

From: Dean.Glasser [REDACTED]
Sent: Friday, September 13, 2013 3:56 PM
To: Alleyne Eric
Subject: RE: Beaver Falls accident N3940H
Attachments: IMG_1279.JPG; IMG_1263.JPG

Eric,

I just returned from BVI and I'll attach a few pictures of the valve guide for you to get a feel for what was found.

Pulling the cylinder off gave me the opportunity to measure the mating parts as well.

The amount of coking was more than I expected and no doubt was the reason that the valve was stuck.

The exhaust valve stem measured .4340", and is the correct dimension for a new valve. The valve guide measured .439 at the top of the bore, and at .432 mid-way down the bore due to the build-up of coking.

The coking cleared out easily with the correct size reamer. In service limits for valve guide to valve stem clearance is .008.

(See attached file: IMG_1279.JPG) (See attached file: IMG_1263.JPG) Dean Glasser Principal
Maintenance Inspector Federal Aviation Administration Allegheny Flight Standards District Office
101 Towne Square Way
Suite 201
Pittsburgh, PA 15227
Tel: (412) [REDACTED]
[REDACTED]

In our continuing effort to improve the quality of service to our customers, the USAA CMO would appreciate any comments you may have on our services and how to improve them. Your participation in meeting our goals for continuous improvement is greatly appreciated. Please follow the link below:

http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afs/qms

From: "Alleyne Eric" <alleyne [REDACTED]>
AEA-AGC-FSDO-03, Pittsburgh, PA
To: Dean Glasser/AEA/FAA@FAA,
Date: 09/13/2013 08:59 AM
Subject: RE: Beaver Falls accident N3940H

Standby

-----Original Message-----

From: Dean.Glasser [REDACTED] [mailto:Dean.Glasser [REDACTED]]
Sent: Friday, September 13, 2013 7:40 AM
To: Alleyne Eric
Subject: RE: Beaver Falls accident N3940H

Eric,

As you request, I'll arrange to have a bore scope done to examine the valve guide. I conclude from your request that you are willing to exceed the \$500.00 originally stated for a budget. I'm guessing that in addition to the few hours for previous services that the time and equipment charges for the bore scope will exceed the \$500. I'll contact the maintenance facility at KBVI that performed the compression check for me to perform the bore scope as soon as possible and I can be there to record the results.

Thanks,

Dean

Dean Glasser
Federal Aviation Administration
Airworthiness Unit Front Line Manager
USAirways Certificate Management Office, EA19
1187 Thorn Run Road, Suite 200
Coraopolis, PA 15108
Tel: ([REDACTED]
[REDACTED]

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From: "Alleyne Eric" <alleyne [REDACTED] v>
AEA-AGC-FSDO-03, Pittsburgh, PA
To: Dean Glasser/AEA/FAA@FAA,
Date: 09/12/2013 06:11 PM
Subject: RE: Beaver Falls accident N3940H

If you could Bore scope the cylinder I think we should be able to close the door on the question on what might have caused the frozen valve. If you could do that I would appreciate it thanks.

Eric

-----Original Message-----

From: Dean.Glasser [REDACTED] [mailto:Dean.Glasser [REDACTED]]
Sent: Thursday, September 12, 2013 11:58 AM
To: Alleyne Eric
Subject: RE: Beaver Falls accident N3940H

Eric

There was no indication from the spark plugs that the engine was running rich prior to the valve sticking and the subsequent accident. The plugs on cylinders 1 and 3 were normal grey in color, gapped correctly and little or no erosion. I would expect to see the evidence of the lean condition caused by the evacuation of the fuel mixture due to the open exhaust valve.

The plugs on 2 and 4, as I said, were black from the rich condition caused by the stuck valve.

If you want to get an indication of the condition of the combustion chamber, I could pull the cylinder or do a bore scope inspection to examine the valve at the seat. We might find that this cylinder had a scored wall or a ring that was cracked (or worn) (or an oil ring that was out of place) (or that ring gaps were aligned) that allowed an excess of oil that caused an increase in coking and led to the valve sticking. A bore scope inspection could look at the crankcase side of the valve guide seal for coking, if it helps.

The only way to answer your question about the amount of carbon build-up would be to dig a little in to the cylinder, but the spark plugs don't support a rich mixture or excess oil consumption. The log book has an entry in April 2013 to remove clean and check the gap, but this lines up perfect for preventative maintenance at a six month interval between annuals. I could query the owner or the I.A. of the spark plug condition at that action, but the condition of the plugs pulled yesterday, after being in service for six months, reflect an properly functioning engine.

Let me know what direction you want me to take or additional inspection you request. I'll do what I can.

Dean

From: "Alleyne Eric" <alleyne[REDACTED]v>
AEA-AGC-FSDO-03, Pittsburgh, PA
To: Dean Glasser/AEA/FAA@FAA,
Date: 09/12/2013 09:58 AM
Subject: RE: Beaver Falls accident N3940H

Ok so since it was the exhaust valve that stuck, it had a lot of carbon build up from burning rich?
Eric

-----Original Message-----

From: Dean.Glasser[REDACTED] [mailto:Dean.Glasser[REDACTED]]
Sent: Thursday, September 12, 2013 9:54 AM
To: Alleyne Eric
Subject: RE: Beaver Falls accident N3940H

Eric,

Not at all. The aircraft and the engine were within a few weeks of the annual inspection being due (Oct 31) and were extremely well maintained, showing no signs of neglect or lack of attention. The owner is both a very high-time airline (retired) pilot and flight instructor, and is an A&P mechanic that does the normal and routine maintenance to this aircraft.

The I.A. that has done the annual inspections to this a/c for the current owner is the Director of Maintenance for one of this office's finer Part

135 air carriers. The oil was clean and the quantity was at the operational level. This engine had the oil filter screen removed and had a spin-on type oil filter installed via STC, upgrade. The aircraft is flown regularly. The records show that it's been flown appx 60 hours to date since the last annual inspection.

Dean

From: "Alleyne Eric"
<alleyne [REDACTED]>
Pittsburgh, PA
To: Dean
Glasser/AEA/FAA@FAA,
Date: 09/12/2013 09:24 AM
Subject: RE: Beaver Falls
accident
N3940H

Dean do you believe the valve stuck due to lack of oil or poor maintenance?

-----Original Message-----

From: Dean [REDACTED] [mailto:Dean.Glasser [REDACTED]]
Sent: Thursday, September 12, 2013 9:20 AM
To: Alleyne Eric
Subject: Re: Beaver Falls accident N3940H

Thanks Eric.

Can you give me an accident number for the -23. I want to get this completed by mid-day tomorrow. I have all I need to meet your request and finish the 23. My inspection found the #3 cylinder exhaust valve stuck open (valve guide seal). No engine damage as a result, but the other cylinders (2 and 4) were running so rich that the plugs were fouled beyond what they could handle and was the reason that the engine quit producing power. There was no internal engine damage. Both mags were very good as was induction, carburetor and the fuel system.

Thanks,

Dean

Dean Glasser
Federal Aviation Administration
Airworthiness Unit Front Line Manager
USAirways Certificate Management Office, EA19
1187 Thorn Run Road, Suite 200
Coraopolis, PA 15108
Tel: (412) [REDACTED]
[REDACTED]

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From:
"Alleyne Eric"
<alleyne[REDACTED]>

AEA-AGC-FSDO-03,
Pittsburgh, PA
To:

Dean
Glasser/AEA/FAA@FAA,
Cc:
"Alleyne Eric"
<alleyne[REDACTED]>

Date:
09/10/2013 11:18 PM
Subject:
Beaver Falls
accident N3940H

Good evening Dean,

As per our conversation today, I will need the following items from you during this accident investigation.

- * Spas information on the pilot and airplane
- * Copies of the logbook entries for the last annual and any maintenance that may have contributed to the accident.
- * Pictures of the accident aircraft all for corners and specific damaged area.
- * A statement from you on your findings when you are completed with your examination of the wreckage.

I am willing to assist with funds during the examination of the airplane if need be, but I am limited to no more than \$500. This should cover if we need to go more thorough with the investigation. I have sent the pilot a 6120 form to fill out along with a statement of the event, hopefully he should have it by tomorrow. Thanks for your assistance.

Eric Alleyne

Air Safety Investigator
National Transportation Safety Board
Office of Aviation Safety
Eastern Regional Office (ERA)
45065 Riverside Parkway
Ashburn, Virginia 20147
Office: 202-[REDACTED]
[REDACTED]

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