SCOPE

A newsletter by and for the Palomar Amateur Radio Club of San Diego, California.

The Nominating Committee, Comprised of Jim W6SST, Jo KB6NMK, and Art KC6UQH, submitted the following report for Palomar Amateur Radio Club for 2012.

The Nominating Committee recommended at the November general membership meeting that existing officers KD6TUJ, K2RP, KB5MU, WD6FWE, and K7ELH be re-elected, and proposed David Ochs KI6LKP for Treasurer.

No nominations were offered from the floor.

Elections will be held at the December meeting. The slate will be elected unless a candidate withdraws, which case nominations are re-opened for that position.

This month in the Scope:

Repeater site work party announcment, new classified advertisement from Ron, a direction-finding yagi antenna report from KD6TUJ, a 70cm yagi build report from KB5MU, SSB sweepstakes report from N6KI, call for 10m contest participation from N6KI, a report on our rained-out operating day from KD6TUJ, minutes from the October board of directors meeting, and an invitation to our annual Holiday Party!

Please bring food to share. We'll have games and fun, and socializing.

Do you have a mobile installation? Do you want to have a mobile installation, and need some motivation?

We're looking for a few good mobile installations - whether they're completed, on the drawing board, or half-way done and tripping you and your passengers every time you get in and out of the vehicle - to be featured in the Scope. We'd love to show your installation.

Tips, narratives, explanations, techniques, problems encountered and solved (or encountered and evaded) are what we're looking for. Send them in!

scope@palomararc.org

Save the Date

Club Meeting
7 December 2011

Annual Holiday Party **Please bring a dish to share.** Games, socializing, food and fun!

Board Meeting
14 December 2011

Palomar Amateur Radio Club board meeting at 7:00pm at K2RP QTH.

ARRL Contest
160m CW

2-4 December, CW only. www.arrl.org/160-meter for details.

Club Membership for December Edition

New Members Joining PARC: KJ6IXE, KG6PSV, N6TFL, K8QLT, AA6BP. And SEVERAL reinstatements.

A number of members have elected to receive the SCOPE on the WEB. This saves the club the cost of printing and mailing, which is good. The 'not so good' is that they do not get the monthly reminder that their membership is up for renewal - which is printed on the mailing label for those that receive the SCOPE by mail. NOW, as an added feature to the Club's Web Site (palomararc.org, All active members, along with their expiration/renewal date are listed. Please check it out! And, if you are not listed, PLEASE RENEW!!

Al
W6GNI

October's Fold & Staple Crew
W6GNI Al WA5ACE Sonny
KB6NMK Jo KB6YHZ Art & Janet

The ARRL San Diego Section now has a Section Emergency Coordinator.

Bruce Kripton, KG6IYN, has agreed to fill the position.
I am confident that Bruce will do an outstanding job.

Steve Early, AD6VI

6M ANTENNA

Here is the link to the 6m antenna Don will build for the hill for the next work party install and trial.
http://www.qsl.net/w8cwe/6meterj.html
Dennis KD6TUJ

Work party December 11th

Date: Dec 11th at 9:00 AM
Where: Meet at Mothers Kitchen on Palomar Mountain
Contact: KG6JEI@amsat.org
Talk In: 146.730

It is time to wrap up the hill for the winter. Weather permitting we intended to have a work party on December 11th. The goal of this work party will be to:

Confirm all systems on line after power reset on 14th
Verify site ready for winter, secure all buildings for snow.
Install DC-DC power supplies for the packet repeaters.
Install new charger for control receiver so that the site always has a charged control battery
6m install new J-Pole antenna on original pole mast and check transmission.
Check receiver on 050 packet

If anyone else has any issues they believe need to be addressed now is the time to put the request in because after this the site will not have any scheduled parties until Spring.

Advertisements are free for members

Have items that need to find a new home? Advertise here! Send your ads to scope@palomararc.org

For Sale

Hammarlund HQ 129X receiver (vintage 1946) in great working condition (New Filter Caps) and above average appearance. $150.

12-volt power supplies
Samlex SEC 1223 23 amp switching $70
Astron 12 amp $35

Ron K2RP@arrl.net
760 436-8109

Photographs by KB5MU of the November membership meeting featuring a program about Go Kits by Ken Cohen KI6HRH. Thank you Ken for an enjoyable and informative program!

Hello SD Microwavers!!

Next Monday, November 21st was the date for our November meeting of the San Diego Microwave Group. We were amazed at the transformation of Kerry's garage workshop! It's clean and organized.

Kerry presented a newly designed synthesizer designed by Tony KC6QHP that will support most of our microwave bands. It sounds like kits may be available!

Now is also the time to start thinking about next month's Holiday Meeting and White Elephant Gift Exchange.

That meeting will be held, also at Kerry's place, but on the SECOND MONDAY of December 12/12/2011, instead of the 3rd Monday. Think about the wonderful item(s) of microwave related background, beautifully wrapped to conceal the sheer value of the gift, for you to take home and enjoy. Also don't forget the lavish pot-luck display of sweets and goodies to share with all the attending microwavers.

Hope to see you there at both events.

Happy Thanksgiving and 73.
Ed Munn
858-453-4563
remunn@earthlink.net

A six-port structure for 1.255GHz constructed by Michelle W5NYV, was demonstrated at the November SDMG meeting.

ARRL Sweepstakes Contest, SSB

Call: N6KI
San Diego Contest Club Operator(s): N6KI, WB6NBU, K6GO, N6OHS, NN6X, N6EEG, N6CY, K6KAL, AF6WF, W5NYV, KB5MU
Station: W6HCD

Class: Multi-Op LP
QTH: SDG
Operating Time (hrs): 23.5

Summary:

Band	QSOs
160:	0
80:	125
40:	210
20:	210
15:	155
10:	122

Total: 654 Sections = 80 Total Score = 104,480

Club: San Diego Contest Club

Comments:
Running Low Power Category for SS SSB and trying to bust pileups or get a good run going, felt like a novice fighter showing up with a KNIFE at a GUNFIGHT! Am used to the comfort of running High Power from from antenna farms sporting towers as tall as some redwood trees here in CA! Anyway, the goal of the San Diego Contest Club was to train new Ops in new methods and make a SWEEP! That we did indeed by busting a massive pile up for Puerto Rico late in our contest hours! When the gentleman at KH2R/KP4 called for "Any YLs on Freq?" - Novice contester, Rusty, AF6WF (aka Rosemary in another life), was up to the challenge and secured our last section needed in 2 calls! This exercise taught our Ops how to do Ping-Pong CQs with 2 transmitters and with the aid of some new hardware, allowed only 1 of transmitters on the air at a time.

Initially the ops had some trouble with this concept but after a while they performed like some of the PROs of the W6YI group! Now to go find some more elements for those 2 and 3 Element HF Yagis !

73, Dennis N6KI

Dennis N6KI writes, "I asked Santa to bring me one of these for Xmas. Just what every "California KiloWatt" station should be sporting in 2012".
More details here: http://www.rfconcepts.com/PRODUCTS/New-Products/Alpha4040

We talked about this tuner at lunch at Phil's on Friday with the regular ham radio lunch bunch, and the consensus was that it sure was beautiful, but wouldn't it still be more practical to have a tuner outside near the antenna?

Let's do 10m contest again from Nash W6HCD QTH!

2nd weekend in December

Dec 9,10-11

CW and SSB. All Ops are welcome!

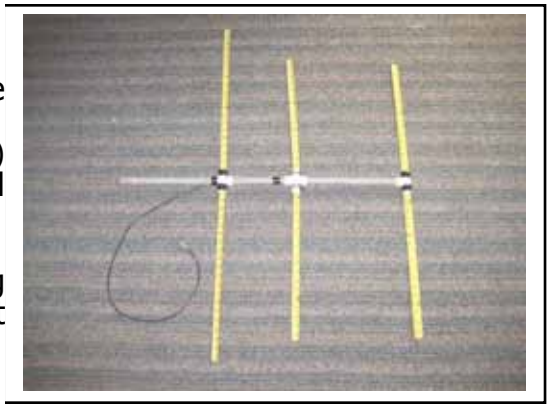
If 10 opens as it has in past couple months we should have lots of activity!

Let me know if you can operate and hours available.

Dennis N6KI

n6ki73@gmail.com

Simple Yagi For Direction Finding



For Operating Day, a demo project was a DF tape measure yagi. The design used was from JOE LEGGIO WB2HOL (http://theleggios.net/wb2hol/projects/rdf/tape_bm.htm) This seemed easy enough and it was! There was a small expense for PVC and hose clamps.

Most of us have broken tape measures that may be laying around. I also had some old coax with a BNC connector. Or, cut a 6 foot BNC to BNC patch cord in half.

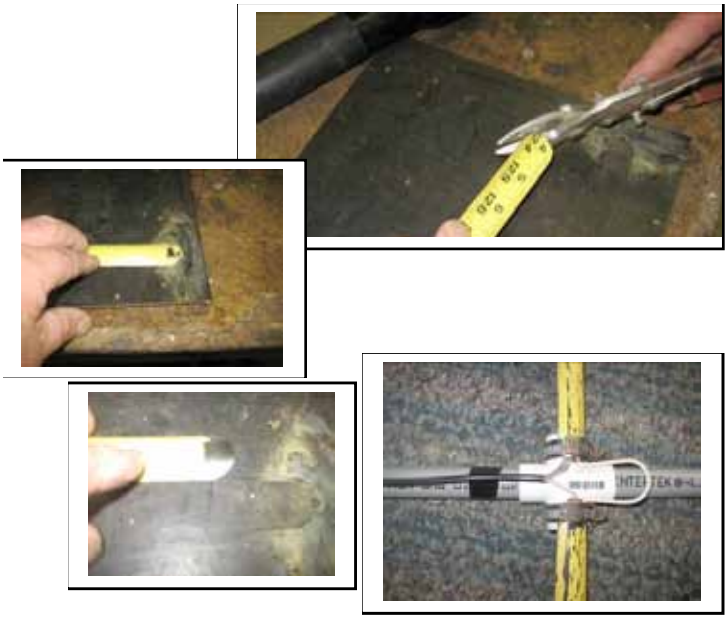
Supplies needed:
19 ½ inches PVC plus handle
1 T connector
2 X connector
2 1 inch hose clamp
1 5 inch piece of wire (almost any guage)
Old (or new) tape measure
screwdriver
shears or aviation cutters
tape
solder and solder iron
PVC cutter
sandpaper

Following the plans was easy. Sometimes you can lose your place with all the hash marks on the tape, 1/16, 1/8, 1/32. After measuring out the tape lengths it is a good idea to round the ends to help prevent sharp edges. Nothing fancy, just a trim in an arc.

Sanding the ends of the driven elements was not hard at all. It took all of three minutes of mild pressure with a medium grit.

The hardest part was tightening the hose clamp to hold the driven element with the match hairpin and coax. Overall a easy project with good DF results. And the tape measure elements make it easy in and out of cars.

Dennis KD6TUJ



Tape Measure Yagi Test

Completed a test of the tape measure yagi made for DF. From Christie McCauliffe School to the TOWizard storage yard is a distance of 3.68+- miles. Height at McCauliffe is 340 feet MSL through a small ridge of 300 feet to TOWizard at 200 feet MSL.

Conrad KG6JIE was using a hand held VX-1 radio at 500mw to the measure tape yagi. Reading on the recieving hand held was 2/3 scale and was readable in an arc of 180 degrees with visual declination about 20 degrees from "center". Using 50mw, the arc decreased from 180 degrees to about 135 degrees. Very noticeable scale readings were seen while sweeping for the source. Again, the center seemed to have about a 20 degree swing. With a attenuating pad, changing frequency up or down 5 kc, or using triple (438 MHz on 70 cm), this should work fine. I will bring the yagi to the meeting. Find the T-Hunt df radio on 146.565.

Dennis KD6TUJ

OPERATING DAY

Sunday, November 20, 2011

Rancho Del Oro Park
JOE AND MARY MOTTINO YMCA
4701 Mesa Drive
Oceanside
9:00 AM to 5:00 PM
HOSTED BY PALOMAR AMATEUR RADIO CLUB
www.palomararc.org
contact Dennis KD6TUJ (760) 672-0223
Come operate on the ham bands at Rancho Del Oro park

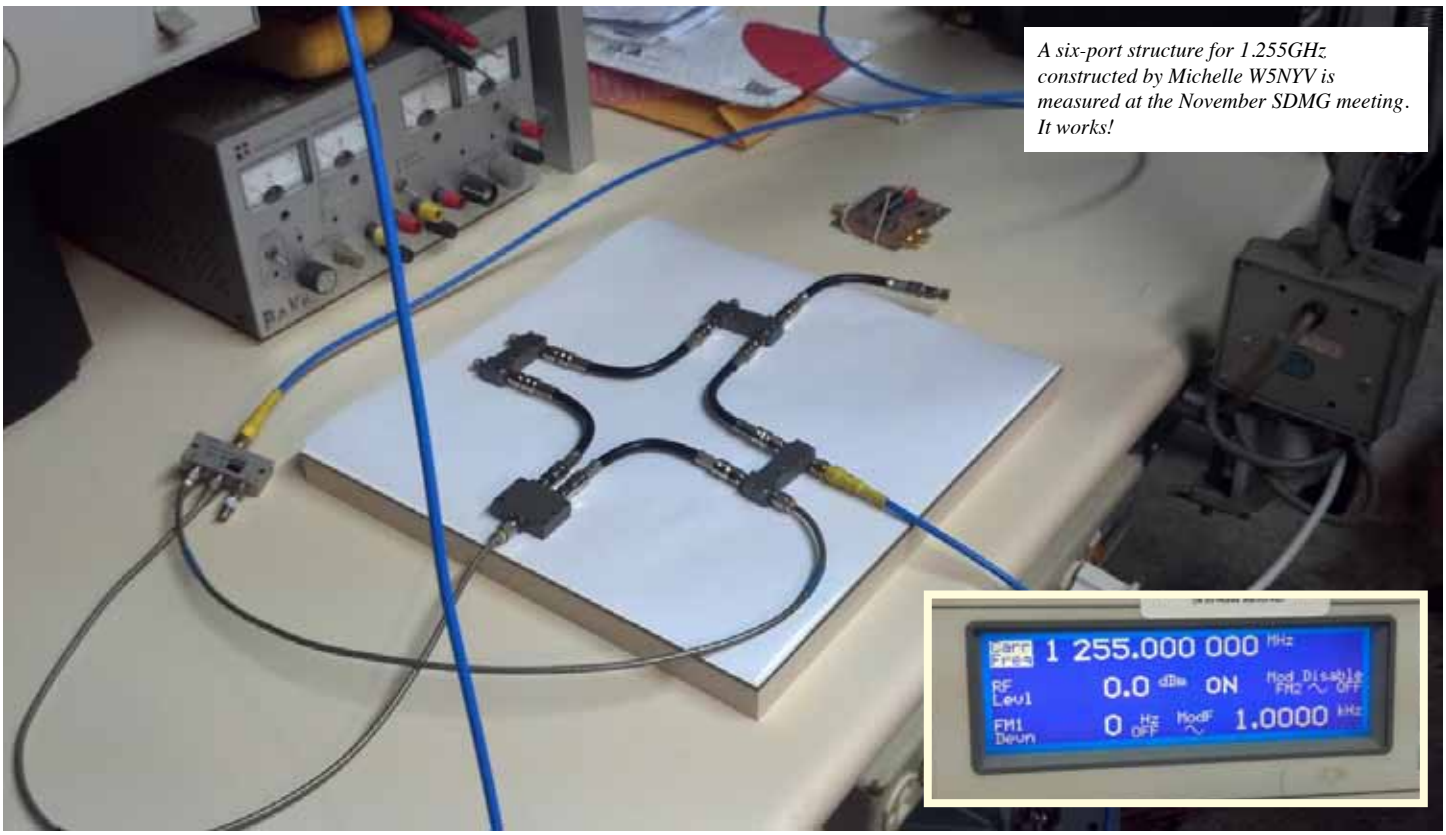
70cm, 2m, 6m, 10m, 15m, 20m

Operating Day Report

Operating Day November 20th was much better than we had planned. The event was canceled on Friday due to weather. Friday was very cold and close to rain. Weather forecast for Sunday was cold (OK) and 30% - 60% chance of rain (not OK) increasing to 80% at night. Knowing from past experience that rain rarely shows in Oceanside, it was really questionable that rain would show up. We still had to plan for public participation. If there is rain, it would be unlikely for people to show up. As usual, the day was better than forecast. We can operate in difficult conditions, but we didn't expect the public to attend.

Things we did not do included a bar-b-que, demonstrating direction finding with a project tape measure yagi, talking HF to some foreign location, Ron K2RP bringing vintage tube equipment to make those same contacts sound better, along with members of PAPA showing off what is capable with D-Star. A great day of public Amateur Radio was missed by all!

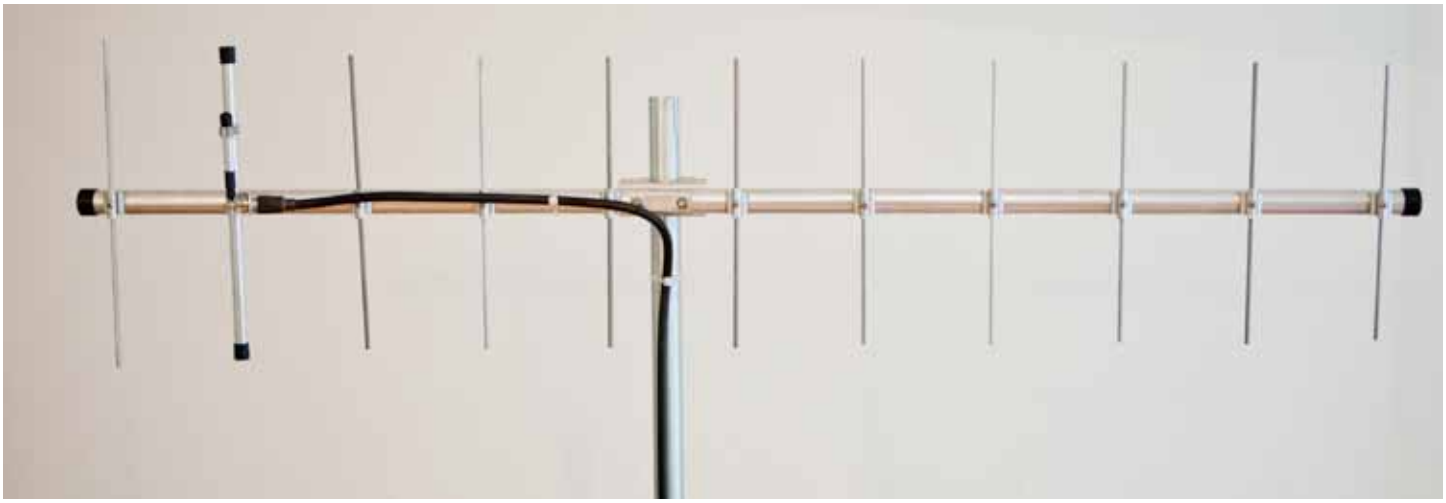
We'll be planning the next one soon.



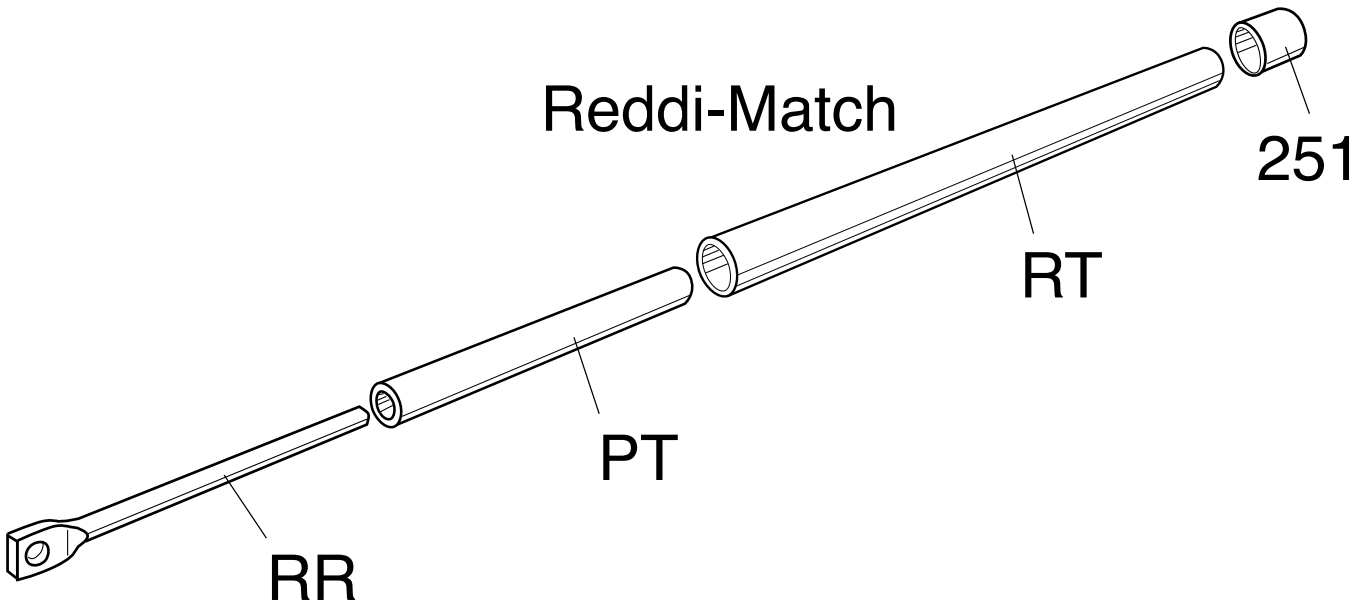
A six-port structure for 1.255GHz constructed by Michelle W5NYV is measured at the November SDMG meeting. It works!

Cushcraft A449-1 70cm FM Yagi Antenna Build Report

by Paul KB5MU

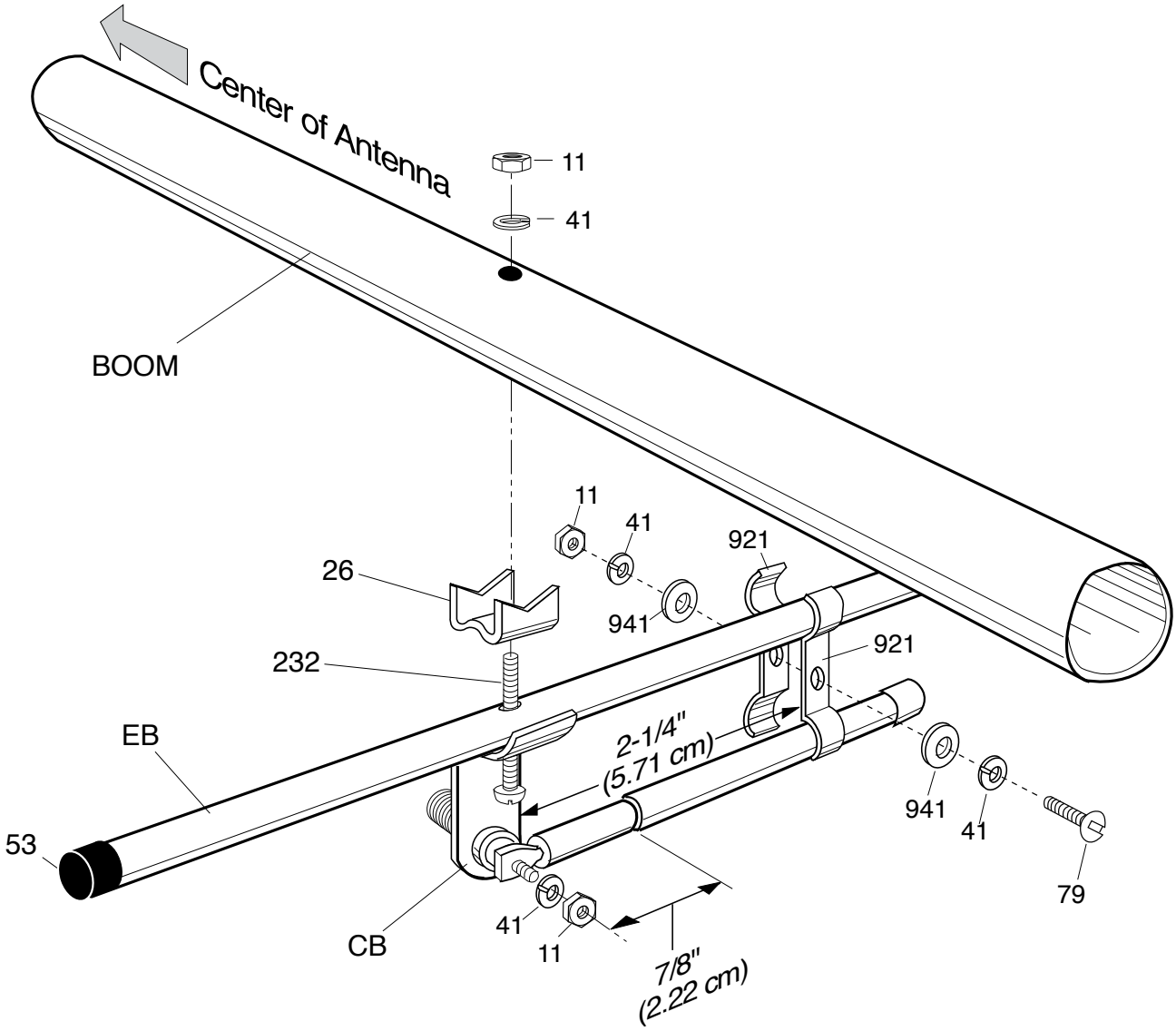


I recently assembled this Cushcraft A449-11 70cm FM Yagi antenna. The guys at Ham Radio Outlet joked that all the parts were "probably" in the box, so I took careful inventory. All parts were indeed in the box, but not exactly as described in the seven pages of nicely-illustrated instructions.



This figure, taken from the instructions, shows assembling the gamma match rod and coaxial capacitor from four different parts. In reality, the whole thing comes pre-assembled and sealed with heat-shrink tubing. That's an improvement, but it'd be nicer if the instructions were updated to match.

The parts list calls for 13 hex nuts and 14 lock washers. I guess MFJ (owner of Cushcraft since 2009) doesn't like counting out individual nuts and lock washers, though, since they came packaged in bags of 6 nuts and 9 lock washers. Three such bags left me with extra nuts and lock washers, which was fine once I figured out what was going on.



This figure, taken from the instructions, shows how the gamma match is assembled and connected to the main boom. The first problem arose when attempting to assemble the two brackets 921 around the driven element EB. The two flat washers 941 were extra-thick ones, and with all the hardware the machine screw 79 was just a tiny bit too short. It was necessary to assemble the brackets around the slightly slimmer gamma match assembly, and then slip them over the driven element. Even then, it was a fiddly operation.

The next step is to attach the connector bracket CB between the driven element EB and the gamma match assembly, which also connects the whole thing to the main boom.

continued on page 12

Minutes
Palomar Amateur Radio Club Board of Directors Meeting

October 12, 2011

The meeting was called to order by President Dennis Baca KD6TUJ at 7:21pm at the home of Ron Pollack K2RP. In attendance were:

President	Dennis Baca KD6TUJ
Vice President	Ron Pollack K2RP
Secretary	Paul Williamson, KB5MU
Director #1	Don Johnson, WD6FWE
Newsletter Editor	Michelle Thompson W5NYV
Membership Chairman	Al Donlevy W6GNI
Repeater Technical Chairman	Conrad Lara, KG6JEI

Secretary's Report
Secretary KB5MU distributed copies of the September Board meeting minutes. Motion by W6GNI to approve the minutes. Seconded by W5NYV. Motion passed unanimously.

Treasurer's Report
No Treasurer's Report was available.
Treasurer KI6LAV had distributed a summary of the auction results by email. Auction volume was similar to last year's, but the profit to the club was lower this year because less equipment was donated to the club for the auction.

Upcoming General Meeting
K2RP reported that the November meeting would be on Go Kits, presented by Ken Cohen KI6HRH. The speaker has a six-page handout, which will be distributed on the club's web site. The December meeting will be the annual holiday social.

Membership
W6GNI reported that the membership is down a few to 257.

Repeater Technical Report
Repeater Technical Chairman Conrad Lara KG6JEI reported that power converters for the packet equipment have been purchased and received, but not installed. Art KC6UQH visited the site and replaced the receive module on the 147.075 MHz repeater. Don WD6FWE is planning to make a 6m J-Pole antenna for the repeater site.

The generator currently at the repeater site is not capable of powering the battery chargers. In order to do that, we need a 240VAC inverter-based generator.

Operating Day
KD6TUJ reported that the YMCA has given permission for us to hold another Operating Day at the south end of the parking lot on November 20. Tom KG6RCW has volunteered to BBQ at Operating Day. KD6TUJ called KG6RCW on the telephone during the meeting and asked about funds for food. Based on his response, motion by KB5MU to allocate $50 for food at Operating Day. Seconded by W5NYV. Motion by K2RP to amend the motion to increase the amount to $75. KB5MU and W5NYV agreed to the amendment. Motion passed unanimously.

Possible Sale of Antennas
KD6TUJ reported that Erik KA6UAI had inquired about purchasing one of the Station Master antennas stored at the repeater site beside the storage container. Motion by K2RP to invite Erik to make an offer on the antenna. Seconded by WD6FWE. Motion passed with a vote of 2 aye, 1 nay, and 3 abstaining. KD6TUJ agreed to follow up with Erik.

Memoranda of Understanding
KD6TUJ reported that the Salvation Army had asked to update their oral understanding with the Club

to a written MOU. KD6TUJ agreed to research what agreements are already in writing and follow up.

Offer of a Free Tower
KD6TUJ reported that a 54' crank-up tower is available for free in Temecula. It needs some refurbishment. After a brief discussion it was agreed that KD6TUJ would ask for it on behalf of the club.

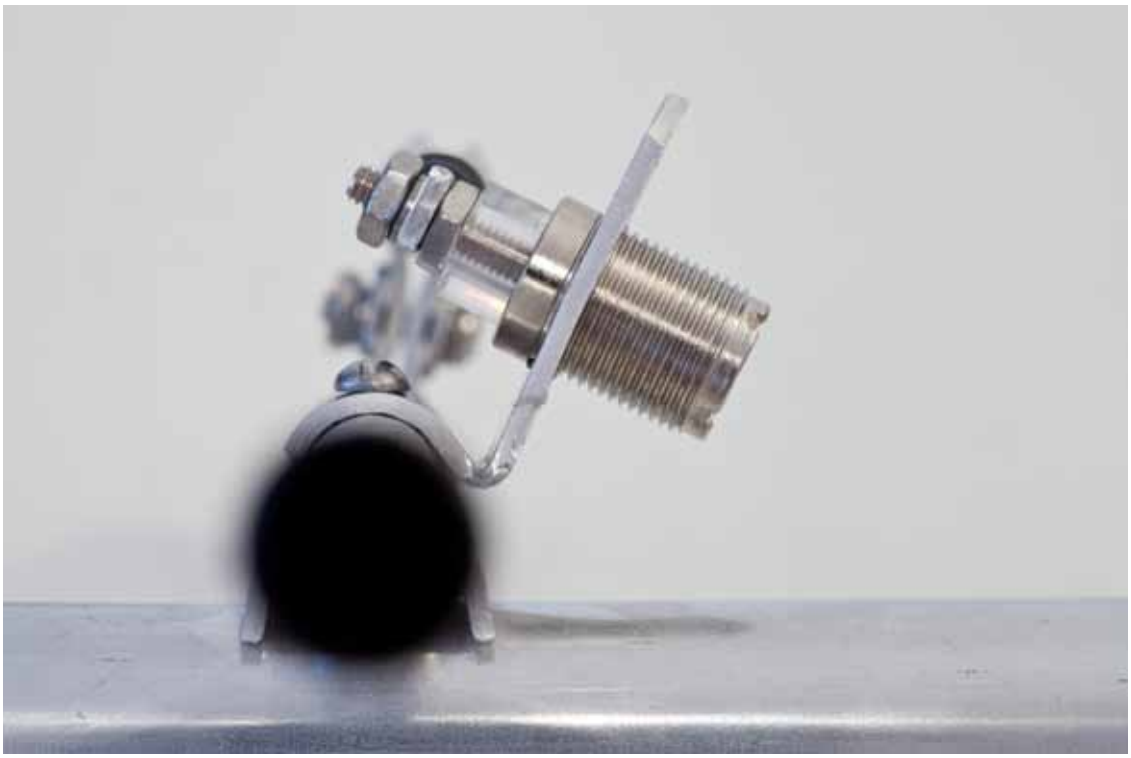
SANDARC Bylaws Amendment
KD6TUJ reported that the San Diego Amateur Radio Council (SANDARC) had published proposed amended bylaws. Both Club delegates KG6JEI and KD6TUJ recommended that the Club vote against the amendments. Motion by W5NYV that the Board direct the delegates to vote no. Seconded by WD6FWE. Motion passed unanimously.

Publication of Membership List
KB5MU asked the Board whether it was a good idea to put a list of club members, with their expiration dates, on the web site. The consensus was in favor.

Next Board Meeting Location
It was agreed that the next Board meeting would be held at the home of K2RP at 7pm on November 9, 2011.

Adjournment
The meeting was adjourned at 9:19 pm.

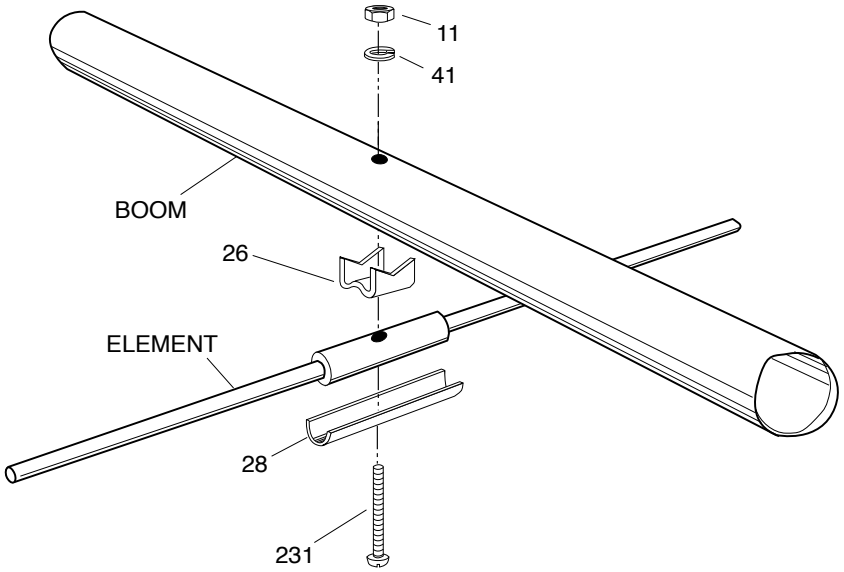
Respectfully submitted,
Paul Williamson KB5MU
Secretary



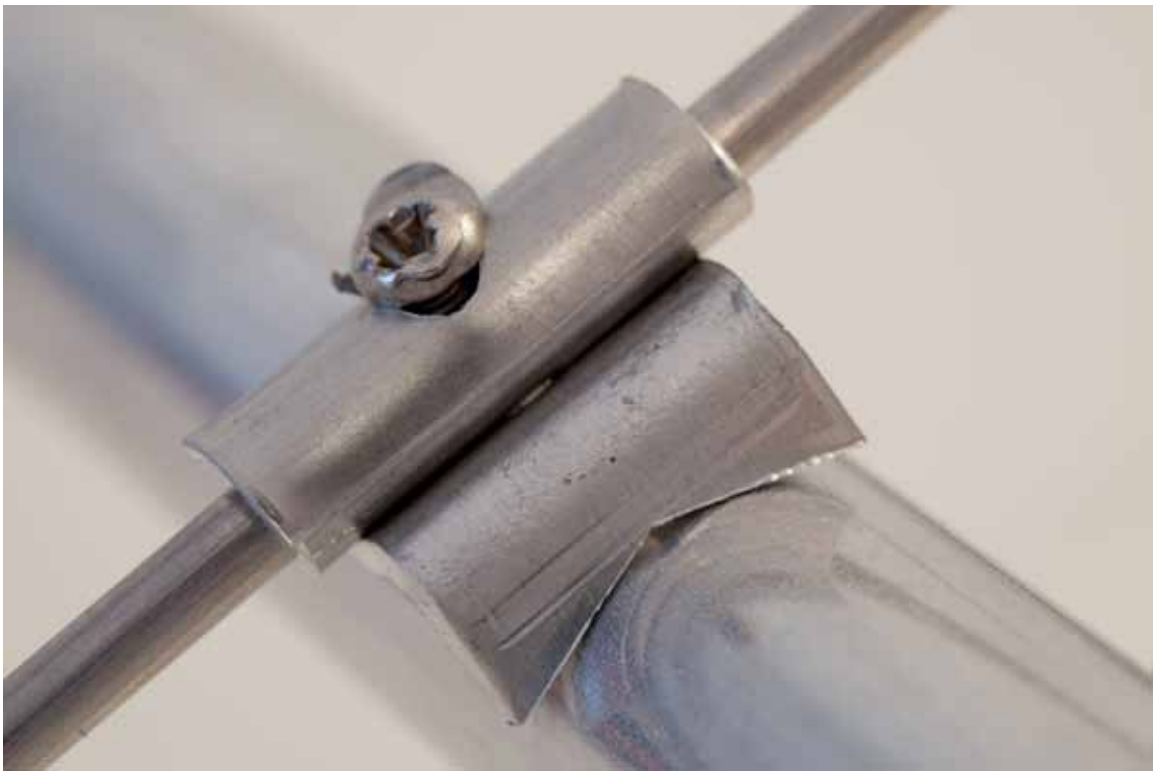
continued from page 9

Here you can see how that turned out, as seen from the end of the driven element. It's clear from the illustrations in the instructions that the connector is supposed to end up parallel to the boom. Unless this is another recent "improvement", the bracket is wrong. Either the mounting hole is in the wrong place on the curved section, or the sharp bend isn't sharp enough. I elected not to rebend the bracket, but I'm worried that I might have trouble fitting on the coaxial feedline if its PL-259 connector is one of the longer ones.

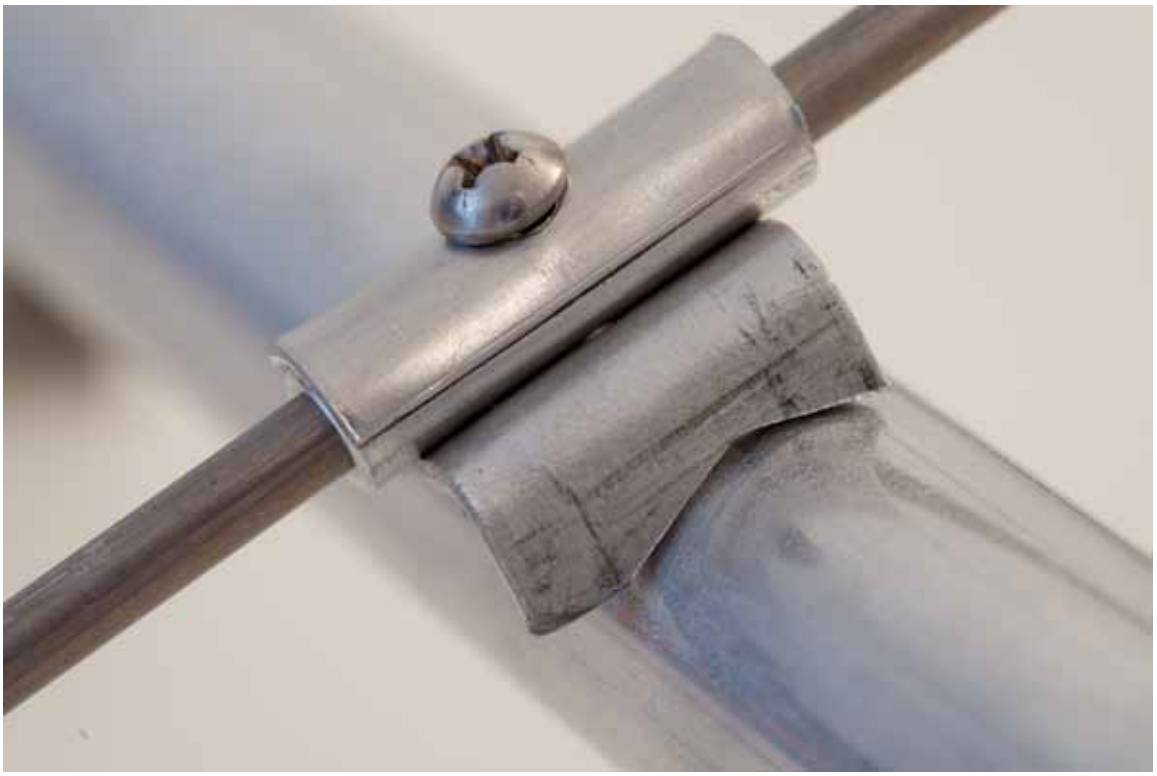
The instructions also say to be sure that the gamma match is parallel to the driven element. It isn't, and there isn't any way to change that without bending brackets. Simply bending the connector bracket to perpendicular will actually make this issue worse. To correct both issues, I'd have to reshape the bracket.



Here's how the elements are attached to the boom. The special shape of spacer bracket 26 is supposed to lock the element perpendicular to the boom and in a consistent plane perpendicular to the pre-drilled holes in the main boom.



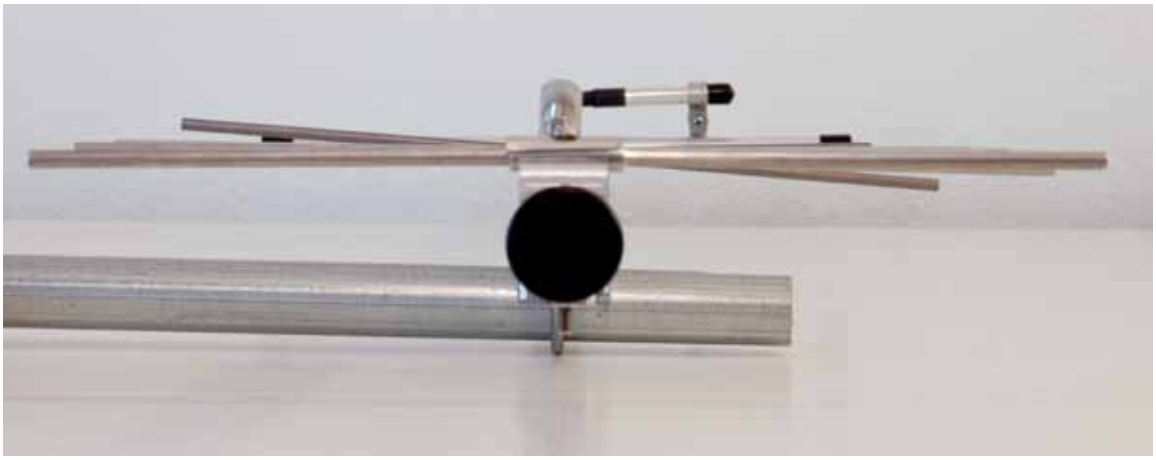
Here's what that hardware is supposed to look like (except for the ugly deformed machine screw head). All but one of them looked like this.



The other one looked like this. See how the notches are off center?

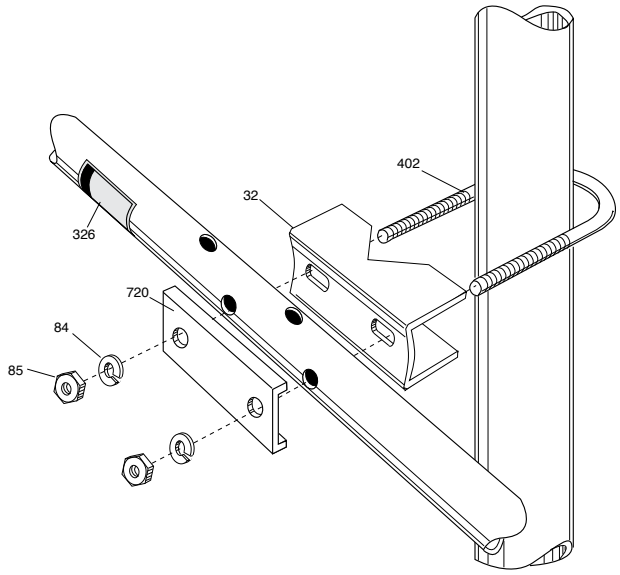
0000z-2400z on 3 December is Skywarn Recognition Day. Here is an info link:

http://www.wrh.noaa.gov/mtr/hamradio/



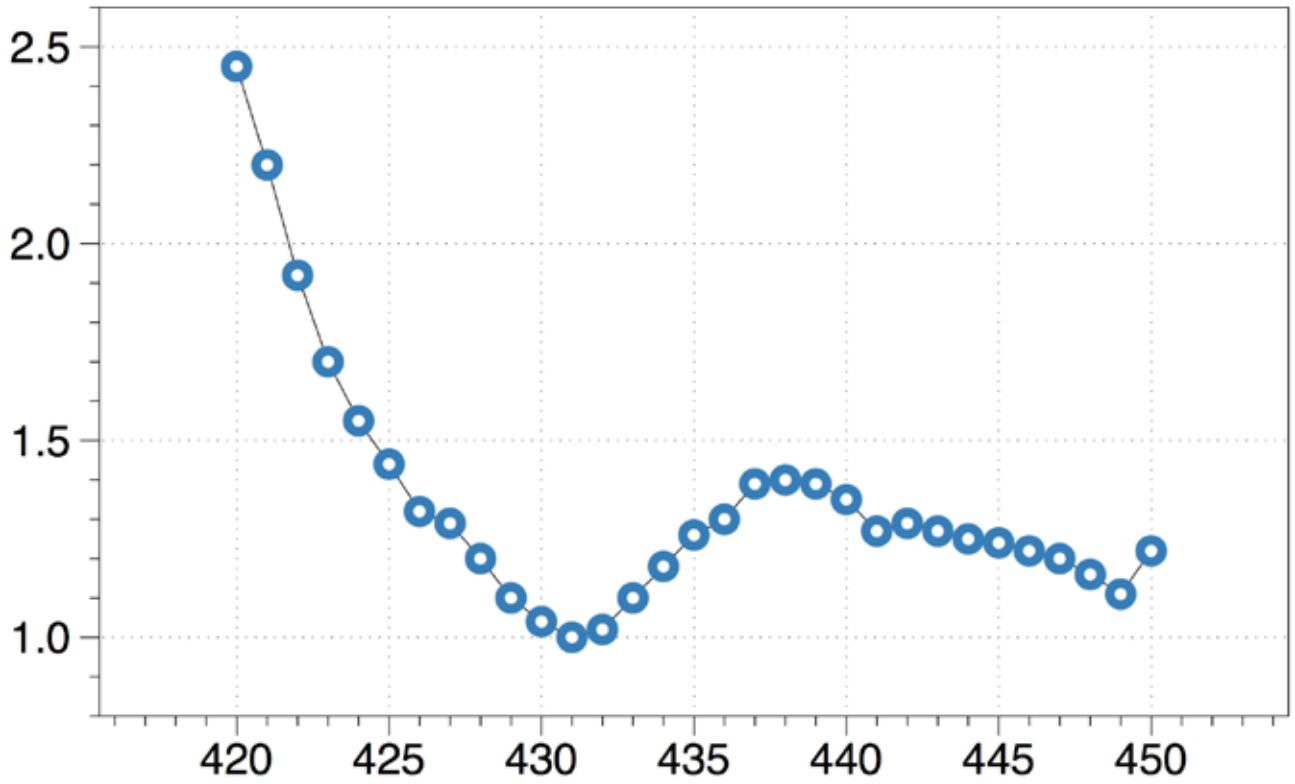
This view from the front of the antenna shows the result: the reflector element mounted on the defective spacer bracket is about 5 degrees out of plane with the other elements. This will probably have a negligible effect on performance, but it sure looks wrong.

Just for curiosity, here's a closer look fat that deformed machine screw. There's extra material on top of the rounded head and a flat tab of extra material beside it. This doesn't seem to cause any practical problems.



This is what the instructions show for the mast mount. The boom is pre-drilled to mount in either orientation. Since it's a single U-bolt mount, it has to be tightened pretty firmly to prevent slippage.

Here's the actual mast mount (one director element has been removed for clarity). The bracket on the mast side is pretty much as shown in the instructions, and is much more robust than it needs to be for an antenna this light. The plate on the other side, though, looks much cheaper. In the instructions it looks like a machined channel, possibly deep enough to cradle the boom. In reality it's a bent piece of thin sheet metal. The bent sides don't come into contact with the boom. If I tighten the nuts on the U-bolt too much, this flat plate will squash the boom.



For a basic functional test, I ran an SWR curve of the antenna, shown here. This is not a laboratory-grade measurement, by any means. It was made indoors with low-cost equipment and temporary mounting arrangements. The antenna is only specified to work from 440 to 450 MHz, the FM repeater portion of the band, so I was pleasantly surprised to find that it is also serviceable in the weak-signal and ATV segments of 70cm.

While setting up the SWR test, I discovered that the dress of the coax cable is critical. I was hoping to get away with not fastening down the feedline for the test, but the SWR varied widely with the position of the coax near the director elements in front of the driven element. Since the mechanical design of the antenna requires the feedline to run along the boom across the center of three of the directors, and then down the mast between the third and fourth director, the coax can't be routed out of the way. The SWR curve shown applies to the particular way I dressed the coax. If I did the test again with a different installation, I don't doubt the results would be somewhat different.

The next step would be to attempt to characterize the antenna's pattern and gain.

Ron K2RP writes about his experiences in the SSB Sweepstakes,

"I Made my first Clean Sweep (all 80 Sections) in 52 years on the air. And, I did it in only 80 contacts! One per section, no duplication. It's called an 80-80, and a couple people do it every year. See you on the 7th, honoring JAs."

SCOPE
P.O. Box 73
Vista, CA 92085-0073

Return service requested

PERIODICALS
POSTAGE PAID
AT VISTA CA
92085-9998

Scope (USPS #076530) is published monthly by the Palomar Amateur Radio Club 1651 Mesa Verde Drive, Vista, CA 92084. POSTMASTER: Send address changes to SCOPE, P.O. Box 73, Vista, CA 92085. Periodicals postage paid at Vista, CA 92084. Dues are $20 per year or $35 per year for a family. Dues include a subscription to Scope.

Editor: Michelle Thompson W5NYV
Submissions: scope@palomararc.org
Questions? Ideas? Comments? W6NWG@amsat.org

Featured Program:

At 7:30pm on the 7th of December 2011, Palomar Amateur Radio Club will have our annual Holiday Party.

Arrive at 7:00pm to socialize. We look forward to seeing you at the Carlsbad Safety Center, 2560 Orion Way, Carlsbad, CA.