

Q S X P E

*Port Elizabeth Branch of the
South African Radio League*

P.O.Box 462, Port Elizabeth. 6000.



National Call
P. E. Repeater
Grahamstown
Lady's Slipper

145.5 Mhz
145.05/65
145.15/75
145.10/70

ZS2PE

**Bulletin: Sunday 08h40
HF: 40m - 7098 KHz
VHF: FM - 145,700 MHz**



Port Elizabeth Branch

Committee

CHAIRMAN:
SECRETARY:
PROBECTS:
P.R.O.:

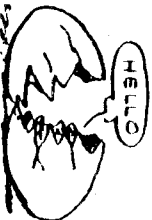
Dick ZS2RH (322111)
Marge ZS2OB (303498)
Lionel ZS2PD (321770)
Pete ZS2PF (301493)

VICZ. CHAIRMAN:
TREASURER:
SPECIAL EVENTS:
WARDS:
-SX-PE - ZS2OB and ZS2AB.

Trevor ZS2PH (31746)
Brian ZS2Y (3198)
Colin ZS2A (12471)
Atle ZS2V (3009)

Welcome

We would like to take this opportunity to extend a very warm welcome to Phil Kauffmann (ZS2NP from East London and Ian van Jaarsveld of Bloemfontein as members of the Branch and hope their association with us is a long and happy one.



NEW
HAMS

Technical Classes

The Technical Classes for the P.M.T. examinations to be held in November 1984 will be starting during the first week of February and are once again being held at the Western Primary School. If you wish to attend the classes or if you know of anyone who would like to, please contact Brian ZS2AB for further details. Phone 21173 (work) and 303498 (home).

New QTH

It was good to hear Andy ZS4ME from Div. 6 where he and Teresa have settled for a while. They have a nice home and Andy has an antenna up and was putting a good signal down to P.T.

Licences

We hope that by now everyone has remembered to renew their licences for 1984. Don't put it off or you could find yourself having to write the P.M.T. exam. Also remember to advise of change of address within fourteen days.

Did You Know

That dolphins are the cleverest of all creatures. Within a few weeks they can train a man to stand at the side of the pool and throw them fish.

That Charles and Liana wanted to call their baby James and not William, but decided against it, because when he became King, all the mail boxes would be marked "Jim".

Port Elizabeth Branch

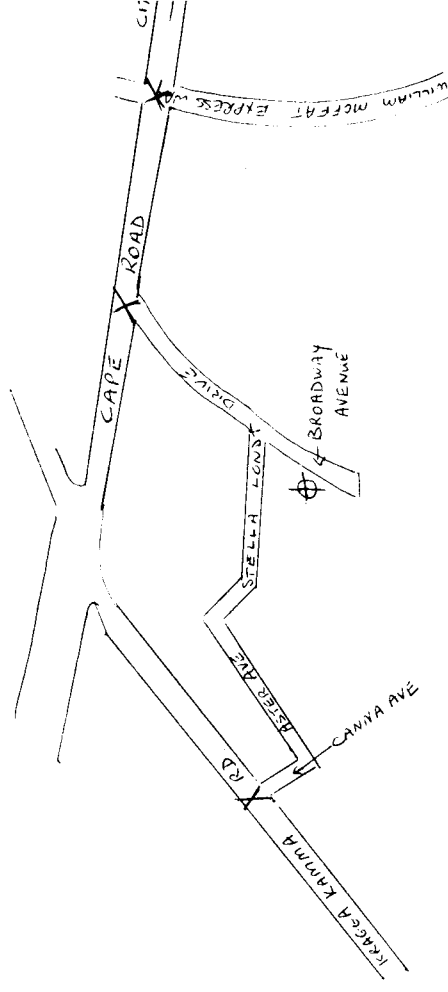
>NOTICE OF MONTHLY MEETING<

THE MONTHLY GENERAL MEETING OF THE PORT ELIZABETH BRANCH OF THE SOUTH AFRICAN RANGIC LEAGUE WILL TAKE PLACE AT THE HERBERT PARK SCOUT HALL, BROADWAY AVENUE, CUNWIDE PARK, ON FRIDAY 20TH JANUARY, 1984 AT 8P.M.

PLEASE NOTE THE NEW VENUE. SHOW BELOW IS A DIAGRAM OF HOW TO GET THERE.

COMMITTEE MEMBERS: PLEASE NOTE THAT THE FIRST COMMITTEE MEETING OF THE YEAR WILL BE HELD AT 7.30P.M. JUST BEFORE THE GENERAL MEETING.

NEW VENUE



X Traffic lights

⊕ Scout Hall

COMPETITION

DON'T FORGET TO BRING ALONG YOUR AGENCIES TO LAST MONTH'S COMPETITION. THERE IS A GOOD PRIZE FOR THE WINNER.

MINUTES OF THE GENERAL MEETING OF THE PORT ELIZABETH BRANCH OF THE SOUTH AFRICAN RADIO LEAGUE HELD AT 7.15 P.M. S.A., HAWLOCK STREET, PORT ELIZABETH ON FRIDAY 18TH NOVEMBER, 1983.

PRESENT: 19 members and visitors.

APOLLOTTES: Lynn Crothall, ZS2ET, ZS2TF, ZS2AO, ZS2PJ, ZR25V.

The Chairman welcomed all to the meeting, especially Bette ZS2LD on her return from Cape Town and Ron Clarke ZS2MF.

MINUTES: The Minutes of the General Meeting held on 21st October, 1983, having been published and circulated in GSK-PR, were taken as read, proposed by Mitch ZS2DK and seconded by Trevor ZS2AE.

ARISING:

CORRES: Letter of acceptance from the Mayor with regard to opening of 1984 A.T.M.
Minutes of Video Conference between S.A.R.L. and P.M.T.

ARISING: The details of the Video conference were read to the meeting.
The letter from the Mayor was also read.

FINANCE: The Treasurer Brian ZS2AB said that the A.T.M. fund stood at R2200.

GENERAL: Dick the Chairman said that on Friday evening 18th Nov. a meeting would be held in the Scout Hall in Sunridge Park, with two objects in view:
(a) to make a positive start with the A.T.M. working

Group,
(b) to decide on a possible change of venue for the Branch meetings, away from the noisy conditions prevailing at the present venue.
Members were reminded of the Slide and Video Show to be held at the Palmer Town Hall on Tuesday 29th. This was to be presented by Hans ZS6KW and would deal with Oscar 10 and the proposed flight by Owen Jarrlott in Columbia Space Shuttle.

Thanks were extended to Brian ZS2AV for his work on getting the Grahamstown repeater functional once again.
Mention was made of the F.V.O. exam and it was stated that it had been a fair paper.

Discussion took place on the Field Day to be held on 19th November. This would last for 14 hours and Dick hoped that as many members would participate as possible as it was a Branch effort.

The Christmas Party was to be held at the CTV of Trevor ZS2AV and would cost R12 per couple. Please give names to Secretary.

Trevor ZS2AV said he had two films to show after the meeting and asked if anyone had contacts for technical films. Bill ZS2MF suggested the Council for Adult Education.

There being no further business, the meeting was closed and tea was taken. Thereafter the two films were shown and Trevor was thanked for his efforts and for the cats.

SGd:
K. T. Johnson ZS2RS
Chairman

SGd:
K. T. Jellier ZS2OT
Secretary.

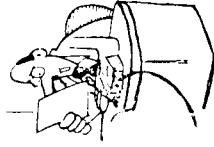
THIS AND THAT



The Committee and Editors of QEX-PE would like to take this opportunity to wish all members, their families and friends the very best for 1984. May there be peace in your hearts and homes and may you have health, happiness and prosperity. This is the year of our A.S.V. and we are sure you will give all the help you can to make it a success.

bulletin roster

January 17th Dick ZS2RS
January 22nd Trevor ZS2AB
January 29th Marge ZS2OF
February 5th Brian ZS2AB
February 12th Lionel ZS2DD



Junk Box

Neil Holmes ZS2AI advises that he had been doing a lot of clearing out and has many general components such as valve bases, etc. which he is willing to dispose of to those who may be able to make use of them. Contact Neil by either dropping him a line at 14 Mangkclip Road, Bergsig, Queenstown 5320 or phoning him at 0451 4626.

Satellite Award

S.A. AMSAT SATELLITE ACHIEVEMENT AWARD.

Available to any licensed Radio Amateur or Shortwave listener.

1. Endorsements are available for 25, 50 and 100 contacts.
2. Contacts must be made through Phase II type satellites.
3. Each different satellite mode counts as a separate contact, i.e. a station worked on Modes A and J counts as 2 contacts.
4. No repeat contacts on the same satellite mode, or using different types of transmission modes are allowed.
5. Contacts may only be made for a specific satellite mode, i.e. Modes A, J, or a transmission mode, i.e. all SSB, all CW etc.
6. Minimum reports of 35 (name and call-sign)
7. Applications to The Secretary, S.A. Amsat, P.O. Box 13272, Northmead, 1511. Send copy of log, clearly marked with modes and endorsements required, countersigned by an official of S.A.R.L. Cost R5. Include full name, postal address and call-sign.
8. Basic award is for 25 contacts. Stickers available for 50 and 100, costing R1 when applied for separately. Additional log info as above for additional stickers.
9. Listeners apply as above, but list both call-signs and both reports.
10. Provision is made on the Award for stickers to be affixed.

David Sarnoff

Very much a name belonging to
twentieth century electronics.

WHO WAS DAVID SARNOFF? His name isn't familiar to British ears, yet this was a man who was in contact with every important electronics development of our time. In addition, his life story is almost the classic rags-to-riches American dream, the story of the poor immigrant who by hard work and the ability to recognise a unique opportunity, made a million dollars — but Sarnoff made nearer a billion!

He was born in Minsk in Russia, to an orthodox Jewish family, and was educated as a religious scholar. Russia at the turn of the century, as now, was no place for a Jewish family, and the Sarnoffs emigrated to Albany, New York, in 1900. David, sent to a school in which the language was unfamiliar, worked hard, and earned extra money by selling papers, running errands, and by singing in the synagogue.

By 1906 his school days were over, and he became a messenger boy for a telegraph company. Sensing that skill was the key to success, he used his first wages to buy a telegraph key so that he could teach himself Morse Code, the essential skill of the telegraph operator.

A Self-Made Man

Through constant practice, he became thoroughly proficient at Morse Code, and jumped at the opportunity to join the New York branch of the Marconi Wireless Telegraph Company. Wireless Telegraphy was by then considered to be a glamorous career, and a Marconi

operator in those days had the sort of standing that a Concorde pilot might enjoy now. The Marconi Company took his training seriously (a tradition that is still maintained) with several spells at sea and on various shore stations.

His proficiency was such that he landed the plum job, the aim of every Marconi operator in the USA. The site was the world's most powerful radio station, on top of the Wanamaker store in Manhattan, and it was there that David Sarnoff became overnight the world's most famous radio operator.

On the night of April 14th, 1912, the "unsinkable" Titanic, on its first voyage, hit an iceberg and sank. The Titanic was a vast ship, built with a large number of watertight compartments, and fitted out in the most lavish way — a style we now find almost unimaginable. You can get a whiff of it from Walter Lord's famous book "A Night To Remember". Among its luxurious fittings was the latest device — a Marconi transmitter and receiver. At the first sign that the 'unsinkable' ship was in distress the radio operator started to send out calls, hoping that one of the number of ships in the neighbourhood would respond.

They didn't, because they were busy sending and receiving congratulations telegrams. David Sarnoff, in his cabin at the top of the Wanamaker Store, did. He remained on duty for 72 hours, receiving and passing on messages which were eventually to lead to survivors being picked up.

Up And Away

He was rewarded by the Marconi Company with rapid promotion — there's a joke among present day Marconi men that they're all waiting for the next Titanic. Curiously enough, this was to lead to a disagreement which would lead Sarnoff to immense wealth and opportunity. In 1915, Sarnoff, now managing the Marconi business in the U.S.A., and also acting for the Army Signals Corps proposed what he called a 'music box'. This was to be a domestic radio.

Marconi himself, who saw radio as a method of saving lives and maintaining essential communications, thought that this suggestion was trivial, and an unworthy use of radio. The two argued fiercely, neither giving ground. Sarnoff resigned to form his own Company, the Radio Corporation of America (RCA). Marconi would never agree to any proposal to manufacture domestic radio, and the company even sold its rights in the name of Marconi as far as receivers were concerned — which is why Marconi transmitters are made by Marconi, and Marconi receivers by Thorn-EMI!

As general manager of RCA, Sarnoff immediately started constructing radio transmitters and receivers. In 1921, he created a sensation by broadcasting the big fight, Dempsey versus Carpentier, so that radio owners knew the result many hours before the papers hit the streets. America went radio mad. By 1924 RCA had sold receivers to a value of \$80,000,000. The radio boom had started.

In 1926, Sarnoff formed the National Broadcasting Company (NBC), with the aim of covering the whole of the USA by a chain of radio stations. The first portable radios and car radios appeared, and the boom continued. Sarnoff saw that the new technology would never stay still, and in 1928 built the first experimental NBC TV station.

Towards TV

The development of television was to be slower than he anticipated, to some extent because of the false tracks laid by Baird, who by reproducing a picture of

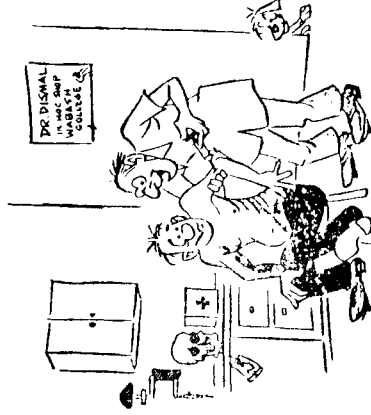
sorts with mechanical equipment diverted attention from the real research which was needed. In 1939, however, at the New York World's Fair, RCA were able to demonstrate live television, using the all-electronic system which was already in use in London, and which was continued after the War.

In the 1940-46 period, Sarnoff, with the rank of Brigadier-General, served on General Eisenhower's staff. His work at RCA had not ceased, however, because the team which developed colour TV was already being assembled in the RCA research laboratories. The painstaking efforts of these researchers developed the shadowmask tube and the NTSC colour system, which laid the foundations for all the colour TV systems used all over the world. None of this could have happened had Sarnoff not supported the research effort wholeheartedly.

No-one knows how much it cost RCA to put colour TV on the road. One guess is that over \$80,000,000 was sunk into research and production before a cent was recouped in sales — and it was a long uphill struggle before the immense investment paid off. Once again, however, Sarnoff's foresight had resulted in an immense success.

He retired in 1970, and like so many men whose tireless drive has sustained them, died in the next year. His monuments, RCA and NCB, live on.

Ian Sinclair



"It's a new code shot. You'll be a 25-word-per-minute man at once."

The Boom-Excited Beam Antenna

Here's a great way to put your beam on 10 MHz or below — and cheaply, too!

With decreasing sunspot activity and the recent addition of the 30-meter band, many of us would like to operate in the lower frequencies. And we'd prefer to do this without any extra strain on our antenna budget. Why can't we use an existing Yagi?

Yagi as Dipole

Boom-exciting is a way of operating a Yagi on an additional band. It can be done without impairing correct operation on the original band. This technique is accomplished by treating the boom and the elements at the ends of the boom (usually the reflector and "last" director) as a half-wave dipole. The half wavelength is measured from the tip of the director to the boom, along the full length of the boom to the center of the reflector and then out to the end of the reflector.

My 20-meter beam is a HyGain 204BA (Fig. 1). The length from one end of the director to the boom is 15 ft 7 in. The boom is 26 feet long, and it is 18 feet from the boom to one end of the reflector.¹ This gives a total length of 59 ft 7 in., slightly less than the ideal 64 to 68 ft for a 40-meter dipole. But there is another consideration: The configuration is not a straight piece of aluminum. Electrically, it is an end-loaded dipole, in which the boom acts as the center of the dipole and the reflector and director serve as end-loading elements. It may be resonant on 40 meters, even though it is physically a little shorter than it "should" be. End loading gives it the extra electrical length that is needed.

Although end loading may not sound familiar, perhaps top loading does.² Top loading a vertical antenna requires placing a horizontal wire or grid work at the top of the antenna so the vertical section can be made shorter. It loads the antenna and shortens the required height by increasing the capacitance between the top of the vertical section and the ground. In our case, end loading is essentially the same thing, and results from bringing the dipole ends closer together — increasing the mutual

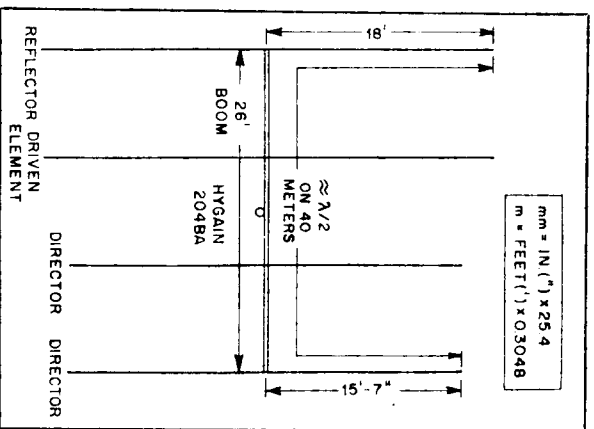


Fig. 1 — Example of how another amateur-band resonant length may be found on a Yagi.

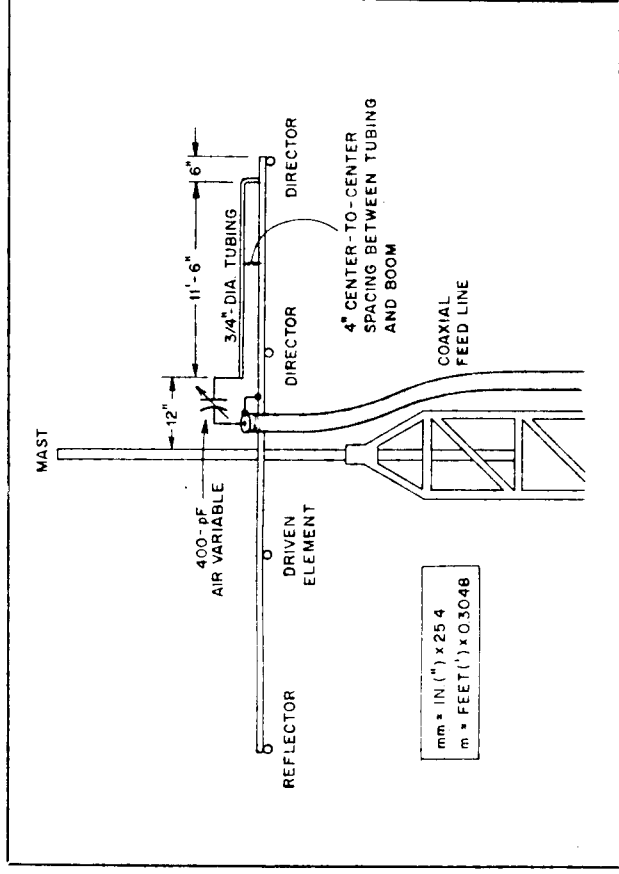


Fig. 2 — Gamma-match feed system used on the author's 20-meter Yagi.

capacitance. Additional capacitance or loading is provided by the other elements in the array.

Feed Systems

The first question is, "What's the best way to feed power to this system?" It's impractical to place an insulator in the center of the boom. Instead, I mounted a gamma match along the boom (Fig. 2). A delta match, a T match or an omega match should also work well.¹ I chose a gamma match because it was a simple technique for my antenna. The resulting SWR curve is shown in Fig. 3.

Another feed method that works well on a 1/12 scale model of my Yagi is to insulate the boom truss wires at the point where they attach to the mast. One of these is connected to the center conductor of the coaxial feed line through a series capacitor, as shown in Fig. 4. To obtain a good match, it is necessary to adjust the length of the truss wires and the series capacitor value. Also, care must be used in making a good electrical connection between the boom and the truss wire. On some antennas, a second capacitor connected in an omega match configuration might help. Experimentation will help determine your individual needs.

If your antenna is not the correct physical length for the desired band, the electrical length can be adjusted in various ways. One way is to insulate the outermost elements from the boom. Inductors (to lengthen) or capacitors (to shorten) the antenna can then be connected between the boom and the center of the elements. (I believe it is possible to develop a combination of coils and capacitors allowing operation on more than one additional frequency.)

Antenna length can also be adjusted through the addition of boom extensions. Based on a 1/12 scale model, a 10-foot extension on each end of the boom makes my Yagi resonant on 30 meters. This provides a trapless tribander on 20, 30 and 40 meters!

Another possibility involves adding boom extensions for 80-meter operation. Because of size limitations, this would unfortunately involve the use of lossy loading coils.

Performance

As with all antennas, there are some disadvantages to the boom-excited beam. Maximum radiation from this antenna is at right angles to that from the Yagi. There is no front-to-back ratio because the anten-

na is essentially a dipole, which has little gain at best. On the other side of the ledger, the boom-excited beam *does* have nulls off the ends (as all dipoles do), and they can be pointed at an interfering station. On my antenna, the nulls are about 15 to 20 dB in depth. Because there are no lossy loading coils and the antenna has heavy conductors (the boom) in the area of maximum antenna current, efficiency seems to be very good. The full length of the antenna is at one height, which helps to lower the overall radiation angle. On-the-air tests have yielded good signal reports.

All these techniques are bound to raise questions about boom-exciting other types of antennas. I am sure this is possible, but it will take some experimenting to obtain the answers. If you decide to experiment, I'd be anxious to learn of your results. Perhaps additional findings will be reported in a future issue of *QST*.

If nothing else, after boom-exciting your antenna you can impress your friends by telling them you now have a 4-element, trapless 40-meter beam. Well, that's sort of true....

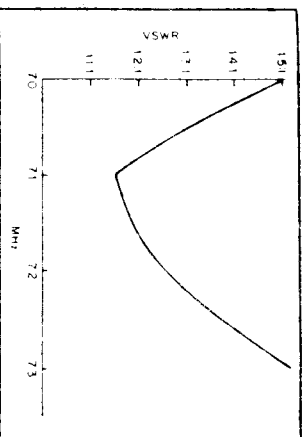


Fig. 3 — SWR curve of the boom-excited 20-meter Yagi when used on 40 meters.

By Edward C. Pienkowski, * W8BBB

* 40 W. 938 Whitney Rd., St. Charles, IL 60174

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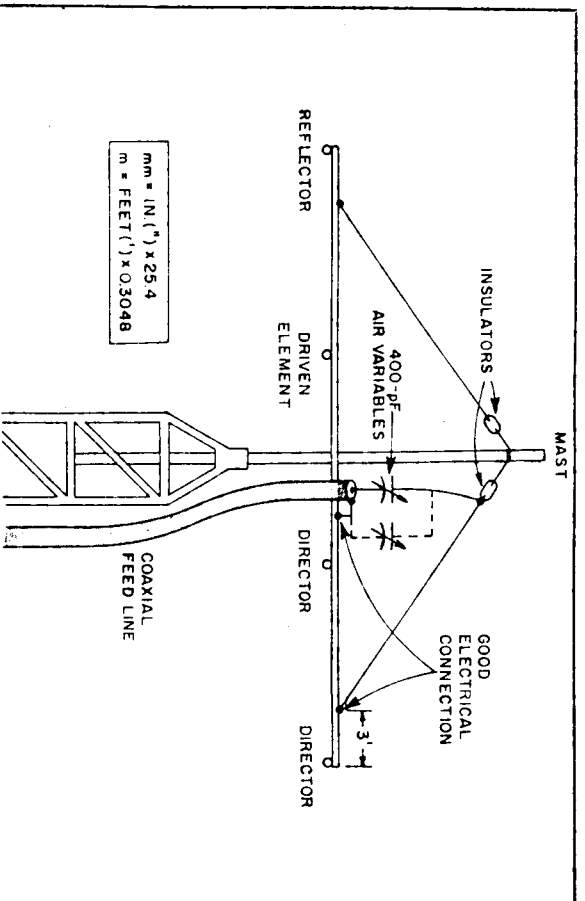
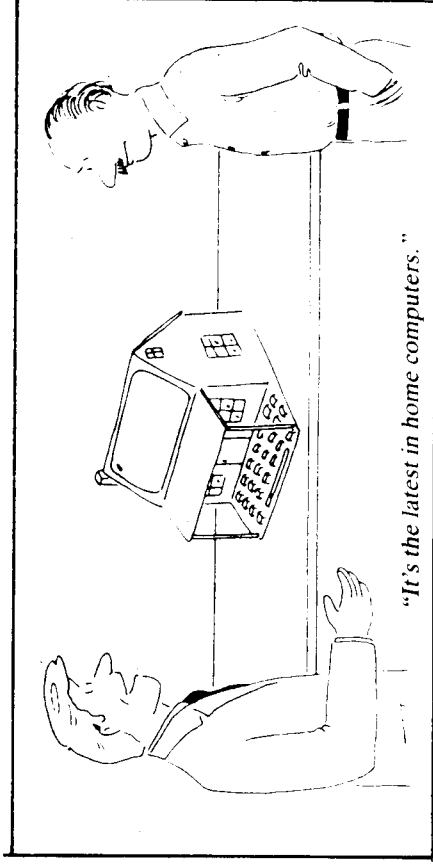
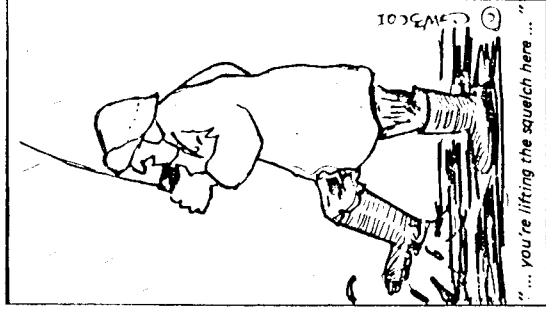
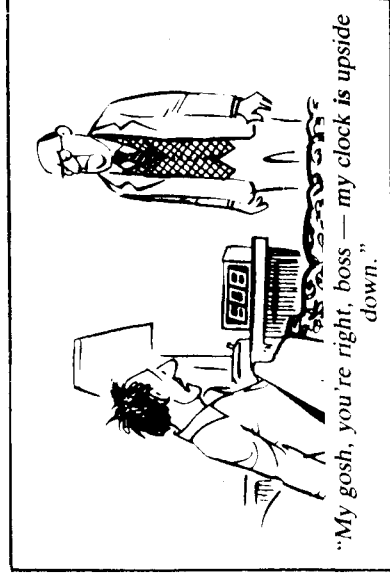


Fig. 4 — Alternative method of boom-exciting a Yagi, using the boom truss wire as part of the matching system. Capacitor in dashed lines is optional, but may be necessary to obtain a match in some systems.

HI!



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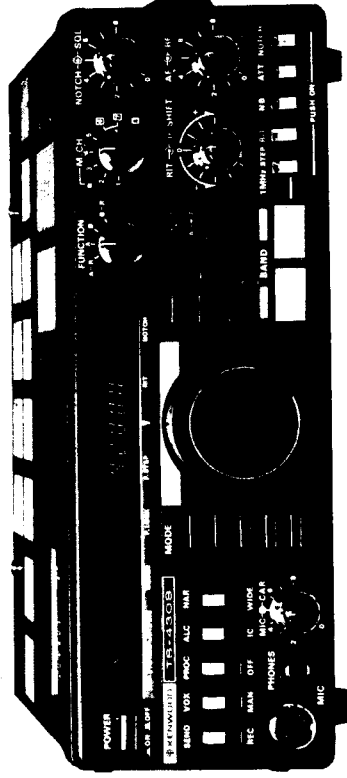
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