FAA Factual Observations Report
Med-Trans 407 N503MT S/N 53498
CHI04MA182

General

The aircraft was observed in a heavily wooded area, approximately ½ mile from the mile marker 64 rest stop along I-26.

Chin bubble wind screen fragments were the first aircraft pieces observed along the debris path. Aerial photographs indicate several broken trees, and tree strikes were observed along an approximate flight path of 330 degrees magnetic. The trees exhibit evidence typical of main rotor blade strikes. The observed trees in the area ranged from @ two to twelve inches. The aircraft appears to have began the break-up sequence as it entered the trees.

The aircraft impacted the terrain and slid forward approximately 52 feet where it came to rest on an approximate heading of 079 degrees magnetic.

Current Airworthiness Directives appeared to have been complied with.

Fuselage

The aircraft fuselage had been consumed predominately by a post impact fire. Interior components did not exhibit evidence of an in-flight fire. The overhead panel was observed with minimal fire damage. Forward right side components were observed to have extensive accordion compressions to fuselage structure.

Seat structure integrity could not be established. Seat restraints observed were observed latched and secured.

The forward upward cowling and doghouse were observed fractured, and no evidence of post impact fire.

Drive System

The Transmission was observed with extensive fire damage. The transmission was manually rotated by hand to establish continuity within the transmission. The mast was intact and the rotor head/hub was securely mounted to the mast. The pylon frame aft arms were fractured, and not observed.

The KFLEX drive shaft was observed out of the fire zone. The flexure arms were bent and fractured at both the forward and aft ends.. The external surface of the shaft exhibited significant rotational scoring. The internal surface of the drive shaft did not exhibit evidence of contact with the anti-flail device.

The free wheeling unit was observed with extensive fire damage. The steel drive shaft forward end was observed fractured.

No pre-impact anomalies were observed with the drive system.

Main Rotor System

The main rotor system exhibited extensive impact damage. All four blades were had extensive leading edge and afterbody damage. The root ends of the of the Blue, Orange, and Red blades exhibited fire damage at the root end. The blade tip on the Orange Blade was observed lodge in a tree along the impact path. All four yoke flexures were observed delaminated and separated. The Green and Red blades separated at the spindles and separated entirely from the yoke. The pith horns for the Blue and Green Blades were observed separated from the blades.

The rotating and non-rotating swashplates were intact. The rotating swashplate rotated freely with the rotor system. The rotating drive links were observed bent and fractured.

Tail Rotor Drive System

The tail rotor drive system was observed in several sections. The fractures exhibited evidence of overload. All four tail boom hanger bearings were observed with the Mobil 28 grease and rotated freely. No anomalies were noted. The remaining two (#1 & #2) forward oil cooler hanger bearing had been exposed to the post-impact fire and could not be rotated. The bearing housing was intact. The hanger bearing air cooling scoops were observed in the wreckage debris.

The t/r drive shaft flex couplings exhibited evidence consistent with the drive shaft separation points.

The tail rotor gearbox rotated freely and did not exhibit any indication of distress. The chip plug was removed and observed to be free and clear of debris. Oil was observed in the gearbox.

No pre-impact anomalies were noted the tail rotor drive system.

Tail Boom

The tail boom was observed separated into three main sections. The forward section was from the tail boom attach point to forward of the horizontal. This section exhibited extensive compression/crushing damage from right to left and was observed to be in a U shape with evidence of contact trees. The second section was from forward of the horizontal attach point to just aft of the attach point. The left and right horizontal stabilizers had separated approximately mid-span and the wing-lets had fractured off. The third and last section was from aft of the horizontal stabilizer to the tail rotor gearbox casting attach point.

No pre-impact anomalies were noted with the tail boom.

Flight Controls

Extensive fire damage prevented establishing complete control continuity. The control tubes below the hydraulic servos were not observed. The control linkages from the acuators to the rotor control head were observed with several bends and fractures that appear typical of overload. The airframe manufacturer mad a detailed listing fractures in the control linkage.

The collective was observed with extensive fire exposure and separated from the geared mechanism. The throttle was observed in the flight idle position.

The collective and cyclic jack shafts were observed with extensive fire damage. The cyclic jack shaft was observed the molten metal on the cyclic stubs. The aircraft did not have duel controls installed and the anti-torque pedals were in the "locked out" position.

The tail rotor pitch control tube exhibited several fractures that appear to correspond to the tail boom separations. The tail rotor pitch control rod was observed bent and the pitch control could not be manually actuated. The tail rotor pitch links were observed bent but securely attached.

The pilot/right side anti-torque pedals were observed with the right pedal fractured off. A significant amount of wood material was observed imbedded into the pedal assembly.

Instrument Panel

The instrument panel was observed out of the fire zone and exhibited minimal fire damage. Several of the analog gauges had reportedly been removed before this writer arrival. The radar altimeter bug was observed set at 300 ft, the air speed indicator was observed at zero.

The warning and caution panel was observed intact and exhibited no indications of distress.

Engine

The engine was observed with extensive fire and compression damage. The accessory gearbox had been consumed by post impact fire and the gears were observed in the appropriate area.

The engine compressor exhibited extensive leading edge damage and ingestion debris. Case rubbing scaling was observed. The 4th stage wheel was observed and did not exhibit evidence of distress.

The ECU had been removed before this writers arrival. The ECU connectors exhibited fire damage that prevented a field download of the ECU. The ECU will be shipped to the MFR for a download.

Inspector's Statement
Regarding Aircraft Accident on July 13, 2004
N503MT, Bell 407
Pilot-in-Command – Robert A. Giard

On July 15, 2004, Marlene Van Beuren, an Aviation Safety Inspector, Operations, with the Federal Aviation Administration out of the Columbia, SC, FSDO-13 office reviewed documents and spoke with the Director of Operations, Mr. Bert Levesque, and Chief Pilot, Mr. Don Savage both from Med-Trans Corporation which are a FAR Part 135 operator. The following areas were reviewed.

Company Manual – It appears the manual complies with the Federal Aviation Regulations, (FAR). The manual gives operational control to the pilot.

Training Program – The program is lacking the required detailed descriptions or pictorial displays for the normal, abnormal, and emergency maneuvers, and does not show any hours for recurrent training.

Maintenance Training Program – The Company has an approved maintenance Training Program were their pilots can be signed off up to ten maintenance procedures. Mr. Giard was signed off for all ten procedures. The program is not a requirement with the FAA.

Flight and Duty times – The documents show to be within the regulations.

Airman Competency/Proficiency Check – Record show Mr. Giard has a current FAA Form 8410-3 for the Bell 407, dated 04-27-2004.

Director of Operations - Bert Levesque was asked about the Maintenance Training program, weather or not the pilot can do any of the maintenance they were signed off for no matter were they were or just in remote areas. Mr. Levesque stated no matter were they were. Even if the aircraft is in the hanger at their home base? Again Mr. Levesque stated yes, but the only maintenance the pilots are trained to do Mr. Levesques said was removing chip detector's, an other minor maintenance. I asked if a pilot were approved to remove and replace aircraft batteries. Mr. Levesque stated the pilots do not change batteries. Mr. Levesques was shown the Maintenance Training Program sign off sheet for Mr. Giard were the changing of a battery was one of the ten areas approved. Mr. Levesques then said Mr. Giard was approved to change a battery. The Operations Training Program was not available for review at this time. Mr. Levewque stated the Chief Pilot, Don Savage was on his way with it, and it should be available in a couple hours.

Mr. Levesque was asked the sequence of evens that takes place prior the pilot taking a flight. He stated when a pilot shows up for duty he preflights the aircraft and then gets a weather briefing. The pilot then calls dispatch, in this case, 911 in Spartanburg and lets them know if he can or can not take the a flight that day by giving them a color code. Green means good weather, he can take flights. Yellow is he may or may not be able to take a flight, and to call him if they have a medivac mission and he will inform them at that time if he can take it. Red indicates weather is poor, and do not call him for any flights that day. The pilot will call for another weather report six hours later. Med-Trans contracts 911 in Spartanburg, SC, to be one of their dispatches. If a call comes in from dispatch, and the code was green or yellow, the pilot then makes the decision to take the flight or not. Mr. Levesque was asked if he knew what the color code was the day of the accident, he said he did not know. The pilot does not notify anyone within the company that he has a mission.

Chief Pilot – Don Savage arrived with the Training Program. I looked at the program for a few minutes and noticed it was lacking flight maneuvers required by FAA Order 8400.10. I asked Mr. Savage about this portion of the program. He stated he does not get involved much in training and does not know much about the training Program. I showed him the Maintenance Training Program, along with a blank sign off sheet and asked him if it was for pilots. He stated it was and that no pilot is signed off for all of it, meaning the ten areas. I asked him if the maintenance can be performed any place or just in remote areas. He stated mostly in remote areas, however they could perform maintenance in other areas. Mr. Savage was shown Mr. Giard's sign off sheet with all ten areas approved. Mr. Savage stated he has never seen a pilot be signed off in all ten areas. Mr. Savage was asked how long he has been the Chief Pilot for Med-Trans Corporation, He replied one year.

Marlene Van Beuren
Principal Operations Inspector

INSPECTOR STATEMENT
N503MT ACCIDENT

I, Marty L. Crouch, an Aviation Safety Inspector assigned to the South Carolina Flight Standards District Office (SOFSDO-13) located in West Columbia, SC, and serving as the Investigator in Charge (IIC) for the Federal Aviation Administration (FAA) for the accident investigation of N503MT, a Bell 407 helicopter, serial number 53498, have prepared this statement as a true and factual account.

On July 14, 2004, NTSB, Air Safety Investigator, Jim Silliman requested I perform an aircraft records review of N503MTs' maintenance documents. On July 14th and 15th, I reviewed the documents for compliance with the manufactures maintenance inspection instructions, Airworthiness Directives compliance, and status of Life Limited parts replacement. Mr. Russ Braddock the Director of Maintenance (DOM) for Med-Trans Corporation, (which owns N503MT), assisted me with the verification of compliance. I did not find any discrepancies during the records review of N503MTs' maintenance records.

Marty L. Crouch
July 15, 2004