FAA Issues Gyro LODA - Bensen Days Preview
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March / April 2011
FAA Issues Gyro LODA!
Paul Plack, Editor

For the first time in three years, the FAA has issued a new Letter of Deviation Authority (LODA) for compensated flight instruction in an Experimental Amateur Built (EAB) gyroplane. The issuance of new LODAs for gyro training was halted in 2008, when the FAA's AFS-800 (General Aviation & Commercial) Division withdrew the guidelines used by local Field Service District Offices (FSDO) to approve applications.

The new LODA, issued to Steve Craft of Hebron, KY, contains terms and language similar to previous LODAs, but it's issuance was far from routine. Instead of being issued directly by a FSDO under standard guidelines, the application was first sent by the Cincinnati FSDO to the FAA's Great Lakes Region office, then to Washington, where it was finally approved. After about three months, the final document was drafted by the FSDO.

This process is somewhat backwards from the LODA process of the past, in which AFS-800 provided guidelines for the issuance of LODAs, then allowed the FSDOs to approve applications. The guidelines were withdrawn in 2008, as the agency wrestled with the controversy over requiring Sport Pilot Instructors using E-LSA trainers to transition to S-LSA.

To put it simply, gyros fell off the radar, and AFS-800 personnel appear to have overlooked the fact that their colleagues in the FAA's Rotorcraft Directorate have blocked the S-LSA gyroplanes they'd prefer instructors to use, leaving LODAs on experimentals as the only way to put any new training gyros into the fleet. Despite reports that AFS-800 was aware of, or even embarassed by the problem, new guidelines released last September still didn't specifically authorize EAB gyro LODAs.

But those new guidelines did leave a loophole, in the last of eight situations in which LODAs were allowed: "Other specific training approved by the General Aviation and Commercial Division, AFS-800."

This left a path, in theory, but only one Sport Pilot Instructor, based in the jurisdiction of the Oakland, CA FSDO and training in an E-LSA Powered Parachute, was known to have navigated that path since September.

Steve Craft credits help from staff in the Cincinnati FSDO for making his gyro LODA happen, which seemed impossible just a few days ago.

PRA member instructors are welcome to contact headquarters with any questions regarding the LODA process. We now have both a successful template for the application, and a process for walking your local FSDO through the steps needed to get approval from the top.

And, congrats to Steve! He reports he will be bringing his Lycoming-powered Parsons tandem online for training as soon as his Phase I test hours are flown off, making training in an open tandem available in the Greater Cincinnati, OH area.

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Bensen Days Preview

Bensen Days is one of the two largest gatherings of gyroplanes in the US each year (the other being the PRA Annual Convention at Mentone, IN in August). Bensen Days 2011 (April 6 - 10) will provide an opportunity to see a wide variety of gyroplane models and a few kit helicopters, and is a well-rounded event with activities for families of pilots. (Mandatory morning pilot briefing shown above.) Camping hookups have been sold out for months, but spaces for self-contained are still available.

Official Event Info

The 38th Annual Bensen Days rotorcraft celebration hosted by Sunstate Wing and Rotor Club will take place at the Wauchula Municipal Airport (CHN) in Florida April 6-10. More than 80 operating gyroplanes, instructors, and static displays will expose you to a variety of designs and options. We welcome you to join us to celebrate aviation and the marvel called the Gyroplane. For more information visit www.BensenDays.com. (Below, Mr. & Mrs. Robert Rymer arrive at Bensen Days 2010 with Robert’s Bensen gyro.)

Chapter Reports

Ken Brock Rotorcraft Assoc., PRA 1 (CA) - Richard P, a visitor last month, became our newest member – welcome Richard! Dave W has been working on his “Beast” (above), a single seat red gyro that has been re-worked to run a Subaru Legacy engine! So “Beast” will be an apt name for this gyro!

Alexis C is slowly working on his RAF he purchased just over a year ago. We’re looking forward to seeing both of these gyros up in the air! After our meeting, we went over to Teddy’s hangar, where we had our after-meeting BBQ.

We had a fly-by during the BBQ by Peter P – what a GREAT way to finish the meeting!

See more "Chapter Reports," page 14. Submit your news: editor@utahrotorcraft.org

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Sun 'n Fun Suffers Windy Start

The Sun 'n Fun (March 29 - April 3) event was closed at 3pm EDT on March 31 after a severe, late-morning thunderstorm hit Lakeland Linder Regional Airport, causing millions of dollars in damage to aircraft. (Watch amateur video of the storm and its aftermath by clicking the screenshot above.)

An official statement issued by the organization said the storm "caused significant damage to an estimated 50 exhibitor and privately owned aircraft as well as a large number of tents and other temporary structures. No major injuries were reported, although 15 people were treated for injuries at Sun 'n Fun's on-site medical hospitality center. Seven of those were subsequently transported to Lakeland Regional Medical Center." (The most serious injury was reported to have been a fractured hip.)

Jim Fields of AeroWorks International was displaying three models of the HoneyBee G2 gyro, and reported in his blog that following the storm warning, staffers, "along with help from others were able to get the Pink Single Place and the Two-Place Tandem into a secure hangar.

"There wasn't room for the Ultralight and it had to weather the storm (right.) When tents, porta-johns, tables, chairs, trailers and airplanes started flying, I thought that anything that we left out would be gone as soon as the storm was over. Well, weather the storm is exactly what it did, without a scratch! Who says that ultralights don't do well in the wind?

"I want to say a special thanks to Raul Salazar and John Snider for their help in getting the gyros to the hangar. Also a special thanks to our new friends at Safari Helicopters for allowing us to weather the storm in their new HUGE, beautiful and very heavy trailer."
**Gyroplane CFIs**

The following instructors are PRA members. This list is provided as a convenience for readers, and does not constitute an endorsement of any instructor, aircraft, syllabus or training enterprise by PRA. (Aircraft listed in parentheses are those available for instruction.)

**Arkansas**

Ron Menzie (501) 766-6456
2715 S Main St
Searcy, AR 72143
(SparrowHawk, Parsons, RAF)

**Arizona**

Terry Brandt (602) 739-0554
11423 W Citrus Grove
Avondale, AZ 85392
(Customer’s Aircraft)

**Florida**

Dofin Fritts (850) 587-2504
Brewton Muni Airport AL 12J
Pensacola, FL
(251) 867-9446
(Customer’s Aircraft)

Robert Martian (772) 546-7335
8011 SE Helen Terrace
Hobe Sound, FL 33455
(Marchetti)

Glen Garrick (386) 479-4838
635 Forest Lane
Deland, FL 32724
(RAF)

**Georgia**

Steve McGowan (478) 461-1451
2725 Herbert Small Airport Rd
Macon, GA 31217
(SparrowHawk, Parsons)

**Illinois**

Don Randle (217) 414-0108
513 South 6th St.
Petersburg, IL 62675
(Customer’s Aircraft)

Chuck Roberg (630) 983-7625
614 Bunker Hill Ct
Naperville, IL 60540
(Customer’s Aircraft)

**Indiana**

Gary Goldsberry (317) 996-2487
1181 W SR 42
Mooresville, IN 46158
(Twinstarr)

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**Online Sport Pilot Gyroplane Ground School**

PRA Vice President Tim O’Connor, (in yellow shirt, above,) a gyroplane CFI, is making available an online ground school for the Sport Pilot/Gyroplane certificate. Here is a chance to complete the preparation for the FAA Knowledge Test online. The course will total 21 hours of virtual classroom instruction, and students will be assigned homework.

The next session begins April 21, 2011, and will continue on successive Thursday nights through June 2, 2011. The next opportunity will be offered starting in January, 2012.

You’ll need a computer running Windows (XP or newer), fast internet connection, sound card and headphones. (Mic is optional.)

Other required class materials include: Electronic E6B Flight Computer; Sectional Chart Plotter, must be rotating type; a supply of sectional maps, one must be Cincinnati; one or more FAA Airport Directories, one must cover Ohio; a bound notebook; a copy of FAA FAR/AIM 2011; a selection of FAA handbooks, circulars, fliers and publications relevant to your exam; several packs of index cards; Post-It notes (several packs).

Students will receive materials after registration including exam supplement diagrams, worksheets and practice links. Students achieving a 90% or higher score on test prep will receive a logbook endorsement to take the knowledge test at an FAA authorized testing center.

There is a PRA discount with Dauntless FAA Test Prep software. PRA Ground Students get 35% off the Sport Pilot Gyroplane test prep software but the PRA will have to purchase the software for the students and the minimum is five copies.

Tuition is $199.95, or $99.95 for PRA members. For details and enrollment, contact Tim at: gyro.pilot@yahoo.com
**Gyroplane CFIs**

**Indiana (cont')**

**Silas Smith** (219) 374-4604  
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**Chris Burgess** (301) 668-4124  
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**Duane Hunn** (219) 682-6228  
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Williston Park, NY 11596  
( RAF)

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**Ed Newbold** (614) 207-3909  
5657 Balkin Pl  
Columbus, OH 43231  
(Modified RAF)

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**Paul Patterson** (405) 826-8443  
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**James Nadig** (724) 458-4665  
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**Gary Neal** (864) 583-4319  
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Spartanburg, SC 29303  
( RAF)

**Tennessee**

**Larry Banks** (931) 260-3032  
Crossville, TN  
(Customer's Aircraft)

**Utah**

**Michael Burton** (801) 794-3434  
Spanish Fork, UT  
(Customer's Aircraft)

Additions? Corrections? Contact  
**Jennifer Gillmore** at PRA HQ:  
Phone: (574) 353-7227

To be listed, CFIs must provide file copies of credentials to PRA.

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**Industry: Autogyro MTOSport, Calidus Reach US**

**Autogyro GmbH** has sold a reported 1,000+ gyros in Europe over the past four years, and the company's **MTOSport** open (above) and **Calidus** (below) enclosed tandem gyros are expected to be available soon as 51%-eligible kits in the US. Tim Adelman of Granville, MD made an **announcement** March 3 on the **Rotary Wing Forum** which says, in part:

"**Chesapeake Sport Pilot** is a flight school located at Bay Bridge Airport (W29) in Maryland. We began in January 2007 as a one plane operations (Sky Arrow 600 Sport). We quickly grew over the next four years to acquire 8 light sport aircraft and build a new 6,000' hangar with maintenance, pilot shop and flight training.

"Chesapeake Sport Pilot will be importing AutoGyro aircraft (the Calidus and MTOSport) through AutoGyro USA. The kits are initially going to be certified under the 51% rule. These kits are complete with everything needed to complete them, including engine and avionics. If you are interested in the AutoGyro, please email me at info@chesapeakesportpilot.com or call (410) 604-1719 for more information.

"It is our plan to take our infrastructure we developed for the fixed wing SLSA and translate that into the gyro market. You will see a lot more on the website in the next few weeks."  
(Manufacturer photos.)
Tech: MPS vs. Reliability

Paul Plack

There are many factors which go into predicting the lifespan of four-stroke piston engines used in applications other than those for which they were designed. Despite the relative success in aircraft applications of Subaru and air-cooled VW engines, some builders are understandably hesitant to use automotive powerplants in continuous high-RPM operation.

Will you have success in an aircraft installation by de-rating the published horsepower, redline RPM, or both? How do you make a meaningful comparison between a Yamaha or Weber and a Continental or Rotax?

A factor used by some professional engine builders to help set redline RPM is MPS, or Mean Piston Speed. While there are other variables which can affect an engine’s ability to safely sustain RPM, including the mass of rotating parts, materials used in crankshafts and connecting rods, and susceptibility to resonances, MPS is a common starting point. In the US, the formula is normally expressed in feet-per-minute:

\[ \text{MPS} = \text{RPM} \times \frac{\text{Stroke}}{6} \]

The chart below (Fig. 1) includes some traditional and alternative aircraft powerplains, sorted in order of their MPS at maximum rated horsepower:

<table>
<thead>
<tr>
<th>Manufacturer / Model</th>
<th>Stroke (in)</th>
<th>Rated HP @ RPM</th>
<th>MPS (fim)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jabiru 2200</td>
<td>2.913</td>
<td>85</td>
<td>3300 1602</td>
</tr>
<tr>
<td>Continental O-200</td>
<td>3.880</td>
<td>100</td>
<td>2750 1770</td>
</tr>
<tr>
<td>Lycoming IO-233-LSA</td>
<td>3.875</td>
<td>116</td>
<td>2900 1808</td>
</tr>
<tr>
<td>Sonex Aerov6 2.1 (2190 cc)</td>
<td>3.228</td>
<td>80</td>
<td>3400 1829</td>
</tr>
<tr>
<td>Lycoming O-360A</td>
<td>4.375</td>
<td>180</td>
<td>2700 1069</td>
</tr>
<tr>
<td>Continental O-540-K1A5 (6-cyl.)</td>
<td>4.375</td>
<td>300</td>
<td>2700 1069</td>
</tr>
<tr>
<td>HKS 700T (turbo, 2-cyl.)</td>
<td>2.461</td>
<td>90</td>
<td>5300 2174</td>
</tr>
<tr>
<td>Rotax 912 ULS</td>
<td>2.402</td>
<td>100</td>
<td>5800 2322</td>
</tr>
<tr>
<td>HKS 700E (2-cyl.)</td>
<td>2.382</td>
<td>80</td>
<td>6200 2441</td>
</tr>
<tr>
<td>Weber MPE 750 (2-cyl.)</td>
<td>2.598</td>
<td>83</td>
<td>6000 2598</td>
</tr>
<tr>
<td>Subaru EJ22 (US 1997 – 2001)</td>
<td>2.950</td>
<td>142</td>
<td>5800 2852</td>
</tr>
<tr>
<td>Subaru EJ25 (US 1999 - 2005)</td>
<td>3.110</td>
<td>186</td>
<td>5800 3006</td>
</tr>
<tr>
<td>Weber MPE 750 (turbo, 2-cyl.)</td>
<td>2.598</td>
<td>104</td>
<td>7000 3031</td>
</tr>
<tr>
<td>Yamaha Genesis 120 (973 cc, 3-cyl.)</td>
<td>2.636</td>
<td>120</td>
<td>8500 3692</td>
</tr>
</tbody>
</table>

**Fig. 1 - MPS for Popular Experimental Aircraft Engines**

Engines listed have four cylinders except as noted. Among Rotax models, only the 912 ULS is listed, since the other 912 and 914 models share the same stroke and RPM limits, and therefore the same MPS. Ditto for the Jabiru 2200 four-cylinder and 3300 six. The horsepower column lists peak takeoff power as a reminder of which RPM rating was used. Note that the traditional, direct-drive aircraft configurations, whether designed in the 1930s or 1990s, fall within a narrow MPS range, while the range among higher-revving engines requiring reduction drives spans more than 2:1.
This formula ignores bore size and other factors sometimes discussed, such as the ratio of displacement to peak horsepower or peak torque. But if you compare engines across a given manufacturer's product line, you'll often see a correlation between MPS and redlines.

De-rating & Target MPS

So...how much MPS is too much? What's the right target?

EPI, Inc., an engine builder specializing in Chevy V8 aircraft conversions (LS7 shown at right) and gearboxes to support them, apparently feels it has the range defined pretty well. The company states on its website, "It is interesting to note that every aircraft piston engine designed to operate at sustained mean piston speeds over about 3,100 FPM (has) been short-lived...We have demonstrated with previous engines that mean piston speeds of 2,600 and 2,900 FPM for cruise and takeoff respectively are very reasonable for extended life (all other things being right.)" This might be reasonable advice for converting an auto engine for aircraft use.

Popular Hot Rodding (PHR), in a tutorial on its website, begs to differ. In its advice for choosing redline RPM for auto engines, it advises MPS limits ranging from 3,750 FPM, for factory, cast-iron cranks, to 4,600 for factory forged-steel cranks, to 6,000 for "high-dollar custom endurance race cranks," to 7,500+ for Formula One teams. This advice is aimed at readers whose engine life expectations may be as low as a few hours (F1) or even seconds (NHRA Top Fuel), and street rodders who will usually operate well below redline much of the time, so keep that in mind.

If you're considering de-rating a conversion engine to extend its reliability and life in aircraft use, and want to choose a redline RPM to match a specific Mean Piston Speed, the formula can be worked backwards:

\[(MPS * 6) / \text{Stroke} = \text{Redline RPM}\]

The chart in Fig. 2 (next page) includes two results for this calculation. "Redline" shows the RPM at which the engine would reach the MPS limit input by the user in cell F3. "Margin" shows the number of RPM under (in black) or over (in red) the target MPS the engine actually revs at full power. These two numbers will change with varying user inputs for "Target MPS."

Using MPS to Choose Redline

In Fig. 2, the Yamaha Genesis 120 is the only engine which exceeds EPI's upper MPS limit of 3,100 FPM. (Not bashing Yamaha here - If F3 is changed to EPI's 2,900 FPM takeoff limit recommendation, three engines exceed
redline.) But if the Genesis 120 is limited through a higher prop pitch setting to 7,137 RPM, where it still makes about 108 HP according to the manufacturer's published data, MPS is 3,100 FPM. Conversely, if you factor in the relatively light rotating masses and/or allow bonus points for Yamaha's expertise and the engine's track record, you might decide to run it at 8,500 RPM, and the MPS of 3,692 FPM is still under Popular Hot Rodding's limit for much larger engines with cheap, cast-iron cranks.

So, does this mean that the Jabiru 2200 will last forever, or that the Weber will be problematic? Absolutely not. Many other variables affect the loads imposed on engine components with increasing RPM, and some small four-strokes have a pretty good track record at high RPMs. Even Subarus, which are right on the edge of EPI's 3,100 FPM limit, have been known to fly for thousands of hours. But if you're considering being the first to convert a particular engine for aircraft use, MPS may be a useful tool.

It's not the purpose of this article to declare a certain MPS threshold to be gospel in choosing or de-rating an engine. It could be EPI's 2,600/2,900 RPM recommendation or 3,100 threshold, or something much higher in small-displacement engines. Expert engine builders don't agree. The point is simply to give you a perspective on how the factor is used, and a basis for comparing engines which might be candidates for conversions. Readers are encouraged to research various expert opinions on target MPS, add additional engines of interest to the list, ask about the composition and engineering of rotating assemblies, and apply the actual flight experience of existing engine conversions to temper the prevailing wisdom.

The spreadsheet used to create the charts above is available as a free download in either MS Excel (XLS) or OpenOffice (ODS) formats. (Both in a ZIP file here.) After downloading and opening the file, change the target MPS in cell F3, and it will follow in all cells in column F. Ten lines below the last listing have been set up with the formulas, allowing the reader to add other engines of interest. Enter a description in column A, stroke (in inches) in column B, max takeoff horsepower and associated RPM in columns C and D. The MPS and Redline values will be calculated and displayed. Have fun with the spreadsheet, and enjoy the resulting debate!

The odd auto engine which appears at the top of this article is a 1980s Citroën 2CV6, a 602 cc (37 CI), air-cooled, flat twin rated at 29.4 HP @ 5750 RPM. Stroke is about 2.76 in., for an MPS of about 2,645 FPM.
Note: The Rotorcraft Event Calendar is open to PRA chapters with minimum 45 days notice. Other events enthusiasts may be included at the discretion of the editor. To submit an event, send event name, sponsoring chapter, dates, times, location, and a URL, e-mail address and/or phone contact to editor@utahrotorcraft.org.

(G) General Aviation Event
(R) Rotorcraft Event

Bensen Days (R)
Sunstate Wing & Rotor (PRA 26)
Apr 6-11, Wauchula, FL
PRA Directors will meet at this event. Details, page 3. (Info)

ARC Days Fly-In (R)
Arizona Rotorcraft Club (PRA 15)
May 14-15, San Manuel, AZ
Second annual event.
Info: (520) 840-0186

First Annual CRA Fly-In (R)
Colorado Rotorcraft Club (PRA 38)
Sat., May 21 9am-5pm
Colorado Springs, CO
Meadow Lake Airport. (Info)

Rotors Over The Rockies
UT Rotorcraft Assoc. (R) (PRA 2)
Jun 9-11, Brigham City, UT
Admission and on-airport camping are free. (Info)

Vertical Challenge (R)
Hiller Aviation Museum
Jun 18, San Carlos, CA
Helicopter-oriented airshow in its 12th year. (Info)

25 Years Ago in PRF

In the April, 1986 issue of Popular Rotorcraft Flying, the inside cover was devoted to a cartoon poster for PRA’s International Fly-In at Paso Robles, CA. Also announced was the annual meet for Rotorway Helicopter owners and enthusiasts in Waynesville, OH in June, in its third year at the time, an event which survives today as the "Homer Bell Fly-In."

Marion Springer contributed an article describing the decisions that went into creating a two-place, side-by-side gyrocopter to address the missing step between glider training and the first powered solo. (It was powered, of course, by a Mac 90!) Jim Eich titled his article, "What You Can Put on a Gyro…and Why Bother!" As you might guess, he discussed various attempts to make gyros more aerodynamic, the penalty in weight, and the law of diminishing returns.

Chuck Vanek (above) was pictured in his new Vancraft Rotor Lightning, a single-place with partial enclosure which is still used, with modification, on the Sport Copter Vortex designed by Chuck’s son, Jim Vanek.

And in the Rotorcraft Marketplace, classified ads offered single-place gyroplanes for sale ranging from $800 - $3,500.

A growing collection of back issues of PRA publications, including a complete index created by Dr. Bruce Charnov, is available in the Members Only section at www.pra.org. It's a great opportunity to review the wheel before you reinvent it, enjoy some nostalgia, and be thankful to see all the names of rotorcraft enthusiasts who are still active in our community. You'll also find exclusive member discounts of everything from instruction, to insurance, to rotor blades. If you haven't yet created your personal login, do it now. The library is growing every day!
Event Calendar

Homer Bell Meet (R)
Homer K. Bell Consulting
Jul 21-23, Hillsboro, OH
Homer provides consulting and other services for builders of kit helicopters. Venue is a farm - may require VTOL capability. (Info)

EAA AirVenture (G)
Exp. Aircraft Assoc.
Jul 25-31, Oshkosh, WI
The largest fly-in in the world. Tens-of-thousands of aircraft, hundreds of vendors incl. Most major aircraft mfrs. Type club gatherings and group fly-ins, seminars, workshops. Rotorcraft flight limited to Ultralight Village, certain hours. Camping adjacent to Wittman Regional Airport. Volunteers recruited annually from EAA chapters. (Info)

PRA Convention (R)
Popular Rotorcraft Assoc.
Aug 2-6, Mentone, IN
This event in 2010 drew 70 rotorcraft and 55 powered parachutes. Traditionally has wide variety of helicopter and gyroplane models. Instruction & flight reviews available from CFIs with advance notice. Annual members meeting, on-field camping and food. (Info)

Ken Brock Freedom Fly-In
KBRA (PRA 1) (R)
Sep 23-25, El Mirage, CA
This legendary event takes place on a dry lake bed with enough room for gyro-gliders, a taste of the old-school, west coast gyrocopter scene, and a Saturday night corn roast at the Brock Ranch. US BLM charges $15/day or $30/wk for access to lake bed. (Info)

David Groen on SparrowHawk, China, and the Future
Paul Plack

Groen Brothers Aviation, based in Salt Lake City, UT announced in January the formation of a wholly-owned subsidiary called Groen Brothers Aviation International, LLC for the specific purpose of entering a cooperative joint venture with China's Guangzhou Sun-trans Aviation Science and Technology Co., Ltd. Terms of the agreement call for GBA to transfer the SparrowHawk kit gyroplane program and certain advanced gyroplane technology into the joint venture, in exchange for 25% of the shares, valued at the equivalent of about $3.67 million US. Suntrans is contributing 11 million dollars US in cash, and will hold the other 75% of the shares. The new joint venture will be called Foshan Suntrans-Groen Aviation Company, Limited, or "FSG Aviation."

GBA said at the time the deal was expected to result in the reintroduction of the SparrowHawk in the US market, "...followed over the next few years by a fully assembled light gyroplane using technology transferred by GBA." It's not clear when a factory-assembled gyroplane could be sold in the US market. Currently, the FAA does not allow the sale of factory-built gyroplanes as Light Sport Aircraft.

Shortly after the announcement, I got the chance to speak at length with David Groen, Chairman, President, CEO and CFO of Groen Brothers Aviation, about the joint venture in China, the SparrowHawk program, and related matters. Here are excerpts of that conversation.

PP: Tell us what happened to the DARPA project. I think a lot of people have a misunderstanding about how that all wrapped up, or what its current status is.

DG: Groen Brothers Aviation was hired by DARPA (the US Defense Advanced Research projects Agency) to lead a program to develop a 400-MPH, VTOL, rotor-wing aircraft (at right). Phase I...is the hardest to accomplish. It's the magic part. It's the part where you find out whether or not there's any chance that what they want you to do is possible, as well as go through all of the analysis, and I mean extensive, huge amounts of work to, through analysis and, in our case, a great deal of wind tunnel testing as well, to come up with a solution that says, "this will work," and make believers of the US government. And we succeeded at that. We met all the goals of the program.

By the time that was over, we all know what was going on in the economy the last few years, and there were a couple of wars going on, so the government didn't have the money to spend on this kind of program carrying it forward. Heliplane continues to be a DARPA program, its just not yet funded for the subsequent phases.
For us, we had all our eggs in that basket...it took that in order for us to accomplish what DARPA asked us to do. In fact, we were understaffed and short-handed all the way through that program. What it caused was for us to not give SparrowHawk its due course, both in marketing and support to customers, and getting the aircraft right and so on.

So when DARPA did not start phase II, we just didn't have the resources to keep at the rate we were. I mean, we were nearly a hundred employees at that time on the DARPA program, and not having us move forward...was not something we could tolerate. And so, in order to survive, we were forced to lay off all but about six employees of the company, and hunkered down and did the best we could to survive.

Some months into that, by fall of '08, our single largest investor in the company came to us with some, what we think are brilliant plans on how to get us and our technology where it...belongs, and took over the financial needs of the company at that time. Our day-to-day operating needs have been met by a single investor, and we've been able to keep our technology alive and viable. During that time we were approached by a company in China that was interested in doing a joint venture on the SparrowHawk (above) program. We spent a year and a half or more working out the details of what that would be.

It included transferring to the joint venture the whole of our SparrowHawk program and some additional advanced technology, meaning more advanced than any gyroplane that's out there or has been out there, and yet is still not the "keys to the kingdom," so to speak. Our heliplane program really moved our understanding, knowledge and capabilities, as far as sustained autorotative flight is concerned, way beyond where we were before that program began.

This technology that we are transferring to the joint venture...will make big improvements to the SparrowHawk program, and yet is technology that we would not be taking forward otherwise, simply because we're a full generation beyond that in what we have as far as advanced gyroplanes are concerned.

PP: It always seemed that, given where Groen Brothers intended to go, the SparrowHawk was a bit of an odd fit. What role did it play, and what did GBA accomplish with the SparrowHawk during the time you had it in production as a kit?

DG: We went into the SparrowHawk for one reason, and that was to improve the safety record of gyroplanes. What we had tried to do before we built an aircraft of our own to sell into that world was to convince some other manufacturers to let us do some redesign work for them, so that their aircraft would then have appropriate stability and safety. And we were just continually turned down, even though we were offering to do it without charge.

There was never a business case for (SparrowHawk) that made sense for a company that was set up to do type-certified aircraft. We had single pieces
Chapter Reports  
(continued from p.3)

Utah Rotorcraft Assoc.,  
PRA 2 (UT) - March 12, Pres. Doug Barker reported membership stands at 41. Doug is also planning a trip to Texas to pick up a Bensen gyroglider for use as a boom trainer. This presents an opportunity to carpool, get a tour of The Butterfly LLC, and receive some instruction in a boom trainer from Brian Booth at North Texas Gyroplanes.

Arizona Rotorcraft Club,  
PRA 15 - Award plaques for the ARC Days Fly-in (May 13, 14, 15) will be black Corian cut into the shape of AZ. Engraving will be done in polished brass with the gyro, saguaro, mountain scene and lettering. Next meeting: April 16, 2011 - Coolidge – 11am - Annual Dinner, 5pm.

Colorado Rotorcraft Assoc.,  
PRA 38 - Next meeting will be April 30, 2011, 10am at Meadow Lake Airport. Be there to plan and discuss the Summer kick off fly-in at Meadow Lake on May 21. Free overnight hangar space will be available with RSVP.

Great NW Sport Rotorcraft Assoc.,  
PRA 73 (OR) - On March 12, Jim Vanek of Sport Copter presented a discussion on progress with the Sport Copter II. A new engine-driven fan appears to have solved cooling issues for the Lycoming IO-360.

The April 9 meeting will be the annual anniversary BBQ. Club supplies chicken, members and guests should bring side dishes. Jim Vanek will do a demo flight and give gyroplane training flights, and talk about the wheels and suspension on his gyroplane. Better come early and stay late, you don’t want to miss this one!

Send news to Paul Plack, Editor

of equipment that cost a million dollars. There's no chance a kit aircraft can provide the kind of revenue that a company set up like ours, with the investment we had, would make any sense. But the business case was, "we're gonna sell a lot of aircraft into a new, burgeoning gyroplane world as certified aircraft, and that's going to be tough to do if the kit world has a bad reputation and is killing people. So, there's our best business case...we made an aircraft available that we knew wasn't going to make any money for us, but did it anyway. Our intent was to support it properly, but we got this heliplane award from DARPA, and even though during that time we still did the best we could to support the SparrowHawk program, our ability to keep sufficient human resource onboard just to support heliplane was less than what it should have been, so, just nigh on impossible to support SparrowHawk.

In my opinion...putting SparrowHawk into that marketplace at least got nearly everybody onboard with the importance of stability for the aircraft. The worst offenders seem to have gone away, and everybody else seems to be paying a whole bunch more attention to getting the thrust vectors and CG where it belongs.

PP: Is there anything left to prove in small gyroplanes for Groen Brothers, or from this point on is it all about commercial/industrial/military stuff?

DG: We actually have a new and advanced, all-composite two-place design, a tandem, two-seat aircraft. It's really a class of aircraft. There will be essentially five models of that vehicle, and it's an amazing aircraft. I mean, the numbers on this thing are coming out pretty impressive. Not a kit. There may indeed be a Light Sport Aircraft variant, but the primary aircraft will be a fully type-certificated, two-place gyroplane, primarily for the air surveillance markets...aerial patrol of any kind - border patrols, pipeline, power-line, the works. As well as just having fun in a light, rotor-wing aircraft that is well designed and well built, and backed up by having had a type certificate.

In parallel to that, maybe even happening first, is a seven-place, all-composite aircraft we call the Arrow Hawk, again taking everything we learned in the Hawk IV program, and adding to that the capabilities that we developed during the heliplane program. Even though there are technologies we've developed for heliplane we can't use on an international program, our know-how, our understanding, our ability to design the real high end of what this technology can lead to, we developed during heliplane. So we've used those tools to help us get both these aircraft right, and...I dream of flying these aircraft at night. When I’m asleep, I fly these aircraft!

In a future installment, David Groen looks ahead to the future of Groen Brothers Aviation, and the future of sustained autorotative flight. The full interview from which these excerpts were taken can be heard in audio form in the archives of Aero News Network.(Parts 1, 2.)
Gyroplanes for Sale

DOMINATOR, 2007, carbide EA81. 175 hrs total, new engine has 50 hrs and SPFI Pistons, Delta cam, Subaru SPFI injection system, milled heads, stainless valves and springs, stainless steel straight pipes w/ mufflers, electronic fuel mixture control, oil cooler and new ignition components. 90-100 hp and very easy to maintain. 26’ Dragon Wings; Auto flight reduction unit; Warp Drive prop; 7-gal. seat tank & two 3-gal. side mounted aux tanks. FAA #N514RK. $19,500. Contact Robert, (252) 342-0535 or robertkel58@centurylink.net.

BENSEN STYLE GYRO! $6,900. Dropped keel, Benson-style gyroplane. Aircraft has been cleaned, rebuilt and refurbished. Almost like new condition with many new parts added. Blades are aluminum Knight Hawks 22’ in good shape. Engine is a Subaru EA-81 with a Warp Drive three-blade prop. Prerogative is electric, main wheels are 12” with good brakes. Two 6.6-gal. tanks. Original kit was manufactured by Knight Hawks, Epson, NH. Machine will be partially disassembled and sold as parts. (Not registered and no N-number.) No missing parts, partial assembly required. Liability release required. Contact Michael V. Purdue, friend of owner, Marion, VA. (276) 782-7889.

For Sale Misc.

New 90 HP Mac engine has never been started. Inspected and upgraded by Red Smith at R&D Engineering, new R&D prop included. $4,000 invested, asking $3,000 OBO. **Ken Brock KB-2** with 72 Mac with electric starter. **Joe Sousa Bandit** one-place. Fresh Subaru EA81 with gearbox and Prince P-tip prop, 110+ HP. New Rotor dyna blades.

For the above three items, contact Jim, (805) 239-9713. Losing my eyesight so I am selling.

EFFECTIVE IMMEDIATELY AND TFN, CLASSIFIEDS ARE FREE FOR MEMBERS!

Submissions longer than 400 characters may be edited. Include a single JPEG photo per ad for use as space allows. Classifications include Gyroplanes for Sale, Helicopters for Sale, For Sale-Other, Wanted to Buy, and Miscellaneous. Ads will run for three issues, then must be renewed. Submit to editor@utahrotorcraft.org, or call Jennifer at (574) 353-7227.