



**SAIB:** NE-12-04

**Date:** November 1, 2011

**SUBJ:** Turbine/ Turboprop Engine: Reduction Gearbox  
*This is information only. Recommendations aren't mandatory.*

## **Introduction**

This Special Airworthiness Information Bulletin (SAIB) alerts owners, operators, and certificated repair facilities of airplanes equipped with Pratt & Whitney Canada Corp. (PWC) PT6A-6, PT6A-6A, PT6A-6B, PT6A-11, PT6A-11AG, PT6A-6/C20, PT6A-20, PT6A-20A, PT6A-20B, PT6A-21, PT6A-15AG, PT6A-25, PT6A-25A, PT6A-25C, PT6A-27, PT6A-28, PT6A-34, PT6A-34AG, PT6A-34B, PT6A-35, PT6A-36, PT6A-110, PT6A-112, PT6A-114, PT6A-114A, PT6A-121, PT6A-135, and PT6A-135A series turboprop engines of the potential for engine in-flight shutdowns (IFSDs) as a result of premature failure of the reduction gearbox.

These engines are installed on, but not limited to, Air Tractor AT 402A/402B, Air Tractor AT 502B, Ayers Turbo Thrush T-15, Ayers Turbo Thrush T-34, CATIC/HAIG Y-12, Cessna Conquest I, Cessna 208/208B Caravan I, DeHavilland DHC-6 Twin Otter Series 300, Embraer EMB-312 Tucano, Embraer Bandeirante EMB-110, Embraer Bandeirante EMB-111, Embraer Caraja, Embraer EMB-121 XINGU II, Frakes Turbo Cat Model A/B/C, Frakes Mallard, JetPROP DLX, LET L410, Pacific Aero Cresco 750, Pacific Aero Cresco 750XL, PIAGGIO P-166-DL3, Pilatus Turbo Trainer PC-7/PC-7 MKII, Pilatus Turbo Porter PC-6, Piper Cheyenne IA, Piper T1040, Piper Cheyenne II/IIXL, PZL-Okecie PZL-130 TC-II Turbo-Orlik, PZL-Okecie PZL-106 Turbo-Kruk, PZL-Okecie PZL-130 TE Turbo-Orlik, Raytheon Beech 99, Raytheon Beech 99A, Raytheon Beech King Air C90A/B/SE, Raytheon Beech C99 Airliner, Raytheon Beech T-34C, Raytheon Beech King Air A100, Raytheon Beech King Air E90, Raytheon Beech T-44A, Raytheon Beech King Air F90-1, Raytheon Beech King Air C90GT, Reims F406 Caravan II, Schweizer G-164B AG-Cat Turbine, Schweizer G-164D AG-Cat Turbine, Turbine Air Bonanza, and Vazar Dash 3 Turbine Otter series airplanes.

The airworthiness concern is not an unsafe condition that would warrant airworthiness directive (AD) action under Title 14 of the Code of Federal Regulations (14 CFR) part 39.

## **Background**

Three first stage reduction sun gear and planet gear failures have occurred within a recent 18 month period. The engine IFSDs addressed by this SAIB are due to some operators and overhaul shops not following the PWC overhaul manual (OHM) criteria for reduction gearbox first stage reduction sun gear and planet gear replacement. Not complying with OHM procedures is a significant contributor to first stage reduction sun gear failures.

## **Recommendations**

To prevent reduction gearbox failure, we recommend:

1. Following the maintenance practices in the applicable OHM.
2. Replacing the first stage reduction sun gear and planet gears with a complete zero time, first stage reduction sun gear and planet gear matched set at every replacement.
3. Replacing the first stage reduction sun gear and planet gears at next overhaul, if one of the following apply:

- a.) Planet and sun gears were not installed as a complete zero time matched set at prior repair or overhaul, or
  - b.) Planet gears were reversed and re-installed at a prior repair or overhaul.
4. Replacing the first stage reduction sun gear and planet gears, not covered by Recommendation 3. of this SAIB, within 12,000 hours total time-since-new. Information on replacement can be found in the applicable Engine Operating Time Between Overhauls and Hot Section Inspection Frequency service bulletin.

**For Further Information Contact**

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