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**Federal Aviation
Administration**

SAFO

Safety Alert for Operators

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Flight Standards Service
Washington, DC

http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo

A SAFO contains important safety information and may include recommended action. SAFO content should be especially valuable to air carriers in meeting their statutory duty to provide service with the highest possible degree of safety in the public interest. Besides the specific action recommended in a SAFO, an alternative action may be as effective in addressing the safety issue named in the SAFO.

Subject: Propeller Control Unit and Adapters Repaired/Overhauled by Pacific Propeller International, LLC from September 2010 to September 2013.

Purpose: This SAFO advises about the potential for un-commanded feathering events when Propeller Control Units (PCU) and adapters are improperly repaired or overhauled.

Background: On July 25, 2013, an inadvertent feather event occurred shortly after takeoff on a DeHavilland DHC-8-100 series aircraft. Flight data records indicated that the #1 PCU was closed during takeoff when a beta condition did not exist. Examination of the subject PCU revealed that the beta light assembly was installed incorrectly, deforming the switch case. The deformed case interfered with the free action of the switch's internal mechanism, causing the switch to intermittently remain closed as the propeller transitioned above the ground handling range during takeoff. This condition resulted in a propeller over-torque when the aircraft's beta backup system became active and commanded the propeller to feather while the engine was in a high-power condition.

The basic propeller control unit is widely used for UTC Aerospace (Hamilton Sundstrand/Hamilton Standard). Because there may be detailed variations for different aircraft and propeller models, owner/operators should verify specific components installed on their aircraft or in inventory. The list of propellers and aircraft that use PCUs include (but are not limited to): Hamilton Standard Models 14RF-9, 14RF-19, 14RF-21, and 14RF-23; 247F-1; 14SF-5, 14SF-7, 14SF-11, 14SFL11, 14SF-15, 14SF-17, 14SF-19, 14SF-23; and 6/5500/F propellers installed on Embraer EMB-120 and EMB-120RT; SAAB-SCANIA SF340B; Aerospatale ATR42-100, ATR42-300, ATR42-320, ATR72, ATR72-210; DeHavilland DHC-8-100 series, DHC-8-300; Construcciones Aeronauticas SA (CASA) CN-235 and CN-235-100; Canadair CL215T and CL415; and British Aerospace ATP airplanes. These airplanes are all twin engine installations.

Discussion: Service Bulletin 14SF-61-148 was issued in June of 2001 by Hamilton Sunstrand Corporation to address and limit intermittent switch failure on 14SF Propeller Control Units. This failure is caused by the deformation of the switch casing by repeated torqueing of the beta

switch retention screws during repair and overhaul cycles. The deformed case interferes with the internal mechanisms causing the switch to fail and remain closed as the propeller transitions above the ground range during takeoff. This condition could result in a propeller over-torque and un-commanded feather when the aircraft's beta backup system becomes active.

Pacific Propeller International, LLC (PPI) had performed maintenance on the PCU installed on the aircraft that experienced an inadvertent feather event on takeoff. PPI subsequently identified an error in the assembly of the beta switch and the mounting spacers. It was determined that technicians assembled the switch with parts identified in Service Bulletin 14SF-61-148 while using the instructions that were in the Original Equipment Manufacturers (OEM) Component Maintenance Manual (CMM) instead of following maintenance instructions as defined in the Service Bulletin. This error resulted in providing a repaired/overhauled PCU in a configuration that is not identified with the OEM CMM or Service Bulletin 14SF-61-148. PPI also determined that this error may also affect 466 14SF PCU's overhauled/repared from September 2010 to September 2013. PPI has notified the owner/operators of 401 of the affected units and this SAFO is intended to ensure all owners and operators are aware of this safety matter.

Recommended Action: Owners and operators with these units should be familiar with the content of this SAFO and should ensure that any affected PCU's are removed and replaced as soon as possible; beginning with those twin-engine aircraft where affected units are installed on both engines.

Contact: Questions or comments concerning this SAFO can be directed to Jody Radcliffe, Manager, Technical Standards Branch, ANM-240 at (425) 227-2871.