

## SOLOY EXPANDS INTO AVIONICS INSTALLATION & SERVICING

Soloy recently received Federal Aviation Administration approval for an expanded Air Agency Certificate (HP6R5959N) which includes Limited Radio and Limited Instrument ratings. In addition to these ratings, we have added three experienced avionics technicians to our staff. The combined experience of Soloy avionics technicians brings over 100 years of troubleshooting and installation experience to our facility.

In recent years it has become increasingly obvious that having an in-house avionics capability will allow us to streamline the conversion process for our fixed and rotary wing conversion customers. WAAS navigation, synthetic vision, obstacle avoidance, satellite based weather and eventual ADS-B equipment are popular options and a driver in our decision to expand our current FAA Air Agency Certificate and capability.

The recent certification of the Soloy Cessna 206H/T206H MK II conversion to Rolls-Royce power has increased our need for in-house avionic upgrades that are often associated with the engine conversion process. The Garmin G500 flight display (picture shows below) updates the pre-Garmin 1000 Cessna 206H airplanes to the latest navigational equipment while undergoing the engine conversion.

Soloy is a Garmin Dealer and a member of the Aircraft Electronics Association. We are ready to service all your avionics needs from bi-annual transponder checks to full instrument panel upgrades.

### GARMIN GPS WINNER ANNOUNCED

Mark Leduc of Richmond BC won the Garmin GPS drawing at Heli-Expo 2010 in Houston, TX.



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ADDS AVIONICS INSTALLATION AND REPAIR

FAA APPROVED REPAIR STATION # HP6R5959N

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### SOLOY BECOMES GARMIN AUTHORIZED DEALER



## 1ST QUARTER 2010 SOLOY PRODUCT DELIVERIES

- Another Cessna T206H MKII Conversion (below) has been completed and delivered to Adam Jones. This conversion was on Wipaire 3450 amphibious floats. Adam opted for Soloy to install the Garmin G500 with the new GTS-800 TAS (Traffic Alerting System) at time of conversion.



- Hahn Helicopters of Germany have taken delivery of their second SD2 conversion kit.
- Van Bortel Aircraft took delivery of Soloy's Cessna 206 Observation Window Kit, Observer Seat Modification Kit and Rear Shoulder Harness/Headliner Modification Kit for the Texas Department of Public Safety.
- Heliproducts, Inc. of Pitt Meadows, BC took delivery of their eleventh SD2 kit for installation in an AS350B2 for S.O.F. Air of Oregon.



- Bighorn Helicopters of Cranbrook, BC, who had operated a Honeywell powered Super D for several years, recently purchased an SD2 kit which is being installed at Soloy's Olympia facility.
- L-3 Communications took delivery of another Cessna 206 Rear Shoulder Harness/Headliner Modification Kit for the U.S. Drug Enforcement Administration.
- Alpine Helicopters in Alaska purchased an LTS101-600A-3A engine.
- Wood Buffalo Helicopters of Alberta Canada took delivery of their second SD2 kit which is being installed by Heliproducts, Inc. in Pitt Meadows, BC.
- Paul's Helicopter Service of Yellowknife, NWT has taken delivery of their third SD2 kit, which is being installed in Alberta by Avialta Helicopter Maintenance, Ltd.

## SOLOY RECEIVES EASA CERTIFICATION FOR ITS CESSNA 206 LAW ENFORCEMENT MODIFICATIONS

- Soloy Aviation Solutions recently received approval from the European Aviation Safety Agency (EASA) and Transport Canada (TC) for three accessory kits which comprise Soloy's Cessna 206 Law Enforcement Package. Specifically, the kits include a headliner modification and four point restraint harnesses for pilot and co-pilot, a large-area observation window installation, and a middle row articulated observation seat installation. Soloy's Law Enforcement Package is designed to bring significant surveillance improvements to the Cessna 206.
- Soloy's Headliner Kit (p/n 912-1000-1) was developed to provide more head-room for second row passengers in Cessna 206H/T206H aircraft. The kit provides nearly 5 inches of extra head clearance and new, 4-point harnesses for the pilot and copilot.
- Soloy's Observation Window Kit (p/n 901-1011-1), available for all Cessna 206 models, installs a large-area window adjacent to the middle, left-hand seat. Made of 0.187-inch thick, clear Acrylic Poly Cast II material, the window is approximately 20 inches wide by 30 inches tall.
- Soloy's Observation Seat Kit (p/n 910-1000-1) replaces the middle and rear seats in a Cessna 206H/T260H with an articulated seat and adjustable armrests. The seat allows for 270° of rotation with stops at 45° increments. Although the kits, which comprise Soloy's law enforcement package, can be purchased and installed separately in both piston and turbine powered aircraft, the Observation Seat Kit was designed to be used in conjunction with the Observation Window Kit and Headliner modifications.

All three Aerial Observation accessories for the Cessna 206 are very popular with law enforcement agencies across the country).

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## AIRCRAFT FOR SALE

- 1999 Soloy Cessna T206H Mark II, N7277X, S/N 20608131
- 2001 Soloy Cessna T206H Mark II, N238ST, S/N T20608262
- 1982 Soloy Cessna 206G Mark I, Reg. VH-CZR, S/N 20606531

The Mark II aircraft are ready for delivery and includes new paint.

You may review the aircraft specifications of these superb aircraft at [www.soloy.com](http://www.soloy.com) or by contacting Cris Henry directly for pricing information at 360-754-7000.

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# LTS101 OPERATIONS

## THE IMPORTANCE OF FATIGUE CYCLE CONTROL AND COUNTING

As the primary purpose of our Honeywell engine options for the AS350 helicopters was to reduce costs, it is vital that Ng and Np component cycles are accurately counted. Honeywell's Service Bulletin spells out in great detail how these cycles should be recorded and provides two methods of counting the Ng cycles.

Method 1 is a simplified procedure generated for ease of accounting but is conservative regarding cycle life considerations. Use of this method may retire gas generator components prematurely, which defeats our objective of reducing costs. Retiring these expensive parts early is certainly something we must prevent. Method 1 is also only applicable within certain minimum and maximum Ng operating, which prevents the operator from utilizing the maximum capability of the engine.

Method 2 is similar to Method 1 but requires the maximum gas generator speed (Ng) attained between each start and subsequent shutdown be recorded to provide a more accurate accounting of cyclic life by dealing with variations in engine use. It is our recommendation that Method 2 be used which will ensure maximum life is achieved on the engine rotating components. We must point out here that the Honeywell Bulletin LT101-71-00-0002 covers fourteen LTS models and three LTP models and, due to the component variations, can at first glance be rather daunting. As our LTS101-700D-2 option for the AS350B2 has been by far our most popular current product, I will present an example of this engine which will greatly simplify the bulletin's Method 2 procedure. The procedure for the LTS101-600A-3A is similar. A similar procedure is used for Np cycle counts.

All of the LTS101-700D-2 engines currently being delivered have the 4-111-062-03 Gas Generator disc and the 4-111-052-064 titanium compressor impeller. This is significant as it means that no minor cycles (Ng operations) will be counted unless the Ng falls below 70%.

In the following flight operation, the cycles will be:

### Ng cycles

Flight time	1.8 hours
Number of starts	1
Minimum Ng	2 at 65% = 2 x .2 = .4 (Ref. Bulletin Table 8)
Maximum Ng between start and shut down	102% = 1.0 cycles (Ref. Bulletin Table 7A)
<b>Total Ng cycles</b>	<b>2.4 or 1.33 cycles per hour</b>

### Np cycles

Same flight	
Minimum Np	3 at 65% = 3 x .05 = .15 (Ref. Bulletin Table 18)
Maximum Np between start and shutdown	103% = 1.95 cycles (Ref. Bulletin Table 15A)
<b>Total Np cycles</b>	<b>2.1 or 1.16 cycles per hour</b>

As there is a severe penalty applied for even transient operations at high Np, it is essential that great attention is paid to how the helicopter is operated and sudden power applications or reductions should be avoided whenever possible. For example, in the case above, if the Np had not exceeded 101% the major count would have been 1.25 cycles.

Controlling the fatigue events is critical and Np (N2) operation in the "green" should be objective on all flights. The penalty is very clear when it is pointed out that if you can fly in the green for Nr, the cycle count will be between .5 and 1.0 major cycles. Np will be between 35,520 and 37,000 rpm. If the Np were to go to 108% representing a turbine speed of 39,960 rpm, the major cycle count for this event will be 5.70.

Due to the importance of having a very accurate history of each flight, we very positively recommend installing a cycle counting device as attempting to keep an eye on these lows and high occurrences with any certainty is extremely difficult. Rounding up or down can, over the life of the engine, make a huge difference in operating costs.

Solyo offers the AKV cycle counter which contains the Honeywell Method 2 limits for Major and Minor cycles built in. It will monitor the engine from start to shut down and store the data to ensure that these parts are changed when they should be, not a cycle under or a cycle over. The price is such that it can easily pay for itself several times over in the life of the power turbine disc.

Contact us for additional information or Jonathan Gunn at:

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Ask Jonathan about his Data Streaming Encoder.



AKV's cockpit mounted indicator shows real time Ng / Np / Nr.



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**ADDRESS CORRECTION  
REQUESTED**



Soloy staff enjoyed a busy time at the HAI Heli Expo held recently in Houston. Interest in Soloy's numerous products continues at a high level.