

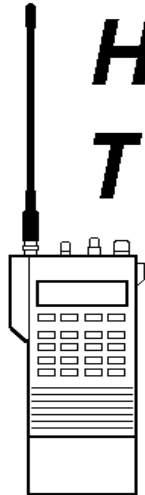
Columbia Amateur Radio Association Newsletter



October, 2000

7:30 PM Tuesday, October 24

Room 401 Gateway Center



**Hot
Tips**

Phase 3D is Here!



**Presented
by
Dan Schultz
N8FGV
AMSAT**

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**More AMSAT
pictures:**

[www.amsat-
dl.org/launch/](http://www.amsat-dl.org/launch/)

After a 10 year journey from concept to launch pad the Phase 3D amateur radio satellite is finally ready to fly, with launch currently expected in mid-November. Dan's talk will cover the long and difficult history of the project, the current launch campaign, the planned sequence of events following launch and a little bit about what P3D will mean to the average ham and how one might prepare to work the new satellite when it is released for general use.

Dan is also planning to bring some of the flight hardware that is being built at Goddard for the International Space Station.

The picture shows Phase 3D, fully fueled and mounted in its launch adapter, ready for flight at the Ariane launch facility in Kourou, French Guiana. Peter Gülzow DB2OS (front) and Chuck Green N0ADI (rear) look on. The silver part of the cylinder will fly with and support P3D on the Ariane rocket during launch, the outermost white structure is a ground handling fixture.

RACES

The October RACES Communications Exercise (COMEX) began promptly at 1930 on 10 October. This month HOWA RACES continued with the assessment of our 2M communications capabilities from selected HOWA locations from which communications difficulties have been experienced by various county agencies.

Station assignments included locations in Elkridge, and points near the HOWA/CARR and HOWA/MONT borders as well as the Mall in Columbia and were manned by W3CCI, K3EF, WA3WZX, and N3ZP. In addition, WB3GNO was our liaison to the Central Region Net (CRN), our EOC-EOC net.

Using the highest power output available, field stations established communications with the EOC on 147.135, then reduced power and again called the EOC. Operations continued in this fashion until the station either could not be heard by the EOC or had succeeded in communicating with the EOC using the lowest power output available. Then, our net members moved to 146.43 simplex and the exercise was repeated until the station either could not be heard by the EOC or had succeeded in communicating with the EOC using the lowest power output available. The EOC station recorded signal strengths received during the transmissions and the power output used during each transmission.

The following jurisdictions' EOCs were represented on CRN: MEMA, ANAR, BACO, CHAR, FRED, HOWA, KENT, PRGE, and National Institutes of Health (NIH). Several messages, addressed to the EOCs, were received from various state government departments at MEMA.

Although COMEXs are usually held the second Tuesday of the month, the second Tuesday of November will be election day and past experience indicates that the COMEX evening may be moved to a different date. Please join us on the HOWA ARES/RACES net for the latest information on the November COMEX date.

Sincere thanks go to all those who participated in the October COMEX. A fine job was done by all!

Mike, WA1QAA

CARA helps at the Summer Biathlon

A special thanks to Jerry (K3UOD), John (W3GJN), Tim (W1TRT), Dave (WA3WZX), and Rob (KC2AEI) for their time to assist with communications for Maryland's First Summer Biathlon on September 30 at the AGC Patapsco Range in Marriottsville, MD.

This was the first time this event has been tried in Maryland and the event was a big success. There is a national effort to try to make this an Olympic event. There is already a winter biathlon where the athletes cross-country ski and shoot.

There were about 60 runners/shooters of all ages. The participants ran either a 5 or 6 kilometer course according to their classification. After one lap, they went to the range and shot 5 target rounds at 100 yards in a prone position. If they missed any targets, they had to run a short penalty lap for each miss. After the second lap, they shot 5 rounds in a standing position with the same penalty laps assigned for misses. They then completed a third lap to the finish line.

The event seemed to be well planned and executed with safety on the top of the list. There was serious talk about continuing the event next year and I feel sure CARA will be asked back to assist. They really appreciated our help and gave CARA a full page write-up describing our club and what we do. Thanks to Dave, W8AJR, for submitting the write-up. Next year, they are considering opening up another trail to avoid using a bi-directional, narrow trail.

Bob, KC3EV

CARA Hamfest 2000

We broke the weather jinx this year! Sunday was a gorgeous fall day and hams and vendors from all around the area showed up in large numbers. While we were unable to attract any ham radio dealers, there was an abundance of ham gear for sale, ranging from vintage Collins and Hammarlund gear, to late

model hand held radios and mobile rigs. In fact, I can't recall having attended a hamfest recently in which there was so much quality ham gear available.

The folks from the Laurel ARC conducted VE testing, with 35+ individuals taking tests.

CARA members turned out in force, as well. A dozen showed up on Saturday for the table toss and 20 came out on Sunday to help with ticket sales, general admission and tail gate parking, talk-in, and table sales.

Stan, N3LU, bought his camper-van, which served as a hotel for the folks who stayed overnight to greet the early arriving vendors and as the talk-in headquarters.

We did a great deal of publicity this year, which contributed significantly to our successful turnout. Randy, N3HFK, sent out over 13,000 e-mails and 1,300 postcards announcing the hamfest. He also saw to it that we had listings in all of the publications, bulletin boards, and web sites that list hamfests.

In something of a change this year, we did all of our own ticket and post card printing. Bernie, K3BAZ, created the postcard and ticket designs and arranged to have them printed at a reasonable cost in his employer's print shop.

Randy, N3HFK, will be the hamfest chairman, beginning next year. I hope that you will show him the same strong support that you gave

to me during my three years as chairman. Randy has promised that the weather will be both sunny *and* warm next year!

Dave, W8AJR

From The Prez...

By the time this newsletter reaches the members, our annual Hamfest will be history. Chairman Dave promised us good weather this year. I wish to thank everyone that assisted in this event.

The CARA breakfast get-together is the second Saturday of the month. It is strictly a social affair and good food. We meet at Jilly's Restaurant in the Enchanted Forest Shopping Center at 9 am. If you plan to attend, please let me know in advance as I have to call the restaurant on Friday night to let them know how many tables we need. You can E-mail me at rscarburgh@aol.com or phone at 410-465-2421. If I am not home, please leave a message on the answering machine. Just tell me who you are and how many I can expect. There is no penalty if you don't show. I would rather have more tables reserved that we need rather than not enough.

Bob Scarburgh, KC3EV

The FCC Comes to CARA in November

On September first of this year, the FCC imposed new RF radiation exposure safety standards, which

govern all RF emitters, including our amateur gear. How do these standards work and how do they affect us as amateurs? Dr. Roger Cleveland from the FCC in Washington, DC, will be at the CARA meeting to explain the new standards and to show us how to verify that we are in compliance with them.

Elections

November is our annual election meeting. Bob, WA3VUQ, is putting together a slate of candidates for your consideration. If you wish to run for office, or wish to nominate someone, please call Bob at 410-465-7415 or write to him at rkn001@home.com.

Antenna Supplies

We have antenna wire and feedline left over from our antenna building program and are making available to the members at cost. Contact Dave Prestel, (W8AJR) at (410) 203-9432 or dprestel@home.com.

450Ω Twinlead	\$.19/foot
Stranded Cu Wire	\$.15/foot
PL-259 w/adapter	\$ 1.50 each

If you want to build your own J-pole antenna, of the type that we built at the meeting, the directions, courtesy of Alan, N3AC, are available on request

You say you approached your local homeowners association for permission to put up an antenna and they told you to "go fly a kite!?" Well, with the breezes of autumn upon us and the HF frequencies alive and well, you might just find that to be good advice! The following is reprinted from *QST*, with permission.

By Jay Kolinsky, NE2Q

NE2Q's Antenna Fell From the Sky!

Since becoming a ham in 1958 I've operated on most bands, but I've never really had a decent antenna for 160 meters. I tried tying the balanced feeders from my 80-meter dipole together at the tuner, but my signal on 160 wasn't moving S-meters very far. I needed a real antenna.

I recently became a member of GNARC, the Greater Norwalk Amateur Radio Club, a very friendly bunch with quite a few active experimenters. In late November 1999, the club sponsored a "Fun Fly" at Sherwood Island State Park, on the shores of Long Island Sound in Westport, Connecticut.

KE1GB and others flew model rockets. K1OF flew a kite supporting a tiny fast-scan TV camera and transmitter, which gave ATVers within 20 miles a good color picture of our operations on the ground. N1OLO set up a station to plug Amateur Radio. The station used a kite-supported end-fed wire. It worked quite well despite the rather weak wind conditions.

The day was unseasonably warm, and wind conditions had deteriorated by about 2 PM. We had trouble keeping the kites aloft. About this time a stranger came on the scene. He was carrying two long white objects under his arms. Nobody knew who this fellow was. He proceeded to unroll these articles, which he identified as homemade kites. They looked pretty large—about 15 feet from the top to bottom of the double tails and 10 feet wide.

I asked him if he expected to fly those things with the present wind conditions (a "non-breeze" of less than two miles per hour). He answered, "This is the way I like it!" He was "crazy" or he really knew his kites. He had a helper walk the kite about 200 feet downwind while he held the kite string. He yelled, "Let go," and the big kite soared almost straight up. I'd never seen anything like it.

After attaching the TV camera and transmitter from K1OF's kite, the stranger

Lofting large wire antennas with balloons and kites is an acknowledged part of Amateur Radio folklore. But the cost, danger, hassle and typically "irreproducible results" have kept these techniques from the mainstream—until now! If you've always dreamt of stratospheric antenna heights, NE2Q and AA1MY can show you the way.



The author (left) and Seab, AA1MY, with their kite creation.

launched his second kite. I couldn't feel even a hint of a breeze on my face but the kite climbed straight up. What a wonderful kite! I thought about how unfortunate it was that this fellow wasn't a ham. His kite would be great for lifting a vertical antenna for the upcoming 160-meter contest.

I approached him again and introduced myself. "It's too bad you aren't a ham radio operator. I think your kite could lift a large antenna," I said. He replied, "My name is Seabury, call me Seab, and I'm AA1MY. I've been wanting to lift a 160-meter vertical dipole since I started flying these large kites."

By now, many of us were curious about Seab's kites. He identified them as Scott Sled kites. They're made for heavy lifting in light winds, and they fly at very high angles—70 to 80° is not uncommon.

His kites were made of white Dupont Tyvek, three skinny sticks and fiberglass-reinforced adhesive tape. Tyvek is used to make vapor barriers (in new house construction) and high-strength mailing envelopes. It's very strong and lightweight. Seab offered to give us the diagrams to make kites of our own. He had a bunch of copies with him. I guess he attracts lots of inquisitive people whenever he flies his designs.

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Over the next few weeks, Seab and I made plans to work the 160 contest. We were trying to get permission to use the state park, but we were turned down because the park superintendent claimed there would be no employees on duty at night in December. The park closes at sundown. We tried another park near the water, but we could only stay there until

midnight. So we gave up on the parks until next year when we'd have more time to set something up.

Because the parks were out of the question, I asked Seab about flying the kite from my QTH. I live on top of a 770-foot hill in northeast Westchester county, about 45 miles northeast of Manhattan. I have a clearing around my house that's about 200

by 175 feet. Where the clearing ends, 50-foot trees start. I'm surrounded by trees in all directions but one—southeast. My property drops off abruptly in that direction.

The wind would have to blow just right to get the kite out over the valley while avoiding the bordering forest. It would be like threading a needle blindfolded. And

Roll Your Own

The kite described in this article is a proven "Scott Sled" design, which, after considerable searching and experimentation, seems to be the most economical and easy to build lifter adequate to my needs. This one is scaled to 9 feet tall by 10 feet wide, which is just right to be cut from a standard 9-foot roll of house wrap. Tyvek, or a clone, is available from most building supply stores. Tyvek is good because it's strong and white, which lets fliers decorate the kites with club names, call letters, etc. Fluorescent spray paint and brushed acrylics work well.

Struts can be made from any strong, lightweight material, but I prefer economical, ribbed screen door molding, also available at most building supply stores. Struts are fastened with contact cement to the back of the kite to maintain its shape in flight. The kite's perimeter and vent edges are securely rimmed with 1/2-inch fiberglass-reinforced tape to prevent tearing under stress.

Bridle tie loops (see Figure A) are fashioned from 20-inch strips of one-inch fiberglass-reinforced tape. Start on one side of the kite and end on the other, making the loops about four inches in diameter. Place an eight-inch piece "face-to-face" on the inside of the first strip to provide a smooth, non-stick surface inside the loops. Remaining strips are "fanned" on the kite surface (to distribute load) and overlap at the loops. Fold the loop material in from both edges to provide a dense, smooth tie for the bridle lines.

The bridle itself is at least three times as long as the kite is wide, in this case about 36 feet long. Short bridles cause instability. Make sure there is no "twist" to the bridle and that the connection point to the fly-line is precisely centered. Use a heavy-duty swivel at the tie point to prevent twist and raveling during launch and retrieval.

Flying line for this kite should be at least 150-pound-test in 4-10 MPH wind and 250-pound-test or more in 8-18 MPH wind. I buy the big rolls of no. 36 "seine line" or "carpenters twine" at Home Depot. The line *must* be kept on a winder that's up to the task of belaying and winding heavy line safely. I recommend an "H-type" winder of 5/8-inch exterior-grade plywood, smoothed and painted, equipped with a belaying knob (see Figure 1). Believe me, there is no way in the world you'll stop a drum-type winder safely if the handle gets away from you under 50 to 100 pounds of load. Don't even think about using a fishing reel.

Never handle the line under load or loop it around your hands. *Always* use good leather gloves to prevent very nasty cuts—right to the bone. Do not fly in wind above 20 MPH!

Flying the Kite

To launch your kite, reel out at least 150 feet of line and have a second person hold the kite by the bridle ears with her/his *back to wind*. This can be difficult in a good breeze, so keep the kite rolled up until everything is ready for launch. Large kites are very efficient, so no running is required. When ready with all lines, the "pilot" signals the second person to open the kite and let it go. Have the line passed over the winder

knob to center the load. If wind is above 10 MPH, let the line out very carefully or you may lose control and possibly get hurt trying to wrestle it back.

Fly the kite above 300 feet to avoid most of the ground turbulence caused by buildings, trees, etc. Another advantage is that there is usually a flyable wind at altitude even when it's not apparent at ground level. Higher is always better. With an altitude limit of 500 feet, an antenna hung from the fly-line at the 100-foot mark leaves 400 feet of "free line" for the kite to play with, thus reducing instability. Of course, more free line is better.

This is important: If you must belay the line for control and securing, do so only on a smooth metal pipe such as a bumper or a

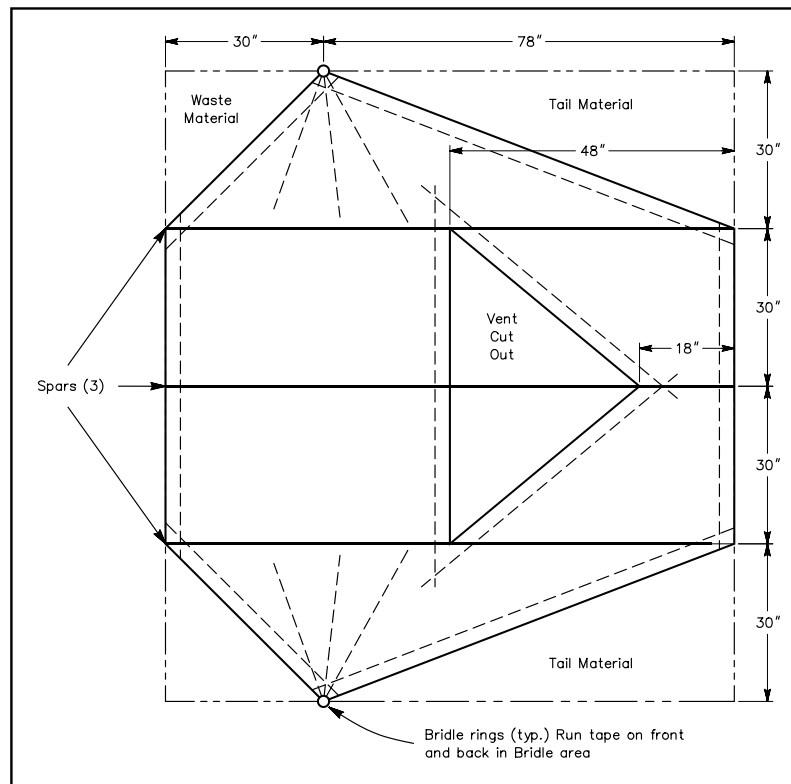


Figure A—This is the cutting pattern for a kite using a 9 × 10-foot section of Tyvek house wrap. The dotted lines indicate the placement of 1-inch Fiberglass reinforced tape on the back. The spars (I use screen door molding) are contact cemented to the back. Notice that the two sections labeled "Tail Material" are to be used to make the tail for the kite. The tail material is contact cemented to the back edge with the open V. Bridle rings can be made of 1-inch thick reinforced tape. The bridle must be at least 36 feet long for this kite.

we'd have to be cautious. A kite 500 feet above my lawn would be nearly 1400 feet above sea level. Seab suggested that we attach a battery powered strobe light to the kite for added safety.

Up, Up and Away!

The dipole was to be fed via several hundred feet of balanced line. Seab would

park bench. The metal won't chafe the line and acts as a heat sink. Allowing the line to slip over wood, etc. will cause rapid melt-down and loss of the kite and antenna. Think about it.

Never attach wire directly to a kite. Make sure that the line from the antenna attachment point is *smaller* than the line back to the control point on the ground. That assures that any line breakage will occur *above* the wire, eliminating the very serious hazard of your kite dragging wire over power lines, etc. Again, think about it.

Adjust the anchor point to position the antenna feeder in a location that's convenient to your operating position. The feed line should be anchored separately at the operating position to prevent your rig from being yanked into the wild blue yonder. Juggling anchor and operating points can determine the directional orientation of arrays, slopers, Vs, etc. This requires constant attention, so a second (gloved) helper is highly recommended.

If the feed line is fragile, an additional, insulated messenger line must be added to avoid breakage from strain and flexing. Light monofilament line is great for this. Static discharge can be a problem, although I haven't suffered any ill effects—yet. That might be because of the low-resistance path to ground in my tuner.

Finally, when it's time to land your monster, have your helper "walk the line down" rather than trying to reel it in. The gloved "helper" walks away from the "pilot," pulling the line down for the desired distance, then secures the line temporarily while the pilot walks forward winding up the slack.

Other possibilities

There are lots of possibilities to explore with a lifter of this capacity. We've hoisted ATV rigs, 8-mm video cameras, large banners, beacons and, of course, the 250-foot 160-meter vertical dipole in this article. I've hoisted several QRP "antlers" on camping trips with great success. Two kites will support a horizontal array such as a half square, though it's quite a challenge to keep things under control. Additional "guys" (monofilament) must be attached to the antenna attachment point to maintain the required configuration. Allow for lots of (nearly constant) tinkering time!

For intrepid experimenters willing to invest about \$25 and three hours of construction time, the return in fun and excitement is enormous. Let's hear about your adventures!—AA1MY

drive down the next day. The FAA was notified and we were ready to go.

Naturally, at 10 AM Saturday, the electricity went out at my home. Someone had knocked down a nearby power pole. Would we get the power back in time? Seab called me at 2 PM. He was leaving his home in Beacon, New York for the 90-minute drive to my QTH. I told him about the downed mains. We arranged to use 2 meters for the talk-in and hoped the power would come back on before dark.

Seab arrived about 3:30 PM. We had about one hour of daylight left. Fortunately, ac power was restored about 30 minutes before Seab's arrival. Seab pulled out his kite and all the wire and string. We had virtually *no wind* at ground level. My wind-speed indicator showed only one to two miles per hour, but the direction of the slight breeze was perfect. Once again I had the feeling that there wasn't enough wind to get the kite airborne. I shouldn't have worried.

Seab positioned me and the kite right at the edge of the overlook. He moved upwind about 175 feet. The kite string was precariously close—about 15 feet—to a stand of 50-foot trees. Seab yelled, "Let 'er go!" I did, and the big kite shot straight up, just like the first time I saw it fly. It was amazing.

The kite immediately rose to about 250 feet. Seab then attached one end of the dipole to the kite string. We let the kite rise until the dipole's center insulator was about four feet off the ground. Seab then attached the 450-ohm ladder line to the kite string and to the antenna. He left about 100 feet of feed line between the center insulator and the kite string.

After the antenna stuff was rigged the kite rocketed to its full altitude of about 600 feet (tethered by 700 feet of 150-pound-test string). The 160-meter dipole was hanging perfectly vertical while the feed line came away horizontally for 100 feet before dropping down at about a 45° angle right to my shack. The top end of the dipole was at least 1000 feet above sea level!

"No Contest!"

I excitedly connected the balanced line to the tuner. The antenna tuned perfectly and the contest was in full swing. Many of the signals were 40 over 9 and higher. It was 2155 UTC when we made our first call (with 100 W) to W1TO. He shot right back with "599." We quickly worked nine stations in seven states including IL, WI and IA. I wanted to try things out at the 1-W level just for fun. WQ2G went in to the log first. We made eight more calls to eight stations, and they all came back on the first call despite the fact that other stations were calling. One was in North Carolina and one

was in Indiana. We knew we had an "Antenna."

Now it was time for a 30-dB boost above QRP power. I fired up my home-brewed 8877 amp, and at 1.5 kW, we were "in business." We couldn't find a clear spot, so we just jumped in around 1846 kHz. After only a few minutes of calling CQ and working stations at a rapid rate, the frequency became quiet. Everyone who had been calling CQ had moved away from us. We were all alone, and we each had big smiles on our faces. We didn't really take this first contest too seriously. Our main purpose was to see if we could indeed raise a full-size vertical dipole for 160 meters with a kite. We did that and we were happy.

My wife Ulla, N2IOJ, called us to dinner. We stopped operating for an hour and enjoyed a sumptuous meal. "Good thing we couldn't get permission to operate in the park," I remarked. After dinner we checked the kite, which was still flying majestically. It was a beautiful and unusually warm night. The sky was crystal clear and the big kite was surrounded by a sea of twinkling stars. We continued operating and quickly filled another five log pages.

At 0140Z we checked the kite with a high-power 12-V searchlight. We noticed that the kite string/feed line attachment had failed. The entire weight of more than 200 feet of feed line was being supported by the kite. We thought something else might have broken, but nothing was visible. The kite, no longer flying vertically, was leaning at about 60° and had dropped slightly in altitude. The wind was still showing about two to three miles an hour on my indicator.



The author holds the kite, ready for launch. You can just see the tail material on the ground below the vent opening.



Seab, AA1MY (left), and the author with the "H-Winder" and a half-size version of the kite.

After all the 599s, which is the standard signal report for contests nowadays, we decided to get some honest comments. At 0216Z, the kite was still up (but not as high as it had been). We went up to about 1910 kHz and found "Coke," W4DHA, talking with NB4P and K4JZY. "Coke" said our signal was so strong we were probably running illegal power. This report came before we told Coke about our antenna. After we described our operations we had a nice chat. We signed off, went outside and searched for the kite. It was down!

What Goes Up...

We grabbed a pair of flashlights and followed the kite string, which was leading

us to the northeast and was over the trees. We walked into the forest while shining our flashlights skyward to keep track of the string. It was now close to midnight. We found the kite floating in a tree about 30 feet high and about 700 feet northeast of my house. It was on my neighbor's property. We tried retrieving the kite using a 30-foot telescoping pole. Unfortunately, the pole was a little too jiggly, which caused us to laugh. The more we laughed, the more it jiggled. We gave up until the following morning.

Sunday morning came, and at 9 AM I was out on my neighbor's property with some additional hardware. I fashioned a hook from #10 aluminum wire and affixed that to the tip of my 30-foot pole with a hose

clamp. It worked. I was able to snag the kite and pull it down. The string seemed stuck on the trees somewhere, so I cut the cord and left it in the tree. Seab's homemade kite was safe. The only casualty was a cracked stiffener, which would be easy to replace.

As I walked back to the house I started thinking about the antenna that was now draped over a thick forest of trees. I'd often wondered how I might string just such an antenna. Well, I'm happy to report that the treetop dipole is working *very* well. It works great on all bands up through 10 meters. It also shows good directivity from 40 meters on up. Who knows how long it will stay hanging up in the trees? I'll enjoy it as long as it lasts.

It truly is "The Antenna that Fell From the Sky!"

Be Careful and be Legal


If you'd like to try your hand at making AA1MY's heavy lifter kite, you can follow the plan described in the sidebar "Roll Your Own." Be cautious when flying it. This is *not a child's toy*. Avoid power lines and do not use a wire (instead of string) to hold the kite. A runaway kite of this size with a few hundred feet of dangling wire could be quite hazardous.

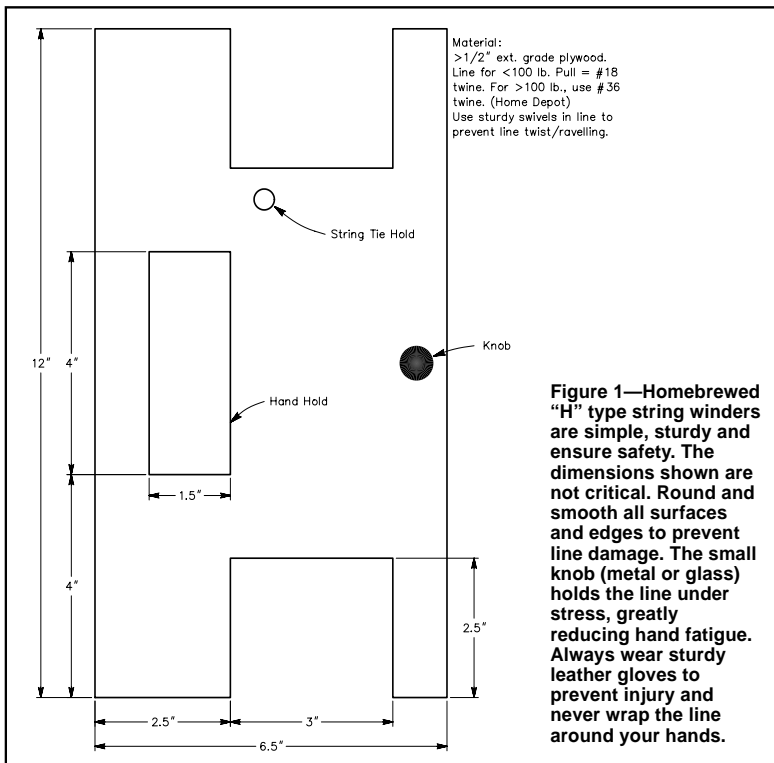
In addition, make sure you observe FAA regulations concerning moored kites. Our kite weighed less than 5 pounds, which exempts it from many FAA regulations. Even so, it is a potential hazard to pilots so you should contact your nearest FAA Flight Service Station 72 hours in advance and ask them to issue a NOTAM (Notice to Airmen) for the duration of your flight. You can locate and contact your nearest Flight Service Station by calling 800-992-7433.

If you attempt to fly a kite that is *heavier* than 5 pounds, other rules apply. Specifically:

- You cannot fly your kite less than 500 feet from the base of any cloud, or more than 500 feet above the surface of the Earth.
- You cannot fly your kite when visibility conditions are less than 3 miles.
- You cannot fly your kite within 5 miles of any airport
- If your kite will be flying higher than 150 feet, you must notify the nearest FAA Air Traffic Control facility 24 hours beforehand.
- Any kite flown at night must carry a light, preferably a bright strobe.

Our next project is a half-wave bottom-fed vertical for 160. This will eliminate the weight of the feed line needed for a center-fed dipole. How about a half-wave vertical director aimed at Europe in front of the driven element?

You can contact the author at PO Box 300, Pound Ridge, NY 10576; jkolin@cloud9.net. 



Club Information

Repeaters (K3CUJ)

147.135 / R+ Net repeater. CTCSS: 156.7 Hz
147.39 / R+ Open autopatch ("*" to activate, "#" to clear) and direct dial 911
448.275 / R- CTCSS: 156.7 Hz
449.475 / R- CTCSS: 156.7 Hz

Mailing Addresses

Club Business

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CARA@QSL.net

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dprestel@home.com

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Activities

Club meeting: the fourth Tuesday of the month at 7:30 p.m. , Rm 401, Gateway Center, on Columbia Gateway Drive, off of Rt. 175, near I-95. Monitor net repeater for directions.

On-the-air net: Net repeater at 8:30 p.m. each Tuesday except for meeting night.

On-the-air RACES / ARES net: Net repeater at 7:30 p.m. on the 1st and 3rd Tuesdays each month.

On-the-air RACES exercise: Net repeater at 7:30 p.m. on the 2nd Tuesday each month.

CARA breakfast: 9:00 a.m. on the second Saturday of each month, at Jilly's Restaurant in the Enchanted Forest Shopping Center. If you wish to attend, contact Bob Scarborough (KC3EV).

Executive board meeting: Held monthly. Contact Bob Scarborough (KC3EV) for the time and place. All members are welcome.

CARA on the World Wide Web: Visit us at <http://www.qsl.net/cara/> for the latest "hot tips" and electronic edition of the newsletter.

Officers and Chairpersons

Officers:

President.....	Bob Scarborough.....	KC3EV.....	H: 410-465-2421.....	rscarburgh@aol.com
Vice-president.....	Dave Prestel.....	W8AJR.....	H: 410-203-9432.....	dprestel@home.com
Secretary.....	Dan Goulette.....	N3LDC.....	H: 410-796-2587.....	danjanis@connex.net
Treasurer.....	John Pinkston.....	W3GJN.....	H: 410-531-3450.....	jpinksto@erols.com
Member-at-large.....	Tim Titus.....	W1TRT.....	H: 410-730-8420.....	w1trt@aol.com
Past President.....	Larry Russo.....	K3TFU.....	H: 301-725-2840.....	lrusso@erols.com
Trustee.....	Alan Chedester.....	N3AC.....	H: 301-596-6543.....	alanc1@juno.com

Committee Chairpersons:

Elmers.....	John Pinkston.....	W3GJN.....	H: 410-531-3450.....	jpinksto@erols.com
Field Day.....	Alan Chedester.....	N3AC.....	H: 301-596-6543.....	alanc1@juno.com
	John Pinkston.....	W3GJN.....	H: 410-531-3450.....	jpinksto@erols.com
FAR Rep.....	Tim Titus.....	W1TRT.....	H: 410-730-8420.....	w1trt@aol.com
Hamfest.....	Dave Prestel.....	W8AJR.....	H: 410-203-9432.....	dprestel@home.com
Newsletter.....	Dave Prestel.....	W8AJR.....	H: 410-203-9432.....	dprestel@home.com
Publicity.....	Vacant			
Social.....	Vacant			
Quartermaster.....	Vacant			
Satellites.....	Ed Cabic.....	K2EC.....	H: 410-.....	EdCabic@home.com
Technical.....	Dave Prestel.....	W8AJR.....	H: 410-203-9432.....	dprestel@home.com
T-MARC Rep.....	Dave Prestel.....	W8AJR.....	H: 410-203-9432.....	dprestel@home.com
VE Testing.....	Bob Scarborough.....	KC3EV.....	H: 410-465-2421.....	rscarburgh@aol.com
Youth Education.....	Dave Anderson.....	WA3WZX.....	H: 410-465-8557.....	dranderson@juno.com
Youth Group.....	Vacant			

ARES / RACES:

ARES.....	Ed Wallace.....	K3EF.....	H: 410-465-0042.....	k3ef@home.com
RACES.....	Mike Carr.....	WA1QAA.....	H: 410-799-0403.....	bamcc@erols.com

October, 2000 Calendar of Events

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
1	2	3	4	5	6	7
8	9	10 ARES / RACES Net	11	12	13	14 Breakfast at Jilly's Restauran
15	16	17 RACES COMEX	18	19	20	21
22	23	24 CARA meeting	25	26	27	28
29	30	31				
Dates to Remember: 10/24: CARA Meeting – Phase 3D Satellites						

November, 2000 Calendar of Events

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
			1	2	3	4
5	6	7 ARES / RACES Net CARA net	8	9	10	11 Breakfast at Jilly's Restaurant
12	13	14 RACES COMEX	15	16	17	18 Laurel VE
19	20	21 ARES / RACES Net	22	23	24	25
26	27	28 CARA meeting	29	30		
Dates to Remember: 11/28: CARA Meeting – Radiation Safety Limits with the FCC Elections						