APS NEWS

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A Taifun 17E in powered flight near Mt. Fuji, Japan. The cleaness of design is evident in this well proportioned motorglider. First produced in 1980 by Valentin, there are 25 in the USA out of a total production of 125. It sold new for $59,000 and now sells for $60-70,000. Korff GMBH of Germany is the parts source for the Taifun through Grob Aviation in Bluffton, Ohio. Image courtesy of Airworks. **More on Page 4**

Touring Motor Gliders

By Allan Pratt

Among the self-launch crowd (well, maybe gaggle), there is a class of glider that some folks swear by and others swear at. I'm speaking of the class of motor gliders that appear to be an ordinary aircraft but with longer wings. Usually the motor is in a fixed position, often in the front, and the propeller has some means for feathering when the engine is stopped during soaring flight. The touring motor glider (TMG) shares characteristics with both powered aircraft and gliders. It usually has spoilers (but not flaps), middling soaring performance and the ability to motor relatively long distances. The engines are typically 4-stroke power plants and, since they are heavier than 2-stroke engines, the soaring performance suffers somewhat. The average TMG will have a max L/D of around 27:1 and a minimum sink of about 200 to 250 ft/min. Examples of this class of glider include: The Katana Extreme (derived from the super Dimona), the Ximango, the Grob 109, the Taifun and others. There are exceptions, of course, the beautiful Stemme at 50:1, with a folding prop, retractable gear and nose cone (with price to match) and the new Carat at 38:1 and 150 ft minimum minimum sink, forward folding prop and retractable gear. Wing lengths range from the Stemme's 75 ft to the Katana"s 55 ft and the Carat's 49 ft. Most are two place side-by-side. The Carat is single place.

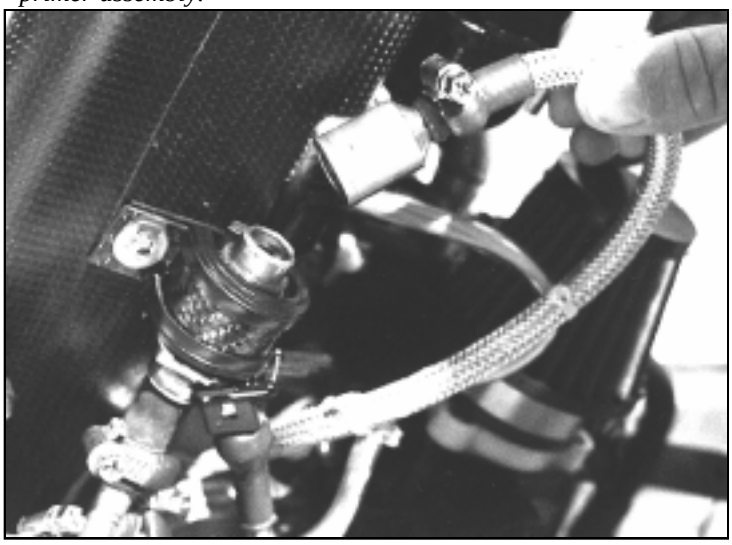
One would expect these TMGs to have more expensive maintenance requirements than the average self launcher (SL) or sustainer (Turbo). In some cases they do but a 4-stroke engine is inherently more reliable than 2-strokes and they are well known to aviation mechanics. These TMGs have larger batteries than a SL, usually have radios and transponders and come in standard airworthiness varieties as well as experimental ones. The engines vary from Rotax 912s and 914s to Volkswagen (Sauer and Limbach). .....Continued on page 3

DG 800B SOLO ENGINE AUTO-PRIMER FAILURES

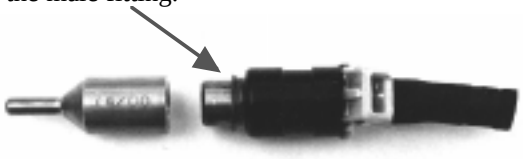
Editor's Notes: There has recently been several failures of this Auto Primer as reported in the DGSoloUsers Group. Raw fuel is emitted into the aft engine bay area when the primer body comes apart which consititues an extreme fire hazard. The DG factory is aware of this situation and as of this writing is in the process of issuing a Technical Note. Pilots are urged to inspect the auto primer before and after every flight. Following text are Gary Evans comments.

"The primer valve is an automotive fuel injector and it is secured to the brass holder with some type of adhesive. Mine came apart a year or two ago. I roughened the contact areas with course sandpaper and rebonded with JB Weld epoxy. When the injector separates besides some fuel spillage two things will occur. The engine may be harder to start since it isn't getting the correct amount of fuel and secondly once running it will be sucking air through the brass holder which will lean the mixture. Since it has now occurred on several ships it may be worth removing and attempting to separate the parts by hand pressure (no tools as the injector can be damaged) and rebonding with a better adhesive if they come apart or adding a check to your preflight procedure if they don't. If mine should fail again I will design an O-ring sealed holder that incorporates a mechanical retainer but for now I'm satisfied with JB Weld. The top of the injector is attached by a hose slipped over the end and a clamp. All connections like this should be watched because if any pressurized fuel connection leaks it will do so while the pump is running.While there is a small drain hole in the engine compartment I'm sure it will fill faster than it drains. Stowing a hot engine into a pool of fuel would make for a very bad day."

Steve Dashew suggests using industrial grade shrink tubing that has adhesive inside to secure the female fitting to the body of the primer assembly.



Above: detached primer body. Below: some adhesive still clings to base of the male fitting.



ASA Members Motorgliders

24	DG-400
22	DG-800B/808
20	Stemme
19	VentusCM/2CM
14	ASH-26E
13	Russia AC-5M
10	PIK-20E
9	Taifun 17E
8	Grob 109 A/B
7	Katana Extreme/Dimona
6	Nimbus3DM/4DM
5	DG-500M/505MB
5	Ximango
4	Vivat
4	Carat
3	Silent
2	Apis-M
30	Other
Total	205 (64% of membership)

NEW SELF-LAUNCH GUIDE

Guide to Self-Launching Sailplane Operation

Eric Greenwell has extensively revised and expanded his previous edition (written over four years ago), with much more material and pictures. This new edition covers more types of powered sailplanes than before, emphasizing common methods and concerns, rather than things specific to only one model. In addition to Eric's experience, this guide reflects the experience of it's 12 reviewers from the USA and Europe. It is the most complete guide available today.

The guide is now available on the ASA web site<http://www.motorglider.org> (click to the "Articles On-line" section). A commercially printed version is planned for the future.

Touring Motorgliders.....

Because a TMG is certified as a glider, power pilots cannot fly it unless they also have a glider rating with a self launch endorsement. While this may seem paradoxical, them's the rules! All of the positive aspects of SL sailplanes apply here; the ability to go without a tow and the opportunity to fly when you want to.

What separates the TMG from the other SL varieties is the ability to fly long distances with the engine running. Typical ranges vary from 300 nm to over 700 nm. They move right along, averaging 100 kts or more and burning about 4 gph. The Katana with the turbocharged Rotax 914 will cruise at 115 kts and burn an average of 4.5 gph. This can be auto fuel (Premium) or 100LL. The Carat can cruise at 105 kts burning 2.6 gph. The others, depending upon the engine choice, will bracket these values.

In my experience, when flying these TMGs on a motorized cross country flight, plan and execute the flight as you would in a power aircraft. Get DUATS weather, have all of the appropriate charts and, if you don't have a built in GPS, take along a hand held model. In landings all over the west, with the engine running, I have never been denied a landing or been discriminated against because I was flying a motor glider. The fact is, I have never been treated differently than any other aircraft whether the engine was running or not. As an aside, when my engine is running, I identify myself as motor glider xxxx. When the engine is shut down, I identify myself as glider xxxx.

If you have a power rating, the motor part should be a snap for you. If you only have a glider rating and want to fly TMGS, then a review of power cross country techniques may be in order. I won't belabor the point except to say, know your hemispherical VFR cruising rules and use oxygen if required. In many longer motorized flights in my Katana, I would fly at 16,500 ft or 17,500 ft - usually to take advantage of the winds or to cross the Grand Canyon which has a minimum floor of 14,500 ft. At altitude I could be indicating 90 kts on the ASI and my GPS ground speed could be as high as 160 kts. Not bad for a glider!

To be continued as : "A Typical Powered TMG Flight" in Sept.-Oct. 04 Issue of APS News

About The Author:

Allan Pratt is a retired airline pilot with 12,000 total flight hours in powered aircraft, 201 in gliders and 169 in self-launching sailplanes. His first glider solo was in Truckee in May 2001 and his first self launch was in a Katana at Cottonwood, AZ in July 2001. He owned a Ximango for several years and is expecting to take delivery of a Carat sometime in the Fall of 04. Allan lives in the Johnson Lane area of Minden, NV.

Editor's comments: ASA has 57 members who fly a TMG. This includes 20 Stemme owners. That's 17% of the membership.The TMG pilot is normally not into competition or setting records. When he is in the soaring mode, he uses the engine to get airborne and search for a thermal. When he is in the cross-country or ferry mode, he motors to a destination, soaring enroute if conditions permit. Seven out of the 11 major TMG are in serial production. This includes the dual-place Stemme S10, Diamond Katana Extreme HK36TS, AMT Super Ximango, Scheibe SF 25C, Pipistrel Sinus and single-place AMS Carat and TeST-9. Others not in serial production are the Vivat, Taifun 17E, Grob 109 and ISM-28. All of above with the exception of the Stemme

Katana Xtreme

Sinus

SF-25C

TST-9

Stemme

Ximango

Carat

Taifun owner's are usually very loyal and enthusiastic about the aircraft. Constructed primarily of fiberglass, it has a mechanical retractable landing gear, steerable nosewheel, full span flaps interconnected with ailerons, upper wing surface Schempp-Hirth type spoilers, foldable wings, automatic controls hookup, large cockpit with sliding canopy, engine cowl flaps, 90hp air cooled 4-stroke , 4-cylinder Limbach engine with controllable pitch propeller

Most USA Taifun owners belong to an association established by Joe Volmar. Contact him at 734-529-5406 or Email: joevol@dundee.net

SPECIFICATIONS

Wortmann wing profile	17 meters
Length:	25.6ft
Height:	7.5ft
Wing Area:	189.4sq/ft
Aspect Ratio:	16.4
Max Wing Loading:	9.5lb/sq/ft
Empty Weight	1,372lbs
Gross Weight	1,874lbs

PERFORMANCE

Vmax	152mph
Maneuvering Airspeed	115mp
Max L/D at 59mph	28.6
Min. Sink at 59mph	226fpm
Stall (landing config)	44mph
Lift Off Distance	754ft
Distance over 50ft	1,141ft
Rate of Climb	600fpm
Range at 127mph	652mi
Service Ceiling	19,000ft

SOLAR POWER FOR 21ST CENTURY GLIDER

EDITOR's Notes: Below are some conclusions that came to light when several western motorglider pilots were searching for a practical solar panel solution for a transponder-equipped cockpit with all the advanced avionics with at least 1 amp REAL output. A more detailed report authored by Jim Herd will be forthcoming in Soaring Magazine.

Strobl is the conventional solution for gliders. It is a German company with a German web site, and they specialize in flexible panels for glider applications <www.strobl-solar.de> The 2 small Strobl units DG uses on the top of the instrument panel cover are claimed to be 6.5W & 0.4A. This probably does NOT account for the loss through the canopy and Strobl probably rates them for maximum theoretical conditions. Thus, they are virtually useless in practical terms.

Two DG-800B pilots have up-rated their cockpit solar panels with two different solutions. Both are pretty large and somewhat intrusive (compass and mirror need to be moved). Canopy reflections can be a problem. Their actual power output may exceed 1/2 amp, but they still suffer from canopy translucency.

The ASH-26E panels on the engine doors (factory option) are rated by Strobl at 30W & 1.6A. No loss due to canopy. They are on a simple, 2 dimensional curve, and the factory inlays them with special strengthening behind. Strobl sells a kit for the ASH-26E set-up – 1840 euros. An ASH-26E pilot has added after-market curved panels. They are surface mounted, with edges blended into the gel coat so they look almost like the factory inlaid units.

The DG1000 & DG808S have a similar setup for behind the canopy, but both seem to be surface mounted – not inlaid. DG1000 kit (22.5W & 1.2A) costs 1400 euros. DG808S kit (15W & 0.86 A) costs 980 euros. The DG-808B factory installed option is inlaid in the gel coat behind the canopy. I think it is a compound curve area and needs some gel coat cut away for a good fit. Probably NOT an after market project. And the DG fuel filler hole somewhat limits the available space to about 10" X 20". DG doesn't recommend nor authorize solar panels inlaid on the engine doors due to structural concerns.

Conclusions:

1.Specify factory installed solar panels on the fuselage for every new high-performance glider.

2.Don't bother with Strobl dash solar – very expensive and ineffective.

3. Look for the best, large, simple-curve surface facing the sun.

4. The Strobl surface-mount kits are probably quite acceptable solutions for the fuselage if you have an appropriate space.

5. Find better U.S. source.

6. After-market "surface mounting" should acceptable – fixed with appropriate glue and with sealed gel coat edges.

7. Large dash-mounted solar may be the right solution for those concerned about any kind of impact to the slipstream

8. The new "turbo-charged" solar controllers may add as much as 20–30% to the effective power of any unit! Still looking unto this exciting development .

9. Additional battery power remains a very practical alternative to extra solar power.

10. All of this requires careful attention to detail, proper guidance from you're A&P, and FAA paperwork – even for experimental ships!

TOTAL GLIDER PILOTS IN THE WORLD

USA	29K
Germany	35K
UK	8K
France	13K
Global	128K

1. Germany has about 1/3 the population of the USA and yet MORE glider pilots.

2. Even UK has more pilots per population than the USA.

3. France has more pilots per population than the USA.

4. These countries have about 2/3 the global soaring pilots.

5. Only HALF the USA glider pilots belong to SSA.

The ASA 500

This award recognizes the motorglider pilot with the greatest number of "straight out" 500K flights in a year. Patterned after the Henry Combs Trophy, we hope the ASA 500 Award will encourage more people to participate in the special joys and adventure that straight out distance flying can provide. Experience new territory - escape the boredom of the local rut No looking back - every mile flown is a mile closer to your goal (even if you don't know what it is) Meet new people at your landing place and amaze them with your stories And if you fly back the next day, the adventure continues! Details on the ASA Web site under "Competitions & Camps".

THE ASA WEBSITE IS FULL OF INFO ABOUT MOTORGLIDING INCLUDING BACK NEWSLETTERS, BOOKS, COMING EVENTS, LINKS AND MORE. CHECK IT OUT TODAY!
<www.motorglider.org>
Eric Greenwell-Webmaster

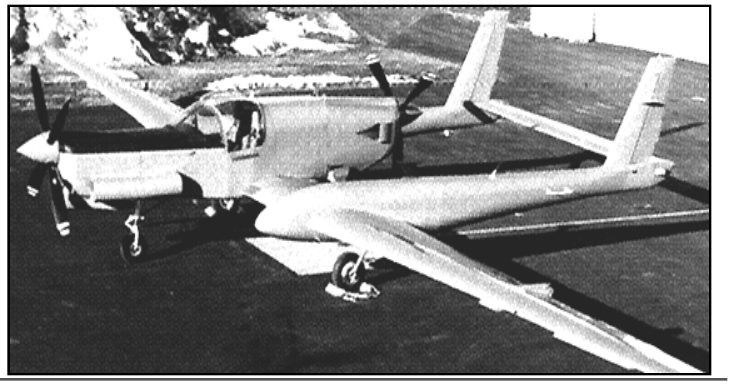
PETE Williams Has a New Email Address:
<fl18@pyramid.net>

Schweizer's Quiet Thrusters

The QT-2 (below left) was developed using a highly modified Schweizer 2-32 as a slow flying night reconnaissance platform. First used in the Mekong Delta region of South Vietnam in 1968 this inaudible stealth platform allowed close observation through "Starlight Scopes" of Viet Cong's night activities. Powered by a 100hp Continental swinging 4-bladed wooden eight ft prop it was completely silent at 800ft agl. Lockheed Missiles and Space Division of Sunnyvale, CA did the modifications and stateside testing. To make the engine quieter the inside of the cowling was covered with fiberglass batting and the exhaust was captured with a muffler from a 1958 Buick. V-Belts similar to fan belts drove the propeller at 800 rpm. Night ground noise such as crickets, frogs etc was measured at 50 decibels. This level helped to mask the 70 db of QT-2 at 1,000ft. This was not an easy ship to fly. Turns were carefully flown as it was subject to yaw-roll coupling because of the nose pylon. It required a long runway for takeoff. For minimum noise the best speed was down around 70kts which was 1 kt or so over the stalling speed. At this speed only 17hp was required to stay aloft.

This was one of the first uses of low detection stealth technology in combat. Missions usually lasted 6 hours. A follow-on YO-3 still using the 2-32 airframe was bigger, heavier and more powerful. A recent press release reveals Schweizer Aircraft is flying its latest ultra-quiet surveillance aircraft, the RU-38B (below right) which it claims is undetectable at 2,000ft. The U.S. Government customer was not divulged but according to president Paul Schweizer, "the new aircraft's predecessor serves in every place the USA is operating". The RU-38 is powered by two turboprop engines that turn as slowly as 1,000 rpm; the aft engine is shut down during the stealth part of the mission.

Text & Images Air & Space April/May 2004



Burt Rutans jet powered White Knight taxiis out with rocket-powered glider SpaceShip One suspended below on the way to a record breaking USA flight into space by a privately built space launch system in May 2004.

ASA Mission

The Auxiliary-powered Sailplane Association, Inc. was founded in 1988 as a non-profit organization to encourage the design, development and safe use of motorgliders, self-launching and sustainer engine sailplanes.

ASA Membership

Membership in ASA is open to anyone interested in powered sailplanes. Write or call: Brian Utley, ASA Membership Chairman, 9541 Virginia Ave. South Bloomington, MN 55438 Pho: 952-941-5683 EMail: <Utleyb@aol.com> USA Dues: $20-1 yr, $38-2 yrs, $55-3 yrs. International Dues: $25-1 yr, $48-2 yrs, $70-3 yrs.

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