

TO: Brian Rayner
NTSB Field Investigator

FROM: Scott Zimmerman
Former MEDSTAR Pilot
Easton Base/ MedStar#3

Date: June 16, 2006

RE: **FADEC FAILURE N601FH/ 27, Nov. 2005**

At the request of NTSB Field Investigator Brian Rayner I will put into writing the account of my November 27, 2005 incident in MedStar#3, N601FH, FADEC failure.

We were on a repositioning flight to The Washington Hospital Center , I had Flight Nurse Heather Byers(Rear Aft facing seat, left side of AC) and Flight Paramedic Wes Sparks (front Left Seat) onboard. I had limited experience in N601FH, approximately 1.5 Hrs.. I had picked it up the night before from the Washington Hospital Center as a replacement aircraft. N601FH was an earlier model EC135, Pratt & Whitney P-1 engines, unlike the Turbomeca T1&T2 or P&W P2 systems that I was use to. It also had an earlier Central Panel Display system, also unlike the Glass Instrumentation that I was use to in my regular aircraft.

We were on final approach to the lower pad at the WHC, as I lowered the collective I inadvertently rolled the #1 throttle out of it's detent. As I looked down at the collective to confirm this I noticed a Caution advisory on the Central Panel Display (CDS), it indicated manual throttle, I also heard a change in engine sound, and felt a slight yaw in the aircraft. I immediately returned the throttle to the detent, but noticed that did not restore the FADEC operation, "Manual Throttle" was still indicated on the CDS. Because I had increased the #1 Throttle setting, by returning it to the detent, the engine now sounded even more different, and appeared to over speed. I decided to waive-off my landing to the lower pad, because I was completely absorbed with the engine problem. (Remember I had never flow this Model EC135 before, and did not know that the only way to restore FADEC operation was to reach up to the overhead panel, and rest the #1 FADEC engine switch, which was in a guarded cover). I then believe I aggravated the problem by inadvertently grabbing both throttles and attempting to control the engine or engines. As I rounded the south side of Childrens Hospital, I heard the high pitch of the rotor overspread warning in my ears, I looked down and realized the MR was at 120% + and that I better act now, or the entire rotor system might leave the aircraft. I grabbed both throttles and rolled them to the low side, this reduced the over speed, and now it went to the low side, the aircraft was yawing, and I had two very concerned Medical crewmembers onboard. I decided that the Main Rotor was my primary issue, so I concentrated to control the M/R with the throttles in the manual mode. It was also at this time that I noticed two FADEC FAIL Indications on the Central Panel Display. The FADEC's had given up, and said here you control the throttles! During then next 30-45 seconds, I was able to get the MR speed under control, and I continued around the east side of the WHC and made a landing to the lower pad, It was not pretty, but it was safe.

After landing, and prior to shutdown, I noticed that both engines displayed FADEC Fail Indications. There was another MedStar pilot nearby, I summonsed him to the aircraft, and asked him to verify that the two FADEC Fail Indication were displayed. I completed the shutdown and secured the aircraft. The aircraft was taken out of service, both engines were removed for teardown inspections, along with the main rotor system, nothing definitive was found. It was determined that additional training, (Differences Training) was required for this aircraft, and that was incorporated into the training system.

I felt responsible for this incident, and devoted myself to learning everything about the FADEC and P-1, system . I learned that, if I had just left the #1 throttle alone, and continued my approach to the lower pad, that I would have not had any problems. We were very light, and did not need the other engine to land. I practiced these failures during the next few months. I also learned that the friction on the throttle detents on this aircraft was very light, (this made the throttles easy to roll out of the detent) and the friction on the throttle detents could be adjusted in the collective gearbox. I also learned from the P&W Tech Rep. that no one had ever demonstrated dual manual throttle operation, I can certainly understand that! I also learned that it is almost impossible, during an approach or any maneuver close to the ground, to force yourself to let go of the collective, and reach up to reset the engine FADEC switches, that procedure is a joke. Strait and level, at cruise altitude, “Yes”, but close to the ground or on approach, “No Way”. Another great failing in the system is the fact that there is no simulator to practice these types of failures. I indicated this in my initial report to CJ Systems. During training we go through FADEC failures, put that procedure is done with great care and caution, because the training pilot is just as fearful as you are that this training procedure might get out of hand. The only safe place to practice FADEC Failures is in the Simulator. But the real culprit is the P&W, P-1 system itself. It is an accident waiting to happen. The best remedy will be when there are no more P&W/ P-1 systems in the system anymore.

On the Day that N601FH crashed, if the same thing that happened to Daryl Jones, that happened to me, he was in a no win situation. It was very hot that day, the DA had to be close to 3000’ feet, and the aircraft was heavy, pilot, Med crew, patient, and fuel. Even if he rolled the throttle off to control a FADEC failure, there was no way the aircraft was going to fly, so it was going to come down .

These are my personal accounts of my FADEC experience in N601FH, and are rendered only in the vain of safety, and possibly preventing this from happening in the future.

I will be happy to accommodate any other request for information.

I can be reached at:

Regards,

Royden S. Zimmerman
Former MedStar Pilot

Rayner Brian

From: darryl johnson-
Sent: Thursday, July 27, 2006 10:16 AM
To: Rayner Brian
Subject: FW: N601FH additional info

>From:-----

>To: -----

>Subject: N601FH

>Date: Wed, 26 Jul 2006 19:03:16 EDT

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>Darryl -

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> My following statement is the best I recall my experiences with
>helicopter N601FH prior to your mishap May 30th, 2006.

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>Statement from Cliff Whiting regarding MedSTAR helicopter N601FH - July
>26,
>2006

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> On my arriving to work on the day shift at 2W5 - Maryland Airport
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>(DCA2) on Wednesday May 24, 2006 at 10 am, helicopter N601FH was at our
>hangar

>replacing our normal based helicopter N135MH. I flew two trips in the
>N601FH helicopter that day, one mid morning and another at dusk that
>evening. I

>noticed some vibration in the helicopter on the first trip, but it was
>windy

>and thermals from the suns heating disguised the shuffling in the
>helicopter

>that was really noticeable to me and my crew on the evening trip. I
>almost

>turned around to return to our base on the evening trip because of the
>shuffle

>in the rotor system, but proceeded on. My nurse, Virpal said on that
>flight,

>"Cliff, the vibration is so bad I can't even write on the forms" - (she
>was

>trying to fill out paperwork in the back of the helicopter).

>

>

> On shift change at 10pm that evening, Doug Ryndak came on night
>duty,

>and I asked him when was the last time he had flown N601FH. He said it
>had

>been about a week (this is Doug's regular aircraft that is usually based
>at

>DCA1 with you, Darryl). I said, I would like his opinion on how it feels
>to him

>during the next twelve hours, as I informed him I thought it was too ruff
>with a shuffle in the rotor system, and it sure could use a track and
>balance.

>Doug said he thought it had been tracked and balanced recently.

>

> On my arrival at work on Thursday, May 25 at 10 am, the helicopter

>N601FH was not at the DCA2 base, but at DCA1 finishing up a mission with
>Doug and
>the night crew. I called Doug on my cell phone, and asked how he felt the
>helicopter felt to him regarding the vibrations. Doug said, "Cliff it is
>back
>to where it was" - referring that the helicopter was back to a situation
>before the track and balance. I then said to Doug, "When you return here
>to
>DCA2, I am grounding the aircraft and witting it up for vibrations in the
>rotor
>system". My mechanic Mark Basford over heard this phone conversation,
>along
>with me telling him what Doug had said. Mark said, "Well that gives it
>more
>credibility that Doug agrees with you Cliff, that something is not
>right".
>
> Not sure what Mark did then, but assume he phoned Loren Ruslander,
>the
>chief mechanic at Tipton Airport, and informed him that the pilot at DCA2
>(me) is going to write up the aircraft N601FH for vibrations once it
>returns to
>base at DCA2 for a shift change.
>
> Doug and his crew arrived at DCA2 base with helicopter N135MH - he
>and
>Scot Deabs switched helicopters at DCA1 after my phone call with Doug.
>Scot
>then flew N601FH to Tipton Airport for maintenance.
>
> A day or two later, I ran into Doug and asked him what was the find?
>-
>(regarding the vibrations/shuffle in N601FH) - and what did they do to fix
>N601FH? He said he didn't know, as nothing was in the log book and he
>wasn't
>given any information or feedback. For that matter, neither was I given
>any
>information on what was wrong with N601FH after I refused to fly it May
>25th.
>My actual statement to Mark at the time was - "Either fix N601FH, get me
>another helicopter, or fire me". (They got me another helicopter).
>
> I would have written up the squawk of vibrations/shuffle in the
>rotor
>system, but didn't have the opportunity to do so on May 25th, as I did not
>have access to it or the aircraft log book. In hindsight, wish I had
>written it
>up the problem on the evening of May 24th.
>
> The practice of informing the mechanic of items of needed attention
>or
>repair was the norm, rather than writing them up in the aircraft log book.
>Writing up a squawk, grounded the aircraft, and thus lost revenue to
>MedSTAR.
>For the eleven months I worked for MedSTAR (I have since resigned -
>retired), it was more of how many flights can we do during a shift for the
>revenue,
>versus, allowing needed time for the mechanics to do their work and
>maintain
>the helicopters to the highest possible level.
>
> I have acquired 37 years of helicopter pilot experience with
>11,500
>hours of helicopter flight time. During that span, I have worked for 11
>companies, employers, etc. including the US Army. The maintenance at
>MedSTAR /

>CJAviationSystems is at the bottom level of my scale in terms of quality.

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> Darryl, I sincerely hope this assists you with your dealings with
>the

>NTSB and MedSTAR. Call on me again if I can be of any further
>assistance.

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>Sincerely,

>Cliff Whiting

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