

Comments on U.S. forest Service Accident Submission

Accident: NTSB Case Number LAX08PA259

Aircraft S61N-- N612AZ

Submitted by Carson Helicopters, Inc.

27 July 2010

Carson Helicopters appreciates the effort by the United States Forest Service(USFS) in submitting their analysis of the accident investigation for the Weaverville, CA helicopter crash of 5 August, 2008. Carson has studied the USFS submission and would like to submit clarifications on some of the items raised in the USFS response.

A. Carson properly installed the performance charts for the Composite main rotor blades

Installation of additional performance charts RFMS 6 ,7, and 8 for use with the Composite Main Rotor Blades on Carson helicopters is stated on page 7 of the SUFS submission as having been incorrectly applied to the aircraft. The submission cites an FAA letter that Carson responded to thoroughly in January 2010. The Carson composite rotor blades (CMRB) were previously installed on the aircraft and noted in the maintenance log as an installed STC. The additional performance charts were inserted in the flight manuals at a later date, and no maintenance log entry was made because no physical alteration of the aircraft took place.

RFMS # 6 and 7 are additional performance charts for the Composite Main Rotor Blades (CMRB) that were completed after the initial approval for the CMRB in 2005. RFMS # 6 was issued in May, 2007. It incorporates an increase in OGE and IGE performance that was completed after extensive FAA testing and it states that " The information contained herein supplements or supersedes the S61 1 L/N and NM flight manual...." It also states "This supplement is applicable to S61 L/N and NM model aircraft modified by STC 1585NY (Composite Main Rotor Blades). It also increases the Altitude Limitations." The STC 's were done in order to realize the additional performance capability of the composite blades for Carson's own fleet aircraft. Upon issuance in May, 2007 and insertion in the flight manual, the STC immediately applied to the aircraft because no maintenance, preventive maintenance, rebuilding or alteration was performed. The STC associated with RFMS #6 and #7 requires no physical alteration to the aircraft, because it applies only to aircraft already previously modified by the CMRB STC. The CMRB STC's have a required "Limitation and Conditions" list of equipment that must have been previously installed for that specific STC to be applicable. All required equipment was previously installed in the original CMRB STC. Since there was no physical alteration to the aircraft, no maintenance log entry or 337 is required by FAA regulation to utilize the enhanced performance charts.

Additionally, FAR 43.9 refers to the type of work performed that requires a maintenance logbook entry. The increased performance charts do not fall within the descriptions that require an entry, and applicability of the STC for #6 and #7 is not dependent on such an entry.

The FAA wording on the supplement *does* state that the supplement must be attached to the FAA approved rotorcraft flight manual when conducting applicable operations. RFMS # 6 and 7 were inserted and attached to the rotorcraft flight manual for N612AZ, as well as our other helicopters. The FAA maintenance inspector and the FAA operations inspector assigned to our certificate FSDO have reviewed and approved of our handling of application of RFMS 6 and 7 to aircraft during multiple inspections of our records and flight manuals, both before and since the accident with N612AZ. The FAA FSDO and ACO in our region with certificate oversight have not taken any issue with Carson's use of the performance charts.

B. Carson properly installed the passenger seat harnesses in N612AZ

The USFS submission on page 12 contends that Carson improperly installed the seat belt shoulder harnesses and cites an FAA letter from 2009 regarding installation of the harnesses as a major alteration requiring a 337 approval form.

Carson has previously responded to both the USFS and the FAA regarding the installation of the seat harness. The installation was properly done by Carson and in accordance with FAA procedures. As noted in previous correspondence, this is confirmed by the FAA's own guidelines, as quoted in part from a letter from Carson to the USFS in October 2008 (this correspondence and Carson's response to the FAA are contained in the NTSB public docket):

"Carson added a shoulder harness to an existing Sikorsky OEM seat that was additional equipment to the existing lap belt. This process involved adding a clamp to an existing tube on the seat. There was no fabrication of additional structure or alteration to the seat or the seat installation to the floor. There were no structural changes to the seat frame or the cabin of the aircraft.

Carson consulted FAR 21.93, Classification in changes in type design, as well as the 8900 Flight Standards Manual and AC 43.13-2B specifically regarding seat harness installation. Carson also procured FAA DER approved engineering data for the installation, even though this is not required for a minor alteration.

The approval for the installation must be done by an FAA authorized representative, as per Part 43.7. Those authorized representatives include the following: a 145 FAA repair station, a Part 135 FAA Air Carrier facility, the holder of a mechanic certificate with an air carrier facility or a certified IA (Inspector Authorization) . Carson is a Part 135 FAA Air Carrier facility with certificated mechanics, and the Director of Maintenance is an IA. We are also a Part 145 FAA

repair station facility. We are FAA authorized to approve and perform the installation of the harness.

It is very clear from the FAA rules and guidelines that installation approval is delegated by the FAA to authorized facilities or IA's. A 337 with field approval is normally only done in the absence of engineering data, and with the presence of DER certified engineering data and installation by an authorized FAA representative (Carson Helicopters), we have clearly fulfilled all requirements."

Carson was in compliance with the FAA guidance available for the installation of the harness. At most, there is a disagreement over whether a form 337 should have been filed for the installation. There is no dispute about the actual physical installation of the harness.

Finally, it needs to be made clear that USFS maintenance inspectors specifically requested this seat belt/harness type to be installed in the Initial Attack aircraft during a pre-contract inspection visit to Carson. The aircraft were inspected and approved for duty by USFS maintenance inspectors prior to contract commencement after installation of the harness, and the maintenance log book of the aircraft was reviewed at that time.

C. The USFS utilized disputed information to calculate payloads

The USFS submission contains a section on pages 8-10 calculating HOGGE payloads using the USFS load form. Carson does not agree with the calculations or the USFS payload finding that the aircraft was overweight. Detailed analysis with supporting documentation for Carson's calculation of the available payload for the aircraft is contained in the Carson Party submission.

1. Carson contends that the aircraft weight utilized by the USFS in this calculation is at least 400 lbs. heavier than the aircraft actually weighed. Supporting analysis for this is in Carson's party submission, and shows that even though the aircraft was heavier than originally thought, it is lighter than the weight erroneously utilized for the USFS load calculation on page 9-10.
2. The USFS uses 23 degrees C for the flight temperature, and Carson contends that the best available evidence shows that the temperature was 20 deg. C for the mission, which positively affects the payload by more than 240 lbs. (as shown by the NTSB Hover Study sensitivity report).
3. The gross weight calculation uses figures from the approved performance charts that are lower than the NTSB or Carson calculated gross weights, which results in an artificially low payload (see the NTSB Hover Study and Carson's party submission regarding power available and gross weight limitations)
4. The Figure C chart showing payloads with metal blade performance is not applicable. The aircraft was properly equipped with Composite main rotor blades and the approved

performance charts with CMRB performance figures should be utilized. The metal blade chart was superseded by the improved CMRB blade charts, as previously discussed.

D. USFS Responsibilities

Carson has acknowledged the errors mutually discovered during this investigation regarding a mislabeled power chart that was improperly utilized. Carson has taken steps to identify those responsible and to change our company policies and management to prevent this type of occurrence in the future. Carson also firmly believes that the cause of the accident was due to a loss of power during translational lift caused by contamination in the Fuel Control Units, and that the aircraft should have had more than sufficient power to fly away with the payload it had at H44. Carson has conducted extensive flight testing which is well documented in the Carson party submission that demonstrates that with two healthy engines the aircraft could fly at that density altitude with payloads exceeding those calculated by the NTSB for the day of the accident.

The USFS has acknowledged that they were the operator of the aircraft, and that under public use laws, the aircraft was not operating in accordance with FAA guidelines. As the operator of the aircraft, the USFS had several responsibilities for utilizing the aircraft for firefighting missions. These issues are not mentioned in the USFS submission. Carson has previously outlined these items in its submission to the NTSB in some detail along with supporting documentation from the IHOG (Interagency Helicopter Operations Guidelines).

1. The USFS was responsible for inspecting, approving and issuing certification cards for each aircraft, including its logbook and manuals, and each pilot and mechanic prior to commencement of operations. USFS mandated the equipment that was added for USFS mission-specific flights, including the type of seat belt and seatbelt release, cargo storage bins, and water tank system. The aircraft were physically inspected and approved by USFS inspectors prior to commencing operations for the season.
2. The USFS was responsible for load manifesting, mission planning, go-no go decisions, helipad site preparation, loading and unloading of crew, aircraft safety briefing of crew, search and rescue and safety provisions in the field.
3. The USFS did not do an adequate job of site preparation at H44 helispot prior to S61 arrival. The site did not meet the USFS guidelines for the departure path. The site should have had more trees removed on the departure paths, and it was extremely dusty in initial landings (repeated dust abatement was not sufficient). The first helitack manager on-scene questioned whether an S61 should land at the site. Following the accident, the USFS had a team of cutters drop more than 40 trees in the departure path in order to accommodate helicopters brought in for the aftermath of the accident. They felt it necessary to do this

even though these aircraft were significantly smaller helicopters than N612AZ. N612AZ was required to ascend vertically more than 50 feet and come to a hover to clear the trees at the heli-spot, which contradicts IHOG USFS guidelines. Even a minor power loss during translational lift would be dangerous in this situation.

4. The USFS had an inspector check pilot onboard during a tactical mission (after he had already done the checkride for the pilot), and he assumed the duties of the helitack crew manager, although this is not proper procedure. He was not even listed on the flight manifest by the USFS. The inspector pilot chose to take the place of the regular helitack manager for the flight, which meant that normal protocol for briefing firefighters on the proper seatbelt use was changed and not followed. It should be noted that the inspector pilot could abort the mission at any time if he felt proper procedures were not being followed.
5. Passenger safety briefing for the crew was done on the ground prior to arrival of the aircraft by an on-scene manager, with no aircraft equipment available to demonstrate proper manipulation of the seat belts or emergency entry/exit of the helicopter, even though most of the Grayback crew had never been on an S61.
6. The USFS did not have a crash rescue kit with proper fire extinguishing equipment for an aircraft fire at H44, even though it was a major helispot that had seen a lot of use in the previous two weeks.