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Subject: **ACTION:** Recommendations for Accident Prevention Date: July 30, 2002

From: Aviation Safety Inspector Reply to Attn. of: William C. Kunder [redacted]

To: Manager, Office of Accident Investigation, Recommendation and Analysis Division, AAI-200
THRU: Manager, WP-11

On June 17, 2002, N130HP, a Lockheed C-130A crashed while dropping retardant on a fire near Walker, CA, for the U.S. Forrest Service. The three crewmembers were fatally injured. From video footage taken of the accident aircraft while performing the drop, it has been determined that the right wing failed slightly before the left wing, and that fire was evident only after the right wing began to separate. Investigation conducted at the accident scene revealed that the right center wing failed in the vicinity of right center wing station 61".

During investigation the undersigned inspector discovered the following areas of concern:

- The Basic Flight Manual, USAF T.O. 1C-C130A-1, p. 5-17 states "CAUTION: The maximum maneuver load factor, regardless of cargo load, with any flap extension is +2.0g." According to a company representative of the accident aircraft, the normal flap setting for retardant drops is 50%. Given thermal conditions, terrain, aircraft weight, and elimination of between 7,000 and 27,000 lbs. of retardant during a drop, is it reasonable to expect the aircraft to remain within the +2.0g and –0.0g limitations?
- The FAA Approved Flight Manual Supplement associated with the Supplemental Type Certificate (STC) for the retardant tank installation does not address the above limitation, only a maximum load factor of +2.5g without specifying flap configuration. Though this is not contrary to the Basic Flight Manual, it proved confusing to one C-130A pilot interviewed.
- FAA Approved Inspection Programs currently in use on the C-130A tankers are based upon Inspection Planning Guide 182 (IPG-182) that was developed by a work group of C-130A operators and the FAA in an attempt to reduce the burden of performing inspections in accordance with the original USAF inspection document, USAF T.O. 1C-130A-6 and the C-130A program depot maintenance work specification developed by the USAF Warner Robbins Air Logistics Center. The current inspections used by the accident aircraft operator, and others, address only visual inspections of the lower center wing. In a document prepared by the manufacturer Lockheed, in 1978, concern for integrity of the lower center wing area was expressed, specifically in the vicinity of the suspected wing failure on the accident aircraft. In that document Lockheed calculated center wing Service Life Endurance of 19,384 and Structural Action Point of 11,910 flight hours. The accident aircraft center wing had accumulated approximately 21,863 flight hours. Have the original inspection documents been diluted and/or are additional inspections of the center wing needed?
- There are 6 Restricted Category Type Certificates (TC's) for C-130A aircraft: A15NM, A30NM, A31NM, A34SO, A39CE, and TQ3CH. Five of the 6 TC's include the statement: "FAA airworthiness directives for all L-382 series aircraft and Hamilton Standard 54H60 series propellers must be

reviewed for applicability and complied with accordingly." The C-130A is an L-182 series aircraft. If the applicability paragraph of current L-382 Airworthiness Directives (AD's) is referenced, there are no AD's applying to the L-182 series aircraft. That is because there were no TC's against which to issue an AD until 1990. In talking with C-130A (L-182) operators, they have concluded that there is no AD applicability to the airframe. Type Certificate TQ3CH is the exception. This TC specifically lists 14 AD's that are applicable to C-130A s/n 3035 as of January 31, 1994. Additionally, compliance with 8 specific engine AD's, based upon a similar TC'd engine is required even though the engine has no TC or AD issued against it. I believe TC TQ3CH adequately addresses AD applicability while the other TC's do not.

In the interest of public safety, the following recommendations are being submitted for potential action:

1. Determine, possibly through use of a Quick Access Recorder (QAR), if the C-130A can legitimately operate as an air tanker, specifically within the +2.0g and –0.0g load limitations established by the Basic Flight Manual.

2. Immediately convene a work group, to include the C-130A air tanker operators, FAA, US Forest Service, Lockheed, and Warner Robbins Air Logistics Center, to act on recommendation #1 and to determine the adequacy of current inspection programs, especially with regard to the C-130A center wing in the air tanker operating environment.

3. Reevaluate current C-130A TC's and STC's for adequacy relating to AD compliance and limitations.

William C. Kunder

cc:
Manager, AWP-200

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