

Presenting the family of Spider™ Multi-Band Antennas

🕷️ Designed to enhance your
state-of-the-art transceiver

🕷️ Ideal for mobile, maritime,
and residential areas with
covenants and space restrictions.

Fellow Radio Operators:

I would like to take this opportunity to introduce myself as Fred (K6AQI) and to thank you for your interest in the SPIDER™ ANTENNAS. I hope that our brochure will provide information and answer questions that you may have.

As the designer and patent-holder of the SPIDER™ ANTENNA, I would like to give you a little history on how and why the SPIDER™ ANTENNA originated. I was licensed as W90WX in 1933, and have been very active in designing and building antennas, especially for mobile applications.

In 1979 when the first "no-tune" solid-state transceivers were coming on the market, the only mobile antennas out were of the single-resonator, center-loaded, whip type that require you to stop your vehicle, change the resonator or coil, and retune the antenna every time you wanted to listen or operate on a different frequency band. Discovering this hassle, my wife Lillian, encouraged me to develop an antenna to eliminate these problems and enhance the advantages of the new transceivers.

Instead of a single resonator with a telescoping whip, the SPIDER™ ANTENNA uses four resonators (one for each frequency band) with adjustable tuning sleeves. The resonator size and configuration were developed so there isn't a detuning interaction between resonators. The tuning sleeve and the SPIDER™ ANTENNA are both patented by me, Clarence Fredrick Shmitka, with the U.S. Patent Office.

My wife Lillian and son Richard are both involved in all phases of the SPIDER™ ANTENNA business, from office work to hands-on manufacturing. Richard could be the person you'll talk to if you call for technical information.

Please remember that with this, made in the U.S.A. antenna, the quality and performance linger long after the price has faded.

73, K6AQI

Fred Shmitka

The Spider™ Antenna
Made in U.S.A.



Manufactured by

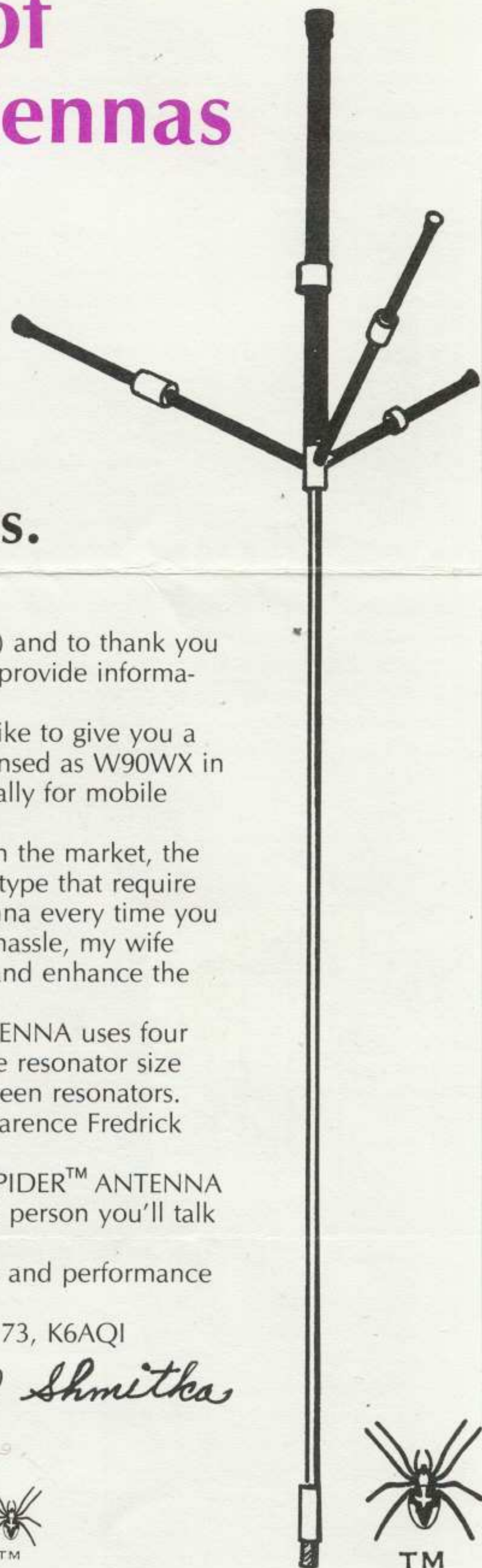
MULTI-BAND ANTENNAS

7131 OWENSMOUTH AVENUE, SUITE 63C
CANOGA PARK, CALIF, 91303
TELEPHONE: (818) 341-5460

Clarence F. (Fred) Shmitka — K6AQI

Richard O. Shmitka, MSc.

See Inside for Complete Details



The Only Truly Modern HF Antenna

Every HF antenna installation has its own characteristics, and the antenna must be tuned to fit them. Only the SPIDER™ ANTENNA with its **patented tuning sleeves** can be tailored by the user to fit his own requirements. If the antenna is moved to a different installation, the SPIDER™ can always be retuned as needed. Logging scales provide for easy repositioning of the tuning sleeves when the antenna is used in more than one location.

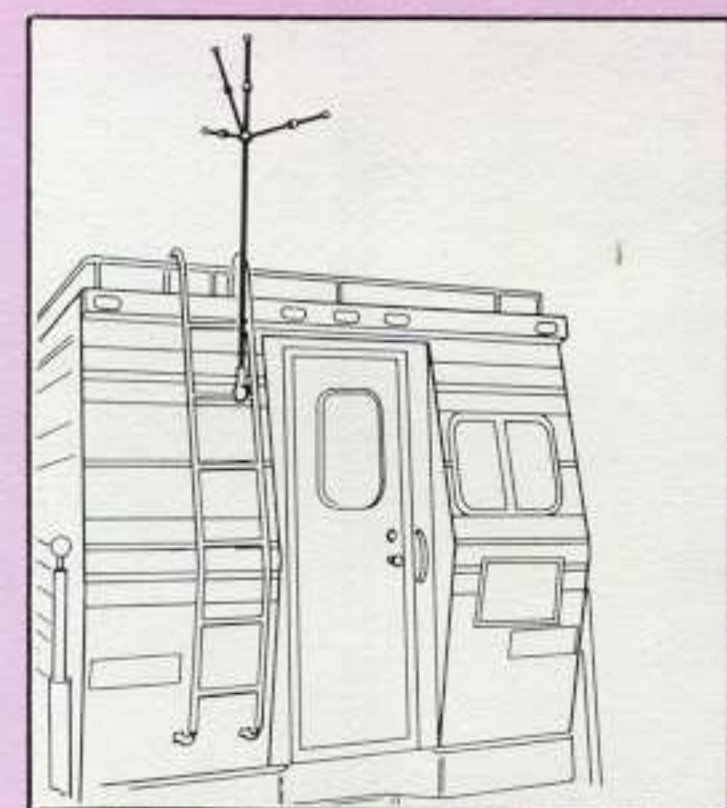
The SPIDER™ ANTENNA has been specifically developed to let you enjoy your modern solid-state no-tuning transceiver to the utmost. These transceivers do not require any tuning when changing from band to band and neither does the SPIDER™ ANTENNA. No more stopping to change coils as on the old-fashioned one-band-at-a-time antenna. This combination will give you the most pleasant and relaxed mobile operation that you have ever enjoyed — or even dreamed possible.

Features

Made of Long-Lasting Materials

The metal parts of the SPIDER™ ANTENNA are made of anodized aluminum. The resonators are wound on fiberglass tubing except for the 40- and 75-meter, which are wound on unbreakable polycarbonate. The mast screws into any standard 3/8"x24 threaded female mounting bracket.

The Most Versatile Four-Band HF Mobile Antenna

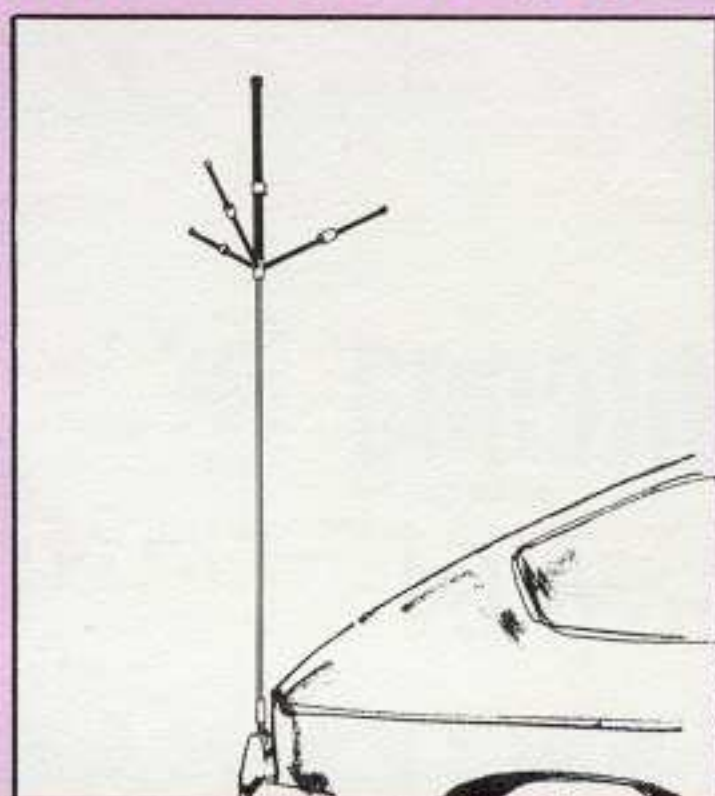


Practical installation for motor-home or travel-trailer

The SPIDER™ ANTENNA is ideal for all modes of mobile operation — automobile, truck, van, camper, travel-trailer, motor-home, even boats on freshwater lakes to name a few. Please rely on the SPIDER™ MARITIMER™ ANTENNA for use on or near salt water.

Ability to Operate Mobile Without Annoying QSB

Most mobile antennas use a large-diameter, bulky coil which is tuned to a desired portion of the band with a flimsy, telescoping whip resulting in a tall, heavy antenna with considerable waving from side to side. This causes reports of QSB, because as the antenna moves in relation to the vehicle body, it detunes the antenna. However, the short overall height (approximately 6 feet) and light



Rear bumper mount

weight (approximately 2 pounds) of the SPIDER™ ANTENNA lets you drive at any legal speed without worrying about troublesome QSB caused by antenna waving.

No Need for Antenna Tuner or Matching Network

Since our patented tuning sleeve method maintains a constant base impedance of approximately 50 ohms, the need for an antenna tuner or matching network at the base of the antenna is eliminated. Usually any reasonable length of 52 ohm coaxial cable may be used between the SPIDER™ ANTENNA and the transmitter for the transmission line.

Improved Signal-to-Noise Ratio

Each resonator is covered with two layers of a tough and durable plastic. This eliminates much of the atmospheric interference, both natural and manmade, thereby improving the signal-to-noise ratio on receiving.

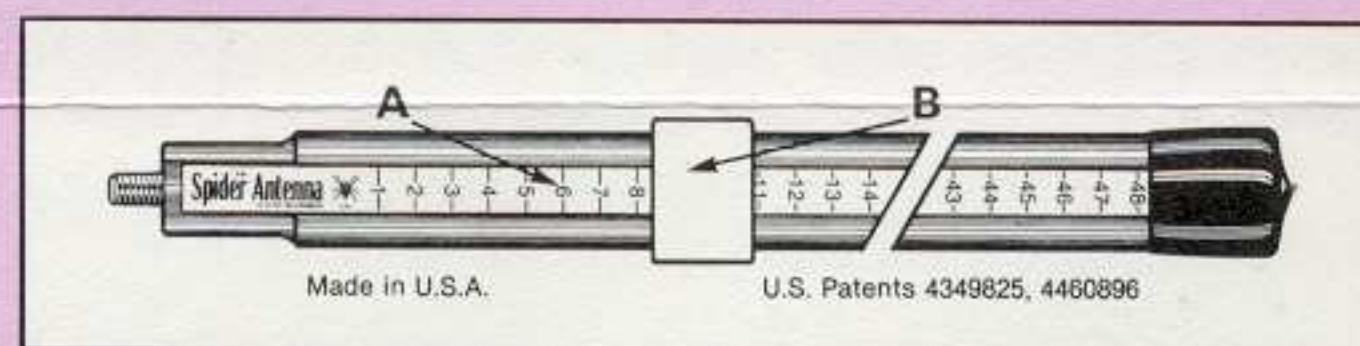
Top-Loading for Better Performance

The SPIDER™ ANTENNA has four resonators at its top, but only one is resonant to the frequency you are using. The remaining three resonators are so far off resonance with the transmitted frequency that they present a very high impedance and do not take any power, but are top-loading the system. This greatly improves the performance over center-loaded antennas.

Factory Pretuning Can't Do What the Spider™ Resonator Does

Simple and Easy to Tune

Tuning any one of the family of SPIDER™ ANTENNAS is very easy. All you need is an SWR bridge or antenna noise bridge, whichever you prefer. Tuning the antenna is done by means of a tuning sleeve of unique and patented design which slides over the length of each resonator. Moving the sleeve in towards the mast, tunes the resonator higher in frequency, and moving it outward, away from the mast, lowers the resonant frequency. Changing the tuning of one of the resonators does not affect the tuning of the others.



A GENUINE SPIDER™ RESONATOR
(A) Logging Scale (B) Patented Tuning Sleeve

Easy-to-Read, Weather-Proof Logging Scale

Moving any mobile or portable antenna from one vehicle or location to another may require retuning the resonators or coils. For this reason each SPIDER™ resonator has an easy-to-read logging scale which provides quick reference for retuning in these instances. For example, on a vehicle the bottom edge of the tuning sleeve on a particular resonator may require being set at number 15, whereas on a home balcony installation this same sleeve may have to be set at number 25 to tune for minimum SWR at your desired frequency.

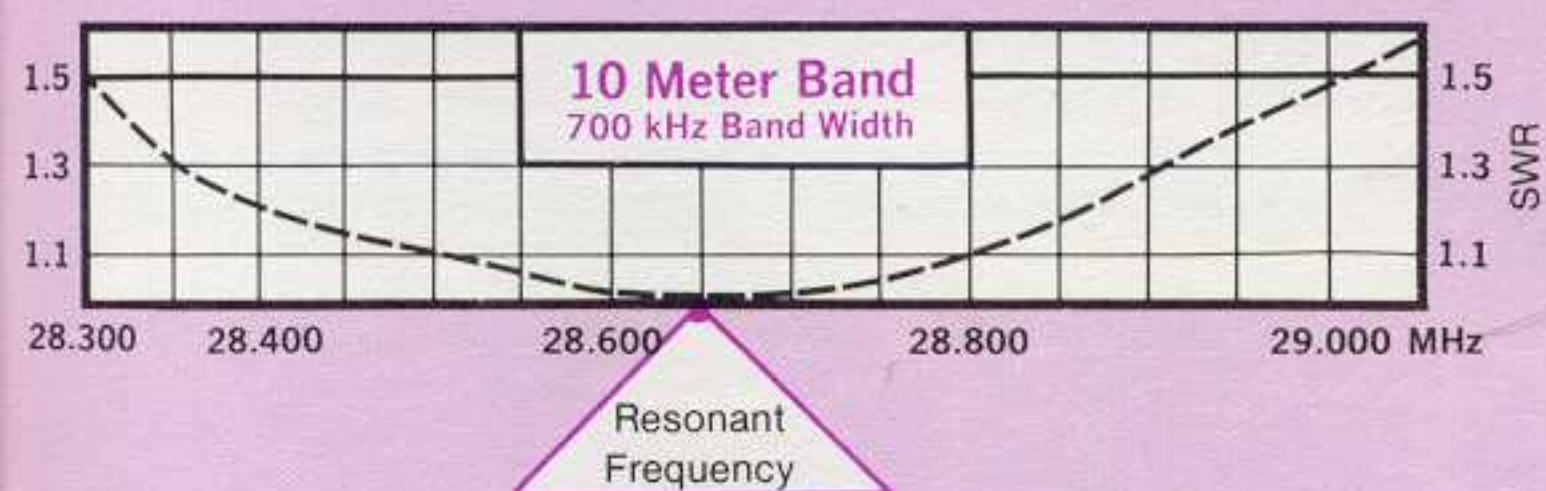
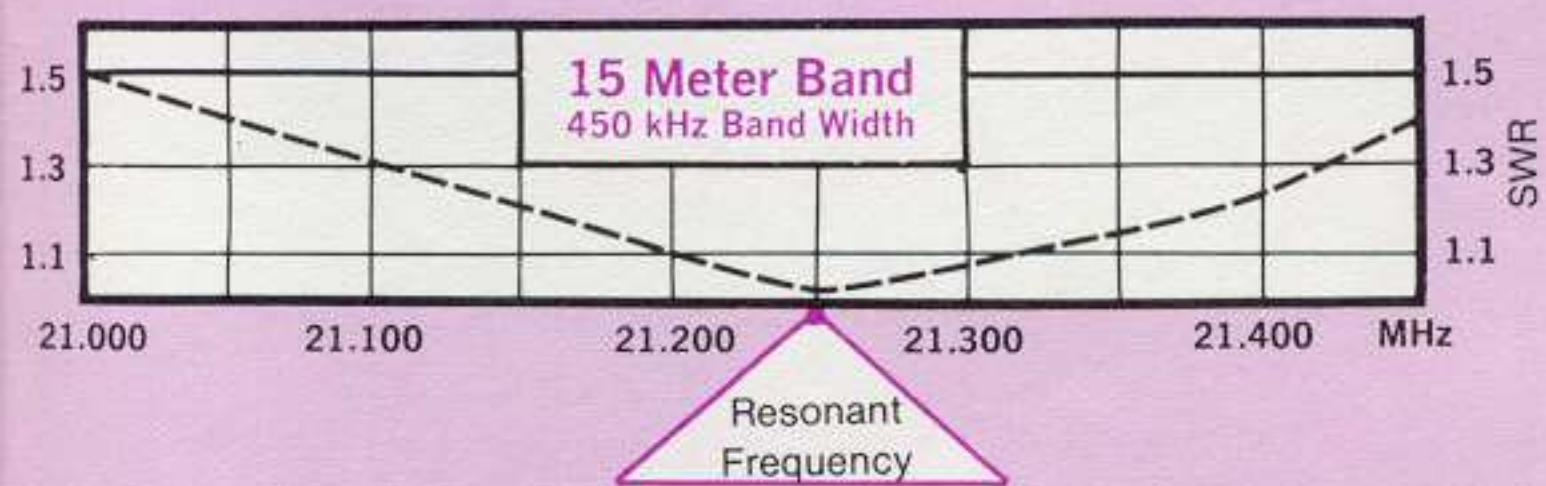
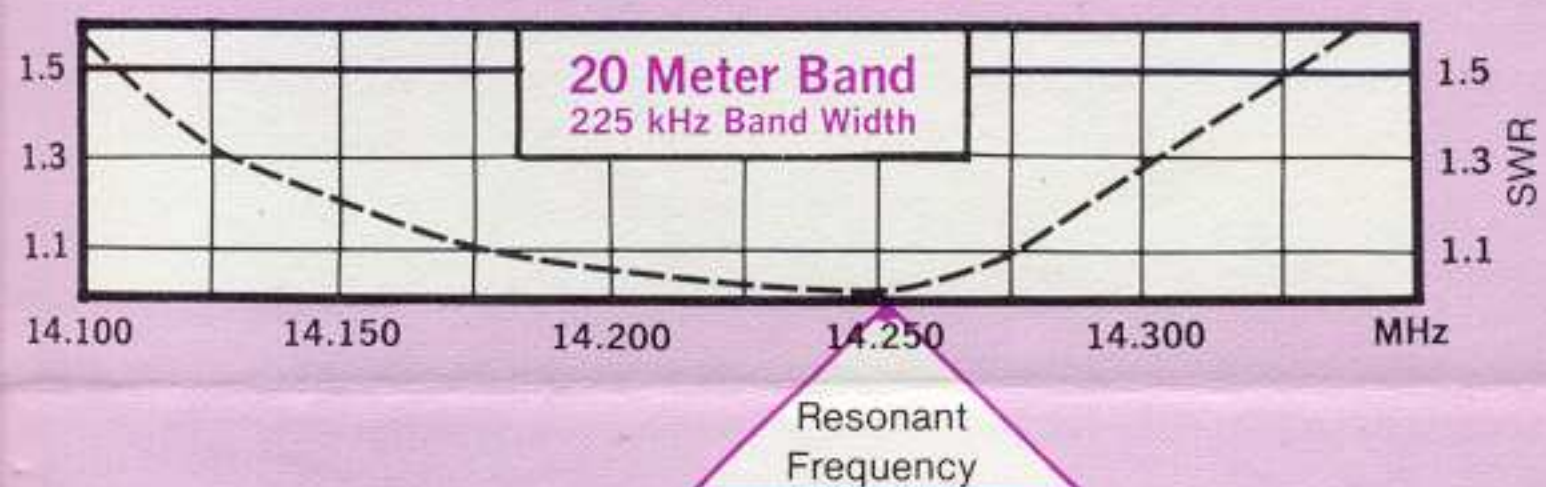
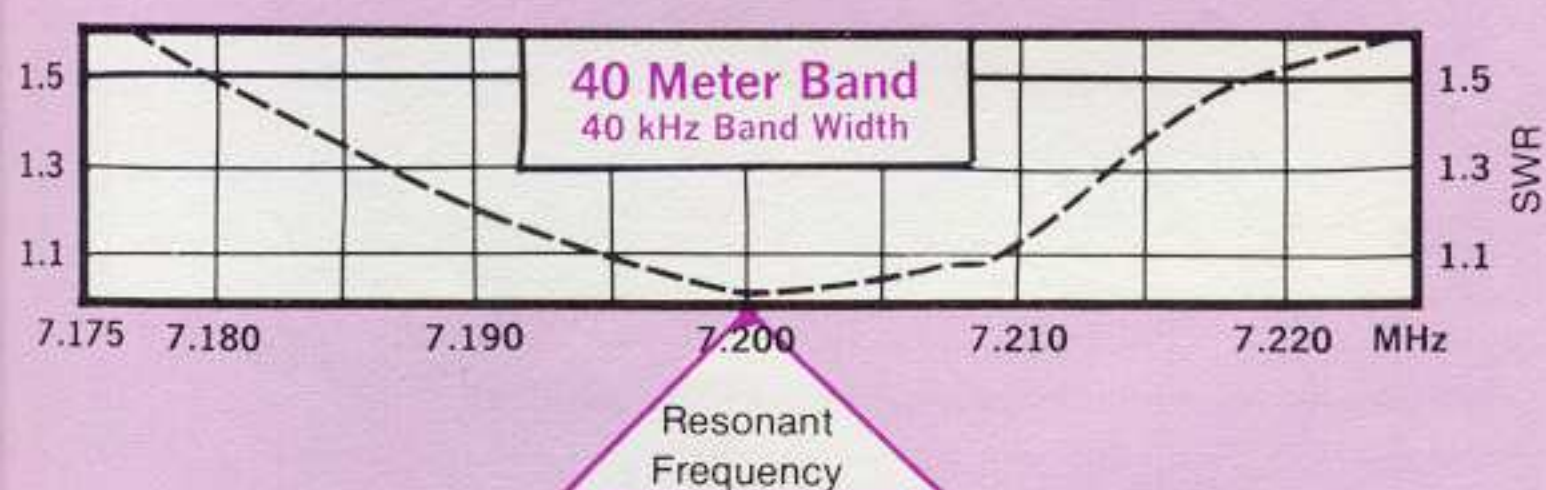
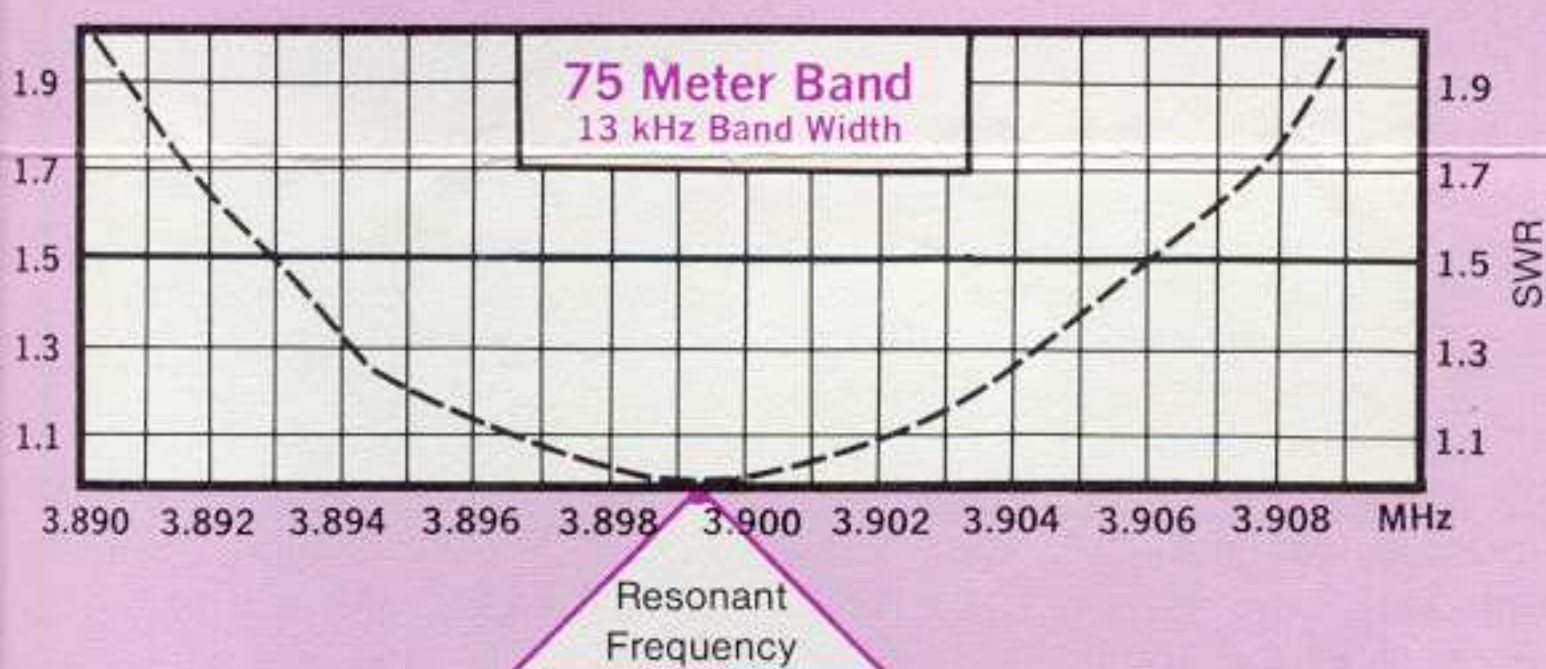
SEE BACK PAGE FOR COMPLETE SPECIFICAT

Good Band Width and Ample Power Handling

The SWR is approximately 1:1 at the selected resonant frequency on each band with generous band widths before the SWR exceeds 1.5:1. The typical band widths are about 700 kHz on 10-meters, 450 kHz on 15-meters, 225 kHz on 20-meters, 40 kHz on 40-meters and 13 kHz on 75-meters. The family of SPIDER™ ANTENNAS are conservatively rated at 200 watts PEP.

Typical SWR Curves for the Spider™ Antenna

These curves were plotted with the antenna mounted in a typical mobile installation. The minimum SWR is at the point indicated by the arrow on the chart. The desired resonant portion of each band may be selected by moving the tuning sleeve up or down on the resonator to place the minimum SWR wherever you choose to transmit. The entire curve will follow up or down the band according to where you tune for the minimum SWR.



An Ideal Antenna for Restricted Areas

While the SPIDER™ ANTENNA was originally developed for mobile work, it has proved to be well-suited for use in mobile-home parks, apartments and condominiums. In most cases where covenant or space restrictions make it impossible to erect a conventional, fixed-location antenna, the SPIDER™ ANTENNA will get you on the air with a respectable signal.

A good ground system is essential for satisfactory performance from any vertical antenna. The metal skin of a mobile-home or recreational vehicle makes a practically perfect ground plane. A metal balcony railing also makes a good ground plane. If it is not metal, put some wire (insulated or bare) along the rail and mount the antenna to the railing using a mount of your choice. Another possibility is to lay some wire screen on the balcony floor and cover it with outdoor carpeting. Place the mounted antenna directly over this ground plane. This can also be done in a room or on a patio. Also, for a room, you could run some wire around the baseboard and place the mounted antenna near the corner. In all of these, and any installation, be sure the ground plane is connected to the shield of the 52 ohm coaxial transmission line.

As shown in the picture to the right, the antenna can be installed on a roof by using a mirror mounting bracket on a vent pipe or other suitable standard, and laying the radials out over the roof. You can secure the wires under the corner of the shingles or stick them down using a silicon caulk so they will not move in the wind. Do not mount the SPIDER™ ANTENNA on a tower because the ground plane must be directly under the antenna.



One possible installation to fit an unusual application: on balcony using railing for ground.



Roof mounted installation with ground radial system.

Please Order Direct

MULTI-BAND ANTENNAS

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Clarence F. (Fred) Shmitka — K6AQI

Richard O. Shmitka, MSc.

ONS TO THE SPIDER™ FAMILY OF ANTENNAS.

The SpiderTM Antenna

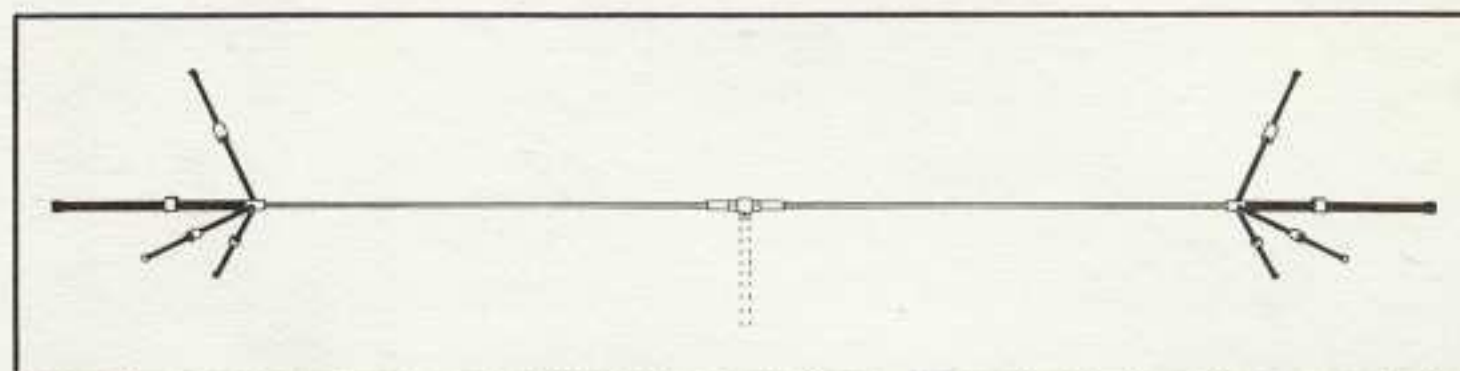
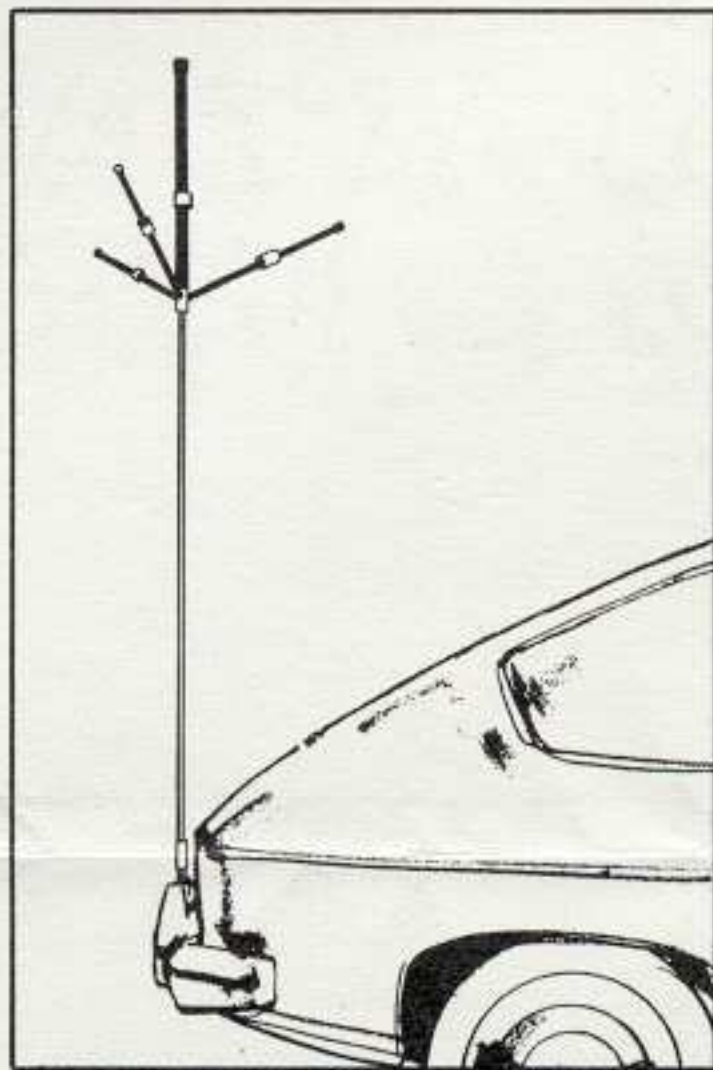
U.S. Patents 4349825, 4460896 Made in U.S.A.

FOUR-BAND HF MOBILE

Four amateur bands at your command as easy as band-switching your rig. 10-, 15-, 20- and 40-meter resonators are on the antenna at all times.

Very low SWR with ample band widths. Patented tuning sleeve on each resonator matching 52 ohm coaxial cable without any matching device. Convenient logging scale on each resonator for "memory" retuning of antenna when using in more than one installation. We also have an adapter collar available for adding up to 3 additional resonators for fixed-station operation. Additional resonators for the 12-, 30-, and 75-meter bands are also available (see our price list). You will be able to operate on the 80-meter CW novice/technician band (3.700 to 3.750 MHz) by adjusting the capacitance screw outward on the 75-meter resonator.

The SPIDERTM ANTENNA weighs about 2 pounds and is approximately 6 feet high including the 40-meter resonator. The 10-, 15-, and 20-meter resonators project out from the mast 12 to 22 inches. The mast is $\frac{5}{8}$ "x4' anodized aluminum tubing with a standard $\frac{3}{8}$ "x24 stainless steel stud at the base end. The 10-, 15-, and 20-meter resonators are $\frac{1}{2}$ " diameter, and the 40-meter resonator is $\frac{3}{4}$ " diameter and about 19" long. The 75-meter resonator is $1\frac{1}{4}$ " diameter and 21" long.



The standard dipole comes with one band of your choice (10, 12, 15, 20, 30, or 40 meters). Additional bands (up to 4 total) may be added for multi-band operation. These antennas are made from the same high-quality materials as our multi-band mobile antenna.

The SPIDERTM DIPOLE ANTENNA horizontal element is $\frac{5}{8}$ " anodized aluminum. The overall length is approximately 13 feet including the resonators at each end of the horizontal element. The dipole can be mounted on a $1\frac{1}{4}$ " diameter mast (not included) using a tripod for use on a patio, backyard, rooftop or take-along portable antenna. The horizontal element should be about twelve feet above the ground. The dipole antenna can also be suspended inside an attic with monofilament line.

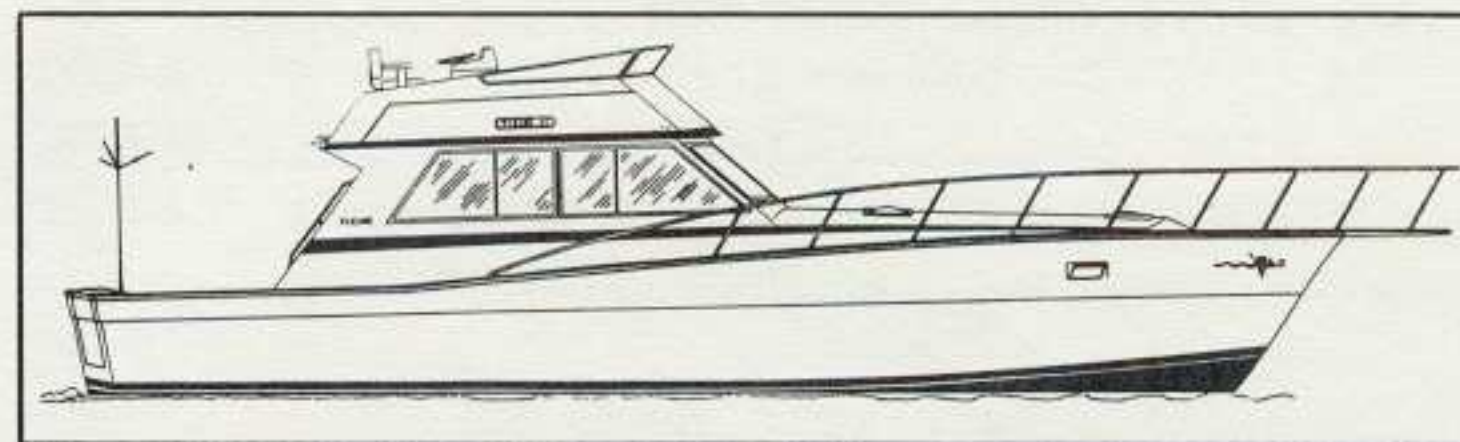
The SpiderTM MaritimerTM Antenna

U.S. Patents 4349825, 4460896

Made in U.S.A.

Consists of all the features and specifications of the SPIDERTM HF mobile antenna plus these added features for longer life in a saltwater environment: The mast is highly polished, non-magnetic, stainless steel. The top and bottom fittings are heavily nickel-chrome plated brass. An adapter collar (described below) is available for adding three marine frequencies to the existing four HF resonators.

The SPIDERTM MARITIMERTM ANTENNA is not intended for "top-of-the-mast" installation. It is preferably mounted on the transom or other location, where there is not a long distance to the ground system. Flat copper strap should be used between the base of the antenna and the ground system.

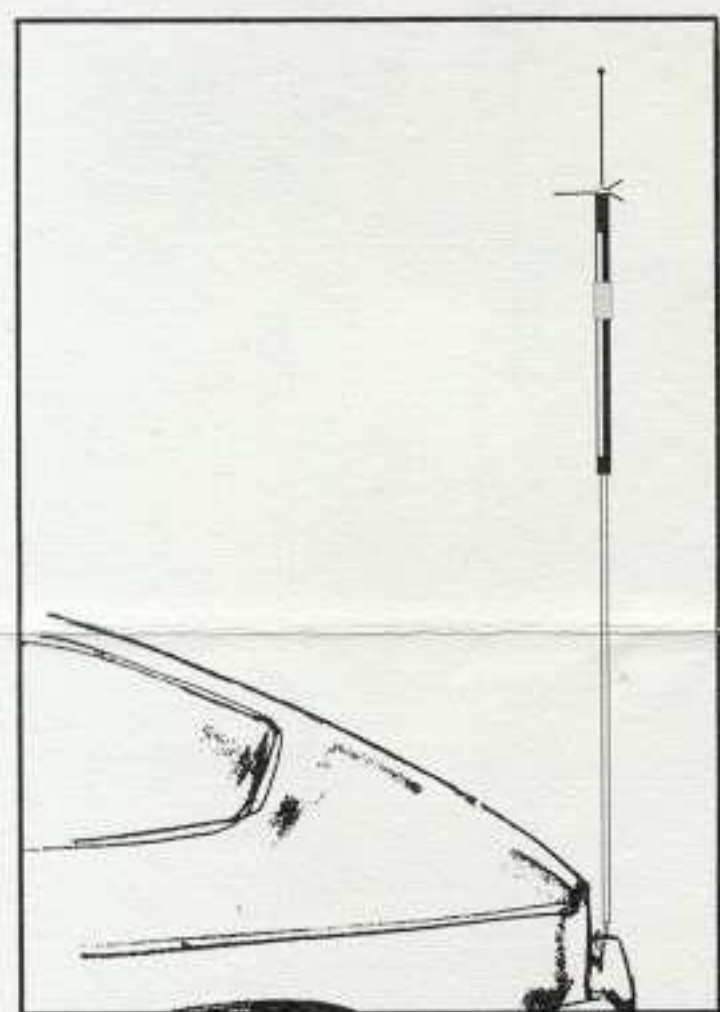


When operating the HF amateur bands on your boat, a good ground system is as important as a good antenna. Write for more detailed information.

The SpiderTM 160-Meter HF Antenna

U.S. Patents 4349825, 4460896

Made in U.S.A.



This mono-band antenna is designed and made from the same high-quality materials as our multi-band antenna. It covers from 1.8 to 2 MHz. It has an efficient, high "Q" resonator for matching 52 ohm coaxial cable and tuned with our patented SPIDERTM tuning sleeve. This antenna is manufactured when we receive your order. The SPIDERTM 160-METER ANTENNA is 7 $\frac{1}{2}$ feet high. The mast is $\frac{7}{8}$ "x4' anodized aluminum tubing with a standard $\frac{3}{8}$ "x24 stainless steel stud at the base end. The resonator is $1\frac{1}{2}$ "x30" long; it comes with a capacity hat and interchangeable 6" and 12" whips. The completely assembled antenna weighs only 3 $\frac{1}{2}$ pounds.

The SpiderTM Dipole Antenna

U.S. Patents 4349825, 4460896

Made in U.S.A.

This antenna was designed because of the onslaught of covenant restrictions in new housing areas, but is well-suited for many purposes. There is no need for a ground radial system or matching network with the use of the SPIDERTM DIPOLE ANTENNA.

The SpiderTM MaritimerTM Adapter Collar

U.S. Patents 4349825, 4460896

Made in U.S.A.

This adapter collar is designed to be used in conjunction with the SPIDERTM MARITIMERTM ANTENNA. The collar allows you to add three commercial marine frequencies, therefore providing seven frequencies at your command at one time, without changing antennas or resonators. There is no interaction between amateur frequencies and the commercial marine frequencies.

The collar is made of nickel-chrome plated brass like the SPIDERTM MARITIMERTM ANTENNA. The resonators are standard SPIDERTM design and construction, using the patented SPIDERTM tuning sleeves. Please specify your exact frequencies for 8, 12, 16 or 22 MHz.

SPIDERTM COMMERCIAL ANTENNA

Included in the SPIDERTM ANTENNA family are our Commercial Frequency Antennas between 2 and 30 MHz for either mono- or multi-band operation. These antennas are specifically designed to meet your commercial application needs (e.g., base-station to mobile units) without using an antenna tuner. We will manufacture after we receive your order with the exact frequency specifications.

Only the genuine has
these trademarks

SpiderTM Antenna
U.S. Patents 4349825, 4460896 Made in U.S.A.



They are your assurance of
quality and performance

CQ Reviews:

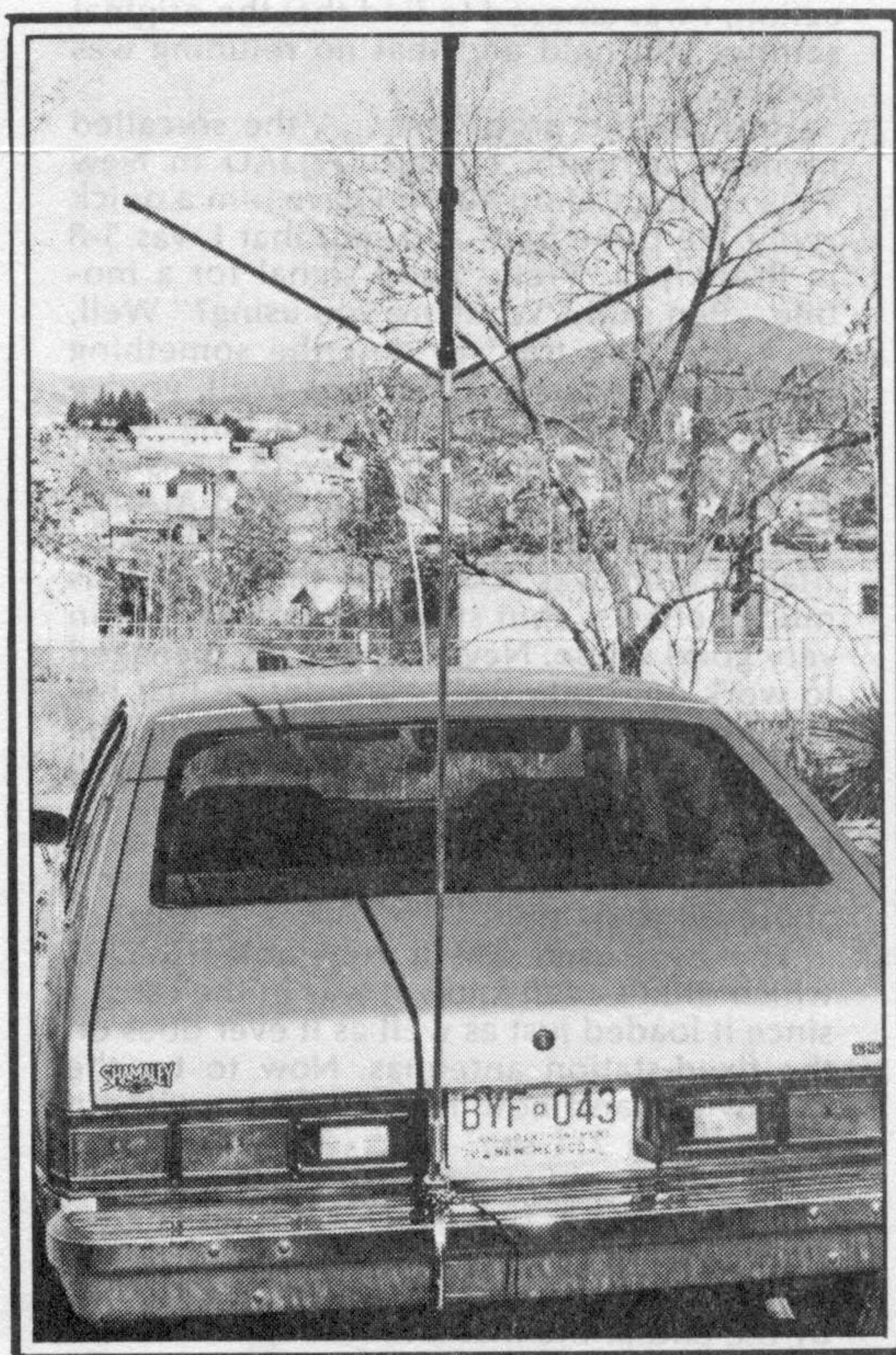
THE SPIDER™ LIMITED SPACE ANTENNA BY MULTI-BAND ANTENNAS

BY LEW MCCOY*, W1ICP

The Spider™ Antenna, a product of Multi-Band Antennas, is a very unusual mobile, or limited space, antenna as the photo will attest. It is a four-band antenna covering 40 through 10 meters. The antenna consists of the vertical supporting mast which is made of ½ inch diameter polished aluminum. The mast supports four resonators each wound on fiberglass. Three resonators — 20, 15, and 10 — are installed at a slight upward angle from the mast via a special fitting. The 40 meter resonator rises directly above the mast and is 20 inches long. The overall height of the antenna is less than 6 feet and the total weight is only 2 pounds.

Adjusting the antenna for a 50 ohm match is a piece of cake. Each of the resonators has a unique tuning sleeve. With an s.w.r. or noise bridge in the line, the sleeves are moved up and down the resonator until a match is achieved. This is done on each band. On the antenna we tested, this whole adjustment operation took less than 30 minutes. No other matching is required.

How well does the antenna work? Well, we ran 50 watts to it for our tests, although the antenna is rated for 200 watts. From here in New Mexico we easily worked both Europe and Japan on 20, 15, and 10 with excellent reports. Forty



The Spider™ Antenna is shown bumper-mounted on the author's car.

meter work was equally as satisfying. We checked the antenna on the car at 55 m.p.h. into a 20 m.p.h. headwind and experienced no appreciable sway in the antenna. No base spring was used.

The s.w.r. bandwidth with the antenna mounted on the car was excellent — less than 2 to 1 across the entire 20 meter band, 1.7 to 1 across 15, and 1.5 to 1 for 500 to

600 kHz on 10. On 40, the antenna was less than 2 to 1 across 100 kHz. In all cases we had a match of 1 to 1 at the desired frequency. However, the beauty of the antenna is that you can get out of the car and make a slight adjustment of the resonator sleeve to any premarked setting for a perfect 1 to 1 match. As mounted on our RV, the tuning was much sharper because of the proximity of the trailer body to the resonators. But again, it worked. We plan on mounting the antenna on the roof of the trailer when parked, and then we'll have the excellent ground of the trailer roof. It will be easy to mount the antenna via one of the ceiling vents in the trailer.

There are three outstanding points of this antenna: it uses top loading (which is best for any short vertical), it is easy to adjust for a match, and it can be quickly and easily assembled or disassembled. On the con side, it is unusual looking, but so are towers and beams if you are not an amateur. As far as amateur radio is concerned, beauty has to be in the eye of the beholder!

The antenna is manufactured by Multi-Band Antennas, at 7131 Owensmouth Ave., Suite 63C, Canoga Park, Calif. 91303.

*200 Idaho St., Silver City, NM 88061

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73 MAGAZINE REVIEWS The Spider Antenna



U.S. Patents 4349825, 4460896

The first time I saw the Spider antenna, I was intrigued with the unusual design and wondered why anyone would put something like that on a car. The location was San Diego, California, and the event was the ARRL Southwestern Division Convention.

Fred Shmitka of Multi-Band Antennas had a booth there, and he had several of these mobile antennas conveniently mounted at the booth which caused a lot of gawking and a lot of stopping to question Fred all about the whys and wherefores. I was one of the stoppers and gawkers, too, and learned that Fred and his brother Len have spent several years perfecting — and patenting — the Spider Antenna. (U.S. Patent No. 4349825).

Basically, the Spider is a mobile antenna that permits operation on 10, 15, 20, and 40 meters from your car. The antenna consists of an aluminum (or stainless steel, if you prefer) mast section about four feet high, with four "fingers" protruding from the top at various angles. The 40-meter finger sticks straight up, more or less as a continuation of the mast, while the 10-, 15-, and 20-meter fingers are arranged radially around the mast at about 120-degree spacing, like the spokes of a wheel. Each finger also tilts upward somewhat from the horizontal. These fingers are the resonating elements for the four bands and consist of fiberglass rods or tubes helically wound with wire and covered with a tough, transparent plastic. (The 40-meter element is wound on Lexan®.) An index scale is molded into each element so that adjustment to exact frequency can be made. This adjustment is provided by sliding a short tubular sleeve along the resonator element until minimum reflected power is measured at the feedpoint of the antenna.

The big advantage of the four separate resonating elements is the fact that the antenna is fully and automatically band-switchable without the driver ever leaving his seat. You merely pre-adjust each resonator to your favorite frequency within the band, and that's it . . . or so Fred assures me. He also suggested that the mobileer not use a base spring to mount the antenna on the car, but instead use a solid mount to keep the antenna vertical, even at highway speeds.

Well, I was fascinated by the idea, and Fred kept assuring me that the antenna worked as billed and that the helical resonating elements placed at the top of the antenna provided the highest possible position for maximum current (i.e., top loading, exactly where you want the current maximum in a mobile installation). To make a long story short, I had one shipped to 73 HQ for a test. I also asked Fred to include a bumper mount for my 1980 Olds Omega and a quick-disconnect fitting to prevent unwanted and undesirable removal by my garage door or other low overheads. Of course, Fred didn't have anything that would remind me to remove the antenna before driving in, so that part is up to me. At least I'd be all set to quickly remove the Spider should I remember in time.

The afternoon of the Fourth of July was spent installing the antenna on the car. I made a secure bumper mount, assembled the antenna according to the instructions, and with great trepidation fired up the rig.

What's this? Signals coming in at 5-9 on 40 meters in mid afternoon? Hmmm . . . let's try 20. Yep, signals there, too; and on 15, and 10, too.

I connected my swr bridge into the line at the base of the antenna and put a very small amount of rf into the antenna starting with the 20-meter band and my favorite frequency there. A couple of slides of the slider tube and the meter showed zero reflected power. Wondering about possible interaction, I tuned up on 40 in the same way, and 15, and finally 10. Fully expecting to have to go back and readjust each one because of interaction, I was amazed to find that the original settings still held and that no retuning was needed.

Now for the proof test . . . the so-called moment of truth. I heard WJ2AU in New York calling CQ on 40, so I gave him a quick reply. He came back and said that I was 5-8 in Brooklyn! "Pretty good signal for a mobile," Ben said. "What are you using?" Well, have you ever tried to describe something like a Spider over the air? No? Well, you've got a treat coming. After a nice long, solid QSO with Ben, I decided to try 15. I answered EC4AQS in Spain and OE8LKK in Austria. The Spanish station was very QSB. The Austrian station was loud, and that QSO was much better . . . but still the band was not in very good shape. Nevertheless, we managed to work out quite well, considering that my driveway is not the best DX QTH in the world. Back to 40 meters. I contacted Bill VE3BDO in Ottawa who was using his recently acquired GFT-ONE. We gave each other 5-8 to 5-9 reports and talked a bit about our new toys.

The rig I used was a venerable TS-520S which didn't even know it was in the car . . . since it loaded just as well as it ever does on the fixed-station antennas. Now to try the bandwidth and how far I could go without exceeding a 2:1 swr.

On 40, I could move close to 50 kHz without exceeding 2:1 vswr. On 15, it was better than 100 kHz, as it was on 10. What about 20, you ask? Well, to be honest, I hadn't tried 20 by the end of the first afternoon; that had to wait for July 5th — another holiday — and results were equivalent to those on the other bands. My first answer brought W8TA in Detroit (short skip QSO) and a 5-7 report. Bill's signal was also about 5-7 to 5-8, and we had a good chat. Band width without retuning the resonators was about 75 kHz. Here it should be mentioned that each resonator is wound long purposely so that resonance can be obtained below the bottom band edge. (This is a feature which appeals to MARS operators. If it is desired to achieve resonance at the top edge of the band, it may be necessary to remove some turns of the coil.)*

I should mention that I also chatted with Chuck W2WGL in Utica, New York, on SSB. He gave me a good 5-7 report on 40-meter phone and remarked at the steady signal. Well, it ought to have been . . . I was parked!

Unfortunately, 10 was not open, so I haven't been able to make any QSOs . . . but I'll keep trying! With a good band opening, there ought to be plenty of stations willing and able to work W1XU mobile.

One more thing I ought to mention about the Spider antennas . . . or maybe a couple more things: First, the fact that if you already have a base rod from a Hustler, for example, you can get an adapter from Fred to adapt your base rod to his Spider. It's the economical thing to do and works just great. You can use either antenna whenever you wish . . . just by changing from one top, or resonating section to the other. The second thing I want to mention is that the Spider antennas might very well be excellent for use in mobile homes, RVs, apartments, or what have you, where a limited space antenna is mandatory. One precaution, though: Be sure to use an adequate ground plane . . . like the chassis of your car. When you don't have such a ground plane, use radials, a railing, a counterpoise, or whatever you can find that will serve the same purpose. One trick passed on to me long ago by a ham whose name I've long since forgotten is to use a piece of four-conductor rotor cable as your ground plane or counterpoise. Just cut each of the conductors, one per band, to the quarter-wavelength-plus-2½% formula. They really work and provide the much-needed "phantom" antenna. This can be a big help in apartments and condos.

Maybe if the super asks what that funny thing is that is attached to your balcony railing, you can say that it is a clothestree. Most of us however, will find the Spider in use on our vehicles, whatever they may be. Travel trailers are excellent for the Spider, too.

Perhaps the best thing about the antenna is that it can be tuned to your favorite part of the band and forgotten unless you want to really change to another part of the band entirely, in which case you merely adjust the slider. An afternoon of doing a frequency plot vs. index markings on the resonators will arm you with the data you need for almost instant band changing. The reason that Fred and Len don't provide frequency vs. index marking information is because each installation will be different, and what's sauce for the goose ain't necessarily so for the gander. Thus, you'll have to go through the tuning and pruning operation once when you first install the antenna. After that, it's all downhill. Besides, you want to do something, don't you?

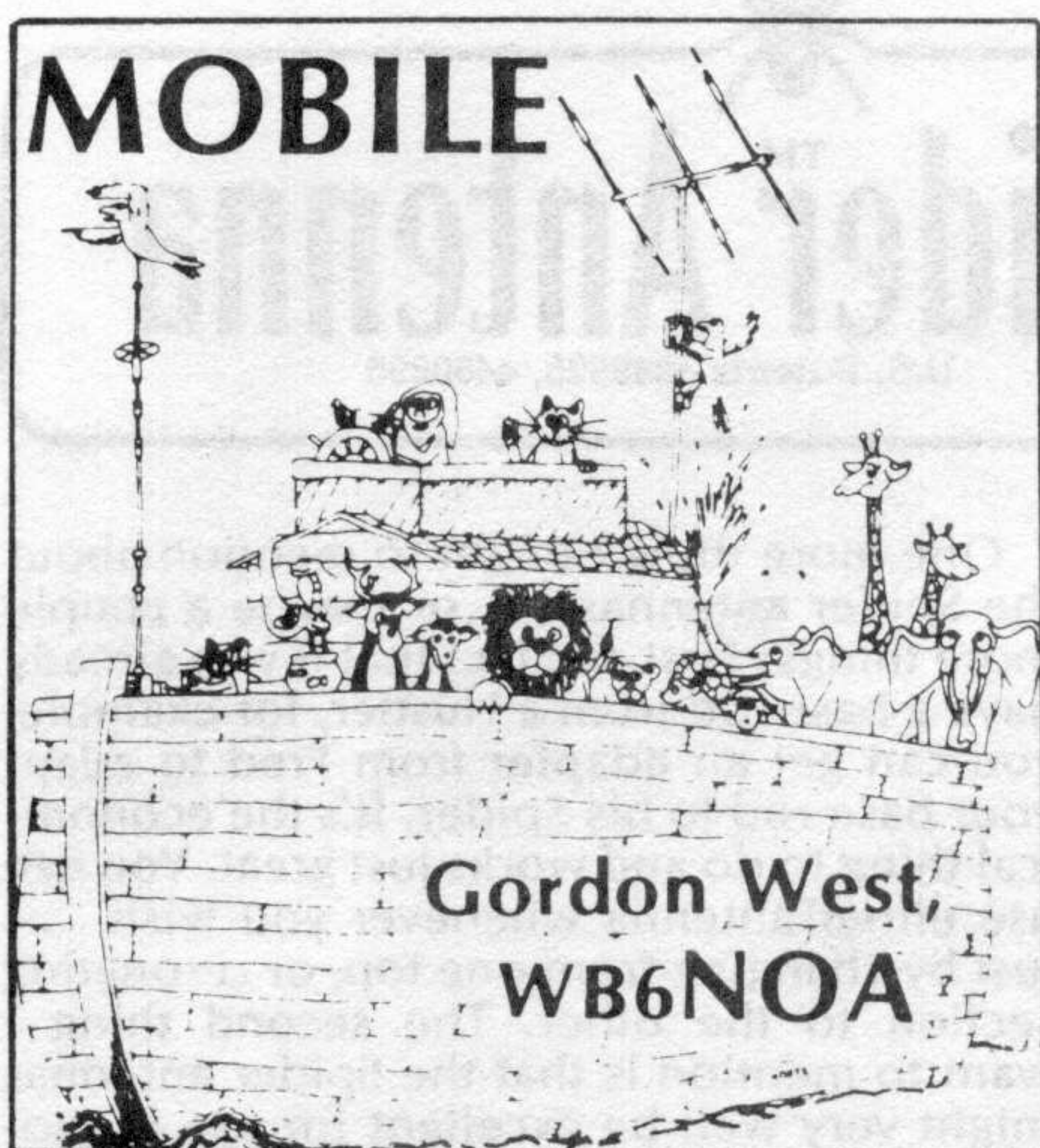
Finally, I have to say that the workmanship is solid, functional, and efficient. As for beautiful, all I can say is what my grandmother used to say: "Pretty is as pretty does." The Spider is therefore beautiful by definition, because it does pretty well indeed. Don't take my word for it, try one yourself. . . you'll be glad you did.

For more information, contact Multi-Band Antennas, 7131 Owensmouth Ave., Suite 63C, Canoga Park, Calif. 91303.

Jim Gray W1XU, 73 Magazine Staff

*In my tests I noticed that on 40 meters with the tuning ring slipped all the way to the bottom of the resonator, I could just achieve unity swr at about 7150 kHz. Yet, with the ring only halfway up the resonator, I was able to achieve unity swr at 7.005 kHz. This means to me that there is a lot of room for pruning the resonators so that adjustment of the sliding ring will achieve unity swr at both band edges. To prune, just slip off the plastic cap and carefully peel turns loose. After removing turns, carefully cut the wire and throw the excess away. Tuck the remaining end back into the resonator tight against the coil and recap it.

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Mobile multi-band HF antennas

My column about automatic tuners and 96 inch whips hit the mark, judging by the correspondence I received — almost 40 letters from Amateurs using automatic tuners on stainless steel whips, and everyone agreed that the whip was not long enough to work efficiently and effectively with the automatic tuner. Several automatic tuner manufacturers wrote me indicating that they reluctantly agreed with my findings — adding wire onto the length of the stainless steel whip would make their automatic tuners perform much better — “even as good as a dedicated frequency whip,” commented one manufacturer.

That should make folks like Hustler feel good — the popular Hustler antenna has become the “standard” of performance for a good mobile signal from a center-loaded whip assembly. One coil per band. Single coil, single band operation is the normal mode when operating with excellent Hustler whips.

But what happens if you want to operate up to four bands without having to change the center-loaded or top-loaded whip? What happens if the whip assembly is high up on your motor-home and it's tough to change whips when you want to go to different bands? And what about the whip in the attic — who wants to trudge up there each time you want to go from 40 to 20M?

The obvious answer is the Spider antenna — top-loaded resonators mounted on a single shaft for 4-band operation. And while there are many imitations of the Spider-type antenna, there is only one Spider (TM) multi-band antenna, and that's from the Spider Antenna Company (7131 Owensmouth Ave., Suite 63C, Canoga Park, CA 91303; 818/341-5460).

Unquestionably the best Spider antenna out there, it was the first — and continues to be the best. It is designed by Fred Schmitka, K6AQI. Fred's wife, Lillian, and son, Richard, are also involved in developing and marketing the Spider antenna. Richard holds a Master of Science degree and knows what it takes to answer questions about the technical side of the antenna.

The Spider antenna is a set of four screw-in, top-loaded resonators on a stainless steel, or anodized aluminum shaft. The resonators are wound on fiberglass tubing and are virtually unbreakable. The 40 and 75M coils are wound on unbreakable polycarbonate. The stainless steel or aluminum five foot mast screws into any standard 3/8 inch X 24 threaded female mounting bracket or ball mount.

Each of the four resonators use an adjustable tuning sleeve for precise resonance with minimal SWR. There is no detuning interaction between resonators. You can put your hand on a resonator not being used for receive and hear for yourself that it is totally out of circuit.

The most popular configuration is 10, 15, 20 and 40M. Just screw in the resonators, adjust one time for minimum SWR and you are on the air. No tuner or matching network is necessary at the base.

Each Spider resonator is covered with two layers of a tough and durable plastic. This eliminates much of the atmospheric interference, both natural and manmade, improving on the signal to noise ratio on receive. A logging scale also allows you to write down exactly where you have minimum SWR with the tuning sleeve.

If you want 80M instead of 40, substitute one of the coils for the 80M resonator. They even have a single band resonator for 160M, too.

And they even have resonators specifically for marine frequencies in the 4 MHz, 8 MHz, 12 MHz and 16/22 MHz bands! You can even mix marine and Amateur, too. A combo would be 20M Amateur, 40M Amateur, 12 MHz marine and 16 MHz marine.

The Spider could also be used on base station installations. If you have a balcony, use the wrought iron railing as your ground. In attic installations run ground radials — one per band, one-quarter wavelength long. Another attic suggestion might be to purchase two Spider antennas and run them as a 4-band top-loaded dipole.

Aboard boats the antenna is mounted on a stainless steel stanchion or aft, where there is good metal below it.

A mobile vertical antenna, such as the Spider, requires a good ground

plane below it in order to properly radiate and receive the signals. Each Spider antenna includes grounding suggestions that parallel the books I have written on mobile/marine grounding using copper foil or metal plumber's tape. Remember, the ground plane must be directly below the feed-point — not 100 ft. away!

Does the Spider put out exactly the same amount of signal that a dedicated single-band whip does? Not quite, but there's not any discernible S-meter difference between the two.

I have conducted many tests between the 4-band Spider against a single Hustler whip, and the performance is so close that you could barely tell the difference on 10, 15 and 20M. Down on 40 and 80M, the longer the mobile whip, the better — and an equal-size, single-band, center-loaded whip will perform very close to the top-loaded, 4-band Spider.

Yes, the antenna does look a bit strange when motoring down the road. But if that's a problem, remove three of the four resonators, leaving just the top resonator in. Then it looks like most other antennas that are top-loaded.

How much power can they take? I recently tried a Magnus 800W amplifier on one of my Spider mobile antennas, and it worked just fine. It did get warm, but I didn't see any smoke coming out of the tip, which is a common occurrence with some helical-wound, top-loaded fiberglass whips.

Best of all, the Spider antenna comes from a dedicated family operation — a company not so large that they are too big for an individual question or problem. When you deal with Spider, you are talking with mom, pop and son. They truly care about your particular installation and transmissions and reception needs.

If you're a mariner they'll probably suggest a stainless steel shaft. If you are looking for a hidden antenna in the attic, they may suggest the multi-band dipole on aluminum shafts.

So, if you're looking for a new type of mobile antenna system, give Spider antenna company a call — and tell them Gordo sent you. I guarantee they'll take good care of you with a quality product that will last for years.

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