Number 5 on your Feedback card

VE3CYC's Wire Beam

Versatile gain antenna for a limited space.

by John Van der Ryd VE3CYC

Primarily designed for 15 and 20 meters, this beam does a fair job on 12 and 10 meters as well, and also works like a regular dipole on 17 meters.

Some Basic Advice

When building an antenna, keep in mind that there is a considerable difference between bare wire and insulated wire. The actual length of insulated wire must be considerably shorter than bare wire to arrive at the same resonant frequency. The opposite is true if you use bare wire instead of insulated wire—a piece the same length as a piece of insulated wire will give a higher resonant frequency.

We have all noticed how our antennas misbehave when they get wet or are covered with ice. Just watch your SWR meter go up when that happens. This is because the dielectric constant is not the same as it would be if dry air surrounded the bare wire. The purpose of the antenna is to create alternating magnetic and electrostatic fields around itself at the operating frequency. These fields are continuously pushed away into the surrounding space at the speed of light. It is the resistance, created by the material enclosing the wire, which slightly opposes the radiation of these electrostatic fields (resisting the flow of electrons in the antenna.) This means that the antenna has to be shorter to be resonant again at the original frequency. This is a blessing in disguise because, although it has no apparent effect on the propagation of our radio waves, it makes the antenna a little bit smaller.

If you want this antenna project to be successful, follow my instructions to the letter and stick to my dimensions. Before I get involved in the actual beam antenna I will first describe how I made a good working multiband dipole antenna. You might even decide, after reading this part, to make just the multiband dipole instead of the unusual "VE3CYC's Wire Beam."

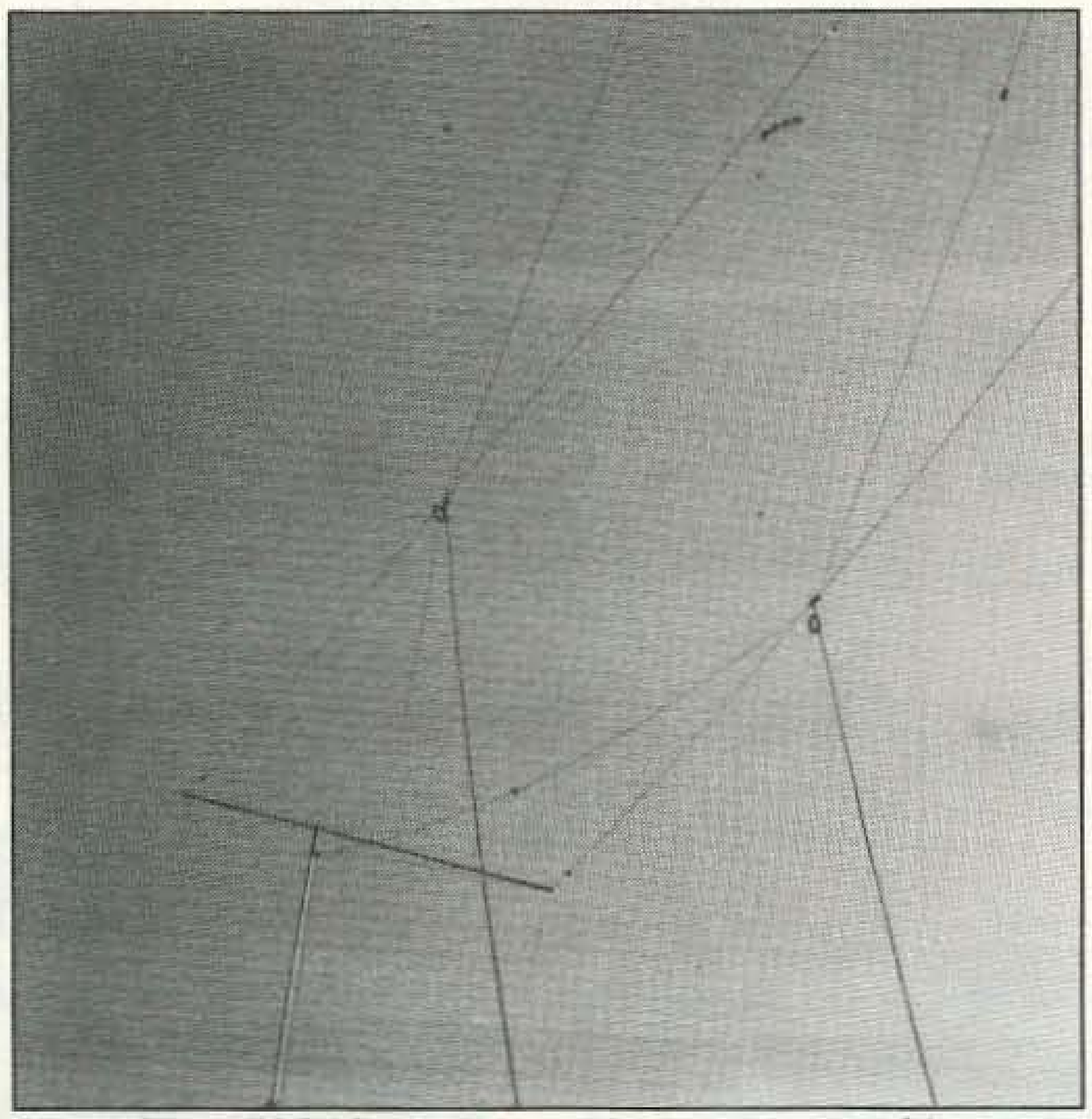

Photo. The VE3CYC wire beam. The beam is raised into position by pulleys and nylon rope supports attached to vertical masts.

I used flexible insulated wire in both the multiband dipole and the multiband beam antenna. The insulation prevents corrosion, while also making the antenna shorter and nicer looking.

How It Got Started

Let me tell you something about the history of my QTH because it led up to this amazingly simple, effective, and handy multiband wire beam antenna. Quite some time ago my better half and I decided to make our QTH a bit more presentable, with the idea of putting it up for sale and buying that "one-acre estate out in the country," which every ham dreams about. The thought of having an antenna farm at my disposal really turned me on—something to do during the Golden Years.

After spending many hours painting, etc., my XYL suggested that I take that ugly beam (a commercial 3-element tribander) down too. She figured that a colossal TV antenna like that would certainly turn prospective home buyers off. So down came the old faithful beam, and I sold it about a year later, realizing it was no good to me laying in our basement gathering dust. After all, once I got that Golden Years QTH, I would have lots of time to build my own monobanders (including

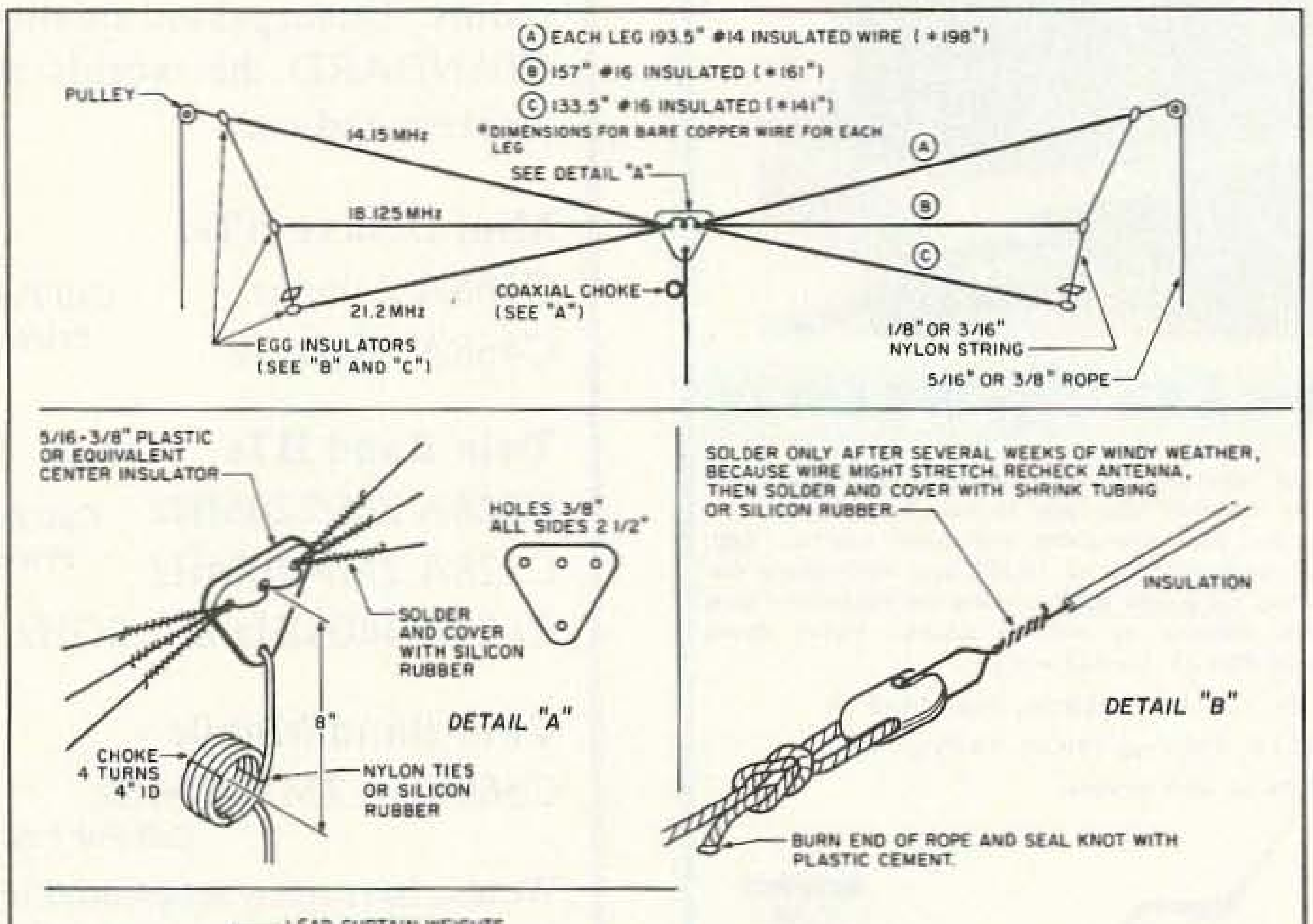

Figure 1. Construction details of the multi-band dipole.

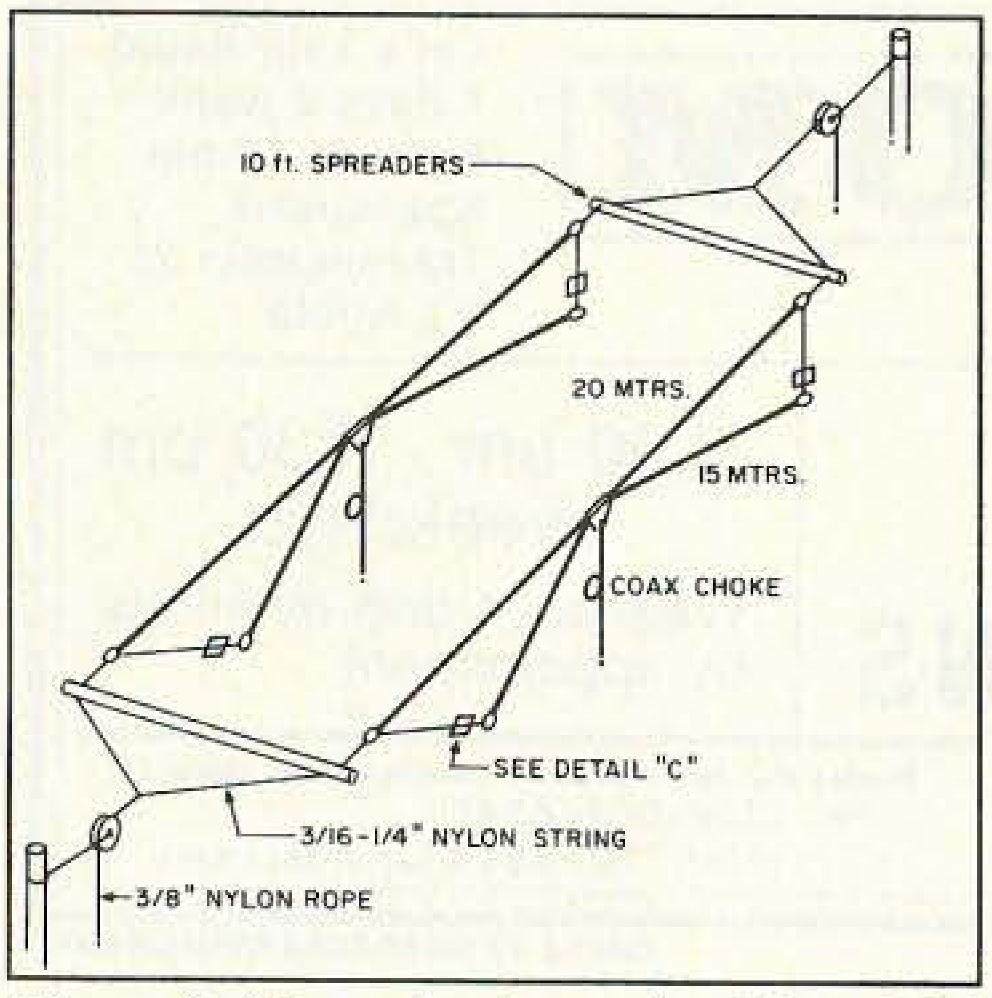

Figure 2. The wire beam for 15 and 20 meters (first version).

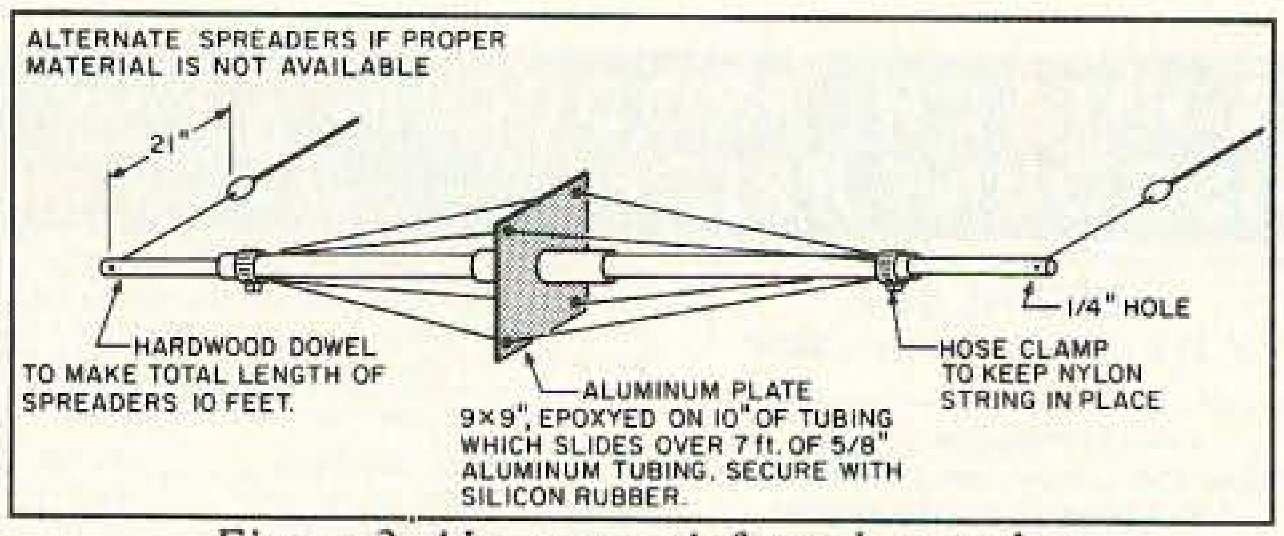

Figure 3. Alternate reinforced spreader.

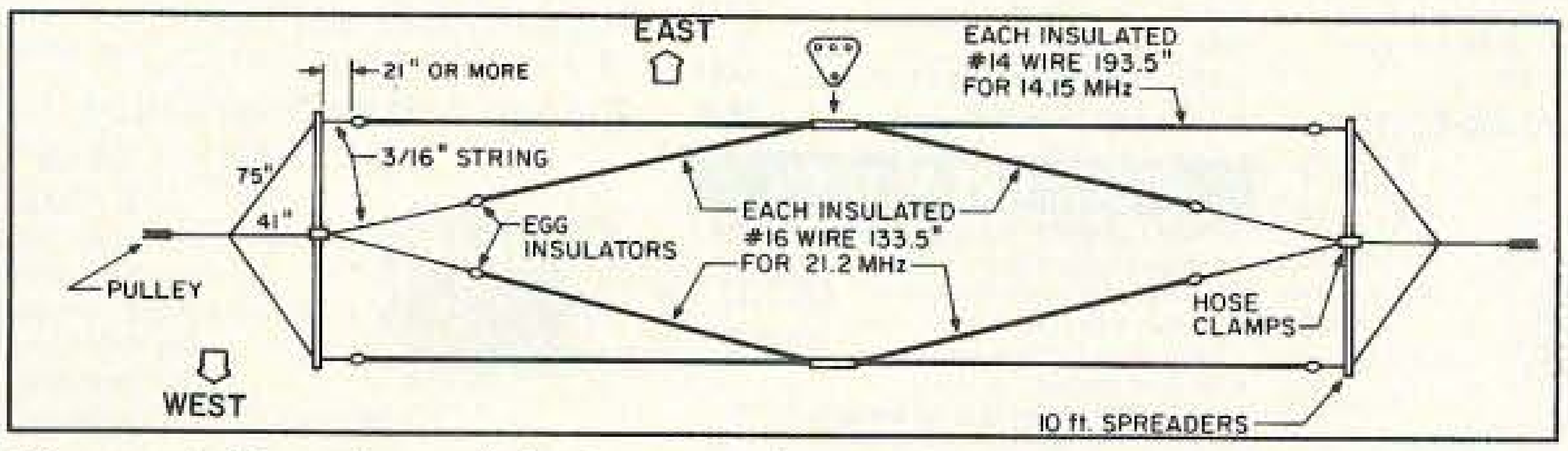

Figure 4. Top view of the improved wire beam. The 15 meter elements now have less tendency to move in high winds.

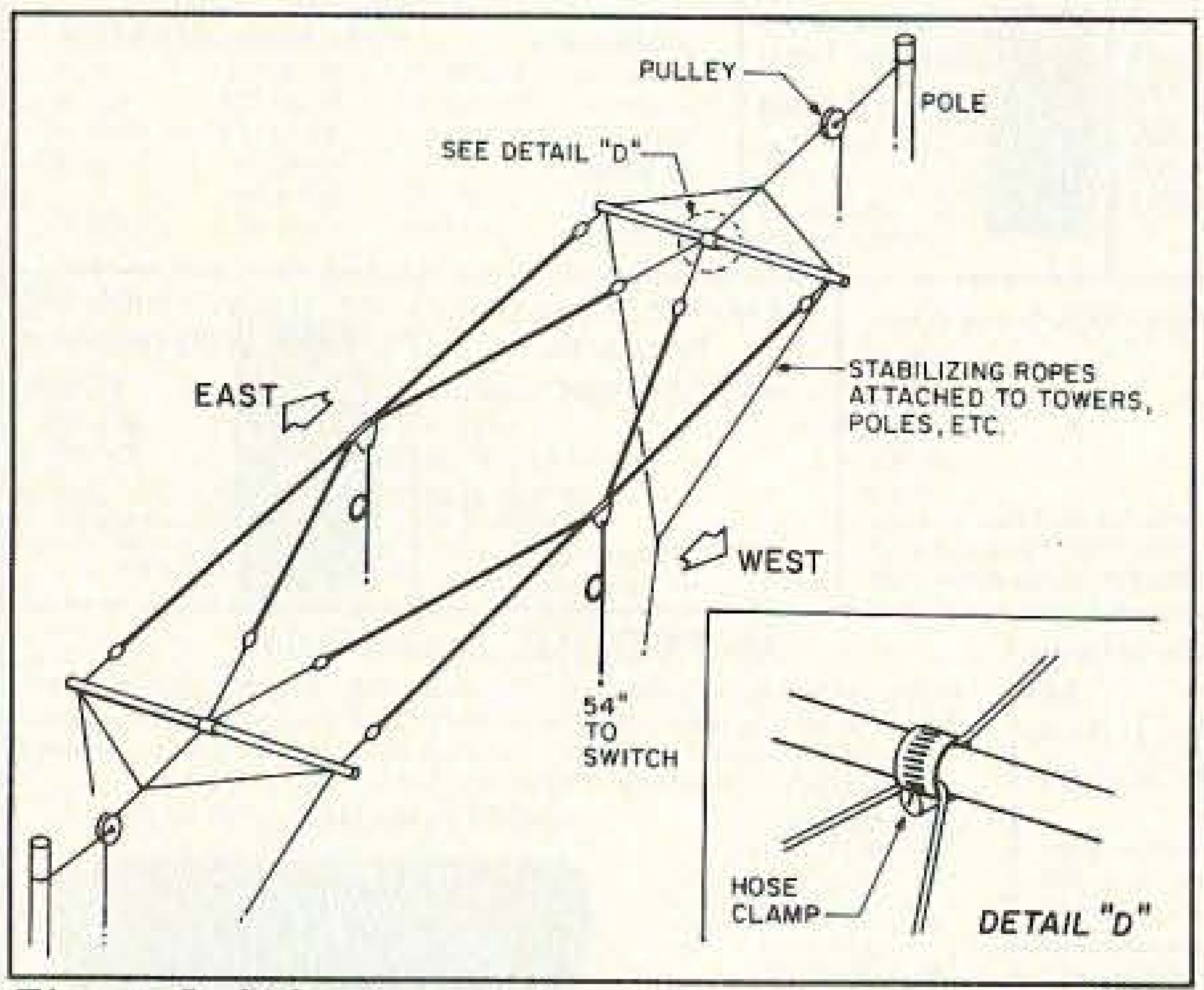

Figure 5. Side view of the two-band wire beam showing attachment points of the stabilizing ropes.

all WARC bands).

Well, to make a long story short, we never did sell the house. And I found myself without a good antenna system except for an all-band vertical that I cooked up a few years ago. I am not knocking verticals—they have their place, but just try to listen to the people you are working while five stations from the side or rear are also coming through equally strong. Not to mention the high atmospheric noise levels coming from the east after nightfall. All of which you can greatly reduce with the use of a good beam antenna.

My First Attempt

Since I already had a 40-foot tower anchored to the roof of my house and a home-brew tilt-over all-band vertical separated by 45 feet from the tower, I used these as supporting structures for some horizontal antenna experiments. After installing a pulley and nylon rope on each of these I was able to pull up any type of wire antenna I wanted. I looked at antennas like the "W8JK" (and variations of it) and the "ZL-SPECIAL," but decided to give the multiband dipoles fed by one common feedline a try.

The problem with them is that unless you can really separate the wires from each other enough, there tends to be a lot of coupling between the individual dipoles. And as a result, there is a lot of interaction which, because of capacitive coupling, makes them hard to load up on each individual band and also causes high SWR readings.

This is especially true for the ones made from rotator cables or open wire feedlines. Stay away from them—you will be wasting your time, unless you use a good antenna tuner. But then you are only fooling yourself into thinking that your antenna presents a perfect match, and all your RF is being radiated into space. After all, your SWR is almost 1:1, right? Wrong!

Unless your antenna presents a purely resistive load (as should be the case with a resonant antenna like a dipole or a nonresonant traveling wave antenna, such as a terminated long wire, or a terminated rhombic antenna, etc.) a good percentage of your RF is being radiated within the confines of your tuner and not getting anywhere, just being converted into another form of energy, which we call "heat."

Constructing a Multiband Dipole

Disappointed by these experiences, I decided to make a conventional dipole for 20 meters. Using 14-gauge insulated automotive stranded wire, I started with the proper length, based on the formulas in the *ARRL Antenna Handbook*, which of course were meant for bare copper wire.

Here is where I found out about the effect of the insulation on the wire. I ended up with a dipole that was much shorter than I had anticipated. Each leg of the 20 meter dipole made from bare 14-gauge wire would normally have been about 198"; instead, mine was 193.5".

Quite a bit of difference. My SWR was 1.2:1; not bad. It got out pretty good like a dipole should, and I had less trouble with interfering stations from the sides.

Then I decided to attach a second dipole to the first one, this time for 17 meters, and made it from 16-gauge automotive insulated wire, simply because that is what I had available. The length for each leg was now 157", as opposed to 161" for bare wire.

I experimented with the spacing between the legs of this 17 meter dipole, and the 20 meter dipole. I found that as long as I kept the angles between each leg at least 12 degrees I had a low SWR, still 1.2:1. Then I added a third set of legs made from the same 16-gauge wire, this time for 15 meters, using the same 12 degree spacing. The length for each leg was 133.5", as opposed to 141" for bare wire. Any more dipoles would have meant an angle of close to 90 degrees for at least the fourth dipole. This was not acceptable to me. Therefore, I kept it as a three-band antenna with a SWR of 1.2:1 or better.

So now I had a three-band dipole, bi-directional, with sufficient side rejection to make it more useful than my old faithful all-band vertical in most cases.

For those of you who would rather have a 10 meter addition instead of any of the other bands: The dimensions for each leg will than be 96.75" for 16-gauge insulated automotive wire, and 98" for bare wire.

See Figure 1 and details A, B and C for all the construction information. The coaxial choke in detail A consists of four turns and 4" i.d., suspended about 8" below the dipoles. It is part of the same feedline which goes to my station, and is kept together with three or four nylon ties. Or use silicon rubber instead.

The purpose of this choke is to keep your feedline from radiating, which can not only distort your field pattern but also radiate RF into areas where you don't want it (like your neighbors' telephone, VCR, TV, hi-fi, or the fillings in their teeth, etc.).

Detail C shows how I weighted down this multiband dipole with curtain weights by drilling holes in them and slipping them over the nylon suspension ropes. I used about 10 on each side, and that kept the antenna stable under most conditions. Try your local hardware store or interior decorator for these things.

The Dream of a Wire Beam

After successfully using this multiband dipole for a while, a new idea came to my mind. I remembered reading articles about hams using identical wire loops, spaced from each other, each with its own feedline, to make cubical quads. While they were being installed in a fixed position these quads could be made to change directions simply by adding a coil with the proper dimensions to the feedline of the loop which was not hooked up to the rig. This was to make it longer, making it act as a parasitic element. Thus, by feeding one of the loops, the other could be made to act as a reflector.

After eliminating the 17 meter dipole, I was left with only 20 and 15 meters, still being kept 12 degrees apart (57" between the insulators). After satisfying myself that

Continued on page 34

VE3CYC's Wire Beam

Continued from page 18

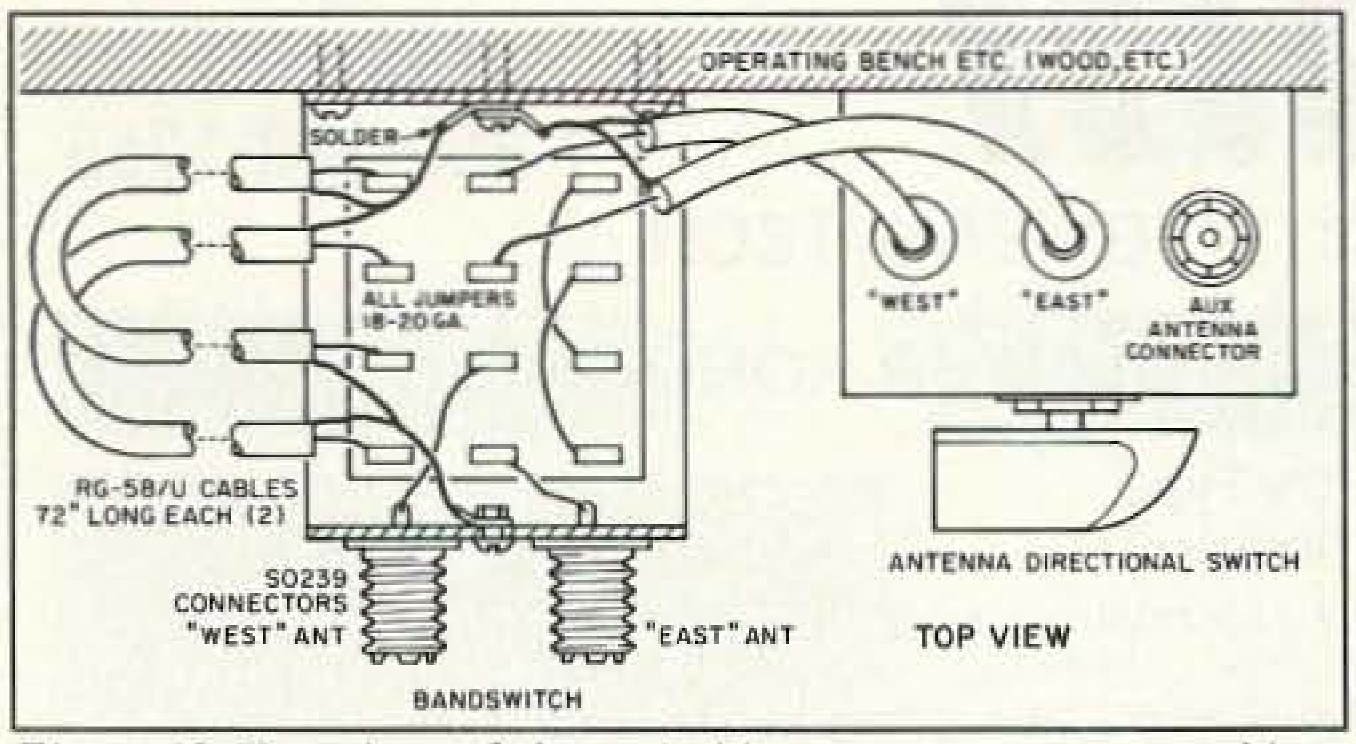

Figure 6. Top view of the switching arrangement to achieve maximum front-to-back performance and to switch directions of the beam. Make sure you don't mount the switches on any metal surface that connects to your station ground.

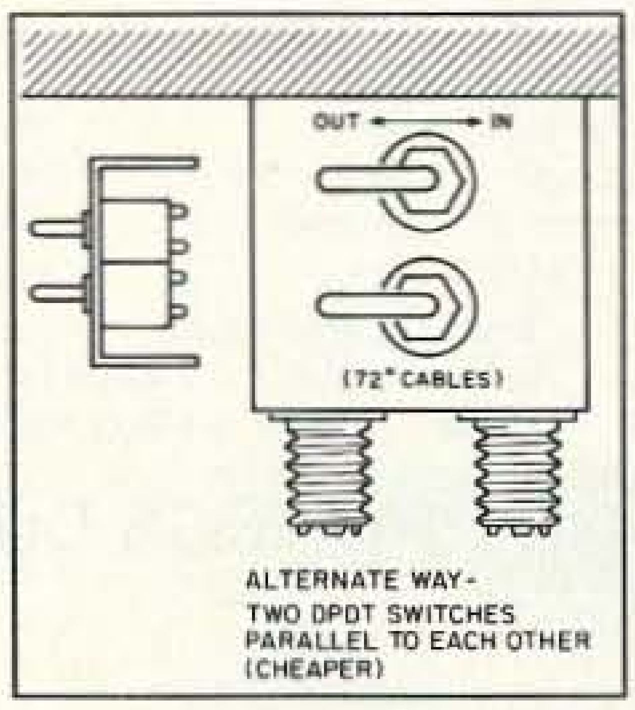

Figure 7. Using two DPDT switches to simulate a 4PDT switch. Make sure you throw both switches in the same direction during use.

everything was still working fine, I proceeded to make an identical twin of the same antenna, including the exact same length of feedline. I used spreaders to keep both antennas exactly 10 feet apart. I chose that distance on purpose because it is roughly 0.15 wavelength on 20 meters, and 0.225 wavelength on 15 meters. This would give me a wide range of gain and maximum front-to-back ratio over most of the 20 and 15 meter bands, with an input impedance of 50 ohms on 21.2 MHz and 20 ohms on 14.15 MHz (more about this later).

The two spreaders I used were made from seven feet of aluminum tubing, with hardwood dowels hammered into the ends and screws added to keep them in place, to make the total length of the spreaders 10 feet. (See Figure 2, and details A, B, C and D.)

The tubing I used was only 5/8" o.d. of soft aluminum, which turned out to be a disaster later on—during high winds they started to bend. I corrected this by making reinforcements (see Figure 3). I would highly advise you to use a heavier wall aluminum, or a larger diameter. You could use 10 feet of tubing as long as you keep it at least some distance away from the ends of the 20 meter insulators (mine turned out to be 21"). In case you do not need the reinforcements shown in Figure 3, have a look at detail D.

Burn the ends of the nylon ropes to prevent unraveling, and use plastic cement on the knots to prevent them from slipping loose in the future. Solder the wires to the feedline right away, and cover them with shrink tubing. You should wait for a few weeks of rough weather, in case the wires stretch and you have to make them shorter, before you solder them permanently at the ends of the dipoles and cover them with shrink tubing. I used a heat gun for my shrink tubing, but you could use a cigarette lighter. If you have trouble soldering the wires, use Acid-core solder. It does wonders on old, corroded wiring. Just make sure you wash all the acid residue off before covering the connections with shrink tubing. I have also used silicon rubber to seal off and keep things in place.

It might not be such a bad idea to make each leg a few inches longer than I have specified. You can then adjust them for the lowest SWR yourself, and cut the excessive length off later on when you are completely finished. Always start by adjusting the lowest frequency antenna first, then work up from there. Each feedline, including the length of the cable used in the coaxial choke just below the antennas and the PL-259 connectors, was 56 feet long at this point.

The Big Letdown

Now I was ready for my great experiment. All I had to do was hook up one feedline, which I will call "east," to my antenna switch, hang a hunk of coil to the other feedline, and...BINGO! I should be able to wake up every ham in Europe.

Boy, was I in for a disappointment. After spending several hours monkeying around with all kinds of combinations of inductors and wires at the end of that unused feedline to make its antenna act like a reflector, the best I could get was a front-to-back ratio of less then 6 dB. I gave up in disgust. I couldn't figure out what the hams in those articles were bragging about.

I yanked off all the wires and coils that I had previously hooked up to the end of that open feedline. All that work for nothing.

The Supreme Beam

Then, while that feedline was hanging there dangling, Europe came in like gangbusters. I could not believe my ears. All of a sudden I had the directional gain I've been after all along. I rapidly hooked both feedlines up to a two-pole antenna switch. And now, by switching between east and west, I really noticed a fair amount of gain in both directions.

After tuning up on 15 meters I had the same experience, but even better. I followed this up by making a few contacts, and the response was good. They all agreed that my antenna was definitely performing like a good beam should. That sure made my day—at least I was up to something good. Now I wondered what made it tick.

What Makes It Work?

The first thought that came to mind was: Since the feedline had a capacity of 28 pF per foot, and I had 56 feet of it, the answer must be there. I had about 1568 pF in series with both legs of my dipoles. (Later on in this article the feedlines will only be 54 feet long.)

This could lower the resonant frequency enough to make the dipoles, which were not connected inside my antenna switch, behave like reflectors. I also realized the theory of quarter wavelengths of feedline, or odd multiples of it, acting like impedance transformers. For example: If you take a piece of 50 ohm coaxial cable, and you cut off 0.25, 0.75, 1.25, or 1.75, etc., times the wavelength of that cable (using the formula for quarter-wave transformers or odd multiples), you will have an impedance transformer.

To put it another way: If I would hook a 25 ohm composite resistor up to one side of this cut-off piece of that feedline, the other side would see 75 ohms. This also means that if I would leave one side completely open, the other side would act like it was completely closed. This would, for all intents and purposes, connect the two halves of each set of dipoles together and make them act like reflectors. And, of course, by carefully manipulating the length of feedline, you get various degrees between completely open or closed conditions.

I am not able to explain mathematically what makes this possible. All I can say is that it works, and it works quit well. I personally feel that the principles of operation are primarily based on a combination of the two theories I have just mentioned: the odd multiple of quarter wavelengths, in combination with the capacitance of the feedline.

Some Arithmetic

According to the formula for a quarter wavelength of feedline (246/frequency in MHz x 0.66); 0.25 wavelength of RG-58/U turns out to be 137.7" for 14.15 MHz, and 91.8" for 21.2 MHz. This means that 1.25 wavelengths of this feedline for 14.15 MHz (5 x 137.7") is 688.5", and 1.75 wavelengths for 21.2 MHz (7 x 91.8") is 642.6".

Now, if you look at the total length of feedline which I am using for 20 meters (54 ft. x 12), which is 648", plus 72" as part of the bandswitch, plus 9" around the bandswitch, you get a total (648" + 72" + 9") of 729".

Then, comparing it to the actual feedline, we are out (729"-688.5") by 40.5" on the 20 meter band. And on the 15 meter band (648" + 9" = 657") it differs from the actual feedline (657"-642.6") by 14.4".

Bad Weather Leading to More Improvements

Now back to business. I experienced a lot of problems on windy days because of the way the 15 meter dipoles were hanging below the 20 meter dipoles. They kept moving toward and away from each other. As a result, the SWR meter went crazy. I took the whole system down and rearranged it the way you see it in Figures 4 and 5 and details A, B, C and D. It made the Wire Beam much more stable.

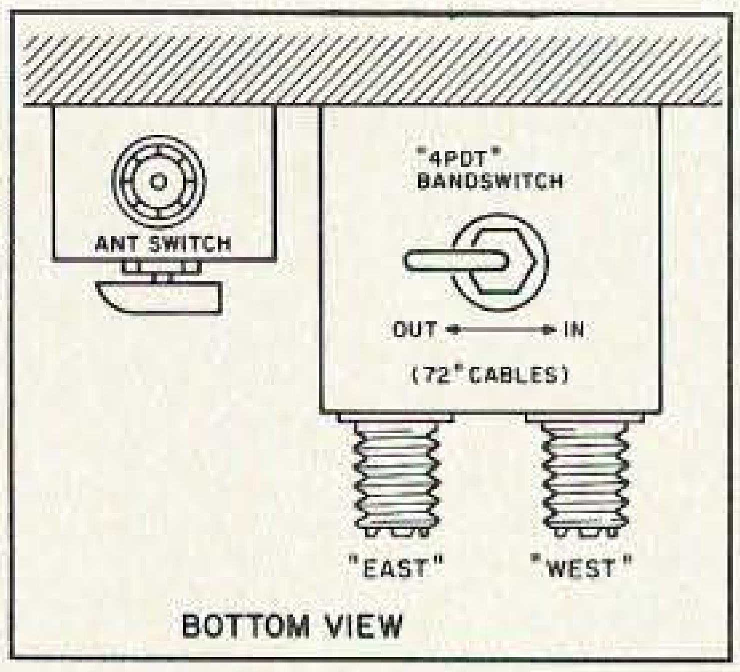

Figure 8. Bottom view of the switching arrangement using a 4PDT band switch.

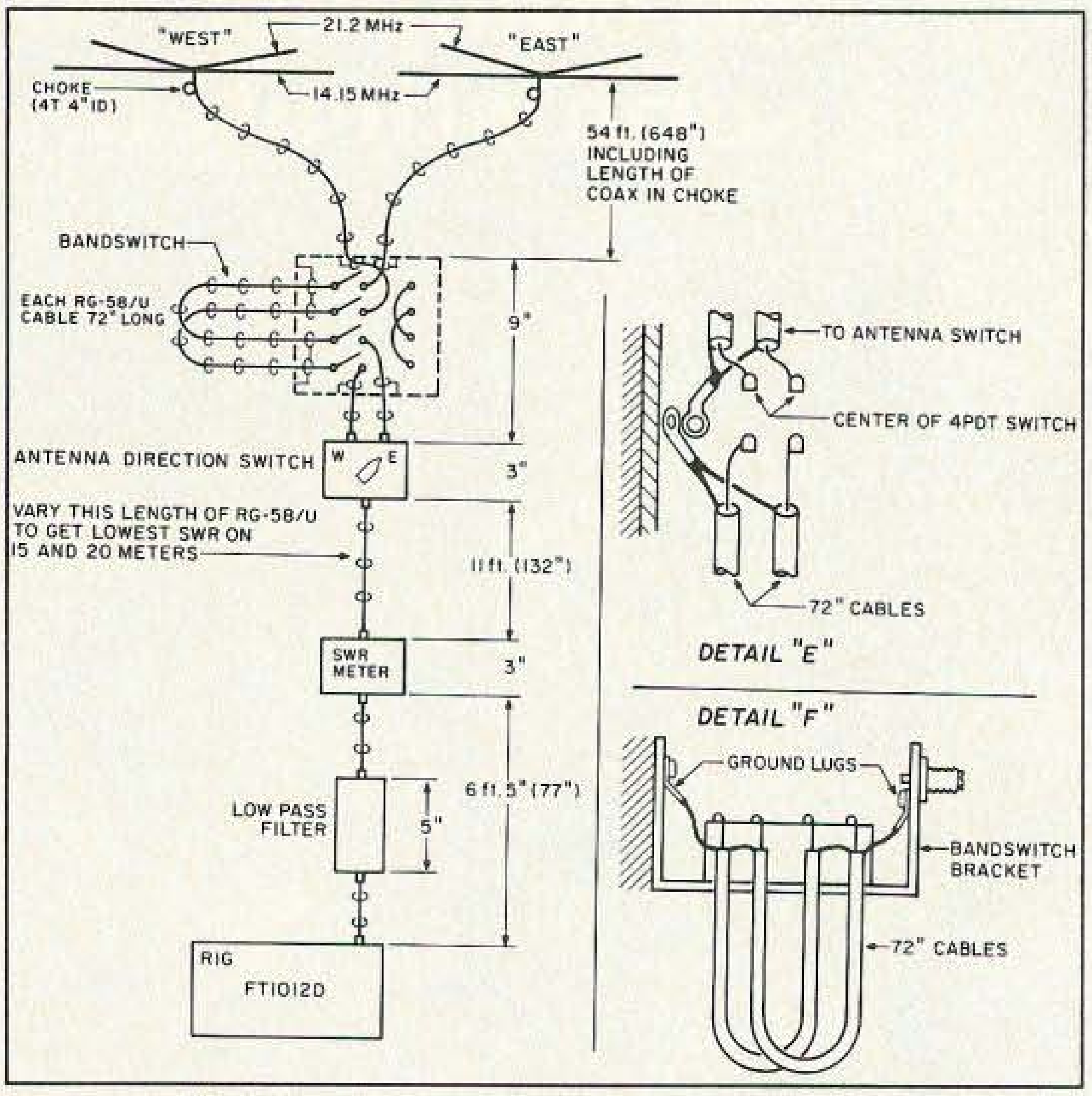

Figure 9. Wiring diagram of the complete wire beam system.

You'll notice the stabilizing ropes in Figure 5 and in the photographs. They are attached to the poles (towers), depending on what you use. This will add in stability on windy days. This is very important for withstanding extreme weather conditions.

Here in Canada, where I live, we get some pretty rough weather sometimes. My Wire Beam has survived 80-miles-per-hour gales, together with blizzards, after first being covered with ice from freezing rain.

Some Fine Tuning

Now that the beam worked, I started doing some fine tuning. I trimmed both feedlines to 54 feet (as mentioned earlier), including the PL-259 connectors. This was done with a switching arrangement, which puts an additional 9" in series with each feedline (I will explain this later in the article).

So, if you feel that you don't want to go into the complexity of an elaborate switching system to be able to switch bands, make your feedlines 54' 9" long. Then you can use the beam on 15 meters as it is. If you want to go on 20 meters, all you have to do is add an extra length of feedline, 72", to each of your incoming feedlines. Now you can work 20 meters and, as you will see later, 10 meters as a bonus. Without the 72" extensions you can work 15 meters, as well as 12 and 17 meters.

Bandswitch Construction

Should you decide to go all the way, you will have to make a bandswitch like I did. Take a good look at Figures 6, 7, and 8, as well at details E and F. Follow my drawings exactly, keep all wires as short as possible, and do not use more than 6" of coaxial cable between the bandswitch and the antenna switch. And don't forget to make all the ground connections exactly the way I marked them off in my drawings. They are extremely important for the beam to work successfully. Don't forget that your feedline should only be 54' (instead of 54' plus 9").

In my bandswitch, I have used a four-pole, double-throw (4PDT) toggle switch, which is a bit expensive and hard to get. If you can get one cheap, consider yourself very lucky. Otherwise, as an alternative you could use two ordinary double-pole, double-throw (DPDT) switches and put them side by side. You could even solder the levers together with a strip of metal, as long as you switch them both together every time. These DPDT toggle switches are a lot cheaper, and readily available. Look for Radio Shack #275-1533 or equivalent.

Now you have to make a "U" bracket for the bandswitch. I used aluminum because it is easy to work with. You have to drill the mounting holes, switch holes, and holes for two SO-239 connectors. Mount everything according to Figures 6 and 7, and details E and F. Keep all wires as short as possible.

All coaxial cables should be RG-58/U or equivalent (the velocity factor of 0.66 is important here). Wrap and solder all coaxial braiding to each other (as illustrated) and the ground lugs (as in details E and F). Use a pair of pliers as a heat sink while you do that, and solder the inner conductors last, after everything has cooled down.

The Antenna Switch

For an antenna switch, you could buy one or make your own. You could use a simple two-way switch, "east" and "west." Or you could do what I did—add an extra SO-239 connector for any future antennas, and have a fourth position to switch all antennas off, as well as grounding the cable which comes from your station (in case of thunderstorm activity).

A Word of Caution

DO NOT MOUNT THE BANDSWITCH OR THE ANTENNA SWITCH ON ANYTHING CONNECTED TO YOUR STATION GROUND. Use only the grounds on the coaxial cables. Don't forget—both switches are now a continuation of your antenna system. Any additional grounds will upset the delicate balance of the system. Mount the bandswitch and the antenna switch as close to each other as possible, and mount them on insulating material, like your station's desk, bench or table.

I mounted my bandswitch with the switch lever facing down, but you might prefer it with the lever facing upwards. That might make it easier to manipulate.

How to Use the Bandswitch

Table 1 shows you to which side to move the lever (or levers) of the bandswitch to get maximum front-to-back ratios on each band. Don't forget—the switch will toggle just opposite of what you might expect. For instance, away from the 72" coaxial cables to switch "in" the coaxial cables, which you need for 20 meters, etc.; and vice versa on the other bands, except 10 meters, which will be the same as 20 meters.

Figure 9 shows how everything is hooked up in my station. The dimensions of all the components involved are important, as are the lengths of all coaxial cables, which include all necessary connectors. This information might come in handy should you run into problems such as excessive SWR readings.

SWR Curves and Some Afterthoughts

I found that I had to do some juggling with cable lengths to get my SWR as low as possible on 20 and 15 meters. I did all my trimming with the cable between my SWR bridge and the antenna switch.

Remember, this beam was primarily designed for 20 and 15 meters, so don't be too critical about high SWR on any other band besides these two. The fact that it worked like a normal beam on 10 and 12 meters surprised even me. I think that this is because the 20 meter reflector might act like two half-wave elements, side by side on 10 and 12 meters, although the driven element is not resonant at these frequencies and probably not too efficient. That is why the SWR readings on these bands are so high.

But who cares? With an antenna tuner you can make the SWR flat, just like with all the other all-banders. On 17 meters its performance is nothing to write home about. It has a slight bit of front-to-back ratio, 6 dB at the most, but hey, it's better than nothing.

No More Worries

There are some extra advantages to this antenna. You have less to worry about when it comes to burglars. They have no idea that you are a ham, and hopefully they do not assume that you have a lot of money tied up in equipment. They most likely think that the Wire Beam is just a receiving antenna, and

Band	Bandswitch	Position
20m	72" Extension	switched in
17m	72" Extension	switched out
15m	72" Extension	switched out
12m	72" Extension	switched out
10m	72" Extension	switched in

Table 1. Bandswitch positions.

Band	My S-Meter (avg.)	Their S-Meter (avg.)	Their Min.	Their Max.
20	3.3 S-units	3.0 S-units	2.0 S-units.	4.0 S-units
17	1.0 S-units	0.0 S-units	0.0 S-units	0.5 S-units
15	5.0 S-units	3.5 S-units	2.0 S-units	6.0 S-units
12	2.3 S-units	2.2 S-units	1.5 S-units	3.0 S-units
10	2.8 S-units	2.3 S-units	1.0 S-units	5.0 S-units

Table 2. Average front-to-back ratios on my S-meter vs. distant station's report.

they have not much to gain by breaking in.

Also, when the weatherman forecasts a hurricane, or you go on vacation, you can just lower your beam and let it lay on the ground; then nobody can see it.

Performance

I have been on the air with this beam for a great many hours, and worked all over the world with it. The reports were usually very good. Although it is only a two-element beam, it often behaves like a three-element yagi. I confirmed this by comparing it with nearby hams who were using regular three-element tribanders. Most distant stations could not hear the difference. Sometimes mine came out better.

I must add that my beam is actually aiming about 48 degrees east of north, and in the other direction, of course, 48 degrees west of south. Thus I favor Europe and Asia one way, and California, Mexico and Australia the other way. Since it only takes a split second to change direction I often fool people by switching back and forward. Many people then tell me that I disappeared completely, while a moment before they had given me a Q5 and S7.

Because of the wide lobes associated with two-element beams, I usually had no problems working any station I heard. This is not the same with multi-element monobanders, where you have to keep one hand on your rotator control box when you are in a round table. I can rotate my beam 180 degrees every second, while people with rotators can only do this twice a minute. And look at the price of a commercial beam plus rotator—you're talking about big bucks there. Compared to that cost, the price for buying all the material needed for this beam would leave you enough extra money to buy yourself a dual-bander mobile rig for VHF and UHF, with an antenna and all accessories included.

A Ham's Dream Come True

I have compiled many signal reports over the last several months, and took the average front-to-back ratio reports of stations worked from all over the world. I used information from my S-meter, and from what other hams reported to me from carefully observing their own S-meters. I usually put my FT-101 ZD in the "tune" position so their S-meters would be steady. I wrote all the front-to-back readings down at the time.

Table 2 shows the average front-to-back ratios for each band. I compiled this information by observing my own S-meter and using the reports of the hams I worked, who were observing their own S-meters. I have always made sure that I only observed signals which I received direct, from either the front or back of my beam. The minimum readings might have been a result of multipath, of reflections of objects, or of atmospheric conditions.

Don't forget, when I say minimum readings, I do not mean low readings. Most of the time I had to use my attenuator. Some hams did not quite understand what I was after, and as a result would say things like: "You go from S9 to 20 dB over S9," so in a lot of cases I had to draw my own conclusions.

The highest front-to-back readings that I observed on my own S-meter went as high as 5 S-units on 20 meters, 7 S-units on 15 meters, 4 S-units on 10 meters, and 4 S-units on 12 meters. And this happened quite frequently.

I worked at least 10 stations on each of these bands, mostly from Europe and the western United States. And I listened to many more to arrive at the average of these figures. I haven't got a clue what the gain over a dipole is because I had nothing to compare it with. I am inclined to think that it is better than a conventional multiband two-element beam, because of the absence of traps.

For the Experimental Types

One could easily duplicate this beam for other frequencies, or even add more frequencies, by adding spreaders at right angles to the original ones. I gave you all the ideas, now just start working on it. How about a similar beam on 80 and 40 meters? Or trying this beam in an inverted "V" arrangement?

According to some empirical calculations I've made, a good starting constant would be about 1.14. For instance, if you figure out the length of the feedlines needed (considering what I have said before about odd multiples of quarter wavelengths), you can multiply these calculated lengths by 1.14 to get the interacting capacitive reactances to make this Wire Beam possible. You will than be in the ballpark to start your trimming.

If you run into problems understanding what I am trying to get across to you, please refer to the many good books on the subject available to radio amateurs. You can start with the ARRL publications, such as the *Radio Amateurs Handbook* and *The ARRL Antenna Book*. And, of course, there are many more. Look for "Uncle Wayne's Bookshelf" in *73 Amateur Radio Today*.

For those of you who do understand, this might just give you some ideas that you have been waiting for. I have tumbled into some principles I was not aware of before. I hope that many of you will take advantage of it, and even build on it. Some day I might see one of your articles in a popular ham magazine, like this type of beam for 160. I don't have the space, otherwise I would try it myself. Good luck! 73

RTTY LOOP

Number 16 on your Feedback card

Amateur Radio Teletype

Marc I. Leavey, M.D., WA3AJR
6 Jenny Lane
Baltimore MD 21208

The ASR-33

With all the high-tech talk these days, we often lose sight of the fact that, for many hams, fancy computers and the like remain an unattainable goal for a variety of reasons. This hobby of ours continues to encompass a wide range of preferences and directions. Several letters this month illustrate the case well.

Eugene "Mac" McAleer N9DUW of Addison, Illinois, responded to my comment alluding to the old ASR-33 sitting in my basement that I have trouble parting with. He relates being "in the same predicament here. My '33' was donated by a fellow ham who saved it from the junk yard for me. It is like the day it was built. Actually, I would like to use it but need some information for a converter for 60 and 100 wpm Baudot to 100 baud ASCII for the machine. The only input seems to be a phone line. Powered up, it types just fine.

"So hopefully you can supply me with some information or tell me where I can obtain some. I am an avid RTTY art fan and have a collection of some 1400 pix. I presently run a Model 28 for pix hard copy along with the glass TTY IBM compatible. Our ham club runs a VHF RTTY repeater with a great deal of activity on it, including a pix net one night a week."

Well, first off, Baudot to ASCII conversion was a hot topic in the early-to mid-1970s, before the personal computer revolution took off. Several such schemes were published here in the pages of *73* during those days, and a search of back issues turns up many solutions. I have sent a list of some such solutions to Mac. If there is enough interest among the readership, I would be happy to review some of the techniques here. Alternatively, just hooking the ASR-33 to the serial port on the computer, with some suitable programming, might be enough to make the thing run, without having to re-invent the wheel. I am sure someone out there is still doing this, and will share his or her technique with us.

The other topic you mentioned, Mac, RTTY art, was one near and dear to my heart many years ago. I even went so far as to translate one or two pictures onto an automated Selectric typewriter I used at one summer job, with pauses built into, shall we say, critical areas. At one time, samples of RTTY art were featured here in "RTTY Loop," including the annual contest. Having heard nothing from that quarter in many years, I assumed that such activities were passé. If you or others with interesting or unusual works of RTTY art would like to forward them here, I would be happy to consider them for inclusion in an upcoming column.

DesqView

Accelerating at Warp 8 from the vintage to the vanguard, I received a letter from Rick Arzadon WA8RXI of Taylor, Michigan, who is looking to run what may be the supreme RTTY computer station. He says he is "seriously contemplating acquiring DesqView to run three or maybe four programs concurrently. What I essentially want to do is be able to switch between logging, a QSL manager/database, 2 meter packet, and HF digital modes, without losing a beat monitoring packet at the same time as holding a digital QSO (RTTY, ASCII, AMTOR, etc.) on the HF rig. I believe with the equipment I have I can accomplish this using DesqView.

"The equipment here includes a Kenwood TS-830S, Kenwood TR-7400A, AEA PK-232MBX, and a 386SX computer running MSDOS 5.0, without Windows.

"Now, I guess my major question is, has anyone successfully modified a PK-232 either by hardware or software to make it act as a dual-port modem? Or, would it be better for me to add the PCB-88 or a similar board for VHF packet only to my system? Or, do you know of a system that will allow me to multitask amateur radio programs without going to a program like DesqView?"

Whew! That is a tall order, Rick. First off, I don't believe there is any way to make the PK-232 a dual-port machine. There is too much shared circuitry, when I look at the book, to be able to accomplish this with massive modification. The Kantronics series of interfaces do incorporate dual-port design, to my knowledge, and they may well have served you better in this quest. Alternatively, you may be able to add another terminal unit, such as a dedicated board in the computer, to add the second channel capability.

As to the multitasking, you have several choices. A limiting factor may be, however, the computer you are running. You will need sufficient memory to allow all these programs to run unrestricted, and using several COM ports at once, such as may be required if monitoring packet and sending on HF RTTY, might cause some interrupt conflicts. DesqView may well be able to accomplish the task. From what I have read of this program, it seems to be able to robustly mix a variety of programs in a multitasking environment. Windows 3.1 is a lot healthier than its predecessor, and with adequate memory, running in 386 enhanced mode, it may do as well also. Then there's OS/2. Just starting to appear on dealers' shelves, reviews of OS/2 indicate that this might be just what you're looking for. You will need plenty of memory and hard disk space, though.

Somehow, I think that among our readership there is someone who has already braved these waters, and I look forward to receiving reports of these accomplished explorations. If received, I will pass them along in future columns for the benefit of all.

Howard Halperin N7ETP of Phoenix, Arizona, is looking to hook up his Kenwood TS-430S transceiver, with a PS-430 power supply, SP-430 speaker, and AT-250 antenna tuner on RTTY. His question, "How?" The answer, "simple!"

As we have elaborated over the past few months, all you need is an interface and terminal. This can vary from one of the older interfaces, such as the ST-6 popular many years back, to one of the new multimode controllers. Ask around the Phoenix area; I am sure that there will be those to hold your hand while you hook up the equipment. Who knows, maybe a reader of this column in your area will contact you, first!

A few months ago, you all pointed out the new source for old Microlog products. Now, here's a note from A. H. "Monty" Munro NØDSH, who is ISO (that's In Search Of, for those of you who don't read personal ads) another old unit. He says that he is "interested in RTTY/AMTOR but not packet, and the interface I can put on my C-64 to use AMTOR. I have no info about who manufactures the CP-1 and MBA-TOR or a unit like it." I remember ads for these units, but cannot put my finger on them at the moment. Reader input regarding both availability and usability of these C-64 RTTY devices is solicited.

Several of you have asked about the availability of the Color Computer programs offered in "RTTY Loop" several years ago. I am sorry to report that my Color Computer has bitten the dust, and I am no longer able to provide programs for that system. The programs described are available both on CompuServe and Delphi, in the amateur radio and color computer special interest groups. If you do not have access to either service, but have a friend who does, the programs can be downloaded to *any* computer, then you call your friend's computer with your CoCo and download from there. You don't have to have a Color Computer to pick up the programs, only to run them! After all, neither CompuServe nor Delphi use Color Computers as mainframes. If you still don't understand, drop me a note, with a self-addressed, stamped envelope, or buzz me on one of the online services mentioned at the end of the column, and I'll explain it again, step by step.

More goodies next month, with more of your letters, and other items of interest to the digital ham. Meanwhile, communication is invited by letter, or via CompuServe (ppn 75036,2501), Delphi (username MARCWA3AJR), or America Online (screen name MarcWA3AJR).

UPDATES

Number 25 on your Feedback card

VE3CYC'S WIRE BEAM

See the above article in the June '92 issue of *73*, page 18. In the bandswitch diagram (Figure 9), the switching parts (armatures) are drawn the wrong way. They should be connected to the row of center connections instead (see the corrected Figure).

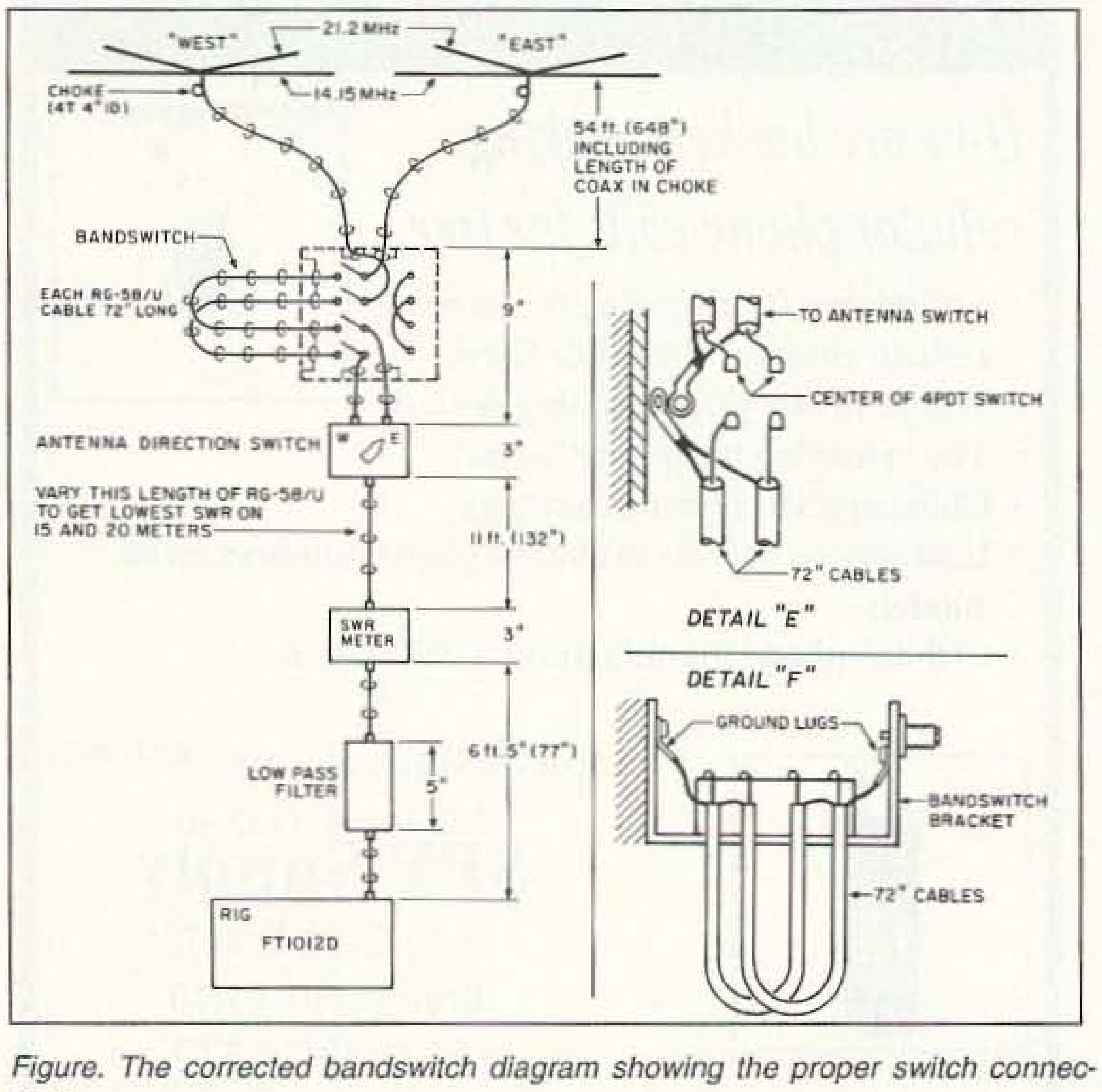

Figure. The corrected bandswitch diagram showing the proper switch connections.