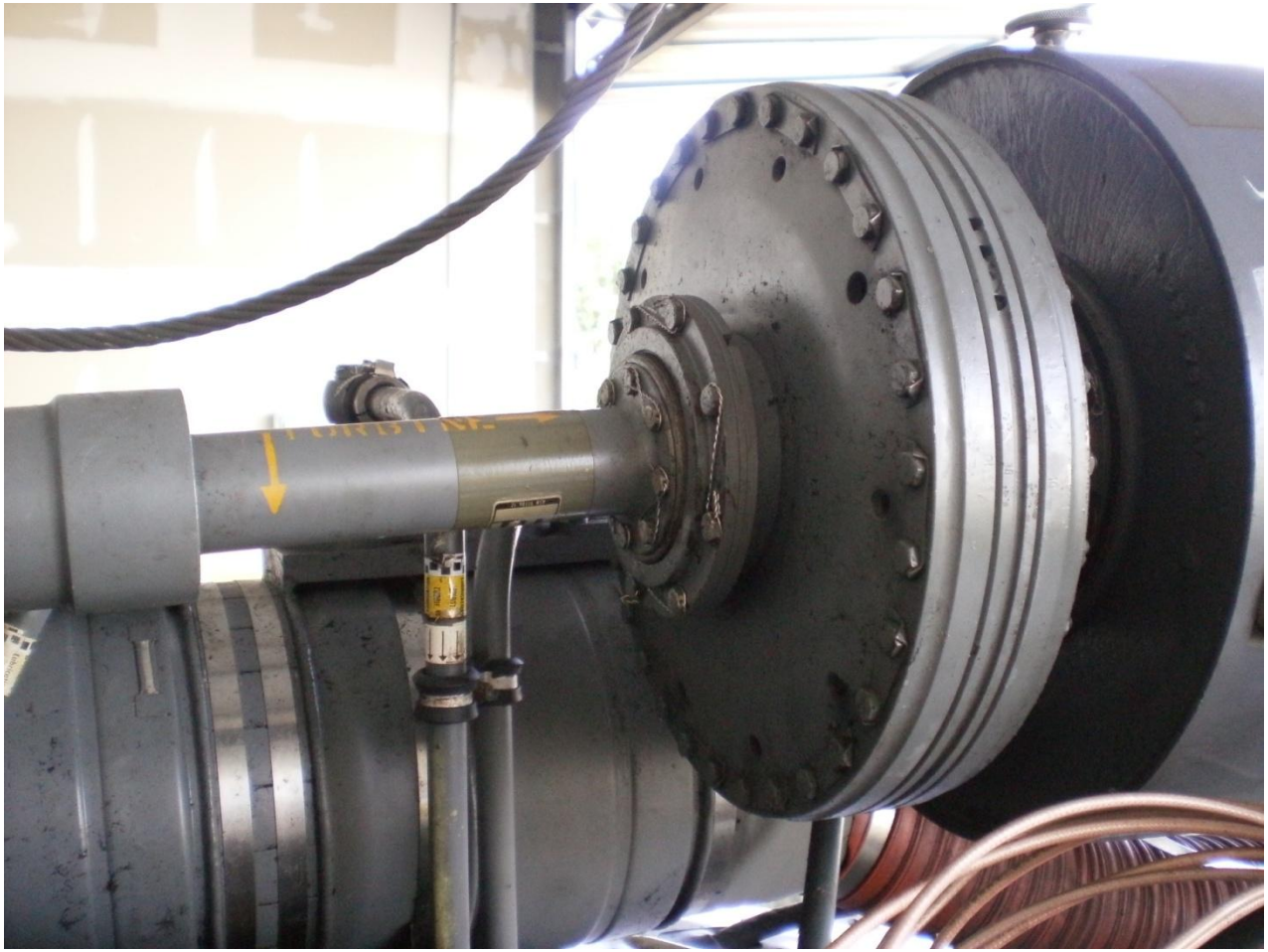
Transmission Shaft / Clutch



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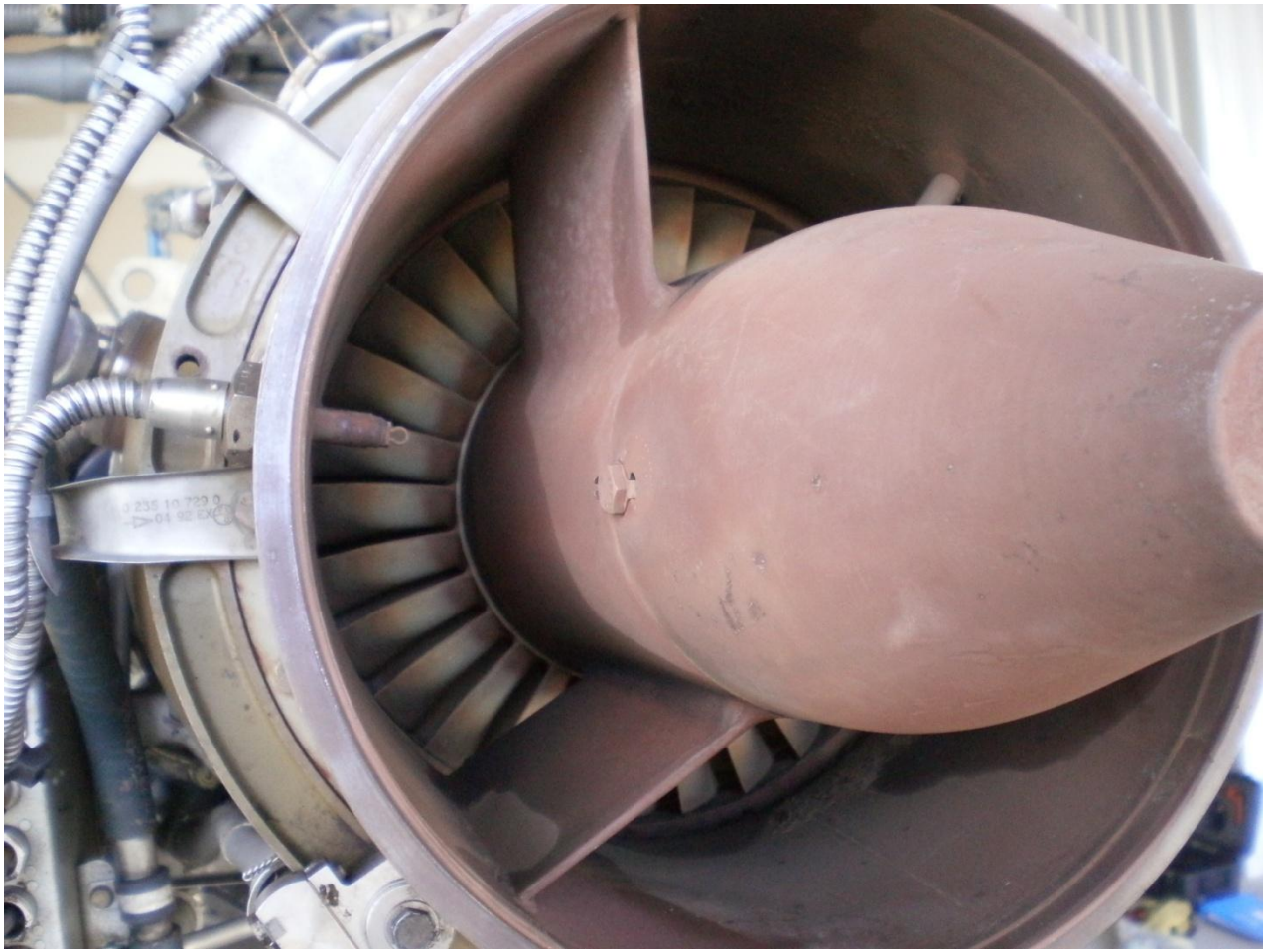
Engine Turbine Photo



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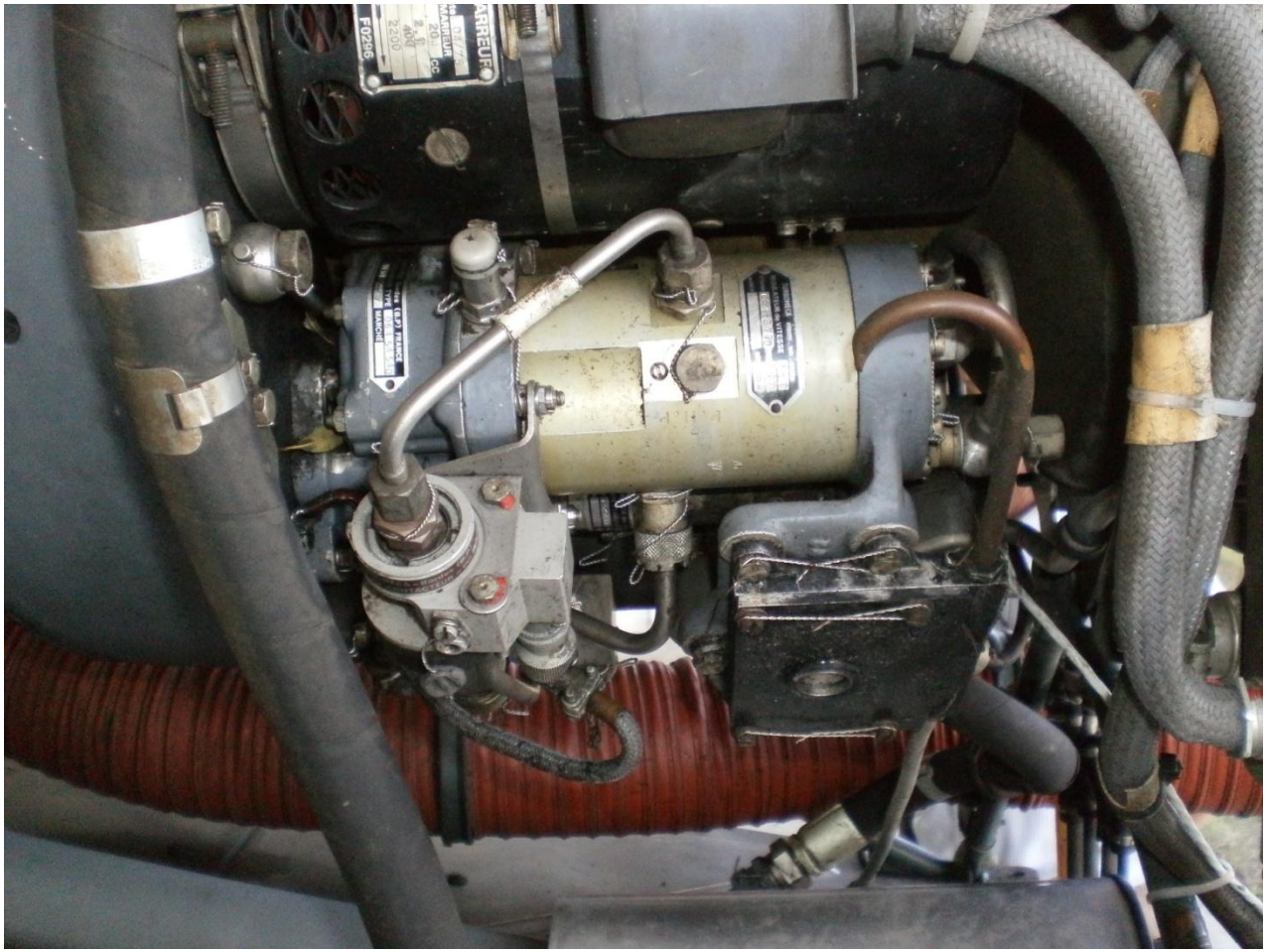
Engine 1 Speed Governer



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Blades

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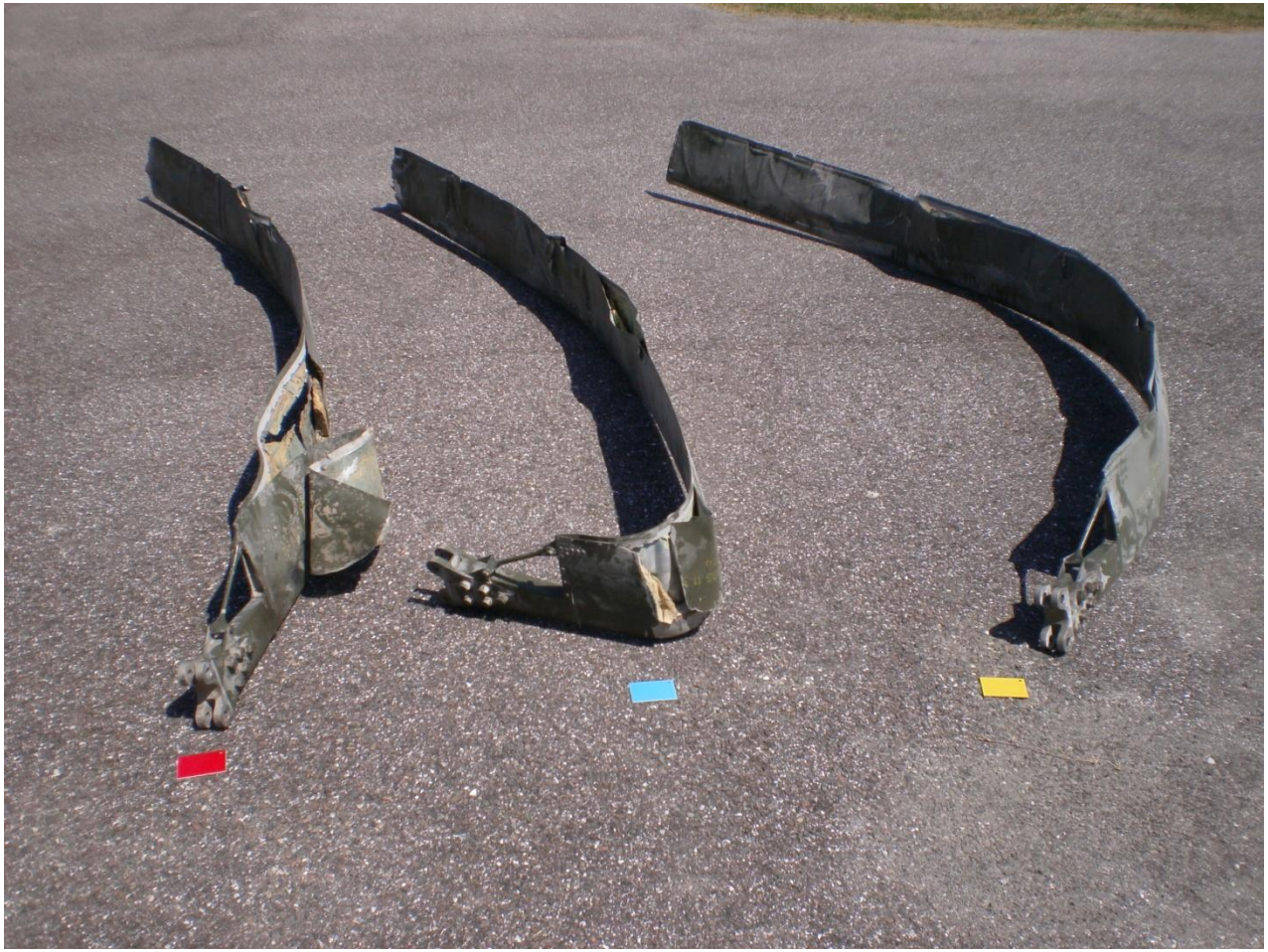
Blades



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Rotor Head

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Oil Tank

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Astazou IIA2 Overhaul Requirements

APPENDIX 1

ASTAZOU II A2

TIME BETWEEN OVERHAULS

Modification Standard	TBO	Calendar limit
"Basic" TBO	1,500 hours	15 years
(TU 196 or TU 204) and (TU 235 or TU 242 or TU 243 or TU 270) and TU 231	2,200 hours	

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Astazou IIA2 Preservation Requirements

MAINTENANCE MANUAL

B. After one month, check the colour of the moisture indicator (7) and the pressure.

(1) If the pressure exceeds 0.1 bar (for standard external conditions) and if the moisture indicator is blue (7), no action is required.

(2) If the pressure is below 0.1 bar and if the moisture indicator (7) has remained blue, re-inflate the container.

(3) If the pressure is below 0.1 bar and if the moisture indicator (7) exhibits a pink colour (lack of safety), open the container after deflating it (by means of the valve) and check the turboshaft engine condition :

- where no corrosion evidence appears, replace the dehydrating bags, close the container back and condition it ;
- where light corrosion marks appear, remove them and proceed with complete storage procedure ;
- where corrosion is significant, send the engine in for overhaul.

C. After six months, do the same operations as those in paragraph B above, repeat these operations every six months until the end of the storage period.

D. At the end of the 5-year storage period :

(1) Examine the engine visually.
(2) Check the storage limit of the seals and the flexible pipes installed (cure date).
(3) Do a ground test run of 20 minutes, engine installed on a helicopter or on a test-bed.
(4) Engine long-duration storage is possible for a maximum period of 5 years.
(5) After 10 years of storage, return the engine to the factory.

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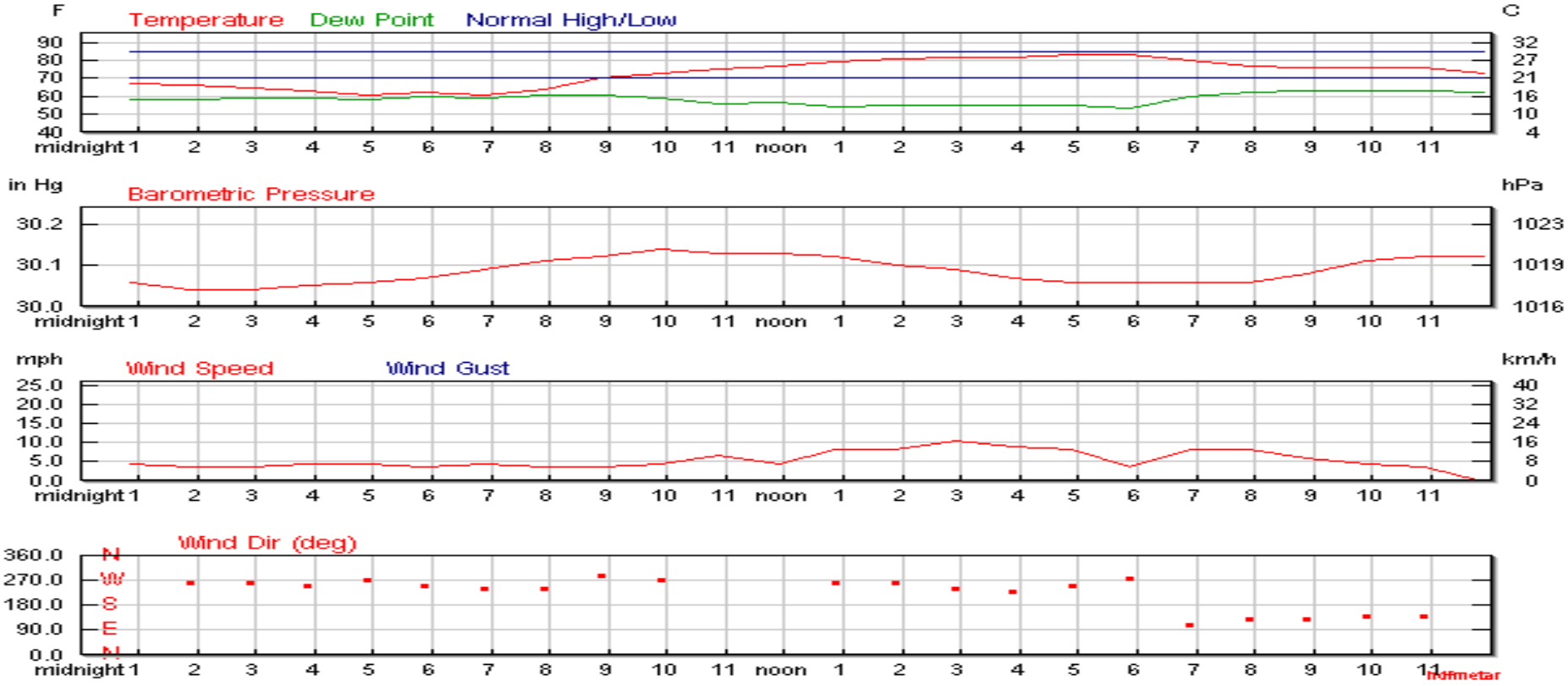
Additional Information Weather

Weather at time of occurrence.

Source: http://wunderground.com/



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Additional Information Flight

Flight Originated From:	**Boat Ramp at I-75 and US Hwy 27**
Departure Time:	**0700**
Flight Time Prior to Occurrence:	**2Hours 25 Minutes**
Purpose of Flight:	**Wildlife survey**
Flight Plan Filed:	**No**
Part 91 or 135:	**91**
VFR or IFR:	**VFR**
NGV:	**No**
Last Refueling Point:	**At the boat ramp from a company truck**
Amount Of Fuel Received:	**300 gallons according to pilot interview**
Gross Weight at Takeoff:	**Unknown**
Terrain at Accident Site:	**Swamp, wet , tall grass, muddy**