

PACK RATS'



CHEESE BITS



CLUB CALL: W3CCX

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MT. AIRY VHF RADIO CLUB, INC., PHILADELPHIA, PA. ARNS
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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

VOLUME XVIII

NOVEMBER, 1976

NUMBER 11

THE PREZ SEZ

I wish it were possible for me to personally thank each of the club members, the Boy Scouts, the members' wives and children and the many others who braved the elements to make HAMARAMA '76 the success that it was - the biggest and best joint club effort to date. The numerical results were just under 2000 in attendance with 178 tailgaters. We can all be proud of your efforts. Thanks again...

The next big event upcoming is the January VHF SS Contest. Harry Brown, W3IIT, is heading the committee and his work is moving along. Look over your own station - see what has to be done to improve it; do you need antenna work; do you have extra equipment that some other station might be able to use. Let your co-ordinator know and he can help you. An antenna team is being organized and we hope to remedy all problems.

An early notice - clear that appointment calendar and be extra sure to attend the special December Club Meeting for final preparations.. for the contest in January ..

Until then

73, Lee, K3MXM

* * *

VOTED TO MEMBERSHIP: WA1NGR/WB2RVD - Ron Allen XYL Sharon. P.O. Box 285,
Normandy Beach, New Jersey 08739. 201-793-7643

APPLIED FOR MEMBERSHIP: K3IQO, Stanley Umin - XYL Fran, K3JZN. 2500 S. 6th Street,
Phila., Pa. 19148. 215-HO 2-7584

* * *

-- PAY YOUR DUES NOW!! --

* * *

The October cover issue of SJRA publication "Harmonics" features the Pack-Rats moonbounce antenna system and a beautiful write-up by the editor, Walt, W2EA. Thanks for the extra copy OM.

The Moonbounce Dxpedition crew gave their talk to the Baltimore Radio Club and on October 27th to the SJRA. Well received in both locations.

EAST COAST 2 METER DXERS should look eastward more often, as VP9GE follows W1NU/VP9's lead inseeking U.S.-Bermuda contacts. W9JUV...de HR Report.

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

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SWAP SHOP ITEMS - no charge.

DEADLINE FOR ARTICLES IS THE GENERAL MEMBERSHIP MEETING.

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K3JJZ, Elliott Weisman (2 years)
W3HQT, William Olsen (1 year)
W3YXF, Joseph Rushton (1 year)

MONDAY NIGHT NETS:

145.2 MHZ	7:30 PM	W2EIF
50.2 MHZ	8:30 PM	W3CL
221.4/224.58 MHZ	9:00 PM	K3GAS
432.03 MHZ	9:30 PM	K3IUU
1296.3 MHZ	10:00 PM	W2EIF

NET CONTROL

FRIDAY NIGHT ATV NET:

439.25 MHZ	7:00 PM	WA3AXV
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CALENDAR OF COMING EVENTS

Syllabus by Lee, K3MXM

NOVEMBER

The 11th month of the year. The 9th month of the Old Roman Calendar from the Latin word novem meaning nine.

- 2 ELECTION DAY: Come out and vote. No matter what your feeling might be of the candidates remember you can vote for or against them but you will be saying your piece. If you don't vote you will deserve what you get.
- 6 Delaware Valley Chapter QCWA Dinner - Meeting, Buck Hotel. 7:00 P.M.
- 6-7 ARRL Sweepstakes, CW, See QST for rules and regulations. October Page 75 Start 6 November 2100 GMT. End 8 November 0300 GMT.
- 11 WIAW, Qualifying Run. See how good you are with that key when matched against the pros..
- 11 Board of Directors Meeting, QTH Lee Cohen, K3MXM, 8242 Brookside Road, Elkins Park, Pa. If lost, 635-4942. Directors and interested parties invited..
- 11 Armistice Day. World War I. "The War to End All Wars"
- 13-14 ARRL Hudson Division Convention, Playboy Club, McAfee, N.J. Flea Market, Manufacturers, Seminars, etc.
- 18 General Club Meeting, Southampton Free Library, Street Road, Southampton, Pa. Program: Computer Controlled Switching for long distance telephones. Harvey Mantz, District Manager, MCI, Inc. Refreshments, The Mario Raffle, Doc's Silent Auction. An open meeting. Ask your friends and buddies to come along. 8:00 P.M.
- 20 Converter/Preamp Workshop, WA3AXV QTH. This is a DAYTIME project. 10:00 a.m. to 4:00 p.m.
- 20-21 ARRL Sweepstakes. Phone. Start 20 November 2100 GMT. End 22 Nov. 0300 GMT
- 25 Thanksgiving Day
- 27-28 CQ WW DX Contest - CW. Write CQ Magazine for full info, log sheets, data, etc.

* * *

TID BITS

Greg, WA3UXM who joined the Marines writes from Parris Island, "This place isn't too bad. I have a great big room with 71 lovely roommates. The food is OK once you get used to it too." Greg expects to be home for the Christmas Holidays.

Susie, XYL, W2EIF off the sick list and attending flea markets once again.

Muriel, XYL K3IGX home after a short stay at the Chestnut Hill Hospital.

Congratulations to Walt, K3BPP on attaining the advanced class ticket recently.

Pack-Rat Tom Mathews now K4IJC from Florida was visiting the area. Checked in on the Monday night nets from K3MXM.

Sorry to report that Frankie, W3SA0 is in the hospital; Einstein, Northern Division Phila., Pa. as of this writing.

NEW PRODUCTS OF INTEREST TO HAMS

By Lyn, W3NSI

1. COUNTER PRESCALER: Electronic Prototype Consultants are now producing a 300 Mc prescaler with built in power supply. Input and output (10/1 = 30 Mc) connectors are BNC. Input sensitivity is rated 14 mv at 2 meters. (Model EPC 300) Price \$50. 1907 W. Campbell, Phoenix, Arizona 85015.
2. GENERAL COVERAGE FREQUENCY SYNTHESIZER: Drake is now selling the FS 4 which makes it possible to receive the complete communications range of frequencies, when connected to their line of ham band receivers. When used with the R4 series of receivers, the unit will cover 1.5 mc to 30 mc. With the SPR 4 receiver, it goes down to 150 khz. The megahertz range is set on the FS 4, while kilohertz tuning is handled by the regular receiver. For example: if you wished to receive on 18.458 mhz, the FS 4 dial would be set at 18.0 mhz and the receiver dial would be set to 458 khz. Construction is solid state. Price \$250. 540 Richard St. Miamisburg, Ohio 45342
3. SYNTHESIZER - 2 METERS: Spectrum Communications is featuring a very low power drain 2 M (145-148 Mc) synthesizer. Current drain is only about 1/10th that of most units, being about 45 ma. Coverage is in 5 khz steps. Unit is very compact and is designed to match the company T/R unit, but can be used as well on the Drake TR 22 etc. The SC1800M has a programmable memory which allows a channel to be set up and held, to be used later by just flipping a switch. Price \$215. 3238 Stump Hall Road, Collegeville, Pa. 19426.

* * *

VHF/UHF REPORT

By Jo, W2EIF

The VHF/UHF bands have not exhibited any activity of note for the past month. Six meters particularly seems dead most of the time with sporadic activity showing up on 2 meters and above. The drop off seems to have started shortly after the September QSO Party.

A lot of the people who got on SSB and CW at the low end and at 145 Mhz apparently have gone back to FM as not too many are heard anymore.

We can be thankful that the past summer produced some very good tropo and E skip conditions but very little aurora activity.

Reports from Ed Tilton and other sources indicate that the old sun spot cycle has at long last reached bottom and signs of the new cycle are in evidence. It is hoped that as the cycle increases toward maximum, more aurora activity will occur.

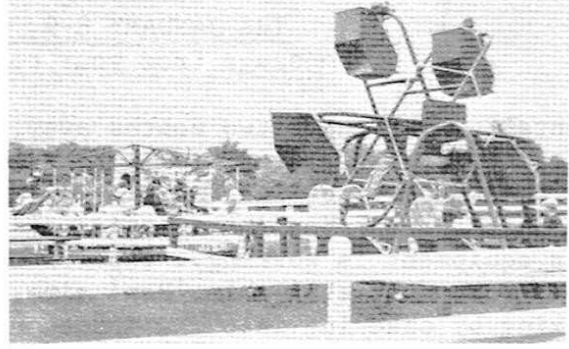
Bill, W3HQT reports that the January Contest message format has been changed. Don't have any official information yet but hope to by next month. Meanwhile, if you want active VHF/UHF bands get your rigs on the air and make them active. YOU are the reason for low activity!!

* * *

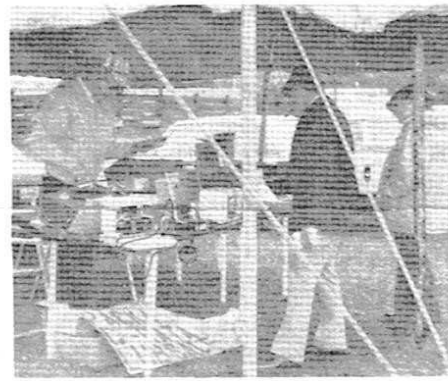
OFFICIAL BULLETIN NR 614 FROM ARRL HEADQUARTERS NEWINGTON CT OCTOBER 19 1976 TO ALL RADIO AMATEURS BT: In a Public Notice dated Oct. 18 FCC announced that beginning Nov. 26, 1976 amateurs in the U.S. need no longer give advance written notice to the FCC of portable operation. In addition, effective that date U.S. amateurs operating their stations at portable or mobile locations need not identify as such. Aliens operating within the U.S. under reciprocal privileges are also freed from notifying the FCC of forthcoming portable operation, but are still bound by the identification requirements of Part 97.313 of the FCC rules. Although the portable signing requirement will be dropped, FCC indicates that for various reasons an amateur may continue to sign portable.

AR. . OFFICIAL BULLETIN NR 615 FROM ARRL HEADQUARTERS NEWINGTON CT OCT 21 1976 TO ALL RADIO AMATEURS BT: In a public notice released Oct 21, FCC announced that effective Nov. 2, 1976, 1X2 call signs with N prefixes would be made available to extra class licensees who qualify for 1x2 calls. This action, coupled with the availability of X suffixes, opens up 728 additional two letter call signs in each call area. FCC indicates that applications submitted now will be held for action on November 2. AR

RAIN
RAIN
GO
AWAY



COME
AGAIN
SOME
OTHER
DAY



BUCKS County DRIVE IN

HAMARAMA
HERE
TODAY
'76



Photos by Ron K3ZKO

THE JANUARY 8-9, 1977 VHF SS

A message from your contest chairman, W3IIT

January contest.. why thats two months away.. theres' plenty of time and anyway I will use the same equipment as last year. This is the response that many of us give (experienced or not) until we think about the real world. The weather is getting nasty and not too many good week-ends are left for antenna installation and repair.. NOW is the time to do this. Are you sure that your equipment is working.. repairs can take a long time and the holidays coming up will really eat into your available 'Ham' time. So get things working and determine that they are still working by checking into the nests on Monday evenings. Having trouble and can't get it working.. call on your coordinator and we'll get you some expert help.. the clubs' full of experts but has very few mind readers. Going to use the same rigs as last year... Fine, but would'nt you do better with a new preamp, another beam stacked with your present one, more power and another band. Theres' still time for all of these if you start now. These improvements will not only help your score but they'll make operating more enjoyable the rest of the year. Is'nt this one good reason to make the changes even if there were no contest.

Now for some other info.. the contest is during the second week-end in January- the 8th and 9th- MARK YOUR CALANDER. Alert your family and friends. By now your coordinator should have visited you and gotten a status report..we'll get you help and would appreciate any help you can provide to any other member. The contest rules (as of this writing) are basically the same as last years' except the Power PRecidence will be dropped and the Check will now be a signal report.

Don't forget the converter/preamp workshop on Saturday 20 November from 10AM to 4PM at the QTH of WA3AXV. This should be an excellent time to verify that they are doing everything that they should.

Two months is a short time.. get ready and get on the air before, during, and after the contest. Good luck es 73.. Harry Brown

Editors Note: Nifty PACK-RAT CERTIFICATES are available from the awards chairman W2EIF for members and nonmembers alike. Work 50 Pack-Rats during the January VHF SS and send your list to Joe. His address is on page 2 .

THIS IS BERMUDA- "PARADISE ISLE"

by Jim Perkins, W3SMK

Detailed in October, 1976 Cheese-Bits were the first USA-Bermuda two meter contacts made on September 14, 1976.

Xyl, Sallie, and I landed on the Island that very afternoon and had no idea of Vic's station site operating W1NU/VP9. While in a parking lot a few days later, I noticed the call letters VP9IJ and VP9AD on a car window. Following a short wait, a pretty gal entered the car and confirmed she was Judi, VP9IJ and that her husband was Allan, VP9AD. Judi told me Vic was operating portable from the QTH of Cy Lindley, VP9L and gave me the address.

Through the courtesy(?) of the Bermuda Telephone Company, Vic gave me complete details of his operation and invited me to visit him. Unfortunately I was unable to do so. Had an eyeball with Ken, VP9BO (Bermuda Onion!). He told me Bermudas' approximate population of 55,000 includes about 30 amateurs.

A two meter repeater is operational on 146.34/94 MHZ. The government provides individually imprinted Island picture QSL cards at no cost and commercial radio gear is available to licensed amateurs duty free(duty on some electrical appliances is 30%!).

Part of an original license requirement includes log certification of 300 two-way CW contacts. VP9 low band DXers prefer QSOs with other than Ws and Ks due to "high power intense QRM and poor operating habits".

Not withstanding the rainy weather, HAMARAMA '76 drew a crowd over 2000 with 178 tailgaters. Good reports from both sellers and buyers. Jon Jarvis of Eatontown, N.J. won the Bird Watt-meter; Stan Smith, K3IPM the Hal Keyer.


A NEW MEMBERSHIP DIRECTORY IS IN PREPARATION. NEED CHANGES IN LICENSE RENEWAL DATES AND TELEPHONE NUMBERS. CONTACT THE EDITOR PLEASE.

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Contact: Sid, W3GEW

Phone: 215-332-8655 before 2 PM.

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2 mtr J slot 8 over 8 - good cond. \$20
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xtal for 432.02 MHZ- NBFM and CW. \$45/ofr

Contact: Bruce Losá, WA3YUE
3747 Warfield Dr.
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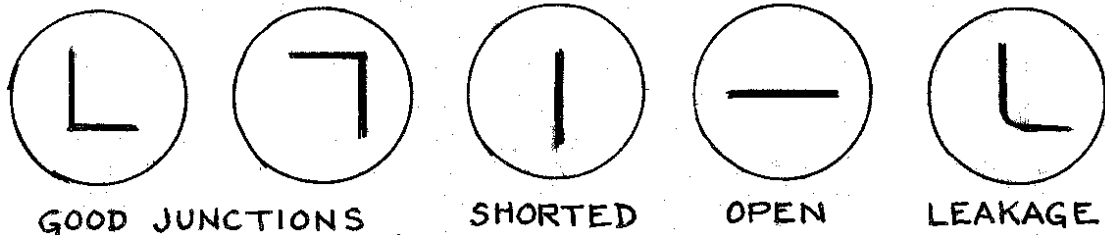
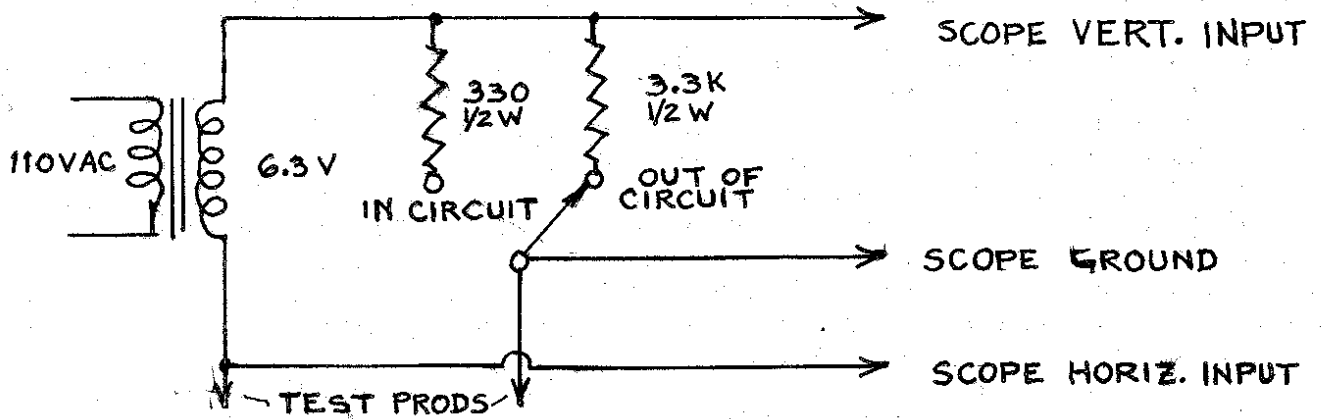
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CALIBRATE: No load across test leads, adjust scope horizontal amplification to scan 2".
With test leads shorted, adjust vertical amplification to scan 2".

In use, capacitance and resistance may mask the response, however a good transistor will show a sharp junction somewhere in the wave shape.

Polarity of the test leads are unimportant.

Most breakdowns are from emitter to collector. Many emitter/collector patterns appear as shown below:



junctions are seen.

Although masked by resistance and capacitance, sharp

JOTTINGS BY LEE, K3MXM

People are funny. They spend money they don't have to buy things they don't need, to impress people they don't like.

We heard one bachelor's son on the air one evening who was a prime example of why we wish birth control not be made retroactive.

"The things that will destroy us are: politics without principles; pleasure without conscience; wealth without work; knowledge without character; business without morality; science without humanity; and worship without sacrifice." (Anonymous)

The 10,000 MHZ DX record was broken by two UK Amateurs when they worked a distance of 323 miles (521 km). de HR Report

U.S. Amateur population reached 279,250 at August's end, up from 256,875 a year ago with August alone counting for an increase of 4,486 in the operator count. Novices now total 31,970 with 3,249 added last month alone. The big boom in training programs is really starting to pay off. de ARRL Directors Letter.

REPORT ON THE CENTRAL STATES VHF CONFERENCE

BY Joe Reisert W1JAA

The 9th Central States VHF Conference was held in Houston, Texas on August 20-22, 1976. Over 140 paid registrants representing all ten USA call areas plus several XE's and VE's attended.

Jan King, W3GEY, described the latest OSCAR/AMSAT status after just returning from an OSCAR meeting in Germany. Recent thinking is to launch OSCAR 8 in late 1977 similar to the present OSCAR 6. Then OSCAR 6 would be retired while OSCAR 7 would be left in the B mode. His talk was followed by a three hour guided tour and lecture at the NASA Johnson Space Center.

144 and 432 MHz noise figure measurements followed the Friday evening CSVHF Society business meeting. After several finagel factors were added and all low power 2 meter and 70 Cm Transceivers (operating in the parking lot) were turned off, the full truth was revealed. The lowest noise figure on 2 meters was 0.75 dB by WAØRDX who used a 2N5397 T1 Jfet in a huge box using strip-line techniques. A miniture version of the same yielded 1.3 dB noise figure for WBØBHC. A J-310 by W1JAA yielded 1.4 dB.

At 70 Cm, WB5LUA's FJ203 at 1.5 dB noise figure narrowly beat one of W1JAA's FM4575 at 1.55 dB. Both used the same circuit (Ham Radio, March 1975, p.81). Prior tests by W4ZXI and W1JAA had confirmed that the Fujitsu FJ203 apparently will replace the now defunct FMT4575 using the same circuit above.

Saturday's program started with a talk on radio astronomy by WA3LND similar to his talk at the recent Eastern VHF/UHF conference. He again asked for standards to count non-aural communications contacts. K6JYO described recent WA6LET EME tests augmented by a video tape from K6OJM. W4LTU gave an excellent talk on meteor scatter propagation and referred to his 1974 article in QST for the most accurate meteor shower table.

Saturday afternoon W1JAA described his approach to solid-state transmitter design and described his most recent model, a 220 MHz model (copies of updated circuits with new component values are available from W1JAA for an SASE). W2BOC described E scatter propagation and gave data on the June 26-28, 1976 six and two meter Es opening. He's soliciting copies of anyone's log for those dates to augment his data base. A panel discussion on six meter propagation followed his talk.

The evening banquet was well attended. W4KFC was the guest speaker and updated everyone on ARRL's activities, WRAC, and the need for a VHF Advisory Committee (many times proposed by W1JAA to ARRL etc. but never answered by them!) (Editor's note: W1GXT has also proposed this to ARRL with no response). He used September QST with K2UYH on the cover and containing three VHF articles as an example of ARRL's regard for VHF. KØMQS received many awards and a standing ovation for the completion of the first 144 MHz WAS just 4 days prior with K6YNB/KL7 in Alaska. This year's John Chambers (W6NLZ) Award was presented to Joe Reisert, W1JAA for his contributions to VHF/UHF circuit designs as well as articles on antennas and EME. WB5LUA did an excellent job of procuring prizes and no one went home empty-handed.

Sunday AM continued with talks on OSCAR telemetry data reduction by WØLER (he has generated a stack of graphs and charts over two feet high according to W3GEY). W6KJD talked on VHF/UHF circuit hints and kinks along with design equations. W5SXD talked on digital techniques for VHFers augmented by his mini-computer which automatically tracks OSCAR both in AZ and EL.

As usual, the real action took place in gatherings that lasted until the wee hours and most attendees were really yawning by Sunday AM. Next year's conference will be held about the same dates in Kansas City, Missouri under the direction of KØTLM and WØYZS. One last note, future CSVHF nets will be shifted to 8:30 PM (local time in the Central Time Zone) Sundays on 3815 KHZ.... From Northeast VHF News.

Editors note: The Pack-Rats congratulate Joe Reisert, W1JAA on receiving the Chambers Award.

Mr. FM, Ed Kushner, W3HKZ gave an FB update presentation of the WR3ABE six meter repeater system at the October meeting of the club. The attendance was well served by the following visitors:

WA1NGR, Ron, Normandy Beach, N.J.; K4JYP, Doc, Lansdale, Pa.; K3PTQ, Doc, St. Davids, Pa.; Dennis, St. Davids, Pa.; WA3NAY, George, Phila., Pa.; WB3BJL, Jan, Center Valley, Pa.; W3GLR, Don, Center Valley, Pa.; W3NWJ, Ed, Norristown, Pa.; WA3ZXY, Bob, Norristown, Pa.; WA3YQZ, Herb, Willow Grove, Pa.; K3IQO, Stan, Phila., Pa.; and Harmonic de K3HIN.

RTTY ANTHOLOGY (PART 7)
by Ralph Alexander, WA3FOF
THE MODEL 15 PAGE PRINTER

The Model 15 Page Printer is one of the work horses of amateur RTTY. These machines were declared obsolete by the Teletype Corporation some years ago but may still be found in commercial service today. The machine was designed for continuous service predicated on a regular maintenance schedule of weekly cleaning, oiling and visual inspection for worn or broken parts. The amateur usually acquires a machine pulled from commercial or military service still good enough for intermittent service. With this light duty and a little care the printer will indeed serve for a very long time.

The Model 15 is built with different modules which go together to form the complete printer. The base has two very important functions. It must be strong enough to provide a secure mounting for all the components while the machine is in operation. Early bases were made of cast iron and later to save weight, were of aluminum. Secondly, the base contains all the electrical and interconnections that are necessary to operate the machine. The Model 15 base is designed so that it will also work as a Model 19 and the Model 19 electrical connections have been built into the base.

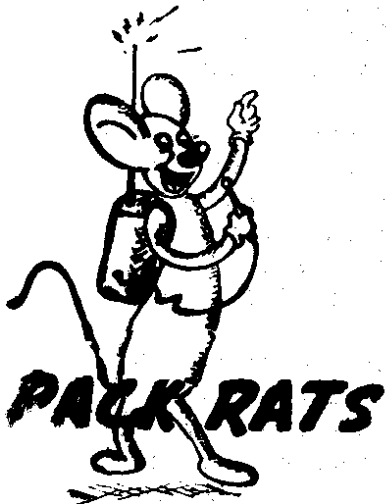
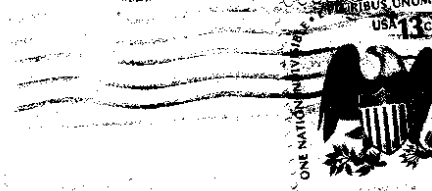
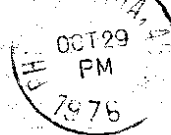
There are three sets of terminal blocks with six terminals each located on the right side of the machine. These three blocks are numbered 21, 31, and 41. These block label numbers are also at the terminal with that connection number for the machine. The 115V. connections for the AC or DC motor are on terminals 21 and 23. These terminals also provide power for a 115 V. receptacle on the right hand side of the machine. The MAIN LOOP connections for the keyboard are on terminals 32 and 34. The MAIN LOOP connections for access to the machine selector magnets are on terminals 45 and 46. The connections for the polar relay in the MAIN LOOP are on terminals 41 and 42. However, with a polar relay a bias supply is needed. This also applies to the Model 19 perforator punch which requires a 1 Amp. 110 VDC supply to work properly. The LOCAL LOOP connections for the Model 15 and the Model 19 with the punch mechanism are on terminals 24 and 25. These terminals also supply, if a polar relay is used, both the 30 MA bias current for the relay and the 60 MA current for the selector magnets.

The base is designed so that when a part of the machine in the loop circuit is removed for inspection of such items as the polar relay, the typing unit, or the keyboard, the continuity of the loop is not broken. This is accomplished by a system of switches which are in parallel across the contacts between the base and each part. The switches are normally open but they close when the contacts are open as a part is removed thus keeping the loop circuit of the machine unbroken. Please keep this in mind if you are going to use an ohmmeter for circuit tracing. The motor on the Model 15 is located on a separate mounting plate. This allows adjusting the plate and the motor unit so the gear on the motor can be raised or lowered for the proper mesh between the pinion and the driven fiber gear on the main shaft.

On the front left side of the base there is a combination of two switches which are labeled "SEND- REC- BREAK". In the SEND position of the switches the keyboard is in normal operation. In the receive (REC) position the local keyboard is removed from the loop by the shorting of the keyboard output. In the BREAK position, accomplished by pressing and holding both switches down, the loop is broken allowing all the machines on the loop to run open. On some typing units when two consecutive "blank keys" are sent, there is a mechanism that removes all the keyboards from the loop. To return to normal operation, each keyboard must be reconnected to the loop by pushing the switch back up to the SEND position. The BREAK position is used to change the MARK signal to a constant SPACE signal for testing RTTY operation.

A full schematic diagram of the Model 15 can be found on page 33 of "The New RTTY Handbook" by Byron H. Kretzman, W2JTP. "RTTY A to Z" and the aforementioned publication are fine for someone getting started in amateur RTTY. These books also contain information on the electronics in terminal units, AFSK and FSK generators. The Teletype Manuals most useful are the ones dealing with the adjustments for the machines. The military manuals are also very good as they cover the foregoing information as well as other background material. (Part 8 will follow)

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