



## ARRL Periodicals Archive – Search Results

### A membership benefit of ARRL and the ARRL Technical Information Service

**ARRL Members:** You may print a copy for personal use. Any other use of the information requires permission (see Copyright/Reprint Notice below).

**Need a higher quality reprint or scan?** Some of the scans contained within the periodical archive were produced with older imaging technology. If you require a higher quality reprint or scan, please contact the ARRL Technical Information Service for assistance. Photocopies are \$3 for ARRL members, \$5 for nonmembers. For members, TIS can send the photocopies immediately and include an invoice. Nonmembers must prepay. Details are available at [www.arrl.org/tis](http://www.arrl.org/tis) or email [photocopy@arrl.org](mailto:photocopy@arrl.org).

**QST on CD-ROM:** Annual CD-ROMs are available for recent publication years. For details and ordering information, visit [www.arrl.org/qst](http://www.arrl.org/qst).

**Non-Members:** Get access to the ARRL Periodicals Archive when you join ARRL today at [www.arrl.org/join](http://www.arrl.org/join). For a complete list of membership benefits, visit [www.arrl.org/benefits](http://www.arrl.org/benefits).

### Copyright/Reprint Notice

In general, all ARRL content is copyrighted. ARRL articles, pages, or documents--printed and online--are not in the public domain. Therefore, they may not be freely distributed or copied. Additionally, no part of this document may be copied, sold to third parties, or otherwise commercially exploited without the explicit prior written consent of ARRL. You cannot post this document to a Web site or otherwise distribute it to others through any electronic medium.

For permission to quote or reprint material from ARRL, send a request including the issue date, a description of the material requested, and a description of where you intend to use the reprinted material to the ARRL Editorial & Production Department: [permission@arrl.org](mailto:permission@arrl.org).

**QST Issue:** Sep 1991

**Title:** Limited-Space Dipole Support, A

**Author:** Al Dion, W1DWX/4

[Click Here to Report a Problem with this File](#)



## 2009 ARRL Periodicals on CD-ROM

ARRL's popular journals are available on a compact, fully-searchable CD-ROM. Every word and photo published throughout 2009 is included!

- **QST** The official membership journal of ARRL
- **NCJ** National Contest Journal
- **QEX** Forum for Communications Experimenters

**SEARCH** the full text of every article by entering titles, call signs, names—almost any word. **SEE** every word, photo (including color images), drawing and table in technical and general-interest features, columns and product reviews, plus all advertisements. **PRINT** what you see, or copy it into other applications.

**System Requirements:** Microsoft Windows™ and Macintosh systems, using the industry standard Adobe® Acrobat® Reader® software. The Acrobat Reader is a free download at [www.adobe.com](http://www.adobe.com).

### 2009 ARRL Periodicals on CD-ROM

ARRL Order No. 1486  
Only \$24.95\*

\*plus shipping and handling

Additional sets available:

2008 Ed., ARRL Order No. 9406, \$24.95  
2007 Ed., ARRL Order No. 1204, \$19.95  
2006 Ed., ARRL Order No. 9841, \$19.95  
2005 Ed., ARRL Order No. 9574, \$19.95  
2004 Ed., ARRL Order No. 9396, \$19.95  
2003 Ed., ARRL Order No. 9124, \$19.95  
2002 Ed., ARRL Order No. 8802, \$19.95  
2001 Ed., ARRL Order No. 8632, \$19.95



**ARRL** The national association for **AMATEUR RADIO™**

SHOP DIRECT or call for a dealer near you.

ONLINE [WWW.ARRL.ORG/SHOP](http://WWW.ARRL.ORG/SHOP)

ORDER TOLL-FREE 888/277-5289 (US)

# A Limited-Space Dipole Support

By Al Dion, W1DWX/4

12720 US Hwy 92  
NCBU #4  
Dover, FL 33527

**T**his project is so useful, simple, inexpensive and durable, you've just gotta try it! I use this support to hold a 10-meter inverted V on my small lot. This support and antenna can be assembled easily in a matter of a few hours; the cost is low—less than \$20—and the parts can be easily obtained. (See the sidebar, "Getting PVC Fixtures.") What more could you ask for in a ham project?

A glance at the drawing is probably all

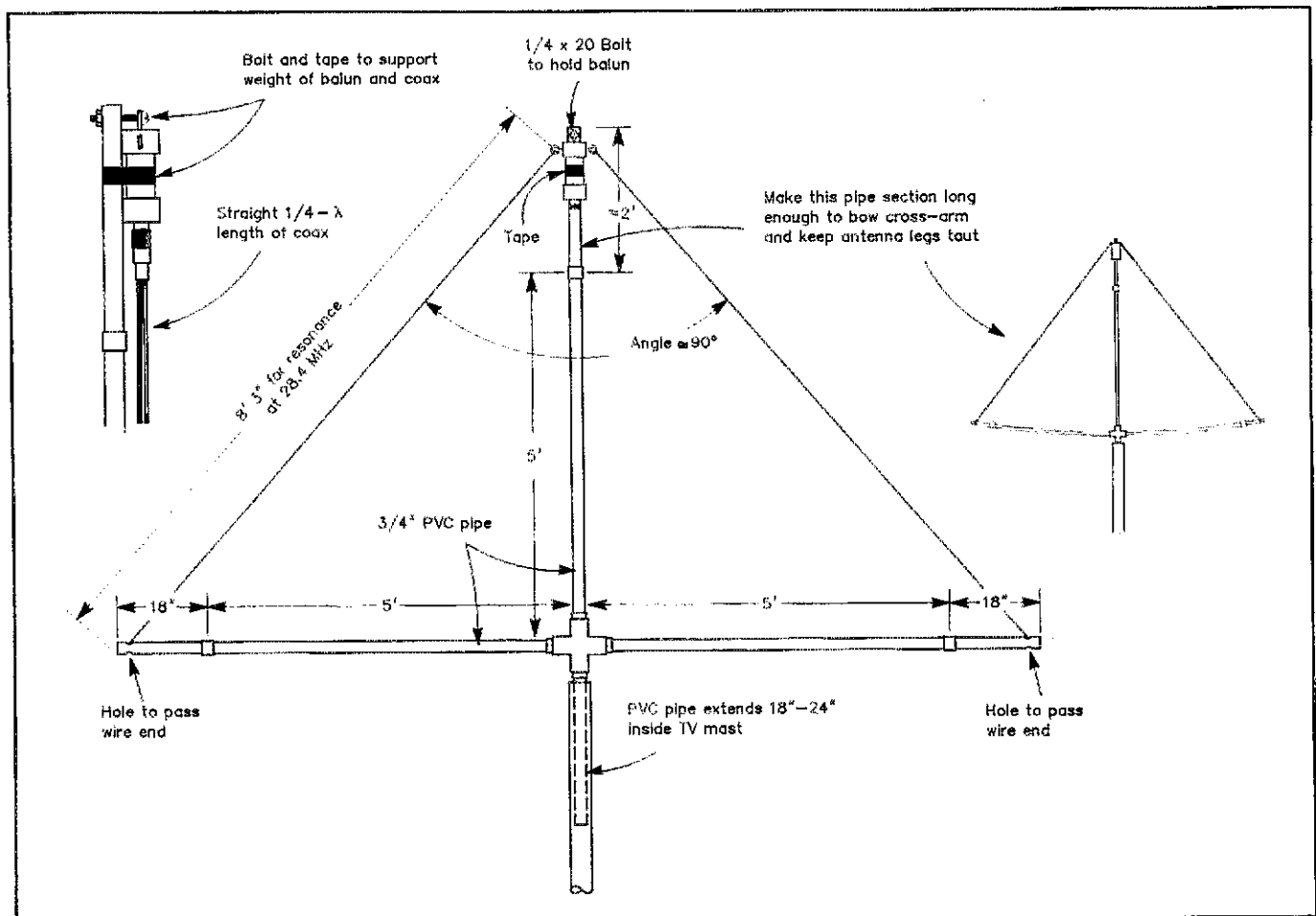
you'll need to understand how the whole thing goes together. The entire support is made of PVC plumbing parts: three 3/4-inch × 10-foot lengths of PVC pipe, three 3/4-inch end caps, seven 3/4-inch couplings and one 1-inch cross coupling (the drawing caption contains a complete parts list). I used a section of TV mast to support the structure, although you can use larger-diameter, heavy-walled PVC tubing instead.

If you're going to make this a permanent assembly, you'll need a small can of PVC cement. However, I recommend that you don't cement the PVC parts. That way, you can easily disassemble and reassemble the mount, and lengthen or shorten the support sections to accommodate antennas for other frequencies. Because of its light weight and ease of assembly, the support

is ideal for portable and temporary installations: Field Day, hilltopping, vacationing or RV use. You can keep one of these bundles of plastic pipes available for emergency use, too.

Cut in half two of the 3/4-inch, 10-foot PVC pipes. Place a 3/4-inch coupling on each end of three of the 5-foot sections. Fit one end of three of the 5-foot sections into the 1-inch-diameter center cross section. (The couplings fit tightly in the cross.) The inverted T so formed is the main portion of the vertical member and the right and left arms.

From the fourth 5-foot section of PVC pipe, cut two 18-inch pieces and one 22-inch piece (the dimensions aren't critical). The 22-inch piece is used at the top of the vertical member, attached to the 5-foot section with a 3/4-inch coupling. If



This 10-meter dipole support is made entirely of PVC tubing. You'll need: three 3/4-inch × 10-foot lengths of PVC pipe, three 3/4-inch end caps, seven 3/4-inch couplings, one 1-inch cross coupling, some vinyl electrical tape and a section of TV mast (or PVC tubing) to support the assembly. Optional items: a can of PVC cement (see text), a balun and a 3-inch, 1/4 × 20 bolt to hold the balun. Oh—don't forget the wire for the dipole!

### Getting PVC Fixtures

During some research for this article, I found there are two basic types of plastic tubings and fittings: PVC (polyvinyl chloride) and CPVC (chlorinated polyvinyl chloride). PVC is white, CPVC is beige. CPVC is specified to carry hot and cold water, PVC is meant for cold-water carry only. Though both tubing types have similar inside diameters (the diameter specified when identifying pipe/tubing sizes), the outside diameters differ: PVC pipe has a thicker wall, and is heavier and more rigid than CPVC. Because of the different outside diameters, the PVC and CPVC fittings aren't directly interchangeable. So, referring to PVC and CPVC pipe simply as "PVC" could create a problem.

PVC and CPVC pipe and their fittings are readily obtainable at most hardware, plumbing- or building-supply stores and suppliers of irrigation tubing. But after trying a dozen different PVC suppliers, I couldn't locate one who could sell me a small-diameter (1/2, 3/4 or 1-inch) PVC cross! I could just as well have been searching for a unicorn; most people to whom I spoke claimed they had never seen one. The closest one supply house came to identifying the object was to tell me that such things "really aren't crosses, they're referred to as 'double T Ys,' and that the smallest available diameter is 1 1/2 inches." Actually, that's yet another fitting.

Then one day, I located a hardware-store owner who'd seen PVC crosses—that morning!—in a catalog. He told me he'd thought "Someday somebody's going to want one of those things." He didn't have long to wait—I was there that afternoon. I had to special order the crosses, but it took only three days to get them.

Further investigation yielded even better information. Identify small-diameter PVC fittings as *pressure pipe*. This distinguishes the pipe and fittings from DWV (drain, waste, vent) pipe and fixtures. If your local outlet doesn't stock what you need, you can order fittings (not pipe) directly from: Genova Products, 7034 East Court St, Davison, MI 48423-0309; tel 800-521-7488; catalog available. Best of all, *there is no minimum order!*

If you think building antenna supports from PVC is odd, I learned some *furniture* is made from PVC! If you're interested in building plastic furniture (how about an operating desk?), contact Baldwin Publications, Inc, c/o Ed Baldwin, PO Box 40, Eureka, MO 63025; tel 314-938-9116. A source for PVC plastic pipe and fittings (designed specifically for pipe furniture) and other plastic products is United States Plastics Corp, 1390 Neubrecht Rd, Lima, OH 45801. Orders: tel 800-537-9724; fax 419-228-5034; product information, tel 419-228-2242; catalog available. Minimum billing is \$5; there is a \$2 service charge on orders under \$20.—*Paul Pagel, N1FB*


### Further Reading

For more information on constructing and feeding dipole antennas, see the recent articles by Assistant Technical Editor James W. ("Rus") Healy, NJ2L: "Antenna Here is a Dipole," QST, June 1991, pages 23-26, and "Feeding Dipole Antennas," QST, July 1991, pages 22-24. In those articles, you'll find loads of information on dipole construction and where to get such things as feed line and antenna wire. If you don't have those QST issues, they may be available from a friend, your local ham club or your local library. If not, contact the Technical Department Secretary at ARRL Headquarters, 225 Main St, Newington, CT 06111, (203-666-1541) for any photocopies you need. There is a nominal charge for this service.

For the 10-meter dipole elements, I use rubber-covered lamp cord cut to the dimensions shown. A 1:1 balun at the feed point allows easy attachment of the feed line. Drill holes through each cross-arm end, pass the ends of the dipole elements through the holes, wrap the ends back and solder the connections.

Once you've connected the feed line, drop the bottom assembly pipe into the support mast and start working people! I've worked over 100 countries using this antenna and received excellent reports.

*Al Dion's radio experience started around 1936 when he breadboarded a receiver using a type 19 tube, hand-wound coils and scrounged parts. Later, he bought a Howard 430 receiver, which in 1942, went with him to the US Army radio school at Fort Meade, Maryland. (He still has the 12-WPM Morse code certificate he earned there.)*

*In 1954, Al was the Civil Defense Director for Putnam, Connecticut. He got his Novice and Technician licenses in 1955. His first transmitter was a home-brewed 6L6 oscillator. Now 72, Al is a retired Putnam Postmaster. He still loves to "build gear and play with antennas." *

necessary, adjust the length of this uppermost piece to slightly bow the cross arms and keep the antenna legs taut. The two 18-inch pieces are fitted with couplings and attached to the ends of the assembly's left and right arms. Place PVC pipe caps at the end of each arm and at the top of the vertical section. This'll keep out insects and eliminate wind howling across the open pipe ends.

Cut a 2-foot piece of pipe from the remaining 10-foot length. Place a 3/4-inch coupling on one end of the 2-foot section and fit the coupling into the bottom end of the cross arm. The PVC pipe can then be slid into a support mast such as a length of TV-antenna mast. I merely slip the PVC pipe into the TV mast and leave it unfastened. That way, the antenna assembly "weathercocks" easily in windstorms.

## New Products

*The ARRL and QST in no way warrant products described under the New Products banner.*

### CMOS SUPER KEYS II UPDATE

□ A chip upgrade for the CMOS Super Keyer II<sup>1</sup> is now available. Here are a few of the new features:

- Operator selection of several keyer emulations including the Curtis-chip keyer "A" timing, the Accu-keyer and others.
- Dot and/or dash memory disabling.
- Variable monitor frequency (500-990 Hz).

- A review that allows messages to be played back including embedded commands.

- Soft-sectored memories for more efficient usage.

- An embedded function that allows the operator to stop message play, include a hand-sent entry, then press the memory button to resume message transmission.

- An "ultra-speed" mode that allows transmission of stored messages at speeds of 70-990 words per minute! This will be of interest to meteor-scatter specialists.<sup>2</sup>

- A timing algorithm that gives more

precise speed changes.

Upgrading your keyer requires replacement of one capacitor and the CPU chip. Write Idiom Press, Box 583, Deerfield, IL 60015 with a self-addressed stamped envelope bearing one First Class stamp for details on the exchange program for the new chip and how to package your exchange chip for shipment.

<sup>1</sup>J. Russell and B. Southard, "The CMOS Super Keyer II," QST, Nov 1990, pp 18-21.

<sup>2</sup>K. Willis, "Meteor Scatter—European Style," QST, Nov 1986, pp 35-39; see also Feedback, QST, Apr 1987, p 59.