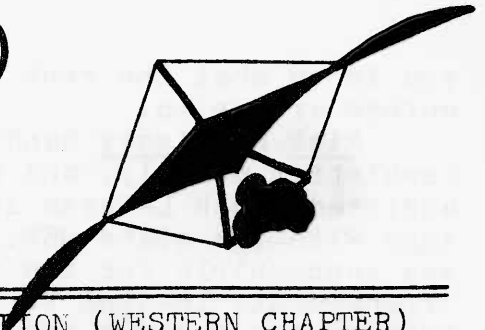


DUES, MARK...

WRAP



NEWSLETTER OF THE MASSACHUSETTS HANG GLIDER ASSOCIATION (WESTERN CHAPTER)

VOLUME 3, NUMBER 6

JUNE 1977

Ed.: M. Morrissey



1977 MassHGA

MEETING NOTICE

The June meeting of the MassHGA will be held as always on the third Tuesday of the month at 8:00 PM on Tuesday, June 21, at the ME Bar and Lounge on Rt 47 in Hadley, two miles north of Skinner State Park.

Guest of MassHGA at the June meeting will be Mr. John Graham of the Federal Aviation Administration General Aviation District Office at Barnes Airport in Westfield. Besides filling us in on the latest word on hang gliding from the FAA, and giving us a chance to become more familiar with the air traffic patterns in the Pioneer Valley area, Mr. Graham will be bringing along a film on wake turbulence which he says is very interesting and informative.

Mr. Graham had planned on being at the May meeting, but had to cancel out at the last moment - the FAA had just sent a telegram to all of its regional offices, the day before the meeting, telling its people not to discuss hang gliding with anyone until they were familiar with the new FAA policy towards the sport!

There will be a Board of Directors meeting at 7:00 PM before the general meeting - all directors are asked to attend, and any member who is willing to take on or assist in any of the club's present projects is also invited to be at the ME at 7:00 for the Board meeting.

MEETING REPORT

The May meeting was unusually productive, and also entertaining.

We finally got to see the film "To Fly" and it was really good. It only had one small sequence on hang gliding, which consisted of Bob Wills putting an SST through some whipstalls and wingovers while flying among the rock pillars of the "Green Walls" in Hawaii. That sequence, along with the rest of the film, was really well done.

In addition, we recruited some new workers to swell the ranks of the Board of Directors.

Ron Behnk Sr agreed to take on the task of dealing with the electric company to get rid of the wires at Mitch's, following up on the initial contacts made by Mark LaVersa.

Bob Robbins agreed to take the task of organizing a car wash at the drive-in restaurant he operates in Springfield as a fund raising venture.

Bob Vicari took the responsibility for communicating with the town of Adams regarding the training site at the Adams landfill, a job which he had already been working on.

Mark LaVersa agreed to pursue the concept of a town-developed flight park at the Mowhawk Trail site, which he had started working on previously. Mark is also doing the work on incorporating the club, which will probably happen through the existing charter of the old NE HGA, which is about to become our Eastern Chapter. Mark, of course, has been on the Board since winter, and has done his share of the work that has come up and then some.

While we're on the subject, we should take the opportunity to fill

you in on what the rest of the Directors are up to:

Mick Morrissey handles this newsletter monthly, and has also assisted Chuck LaVersa in the dealings with the state DEM. He also was responsible for the preliminary arrangements leading to the merger between the MassHGA and the NEHGA, and has been involved with the club dealings with the Region 8 Federation of hang gliding clubs.

Chuck LaVersa is the Flight Director, has done most of the legwork in the DEM dealings, has been involved with the Region 8 Federation and the USHGA, and will be dealing with the Town of Greenfield in regard to the Poet's Seat site.

Sue McGuire has been handling the bookkeeping and accounting for the club.

Paul Kjoller has been active with the DEM, and is in charge of coordination and communication with the FAA.

Brooks Ellison, although he has stated that he doesn't want the title of Director, or the obligation to attend all the meetings, has nonetheless been functioning as a director by handling the relations with the DEM regarding Greylock.

John Dempsey also claims that he isn't on the Board, but attends most of the meetings, offering his valuable comments and ideas on the various issues.

We've also lost a few directors.

Andrea Parker resigned when her second semester class schedule made it impossible for her to attend the Board meetings or to accept any outside work assignments.

Bob Stewart resigned, stating that he wanted to devote his time to his other affairs.

We still have work to be done! One task that nobody has accepted yet, and which would be well worth some effort, would be to approach the management of the Mt. Tom Ski area to see if we can make some kind

of arrangements to use their lifts during the summer, once they get the Alpine Slide operating.

How about a few more workers? You don't have to be elected to be a Director - all you have to do is to volunteer to take on some job that needs to be done. We've heard some grumbling lately that the people who run the club aren't doing everything as they should...well, the people who run the club are anyone who's willing to bother to get involved! If anyone doesn't like the way things are going, they're completely free to get involved and try to make it better!

Why is it that the guys who do the most bitching are never around when there's work to be done???

SITE REPORTS

SKINNER PARK (Mt. HOLYOKE) - still the same as last month; no regulations in effect, and no flying on Sundays or Holidays.

All flyers are still requested to check in with the rangers before flying, because regulations will be forthcoming, once DEM in Boston has decided what kind of regulations, if any, are called for.

We recently received a reply from DEM Director of Forests and Parks Gilbert Bliss, to our letter of a month ago, replying to the infamous Dubuque memo which made all of those charges against us. We'd written to Bliss to rebut those charges, since he was the person who the memo was addressed to.

His reply was courteous and friendly, but non-committal. He said that hang gliding will be allowed in the state parks at appropriate sites (which we already know), and that appropriate regulations will be adopted (whatever that means.)

We wrote back suggesting that the present lack of regulations was working out just fine, but that if he felt that regulation must happen, he might consider adopting the USHGA

system *to operate* for the state parks.

We also outlined our objections to the no-Sundays/Holidays and no-winter rules, and offered our assistance in implimenting the USHGA system if it should be adopted.

Mt. GREYLOCK - is operating under the same system as last year, which is that any class 4 or Hang 4 pilot can fly there. We haven't had the chance to discuss the details with Brooks, but it appears that Hang 3s will be able to fly there if they are first vouched for by Brooks or Chuck, since this was the case last year. We also don't know if the required waivers are kept at the top of the mountain this year, or at the Visitor's Center - you should check on this before flying at Greylock.

The usual rule of no flying on Holiday weekends seems to have been done away with, since Memorial Day weekend saw Greylock flown by a big group of flyers on all three days.

New at the area's biggest hill will be a ramp, to be constructed by the MassHGA with the approval of the park staff, as soon as official approval comes back from DEM in Boston. This should go a long way towards making that rocky runway a lot more safely negotiable.

MOWHAWK TRAIL - There's talk of the Town of North Adams developing this site as a flight park, with a larger set-up area, a launch ramp, parking facilities, and the whole gig. We'd love to see it go through!

In the meantime, haying season is here, and the available landing areas are temporarily restricted. The field to the south is still OK in its entirety, but the middle one, immediately below the launch rock, is now restricted except for the small square section enclosed by the barbed wire fences. PLEASE don't use the restricted areas - it could cost us the site!

The field to the north is also closed for now, until the hay is cut. We have been told that it's OK

to use the field right next to that one - the one where the horses are kept - but we really wonder about the wisdom of landing among the horses, even if the owner does say it's OK...we wonder if he thought before he made the offer...anyway, we don't want to be the one to start a stampeed!

ADAMS LANDFILL - Temporarily closed to flying due to landscaping and newly planted grass. Will be re-opened as soon as the grass takes root - probably late June or sometime in July.

Bob Vicari recently got together with the Adams Selectmen to lay out the landscaping scheme for this hill, placing the trees and shrubs so as not to be in the way of the hang gliders. Next on the adjenda, a warming hut to be built by the town so that flyers can keep warm in the winter.

POET'S SEAT - still closed - haven't had a chance to get together with the Greenfield Selectmen on this yet.

SOUTH HADLEY HIGH SCHOOL - will be available all summer again, now that the school sports teams are no longer using the field - but the new goalposts are NOT removable! Also, when the site was re-opened last year, a large selling point was the fact that most flyers carry liability insurance. Nobody's checking, and we aren't telling you that you must have it to fly there - but we really wonder how many beginners do carry it - and the Town is under the impression that you DO have it...

MITCH'S Hill (the "slot") - the hay is getting pretty long, and we have no doubt that the hill will soon be closed, as it is every year at this time, until the hay gets cut. Flyers should check on this before they go and trample Mitch's hay.

PETERSBURG PASS - actually in New York, this site has just been

reopened by some New York flyers, in particular through Mike McCarron, as a USHGA Hang 3 site. It had been closed for a time due to insurance problems.

MITTERSILL QUALIFIER IS ON

The Region 8 qualifying meet for the USHGA National Championships is "ON" again, but now it's scheduled for the weekend of June 25th. PLEASE NOTE THE CHANGE OF DATES!!!!

NEW FAA POLICY

We've just heard that the FAA has decided NOT to regulate powered hang gliders!

This seems too good to be true, at first hearing, but on second thought, we're not so sure - it may just mean that the individual State Aeronautics Boards will step in, and the results could be a massive jumble of differing regulations in each state. We'll have to wait and see.

OUT OF STATE NEWS

The state of Vermont has just banned hang gliding on all public lands until such time as a statewide policy can be drawn up - this will include the Brownsville Rock take-off at Mt Ascutney, which is on the state reservation. We understand that the other launch site is not on state property, and is still open.

We've been hearing a lot about a great beginner/intermediate hill in Claremont, New Hampshire, on Rt 12, just across the state line from Ascutney. It features beginner and intermediate launches, both slope and cliff take-offs, from levels ranging from 75 to 400 vertical ft.

For \$5 per day you get to fly all day, with truck transportation from bottom to top.

The site is owned by a flyer, and has been described as the best site of its kind in the east!

We've never been there, but we know that Bob Stewart goes ther a lot to teach, and Ron Behnk has gone there, as have a few other members of the club. If it sounds like just what you need, talk to one of these guys about it, and go for it.

★ FAA REQUEST ★

We have been requested by the FAA GADO at Barnes to please make the following arrangements whenever we fly at Mt Tom or Skinner:

When flying Tom, call Barnes Tower and tell the controller when and where you'll be flying, and if it looks like a soarable or cross-country day, let them know where and how high you think you might get. Barnes will then inform powerplane pilots using the ILS approach system to Barnes to beware of hang gliders in the area.

When flying Skinner, please call LaFleur Airport in Northampton, and they will inform pilots approaching that airport to beware of hang gliders on the ridge.

The phone numbers are:
Barnes Tower: 562-4582 (Westfield)
LaFleur Apt.: 584-1860 (Northampton)

Please note these numbers and carry them in your wallet, and PLEASE USE THEM! It only takes a few minutes and a dime to make the calls, and it will go a long way towards maintaining our good relations with the rest of the aviation community in the local area.

HANG GLIDER PILOT NEARLY HUNG

Donnie Raymond had a scary experience recently when he took off from Mt Tom in his Dragonfly, flying seated. Due to the weight of the big HP, he was shoulder launching, and as you know, when you shoulder launch with a seated glider, your straps are quite slack.

Well, Donnie wasn't careful to see where the straps were hanging, and as he ran off, they caught his

helmet and picked him up with the glider, right by the neck!

Don was suspended by the neck for a good ten or fifteen seconds, harness straps completely slack! Although he got free, all this time he was striggling with the straps instead of flying the glider - not a nice situation when launching off of Tom in soaring conditions!

You guys who fly seated - be careful - it could happen to you!

CLASSIFIEDS

LARK II (modified from Lark I), in good condition, white sail with blue tips, \$550 or best offer, 16' kite, call Danny Parker 527-4903

PM Thermal Shark, good condition, 19'x16 $\frac{1}{2}$ 'x90 $^{\circ}$ x3 $\frac{1}{2}$ ' $^{\circ}$, cambered leading edges, seated or prone, spectrum sail design, completely adjustable, contact Doug Weeks at Brodie Mountain Ski Area in New Ashford, or through Mick M or Chuck LaV.

PACIFIC GULL HA-19, excellent condition, gold, white, black, seated or prone, with bag & seat, contact Paul LeFebvre, 39 Ridge Rd, South Hadley (no phone)

KESTREL, per-production, good condition, seated, multi-color sail, best offer, Spence Smith (contact through Mick or Chuck.)

BROCK-82/S, 18x17, very good condition, with bag and seat, Mark LaVersa, 663-7010 \$495.

STANDARD CONVERSIONS:
MGS - Contact Mick or Chuck 527-9075, 665-4962

DRAGONFLY I, very good condition, Chester Berry (203) 229-8022

Classifieds free to members, \$1.00 to others.

GENERAL INFORMATION

The remainder of this issue is devoted to various items that every member should have around for reference.

The LANDOWNER LAW for the state exempts landowners from liability as a result of recreational use of their lands, so long as no fee is charged and so long as no obvious negligence or malicious intent can be proven. This could be really handy in getting private landowners to allow flying on their property.

The USHGA Rating System is now printed in its entirety - not just the Hang 1 and 2 tests, as promised. This is because the latest changes in the system are now included in the system as published here. PLEASE NOTE THESE CHANGES in the Hang 3, 4, 5, and Special Skills sign-offs.

Also, please note that the requirements for the Tow and Power-Assist signoffs are now available. The Cross Country sign-off, however, has yet to be changed to include the projected material on the FAR's.

Also note the applications for the USHGA's Lillienthal Awards - any pilot who has flown from a mountain is eligible for the Bronze Award.

The Silver and Gold are much harder to get, both due to the required tasks, and the required documentation that must be submitted.

Please keep this material on hand, so we won't have to keep making up more copies all the time, ok?

THE AMAZING SPIDER-MAN



Below is the Massachusetts Landowner Liability Law regarding the landowner's protection from liability resulting from the recreational use of private lands where no fee is charged for such use. This copy has been photocopied right from the lawbooks, courtesy of Attorney Richard Harrington of Springfield.

DIVISION OF WATER RESOURCES 21 § 17C

§ 17C. Public use of land for recreational purposes; landowner's liability limited; exception

An owner of land who permits the public to use such land for recreational purposes without imposing a charge or fee therefor, or who leases his land for said purposes to the commonwealth or any political subdivision thereof shall not be liable to any member of the public who uses said land for the aforesaid purposes for injuries to person or property sustained by him while on said land in the absence of wilful, wanton or reckless conduct by such owner, nor shall such permission be deemed to confer upon any person so using said land the status of an invitee or licensee to whom any duty would be owed by said owner. The liability of an owner who imposes a charge or fee for the use of his land by the public for recreational purposes shall not be limited by any provision of this section.

Added by St.1072, c. 57B.

Historical Note

St.1072, c. 57B, was approved July 6, 1972.

APPLICATION FOR MEMBERSHIP

MASSACHUSETTS HANG GLIDER ASSOCIATION
(Western Chapter)

NAME _____

ADDRESS _____

USHGA MEMB. # _____

Costs:

Associate Member (newsletter only)
\$5.00 per year

Voting Member \$10.00 per year

Voting Member, also USHGA member
\$8.00 per year.

Send to:

Susan McGuire, Treasurer
MassHGA
69 Bryan Avenue
Easthampton, MA 01027

If joining USHGA at the same time,
include MassHGA dues PLUS \$15.00
for full USHGA membership dues.

Membership good for 1 full year
from time of initial enrollment.

UNITED STATES HANG GLIDING ASSOCIATION, INC.

Box 66306, Los Angeles, Ca 90066

HANG RATING QUALIFYING TEST -- USHGA HANG RATING PROGRAM

The appropriate test is to be administered by Observers and Instructors to pilots achieving ratings. The test can be written or oral, but much importance should be placed on the pilot knowing the material, as his safety is at stake. Each test covers the following topics: aerodynamics, flying techniques and micrometeorology. A brief and by no means complete answer is provided with each question. Certainly some questions are worthy of extended discussion. It is up to the Observer/Instructor to know this material well, since he is a supposed leader in hang gliding.

HANG I TEST

1. Q: What wind directions and velocities should a beginner fly?
A: Uphill wind less than 10 mph.
2. Q: What size and shape of hill is safe for a beginner?
A: Below 150' with a gentle slope (about 4 to 1).
3. Q: What is turbulence, its cause, and its effect on a hang glider?
A: Turbulence is the random swirling of the wind. It is caused by solid objects in the path of the wind, wind layers moving with different velocities, and convection. If strong enough, turbulence can completely overpower the pilot's control of the kite and may cause inadvertent dives and stalls.
4. Q: What is reflex, how does it affect a hang glider and how do you adjust to it?
A: Reflex is the slight upward bend in the tail of the keel. It helps prevent steep dives from occurring (by creating a positive pitching movement). Reflex is adjusted by lengthening or shortening the lower (flying) wires only.
5. Q: What should be the condition of bolts and nuts?
A: Bolts should be straight and unworn, without signs of fatigue.
Nuts should be locking (not able to be removed by hand).
6. Q: What do you check for on wires, tubes, sail and harness?
A: Wires - no frays, proper swages, thimbles in place.
Tubes - straight, no cracks or dents.
Sail - no rips, and mounting screws in place.
Harness - threads secure, webbing not worn.
7. Q: What direction should the kite face in respect to the wind while landing?
A: Nose into the wind.
8. Q: After landing, what are the important procedures?
A: Nose down into the wind and release harness.
9. Q: How do you slow and speed up?
A: Push control bar forward for slow and pull control bar in for speeding up.

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HANG II TEST

1. Q: What wind velocity should a Hang II fly in?
A: Smooth winds to 18 mph. or gusty winds to 11 mph.
2. Q: What are the dangers of flying downwind from a ridge?
A: Severe turbulence may be present.
3. Q: Wind in which condition will be more turbulent - overcast day or bright sunny day with cumulus clouds?
A: A bright sunny day with cumulus clouds.
4. Q: What is wind gradient and how does it affect flying?
A: Wind gradient is the slowing of the wind as ground is approached. It can cause a stall when entered upwind.
5. Q: What is a stall, how it is prevented, and how do you recover?
A: A stall occurs when airflow over the wing suddenly separates and lift is lost. It is prevented by avoiding too slow flight. Recover by diving the kite until flying speed is achieved. If a stall occurs too low parachuting may be in order.
6. Q: What is maximum L/D and minimum sink?
A: Maximum L/D is the speed where the glider goes furthest for a given height. Minimum sink is the slowest sink rate possible on a kite. Flying speed for minimum sink is much slower than flying speed for maximum L/D. Both of these flying speeds depend on the design of the kite.
7. Q: What is the danger of a stall in a turn and how do you avoid them?
A: The inside wing stalls before the outside wing, thus initiating a steep side slip. Avoid this by maintaining speed throughout the turn (the stall speed in a turn is greater than in level flying).
8. Q: Can you take off in a downhill wind?
A: Not unless you can run extremely fast.
9. Q: How do you judge air speed?
A: From the sound of the sail, the feel of the wind and the feel of the control bar vibrations.
10. Q: What size kite should you fly and why?
A: A kite giving a wing loading of .85 to 1.2lbs. per square foot. This is so that the force of the wind doesn't overpower the pilot's weight.

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HANG III TEST

1. Q: What is wind shear and the dangers involved?
A: Wind shear is the moving of different layers of air with different velocities. High turbulence may be present between the two layers.
2. Q: Explain the daily variation in the winds in hilly or mountainous country?
A: During the day uphill winds will be created by the sun. At night strong downhill breezes may occur.
3. Q: What is a leeside rotor and the dangers of flying in one?
A: A leeside rotor reels like an uphill wind on the backside of a mountain. It is possible to take off, but some sink and strong turbulence may be encountered.
4. Q: What is ground effect and its results?
A: Ground effect is the partial elimination of wing tip vortices as the ground is approached. This causes an extended glide path when landing.
5. Q: What is the relationship of lift and drag to the flying characteristics of a wing?
A: The greater the lift to drag ratio, the better the glide path, but not necessarily the handling of the wing.
6. Q: What is penetration?
A: A measurement of the top safe flying speed of a particular kite.
7. Q: What are thermals and how do they effect flying?
A: Thermals are rising parcels of air. They may be used to soar but are often turbulent.
8. Q: What conditions must exist for soaring?
A: The wind must have an upward component equal to the sink rate of the glider.
9. Q: What are the problems encountered during cliff launching?
A: There may be high turbulence at the launch site and a sudden lift on the nose of the kite as the airstream is entered.
10. Q: What type of air should be expected on the back of a ridge or cliff?
A: Very turbulent, lots of sink.
11. Q: What is the relationship of flying speed to bank angle and amount of forward push in a proper turn?
A: A good turn is a precise coordination of entry speed, bank angle and forward push.
12. Q: What is the difference between air speed and ground speed?
A: Ground speed is the vector sum of air speed and flying speed.

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HANG IV TEST

1. Q: What is a wave?
A: Rising and falling air behind a ridge identical to waves on the water.
2. Q: What type of conditions occur in or near cumulus clouds?
A: Extremely dangerous turbulence is common.
3. Q: How far downwind from a thunderstorm is turbulence encountered?
A: Often several miles due to fallout.
4. Q: How are thermals flown?
A: Depending on the size, turning in the thermal may be possible. It will be necessary to follow the thermal's drift with the wind.
5. Q: What is roll, pitch, and yaw?
A: Roll is rotation around a longitudinal axis (along the keel). Pitch is nose up or nose down. Yaw is rotation about a vertical axis.
6. Q: What precautions should be taken in landing high performance gliders?
A: Plenty of landing room is needed due to extended glide paths and poor parachuting abilities.
7. Q: What is the aspect ratio and how does it affect performance?
A: Aspect ratio is the ratio of wing span to chord length. Higher aspect ratios tend to yield better glide ratios.
8. Q: How is the force of the wind and velocity related?
A: The force of the wind increases by the square of the velocity.
9. Q: What should be flying speed in turbulence?
A: Not too slow, so as to avoid stalls. Not too fast, so as to avoid high 'G' forces.
10. Q: What is the difference between a downwind and upwind turn?
A: None whatsoever unless the turn is made in a wind gradient.

UNITED STATES HANG GLIDING ASSOCIATION PUBLICATIONS

PART 104 - HANG RATING SYSTEM

INTRODUCTION

USHGA Hang Ratings are WITNESSED tasks, not awards. Some may seem to require excessive precision to minutiae, but the practice preparing for them will prove beneficial. It is up to the local site to decide who flies there. A pilot may fly a hill if the local people feel that he is capable of it. The Hang Rating is to introduce pilots to strange sites.

SUBPART A - ADMINISTRATION

I. Administration procedures

- (a) Flights offered in evidence of hang gliding must have been made in accordance with the regulations and requirements of the USHGA in effect at the time of the flight.
- (b) Ratings shall be obtained in order and each assumes the applicant has the ability to perform the tasks required by all lower ratings.
- (c) Hang ratings I and II shall be issued by USHGA Basic or Advanced Instructors. Instructors shall report all ratings issued at least monthly on USHGA Form #23.
- (d) Hang ratings III and IV shall be issued by USHGA Observers. Observers shall provide the applicant with a temporary rating which is part of USHGA Form #17. The applicant shall send the balance of the Form with \$1 if Member (\$2 for non-members) to USHGA headquarters and a permanent rating shall be issued.
- (e) Examiners may recommend applicants for the Instructor Certification Program, may appoint Observers and may recommend Hang IV pilots for the Hang V (see requirements) Rating. Observer appointments shall be reported to USHGA on Form #18.
- (f) Hang III and Hang IV Ratings shall be serially numbered in order of issuance.

SUBPART B - HANG RATING REQUIREMENTS

I. Hang One

- (a) Un-assisted take-off: Just that, no keel push. Should not jump into his glider.
- (b) Safe, straight flight:
 1. Minor corrections in flight, so that the pilot lands into the wind on his feet.
 2. Should control the airspeed without undue control, or over control.
- (c) Flies with a ground clearance of up to 20 feet on beginner hills, in gentle conditions.
- (d) Should feel confident that he can fly other beginner hills, without causing trouble for others.
- (e) Should be able to set up and pre-flight his own glider.
- (f) Should fly in winds 8 mph or less.

II. Hang Two

- (a) Planned flight paths with "S" turns at least 90° azimuth over points preselected by the pilot. These must be alternating turns and must be smooth and without either too much, or too little airspeed.

- (b) Pilot should demonstrate ability to land within a spot 3 times in a row based on the formula: spot size=20 times maximum L/D for the particular aircraft.
- (c) Maximum wind velocity is limited to wing loading x 10 plus 50%. (Example: WL of 1.5=23 mph.)

III. HANG THREE

- (a) Must have held a Hang II rating for at least two months and have at least 30 flying days and a total of at least 90 flights.
- (b) Demonstrates precision gentle and steep linked 180° "S" turns along an applicant predetermined track.
- (c) Three spot landings in a row. Spot size is 10 x maximum L/D of aircraft.
- (d) Depending on the terrain, the pilot will fly what is considered a standard task for the site to provide assurance that he differentiates between airspeed and ground speed, as well as between flight path and ground track.
- (e) Demonstrates precise 180° entry turns as follows:
 1. These are 180° turns which are entered from a slight dive.
 2. A given turn rate is established and held.
 3. The airspeed is reduced at a constant rate throughout the turn so that as the glider rolls to level at 180° mark, the airspeed is approximately that of minimum sink.
 4. The bank angle should be smoothly reduced throughout the turn so that as the airspeed drops, the turn rate is constant.
 5. No stall should be evident.
 6. The maneuver should be witnessed in both directions.
 7. The entire demonstration should leave no doubts in the mind of the Observer.
- (f) Must pass oral quiz.
- (g) Ground clearance of at least 75 ft. in at least ten flights.
- (h) It will not be assumed that a Hang III has flown in smooth winds greater than his wing loading x 10 plus 100%. Mildly gusty winds should be 5 mph lower limit.
- (i) Demonstrate alternating fast (max.L/D) and slow (min. sink) flight in a constant direction.

IV. HANG FOUR

- (a) Must have held a Hang III rating for at least four months during which he will have made at least 60 1-minute flights. The pilot must make 5 flights at each of the five different Hang III sites of which at least three were inland.
- (b) Must make 5-five minute flights.
- (c) Must soar above a low point for at least five minutes on three different flights.
- (d) Ground clearance of at least 250 ft. on five different flights.
- (e) Demonstrates figure eights:
 1. The pilot will choose two points which are across the wind. The wind must be sufficient to cause definite ground draft. The pilot will fly towards the mid-point between the pylons; at the appropriate time he will turn against the wind to enter the figure eight with an upward turn. The cross wind leg is used to help establish ground drift info.
 2. The turns in the figure eight will be gentle to medium as required to fly the turns so that they will describe a constant radius ground track around the pylons.

3. The turns must be altered smoothly as they are flown around the pylons.
 4. The cross in the eight should consist of straight line segments which should be entered confidently and require only minor corrections for drift changes so that the entry to the second turn of the eight is at the same radius as the other turn.
 5. The important points to remember and consider, are precision of correction for wind drift, and smoothness shown while turning.
 6. Height will reduce the accuracy possible in judging distance around the turn and should be allowed for, both from the point of view of the pilot and the Observer.
- (f) Must demonstrate three consecutive landings within 20 feet of a spot after flights of at least one minute.
 - (g) Pilot approaches a spot down wind no further than 75' away, after he passes this spot, he must make a 180° turn, and land (upwind) within 50 ft. of the spot. He cannot go more than 100 ft. past the spot at any time.
 - (h) Must pass written test to be submitted to the office with application.
 - (i) The log available as part of the rating card may be used to substantiate portions of these tasks if they are individually signed by an Observer.

V. Hang Five

After possessing a Hang IV for at least three years and after having been witnessed for all the special skills (except towing and powered gliders), a pilot may receive a Hang V rating. The rating will indicate that the pilot is skilled and has indicated the maturity and judgement to act prudently so as to not be a hazard to himself or to the site which he visits. Prospective Hang V pilots must obtain the signatures of 3 Observers attesting to his safe flying and good judgement for the past 3 years. (Applications available upon request from, USHGA) He gives this material to his Regional Director. The Regional Director then checks to see if he has had the Hang IV rating the proper length of time, The pilot also must have attended a Basic Instructor Certification Program and passed all (including first aid) but the teaching test. His application is then considered by the Board of Directors and voted upon. A 2/3 vote of the Directors present confirms his Hang V rating.

SUBPART C - SPECIAL SKILLS

I. Turbulence:

- (a) Controlled and unpanicked flight in conditions requireing quick, deliberate, correct, and substantial control application.

II. High Altitude:

- (a) Flights in which terrain clearance exceeds at least 1000 feet for at least three minutes.
- (b) During such altitude conditions, 720° turns are accomplished in both directions.
- (c) The pilot will have flown flights of over ten minutes.
- (d) Balloon launched flights over flat terrain are not to be used as evidence for this.

III. Cliff Launches: (two catagories)

- (a) Cliffs to be precipitous and over 100 feet.
- (b) Launches must be either:
 1. Un-assisted in near to calm conditions, or
 2. Assisted in windy conditions with strong lift right at take-off.

IV. Cross Country:

- (a) Demonstrates ability to recognize landing areas previously visited on the ground, but not visible from take-off or during the first few minutes of flight.
- (b) Must be able to determine wind direction from natural resources while in flight.
- (c) Must be able to set up conservative planned approaches to strange landing areas allowing for surprises.
- (d) Must be able to explain various means of determining possible locations of wires, fences, poles, etc.
- (e) Must be able to discuss wind and lift in various regions such as canyons.
- (f) Must be able to discuss airspeed, the correct use when striving for maximum distance traveled over the ground in various conditions of wind, lift, or sink.

V. 360° Turns:

The following forms of the 360° must be witnessed:

(a) Basic 360° turn:

1. Left and right: Gentle and steep.

2. Precise pitch and lateral control must be witnessed. Just "banking and cranking" will not suffice.

(b) The turn should be entered from a crosswind leg so that the first portion is down wind.

(c) Enter turn that begins at minimum sink airspeed, smoothly increase airspeed, maintaining maximum safe turning rate, so that at the 180° mark the airspeed is near the maximum L/D speed or slightly greater. Maintain this airspeed and maximum safe turning rate until completion. The roll out should not exhibit marked up pitch.

(d) Enter turn that must have at least maximum L/D airspeed to a medium bank. At the 90° mark, decisively roll to a maximum safe turn rate without pitching obviously up or down. Resume the original bank and turn rate at the 270° mark until completion of 360. Each demonstration will be to the left and right without noticeable slipping or skidding.

VI. Auxiliary Power Skill:

(a) Must comply with FAA requirements.

(b) Demonstrate proper reflight.

(c) Oral examination relating to torque and P factor, power on and power off trim changes, relationship of pitch and throttle control with respect to airspeed and altitude.

(d) Demonstrate normal take-off without significant turn from straight flight. Demonstrate minimum running distance take-off. Demonstrate normal take-off, then immediate landing required by power loss within 5 seconds of being airborne. Take-offs must be from level ground.

(e) Demonstrate steady climb out at best angle of climb airspeed and at best rate of climb airspeed.

(f) Make passes while alternating power settings.

(g) Demonstrate "power on" and "power off" landings.

(h) Demonstrate slow flight including at least two 180° turns with at least 20° of bank for a continuous period of at least one minute.

VII. Towing Skill:

(a) Pilot shall be orally tested for knowledge of approved towing signals.

(b) Pilot shall be orally tested for knowledge of emergency release procedures, and recovery from a lock-out.

(c) Demonstrate ability to launch safely with a standing land start, or a sliding beach start using skis.

(d) Demonstrate ability to track behind tow vehicle through a turn of at least 180° without locking out. If lock out occurs it is acceptable if the pilot recovers immediately.

USHGA LILIENTHAL HANG AWARD APPLICATION FORM

These Awards are administered by the United States Hang Gliding Association, Inc. Applicant must be a member of USHGA or join when submitting application. Submit application to USHGA, Box 66306, Los Angeles, CA 90066, within 6 months of flight date or it cannot be accepted. \$3.00 fee for each complete award.

Name of Pilot Applicant _____ USHGA# _____
(in full, print)
Street Address _____ City _____ State _____ Zip _____

	<u>AWARD</u>		<u>LEGS</u>	
Application is made for (circle):	Bronze	-	Duration	
	Silver	-	Distance	Duratio
	Gold	-	Distance	Out-and- Return

COMPLETE FOLLOWING SECTION FOR ALL AWARDS AND LEGS

Date of flight _____ Does this flight complete an award? _____ If so, which? _____
Type of hang glider used (circle) Rogallo Fixed-Wing Manufacturer _____ Model _____
Location of Launch Point: Name of Place _____ City _____ State _____
Time of Launch _____ Time of Landing _____ Duration of Free Flight _____
Distance from Launch Point to Landing Point _____ statute miles or _____ kilometers.
Was entire flight made locally and under the continuous surveillance of the USHGA
Official Observer who supervised the flight? _____
If no, submit barogram or other physical proof of no intermediate landing for
Silver duration leg.

COMPLETE FOLLOWING SECTION FOR DISTANCE OR OUT-AND-RETURN LEGS

Launch Point Coordinates: Lat. _____ Long. _____ Elevation _____ ft. ASL
Landing Point Coordinates: Lat. _____ Long. _____ Elevation _____ ft. ASL
Name of Place _____ City _____ State _____
Certification of Landing Place (Signatures of 2 witnesses or 1 USHGA Official
Observer who did not make a flight trying for an award leg on the same date.)
I certify that I witnessed the above pilot and glider at (place) _____, _____
on (date) _____, at (time) _____. I certify that I observed the above
pilot and glider at (place) _____, _____
on (date) _____, at (time) _____.
Signature _____ Signature _____
Street Address _____ Street Address _____
City _____ State _____ Zip _____ City _____ State _____ Zip _____

Barogram or other physical proof of no intermediate landing must accompany application for distance and out-and-return legs. Difference in elevations between Launch and Landing Points may not exceed 10% of distance flown. Out-and-Return legs must have a Declaration of Turn Point and evidence of flying around Turn Point, as provided on reverse of this form.

COMPLETE FOLLOWING SECTION FOR ALL AWARDS AND LEGS

I certify that I supervised the above-described flight and that it meets all of the requirements for the leg or Award claimed:

(Signature of USHGA Official Observer) (Printed Name of USHGA Official Observer)
I hereby apply for the leg and/or Award claimed; _____
(Signature of Pilot)

FOR OUT-AND-RETURN LEGS. Following Declaration of Turn Point must be filled out and signed before take-off:

Date _____ Time _____ Place where Declaration was made _____
I hereby declare as a Turn Point (place) _____

Coordinates: Lat. _____ Long. _____

Pilot's Name (print) _____ Pilot's Signature _____

I hereby certify that the above Declaration was made in my presence.

USHGA Official Observer's Name (print) _____ Signature _____

Evidence of flying around Turn Point must be submitted, either the following Statement of Observation or film from a camera carried on the flight, in which case the procedures used must comply with those specified in the FAI Sporting Code for Soaring, and a statement to that effect signed by the USHGA Official Observer who supervised the flight must accompany the application.

Statement of Observation: I certify that I observed the pilot and hang glider described on this form make a turn around the Turn Point declared above at (time) _____, at an approximate altitude of _____ feet above the ground

USHGA Official Observer's Name (print) _____ Signature _____

RULES AND PROCEDURES FOR USHGA LILLIENTHAL HANG AWARDS

1. Bronze Award duration leg requirement is a flight of one minute.
2. Silver Award duration leg requirement is a flight of one hour.
3. Silver Award distance leg requirement: 10 kilometers (6.2 miles).
4. Gold Award distance leg requirement: 50 kilometers (31.1 miles).
5. Gold Award out-and-return leg requirement: 20 kilometers (12.4 miles) total distance around a predeclared turn point at least 10 kilometers (6.2 miles) away. Landing must be within a radius of 2 km. (1.24 miles) of Launch Point.
6. The pilot must be alone in the hang glider on each flight.
7. A flight may count for only one leg of an Award.
8. Flights must use a hang glider that the pilot launched using his legs (skis are permitted). Towing or auxiliary power may be used, in which case the Launch Point is where the towline is released or the engine is stopped. If auxiliary power is used, proof that it was not used again during the flight must be submitted.
9. USHGA Official Observers are defined as USHGA members who are Examiners, Observers or Instructors for USHGA's Hang Rating Program, or who have earned any Hang Rating or any Leg of a Hang Award.
10. Turn Point Observers may be on the ground or in the air, but may not try for an Award flight on the same date.
11. Barogram is tracing from a barograph sealed and unsealed by USHGA Official Observer, mounted on glider out of reach of pilot.