

PACK RATS'



PACK RATS

CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.

CHEESE BITS



MT. AIRY VHF RADIO CLUB, INC., PHILADELPHIA, PENNSYLVANIA
 50.125, 144.150, 220.125, 432.110, 1296.110 Mhz, W3CCX - Repeater 222.98/224.58 Mhz
 Affiliated Club: AMERICAN RADIO RELAY LEAGUE
 Meetings: Third Thursday of each month at 8:00 P.M.
 Southampton Free Library, 947 E. Street Road
 Southampton, Pennsylvania 19866

ARNS

VOLUME XXVI

JANUARY, 1986

NUMBER 1

THE PREZ SEZ

Happy 1986 as the Pack-Rats head into another year. The next few months will bring a "flurry" of club activity -- January VHF Sweepstakes (only a couple of weeks away); Crying Towel; Homebrew Nite; ARRL Nite, and Ladies Nite (May 31st). Hope you are planning to be a party to these activities as working together has made us number one.

Thanks to Dave, N3CX, for the fine contest program at the December meeting.

Everyone knows that club meetings are the third thursday of the month, but there is other club activity that you can participate in too. The Board of Directors meets on the second Thursday with location rotating among the members. This location is listed on page three of Cheese-Bits. These are open meetings and I encourage you to participate with the officers and board members in shaping the clubs future.

73, Mike, WB2RVX (FM29)

* * *

CONTEST NOTICES

Did you receive your Contest Packet? If not, get in touch with your team captain. 2304 Mhz operation during the contest will take place on Saturday starting at 12 midnite. N3CX, our Contest Chairman, suggests that 220 Mhz simplex FM contacts should be made on Sunday the 12th between 2 and 4 P.M.

Look for the N3AHI gang down there in Georgia - EM85 - They will be banging away January 11 and 12, 1986.

Our friend AF1T, Dale Clement from up New Hampshire way, will be on 902 Mhz besides his regular operating bands from 50 to 1296 Mhz.

-- DUES ARE DUE --

Pack Rats XHEESE BITS is a publication of THE MT. AIRY VHF RADIO CLUB, INC. Philadelphia, Pa. and is published monthly.

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We operate on an exchange basis with other publications. Anything that is printed in CHEESE BITS may be reprinted, unless otherwise stated, provided that proper credit is given.

SWAP SHOP ITEMS - NO CHARGE

DEADLINE FOR ARTICLES IS THE GENERAL MEMBERSHIP MEETING: THE THIRD THURSDAY OF THE MONTH.

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AWARDS CHAIRMAN:
W2EIF, JOSEPH KILGORE
609-783-9478


CLUB HISTORIAN:
W3CL, HARRY B. STEIN

<u>MONDAY NIGHT NETS</u>	<u>NET CONTROL</u>
7:30 PM - 50.125 MHZ	W3CL
8:00 PM - 144.150 MHZ	W2EIF
8:30 PM - 222.98/224.58 MHZ	K3GAS
8:45 PM - 220.125 MHZ	KS2T
9:00 PM - 432.110 MHZ	K3IUV/K1PXE
9:30 PM - 1296.1 MHZ	- - -

PACK RAT REPEATER 222.98/224.58 MHZ/ W3CCX
LOCATED IN CHURCHVILLE, PA.

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VICE-PRES: WA2OMY, GARY HITCHNER
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REC. SECY : W3NSI, LYN ROWLAND
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WA2JUF, DAVE MASCARO (2 Yrs)
WA3AAJ, JIM WARD (1 Yr)
WB3IND, GEORGE McMAHON (1 Yr)



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HUGH A. TURNBULL, W3ABC
Director, Atlantic Division


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CALENDAR OF COMING EVENTS
Syllabus by Lee, K3MXM

JANUARY

- 1 Happy New Year - may it be the best one ever and especially a Healthy One!!!!
- 2 QCWA, Delaware Valley group and friends - lunch at the Buck Hotel, Feasterville, Pa.
- 9 Board of Director's Meeting - QTH: W3KKN, Ernie Kenas, 2823 Old Welsh Road, Willow Grove, Pa. If lost: 659-3485. Directors and interested members always welcome.
- 11-12 ARRL January VHF Sweepstakes - or in plain words "The Contest". Make every effort to work as many club members on as many bands as capable.
- 11-12 For our Southern Readers and snowbirds - Sarasota, Florida Hamfest.
- 11 Philadelphia Micro Show - Winter Edition. George Washington Motor Lodge Conference Center, Willow Grove, Pa. Exit #27 of Pa. Turnpike.
- 11 Low Band SSB Contest de 73 Magazine.
1/11 - 40 meters 1/25 - 15 meters
1/12 - 75 meters 1/26 - 20 meters
More Information 73 Magazine or Page 96, December QST.
- 16 General Club Meeting - Southampton Free Library, 8 PM, Bring your LOGS to the meeting. Contest wrap-up time Crying Towel. The Mario Raffle, Frankie's Silent Auction, Refreshments.
- 16 For all of you could of, and should of people: in 1980 on this date GOLD was quoted at \$790.00 an oz. in London, England.
- 19 Expo 64 - for Commodore Computers Show #2, Meadowlands Hilton Hotel, Secaucua, N.J.
- 20 Martin Luther King Day.
- 25 Contest evaluation committee meeting at the QTH of W3ZD starting at 10 AM. Team Captains must have all their team members logs in at that time!!

* * *

If you find mistakes in this publication--please consider they are there for a purpose. We publish something for everyone and some people are always looking for mistakes...

Some motorists drive like they took the crash course...

It seems a little odd when the local cemetery raises the price of lots and blames it on the cost of living...

A diamond is a chunk of coal that made good under pressure...

To those of you who have friends down Florida way and want to keep in touch - Philmont Mobile Radio Club is re-establishing their SNOWBIRD Net beginning Sunday Morning, January 5th at 9 AM at 14.235 plus or minus. W3SGR will be n/c

South Jersey ARC now has their own 2 meter repeater - 145.29 Mhz.

For Your Information Department: UHF REPEATERS: All are up 5 Mhz. 442.200 N. Wales; 442.650 Burlington, N.J.; 443.590 Coopersburg; 443.700 Easton; 443.800 Roxboro; 443.900 Valley Forge; 444.200 Bensalem; 444.550 Horsham.

- DUES ARE DUE -

NEW PRODUCTS OF INTEREST TO HAM

By Lyn, W3SNI

1. AUTOMATIC SWR/POWER METERS: The Wm. M. Nye Co. well known for their antenna tuners, have just introduced a pair of automatic SWR/Power meters. These units feature dual meters and remote sensors, with automatic switching to the higher range of power readings when called for. No reset or calibration adjustments are needed for SWR readings. The SWR 005 covers the range 1.6-30 Mhz with power ratings of 300 and 3000 watts. The SWR 006 covers the 2 meter band with power ratings of 30 and 300 watts. Price \$145. (A third unit, the SWR 003 is designed for the blind or visually impaired. This unit uses a tone oscillator to indicate SWR and Power Levels in the HF range)
2. MFJ 300 WATT ANTENNA TUNER: MFJ Co. has a new tuner on the market featuring a cross needle meter that reads SWR, forward, and reflected power, without the need to adjust, calibrate, or switch. The MFJ 949C makes it possible to check SWR across a band without the constant adjustments normally required with the usual SWR meter. Front panel controls (4) adjust antenna and transmitter matching, inductance, and antenna switching. A dummy load with the same rating as the tuner (300 watts) is built-in; and a 4/1 balun is also built-in for use with balanced open wire lines. Price \$150. (#815 is available w/o the antenna tuner/switch for \$60).
3. MFJ DIGITAL SWR METER: The MFJ 818 is a very compact digital SWR/power meter that will automatically read SWR up to 9.9 on .6 inch LEDs. No adjustments are necessary. A 12 segment LED bar graph indicates PEP readings up to 200 watts output. The 818 operates from 12 VDC power and is designed for a 50 ohm system. Size is ideal for mobile operation - 5 1/2 x 4 1/4 x 1 inch. Price \$90.

* * *

VHF COMMUNICATIONS MAGAZINE

By Lyn, W3NSI

This publication from Germany covers VHF, UHF and Microwave communication. Four issues are published yearly in the spring, summer, autumn, and winter. Volume 17 - spring 1985 contains the following very well done articles: Compact BNC Attenuators; A Low Noise Metersat Converter for 1694 Mhz Wx Frequencies; A Digital Multiple Image Storage for WX Sat. Images; Color Module with Composite Output for WX Sat. Images; Power Meter for 2-200 Mhz; Impedance Transformation using a 1/4 wave line; PLL Osc. with Delay Lines; A shortwave VFO for 5-6 Mhz; A 2.3 Ghz Prescaler.

The quality of the construction is very high, and parts and kits are listed in the back of the issue for those wishing to build the items. Some of these parts are not easy to find the U.S. and are not cheap as listed in the magazine. The kit of parts inc. PC board for the Metersat converter is listed at 395 DM which is approx. 180 \$ US. The magazine write up on this converter covers 9 pages. The International edition, in English, has only one ad other than the kits available from the publisher, so nearly all of the 65 pages contain technical information. The editor and publisher, Terry Bittan, G3JVQ/DJOBQ was killed in an aircraft accident last March. The magazine will continue, hopefully, as well done as the sample copy. Cover price 7DM (About 3 \$US).

The publication is available in the USA and Canada from - UV Comms, P.O. Box 432, Lanham, Md. 20706. (Al Whiting, K3BRS is the representative).

* * *

SWAP SHOP

FOR SALE: 432 Mhz Park converter \$25;
50 Mhz Vanguard converter, new \$20; Westcom
noise blanker \$15. Tunerverter (Model 504X)
50-54 Mhz to 1500 Khz \$25.

CONTACT: W3CL - Harry Stein
Phone: 215-887-5052

FOR SALE: 2 meter "Pack Rat" transverter
\$70;

CONTACT: George Fazio, WB3IGR
Phone: 215-576-1897

WANTED: 50 Mhz transveiver (AM - SSB
or AM-FM-SSB-CW)

CONTACT: K3MPZ, Ralph L. Hairsine
1408 Wedgewood Road
Wilmington, DE 19805

WANTED: Kenwood TV506 6 mtr xverter
any condition.

CONTACT: Dave Hackford, N3CX
Phone: 215-679-7293
215-483-2030

FOR SALE: 6 mtr portable IC-502A
plus battery pack \$175. Generator
4 KW 220V-110V \$350; Aluminum tower
& rotor as is \$50.

CONTACT: Marty Hackett, WB2GEZ
Phone: 609-758-8865

FOR SALE: 2 - 220B Cushcraft antennas
new \$50 each.

CONTACT: Warren, WB2ONA
Phone: 201-257-3871

FOR SALE: Cassette tapes 3 for \$1; Empty
5 in. tape reels 6 for \$1; Yuasa No. 40
Kerosene Heater - Center of room type \$15.
432 Mhz converter, Park type \$20. Funk &
Wagnall new standard Encyclopedia 26 volumes
\$15.

CONTACT: Doc Cutler, K3GAS
Phone: 215-635-1078

FOR SALE: Icom IC505 6 mtr. portable SSB/CW
(FM board is not installed) 10 watts, digital
read-out. Absolutely mint w/Icom desk mic \$250.
Icom 27H 45 watt 2 meter FM rig mint \$275.
Cushcraft 10-4CD 4 element 10 meter beam
excellent condition \$40. Yaesu ft-757GX HF
rig, FP-757HD supply, FC-757AT automatic ant.
tuner, FTV-707 VHF/UHF transverter w/6 meter
module, MD-1 desk microphone. All mint condition
sell as package only for \$1,000.

CONTACT: Harry Schools, KA3B
Phone: 1-215-468-1866

WANTED: Drake MN2700 Ant. Tuner; Drake MN 2000
Ant. Tuner.

FOR SALE: Heathkit "Sixer Lunchbox" \$10;
Utica 650 - VFO only \$10; Gemtronics, 2325 SSB/
AM 23 ch. CB new \$75; Heath HR-10 Ham band
rece. \$70; Heath HW-16 CW xcvr for 20,40,80
meters \$75; Heath monitor scope HO-10 \$100;
Heath station console \$75; SBE-144 2 mtr xtal
control xcvr \$95; Cubic, Astro 103 xcvr incl'd
new bands and 2nd VFO, (Built in) \$550 (Mint)

CONTACT: K3UKW, Tony Musero
Phone: 215-271-8898 or on air
146.685 repeater.

* * *

COMMERCIAL AD

Loop Yagis: 902Mhz and 1296 Mhz 45 element \$70; 2304 Mhz \$62.50. Also available assembled
and tested. Power dividers, stacking frames available. Linear Amplifiers; 1296 Mhz, 1 watt
in 18 watts out \$230; 2304: 1 watt in, 10 watts out \$300. Write for more information to:
Down East Microwave, Bill Olson, W3HQT, Box 1655A RFD 1, Burnham, ME 04922 (207)948-3741.

* * *

TID BITS

Sunspot No. for November 1985 = 16.6 - Smoothed No. for May 1985 = 17.8

New phone numbers for Bill Murphy, WØRSJ, now located in Easton, Pa. 215-252-3956; work -
201-234-6771. He will need help on Jan. 9th or 10th, 1986 in erecting a tower at his new
location - get in touch, please.

Our Prez, Mike Gullo, WB2RVX and his XYL, Janet, KA2NYF, are expecting a blessed event
in April, 1986.

Best wishes to the Zumbach family (WA3AQA) on the recent marriage of two daughters --
The same for the Brandt family (K3LOM) on the marriage of their daughter.

MONTGOMERY COUNTY PENNSYLVANIA S.E.T.

Montgomery County, Pennsylvania, ARES/RACES participated in the Simulated Emergency Test on November 16th, 1985. The SET was made a part of the National Medical Disaster Service Drill under the auspices of U.S. Navy.

The scenario for the NDMS drill included 160 patients from a tornado disaster in Western Pennsylvania being flown into the Willow Grove Naval Air Station in Montgomery County, Pa. From there they were sent to six hospitals in Bucks County and six hospitals in Montgomery County after triage. Ham Radio Operators provided the communications liaison between the triage area and the hospitals, advising each hospital of incoming patients, patients condition, and the ambulance which was transporting them.

The day of the drill dawned bleak and forbidding with rain falling and temperatures in the thirties. Fog prevented helicopters from air-lifting any patients as had been included in the planning for the drill. The Montgomery County Office of Emergency Preparedness Communications Van, with W3EAG and W3HKZ operating, was parked near the triage hangar. WB3BBV and WB3BBW, in the triage area, transmitted patient information to the Montgomery County O.E.P. Van. From the van, the information was relayed to the hospitals and to the Montgomery County Emergency Operating Center where N3ACL, K3ZKO, W3DJL, and WB3AIS operated 6 meter, 2 meter, and 220 Mhz equipment. Packet Radio at the E.O.C. on 145.090 Mhz kept tabs on the operation from Philadelphia International Airport.

Sixty messages were handled regarding patient status. Twenty-six operators participated including: K3ZKO, W3DJL, N3ACL, N3BBR, K3SRO, W3WWB, WA3DSP, W3HKZ, W3VVC, W3OOJ, K3YPO, KA3NIQ, N3DZG, KA2DYG, SB3BBV, WB3BBW, W3CS, WA3TUC, W3YSB, WB3AID, K3JFP, W3EAG, K3ACR, W3CL, K3NTD, and KB3CI. (Tnx to W3EAG, Thomas E. Gibson, Director - Office of Communications)

* * *

RECEIVED FROM THE ARRL LETTER 12/23/85

Privacy Act Does Not Target Phone Patches

We first mentioned the Electronic Communications Privacy Act of 1985 in the Nov. 7 Letter. Here's more. This League Lines item is preprinted from January 1986 QST and is copyright (C) 1985 by the American Radio Relay League, Inc:

In Communications to ARRL and to their representatives in Congress, amateurs are running up verbal "hurricane warning" flags regarding the Electronic Communications Privacy Act of 1985, S. 1667 and H.R. 3378. "Small craft warnings" would be far more appropriate: The bill indeed requires some attention from the amateur community, but it poses far less threat to amateurs than some people think. More next month, but for now be assured that: (1) the bill does not propose to outlaw phone patches; (2) it would not make possession (by anyone) of any kind of equipment illegal; (3) the bill can't possibly reach the House (or the Senate) for a vote before February or later; and (4) ARRL is working closely and personally with Committee staff to smooth out rough spots.

ARRL had been asked to testify at a Dec. 5 hearing scheduled by the House Subcommittee on Courts, Civil Liberties and the Administration of Justice on the Electronic Communications Privacy Act of 1985, but that hearing will probably be rescheduled to January 29 or 30 of next year. Whenever, ARRL will be there. Why was the hearing rescheduled? It was preempted by the Chairman of the full Judiciary Committee, Peter W. Rodino, Jr. D-New Jersey. The Judiciary Committee had received a 1400-page report on doings at the Environmental Protection Agency, and on a procedural point it was insisted that the entire report be read! Wrote ARRL's Washington Area Coordinator: "Part way through the reading, after an hour or so, however, a compromise was struck, waiving the reading. . .so some useful purpose could be accomplished by the hearing. None of this is germane to our work; I mention it because I was fascinated, and also to show that the cancellation of the hearing on the Privacy Act was not part of some deep dark plot by the Cellular Telecommunications Industry Association to muzzle radio amateurs!"

DEPARTMENT OF THE NAVY

Dec. 17, 1985

Harry B. Stein, W3CL
2087 Parkdale Avenue
Glenside, Pa. 19038

Dear Sir:

I would like to express my sincere thanks to you for your participation in this year's exercise of the National Disaster Medical System (NDMS) on Saturday 16 November 1985.

By your enthusiastic support of the exercise, you gave of your free time to provide critical communications support to the area hospitals receiving simulated casualties. This was our first time utilizing HAM operators which proved to be a very vital service to our exercise.

The success of the exercise was in large part due to your communications expertise and professional dedication.

In an exercise of this magnitude, as in an actual scenario, communications play a key and absolutely essential role in it's success, and I look forward to your participation in future exercises of NDMS.

Again my sincere appreciation in significantly aiding in the success of this years NDMS exercise.

Sincerely,

L. Carey Hodges
Captain, U.S. Navy
Commanding Officer

* * *

AMATEUR RADIO TESTING HARRISBURG AREA

Test Date:
February 1, 1986
April 16, 1986

Test site: Pa. Air National Guard HQ Bldg #26, Harrisburg International Airport Complex
Talk-in: 145.470 Repeater -- 146.520 Simplex at airport.
The following is required to be presented at the time of testing: (1) Your original Amateur License. (2) Two forms of identification including photo i.d. (3) A \$4.25 check or money-order made payable to "ARRL/VEC". You may also bring a copy of your amateur license to be attached to your FCC 610 form, to enable you to retain your existing original license. FCC 610 forms are available at the test site. Pre-registration must be made at least 35 days before the test date. All Pre-Registrations must include a copy of your amateur license, a completed 610 form, and a check of money order for \$4.25 made payable to "ARRL/VEC". Send all pre-registrations to: Lee Shreffler, W3PU, 243 Westford Circle, Harrisburg, Pa. 17112
Phone Number: 657-1323. Further information and FCC 610 forms can be obtained from: John Obradovich, W3IS, 12 Hickory Place, Camp Hill, Pa. 17011.

* * *

FROM THE W5YI REPORT OF DEC. 15, 1985

MICHIGAN ADOPTS PACKET RADIO PLAN: A very detailed and well thought out frequency plan for Michigan packet radio was unanimously consented to at a statewide planning conference held during late November. Those in attendance agreed that PRISM, Packet Radio in Southern Michigan would act as the packet frequency coordination organization under the umbrella of the Michigan Area Repeater Council. MARC policy does not allow for the coordination of packet channels on 144-148 MHz and any activity in this range will have to be by "gentlemen's agreement."

(2- METER PLAN)

144.91	Experimental and QRP
144.93/.95/.97	Local Area Network
144.99	Non-digipeated Packet Simplex
145.01	Inter-LAN & Mail Forwarding
145.03/.05/.07	Local Area Network
145.09	Experimental and QRP

The objective is to avoid conflict with existing voice operations and to help develop a segment on 2- meters which ultimately will become recognized as a "packet subband."

220 & 440 MHz - Conference attendees agreed that it is important to provide room on 220-225 MHz band for both 1200 and 9600 baud packet since 2-meter emergency voice operations could desence 2-meter packet systems from the same location. Also, spectrum exists on 220 MHz for dual frequency digital repeaters that will allow higher speeds and fewer collisions and retries.

Furthermore, if the FCC grants the ARRL proposal for new Novice Class privileges, a potentially large number of new, inexperienced amateurs will be seeking to operate unsophisticated packet stations on 220. PRISM also recognized that Novice voice operation on 220-225 MHz might work to the detriment of 220 Packet activity.

PRISM would like to encourage some thought into use of the 420-450 MHz band (instead of 220 MHz) for 9600-bps linking since inexpensive, surplus equipment for 450 is available. Nineteen coordinated 50-KHz packet linking channels were selected between 430 and 431 MHz. 420-430 MHz is not available to amateurs in much of Michigan, it being above "Line A." There is "a strong likelihood that 420-430 MHz will be lost throughout the country in the near future[to land mobile interests]," PRISM said.

For a copy of (or to comment on) the Michigan Packet Radio Frequency Plan write: Jim Brooker, N1SE, Chairman of the PRISM Spectrum Planning Committee, 696 Graefield Court, Birmingham, MI 48008.

* * *

The January 1986 issue of "432 and ABOVE EME NEWS" by Allen Katz, K2UYH, Editor/Pub is available at W3CL.

Jay Miller, KS2T, advises that G4GLT will be allowed a 24 hour use of 6 meters sometime in Mid March '86

John Tate, K3KTY, up from Florida, was a visitor in the shack of W3CL during the Monday Nite Nets on December 23, 1985. He greeted all the Pack-Rats with Holiday Greetings.

Modification to Bird 43 Slugs

by D. Mascaro, WA3JUF

Bird slugs can be modified to read different power levels for full scale. For example, a 25 watt slug can be made to read 50 watts F.S. Changing the calibration resistor inside the slug is all that is needed in most cases. Adjusting the pick-up loop may also be necessary.

These slugs can also be modified for different frequency bands. Low power VHF slugs can be used to make UHF or Microwave slugs. There are many odd frequency and power level slugs floating around at Ham Fests that are perfect for conversion.

All these slugs are basically the same inside. They have a pick-up loop that samples RF which is rectified. A calibration resistor sets the F.S. reading on the 30 ua. meter movement.

The following describes using a 5C element (5 W, 100-250 MHz.) to make a 5 Watt, 2304 MHz. slug.

To open a slug: 1-Pry off the Model * plate with an awl or 2-Heat up the top of the slug on a hot plate to soften the glue or 3-Drill and tap a 2-56 hole in the cover and pull it off. Remove the screw inside the cover. This exposes R2 and D1. Next remove the two screws holding the Teflon cover on. This cover encloses the pick-up loop L1 and a load resistor R1.

Remove L1 (2 turn coil) and the plastic coil form by cutting it out with a diagonal cutter. Remove calibration resistor R2. Replace L1 with a brass strip as shown. Replace R2 with a 3.3 K ohm resistor. R2 can be "adjusted" by using a resistor of lower value and filing a groove in the carbon to raise the resistance.

The size and placement of L1 and the value of R2 was found experimentally as follows: I replaced the calibration resistor R2 with a 10K, 10 turn trimpot. Then different sizes of brass strips were tried. The slug is partially assembled each time and checked in a Bird 43 which is connected to a calibrated load and a HP power meter. The shape and size of L1 was adjusted until both the F.S. and linearity were correct. Reasonable tracking can be achieved by trial and error. Lastly, the directivity is checked with the slug in the reverse position.

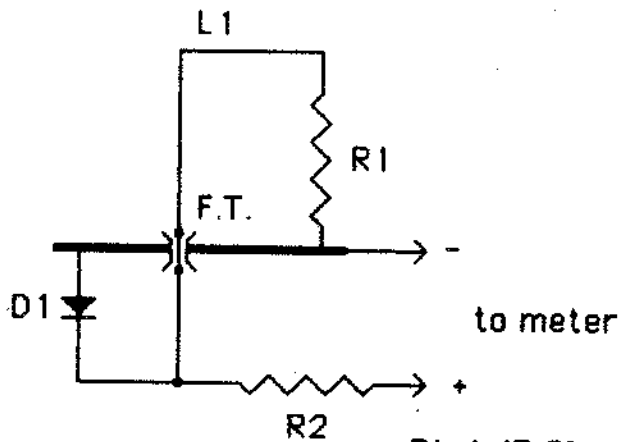
The accuracy and linearity depend on how long you spend adjusting L1 and R2. Performance is at least as good as my other slugs.

Re-assemble the slug and check it's performance again. Re-adjust R2 if calibration is off. Change the Model * plate to indicate the correct frequency band, and you're done.

Many inoperative slugs can be repaired rather easily. Dropped slugs usually have a broken L1 coil. Some have bad solder joints. Don't be afraid to open one up. It's no good if it's broken anyway.

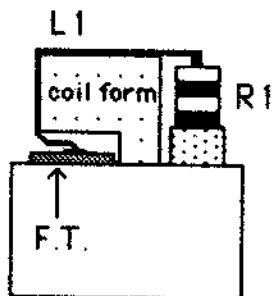
Modification to Bird 43 Slugs

Using a 5C element to make a 5 Watt, 2304 MHz. slug



L1 Pick-up coil or loop
 R1 load resistor
 R2 Calibration resistor
 F.T. Button feedthru cap.

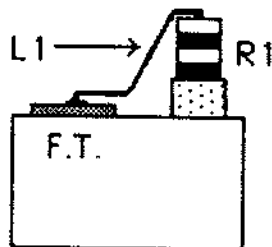
Bird 43 Slug schematic



Bird 5C slug

Remove L1 and coil form
 Remove R2 inside slug housing

Replace R2 and L1 as shown



L1 0.65" X 0.050" X 0.010"
 thick brass strip shaped as
 shown between F.T. and R1


R2 3.3 K ohm 1/2 watt
 adjusted as necessary

DOWN EAST MICROWAVE
 BOX 1655A - RFD #1
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


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