EXECUTIVE SUMMARY

C-130H Accident, 21 June 2001

1. This Class A accident occurred at 1545 on 21 June 2001, when a C-130H, S/N 86-0419, assigned to the 911 Airlift Wing, Pittsburgh International Airport Air Reserve Station, Pennsylvania, landed at Roosevelt Roads Naval Station, Puerto Rico, with a fouled right main landing gear.

2. After a touch-and-go landing, the mishap crew (MC) declared an in-flight emergency for a right main landing gear (RMLG) malfunction. After discussing options with manufacturer (Lockheed) representatives, MC extended the left main landing gear and nose gear, but could not fully extend the RMLG. During landing roll, the #4 propeller and right side of the fuselage contacted the ground. Mishap Aircraft (MA) departed the prepared runway surface, and the right wingtip struck the ground. MC egressed MA; there were no injuries or deaths.

3. The MA came to rest on the right side of the runway resulting in major structural damage on the right side. Post-accident evidence indicated that the forward RMLG piston separated from the shock strut cylinder. The RMLG door was closed and the forward RMLG tire and wheel assembly were exposed and lying horizontally under the Single Point Refueling panel. The propeller and engine gearbox assembly from the right outboard (#4) engine separated from the MA. Shrapnel from the #4 propeller caused several punctures on the MA's right side, and a few pieces of shrapnel entered the MA and imbedded in the left interior wall. The right inboard and outboard flaps and secondary trailing edge structures experienced moderate-to-extensive damage. The leading edge of the right wing beyond the #4 engine was also damaged; damage to the runway was minimal.

4. Coltec Industries Incorporated, Menasco Aerosystems Division, manufactured the forward RMLG piston in 1984. In February 1996, the piston was removed from another C-130, then inspected, overhauled, and certified by Ogden Air Logistics Center (ALC), Hill Air Force Base, Utah. The ALC returned the piston to the field for continued use; it was subsequently installed on the MA on 27 Feb 96.

5. General maintenance/serving of the RMLG was not a contributing factor in this mishap; however, there is clear and convincing evidence that the following items were causal:

a. Badly Formed Retaining Nut Threads on the Piston. The retaining nut threads at the top of the piston were malformed and truncated. Examination of a longitudinal cross section through the threads indicated that the threads were "triple cut" during the piston's initial manufacture. The thread height on the piston was only 48.6% to 56.8% of the required thread height.

b. Failure to Detect Malformed Threads during Depot Overhaul. Ogden ALC depot had an opportunity to, and should have caught the malformed threads during their 1996 overhaul of the part. Although there is controversy over whether the overhaul testing methods used would have identified the deformed piston and whether the technician could have visually identified the defect, the ALC inspected, overhauled, and certified a defective part to be reused in the field when it had less than 60% of the design thread height remaining.

6. In dealing with their in-flight emergency, the MC sought inputs; thoroughly discussed the situation among themselves; decided the best course of action; became comfortable with that decision; and landed as they were advised by maintenance folks and Lockheed technical representatives. From all eyewitness accounts, the pilot did a superb job handling the aircraft and probably prevented injuries and further damage.

Under 10.U.S.C. 2254(d), any opinion of the accident investigators as to the cause of, or the factors contributing to, the accident set forth in the accident investigation report may not be considered as evidence in any civil or criminal proceeding arising from an aircraft accident, nor may such information be considered an admission of liability by the United States or by any person referred to in those conclusions or statements.