


FINAL INVESTIGATION REPORT
TMUSA-2010-46268

ENGINE FAMILY		ENGINE S/N	DATE OF REPORT	WARRANTY CLAIM	COMMERCIAL FILE	
Arriel		46268	15 September 2010			
OPERATOR		DATE OF EXAM	REASON FOR ENGINE EXAM			
Air Methods		08-10 September 2010	Accident Investigation			
ACCIDENT		INCIDENT				
YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>			
REFERENCE ACCIDENT						
FIRST INFO REPORT N° A-2010-012; RA/10/225						
ENGINE MODULE	S / N	WORKS PERFORMED	TOTAL HOURS	TOTAL CYCLES	HOURS SINCE OH	CYCLES SINCE OH
Engine	46268	Disassembled	352.07	603.9		
Module 1	6442	Removed	352.07			
Module 2	7653	Removed	352.07	603.9		
Module 3	9853	Disassembled	352.07	603.9		
Module 4	7618	Removed	352.07	235		
Module 5	10546	Removed	352.07			
FCU	26603	Partial disassembled	352.07			

Circumstances Reported to Turbomeca:

On July 28, 2010, at 1342 Mountain Standard Time, an American Eurocopter AS350B3, N509AM, rapidly descended and collided with terrain in an urban area of Tucson, Arizona. The helicopter was operated by Air Methods Corporation, as Life Net 12, on a repositioning flight, under the provisions of Title 14 Code of Federal Regulations Part 91. The commercial pilot and two medical flight crew were killed. The helicopter was substantially damaged, and consumed by a post impact fire. Visual meteorological conditions prevailed, and a company flight plan had been filed. The flight originated at Marana Regional Airport, Tucson, at 1332.

VALIDATION		APPROVAL	
Signature	Date	Signature	Date
	15 Sept. 2010		

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C O N C L U S I O N

The engine disassembly revealed signatures of rotation during the accident sequence. No evidence of sudden stoppage or engine over speed was observed. Group notes of the engine and HMU examination were signed by party representatives. The intermediate casing, diffuser, fuel injection manifold, fuel pipe, jet union, and gasket were shipped to the NTSB lab in Washington D.C. for further investigation.

1 TECHNICAL REPORT

1.1 FINDINGS ON ARRIVAL

See NTSB Field Notes (group notes)

1.2 FINDINGS ON TEST BENCH

The engine was deemed incapable of being run on the test cell.

The HMU was deemed incapable of being run on the test bench due to impact and fire damage

1.3 FINDINGS ON DISASSEMBLY

1.3.1 MAIN FINDINGS

See NTSB Field Notes (group notes)

2 PICTURES



Figure 1 Engine s/n 46268 in shipping container



Figure 2 Engine removed from container

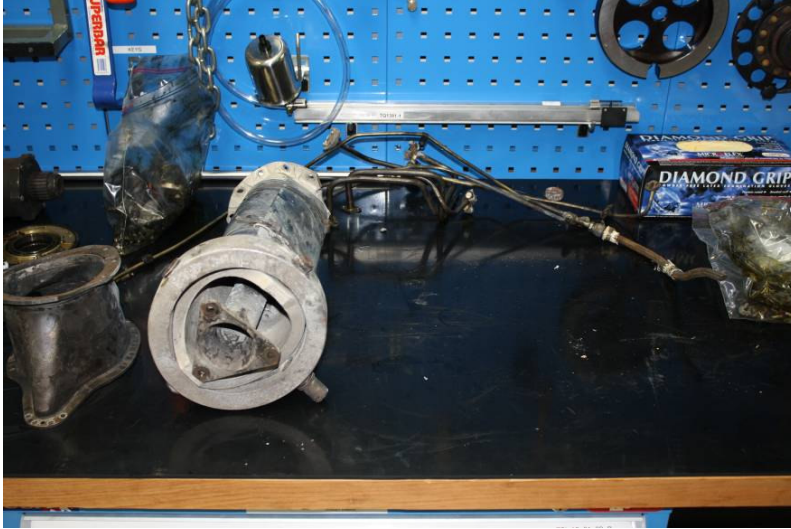


Figure 3: Transmission shaft - aircraft connection



Figure 4: Reduction gearbox (MO5) - removed during wreckage recovery



Figure 5: Power turbine - removed during wreckage recovery



Figure 6 Free Wheel Shaft – torsional deformation



Figure 7 Engine front support



Figure 8 Axial compressor blades



Figure 9 Centrifugal compressor



Figure 10 Fuel injection manifold pipe



Figure 11 Rear bearing



Figure 12 High pressure turbine



Figure 13 HMU shaft damage



Figure 14 HMU stepper, resolve motors, rack and pinion, and metering needle



Figure 15 Parts sent to NTSB lab for investigation