



National Transportation Safety Board

Washington, D.C. 20594
Safety Recommendation

Log 2405

Date: June 17, 1993

In reply refer to A-93-78 through -80

Mr. Joseph M. Del Balzo
Acting Administrator
Federal Aviation Administration
Washington, D.C. 20591

On February 19, 1993, a Bell 214B-1 helicopter, N114CR, operated by CRI Helicopters, Inc. (CRI), of Apple Valley, California, crashed during a 14 Code of Federal Regulations (CFR) Part 133 logging operation on Prince of Wales Island, near Ketchikan, Alaska. The helicopter was conducting external load operations and had just lifted two logs from a 200-foot hover when ground witnesses observed it maneuver erratically and then descend rapidly to the ground with low main rotor speed. The pilot and copilot were killed; the helicopter was destroyed. On-site examination of the wreckage revealed that the engine-to-transmission driveshaft aft coupling had failed, and that pieces of it had penetrated the engine cowling. The examination also revealed a failure of the upper end of the right lateral cyclic servo power piston rod end. Preliminary examination of the servo actuator in the National Transportation Safety Board's materials laboratory disclosed evidence of a fatigue failure in the threaded section of the upper end of the servo power piston rod.

Safety Board investigators also found significant discrepancies during their review of records at CRI's Ketchikan maintenance facility. Although CRI managers stated that the helicopters they operated were being maintained under an Approved Aircraft Inspection Program (AAIP) per the provisions of 14 CFR 135.419, no record of Federal Aviation Administration (FAA) approval of the maintenance program was found. An employee of the FAA Flight Standards District Office (FSDO) in Riverside, California, which is responsible for the oversight and surveillance of the CRI certificates, stated that the FSDO had approved the AAIP about a year earlier, but had not "put it on paper." Investigators found that the CRI Ketchikan maintenance facility was performing major repairs, including engine teardown and replacement of gas turbine "hot sections," without signoffs by FAA-certificated mechanics or inspectors by showing that the work was done under the authority of the FAA-certificated CRI repair station in Apple Valley, California.

Investigators witnessed CRI employees performing major repairs to helicopters in Ketchikan in unheated sheds at temperatures below 20°F. Also, complete operations specifications were not available at the CRI Ketchikan office, nor was a listing of approved helicopters available. A review of maintenance records provided to investigators during the field phase of the investigation indicated inconsistent and inadequate maintenance operations. Further, CRI was not able to locate major component installation records for the helicopters they operated in Alaska. When asked about the completeness of records presented to investigators, the owner of the company reported that there were no additional records. However, about 2 weeks later, CRI representatives presented records of routine maintenance to Juneau FSDO personnel and reported that the records were found at their remote site and in California.

CRI lost two other helicopters in 14 CFR Part 133 logging accidents in May 1993, each illustrating improper operational and/or maintenance practices that reflected a lack of FAA surveillance of their logging operations at remote sites in southeast Alaska.

On May 2, 1993, a Bell 204B, N204AQ, operated by CRI, crashed during an attempted emergency landing near Copper Harbor, Alaska. The pilot in the left pilot seat (the only occupant of the helicopter) was killed, and a ground crewman was injured. The helicopter was destroyed. Witnesses observed smoke coming from the vicinity of the tail rotor after the pilot had hoisted a log on a long line at 1,200 feet elevation. The pilot had dropped the external load and descended to a 75-foot hover when the tail rotor and the 90-degree (tail rotor) gear box separated from the helicopter. A loss of control followed, and the helicopter made three rapid rotations to the right before colliding with the ground. Preliminary evidence indicates a drive train failure at the 90-degree gear box.

Although the investigation is incomplete, records have been found that show that the helicopter had been frequently operated on logging flights at weights in excess of its approved maximum gross weight. Also, it was found that FAA approval had not been granted for pilot operation from the left seat. On the day of the accident, CRI was reportedly using a procedure that would have heavily loaded the helicopter drive train, e.g. autorotating with a heavy external load from a point near the logging site to a drop point at a lower altitude where a full power recovery to a hover was executed before dropping the external load. Further, records associated with the 90-degree gear box showed that it had been removed from service by the U.S. Army in 1986, due to "excessive wear." The helicopter main rotor blades had been sold to the U.S. Army in 1971 and were not authorized for use on the Bell 204B. Investigation into the sources of these parts is continuing.

On May 8, 1993, a Bell 214B-1, N314CR, operated by CRI, crashed during a logging operation following a power loss near Thorne Bay, Prince of Wales Island, Alaska. The two pilots received minor injuries, and the helicopter was substantially damaged. The helicopter had been operating for about 30 minutes in its second 1-hour cycle and was in a hover with a log suspended from a 150-foot long line when witnesses observed a long flame from the engine and observed the pilot autorotate to a 30-degree slope covered with cut timber. Company records showed that the accident flight and several

other flights in the previous 2 weeks had been operated at weights that substantially exceeded the maximum authorized gross weight of the helicopter and the long line structural hook limits. The investigation of this accident is continuing. The cause of the power loss has not been determined.

A previous CRI accident, which occurred on June 10, 1992, shows that CRI safety deficiencies and accidents in Alaska are not limited to logging operations. In that accident, a Hughes 369D helicopter, N8395P, made a forced landing in water in Polk Inlet, Alaska, during a 14 CFR Part 135 on-demand air taxi flight after a loss of tail rotor thrust. The purpose of the flight was to carry passengers to a mountaintop and then to another remote site. After the mountaintop landing, while the rotors were still turning, the tail rotor contacted the ground. The pilot said that he examined the tail rotor and drive train and, finding no damage, elected to continue the flight. The accident occurred about 3 minutes later. The examination of the wreckage showed that the tail rotor driveshaft tubing had been damaged and subsequently failed in flight. The damage to the driveshaft occurred near the main transmission, in an area that would not have been visible to the pilot without some disassembly.

CRI lists its corporate office location as Apple Valley, California. Its on-demand air carrier and external load operating certificates issued under 14 CFR Parts 135 and 133, respectively, are assigned to the FAA Riverside FSDO. Although CRI had been conducting logging operations in the Ketchikan area of southeast Alaska since April 1991, the assigned Principal Operations Inspector (POI) and Principal Maintenance Inspector (PMI) at the Riverside FSDO indicated that they had never visited a CRI logging operation or any CRI operation in Alaska. FAA airworthiness and operations inspectors from the FSDO office in Juneau, Alaska, have conducted *unscheduled ramp inspections* of CRI 14 CFR 135 operations involving Hughes 369D helicopters in Ketchikan. However, since the Juneau FSDO does not hold the CRI operating certificates, the inspectors do not, under their national inspection program guidelines, have mandatory surveillance responsibilities for the operator. Thus, geographic inspection activities are conducted periodically, time and resources permitting. As such, the Juneau FSDO inspectors report that they have not surveilled CRI operations at remote sites in Alaska. The Juneau FSDO geographic inspection program manager and other FSDO employees reported that the Juneau FSDO had never been requested to perform geographic surveillance on CRI by the Riverside FSDO.

A similar lack of regular FAA surveillance exists with Rocky Mountain Helicopters (RMH), d.b.a. RMH Aerologging, in southeast Alaska. That operator also conducts 14 CFR Part 133 logging operations at remote sites near Ketchikan, Alaska, and elsewhere in other states. The operating certificate for RMH is held by the FSDO in Salt Lake City, Utah. RMH had three accidents at remote locations near Ketchikan in 1992, including a fatal crash of a Bell 214B-1 helicopter. The RMH Bell 214B-1 helicopter, operating under 14 CFR Part 91, was transporting a crew of log cutters from a work area to base camp when the accident occurred. Investigation revealed that the long line cable used

when the helicopter was logging had not been removed from the helicopter cargo hook before the passenger flight and had snagged on trees during an approach to landing. The accident resulted in six fatalities, five serious injuries, and destruction of the helicopter.

The second RMH accident occurred about 2 weeks later when the engine on a Bell 214B-1 failed as the helicopter was hovering and preparing to pick up an external load of logs. The helicopter was substantially damaged, and the two crewmembers were seriously injured.

The third RMH accident involved a Bell 206 that was damaged when the long line attached to the external cargo hook caught on a tree stump during a landing attempt. The operator removed the helicopter from the remote site and transported it to Ketchikan for repairs without reporting the accident to the FAA or the Safety Board. A week later, the Juneau FSDO learned of the accident. Examination confirmed that the damage to the helicopter was substantial and qualified the occurrence as an "accident." The Safety Board found during a review of the three RMH accidents that the POI assigned to RMH in Utah had never visited the RMH Aerologging operation and had never requested surveillance assistance in Alaska.

The Safety Board believes that FAA surveillance of these operators in southeast Alaska was, and remains, inadequate, because the POIs and PMIs assigned to the certificate holders are far-removed from the operation, and they have not requested assistance from the Juneau FSDO. Further, the Juneau FSDO has not surveilled these operators at their remote locations because of resource limitations and other priorities. The inadequate surveillance allowed unsafe operations and maintenance practices to continue until fatal accidents caused those practices to be detected. The Safety Board has not received any assurance that surveillance by the FAA is likely to improve at these sites under current FSDO procedural guidelines and funding. The Safety Board is concerned that Part 133 logging operations at remote sites and major repair of helicopters in southeast Alaska are conducted in violation of existing regulatory standards, and that the FAA assigns a low priority to surveillance of these operations. The recent accidents illustrate the critical importance of improved and timely FAA surveillance of such operations.

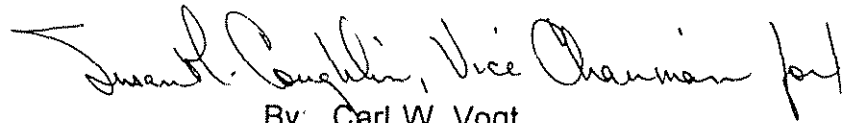
Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Assign operational and maintenance oversight responsibilities for remote CRI Helicopters and Rocky Mountain Helicopters (RMH) Aerologging southeast Alaska 14 CFR Part 133 and 135 operations to the Flight Standards District Office in Juneau, Alaska. Require that the FAA oversight of these operators include surveillance of operations at remote sites. (Class II, Priority Action) (A-93-78)

Conduct a National Aviation Safety Inspection Program (NASIP) team inspection of the southeast Alaska operations of CRI Helicopters and Rocky Mountain Helicopters (RMH) Aerologging. Allow the participation of Juneau Flight Standards District Office personnel in the NASIP inspection. (Class II, Priority Action) (A-93-79)

Assign operational and maintenance oversight responsibilities of 14 CFR Part 133 operations at remote sites in the United States to the Flight Standards District Office with geographic responsibility for the area. Assign a priority to this surveillance that will allow on-site inspections of these operations. (Class II, Priority Action) (A-93-80)

Chairman VOGT, Vice Chairman COUGHLIN, and Members LAUBER, HART, and HAMMERSCHMIDT concurred in these recommendations.


By: Carl W. Vogt
Chairman