

**Report
Aviate Raptor 503
NTSB file MIA08LA105
Aircraft Registration
N74TK**

Preliminary held June 18,2008

Persons in attendance

Eric Tucker
Rotax Flying & Safety Club

Dale L. Nelson
Aviation Safety Inspector
Washington Flight Standards District Office
13873 Park Center Road, Suite 475
Herndon VA. 20171

Aircraft

Aircraft information as registered on FAA data base:

N74TK is Assigned
Aircraft Description

Serial Number	AR00037	Type Registration	Individual
Manufacturer Name	AVIATE	Certificate Issue Date	08/03/2007
Model	RAPTOR	Status	Valid
Type Aircraft	Unknown	Type Engine	2 Cycle
Pending Number Change	None	Dealer	No
Date Change Authorized	None	Mode S Code	52370744
MFR Year	1998	Fractional Owner	NO

Registered Owner

Name	GOTTSCHALK JAMES A		
Street	----- -----		
City	GAINESVILLE	State	VIRGINIA
		Zip Code	----- -----
County	PRINCE WILLIAM		
Country	UNITED STATES		

Airworthiness

Engine Manufacturer	ROTAX	Classification	Experimental
Engine Model	503 DCDI	Category	Reg Prior to 01/31/08

A/W Date 10/01/2007



Data Plate as found on aircraft

The engine data plate indicates the model and type from 1999 production. No modifications seen on the engine. Equipped with dual Bing 54 carburetion and single exhaust with B type gearbox of 2.58 ratio.

Overview

Findings

The engine was visually inspected with the following results:

Exhaust

Heavily damaged in impact, dirt forced into exhaust openings. No signs of damage repair evident from any previous running. (no welded or patch repairs)

Ignition system

The ignition was torn away from the engine but all parts appeared intact. The only notable variance from specification was the spark plug gap was seen at .028", the specification calls for a maximum of .020".

Fuel system

The system was clean internally with no notable debris or contamination of the float bowls. The float arms were out of adjustment but not excessively so.

Engine mounting

The force of impact twisted the engine mounting plate and cracked out the crankcase attach bolts. The force shows severe side loading on impact, consistent with visual reports of the impact of the aircraft with the ground.

Recoil starter

The engine was equipped with a rope pull recoil starter. The starter cord was cut and heavy damage was found on the ignition side of the fan housing. Dirt was jammed into the starter.

Fan housing

The fan housing was cracked out and the ignition flywheel was packed with dirt from the contact with the ground. Once the dirt was removed the engine was free to rotate.

Prop

The prop was removed and the gearbox appeared intact without any breach of the oil inside. The 2 blade Warp drive prop had delaminated on blade and the hub was bent on one blade.

Summary

The dirt was removed from the ignition flywheel, the engine placed on a fuel drum to allow for clearance to the floor. With the spark plugs removed from the heads the engine was turned over without any signs of seizure of the pistons noted via visual reference to the exhaust ports.

The engine was then turned faster and using a finger to check for compression both cylinders were able to produce pressure.

The engine internally in the carburetors and parts visually inspected appeared very clean. The only exception was some noted leakage from the exhaust flange gaskets on the cylinders.

No mechanical failure was found on the engine.

Eric Tucker

Investigator for RFSC