

STATIC



MAY, 2008

Remote Control Revisit

Alan Applegate, K0BG

I've written about this subject before, but it seems appropriate to revisit it. After all, it is that time of year when folks start thinking of configuring their mobile stations. So, a little sound advice up front, might save some luckless amateur a few headaches.

Before I get into the real meat of the article, I need to cover a few basic facts. It really doesn't matter what HF antenna you buy, but you should consider a few basic realities before you spend your hard-earned cash.

First, any (every) HF mobile antenna is a compromise, due mainly to one simple fact; any vehicle you mount it on, including one the size of a semi, is an inadequate ground plane. Since ground plane losses constitute the largest factor from an efficiency standpoint, those losses should be minimized.

Next, length matters. Generally speaking, a 12 foot antenna is twice as efficient as an 8 foot one, all else being equal. In reality, it's somewhat dependent of the aforementioned ground plane losses, and where you choose to mount your antenna.

The size of the coil, within reason, is important too. Length, diameter, and the ratio between them, as well as the position within the antenna (base, center, or top) partly determine Q. Think of it this way; long skinny coils are lossy, short fat ones are less lossy. However, the way the coil is made (and what it is made of) is also very important, especially the size of wire it is wound with. Although there is an ideal length to diameter ratio, the ratio is partly dependent on where in the antenna it is mounted, and on the ground losses present.

It should be apparent that any comparison between short fat antennas, and long skinny ones is a difficult task, much less antennas that are in between the aforementioned extremes. But as important as all of this appears, the single biggest factor any mobile operator has to deal with, is (again) the ground losses involved.

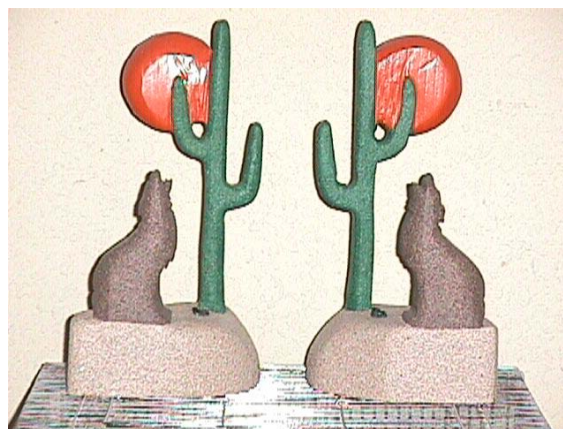
I often get asked how to minimize ground losses, and there are several articles on my [web site](#) dealing with these issues. As redundant as it may be, *the* most important factor in maximizing what limited ground plane a vehicle represents, is placing as much mass *under* the antenna as you can. In other words, not along side! (continued, page 6)

LBARA MEETING SCHEDULE

MONTH	BOARD	REGULAR
MAY	NOTE: BOARD	5/15
SEPTEMBER	MEETINGS WILL NOW	9/18
OCTOBER	TAKE PLACE ONE	10/16
NOVEMBER	HOUR PRIOR TO THE	11/20
DECEMBER	REGULAR MEETING	12/18

WANTED: LOST TROPHY

Someone out there is the current custodian of the Club's Fox Hunting Trophy. The traveling trophy to hunts that had years and we once again. Hope will jog someone's trophy will be re-



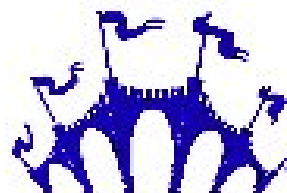
Club gave out this the winners of fox been held in past would like to do so fully this picture memory and the turned the Club.

The London Bridge Amateur Radio Association

Fox Hunt Traveling Trophy

Monday Night Net (7 PM)

System	Location	Freq	Offset	PL
MCARS	Bullhead City	145.27	-	131.8
	Kingman	146.76	-	131.8
	Kingman	448.25	-	131.8
	Lake Havasu	146.62	-	131.8
	Willow Beach	147.12	-	131.8
CRRRA	Lake Havasu City	146.96	-	162.2
	Lake Havasu City	224.24	-	156.7
	Lake Havasu City	146.64	-	156.7
	Lake Havasu City	449.95	-	141.3
BARN	Lake Havasu City	447.54	-	136.5
	Las Vegas, NV	449.95		136.5
	Onyx(Palm Springs)	449.34	-	136.5
	Orange County, CA	447.54	-	100



AIRMAIL Demonstration

If you missed attending last month's LBARA meeting, then you missed a great, in-deft demonstration of the AIRMAIL program. This is a very useful program that will enable you to send and receive emails using your radio. Dick Jernigan, W7DXJ, shows members how to use AIRMAIL over 2 meters.



Of course, some members would rather eat the goodies than watch the Dick's demonstration!

UPCOMING ACTIVITIES AND HAMFESTS

Prescott Hamfest, May 31, Prescott, AZ, Yavapai ARC, See: www.w7yrc.org

Kachina ARC Hamfest, Show Low, AZ, June 7, See: ke7edp@cableone.net

2008 Williams Hamfest/ARRL AZ State Convention, July 18-20th, Williams, AZ.

See: www.arca-az.org

Kingman Hamfest, September 6, Mohave Professional AR Group, Kingman AZ (Specific information unavailable at press time)

2008 ARRL Southwester Division Convention—September 12-14th, Mesa, AZ.

See: www.AzHamCom.org



**ARRL ARIZONA STATE CONVENTION
& HAMFEST**



*Presented by the Amateur Radio Council of Arizona
and the City of Williams*



JULY 18 & 19, 2008

WILLIAMS RODEO GROUNDS, 800 RODEO ROAD, WILLIAMS, AZ
GATES OPEN AT 5 P.M. THURSDAY JULY 17 FOR SET-UP.
HAMFEST OPENS AT DAWN FRIDAY, JULY 18.

FREE ADMISSION!

JULY 20, 2008 - GRAND CANYON TRAIN TRIP

MAIN PRIZES

- Grand Prize - ICOM IC-718 HF XCVR/SW
- Second Prize - Alinco DR-135TMKIII 50W 2M FM
- Third Prize - Yaesu VX-150 5W 2M FM HT
- Fourth Prize - LDG Z-100 160-6M 125W/50W Autotuner
- Early Bird - To Be Announced

ALL SPACES - \$15 per Space
DRY CAMPING - \$15 per Space
or **FREE** with Selling Space

BEFORE JUNE 1, 2008

PRIZES

DOOR PRIZES EVERY HOUR
RAFFLE TICKETS
\$2.00 Each, 3 for \$5.00 or 60 for \$100.00

After June 1 & ON-SITE - \$20 per Space
Selling and/or Camping
(all prices are for entire weekend)

**MEETINGS, SEMINARS, ACTIVITIES,
COMMERCIAL VENDORS, HUGE
SWAP, VE TESTS, BAR-B-QUE DIN-
NER, SUNDAY GRAND CANYON
TRAIN TRIP**



FOR RESERVATION INFORMATION

Visit the ARCA Web Site
www.arca-az.org/arca
On-Line Reservation Available on Web Site
Or Call - 602-881-ARCA (2722)

Talk-In - 146.78 - (91.5 PI)

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Hi Jerry,

I wanted to Thank you for attending and helping with the memorial service for my Father. I know he touched so many people's lives and was loved by many. He loved The Ham Radio club and always talked about it with great joy. He loved going to train for FIMA too. He loved to help people. He put together his first when he was a child from a heathe kit from Radio Shack. He always enjoyed that. He loved his electronics, gadgets and techno gear.

I know he will be missed by you all. We are talking about putting a plaque on the walkway near London Bridge in his memory.

I hope to get know and meet all you guys and hear the great stories too. Again, Thank you so much!

Sincerely,

Michele Gilbertson

Just wanted to share this note with all the Club members.....K7LY

On - Air Swap Nets

If Your Looking for A Piece of Equipment, Give These A Try

- 7.240 Every Sat. and Sun. Starts around 12:30PM Controls are various. Covers West Coast.
- 3.915 On Sunday mornings at 10:00AM Pacific Time. Net control W7BUN. Mostly northwest states
- 3.908 "WARFA" swap net. Wed. nights at 8:00 PST. This net is on the West Coast, but many check ins from the Midwest.
- 3.922 Mid-West Swap Net On Sunday evenings from 5:30PM to 7:30PM PST
- 7.235 Chaverim Rag Chew/Swap Net Every morning at 11:30AM PST. Monday -Friday Western US. Net control WA6USL
- 3.908 "Northstar Traders net" - 8:30AM Central. (originates from Minnesota/Wisconsin area) Host W5MAZ

I will *not* be drawn into an argument about where, or how, you mount your HF mobile antenna. All excuses aside, the factors every mobile operator needs to understand are these; the location you choose not only has a direct relationship of how efficient your installation will be, it also has a relationship on the RFI issues you'll face. This is especially true when your antenna of choice is a remotely controlled one.

An HF mobile antenna, in the strictest of terms, is a vertical antenna. Since a vertical antenna is half of a dipole, the missing half is (in essence) the ground plane it is mounted over (the vehicle in this case). Whatever RF current is flowing in the antenna, must also flow in its ground plane. When the ground plane is inadequate (lossy), the return current seeks the path of less resistance. And that my friends, is back down the control leads (if any), and the coax feeding the antenna.

Let's address the control lead issue first. If you mounted an HF mobile antenna atop a near-perfect ground plane, there still would be RF on the control leads. The reason is, the motor operates above RF ground. Whatever current is flowing must be choked off as close to the antenna as possible. Since the motor position inside the antenna varies across the various models, it's difficult to know exactly how much RF will flow. One common rule of thumb is, the impedance of any choke must be at least 2 magnitudes higher than the circuit's impedance. Assuming 50 ohms, this means the choke must exhibit an impedance larger than 5,000 ohms. That takes about 9 turns through a nominal Mix 31 ferrite bead. Unfortunately, that isn't the whole story.

As ground plane losses increase, regardless of the cause, the amount of RF current flowing on the control leads, and the coax feeding the antenna will also increase. Thus, the requisite choke will have to be larger. There is a practical limit to the number of turns one can wind on a single bead, like the one in the photo, so larger values may require more than one bead to be used (in series).



This begs the question; just how much *choke* do you need? Once again, that depends on where and how you mount your antenna, with whatever ground plane losses those specifics dictate. In extreme cases, the requisite choke(s) will need an impedance of 15,000 ohms, perhaps more! An antenna mounted atop a long post, jutting out from a trailer hitch is a typical, extreme example. What's more, if the choke is inadequately sized for the application, the choke can easily suffer thermal runaway, which will cause it to fail.

The coax feeding the antenna will also have RF flowing over it (common mode currents). Most of the time it is less noticeable, because the impedance of the coax is less than that of the motor leads. Nonetheless, it is still there with all of its consequences. The problems associated with choking off the coax are compounded by its size, and this fact may require multiple chokes, rather than one large one.

You will never be able to use an automatic antenna controller without properly choking the motor leads, no matter where or how you mount your remote controlled HF mobile antenna. Whether or not you need to choke off the coax remains moot.

Alan, K0BG, www.k0gb.com

Are you looking to upgrade your license?

Give our VE Exam Team a call.

See Ed Gillespie, AB7EM at #453-7412

FOR SALE/TRADE

MFJ-616 Speech Intelligibility Enhancer - Recently serviced by MFJ. Like new condition. With manual and shipping box. \$130

Kenwood TS-50 Transceiver –10 through 160 meters. 100 watts. With mobile bracket, manual and shipping box. Excellent condition. \$450

MFJ - 941E Antenna Turner –300 watts. 10-160 meters. Excellent condition with manual and shipping box. \$90

Hugh Allen, WB6TQP, Phone #453.8659, Lake Havasu City, AZ

ICOM 781C - Still in the process of evaluating this rig, but initial contacts seems to say this rig is in great condition, both electrically and cosmetically, Original cost of this rig was \$6,000. Includes SP-20.

ALPHA 87C - Legal limit amplifier with automatic band changing following your transceiver. Uses a pair of 3CX800A7 for a full 1500 watt output with 50-55 watts in. Amp is still not fully checked out but appears to be in excellent condition. S/N 91180063. Original cost was \$6,500. **SOLD**

See Jerry France, K7LY, 928.855.7941 or grf@unedspeed.net. These are from the estate of Ray Hunnicutt, W7YHC. Other misc. parts, antennas, etc. will be made available.

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www.lbara.net

FROM THE EDITOR

If you have anything you would like to see included in these issues, please let me know. I'm always looking for articles, news items, construction articles, or anything that might be of interest to our readers. You can contact me at 928.855.7941 or email at grf@unedspeed.net or francej@ajsinsurance.com.

L.B.A.R.A

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ARIZONA 86405

STATIC

ATTENTION READERS

Please note that this issue represents a “work-in-progress” and there are a number of changes to be made in subsequent issues. I would greatly appreciate your comments, both good and bad, as well as any suggestions for future issues. This issue also begins our first attempt to deliver the **STATIC** to your doorstep electronically. Please keep me abreast of any email address changes you may have and I promise to have this delivered promptly and accurately. Also, I still have a number of articles awaiting publication and will do so in the future. This is your newsletter, so keep the articles, letters, and pictures coming. I can be reached at home (855.7941), at work (855.3081) or via email at grf@uneedspeed.net .

EQUIPMENT FOR SALE

EDITOR'S NOTE: List your items for sale here. Ham radio related only, please. Include a picture if you like (please use a jpg format). Email all to me at grf@uneedspeed.net along with your name and phone number.

