SOLOY AVIATION SOLUTIONS

Turbine Topics

2Q2007

Soloy's Mark 2 Certification Pace Picks Up

N206TL is back in the air after the installation of a complete data acquisition system that will be used to collect flight test information. Data is presented in real time as well as recorded for later reference. Information on each test flight includes all:

- Engine N1 and propeller RPM's.
- Air, oil, compartment and surface temperatures.
- Air and oil pressures.
- Powerplant and flight control positions.
- Vibration levels.

In all, up to 88 channels can be monitored and data recorded to allow the installation design to be refined and ultimately show compliance with all of the engine manufacturer's requirements and the FAA certification regulations.

Soloy's engineering staff test the Cessna 206H Mark 2's recovery chute prior to exploring the spin characteristics of the new turboprop.

The flight testing of the Rolls-Royce 250-B17F powered Cessna 206 will require four basic sections:

- Engine Installation
- Flight Loads
- Controllability
- Performance

Each of these sections will be further separated into tests that will be categorized as factory tests and FAA TIA tests. The factory tests will determine if the multiple structural and system changes will comply with the manufacturer's and FAA installation requirements. They will provide data that confirms the engine installation assigned meets all Rolls-Royce and FAA requirements. The design will then be frozen and the final drawing prepared to establish the production configuration, which then lead to an application for a Type Inspection Authorization (TIA). The TIA, issued by the FAA, will allow FAA certification testing, which when completed and results added to complete reports, lead ultimately to the issuance of the long awaited STC.

It will be a busy time involving as many as 200 separate flights, mountains of reports and numerous slight design changes and drawing revisions. It will be worth it as the result will be a well designed, utility turboprop aircraft ready to meet the growing demand for turbine aircraft around the world. As Avgas supply is becoming extremely costly, and in many areas around the world impossible to obtain, proven turbine equipment will become the only logical means to provide cost effective aerial transport.

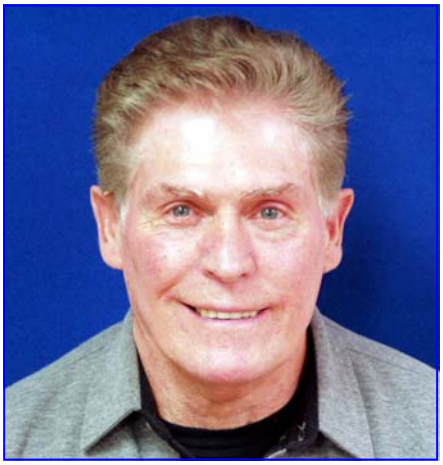
Soloy's Operations Manager Retiring

Jim Barnes, Soloy's Operations Manager, retired the end of June after almost 29 years with Soloy.

Jim started his career at Soloy in August of 1978 as a Fabricator in the shop, advancing through the years to Assistant Shop Foreman, Shop Foreman and Operations Manager.

Jim plans to enjoy his retirement doing woodworking, fishing, and working around his home in Curtis, Washington. Jim and his wife, Lynne, also plan to travel around the country in their RV.

Jim's contribution can be seen in many of Soloy's products. He has been an asset to Soloy and will be greatly missed. We all wish him the very best.



A Reminder

Soloy's new generation of employees had an opportunity to learn about our original product and those who have been around for a while enjoyed a nice reminder when John Shearer's Rolls-Royce powered Hiller UH-12E came back to our facility for scheduled maintenance.

Shearer Sprayers' Hiller was converted, during manufacture, by Hiller Aviation in Porterville, CA and delivered in 1979. Since then, it has been active as a specialty sprayer based in The Dalles, Oregon. John, ably assisted by his son, John, and his grandson, John, has operated in Oregon for well over 30 years and currently runs a mixed fleet which includes several turboprop Air Tractors.

Soloy Employees Take Fishing Trip

A great two day fishing trip was recently enjoyed by Soloy's Brenda Lowery (Husband, Larry Lowery pictured second from left), William Humburg, Dewayne Bluhm-Willis (pictured second from right) and their family members and friends. Departing from Neah Bay on the very northwestern most tip of Washington's Olympic Peninsula on Cachalot Charters, the Soloy crew used all their skill (or was it luck) to limit on Halibut and Ling Cod both days.

Recent Soloy SD1/SD2 Deliveries

Thanks to the efforts of all our suppliers, Honeywell and Eurocopter in particular, we have managed to just keep up with demand for the increasingly popular AS350 series engine conversions.

SD2 Deliveries:

- Panterra Heli Support, Ltd., Beamsville, Ontario. This is a second kit to the company. Their first SD2 conversion is now in service with Sunshine Helicopters in Hawaii.
- Heliproducts, Pitt Meadow, British Columbia. Their fourth and fifth kits have been delivered (kit four to be operated by Blackcomb Helicopters of Whistler, BC).
- West Coast Helicopters, Ltd., Port McNeill, BC.
- Helicopter Resources Pty. Ltd., Victoria, Australia.
- Guardian Helicopters, Inc., Van Nuys, California.
- Noevir Aviation, Inc., Montvale, New Jersey.
- World Wind Helicopters, Inc., Renton, Washington (see picture below)

- SD2 kits previously delivered to Heli Techniks are now in service with Expedition Helicopters (their third) and Wendake Helicopters of Quebec.
- Pacific Crown's first conversion is in service with Shorland Air Services Pty. Ltd. in Australia.
- Heliproducts third conversion went to Lakelse Air, Terrace, BC (their second SD2).
- An Eagle Helicopters converted SD2, complete with Sagem flat panels, was sold to Precision Helicopters, Inc., Alberta, Canada.

SD1 Deliveries:

- Westpac-Surf Life Saving, Queensland, Australia.
- Heli-Serv Pty. Ltd., Victoria, Australia

FAA Approves AS350BA SD1 Conversion

The Honeywell LTS101-600A-3A has long been a valued powerplant option for the AS350BA. The trouble is that it was based on the original D model installation requiring the converter to shop around for many hard to find Eurocopter parts. The difficulty in obtaining these parts made it extremely hard for Soloy to satisfy the needs of those seeking an engine option for the popular AS350BA.

Soloy's answer was to use the same kit components developed for the AS350B2 conversion and seek approval for the new configuration on the existing BA STC SR00805SE. The amended STC was reissued in February and complete conversion kits for the BA, including a choice of Platinum, Gold or Silver versions of the LTS101-600A-3A are at last available from a single source.

Turbine Tips

For operators new to the Honeywell engine it might have been noticed that the LTS101's do not include a compressor bleed valve to prevent low RPM compressor stalls. Compressor blade lift is most efficient as the relative angle of attack approaches stall. If the angle of attack exceeds the stall angle, air flow separates from the convex side of the airfoil and lift is lost (stall). At low operating RPM, restrictions in airflow by downstream components can create back pressure, which will extend forward reducing air velocity until stall results. When air flow over the compressor components has exceeded the critical angle (entered stall), the resultant air flow loss will allow the combustion chamber pressure to overcome compressor discharge pressure allowing forces to discharge forward through the compressor (engine surge).

Instead of a bleed valve to unload compressor pressure, the LTS101 engine utilizes an airflow modulating ring (flow fence) which at low RPM restricts air flow by 13%. As air flow increases, the modulating ring will gradually withdraw from the air stream eventually allowing full air flow through the engine for full power operation. A pneumatic actuator mounted on the air diffuser extends or retracts the ring as compressor discharge pressure rises and falls.

Compressor stalls or surge will be reflected by instrument and compressor speed fluctuation at a constant power setting, failure of the compressor to accelerate on demand, loud popping noises and high MGT.

A check of the operation of the air flow modulator should be carried out should compressor stalls occur to ensure that the modulator ring is fully closed in accordance with current density conditions.

Soloy Customer Picked for FAA Safety Program

Honeywell powered AS350 operator, Sunshine Helicopters, of Maui, Hawaii, has been selected to take part in a landmark safety program that could revolutionize the helicopter industry.

Sunshine is the only Hawaii based company to be picked by the FAA and the only tour company of the total of nine aviation companies involved in the new study.

The study will take a scientific approach to aviation risk, assigning a numeric value to everyday operations. The goal, by taking a proactive approach to safety instead of a reactive one, is to "design out" all causes of accidents.

Soloy's Exhaust Duct Approved for LTS101 Installations

Our engineering department has recently completed all tasks involved with the certification of a Soloy manufactured exhaust duct suitable for the LTS101 powered AS350 helicopters. The approval required an "endurance" run that was conducted in Honeywell's cell in Greer, SC. Soloy has now certified, using the PMA process, approximately 30 difficult to obtain parts that are included in the SD1 and SD2 conversion kits.

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ADDRESS CORRECTION REQUESTED

Russ Jeter's Soloy Cessna T206H Turbine Mark 2 conversion on Wipaire 3450 amphibious floats was used to develop product tooling for the Rolls-Royce 250-B17F installation and will be used for float installation certification.