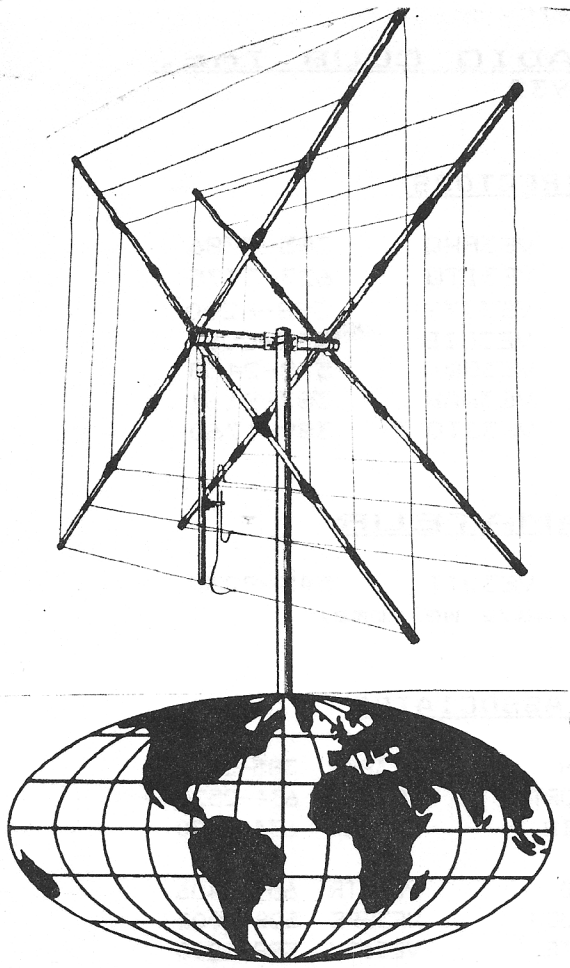


JUNE 86



THE HAMILTON AMATEUR

HAMILTON AMATEUR RADIO CLUB INC.
P.O. BOX 253
HAMILTON, ONTARIO
L8N 3C8

9791 1978
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VE3OZY
Rick Danby
6 Clinton Street
Hamilton, ON L8L 3J8
M8612

The HAMILTON AMATEUR RADIO CLUB Inc.
Established 1932

1986 OFFICERS & DIRECTORS

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PAST PRESIDENT	:	FRED SPRING	VE3ITQ	627-3375
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2 ND VICE-PRESIDENT	:	ROBERT WILSON	VE3CIB	383-2054
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MEMBERSHIP DIRECTOR:		MICHAEL SPENUK	VE3JTO	389-1760

THE HAMILTON AMATEUR

EDITOR : PHILIP KING VE3OII 545-9232
(your contributions are always welcome)

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VE3NCF LICENCEE	:	ED CHARLESWORTH	VE3ZF	634-2520
VE3RCB LICENCEE	:	JOHN KASSAY	VE3FDK	385-0422

The Hamilton Amateur Radio Club meets on the 3RD Wednesday of each month excluding July and August at the Nash Auditorium, Chedoke Hospital in Hamilton. The meetings commence at 8:00 PM. Non-members & friends are always welcome. There's plenty of parking available.

Membership fees are currently \$20.⁰⁰ per annum with a common renewal date of January 1ST. The fee includes the bulletin (10 monthly issues). Family memberships are also available at \$1.⁰⁰ each additional.

VE3NCF 2M Repeater is operated by the HARC. The Repeater is located on top of the escarpment at Hamilton. It is available for use by any amateur within range. Input 146.160MHz and Output 146.760MHz.

A Swap-Net is held on VE3NCF Tuesdays at 8:00 PM.

Correspondence: All other correspondence should be addressed to:
The Secretary, Hamilton Amateur Radio Club, P.O. Box 253, Hamilton, Ontario. L8N 3C8.

JUNE 1986 MEETING
THE HAMILTON AMATEUR RADIO CLUB

DATE: Wednesday, June 18, 1986
TIME: 8 o'clock P.M.
PLACE: Nash Auditorium, Chedoke Hospital
SPEAKER: Robert VE3ANW
TOPIC: Field Day '86

THE PRESIDENT'S MESSAGE

We are coming up to our last meeting before the summer break. At our May general meeting we had a good turnout to hear our guest speaker, Colin Campbell, who spoke on oscilloscopes. I'm sure we can use some of the information he passed along during his speech. Due to the fact that there was only one "home brew" project submitted at the May meeting, it was withdrawn.

We now have one hundred and five members according to our membership chairman, Mike VE3JTG. Mike has also advised that the 450 link on our repeater is still in the programming stage and may take a bit longer than was first expected.

We have recently been informed that there is now a "no smoking" ban at Nash Auditorium so please pass the word.

VE3LVE Gabrielle has advised me that she needs a sponsor. If you would like to inquire re. sponsorship for her, please call me at 385-2786.

New mailbox/autodial numbers to add to your April list are: VE3ARX Bill #40 and VE3PLI Paul #54. If you are interested in a mailbox/autodial number and are paid up for 1986, give me a call as there are a few numbers left.

Don't forget the Saturday and Sunday Trans Canada Nets, 14.140 MHz at 18:00 U.C.T.

See you at the June Meeting.

73's Glenn, VE3FHQ

EDITORIAL

Thank to Mike VE3JTD for his submission in last month's Hamilton Amateur on the Ravenscroft Judgement. The entire Reasons for Judgement can be found in the June issue of TCA. We would like to hear from others on this, and other subjects.

Well, here we are in June and no doubt everyone is looking forward to the fun times of summer. As in the past, you will not be receiving an issue of the Hamilton Amateur in July and August but I am looking forward to hearing from our members because there is nothing I would like better than to publish some original experiences by our own people, in the fall issues.

Keep those articles coming on technical and antenna projects. If there is not enough room to publish all of them, I will make copies and leave them at the executive table at the general meeting.

The Tuesday night nets will also be suspended for the summer months. While I was laying in bed the other night, I was thinking how nice it would be if the 105 members of the Hamilton Amateur Radio Club would call into VE3NCF near the end of June between the emergency net and the swap net to tip the antenna to those who have faithfully been there every Tuesday evening to serve us.

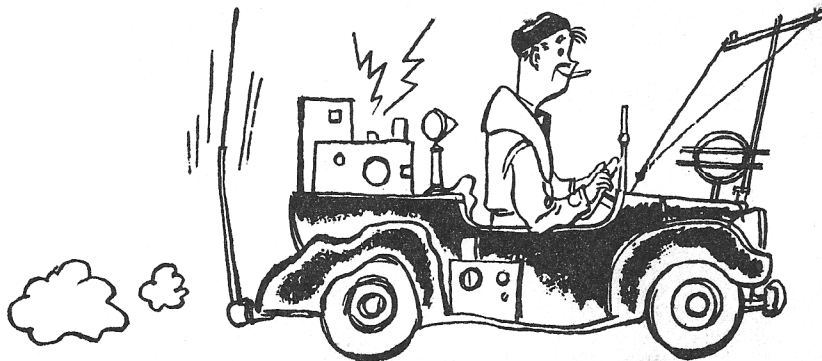
That's it for now. Have a good time at Field Day and see you in September.

73 Phil VE3OII



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≡≡ FLEA MARKETS & EVENTS ≡≡

OLD TIMER'S REUNION - Tuesday June 17 2:30 p.m.
Orillia Ont at Champlain's Monument in Couchiching Park
Dinner at 5:15 p.m. at the Sundial Motor Inn - Prizes and Raffles -
Ladies welcome
Tickets \$14. includes dinner
For info: Bob Dunn VE3ATK 318 Short Ave Woodstock, Ont N4S 4B1

CENTRAL ALBERTA RADIO LEAGUE PICNIC - June 20-21-22
Benalto Fair Grounds
Registration fee of \$15. includes camping, activities, draws and
Sunday breakfast. Saturday night BBQ-\$5.
147.00/146.400 146.52 simplex

WILKSBURY HAMFEST - Sunday July 6
Packet demo - Gunnplexer demo - Amateur T.V. demo
Admission - \$3. For info - Box 214 Pittston Pa. 18643
146.61 146.52 simplex

ONTARIO HAMFEST - Saturday July 12
Sponsored by the Burlington Amateur Radio Club
P.O. Box 836 Burlington Ont L7R 3Y7
Admission \$3. before June 15 \$4. after
Commercial displays indoors at 9 a.m. - Ham's displays outdoors at
7 a.m.
Superprizes of IC735 with power supply and accessories and IC2AT
handheld
Camping \$10. for the weekend
VE3RSB 147.21/81

BATAVIA HAMFEST - Sunday July 13 6 a.m. - 5 p.m. at the Firemen's
Grounds in Alexander N.Y.
Breakfast and chicken BBQ lunch available - camping and woman's
programme
Admission - \$4. 146.52 simplex

INTERNATIONAL PEACE GARDEN HAMFEST & COMPUTERFEST July 12 13.
North Dakota - Manitoba (Dunseith N.D.)
For info: Box 64 Minot, N.D. 58702
Transmitter Hunts - Mobile Judging - CW Contests
Activities for Kids & Non-Hams - Camping Facilities - Motels nearby
52 simplex

WARRINGTON FLEA MARKET - Warrington Penn. - Sunday August 10
Refreshments - Door prizes Admission - \$3. 146.52 simplex

BRANTFORD FLEA MARKET - Saturday August 16 8 a.m. - 2 p.m.
Woodman Park Community Center, 491 Grey St Brantford
Admission \$2. Refreshments, door prizes, auction.
VE3TOR 147.150/750 146.52 simplex

HAMORAMA AND COMPUTERFEST - September 6
Convention center Niagara Falls N.Y.
Technical forums and much more
Admission - \$3.50 in advance \$5. at the door
146.31/91 146.52 simplex

NANAIMO HAMFEST - September 6-7 Nanaimo, Vancouver Island.
Saturday evening pot luck dinner and beer garden. Sunday 10 a.m. to 3
p.m. seminars, flea market, auction, displays and demos.

PACKET RADIO SYMPOSIUM - September 20.
Georgian College, Barrie, Ont. Guest speakers
Info: Hex-9 Group, Box 151, Orillia, Ont. L3V 6J3
Admission: \$5. VE3LSR 146.25/85

The Amateur Radio
Club - People were so
special to Gard -
We were both so sustained
by the 2-Meter Collins
Thank you,
G.S.

To The Hamilton
Amateur Radio Club.

To thank you for
your kindness and sympathy

at a time when it was

appreciated

Sincerely -
Gladys Smith.

THANK GUYS

A tip of the tenna to the following people who assisted on the recent Salvation Army event:

ON THE ROAD

Bernie VE3EKY - North Burlington
Robert VE3ANW - Stoney Creek
Ron VE3MWD - West Mountain
Wayne VE3LWD - East Mountain
Bill VE3KYC - East Hamilton
Ken VE3JIN - Dundas & Ancaster
Bill VE3HNG - West Hamilton
Stan VE3GFE - South Burlington

AT SALVATION ARMY H.Q.

Jack VE3JTR
Bill VE3ARX
Al VE3HNG
John VE3FDK
Glenn VE3FHQ
Fiori VE300G

WHY IZIT?

the xyl always starts to vacuum just as I start a rare dx qso?

the telephone always rings at the instant I sit on the toilet?

when I take something out of a box, it is always too big to put back in the box?

interchangable parts wont interchange?

any part needing attention is the part I can't get at?

I never find the part which I lost 'till I buy a new one?

I always need the part that I threw away because I didn't need it anymore?

as soon as I buy some gear, I find it cheaper somewhere else?

as soon as I make a rare contact, I have to go to the bathroom?

the band always opens when it's bedtime or time to go to work?

-Bob VE300Q

COMMANDMENT of ELECTRONICS

Prove to thyself that all circuits that radiateth and upon which thou worketh are grounded, lest they lift thee to high frequency potential and cause thee to radiate also.

-1981 issue of TCA

NEWS and EVENTS

As a pilot project, the D.O.C. will be offering the theory part of the amateur examination in multiple choice questions. For the June exam, candidates may chose between the regular essay type questions, or the new multiple choice questions. The D.O.C. is considering changing to the multiple choice format for future examinations.

Jack Ravenscroft still needs help in his appeal against the civil suit which assessed damages against him for causing interference to a neighbour's equipment.

Direct donations may be sent to the JRSD Fund, Box 8873, Ottawa Ont. K1G 3J2.

Burlington repeater VE3RSB is now a closed auto-patch. The patch was being abused by a "Mary Poppins", especially on the 911 number. Members of the Hamilton club are encouraged to terminate calls on VE3NCF which are not accompanied by a callsign.

Many thanks to Jim Trayes VE3FMT for his power supply entry on home brew night. Since Jim was the only entrant, he withdrew his project because he did not wish to win by acclamation.

We regret that Jack Leng VE3KTI has become a silent key. Jack's callsign will be remembered by many for a long time to come.

We sadly report that Frank Ferrie VE3FKN is now a silent key. Frank recently resided in Oakville, but previously lived in Grimsby and Hamilton.

Amateurs are still needed to set up a display at the Steam Museum on Woodward Ave. The display will run for as many days as possible throughout the summer. Should no volunteers be found soon, the space will be turned over to another club. This is a good opportunity for amateur radio and club promotion.

Fiori, VE300G has plans for a great display at the Canada Day celebration at Gage Park. Bring your own rig and Fiori will assign a spot. Since many young people are usually in attendance at this type of event, teen assistance will be especially welcome, to relate to the younger visitors.

Operators are needed at the C.N.E. on August 13 and August 21. If you can help out on any of these dates call Fiori at 560-6329 or Stan VE3GFE at 528-4002.

THE HAMILTON AMATEUR RADIO CLUB SWAP NET with Ralph VE3BYM

=====

VE3IQI	"TERRY"	648-3116	ANCASTER	
	-COMMADOR 64 W/DATA SET % SOFTWARE			\$130
	-APPLE CLONE W/128K,80 COL CARD,PRINTER INTERFACE, 1/2 HIGHT DRIVE,MONITOR,280 CARD			\$600
	-MOTOROLA MOCOM 70 2M ,35W,W/MAN.& SYNTHESISER			\$130
VE3NKZ	"TED"	453-7547	BRAMPTON	
	-YAESU FC902 ANT TUNER W/PWR &SWR METERS			\$225
VE3GFE	"STANN"	528-4002		
	-MULTY 7 2M XCVR W/MAN,& 7 SETS OF XTLS			\$135
VE3HFX	"SAL"	839-5921	TORONTO	
	-QST MAGAZINES 1915-1974			NEG \$2000
	-RADIO AMATEURS HANDBOOKS 1926-1964			NEG \$500
VE3SJI	"NICK"	839-5921	MISSISSAUGA	
	-HEATHKIT HW5400-1 PWR SPLY 13.8V @ 20A MINT			\$140
VE3ISN	"MARCEL"	971-1150	ST. CATHARINES	
	-KENWOOD TR7800 XCVR,BRKT,MAN,PS \$300-RS UHFVHF SCANNER			\$35
VE3LVE	"GABY"	523-0449		
	-YAESU FT107 HF XCVR SOLID STATE W/POWER SUPPLY			\$800
VE3JL	"DAVE"	383-9888		
	-AVO MOD3 VOM \$25		-HP 130C XY OSCILLOSCOPE	\$45
VE3ABH	"JOE"	835-5665	PORT COLBOURNE	
	-LINEAR JOHNSON THUNDERBOLT W/RELAY,LOW PASS FILTER			\$500

WANTS

=====

VE3TQ	"JIM"	385-8245		3 POS. COAX ANT. SWITCH
VE3MFK	"DON"	639-2300		IBM COMPUTER,CHEAP C.B.RIG,WALL CHARGER FOR KENWOOD 2500 H.H.
VE3OC	AND A Q	549-6125		KENWOOD SPKR MIKE FOR 2400 H.H.
VE3KYQ	"JOHN"	774-6867	DUNVLE	MEMORY EXPANSION FOR VIC 20
VE3FWX	"JOHN"	820-2308	MISSGA	SCHEMATIC PHILLIPS 3265E SCOPE
VE3ITJ	"ARUNAS"	388-8658		ICOM 04AT 450 MHZ HAND HELD
VE3LVE	"GABY"	523-0449		KENWOOD TS430 HF XCVR
VE3OCZ	"MARK"	681-0400	BURL	KANTRONICS RTTY&CW INTFACE VIC20
VE3OIG	"TOM"	468-2806	ST KITS	IC 211 2M ALL MODE XCVR
VE3IAF	"JERRY"	573-3776		GEN. COVERAGE RCVR SOLID STATE
VE3OCW	"TED"	385-3025		HIGH QUALITY LOW PASS FILTER
VE3JTT	"HUGH"	844-2112	OAKVLE	MANUAL IC25A 2M XCVR

DON VE3OCY

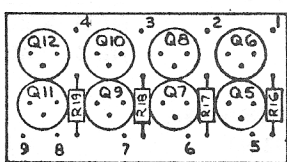
BUILDERS CORNER
By Boris VE3ITY

PART 2. The Digi-Designer Assembly.

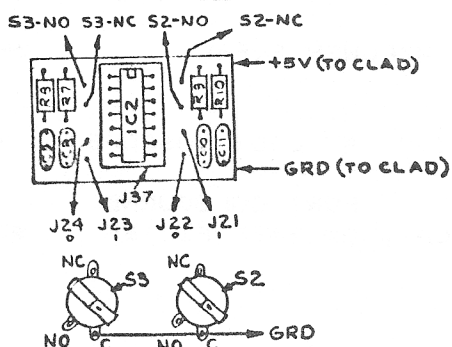
In the April '86 issue I briefly described the digi-designer and promised to show you how to assemble the components together at a future date. The time has now come to do just that (I've run out of excuses). Since a picture is worth a thousand words, this month I'll let pictures do the talking for me.

Don't forget I would like to hear from you regarding this and future projects. Just mail your whatever to the Club box attention VE3ITY; if things function properly I should receive it O.K..

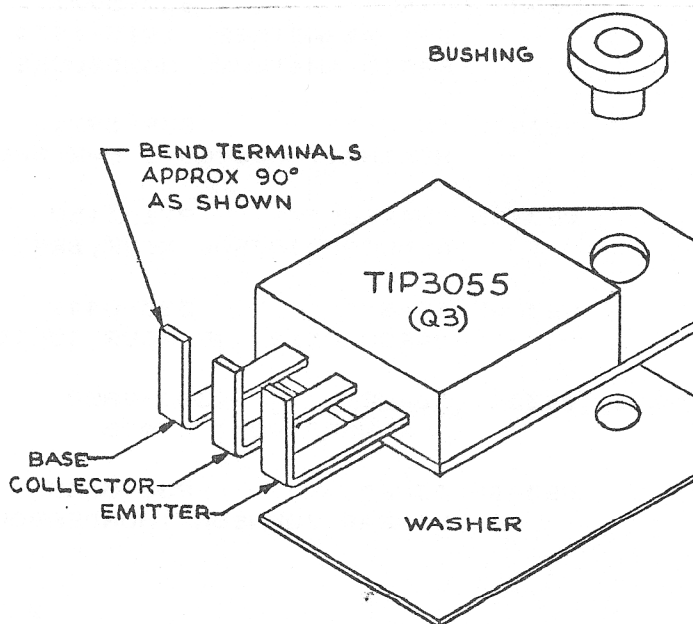
Next month I'll publish a few circuits I developed, on my digi-designer, which actually work. O.K. enough of this palava, here are the assembly details.



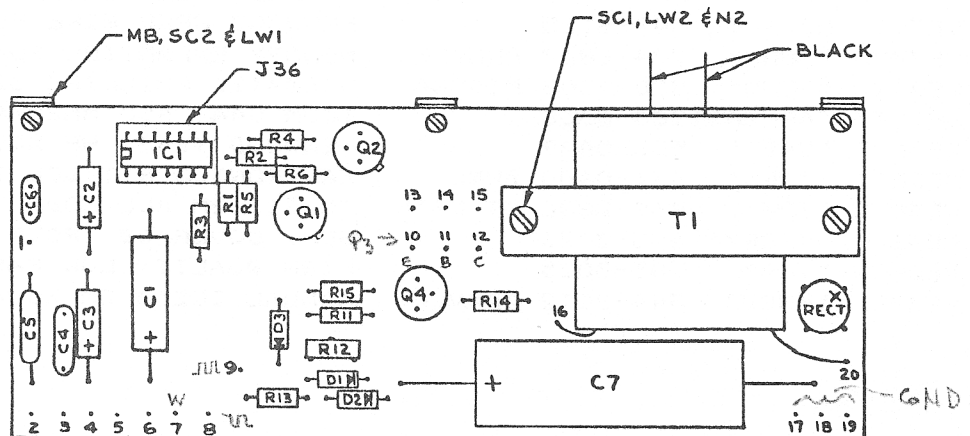
LAMP MONITOR BOARD



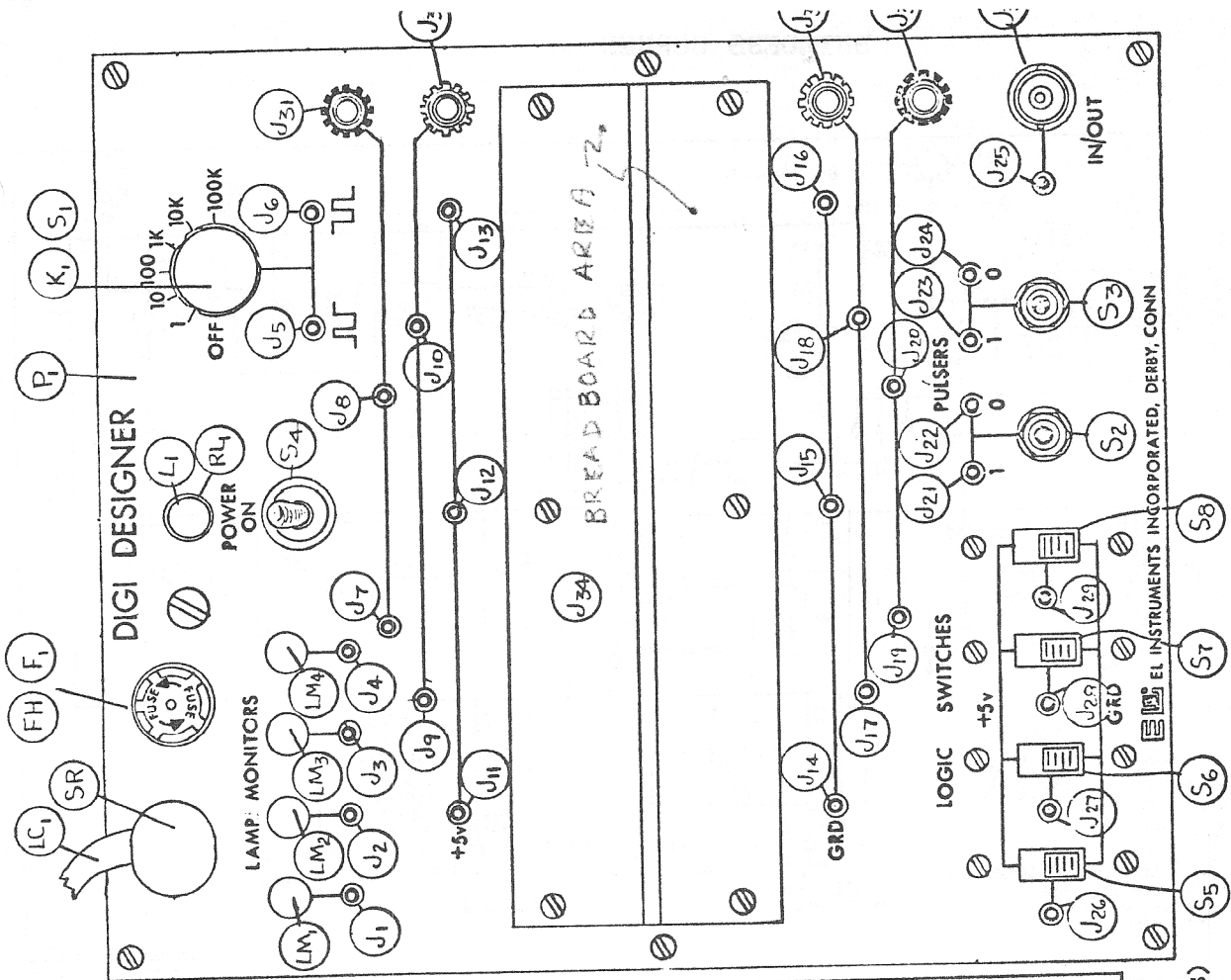
WIRING, PULSER BOARD



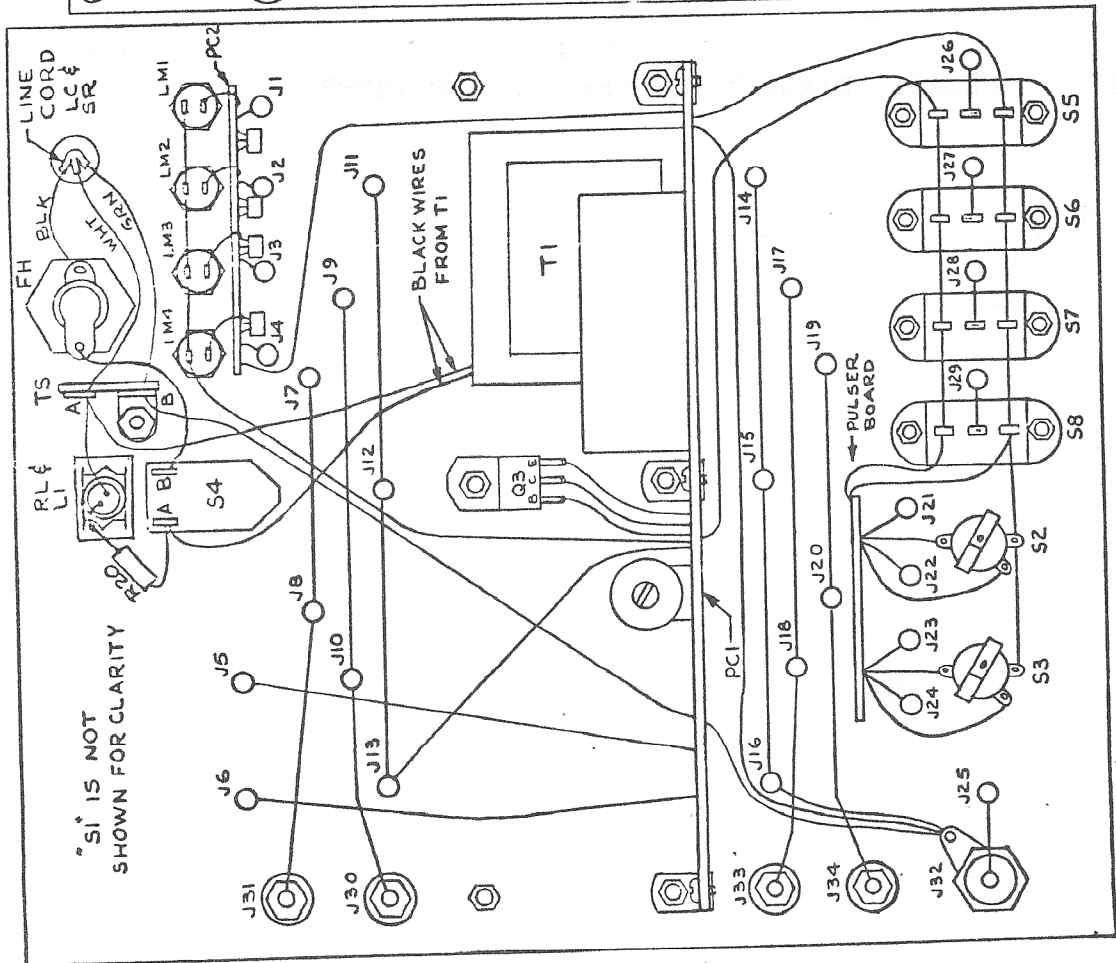
TIP3055 (Q3) MODIFICATION AND ASSEMBLY



MAIN P.C. BOARD HAS POWER SUPPLY AND CLOCK GEN.



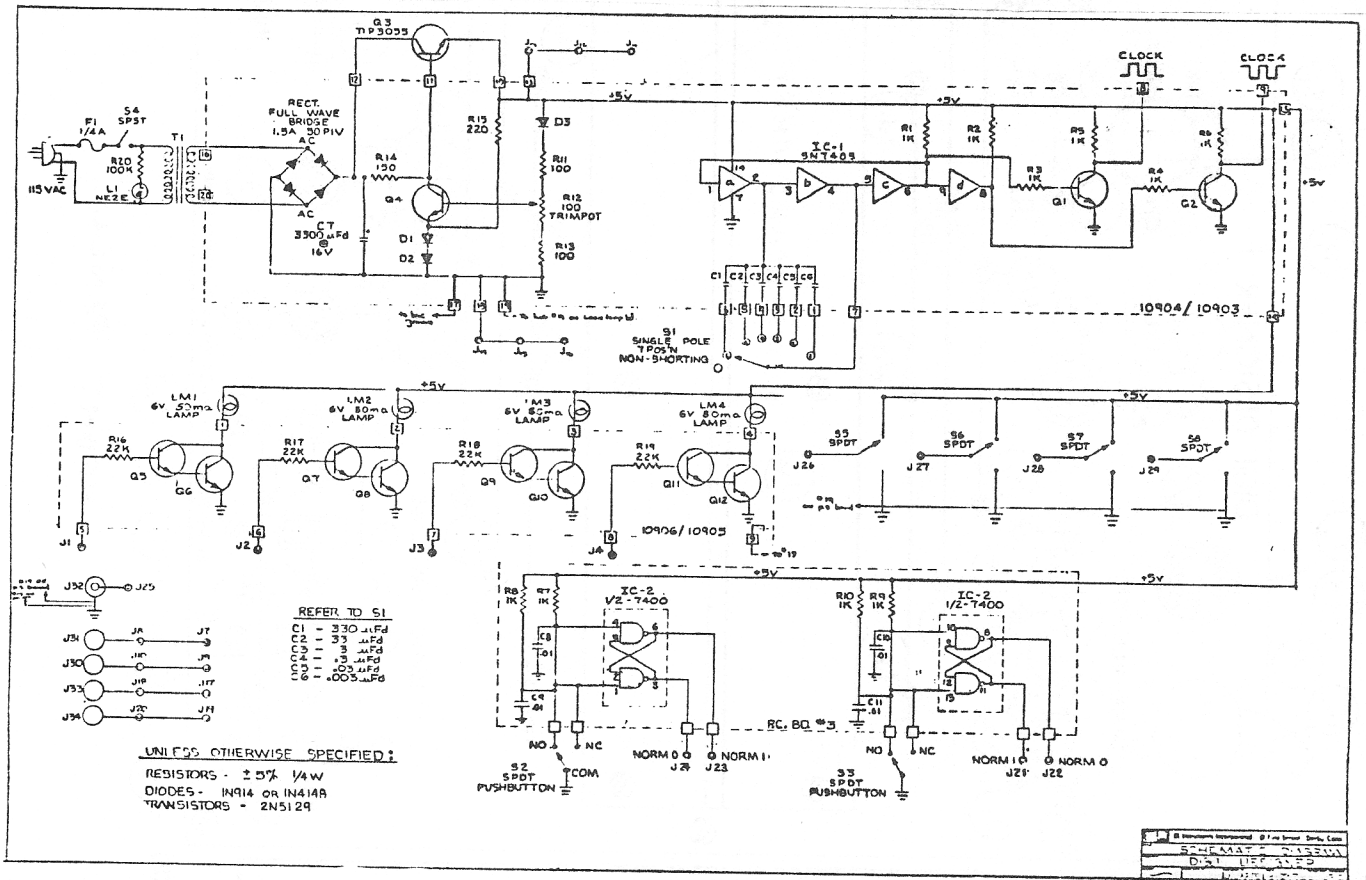
FRONT PANEL



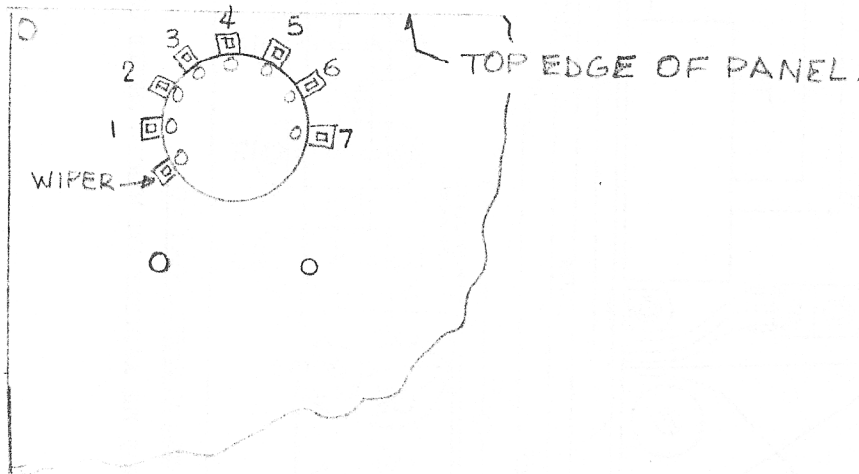
PANEL ASSEMBLY, REAR VIEW

(AFTER COMPLETION OF STEP V33 THE ASSEMBLY AND WIRING SHOULD LOOK LIKE THIS)

BUILDERS CORNER



OVERALL SCHEMATIC DIAGRAM FOR THE DIGI-DESIGNER.



CLOCK FREQUENCY SWITCH S1
 TERMINAL DESIGNATIONS.

REV. 1/1976

A SWISS QUAD FOR 2 METERS

Attachment 1 is a photocopy of an article from Popular Electronics magazine which describes a Swiss Quad for two meters (which radiates a horizontally polarized signal).

The natural evolution of thought after building one of these antennas was to first of all make such an antenna rotatable and secondly place the antenna in such a way as to radiate vertically polarized radiation. Attachment 2 illustrates the details of how this was accomplished.

Mechanically, the arrangements are easy to duplicate; electrically, some frustrations were encountered, however by matching each antenna separately first, the physical size of the squares could be easily established. This was done by soldering an electrical half-wave length of RG-58 cable to each feed point (25 inches long), and by using an SWR bridge, the length of the gamma match wires were adjusted so as to attain a 1:1 match. This was done with each antenna individually before connecting two in parallel.

Several different feed systems were experimented with, using various lengths before settling on the one presented on attachment 2. Note that the feed is slightly different from that described in the Popular Science article, i.e., that only the top side of each loop is fed.

Using the dimensions shown, the SWR was just under 2:1 with the SWR bridge inserted at the coaxial "T". On the air tests indicate that the antenna does not seem to suffer from any minor lobes that so often accompany stacked beams. Using low power (2 watts) surprising results have been obtained.

Good luck building yours and hope you have as much fun as I did.

Bob,
VE3ANW
143 Harmony Avenue
Hamilton, Ontario
L8H 4Y4 ..

P.S. to straighten and harden wire, clamp one end in a vise and the other in an electric drill. Then pull hard and "bump-trigger" to twist the wire a few turns.

ATTACHMENT 1

A SWISS QUAD
FOR 2 METERS

The Swiss Quad retains the electrical advantages of the usual Quad, but adds strength and durability. A 144-mc. Swiss Quad can be built in a few hours at a cost of less than \$4.00. It will give a real hop to your signals.

Design. If the centers of the horizontal members of a two-element Quad are pushed in until they touch, they may be joined—both electrically and mechanically—to the central support pipe. If the horizontal members are metal tubing, the Quad becomes a self-supporting structure without an auxiliary framework.

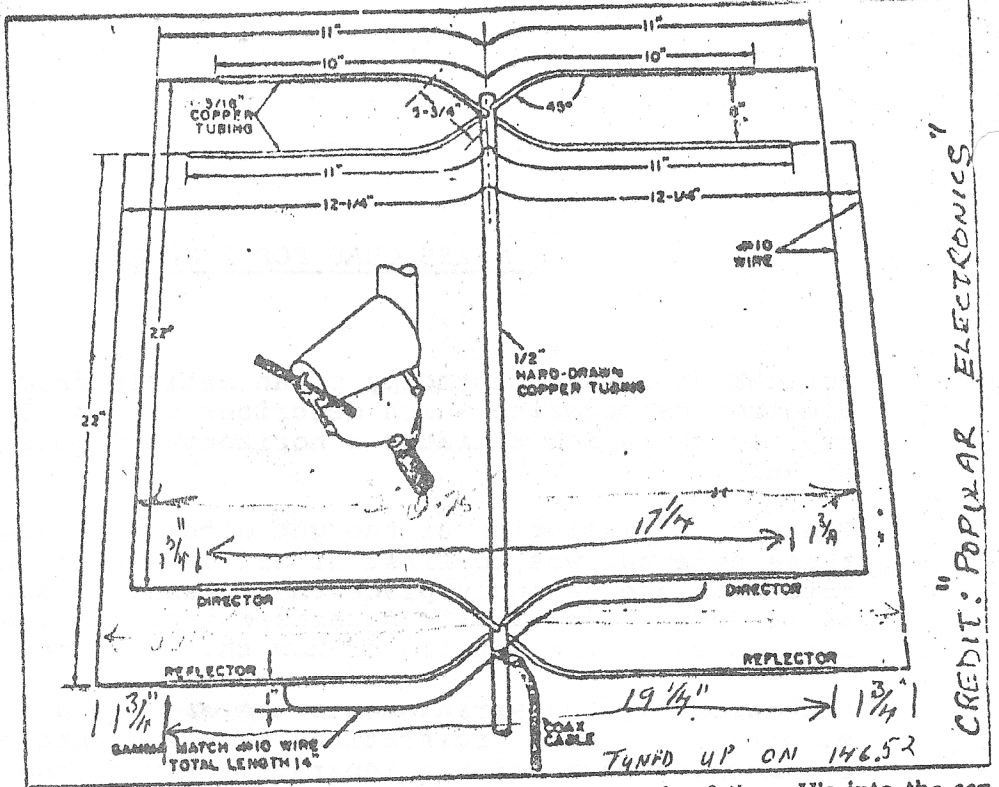
Coupling the centers of the horizontal members of the Quad together and to the support pipe is permissible, because these points are at zero r.f. potential. But, because a portion of the elements are partially bent back upon themselves, the overall dimensions of the antenna should be approximately 10% greater than for a conventional Quad cut for the same frequency.

The designer of the Swiss Quad, Rudolf Baumgartner, HB9CV, accommodated this increased size by adding to both the horizontal and vertical dimensions. I have found, however, that there is no significant difference in results if either the horizontal or vertical dimensions are kept the same as in a conventional Quad, and the other dimensions are increased sufficiently to restore resonance at the desired frequency.

Construction. The 144-mc. Swiss Quad is made of copper wire and tubing which is available in hardware and plumbing supply houses. To build a duplicate of my Swiss Quad, first straighten the $\frac{3}{16}$ " copper tubing by rolling it on a flat surface while tapping it lightly with a wooden mallet. Cut off four 21" lengths.

Now take the hard-drawn $\frac{1}{2}$ "-diameter copper tubing and drill a $\frac{3}{16}$ " hole a half inch from the top end. Line up the drill so that the bit passes through the diameter of the tubing and comes out on the opposite wall. Drill another pair of $\frac{3}{16}$ " holes 22" below the first pair in the same manner. Then rotate the tubing a quarter turn, and drill a third pair of $\frac{3}{16}$ " holes $\frac{1}{4}$ " from the top end and at right angles to the first pair; and drill a fourth pair 22" below the third pair. Finally, drill a $\frac{3}{16}$ " hole a half inch below the bottom $\frac{3}{16}$ " hole and in line with the first and second pairs.

Mount the standoff insulator in the hole on the supporting rod. Place



a solder lug under and on top of the insulator. You may have to do a bit of juggling to line up the screw through the $\frac{3}{16}$ " hole from the inside to catch the insulator, but it can be done.

Slide the four pieces of $\frac{3}{16}$ " tubing through the $\frac{3}{16}$ " holes, and position them so that they all extend 10" from the center of the $\frac{1}{2}$ " supporting rod to one side and 11" from the center to the other side. Solder them in place, using a husky soldering iron (250 watts or larger) or a small torch.

Measure 5 $\frac{1}{4}$ " from the center of the supporting rod along the $\frac{3}{16}$ " tubing, and bend the $\frac{3}{16}$ " tubing horizontally 45° so that the end sections of each adjacent 10" and 11" length are parallel and spaced eight inches apart. It is not necessary that the bends be sharp; slightly rounded corners are preferred.

Remove the plastic insulation from a 14" length of #10 wire which serves as the gamma matching rod. The rod is approximately 12" long and soldered at each end to the radiating elements; it is spaced an inch away from the elements. Do not solder the ends of the gamma rod until you have had an opportunity to adjust it, as described below. Cinch the solder lug on top of the standoff insulator around the center of the gamma rod, and solder it and the center conductor of the 50-ohm (nominal) coaxial feed line to the gamma rod. Solder the cable shield to the other solder lug.

Slide the insulation off the remainder of the #10 wire, and cut four 30" lengths. Four inches from each end of these lengths, bend the wire at right angles to form shallow U's 22" wide.

Slip the ends of these U's into the corresponding top and bottom $\frac{3}{16}$ " copper tubing to the dimensions shown in the drawing.

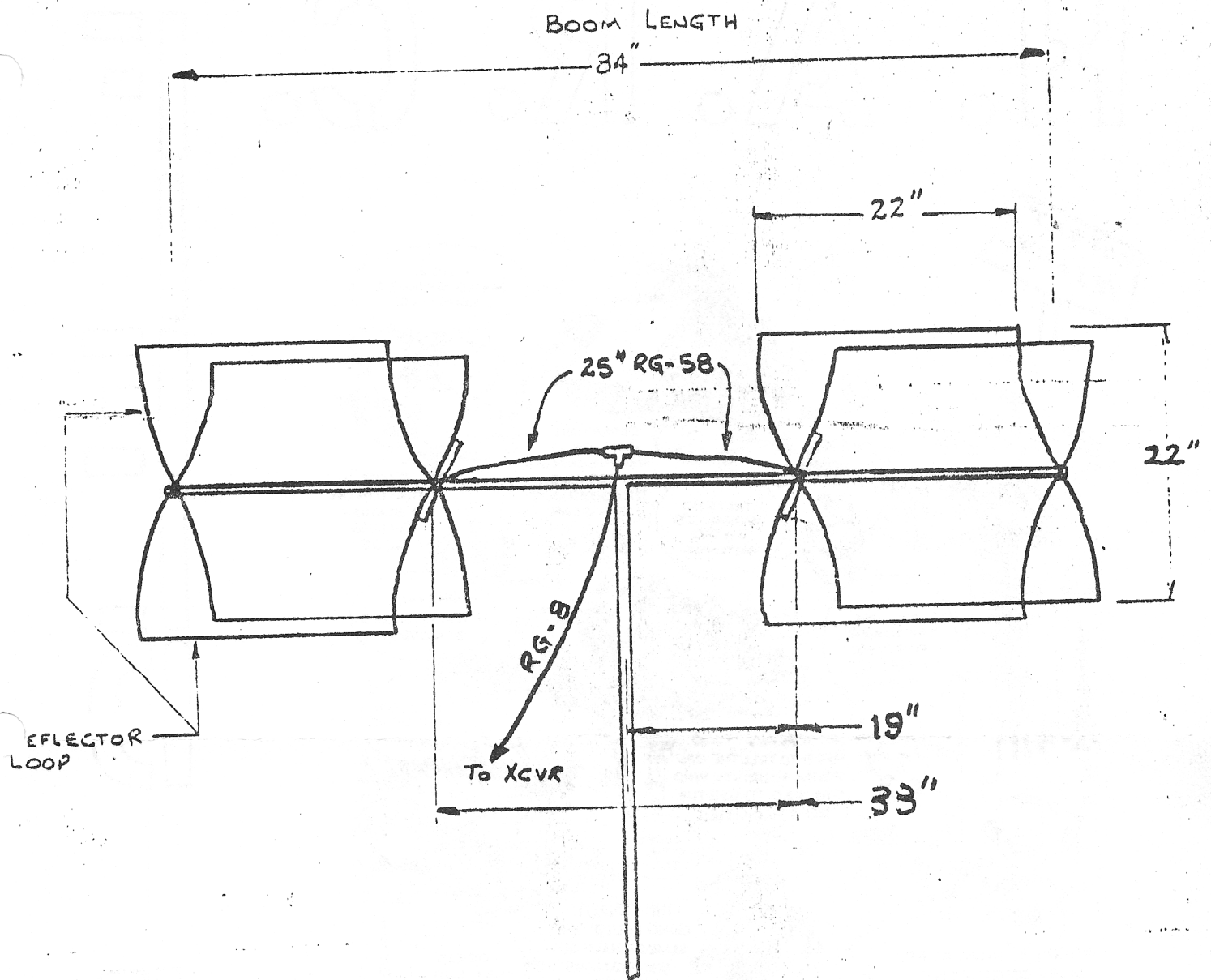
Adjustment. Place an SWR bridge in the coax line and feed a small amount of r.f. into the line. Slide the wire U's in and out to obtain the lowest possible SWR. Move the U's no more than a quarter inch at a time, and keep the ratio between the "director" and "reflector" dimensions constant.

After the SWR is reduced to a minimum by adjusting the U's, vary the length of the gamma for a possible further reduction in SWR. It should be a simple matter to reduce the SWR to well below 1.2:1. These adjustments can be made in any reasonably clear space, as long as there is a separation of five feet or more between the antenna and the nearest large object. Be sure to solder all joints and connections.

Results. The front-to-back ratio of the Swiss Quad is about 25 db; its front-to-side ratio is over 35 db. In operation, a moderately strong signal from the front of the antenna will disappear off the back and sides. Indicated gain is a minimum of a solid 6 db over a reference dipole antenna. For its size and cost, the "Swiss Quad" is an excellent performer. By the way, it radiates a horizontally polarized signal.

SINGLE BILL OF MATERIALS

- 1—7' length of $\frac{3}{16}$ " copper tubing
- 1—3' length of $\frac{1}{2}$ " hard-drawn copper tubing
- 1—12' length of #10 plastic-insulated copper wire
- 1— $\frac{1}{4}$ " cone-type standoff insulator (E. P. Johnson #133-301 or equivalent)
- 2—Solder lugs

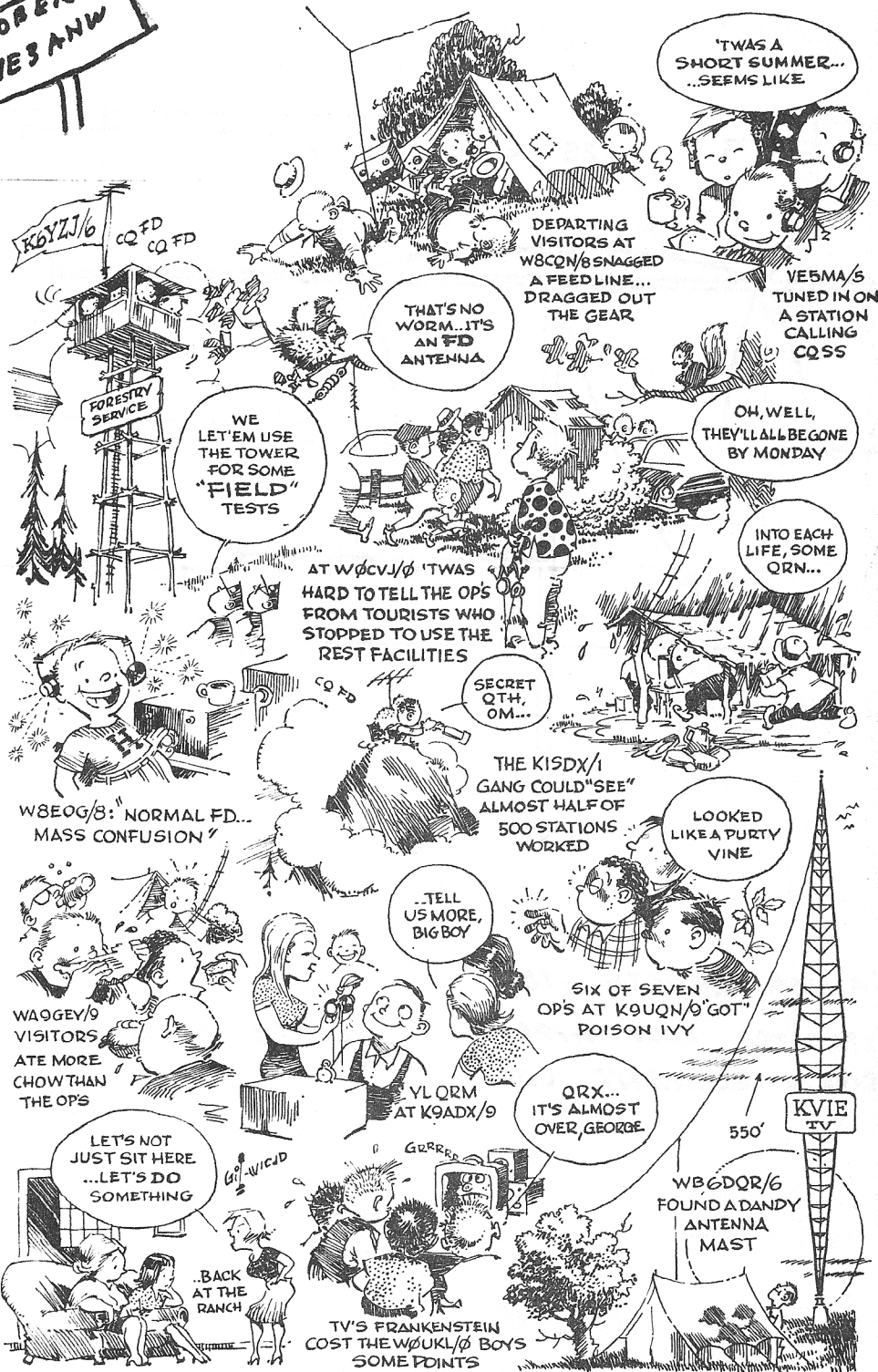


NOTE: - GAMMA LENGTH = 14" $12 + 1 + 1$
 - REFLECTOR LOOP APPROX 1" LONGER THAN DRIVEN ELEMENT LOOP

H. A. R. C.

FIELD DAY

ROBERT
VESANW



W8EOG/8: NORMAL FD...
MASS CONFUSION

WA9GEV/9
VISITORS
ATE MORE
CHOW THAN
THE OPS

LET'S NOT
JUST SIT HERE
...LET'S DO
SOMETHING

..BACK
AT THE
RANCH

TV'S FRANKENSTEIN
COST THE W0UKL/0 BOYS
SOME POINTS

..TELL
US MORE,
BIGBOY

YLQRM
AT K9ADX/9

QRX...
IT'S ALMOST
OVER, GEORGE.

WB6DQR/6
FOUND A DANDY
ANTENNA
MAST

550'

KVIE
TV

THE K1SDX/1
GANG COULD "SEE"
ALMOST HALF OF
500 STATIONS
WORKED

LOOKED
LIKE A PURTY
VINE

SIX OF SEVEN
OPS AT K9UQN/9 "GOT"
POISON IVY

AT W0CVJ/0 'T WAS
HARD TO TELL THE OPS
FROM TOURISTS WHO
STOPPED TO USE THE
REST FACILITIES

SECRET
QTH,
OM...

INTO EACH
LIFE, SOME
QRN...

OH, WELL,
THEY'LL ALL BE GONE
BY MONDAY

VESMA/5
TUNED IN ON
A STATION
CALLING
CQSS

DEPARTING
VISITORS AT
W8CQ/8 SNAGGED
A FEED LINE...
DRAGGED OUT
THE GEAR

THAT'S NO
WORM...IT'S
AN FD
ANTENNA

WE
LET 'EM USE
THE TOWER
FOR SOME
"FIELD"
TESTS

K6YJZ/6
CQ FD
CQ FD
FORESTRY
SERVICE

'T WAS A
SHORT SUMMER...
SEEMS LIKE

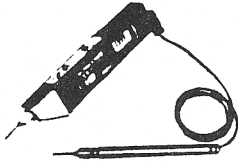
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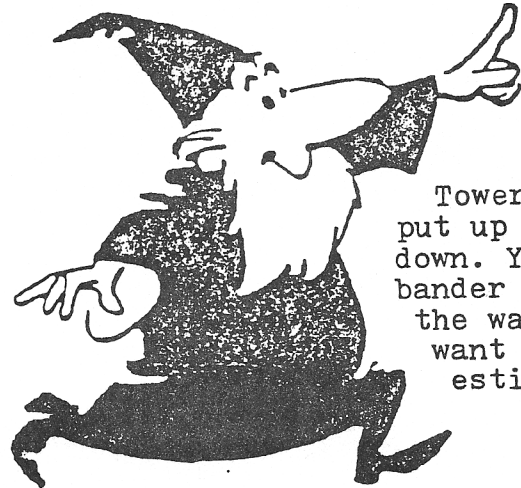
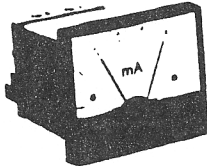
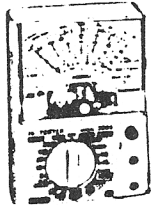
PENCIL HI TESTER



DIGITAL HI TESTER



HI TESTER

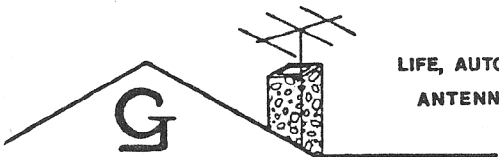


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