

# YAWSTRING

NEWSLETTER OF THE GREATER SEATTLE SOARING CLUB  
AKA BOEING EMPLOYEE'S SOARING CLUB

Volume XII

June 2002

Issue #6

## Lennies over Ephrata

John Gilbert Photo



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## Notes from the President

We are well into the soaring season and it is shaping up very well. I am pleased to report that all of our sailplanes are operational for the coming year, complete with fresh annuals, and in several cases, an extra dose of TLC. Thanks to our maintenance managers, to Paul Nyenhuis of Aviation Inspection & Repair and to Rick Moore of the Pilot Shop, our fleet of towplanes and sailplanes are in good order.

### Students...

On May 30th, there was a CFIG meeting. I would like to thank John Hope, Stan Kasprzyk, Rich Blow, Steve Baker, Ron Bellamy, Al Gregg, and Lynn Weller (comm.) for attending. One of the main subjects of the meeting was *'The Mentor.'* The idea is as follows:

The CFIG mentor will keep tab on how the student is progressing, offer encouragement, and help provide guidance.

The student will contact his or her CFIG mentor and provide him or her with a regular update of his or her flying. This may update may take place over the phone, e-

mail, or in some cases, the mentors may require coffee or beer as payment in person.

What the CFIG mentor is NOT expected nor meant to do...

- He/she is not expected to be your sole flight instructor.
- He/she is not expected to update you on how you are progressing via ESP. You should contact your mentor, provide updated information and discuss the good, the bad and the fun.

Please keep a few things in mind.

- Everyone in this club works on a voluntary basis, but few of us carry as heavy a burden of responsibility as the instructors.
- The instructors not only have to worry about the safety their owns lives, but your life and the lives of other people who may be affected by your flying.
- Don't get discouraged when flights are less than stellar. Tell your mentor everything, because it will help them to pin-point trouble areas and help make you a better pilot.
- Did I mention our instructors work for free? And that most of them are incredibly busy. Don't get upset if

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your mentor cannot fly with you as often as you would like. They are going to do their best to help, but only you can see your ticket through to completion.

## Biennial Flight Reviews

For those of you who need to get a BFR, please, contact an instructor well in advance. You might consider trying to do your BFR sometime during the weekday. Do NOT show up to the field without prior notice, and expect all of the students to simply wait while you take up an hour of instructor time for the ground portion and the next hour and a half doing your three flights. What will make you even less liked is to do absolutely no studying nor any type of prep work. We want you to get your BFR and so does the FAA. So, please be considerate to others and schedule and prepare well in advance.

## Field Managers

In the past, it has been falsely assumed that field managers knew what function and obligation they filled at the airfield. Unfortunately, there is a wide area of interpretation, so here is an outline of what is expected. Field managers have the following duties and responsibilities.

- Show up on time at the start of operations (9:30 am at the latest).
- Coordinate with the towpilot and instructor to determine details of operations for the day
- Start a new tow log sheet, track aircraft, times, etc.
- Ensure all paper work is in order, especially waivers for trial membership flights.
- Ensure trial members pay in advance prior to launching.
- Crack the whip if necessary and keep the glider and towplane busy.
- Keep vigilance on the changing conditions and ensure safe operations are being practiced.
- Ensure the gliders are properly tied down and secured at the end of the flying day (this simply means double check the gliders after they have been secured for flight control locks, proper tie down practice, etc.)
- Ensure the hangar lights are turned off and the hangar is secured.
- Ensure all combination locks are hangar are reset to 0-0-0-0.
- Ensure the tow log is sent to the flight log manager or to me (Jim Dobberfuhr M/C *OF-24*).
- Report any incidents, accidents or unsafe activity to a board member as soon as practicable.
- Notify the scheduler, next-scheduled towpilot instructor & Fieldmanager, the maintenance manager and other relevant person(s) of issues which affect the operations of the following day or weekend; i.e. towplane suffers a mechanical breakdown.

## Weekday Flying

We are blessed with long summer days at this time of year. With a towplane and glider just up the road in Arlington, it is possible to start flying as late as 5 or 6 pm and get in a couple hours of flight time or instructions. Contact a towpilot and an instructor (if needed) and go have some fun. This is a great way to get dedicated instructional time and there is the added benefit of little to no traffic. Once you have a towpilot (and instructor), use Email to see who might come out and help. If you are unsure about doing this or would like some help, contact Heinz Gehlhaar.

We also plan on publishing dates and times on the web when Evergreen Soaring will be towing during the weekday. Please check the website for further updates on weekday operations. Many of these notifications will be last minute, so check frequently. The following instructors might be available during the weekday, depending on their schedules: Steve Baker, Al Gregg, Ron Bellamy (after EPH contest), Ragnar Smith. If no towpilot is available, John Carson is willing to provide tows with his towplane on Monday, Wednesday or Friday. The following requirements need to be met for John to be willing to tow:

1. Sufficient advance notice.
2. Minimum of three tows (or equivalent income to 3000 feet for three tows).
3. \$15 for the 1st thousand feet and \$1/100 feet after that. This works out to \$35 for a 3,000-foot tow, which is slightly more expensive than the club rates. However, it is still an excellent option if you are looking to get in some flight time during the week and no towpilots are available.

John Carson may be reached at 425-417-9063.

## Ephrata Club House Duties

Along with the benefits of having access to the clubhouse at Ephrata come the responsibility of doing our fair share. We [BESC] have Club House Duty on the following dates: June 1,2, 8,9, 22,23, 29,30

Club House Duty (the trailer - we get a real building next year if we are good) basically entails cleaning the place up at the end of the day and securing the building. Duties basically involve the following:

- Clean any remaining dishes and put back in cupboard
- Remove any remaining food that is left sitting out
- Empty trash baskets
- Clean up all food spills
- Bath House should be clean
- Empty all trash cans in bath house
- Lock doors in club house trailer and bath house

The key is attached to a ping pong paddle and gets placed in SGC battery shed on left side when entering door.

**Please contact me and let me know if you will be at Ephrata during any of these weekends.** We have to be

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accountable lest we find ourselves uninvited from access to the only facilities in Ephrata.

People are usually very good about helping and securing the place. It takes very little effort when everyone pitches in.

## Gratitude:

I would like to thank the many souls who have given a great deal of the time and energy to help make this club run smoothly. Many of you work in the shadows, often receiving little to no recognition for your efforts.

Unfortunately, it is not until these people get pulled away

with other obligations do we notice their absence because things start to fall apart in a particular area. If you are one of the people standing on the side lines thinking things could be done better, then jump in and make a difference. This club can be no better than what people put into it. I look forward to seeing you at the field.

## Happy Landings,

Jim Dobberfuhr

BESC President

w 425-342-2241 h 425-741-8001

[james.p.dobberfuhr@boeing.com](mailto:james.p.dobberfuhr@boeing.com)

## Upcoming Events

### Monthly Meeting Schedule

We are now having monthly meetings at the Everett Recreation Center. The Meetings will be held in Conference Room 40-201.1, the Activity Room

All Dates are **6:30 pm - 8:30 pm**

July 10, 2002	November 6, 2002
August 7, 2002	December 4, 2002
September 11, 2002	January 8, 2003
October 2, 2002	February 5, 2003

Please Mark your calendars

### First Saturday of Month

Every first Saturday of every month BESC will schedule Trial Member Day. On that day Trial Members will have first dibs on the L-23. On any other training day, walk-on Trial Member's demo flights will be scheduled as time allows.

### Summer Operations

For Summer operations, Flight training will continue with the L-23. It and the Super Cub will remain at Arlington.

The remaining fleet is migrating to Ephrata.

The Club is trying hard to set up Volunteer Operations Teams for all weekends, at both Arlington and Ephrata.

Check with the Hotline. Also, if you decide to go to either AWO, or EPH, please be sure you notify the Ops Team that you are coming, because if no one calls, Team members may save their time and stay home.

### June 22<sup>nd</sup> to 29<sup>th</sup> Ephrata Encampment

June 22<sup>nd</sup> to 29<sup>th</sup> has been selected for our annual Ephrata Encampment. We have the week after Evergreen, who will be there June 15 through 23. The Region 8 Contest runs from June 30<sup>th</sup> through July 6<sup>th</sup>.

The plan is to have all BESC airplanes at Ephrata during the week-long encampment. Please start calling your favorite instructors at this time and start setting up in advance. It's going to be a busy week and we are expecting some really great weather conditions.

Now we must think about what great things will we do while we are there

First, all of the CFGIs, please see if you can schedule your time to be on the field to get some of our students some real thermal experience. Also, some one with cross-country experience might want to organize a cross-country seminar.

How about some sort of informal contest, like "bomb a target" or a weeklong spot landing contest?

*(Landing Rules –you may improve them: Flour-mark out a 200-ft long zone on the landing pad. Attempt to score on each landing. Collect 1000 pts for touchdown and stop in the zone. Minus 2 pts per pace if too early, and minus 1 pt per pace if overrun at the other end. Average best point-score gets Club Glory, and a Certificate.)*

How about an evening barbeque? Or an evening on the town, as a group. The town of Ephrata might like that. The membership is invited to run with any of these, or come up with other fun ideas. All it takes is to set it up and inform to your favorite board member.

### Wednesday, 26th June

Here is what Wayne and Judy Woodmansee came up with. Can you top that?

*Judy and I would like to invite the BESC folks to our place for dinner at 6:00 PM on Wednesday, 26th June. We are at 17195 Frey Road which is approximately one mile north of town on the road that parallels the canal. Many members of the club will know the way. A head count of likely attendees by the 25th would be helpful. Wayne & Judy Woodmansee, 509-754-0526*

### Sunday, June 30th - July 6th, 2002

#### Ephrata Soaring Contest.

Operations at this time by clubs will be extremely limited. This limitation is due to a safety concerns and the increased potential of mid-air collisions. However, do not let this discourage you from visiting the contest at this time. Better yet, if you are interested in helping out contact Ron Bellamy.

### Wednesday, July 10, 2002 - Sunday July 14, 2002

Arlington will be hosting the Annual Northwest EAA Fly-In. We are currently discussing the possibility of going on a club expedition to Darrington during this time frame. We are considering joint operations with Evergreen Soaring Club. This area is known to have some

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good ridge soaring and decent thermal soaring. If you think you would be interested in participating, please, drop me an e-mail. We are trying to gauge how much participation we can expect. This will determine how many sailplanes we will bring with us. Currently, the plan is to take over the L-23 Super Blanik (N264BA), and possibly the towplane.

## Safety

*Heinz Gehlhaar*

**From the Cotswold Gliding Club Newsletter we read:**

I would urge everyone to come to the airfield and fly. After all, how good is your lookout when you are thermalling, really? How accurate are your turns? How good is your height judgment without an altimeter, all you cross-country experts? Can you do a good loop or chandelle? (NB: Special Rules apply for BESC! [Editor]) When did you last spin your own glider? Why not fly with an instructor who could help you to improve your technique, or help you overcome some bad habits you may have developed when flying by yourself. There is no shame or stigma attached to flying with an instructor, even if you are fairly experienced. One thing about gliding is that there is always something new to learn. If you haven't flown for some time, and there are a number of hibernators in the Club, you will have to have a check flight or three which will include at least one simulated launch failure or otherwise. Since the introduction of the winch we are experiencing far fewer launch failures than with the reverse pulley car launching system, so it is very important that everyone stays in practice on launch failures.

### Daily Inspections

Every day before flying any of the Club aircraft we carry out a Daily Inspection which involves a thorough visual examination of the glider structure and control systems. I know that at present this practice does not extend to all private gliders, but from now it will be Club policy for all private gliders to carry a D.I. book and be inspected and signed for on any day prior to it being flown. Instructors will be making random checks to ensure that this practice is being followed. There have been at least four incidents that I can think of where a glider has been, or almost been, launched with something disconnected or not in place. The consequences can be disastrous and one National Champion probably still has nightmares about flying a Kestrel up the launch, round the circuit and landing only to find his wings dropping out as he rolled to a halt. He had forgotten to put the main pin in! This incident occurred at Aston Down. A D.I. is a vital action and may well show up discrepancies which you might otherwise overlook. It takes 10 minutes at the most and

may be the best 10 minutes you ever spend. If you are an inexperienced pilot and have not been checked out to do a D.I. ask any instructor and they will show you how to do it and when you have carried one out to his or her satisfaction they will sign the box at the back of your log book.

### **From the Chicago Glider Club**

The following is a quote from the August, 1983 (yes, that is 1983, 19 years ago) issue of from the Chicago Glider Club Newsletter:

A SAFETY NOTE ----- WE AGAIN HAD A CLOSE CALL LAST WEEKEND -

The rear canopy of the Twin Astir flew open on take off for one of our members -- *It is the pilot in command's responsibility to make gosh darn positive that everything is ship-shape before the take off (not the ground crew or the tow pilot or the spectators)*

Let's be careful and fly safely. By the way we were lucky, there was no damage to man or machine!

The above incident was not the first canopy incident with CGC sailplanes. From the repair activity last winter it is obvious that it was not the last. The pilots involved in these incidents ranged from high time, very experienced pilots to relatively low time pilots. The common thread in all of the incidents is obviously that the canopy latch was not checked before take-off. There are many excuses for a latch not being checked; distraction, rushing, lack of familiarity with the canopy system, etc. None of them good reasons.

There are many types of good pre-take-off checklists. Find one that works for you and use it ... every flight. It is suggested that you consider using the same checklist for all sailplanes. Some items may not be required for some sailplanes, but it is real easy to reply "not applicable". If you use the same check list all of the time it will become habit and there will be less chance that an item will be left out.

### **Not Safety, but Security**

When you open a dial lock, please make sure that you reset the numbers before you hang it up for the rest of the day. If you don't, one of 2 things happen:

1. A dumb thief comes along and steals a perfectly good lock for his use.
2. A smart thief comes along and copies the code and later comes and steals everything plus the lock.

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## BESC Newsbytes

### Open Board Positions

The following BESC Board positions are OPEN and in need of a member to step forward:

#### A) CFSO (Chief Flying & Safety Officer)

A CFSO is still needed. This position requires someone who has a great deal of common sense, flight experience, good communication skills, strong character, and follow through. The position does not require the person to be CFIG nor commercially rated.

#### B) Webmaster.

If you are capable of handling MS-Frontpage or can handle your own with HTML coding, then we need you. Stan Kasprzyk has been doing a great job for us for quite some time. He has requested that someone else take over this duty. Stan donates a tremendous amount of his time and talent to the club as a flight instructor. He pulls double duty with the upkeep of our web site. If you are unsure with regards to your HTML/website abilities, please contact Stan and take a stab at assisting with the updates and editing.

#### C) Astir Manager

Alan Kirilin has been the maintenance manager for this glider for quite a time. He would like to find a replacement. Contact Alan and see how easy and rewarding this job is.

### Block Time: Sign-Up & Definition

If you want to sign up for Block Time call Dave Owen at (425) 342-4737 (work) and (360) 653-8928 (home), or Email at [david.l.owen2@boeing.com](mailto:david.l.owen2@boeing.com)

#### Block Time Definition

Effective May 1, 2002, the Board has implemented a new billing structure for all club single place ships. This billing structure is designed to encourage our members to fly more and help offset the cost of our sailplanes. We spend \$1700 to \$2000 a year per sailplane. This figure does not even include major repairs or an escrow. Due to the volume of flights of the two-place ships this cost is offset by the income. However, under our old billing schedule, the single place ships income was only \$150 to \$200 each. This amount brings in less than 1/10<sup>th</sup> of what is needed to keep up with the fixed costs of these gliders. The new billing structure is designed to help offset these costs and allow those who fly a lot to save a considerable amount of money per flying hour.

Single place ships are now billed as follows:

SGS1-26	\$12/hr
SGS1-34	\$14/hr
G102CS	\$16/hr
L33 Solo <sup>*)</sup>	\$20/hr

<sup>\*)</sup> The L33 Solo might be sold/traded shortly

As a special deal, Block Time, applicable to all of the single-place sailplanes, may be purchased for \$150 per year. This Block Time purchase entitles the pilot to unlimited flying time within the guidelines of the club flying regulations (i.e. 1 hour max flight time when others are waiting, etc..) from May 1<sup>st</sup>, to April 30, of any year. Please note that hourly time purchased does **NOT** count towards Block Time credit. For example, you fly 10 hours on the SGS 1-34 without having purchased the Block Time, you get billed \$140. You may NOT claim the \$140 as credit towards the Block Time.

The Block Time is applicable to all of the single-place sailplanes. In other words, for \$150, you have unlimited access to all of the single place gliders for a full year. If you fly more than 10 hours a year in a single place glider, purchasing Block Time makes a great deal of sense financially. Another thing to consider: If you have your private glider license and your flying less than 10 hours a year, are you safe to fly? As a good rule thumb, you should be flying at least 25 hours a year to be proficient.

### Designated Examiner Now Available

Jim Yates, SGC member from Ephrata, is a new Designated Examiner for glider licensing. Make arrangement with him for your check-rides.

### Midweek flying

Don Banford and Ragnar Smith could be talked into Midweek Flying at AWO. Ragnar can do mid-week instructing until the end of June, when he departs and won't be back until the end of September. (Mondays and Fridays are fully free, Tuesdays through Thursdays he can be on the field at 1 PM.) So, if the mood strikes you, call them.

### Thermal Index Forecast

The AWO and the EPH Thermal Index Prediction (TIP) are available at the respective TOPICA lists

"AWO\_WX@topica.com" and "EPH\_WX@topica.com", To subscribe to EPH\_WX, send an email to:EPH\_WX-subscribe@topica.com

To unsubscribe to EPH\_WX, send an email to:EPH\_WX-unsubscribe@topica.com

Use a similar format for AWO TIP.

When you subscribe you get the TIPs every day at about 9:00 AM in your Email Inbox.

## SGC Training Facility

### By Heinz Gehlhaar

The SGC is building a new Training Facility/Clubhouse at EPH. This facility is paid for almost entirely by donations from the soaring community. Some generous soul has provided a matching fund, which means every dollar you donate, is really two dollars for the Building Fund. So, pull out your checkbook and send as much money as you can to:

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Jim Simmons,  
13716 50th Ave W  
Edmonds WA 98026.

Also, at our June 15 meeting, vote for our Club's \$1000 contribution to the SGC Building Fund. The matching

fund will make our contribution worth \$2000. This is well worth our while. It gives us a facility to stay at, when at EPH. It also puts SGC in a much stronger position to represent us at the Ephrata Airport and in the Ephrata Community.

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## TE COMPENSATION

by Rudolph Brozel ILEC GmbH Bayreuth, Germany, September 1985

Edited by Thomas Knauff, & Dave Nadler April, 2002

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### FORWARD

Rudolf Brozel and Juergen Schindler founded ILEC in 1981. Rudolf Brozel was the original designer of ILEC variometer systems and total energy probes. Sadly, Rudolph Brozel passed away in 1998.

ILEC instruments and probes are the result of extensive testing over many years. More than 6,000 pilots around the world now use ILEC total energy probes. ILEC variometers are the variometer of choice of many pilots, for both competition and club use. Current ILEC variometers include the SC7 basic variometer, the SB9 backup variometer, and the SN10 flight computer.

### INTRODUCTION

The following article is a summary of conclusions drawn from theoretical work over several years, including wind tunnel experiments and in-flight measurements. This research helps to explain the differences between the real response of a total energy variometer and what a soaring pilot would prefer, or the ideal behavior. This article will help glider pilots better understand the response of the variometer, and also aid in improving an existing system. You will understand the semi-technical information better after you read the following article the second or third time.

### ACCELERATION, SINK RATE, and THE VARIOMETER.

Astute pilots may have noticed when they perform a normal pull-up maneuver, as they might enter a thermal; the TE (total energy) variometer first indicates a down reading, whereas the non-compensated variometer would rapidly go to the positive stop. One would expect the TE variometer to not move at all. Many pilots interpret this phenomenon as an error of the TE compensation device and proceed to install further devices, or to begin shortening or lengthening tubes and/or tubing in an attempt to trim the system to remove this initial down indication. On the contrary, if your variometer does not show this initial down indication, your total energy compensation is not working properly!

When you perform a pull-up maneuver, additional G forces are produced. The lift of the wing must carry the increased weight of the glider, as during an un-accelerated, steady speed glide, but also must induce the additional force to accelerate the glider upward. The lift becomes  $n \times w$  where  $n$  is the load factor and  $w$  is the weight of the glider. This increased lift also causes increased drag. The additional drag consumes additional energy. The increased energy loss rate can only be fed from the glider's potential energy stored, which causes the glider to sink faster, or climb slower than it would have without the acceleration. A total energy variometer must register this additional energy loss - therefore the down reading.

A TE variometer doesn't indicate vertical speed. It shows the rate-of-change of the glider's total energy per unit of weight - therefore it's name. It measures the variation of the glider's total energy, which is the sum of potential energy (proportional to altitude) and kinetic energy (proportional to the square of velocity). Its indication can only be regarded as being equal to true vertical speed in the case where kinetic energy does not change, in other words: where the absolute value of velocity (airspeed) remains constant. In contrast, a non-compensated vario will measure the rate of change of potential energy alone, which means the rate of change of altitude, or true vertical speed, independent of whether the glider's velocity changes or not. Conclusion: the two types of variometers indicate the same only when the glider's airspeed does not change.

If you have your glider shoot up on a straight trajectory ascending at an angle of fifteen degrees at a speed of 82 knots, you will climb at a vertical speed of more than twenty knots. This rate of climb will be indicated by the non-compensated altitude variometer, whereas the TE variometer will indicate the actual rate of sink corresponding to the actual velocity, and according to the glider's performance polar, for example -4 knots at 82 knots in calm air. In a steady circle at constant airspeed, the TE and uncompensated variometers will have the

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same indication, as the airspeed does not change even though the direction does.

The effect of acceleration is also present when circling: The glider has to be constantly accelerated towards the circle's center (the velocity direction changing constantly). The additional force required during a turn demands greater lift, which also generates more drag, which increases the energy loss rate of the glider, and thus increases the sink rate. Every glider pilot knows this effect while in curved flight, and takes it into account when circling in a thermal.

When pulling up, the same phenomenon occurs, only its effect on sink rate is not directly evident as in the case of circling. This is so because the effect is not so noticeable to the pilot because it is swamped by the large true vertical speed, the latter being caused by the inclination of the trajectory, and being much greater than the glider's proper sink rate. However, the energy loss is still there. The effect of acceleration during the pull up maneuver will not be discernible on the non-compensated variometer. However, it is easily seen on the TE variometer if it is well compensated, because the part of the vertical speed, which is due to the trajectory's inclination, is compensated out, and the part due to the energy loss caused by the increased drag is still indicated. During actual pulling where the load factor is high, the additional loss can lead to an additional sink rate, which exceeds the glider's polar sink rate by an important amount. Therefore it becomes clearly visible on the TE variometer – the harder you pull, the more the variometer deflects downwards.

Conditions are inverted in a pushover maneuver. As long as the aircraft remains on a trajectory curved downwards it will be accelerated towards the ground; it quasi "falls" down and the load factor becomes smaller than one. Lift is reduced and also drag, and consequently the energy loss rate. The sink rate indicated by the TE variometer decreases as the glider follows its curved trajectory. It can approach zero sink rate in the case where one follows a parabolic trajectory near zero 'G'; calm air being assumed. As an aircraft suffers drag as long as it flies, an ideal TE variometer would never indicate climb in still air no matter what maneuver is performed! Real variometers will deviate from this rule; how much is a good criteria for the quality of the TE system.

The effect of normal accelerations (load factors) on the sink rate of an ASW-19 follows. For other gliders, the effect is essentially the same.

- The normal sink rate will double when pulling up at 1.5 G at a speed of 44 kts, or when flying at a 48-degree bank angle at the same speed. Upon pulling even more, the flow around the wing will begin to separate.
- Pulling to a load factor of 3 at a speed of 61 kts will multiply the sink rate by a factor of 4.

- At 122 kts one can pull as much as one can stand: This will have nearly no influence on sink rate and/or TE indication.
- At 39 kts, you can reduce the sink rate by one half by pushing to one half-G. (For a short while only, unfortunately.)

We see from this discussion that total energy compensation absolutely does not eliminate the effects of pulling and pushing. To the contrary, it really only shows the accompanying energy losses. What it eliminates is only the vertical component of velocity due to the inclination of the trajectory, or the effects of the exchange between kinetic and potential energy as a consequence of the inclination of the trajectory.

This state of affairs should be kept in mind when indulging in accentuated dolphin flight or following the speed command computers. One should not attribute the sometimes-powerful negative excursions of the TE variometer to a poor TE compensation, but to one's own too rough style of piloting. Be gentle on the controls to give more useful variometer readings.

## THE ROLE OF TURBULENCE

As we have seen, the TE variometer measures the rate of change of the total energy of the glider. The pilot normally thinks in terms of gain or loss of altitude as it happens in a thermal or downdraft area. Unfortunately there is another kind of influence on total energy imposed by the atmosphere: the gain or loss of kinetic energy by a sudden increase or decrease of the aircraft's velocity with reference to air by horizontal gusts or wind shear.

Every pilot knows this effect and also knows that after such a gust, one can either pull up to gain some altitude, or push over to regain lost speed. In the process, the glider either gains or loses altitude, which means a change of energy. If you watch closely, the TE variometer will jump up or down as the glider passes through such a gust, indicating a gain or loss in the total energy available to the glider.

This jump in "energy" is seen by the variometer exactly the same way as if the glider had made an equivalent jump in altitude at constant velocity. The TE variometer cannot discriminate between the two sorts of energy change. Expressed in mathematical terms, this jump is  $dH=1/G \times V \times dV$  where G is the earth's gravity constant = 9.81 m/s/s, V is the momentary velocity, and dV the velocity jump. We observe that the jump registered is proportional to flight velocity. This means that the jump in wind speed at 120 kts creates an indicator excursion twice as big as at 60 kts.

How large are these disturbances in reality? In order to answer this question we have to determine the magnitude of the disturbances of velocity. There are good physical reasons to suppose the horizontal component of turbulence is of the same order as the vertical component.

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This means we will have to consider typical horizontal gusts as much as 10 knots.

If we assume a horizontal airspeed of 83 knots and use the formula above, we arrive at the most astonishing value of +/- 60 feet for a +/- 10-knot gust. Depending on its response speed, the variometer will make a large but short duration, or a smaller but longer duration bounce. A moving vane variometer with a time constant of 3 seconds will jump about 15 feet per minute and then descend to its original indication in about six seconds.

This phenomenon is a basic property of TE compensation. There is no remedy against it. It is absolutely independent of the type of measuring principle the instrument uses (compensation by aerodynamic probe, membrane, electrical compensation, moving vane, pressure transducer, or flow sensor types).

One can only try to obtain an indication as calm as possible by optimizing the time response of the instrument. Variometers with second order gust filters introduced by ILEC are superior for this purpose to the more common first order filters. This is so because second order filters "tranquelize" the response without increasing the delay of the signal as do first order filters.

In fact, it is fairly easy to distinguish between the variometer's responses to horizontal gusts vs. a real thermal. In the first case, one would not notice any vertical acceleration (G force) but in the other quite easily. Of course, in the real world, the two events are often coupled together. Not every pulse caused by a horizontal gust is only that. Quite often, it is the first indication of a real thermal. This is probably the reason most pilots have not noticed the phenomenon.

A horizontal gust acting perpendicular to the aircraft's flight can be seen when the yaw string is deflected. If the TE probe is sensitive to these side gusts, the variometer will indicate a change in energy. The problem is much more difficult in the case of electronic total energy due to the gust sensitivity of the glider's static ports. During thermalling, side-slip angles of up to 15 degrees are not uncommon (because of air circulation in the thermal, not pilotage). Therefore, a good TE probe will give much better results than electronic compensation.

## TESTING A TOTAL ENERGY SYSTEM

There is one simple and reliable method of testing, namely the test on a straight and inclined trajectory. The well-known method using two airspeed indicators is a dangerous one where static pressure errors may lead to errors in the pressure coefficient measured for the TE probe of up to 50%.

The method:

Use calm air (early morning). You will not get clear results testing while thermals are active.

**Step 1:** Fly the airspeed of minimum sink, or minimum speed plus 5 kts for at least ten seconds.

**Step 2:** Push steadily until reaching a 10 to 15 degree nose down attitude. The G-meter should indicate .5 to .2 G. Dust should remain on the floor of the cockpit.

**Step 3:** Maintain pitch angle by observing horizon and with gentle stick motion.

**Step 4:** Pull back before reaching Vne, and bring the nose to 10 to 15 degree nose up attitude.

**Step 5:** Maintain pitch angle until reaching minimum speed.

Observations:

**Step 1:** The variometer must indicate the aircraft's actual minimum sink rate.

**Step 2:** During the push-over, the vario must climb to near zero because of the load factor being smaller than one. If your TE probe is far aft of the center of gravity, (on the tail or fin) the positive excursion of the vario is increased by the effect of the longitudinal air column between variometer instrument and the probe. This latter effect becomes stronger with the length of the air column and with the change in pitch angle. The effect of the air column is rarely stronger than about 1 kt, meaning that the total reading should not exceed about +1 kt.

A damped vario has a smaller pointer movement, but it moves for a longer time. Thus, one can hardly see this effect with a slow mechanical variometer, but it is clearly visible with an ILEC variometer.

**Step 3:** The airspeed will increase linearly with time. A well-compensated variometer will indicate the proper sink rate corresponding to the actual airspeed indicated.

However, the variometer signal is delayed by the time constant of the variometer's response. For a moving vane type variometer, this is about 3 seconds (or a 15 knot airspeed lag for a 15 degree pitch angle).

**Step 4:** During the pull-up with a load factor of 2G or 3G, you will typically see a deflection of the T.E. variometer in the negative direction. During this time, there is an amplification of the effect by the longitudinal air column in the T.E. tubing to the tail.

**Step 5:** As you decelerate, the glider's polar is run through in the reverse order.

When the average of the readings of step 4 and 6 corresponds to the actual polar the compensation is perfect. One should carry out a number of flights to get a good picture of the compensation.

## TESTING THE INFLUENCE OF SIDESLIP ON T.E. COMPENSATION

All methods of compensation suffer from the influence of sideslip. It is practically impossible, in a strong thermal, to maintain a zero sideslip angle, due to air circulation in the thermal. If the compensation is sensitive to sideslip, then it will generate disturbances in the variometer reading. Insensitivity to sideslip is thus an important criterion for good compensation.

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The largest angles of turbulence-induced sideslip occur at slow speeds as in thermalling. You can expect these turbulence-induced slips as great as fifteen degrees! Only the best TE probes can handle this. It must be added that the problem is much more difficult to solve in the case of electronic TE compensation because of the sensitivity to slip is greater than a good aerodynamic probe.

It should be noted, the glider's pitch stability is very strong, and the glider will vigorously eliminate disturbances to its angle of attack. Yaw stability, however, is comparatively very small; therefore disturbances last longer and affect the glider more.

A simple method of testing is to maintain a sideslip (at altitude) of 30 degrees for three seconds. Use the yaw string as an indicator. Straighten the sideslip without haste using rudder and aileron, maintaining pitch attitude as far as possible. The variometer should transit from rather strong sink to the polar sink rate in a steady fashion without jumps. It should never show less sink than expected from the polar.

What counts is only the smooth transition, not the absolute value indicated during the slip. Only at the end should the vario indicate the polar sink rate.

## INFLUENCE OF ANGLE OF ATTACK

Longitudinal stability is very great, and angle of attack therefore remains constant within reasonable limits (in the normal speed range +/- 5 degrees). The change of angle of attack due to turbulence or intended flight maneuvers is only a small problem except when one uses a poor source of static pressure in the case of membrane systems or electronic compensation. Unfortunately there are at best only poor sources of static pressure.

When using a good TE probe there is normally no problem with angle of attack, as long as the probe is mounted at right angles to the longitudinal axis of the glider, and at a correct location. TE probes are best mounted high on the vertical stabilizer parallel to the aft fuselage cone.

## INFLUENCE OF THE ELEVATOR

Pitch control inputs can influence the variometer in cases where the probe is mounted ahead of the elevator. Note that this effect is only during or shortly after the elevator is moved.

One way a pitch input affects the variometer is because the probe sees a change in relative wind. If the probe is very sensitive to angle of attack changes such as the older venturi type probes, then moving the elevator will cause a pressure change via the probe.

The pressure field in front of the horizontal tail plane is rather far reaching. The local static as well as dynamic pressures will vary with elevator deflections. Center of Gravity position, airspeed, and load factors also influence the pressure field forward of the horizontal tail plane. Note that only during, and shortly after a change in elevator setting do these interferences occur. If the probe

is too short, these local pressure changes will result in variometer motion when the elevator is moved.

You can test interference by the elevator by rather strong reactions of the variometer in both directions when successively pulling or pushing at moderate speeds. When pulling and pushing in a rapid sequence, the variometer may well deviate downwards but not upwards over the zero line.

The remedy for these problems is to mount the probe further ahead of the horizontal tail plane with a longer probe that is less sensitive to angle of attack. The head of the probe should be as close as possible to the plane of symmetry of the horizontal tail plane. The smaller the vertical offset, the less the elevator affects the variometer. A vertical distance over half the depth of the horizontal tail plane is very bad!

## TE PROBES ON THE FUSELAGE

The fuselage creates a very strong pressure field around itself, which will seriously disturb any pressure probe in its vicinity. This is even so in clean straight flight without any sideslip. Conditions become even worse during sideslips or accelerated flight. An estimation of errors created is quite difficult because the air stream pattern around the fuselage is very complex and naturally different for every type of glider. Some general precautions:

- Avoid the area near the wing. The further away, the better.
- The measuring head of the probe should be as far away from the fuselage as possible. As a general rule of thumb, at least a full diameter of the fuselage at the mounting point.
- Avoid the region between the wing and a projected line to the trailing edge of the horizontal tail plane (in the case of a T tail). At low speeds, this region is very turbulent and will affect a probe severely.

As you can see, there remains very little space for a good position of the TE probe on the fuselage. By contrast, the position on the fin in front of the horizontal tail is comparatively without problems.

## FURTHER DISTURBING FACTORS

The influence of load factors and turbulence on the proper sink rate of a glider is something we can do nothing about. We will have to learn to live with them.

The other influences are errors stemming from the complete measuring system proper; errors which could be eliminated by a more perfect system, however more complex. It can be said with good justification that the more serious errors can be attributed to taking the measuring pressures, and here with they can be traced back to aerodynamic phenomena induced by the aircraft itself, and to the tubing.

Many of these pneumatic measuring errors are very difficult to get hold of because they depend on several

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influences at the same time. Fortunately they are generally weaker disturbances of the TE compensation, which one will only notice with a very perfect system.

## MUTUAL INTERFERENCE BETWEEN VARIOMETERS

If more than one variometer is being supplied with the same TE probe or static source, some caution should be applied as the variometers can interact with each other. This is particularly true when large flasks or so-called "gust filters" are used. In the worst case the initial indication of the variometer can be reversed! Generally, two variometers should be connected to the T.E. probe as far away from each other as possible. Placing a T in the TE line under the pilot seat and running separate lines forward to each variometer can help greatly.

When using multiple variometers, perform a test flight with only one variometer connected. If the response is correct, connect the second variometer and repeat the test. If the response of the first variometer is affected, correct the plumbing!

ILEC variometers normally do not disturb other variometers, due to their tiny flasks (only .45 liter volume). However, an ILEC variometer can easily be disturbed by another instrument.

## COMPENSATION QUALITY - SUMMARY

1. There is no perfect compensation.
2. If (during steps 3 and 5 of the above test) the averaged sink rates stay within +/- .2 m/s (+/- .4 knot) of the polar sink rate in the speed range up to 100 knots, and if there is no excessive indication during pitch inputs or side-slip, one can qualify the compensation as excellent. With this system, one can easily see a 2 knot thermal even during a 45 degree pull-up, and when thermalling one will have minimal extraneous variometer indications.

## CFIG Scholarship Program

BESC is continuing the offer of a CFIG Scholarship Program. To qualify for application to the Scholarship Program, you must

- 1) have been a member of BESC for 1 year or more, and
- 2) have a Glider commercial rating.

Once approved for the program, you will qualify for reimbursement after you have passed:

- 3) the Fundamentals of Instruction knowledge test;
- 4) the CFIG knowledge test; and
- 5) the CFIG practical test.

You will then be reimbursed, up to a combined total limit of \$500, for your CFIG Knowledge and Practical Test fees, and BESC glider and tow fees incurred during the pursuit of the CFIG rating. In return, you are obligating

If the average sink rates stay within +/- .5 m/s (+/- 1 knot), the compensation should be considered good.

## IMPROVING AN EXISTING SYSTEM

Contrary to widespread opinion, a poor compensation cannot be improved by additional damping (capillaries and the like.) In this way, one will generally convert a poor T.E vario into an even poorer averager.

The faster the vario, the clearer the errors of compensation will show. While some manufacturers promise faster variometers, in practice this has repeatedly been shown to be counter-productive.

Errors must first be sought at the source. This means with the tube or the way it is mounted. With electronic TE compensation, the static system must be completely free of errors, which as we see above is very difficult.

Leaks, too-flexible tubing, or squeezed flexible tubing are the most frequent causes of poor TE compensation when using a good quality TE probe.

Leaks and pinched tubing can have catastrophic consequences.

The probe must be mounted correctly. Don't mount a TE probe near the wing, as anything within one chord-length from the wing will be affected by the changing wing CL (load factor or acceleration). The axis of the TE probe should be aligned with the relative wind at around max L/D speed.

If a system using a TE probe works improperly, and is free from leaks, isolated from other variometers, and mounted in the correct location, then the problem is likely with the tube itself. We have seen many different attempts at manufacturing a TE probe, and also many probes that have been „adjusted“. For good results, use high-quality probe!

ILEC is producing TE-probes, variometers and glide computers. See them at [www.ilec-gmbh.com](http://www.ilec-gmbh.com)

yourself to be the flight instructor on the field for a minimum of 12 days over the next two years. Eligible members may apply to our Vice President Lynn Weller, E-mail Address: [william.l.weller@boeing.com](mailto:william.l.weller@boeing.com), Phone 425-235-1610(h), 206-662-3216(w). The BESC Executive Board will award the scholarship.

## For Sale / Want to buy

Members can post ads here. Send them to Heinz

### For Sale:

**New Price!**

**Headset - New (used once) Pilot MEI - 20 Headset with mouth piece and ear covers. \$150 new will sell for \$65. Don Banford, 425-828-6553**

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## YAWSTRING Masthead

<p style="text-align: center;"><b>YAWSTRING</b> The newsletter of the <b>Boeing Employees Soaring Club</b> Available at <a href="http://www.boeingsoaring.com/yaw.html">http://www.boeingsoaring.com/yaw.html</a> Newsletter editing and layout: Heinz Gehlhaar, <a href="mailto:heinz@foxinternet.net">heinz@foxinternet.net</a> 206-932-5428 Conversion to PDF Format: Brent Stillings</p>
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The newsletter is published whenever the editor gets "a round tuit". Serious attempts are being made to publish it once a month. Usually it gets out sometimes in the middle of the month. Please send round tuits!  
Also, **Please Please** send me any errors you see in the Newsletter. Call me at 206-932-5428.

## Our Airplane Fleet Status

Our Webmaster is keeping an up-to-date Table of our Fleet status on the BESC Web at <http://www.boeingsoaring.com/fleet.html>. Please look there for the latest information.

Aircraft	Current Location	Maintenance Manager	Next Annual Due
<b>Pawnee N6917Z</b> The Pawnee is at Ephrata ready for towing.	<b>Ephrata</b>	<b>Pierre Parent</b>	Next annual - Feb 2003
<b>Super Cub N7474D</b> The SuperCub towplane is operational but pilots above 200 lb need to carry CG ballast in the cargo area...	<b>Arlington</b>	<b>Mike Moore</b>	Next annual - Jan 2003
<b>Schweizer 1-26 N7742S</b> Thanks to Kevin Finke, the 1-26 is ready to fly with a new Canopy. Please keep it closed and locked.	<b>Ephrata</b>	<b>Kevin Finke</b>	Next annual - Feb 2003
<b>Schweizer 1-34 N7644</b> In work for a replacement wing spar root stub shear web and a canopy that fits.	<b>Arlington</b>	<b>Travis Brown</b>	Annual - in work
<b>Blanik L23 N264BA</b> On line, ready to use. Boom Mikes are installed. Thank Lynn for getting it done!	<b>Arlington</b>	<b>Lynn Weller</b>	Next annual - Jan 2003
<b>Blanik L23 N265BA</b> On line, ready to use at EPH	<b>Ephrata</b>	<b>Alex Powell</b>	Next annual - May 2003
<b>L33 Solo N355BA</b> The L-33 is parked with the other glider trailers just north of the Gateway Café, ready to fly.	<b>Arlington</b>	<b>Craig Funston</b>	Next annual - June 2002
<b>Grob-102, Astir N141SS (X3)</b> At Ephrata and available for use. The radio is inop so carry a handheld radio. The total energy probe is in the trailer.	<b>Ephrata</b>	<b>Alan Kirlin</b>	Next annual - Mar 2003
<b>Parachute Status</b> Our 4 parachutes have been re-packed. 2 are at EPH and 2 at AWO. Watch the Re-pack date Last updated June 4, 2002..	<b>AWO/EPH</b>	<b>Micheal Clarke</b>	Look at tag on 'chute

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## BESC Board

Here are the persons who spend lots of their time to make the Organization run. If you see a problem, which you can't solve, or if you want to participate in running BESC, please bring it to the attention of any of them. You will get a resolution, which benefits all of BESC.

### Officers:

Office	Name	Phone	Mail	E-mail
President	Jim Dobberfuhl	W (425) 342-2241 H (425)-741-8001	0F-24	<a href="mailto:james.p.dobberfuhl@boeing.com">james.p.dobberfuhl@boeing.com</a>
Vice President	Lynn Weller	W (206) 544-0242 H (425) 235-1610	4T-15	<a href="mailto:william.l.weller@boeing.com">william.l.weller@boeing.com</a>
Secretary	Jim McNeil	W (206) 662-4214 H (425) 827-1834	19-HJ	<a href="mailto:james.w.mcneil2@boeing.com">james.w.mcneil2@boeing.com</a>
Treasurer	Martin Gibbins	W (206) 655-2727 H (425) 644-4696	4E-11	<a href="mailto:martin.n.gibbins@boeing.com">martin.n.gibbins@boeing.com</a>
C.F.&S.O.	<b>OPEN</b>	[This has been OPEN too long! Look into your heart & tackle the job. Ed.]		
Operations	Don Banford	(H) (425) 828-6553 (Cell) (206) 619-7201	--	<a href="mailto:donbanford@msn.com">donbanford@msn.com</a>
Pawnee Tow Plane Manager	Pierre Parent	W (425) 294- 1904 H (360) 653-2613	04-JU	<a href="mailto:pierre-julien.parent@boeing.com">pierre-julien.parent@boeing.com</a>
Super Cub Tow Plane Manager	Mike Moore	H (206) 790-7949	--	<a href="mailto:mmore@attglobal.net">mmore@attglobal.net</a>

### Sailplane Managers

Office	Name
Maintenance	N7742S (1-26) Kevin Finke 651-388-6631[w] 651-388-1733[h] N7644 (1-34) - Travis Brown 425-266-3199[w] 206-795-9092[h] N355BA (L-33) Craig Funston 206-795-9092[w] 360-671-8913[h] N264BA (L-23) Lynn Weller 206-662-3216[w] 425-235-1610[h] N265BA (L-23) Alex Powell 425-235-1610[w] N141SS (Astir) Alan Kirlin 425-237-1360[w] 206-954-6498[h] Replacement needed

### Non-Officers:

Office	Name	Phone	Mail	E-mail
Bookkeeper	David Owen	W (425) 342-4737 H (360) 653-8928	03-16	<a href="mailto:david.owen@boeing.com">david.owen@boeing.com</a>
Newsletter	Heinz Gehlhaar	H (206) 932-5428	--	<a href="mailto:heinz@foxinternet.net">heinz@foxinternet.net</a>
Webmaster	Stan Kasprzyk. Replacement needed	W (206) 655-2040 H (253) 631-2088	4C-95	<a href="mailto:stan.kasprzyk@boeing.com">stan.kasprzyk@boeing.com</a>
Scheduler	Travis M. Nelson	H (425)-392-6044	8K-32	<a href="mailto:travis.m.nelson@boeing.com">travis.m.nelson@boeing.com</a>
Librarian	Tony Puglisi	W (425) 294-0096 H (206) 367-6980	04-EC	<a href="mailto:anthony.j.puglisi@boeing.com">anthony.j.puglisi@boeing.com</a>
Hot Line	Travis M. Nelson	W (253) 657-2510 H (425)-392-6044	8K-32	<a href="mailto:travis.m.nelson@boeing.com">travis.m.nelson@boeing.com</a>

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## Hot Line & Other Addresses

*Hot Line Changes or Set-Up:* Travis M. Nelson

*Hot Line* 206-516-4149. This gets you the latest information.

Any other questions can be directed to Vice President Lynn Weller

## Instructors & Tow Pilots

### BESC Instructors

Have you hugged your Instructors lately? Here is a list of them. They come out to the field, hungry to fly. And all they ever get is a rough ride in the back seat.

When you fly with them, worry about their well-being; like getting a break, getting something to drink and getting lunch.

If it were not for the CFGs almost none of us would be flying.

Steve Baker  
Ron Bellamy  
Rich Blow  
Chuck Flora

Al Gregg  
John Hope  
Stan Kasprzyk @

Carl Niedermeyer  
Kapi Parks  
Ragnar Smith

@ Denotes SSA Instructor

Thanks a lot CFGs for signing up weekend after weekend. We students really do appreciate your time and effort.

### BESC Tow Pilots

Here is the list of BESC's active Tow Pilots. These individuals are glider pilots AND tail-dragger power pilots who take time off from glider-flying, to get our flights started. Kudos and lots of thanks to them. Remember, like all volunteers, they always welcome a hearty Thank You.

#### TOW Pilots

Allan, Bill  
Banford, Don\*\*  
Bellamy, Ron<sup>+</sup>  
Bornholdt, Gene<sup>+</sup>\*\*  
Chamberlain, Terry<sup>+</sup>  
Flora, Chuck\*\*

Funston, Nelson  
Higley, Richard  
Hope, John\*\*  
Johnson, Eric<sup>+</sup>  
Kasprowicz, Krzys  
Koehn, Mike  
McNeil, Jim

Moore, Michael<sup>+</sup>  
MacIndoe, Scott  
Niedermeyer, Carl<sup>+</sup>\*\*  
Northcraft, Steve\*\*  
Parent, Pierre\*\*  
Smith, Ragnar\*\*  
Todd, Jay

<sup>+</sup> Denotes Commercial Power Rating, <sup>\*\*</sup> Denotes BECS Check Pilot

## BESC Ops Schedule

June 2002 (Arlington-AWO + Ephrata-EPH)

Day	Date	Field Manager Arlington	Instructor Arlington	Tow Pilot Arlington	Tow/Instructor Ephrata
SAT	8	Tony Puglisi (W) (206) 294-0096 (H) (206) 367-6980	Rich Blow (W) (425) 373-8049 (H) (425) 391-1087	Mike Koehn (W) (425) 342-5123 (H) (425) 462-8307	Mike Moore (H) (206) 790-7949
SUN	9	Tim Rohr (W) (425) 717-0520 (H) (206) 935-4705	--	Jim McNeil (W) (206) 662-4214 (H) (425) 827-1834	Carl Niedermeyer (W) (425) 237-9423 (H) (425) 337-1506

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SAT	15	Brent Stillings (W) (425) 234-4836 (H) (253) 833-7683	--	Gene Bornholdt (H) (360) 378-1050	--
SUN	16	Phil Grate (W) (206) 345-6224 (H) (425) 222-4732	--	Chuck Flora (H) (425) 562-1484	Don Banford (H) (425) 828-6553 (Cell) (206) 619-7201
SAT	22	EPH Encampment Begins No AWO Ops	EPH Encampment Begins No AWO Ops	EPH Encampment Begins No AWO Ops	EPH Encampment Begins Krzys Kasprovicz (H) (425) 641-3267 Nelson Funston (H) (206) 232-9416
SUN	23	All BESC Ships at EPH	All BESC Ships at EPH	All BESC Ships at EPH	Mike Moore (H) (206) 790-7949 Mike Koehn (W) (425) 342-5123 (H) (425) 462-8307
MON	24	--	--	--	--
TUE	25	--	--	--	--
WED	26	--	--	--	--
THU	27	--	--	--	--
FRI	28	--	--	--	--
SAT	29	All BESC Ships at EPH	All BESC Ships at EPH	All BESC Ships at EPH	EPH Encampment Ends Carl Niedermeyer (W) (425) 237-9423 (H) (425) 337-1506 Jim McNeil (W) (206) 662-4214 (H) (425) 827-1834
SUN	30	All BESC Ships at EPH	All BESC Ships at EPH	All BESC Ships at EPH	Region 8 Contest Begins Pierre Parent (W) (425) 294-1904 (H) (360) 653-2613 Don Banford (H) (425) 828-6553 (Cell) (206) 619-7201

## July 2002 (Arlington-AWO + Ephrata-EPH)

Day	Date	Field Manager Arlington	Instructor Arlington	Tow Pilot Arlington	Tow/Instructor Ephrata
SAT	6	--	--	--	Region 8 Contest Ends Chuck Flora (H) (425) 562-1484 Nelson Funston (H) (206) 232-9416
SUN	7	Don Bisbee (H) (425) 641-1750	--	Gene Bornholdt (H) (360) 378-1050	John Hope (W) (206) 662-7606 (H) (206) 772-6588

# YAWSTRING

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SAT	13	Paul Cook (W) (425) 481-2783 (H) (425) 806-4867	--	Krzys Kasprowicz (H) (425) 641-3267	Mike Koehn (W) (425) 342-5123 (H) (425) 462-8307
SUN	14	Craig Funston (W) (360) 734-7194 (H) (360) 671-8913	--	Jim McNeil (W) (206) 662-4214 (H) (425) 827-1834	Nelson Funston (H) (206) 232-9416
SAT	20	Phil Grate (W) (206) 345-6224 (H) (425) 222-4732	--	Carl Niedermeyer (W) (425) 237-9423 (H) (425) 337-1506	Don Banford (H) (425) 828-6553 (Cell) (206) 619-7201
SUN	21	Narinder Luthra (W) (425) 342-7004 (H) (360) 668-7356	--	Gene Bornholdt (H) (360) 378-1050	Mike Moore (H) (206) 790-7949
SAT	27	Jim Morgan (W) (425) 717-6042 (H) (425) 353-2231	--	Chuck Flora (H) (425) 562-1484	Nelson Funston (H) (206) 232-9416
SUN	28	Tony Puglisi (W) (206) 294-0096 (H) (206) 367-6980	--	Krzys Kasprowicz (H) (425) 641-3267	Mike Koehn (W) (425) 342-5123 (H) (425) 462-8307

## Operations Team Sign-Up

Please sign up with Travis M. Nelson, 425-392-6044 (hm), 253-657-2510 (wk)

Email [travis.m.nelson@attbi.com](mailto:travis.m.nelson@attbi.com) (hm), or [travis.m.nelson@boeing.com](mailto:travis.m.nelson@boeing.com) (wk)

### August 2002 (Arlington-AWO + Ephrata-EPH)

Day	Date	Field Manager Arlington	Instructor Arlington	Tow Pilot Arlington	Tow/Instructor Ephrata
SAT	3	--	--	--	--
SUN	4	--	--	--	--
SAT	10	--	--	--	--
SUN	11	--	--	--	--
SAT	17	--	--	--	--
SUN	18	--	--	--	--
SAT	24	--	--	--	--
SUN	25	--	--	--	--
SAT	31	--	--	--	--

### Auto-Scheduling Process

- 1) Three months prior to the start of the Active Schedule Period, a blank Operations Schedule is published with notification of a one-month open signup period. Members can sign-up via phone or e-mail or snail-mail to the Scheduler.
- 2) At the end of that month, the remaining openings are auto-scheduled.
- 3) All volunteers are confirmed of their impending commitments via email or phone by the scheduler by the end of the second month.

Date swapping after each Open Signup period is the responsibility of each individual. Use the current YAWSTRING or Web schedule to help you find a person to swap with. In **extreme emergency**, the scheduler Travis M. Nelson, 425-392-6044 (hm), 253-657-2510 (wk) or Email [travis.m.nelson@attbi.com](mailto:travis.m.nelson@attbi.com) (hm), or [travis.m.nelson@boeing.com](mailto:travis.m.nelson@boeing.com) (wk) may be able to help. Please, **DO NOT MIS-USE THIS OPTION!**

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## **Instructions for Field Managers:**

Field managers are responsible for

- 1) Ensuring proper closure at the end of the day. If you are field manager for the day, you have the responsibility of double checking that all aircraft are properly tied down and appropriately secured.
- 2) Assuring that the flight operations list and the Tow Cards (from the Towpilots) get mailed to Linda Chism, the flight log keeper or to Jim Dobberfuhl (M/S OF-24). If this does not get done, we loose Club Revenue. Linda Chism (even though inactive) is still the BESC logkeeper. If stamped addressed envelopes are available in the BESC hangar, send tow cards, logs and all data relative to flying activities to Linda at:

Linda Chism  
5422 46th Ave SW  
Seattle WA 98136  
e-mail: linda.chism@gte.net

The club will reimburse all mailing costs (receipts helpful, but not mandatory).

- 3) Obtaining your own substitute if unable to support the schedule
- 4) Notifying the BESC scheduler, Travis M. Nelson, 425-392-6044 (hm), 253-657-2510 (wk) or Email [travis.m.nelson@attbi.com](mailto:travis.m.nelson@attbi.com) (hm), or [travis.m.nelson@boeing.com](mailto:travis.m.nelson@boeing.com) (wk) to revise the Newslite when there are any changes to the Operation Schedule

(See NEW updates to the details of this list on page 2)

## **Operations Reminder to everyone:**

- 1) **Everyone, students and rated pilots alike, are requested to call or e-mail the Field Manager or Instructor or Tow Pilot at least 48 hours before you intend to fly.**
- 2) Arrive by 9:30 AM for operations at Arlington and 10:30 AM at Ephrata.
- 3) "--" indicates a volunteer required. Call Travis M. Nelson, 425-392-6044 (hm), 253-657-2510 (wk) or Email [travis.m.nelson@attbi.com](mailto:travis.m.nelson@attbi.com) (hm), or [travis.m.nelson@boeing.com](mailto:travis.m.nelson@boeing.com) (wk)
- 4) Monitor the newslite (206) 516-4149 for revisions and updates to the schedule.

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Specific scheduling questions can be directed to the BESC scheduler, Travis M. Nelson, 425-392-6044 (hm), 253-657-2510 (wk) or Email [travis.m.nelson@attbi.com](mailto:travis.m.nelson@attbi.com) (hm), or [travis.m.nelson@boeing.com](mailto:travis.m.nelson@boeing.com) (wk)

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BESC questions can be directed to:  
Lynn Weller, BESC Vice-President  
(W) (206) 544-0242, (H) (425) 235-1610

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## **Comments to the Editor**

Your YAWSTRING Editor will gladly receive comments from anyone. Write or Email to [heinz@foxinternet.net](mailto:heinz@foxinternet.net) or 4504 SW Roxbury Place, Seattle WA 98136. Most of them will get printed.

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