K & I FIELD SERVICES, LLC

Observations of N606SP Wreckage during Salvage

Kerry Hanes, Managing Member

6/25/2009

K & I Field Services, LLC worked as a subcontractor to Beegles Aviation during the salvage operation. Additionally, as a volunteer in Cibola Search and Rescue, the author was at the upper end of the crash site for the search and recovery portion of the initial response. All photographs in this report were taken during the salvage operation. The author has over 20-years of fixed-wing military aviation experience and is a certified Airline Transport Pilot. This report is provided free of charge to the National Transportation Safety Board for their use. All portions of this report are available to the NTSB to be used in any way they require.

The following locations of observations during the salvage of N606SP, a NMSP helicopter, on June 25, 2009, were recorded using a Garmin Foretrex 101, which has a low resolution antenna, according to Garmin. The GPS device displayed accuracy between 5-8 meters for all points below, except #5. This specific effort did not record the GPS location of point #5, which was located by the author using a topographic map since he did not stand at point #5. The distances given later in text are visual estimates taken while recovering debris. The two elevations listed in the table below are first the GPS recorded elevation, then the elevation according to the digital terrain elevation data in the National Geographic Topo map. See the picture of the topographic map with the points plotted below. Point #1 is too close to point #2 to appear on the map.

#1 uppermost piece of aircraft debris; #2 uppermost impact divot; #3 tail boom; #4 uppermost piece of crew debris (kneeboard)

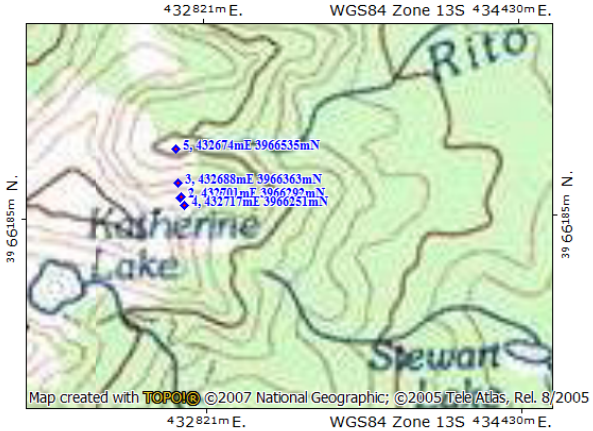
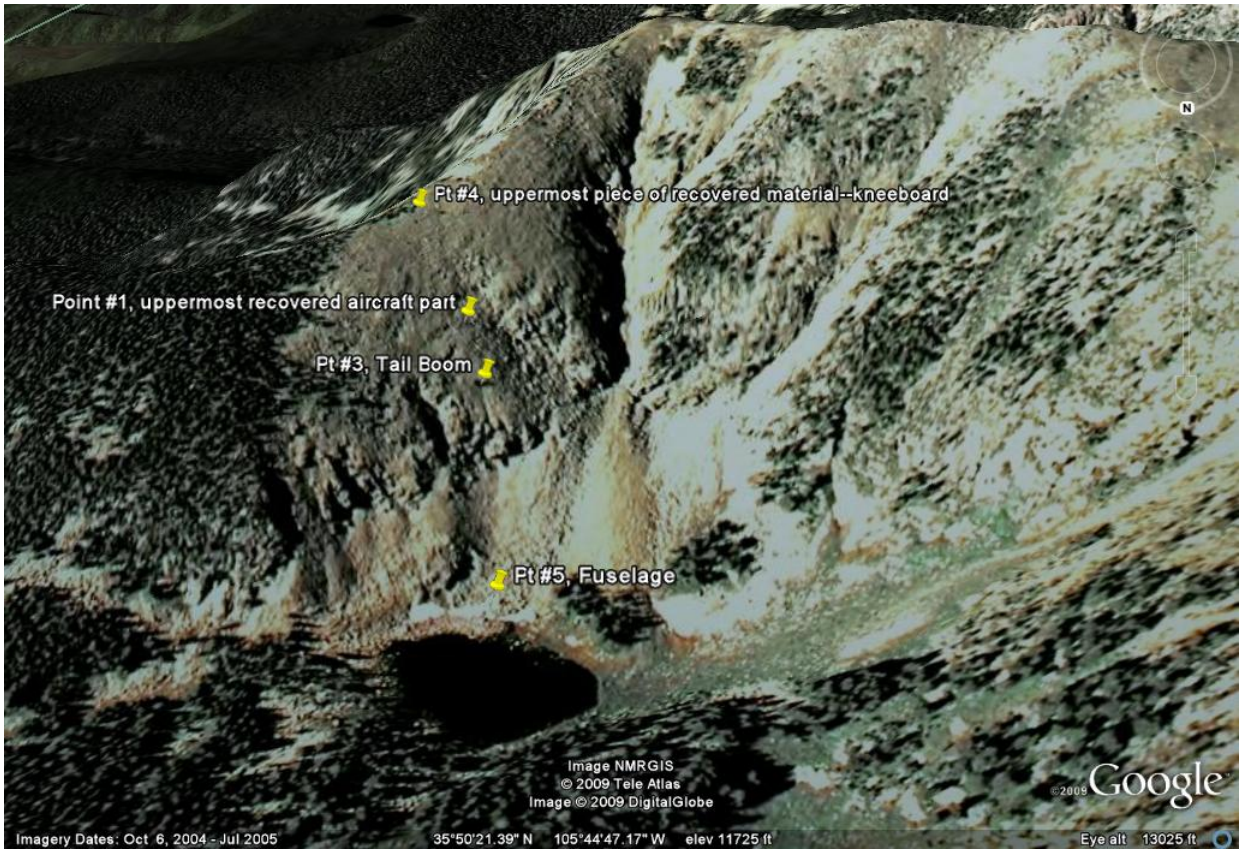


Table of notable observations:

Pt #	WGS 84 Coordinates	Elevation	Observation
1	N35 50.306 W105 44.713	11990’/12083’	Most uphill piece of aircraft debris.
2	N35 50.310 W105 44.711	11986’/12069’	Most uphill ground strike.
3	N35 50.348 W105 44.720	11835’/11960’	Tail boom.
4	N35 50.288 W105 44.700	12098’/12044’	Kneeboard with local area guide.
5	N35 50.441 W105 44.730	--/11527’	Fuselage.

To improve the reader's geospatial view of the scene, the image below, courtesy of Google Earth, shows a terrain overview of the crash site. The points depicted here are located simply by the author's familiarity with the site, not necessarily the GPS coordinates listed in the table above.



Point #2 is the uppermost (also most southerly) ground strike point observed. Numerous ground strikes were observed downhill from this point. Only a limited amount of time (estimate 40-minutes) was spent looking further uphill for additional ground/tree strikes as the focus of this effort was to recover crash debris. The most commonly noticed ground strike was a divot in soil or talus up to 5" deep, approximately 12" along the fall line of the slope and approximately 30" across the fall line of the slope. Point #2's characteristics fit these descriptions. Despite the predominance of large rock over exposed soil on the slope, paint and metal scrape on rock was noticed only at one location near point #2. The paint scrape was approximately one-square-inch and included parts of a NMSP decal.

In the photograph below, the ground strike divot is visible in the bottom of the field of view with a main rotor blade section, landing gear, landing gear strut (just below tree), and FLIR visible in the upper field of view. The aircraft parts are shown within inches of where they came to rest, but were set atop rock to make them visible for this photograph. The landing gear was approximately 30' downhill from point #2. The FLIR was approximately 30'downhill and 12' east of point #2. The tree with the tail boom is visible between the wheel and the FLIR, just above the wheel strut. A brake caliper was also retrieved from the downhill edge of point #2, and may be the part that is visible in the far right edge of mid-field of view.

Just uphill from point #2 is point #1, the furthest uphill piece of aircraft debris recovered. It is an aluminum piece with yellow striping, approximately 8" long, shown in the photograph below. It was found approximately 23' uphill (south) of point #2 and approximately 10' west of point #2. In the same picture, the undisturbed landing gear is visible—same gear as shown in the picture above—just left of the middle of the field of view. The tail boom and the tree upon which the tail boom rests are located just above the landing gear. Just right of a line between the landing gear and the tail boom is the black and red bag presumed to be a tool bag. In the vicinity of the black and red bag, we recovered a significant amount of aircraft maintenance materials such as rags, shop towels, a can of fluid, and wheel chocks. In the same general area of the red and black bag, other notable pieces recovered include: the cabin door, aircraft flight manual, ammo clip from semi-auto pistol, semi-auto pistol, chest pouch, green helmet bag, satellite phone, aircraft pre-flight and other checklist pages, both landing gear, FLIR, at least two pieces of main rotor blade over 3' long, numerous pieces of composite fiber material and honeycomb, and the aircraft battery.

The picture below shows point #4--the furthest uphill piece of related debris found that is not an aircraft part. It is the blue kneeboard with local area checklist pages and is the only piece of related debris found uphill from (south of) point #1, with the possible exception of a climbing rope. Roughly 1/3 of the way uphill from point #1 towards point #4, we recovered a climbing rope—unknown whether it is related to the crash, but was packaged with wreckage debris.

Approximately 5-minutes were spent scanning the surrounding trees and rocks within 150' of point #4 for signs of a ground strike—none was found. This point is near the top of the sloping ridgeline that runs downhill to the northeast from the major ridge south of the crash site. The lake in the background is the same lake near which the fuselage came to rest, approximately 500' vertically below the elevation of point #4.

At point #3, we photographed the tail boom prior to disturbing it—seven following photographs. There was no indication the tail boom had been disturbed since the crash. (If it is important to definitively determine that the tail boom was undisturbed between the crash time and this photo, I recommend contacting Mr. Rich Seemer, Atalaya SAR, who was first on the scene of the tail boom and turned off the ELT located within the tail; ask him if the photos depict the condition in which he found the site.) The tail boom lies on the west side of the tree.

The antenna missing from the fairing shown in the picture below was recovered within 20’ of the tail boom.

In this photo of the tail boom, you can see that the tail cone is missing. The tail cone was recovered approximately 90’ uphill from the tail boom.

During our attempts to move the tail boom (at point #3) approximately 15’ to consolidate with bags of recovered debris for a single sling pickup, we lost control of the tail boom on the slope. Without any flight-path vector, once dislodged from the tree it was resting on, the tail boom rolled downhill to within approximately 50’ of where the fuselage was resting (approximately point #5). The picture below shows the tail boom in the upper left field of view strapped to bags of debris recovered from the lower part of the wreckage line after the fuselage had already been sling-loaded out of the site. The perspective for this photograph is from the top of the estimated 50’ tall cliff approximately 150’ down slope from point #3.

In conclusion, all of the above photographs are available as a JPEG file if individual files are more useful. Contact me at anytime for further assistance, at [redacted]