

PACK RATS'



PACK RATS

CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.

CHEESE BITS



MT. AIRY VHF RADIO CLUB, INC. PHILADELPHIA, PA. ARNS
50.2, 145.2, 221.4, 432.03, 1296.03, Repeater - WR3ACD-222.98/224.58
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 XIX

JANUARY 1977

NUMBER 1

THE PREZ SEZ

A New Year - New Planning - and New Ideas.....

We have been fortunate to obtain the Chairmanship Services of John Tate, K3KTY for "Ladies Nite" (April 30, 1977), Bill Olsen, W3HQT for the June QSO Party, Ric Jansen, WA3UDS for the August Picnic, and Ron Whitsel, WA3AXV for HAMARAMA in October. (A VHF conference in conjunction with Hamarama is in the planning stage).

The club in an exofficio capacity will be sponsoring an ARRL designed Amateur Novice Course with classes to be conducted by Ric Jansen, WA3UDS from his home in Churchville, Pa. starting in early January. Presently there are openings for 10 to 15 individuals - any age - to enroll in the course. There will be no charge except a nominal fee for supplies. The course will continue for about three months. Upon completion we ask for volunteers to assist these new novices in upgrading to a higher class of license. We ask you to help by sharing your knowledge, your shacks, and Junk boxes to possibly qualifying them as future Pack-Rats. Contact Ric, WA3UDS, Harry, W3GL, or myself so we can get this project rolling.

Our club is unique in that we specialize our operations in the VHF/UHF spectrum with much emphasis being placed on homebrewing, experimentation and development of equipment. We always welcome other amateurs with these inclinations.

Best of luck in the NEW YEAR and especially in the upcoming VHF SS Contest January 8-9.

73, Lee

* * *

ANNOUNCEMENT

Beginning the week of January 17, 1977 I will be conducting Novice Code and Theory Classes at my home 143 Fairhill Drive, Churchville, Pa. (next door to W3FQD). Please have prospective Novices contact me before December 31 at 215-355-1980. The course will be given one night per week for three hours and last ten weeks. Young or old, OM's, YL's, and XYL's welcome.

Ric, WA3UDS

* * *

Our Condolences to the Dick Boyle family (K3IGX) on the recent passing of their mother.

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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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.

EDITOR:

W3CL, Harry B. Stein
2087 Parkdale Avenue
Glenside, Pa. 19038
215- TU7- 5052

PUBLISHER/SUBSCRIPTION MANAGER:

K3GAS, Doc Cutler
7815 New Second Street
Elkins Park, Pa. 19117
215- ME5- 1078

PRINTER:

K3IGX, Richard Boyle
7915 Bayard Street
Philadelphia, Pa. 19150
215- 927- 6471

TYPIST:

WA3TEM, Marsha Lissauer

TRUSTEE OF CLUB CALLS: W3CCX - WR3ACD

W3SAO, Francis Brick
821 W. Lindley Avenue
Philadelphia, Pa. 19141
215- DA4- 7524

AWARDS CHAIRMAN:

W2EIF, Joseph Kilgore
#5 Sunnybrook Court
Stratford, N.J. 08084
609- 783- 9478

CLUB HISTORIAN:

W3SAO, Francis Brick

OFFICERS: 1976 - 1977

PRESIDENT: K3MXM, Lee A. Cohen
VICE-PRES: W3HMU, Tony Souza
COR. SECY: WA3NGK, Harry Brown
REC. SECY: WA3NFV, Danny Mitten
TREASURER: K3GAS, Doc Cutler

DIRECTORS:

WA3AXV, Ron Whitsel (Ex-Officio)
K3IGX, Richard Boyle (2 years)
K3JJZ, Elliott Weisman (2 years)
W3HQT, William Olsen (1 year)
W3YXF, Joseph Rushton (1 year)

MONDAY NIGHT NETS:

NET CONTROL

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

FRIDAY NIGHT ATV NET:

NET CONTROL

439.25 MHZ	7:00 PM	WA3AXV
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CALENDAR OF COMING EVENTS

Syllabus by Lee, K3MXM

JANUARY

The first month in the year named for the Roman God Janus- the God of the portals, and of beginning and endings. Usually depicted as having two faces looking in opposite directions. So.... since we do not know what is ahead how about a puzzle to start the year..

Smith had a watch worth \$25 which he pawned for \$15. He sold the pawn ticket to Jones for \$15. Thus, Smith got \$30 for a \$25 watch; the pawn broker had a \$25 watch for \$15 and Jones paid only \$15 for a ticket for a \$25 watch. Who lost money? de FA

1 HAPPY NEW YEAR

Straight-Key Contest- full 24 hour period. A good chance to brush up on that strange stuff called CW.

6-9 SAROC - Las Vegas, Nevada

8-9 VHF SS - "THE CONTEST" - All VHF bands - 6-2-220-432-1296, All modes - CW,AM,FM,SSB. Starts 2 PM Saturday January 8th till 12 MIDNITE Sunday January 9th. Any questions or problems please contact your coordinator before the 8th.

13 Board of Directors meeting. QTH Dan Mitten, WA3NFV, 108 Fenway Circle, Norristown, Pa. If lost call 215-277-0972. Directors and interested parties invited.

20 General Club Meeting. Open to all. Crying Towel Session, or Murphy's Law with Graphics. Southampton Free Library. Meeting starts at 8 PM. Frankies Silent Auction, Marios Raffle, Refreshments. Should be a fun filled meeting Make your plans now to attend.

Inauguration Day - Our best wishes and hopes go to the new president, Jimmy Carter.

22 VHF SS committee and coordinators wrap-up meeting at the QTH W3ZD. Garage door opens at 10 AM. All logs must be in by that date. Get them to your coordinator, any committee member or to W3ZD that day.

22-23 For our Florida readers and snowbird visitors. ARRL Convention and Hamboree, Miami..

29-30 Simulated Emergency Test - to better prepare yourself and your station for any emergency. For further information and procedures please contact Paul D. Mercado, W3FBF, 55 Lindberg Ave., Broomall, Pa. 19008. Phone 215-EL6- 0564

* * *

TID BITS

Thanks to Dick, W3FQD and Ernie, W3KKN, we have our new membership directory out in time.

Lee, K3MXM, our prez, has appointed the following to a club VHF/UHF Advisory Committee: WA3AXV, W3CL, W3HMU, W3IIT, W3KKN and W3ZD.

Congrats to Bill W3HQT now an Extra and Dave WA3JUF who made the Advanced class.

Congrats to new grandparents John and Barbara Tate(K3KTY). Best wishes to their son Jim and his wife Debbie.. A baby girl Dawn Marie--11/23/76.

Received a letter from one of our exchange clubs, Midland Amateur Radio Society, Birmingham, England with news of the passing of Bob Palmer, G5PP (condolences printed last month in Cheese-Bits). We wish all their members the best for the New Year. Thanks for the kind words Alf, G3ZKQ.

Code and Theory Classes under way at PennARC. Instructor- Ralph Alexander, WA3FOF. Contact for additional information on 215-277-4185. - 3 -

NEW PRODUCTS OF INTEREST TO HAMS

By Lyn, W3NSI

1. THREE BAND SCANNER: Tennelec is now selling their Memoryscan MCP-1 deluxe receiver. This unit needs no crystals and can have any frequency in the range covered dialed up on a touch tone type keyboard. As the frequency is punched up, the digits are indicated on the six digit LED display on the front panel. In addition it is possible to set up a search pattern by dialing in a start frequency, pushing the enter search key, at which time the receiver will scan up the band in 5 KHz steps to a maximum of 256 steps. If no signals are picked up in this range, the receiver will return to the starting point and start the search again. If a signal is heard and you wish to enter it into the memory bank, you can do so by just pressing another key. This is really a flexible unit. Trevoze Electronics loaned the writer a demonstrator for a test. It does everything it is advertised to do. Frequency ranges:- 31.180--51.655 MHz, 151.180--171.655 MHz. 451.180--471.655 MHz. Price \$400. Literature available from Trevoze Electronics.

2. COMMUNICATIONS RECEIVER: The Yaesu FRG 7 was given a short write up in the "New Products" four or five months ago and now Trevoze was kind enough to loan a sample FRG 7 for a more detailed check. The first impression one gets is that this receiver appears to be more expensive than the tag indicates. A preselector tune knob operates a drum showing where you peaked in a direct readout. Calibration on this dial is very accurate, and different segment of the drum is lit for each of the four ranges. An attenuator switch is located on the front panel, very handy when strong local signals are present or when using VHF converters. The 1000 KHz range is covered in 11-1/2 turns of the main knob. A megacycle drum type dial is used to set the receiver on any of 30 bands. A front panel LED indicates when you have set the MHz control properly. A very smooth operating unit. (I was so pleased with the performance of the loaner that I purchased it)! Price \$299. Go take a look and pick up literature at Trevoze.

* * *

VHF/UHF REPORT

By Jo, W2EIF

Six Meters continues to show very little activity. There should be some short openings on this band in December and early January as a result of the peak of the Es season in the Southern Hemisphere. The Sun is at its maximum elevation on December 21 in the Southern Hemisphere. This corresponds to our June 21 in the Northern Hemisphere and therefore the maximum peak of the Eskip season south of the equator. We get a small peak of Es in the north as a result. There is nothing unusual about this-- it occurs every year on schedule.

Two Meters keeps rolling along, although activity (AM-SSB-CW) cannot be described as heavy. Quite a few have apparently received their Christmas presents early judging by the number of TS-700A's and similar gear which many are trying out at 144.1 and 145.025. Many are operating barefoot and with vertical antennas which limits their range in an area where power and horizontal polarization is predominant.

Don't forget the contest January 8-9. It may be that this year will find more contacts available on 2 meters than 6 due to the flood of commercial 2 meter SSB gear on the band. Don't forget the FM Simplex frequencies on 145.52 MHz and 223.5 MHz. Quite a few members in the club and a number of outsiders still have 221.4 AM equipment ready to go. Good luck.

* * *

SIX-METER AWARD ANNOUNCED

A new six-meter award will be announced in the January issue of QST. Effective January 1, 1977 we will have the Six Meter 600 Club Award, resulting from an initial suggestion by Director Albright and subsequent study by the Headquarters Awards Committee. Basically, one works for a total of at least 600 points on six, with each new contact scoring 2 points, each new section 6 points, each new country 25. For the purpose of this award, VE8, Labrador, Newfoundland, New Brunswick, Nova Scotia, and Prince Edward Island count as separate "sections." Countries for this award include Canada, the United States, Hawaii, Alaska, the Canal Zone, the U.S. Virgin Islands, Guantanamo Bay, and Puerto Rico--as well as other areas defined in the ARRL Countries List. So, work Alaska (and Hawaii and KV4) and you've earned both section points and country points. More information in the January issue.... de ARRL Director, Letter No. 1654

LAST MINUTE NOTES-JANUARY CONTEST

With the cold weather upon us and the short amount of time left there's not much time for major projects before the contest but there are a few things that can be done to make the contest go smoother and to help your score. Of course your gear is checked out and operating but is it set up for easy operation? Is your transmitter at one end of the table and the receiver at the other and do you have to stretch to see or control the rotators? If so, it's time for a little last minute arranging so that operating will be easier since 34 hours is a long time to be stretching back and forth! Hopefully you're all set up for push-to-talk or you use mike switches- if not you should make the change to help reduce the fatigue. Have you thought of installing a foot switch? Have you got a flat area for your check-off sheets and log sheets- a card table may be helpful to give you a little more space than you normally require. Got your log sheets prenumbered? Be optimistic and number them way past the last number of last years.

Operating 220 and 432? Special operating times have been set aside for these bands so you can make the most contacts in a minimum amount of time. The times are:

220 - 9PM Saturday, 9AM Sunday, 9PM Sunday
432 - 10PM Saturday, 10AM Sunday, 10PM Sunday

The common operating frequencies for all bands and modes of operation are:

<u>BAND</u>	<u>MODE</u>	<u>FREQUENCIES</u>
6M	CW	50.100 - 50.110
6M	SSB	50.100 - 50.150+
6M	AM	50.2 - 50.7
6M	FM	52.525
2M	CW	144.050 - 144.150 - 145.001+
2M	SSB	144.100 - 144.150 - 145.0 - 145.100
2M	AM	145.000 - 145.5
2M	FM	146.52 + 146.58
220	CW & SSB	220.0 - 220.1
220	AM	220.0 - 220.1 + <u>221.4</u>
220	FM	223.5
432	All	432.0 - 432.1
432	FM	449.0

Don't forget to get your score (number of contacts and number of sections) to W3CL on Monday January 10 on the nets - any mode is legal for this including Ma Bell. Also get your log sheets to your co-ordinator early so we can review it at the LOG Checking session at W3ZD's on Saturday, January 22. Last minute phone calls to find missing logs can sometimes cause us to get a little grumpy.

WE ARE DEDICATING THIS CONTEST TO THE MEMORY OF FRANKIE, W3SAO. HE IS WATCHING US

73, Good Luck, es QRZ
Harry, W3IIT
January Contest Chairman

* * *

ADDITIONAL SWAP SHOP ITEMS

FOR SALE: Standard 146A HT, 2M FM. Includes whip and rubber duckie, NiCads, Charger, Case and carrying strap. 52/52, 94/94, 34/94, 16/76, 90/30. \$275 (10% discount to Pack-Rats).

5/8 wave 220 MHz trunk mnt. mobile ant. with coax and PL-259 - \$17.76

30-40 MHz FM Link Xcvr. Convertible to 10 mtr. FM - \$19.76

WANTED: 1.8 to 30 MHz Amateur Band Rcvr or general coverage. Small 6 mtr. Yagi. 10 ft. boom max.

CONTACT: Ric Jansen, WA3UDS, 215-355-1980

FOR SALE: IC-202 2 Mtr SSB Xcvr, extra 145 MHz + Oscar ranges, mint \$185. "D" Band 144-432 tripler-amplifier, Vgood cond. \$45. WLM 144 - 14 elem. beam with Balun - new in box, \$45.

CONTACT: J. Byrd, WA3KPS - Phone: 215-842-3782.

CONVERTER AND PREAMP WORKSHOP RESULTS

Reported by Harry, W3IIT

If you were there you'll agree that the workshop was a tremendous success. Equipment was available for measuring noise figure, gain and overload. Converters and preamps from 50 to 1296 MHz were checked and adjusted and the ready soldering iron was frequently used. Almost all came out with better NF and gain than when they arrived (some did not require adjustments). As you can see from the table of results, the HB equipment was 'nt the only equipment checked- the commercial equipment needed adjustments too - in some cases they could use a lot of redesign. is too late now since no additional sessions are planned before the contest but but don't let the chance go by the next time - remember - you can't work 'em if you can't hear 'em! Thanks to K3MWV and WA3AXV for the equipment, their time. and the facility.

<u>OWNER</u>	<u>EQUIPMENT</u>	<u>BAND</u>	<u>NF</u> (db)	<u>GAIN</u> (if measured)
WA3NFV	Pack-Rat Converter	432	4.5	----
W3IIT	HB Broadband Preamp, MRF904	432	2.2	8 db
WA3YUE	Parks Converter	432	4.5	----
WA3NFV	HB Preamp, A490	432	3.5	10 db
K0ZZM	Pack-Rat Converter	432	5.0	----
WA3AXV	HB Preamp, K3MWV design	432	4.5	23 db
WA3JUF	HB Preamp, 2N5652	432	1.25	12 db
WA3JUF	HB Converter, K3MWV design	432	3.5	----
W3HQT	HB Broadband Preamp, MRF904	432	0.9	----
W3KKN	Pack-Rat Converter	432	5.5	----
W3CXU	Vanguard Converter	144	3.5	45 db
W3CXU	HB Preamp, U310	144	4.0	----
W3KKN	Vanguard Converter	144	3.7	----
W3IIT	HB Broadband Preamp, MRF904	144	2.6	----
W3HQT	HB Broadband Preamp, MRF904	144	1.2	----
W3CXU	Vanguard Converter	220	2.7	----
WA3JUF	HB Interdigital Converter	1296	15.0	----
WA3JUF	HB Converter + MRF904 Preamp	1296	9.3	----
WA3JUF	HB Converter + V766 Preamp	1296	7.5	----
WA3JUF	HB Conv.+V766+MRF904 Preamp	1296	5.0	----
W3HQT	HB Interdigital Converter	1296	15.7	----
W3HQT	HB Conv.+ 2 stage MRF904 Pre.	1296	4.0	----
K3MWV	HB Converter with 40673	50	1.0	----
K3MWV	HB Converter with 3N200	144	3.3	----
K3MWV	HB Converter with 2N5651	432	3.1	----

* * *

OFFICIAL BULLETIN NR623 FROM ARRL HEADQUARTERS NEWINGTON CT DECEMBER 16 1976
TO ALL RADIO AMATEURS BT

Thousands of amateurs and prospective amateurs annually participate in the ARRL Code Proficiency program. Neither an amateur license nor membership in the ARRL is a requirement to do so. One minute of correct copy at a given speed will entitle you to an initial award or an endorsement sticker. The January WIAW Qualifying Run will take place at 0230 UTC January 11. This represents 9:30 PM EST/6:30 PM PST locally the night of January 10. When submitting your copy underline one minute of the top speed you believe you copied correctly, state that the copy was made without aid and furnish a return address stamped envelope of at least 4X9 1/2 inches long with your name call and mailing address. ARRL Form CD-9 details qualifying run dates for both WIAW and W6OWP for 1977 and is available without charge. AR

* * *

With Winter the Amateur's traditional time for antenna work, be warned that the Consumer Product safety Commission recorded more than 200 deaths by electrocution of individuals installing antennas during the past three years. de HB Report

Editors Note: Watch that climbing on ladders and scampering around on roof tops also!

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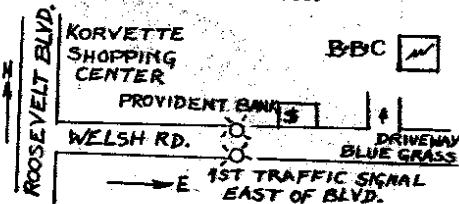
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CONTACT: David Dodell, Uof P ARC, W3ABT
Moore School, Phila., Pa. 19174 or call Marvin-
215-382-3865 or msg for David Dodell 24hrs/day
215-243-6827.

FOR SALE: Ameco TX-62 - 6 & 2 mtr. xmtr & 621 VFO - like new. 6 mtr. solid state NBFM xmtr (52.525 MHz xtal) & 6 mtr. 4CX 250 Amp. for above (approx. 600 W. output). Brand new MOR-GAIN all band (75 thru 10) dipole. (only 66' long, 1.2db gain on 75 & 5db gain on 40).

CONTACT: Richard Pierce, K3MWV
Phone: 215-785-0058

FOR SALE: RME VHF 126 tuneable Conv. 6, 2, 220-\$75
6M Conv. & MHz IF- \$5, 6M Conv. Gonset, Tuneable \$10
Morrow 5 Band Auto Conv. \$10, 6M FM Monitor Radio xtal for Rptr. & simplex- \$20, 2M FM Monitor Radio- \$15, RCA Carfone HiBand- \$30, 2M 417A Conv \$10, 2000 VDC 500 MA Pwr Sply Variac Control- \$50
30 Watt Modulator- \$25, 2M HB RF deck/2E26- \$7.50
2M HB xmtr. 6146- \$15.

CONTACT: Elliot Weisman, K3JJZ, 8533 Algon Ave.
Phila., Pa. 19152
Phone: 215-742-3525

FOR SALE: TR22C with 6 sets xtals, rubber ducky, Nicads- \$150

CONTACT: Lew Lewis, WB2EVO,
Phone: 609-966-1167

FOR SALE: ICOM 22A Xtals Brand New- \$3.95 @
MIDLAND 13520 Xtals- \$3.00 @

CONTACT: Sam, WB3AFY, P.O. Box 8814,
Baltimore, Md. 21224
Phone: 301-391-0533

FOR SALE: HW7 QRP low band xcvr, ex. cond.-\$90
HW202, 6 xmt., 8 rcv. xtals, 10/1 watt mod.
battery check meter, Pack-Rat back pak-\$200
Polycomm 6C(6 mtrs), 18W input, 117VAC/12VDC
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52.525 xtals. TRADE for SSB/AM 6 mtr. xcvr...

CONTACT: Earl Garber, WA3ZRE
Phone: 215-677-1699

FOR SALE: Drake ML-II, 144-148 MHz. AC/DC Pwr
Supply, 12 xtal positions, 8 xtals included
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CONTACT: Caesar Arena, W2SSV, 2377 Pennington
Trenton, N.J. 08638
Phone: 609-737-3079

FOR SALE: Drake 2B rcvr(80-10) with Q multi-
plier/spkr. Asking \$190.

CONTACT: Charles M. Zeager, WA3OQR
6545 Souder St., Phila., Pa. 19149
Phone: 215-533-9277 after 4PM.

STOLEN EQUIPMENT ALERT

The following gear was stolen from the PENNARC
KWM-2, Ser.10272, Pwr Sply 516F2, Ser.19920
Drake TR-4C with Pwr Sply AC-4 & NoiseBlor.
Ser. 35245.. Heathkit HT, incomplete
inoperative, battery holder deformed.
CONTACT: Pete Shavney, WA3RCA-215-TU6-1859



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PHONE: (219) 482-4411

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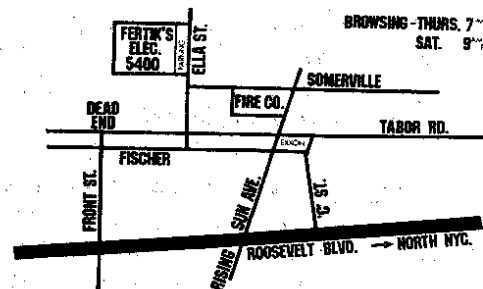
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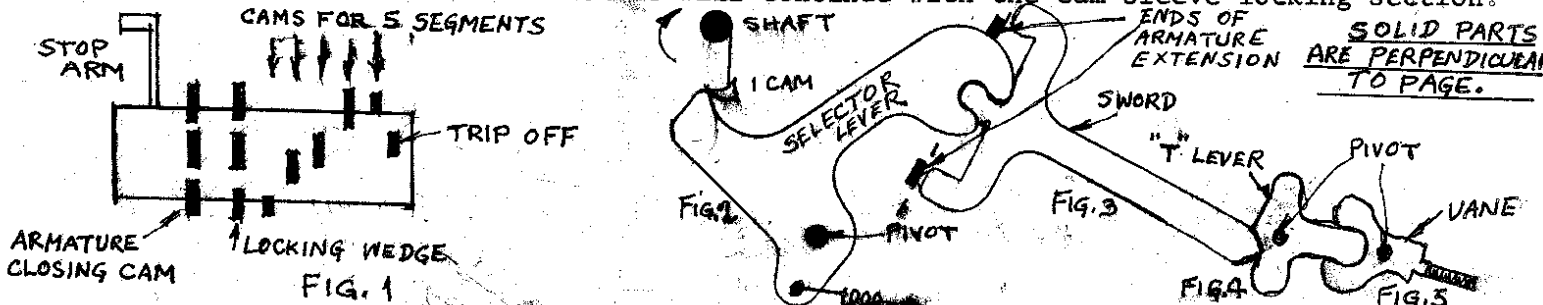
RTTY ANTHOLOGY (PART 8)
 by Ralph Alexander, WA3FOF
THE MODEL 15 TYPING UNIT

The Model 15 Typing Unit is very complicated but basically it has two functions; to power the keyboard for the transmission of Baudot code; and to convert Baudot code to useful information as a printed page; the electrical energy from the loop serving only to control the mechanical energy supplied by the motor.

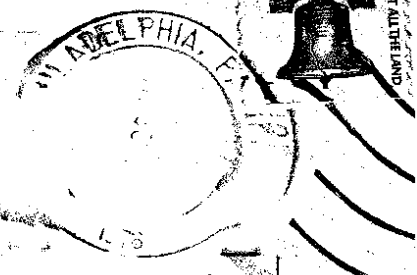
To understand the typing unit more easily envision it in sections. The first section, the heart of the machine, is the selector system. There are two types of selector systems. The first is the pulling magnet type where the selector magnet coils are round and about an inch in diameter. The magnetic field from these coils is great enough to pull the magnet armature from the resting to the closed position when 60 MA loop current is present. The second is the holding magnet type where the selector magnet coils are square shaped and about 3/4 inch in diameter. The holding type is less prone to produce an error from some noise conditions and is preferred to the older pulling type. The holding magnets cannot initiate pulling the armature closed, therefore the armature must be pushed closed by the armature closing cam for each of the information segments and the top segment. The end result is the same with either of the selectors. In a MARK condition the armature is held against the pole piece while in a SPACE condition the armature is away from the pole piece.

The next major part of the selector system is the cam sleeve and there is a different one for each type of selector. The holding magnet type of cam sleeve is shown in Fig. 1. The pulling type of cam sleeve is almost the same except that the outer section of cam steps at the top is missing. This outer section of the cam steps for the holding magnet type are the steps that push the armature closed for each of the information segments. The cam sleeve is mounted on the main shaft. When the machine is running closed, (a constant MARK condition is present) the cam sleeve itself is stationary on the rotating main shaft. When the machine receives a start condition or SPACE pulse, the armature of the magnet falls back and part of the armature strikes a trip-off lever on the range finder. This trip-off lever releases a stop arm on the cam sleeve and the cam sleeve starts just one revolution with the main shaft that ends when it meets the stop arm again.

The next section of the selector system is a group of selector levers, swords, "T" levers, and vanes. There are five sets of these, ie, one set for each of the five information segments. One set is shown in Figs. 2,3,4, and 5. Please note that only when the cam moves the selector lever, the other end of the selector lever connected to the handle of the sword allows the sword to move either up or down. The point of the sword pushes against the "T" lever forcing the "T" lever to move in the direction opposite from the sword point. In operation the third section of the cam sleeve for holding magnets (the second section for pulling magnets) will push against each of the five selector levers sequentially. When the cam sleeve pushes a selector lever, the armature extension moved by the locking-wedge is used to block one or the other end of the sword guard. If the information segment will ultimately become a MARK, the armature and thus the armature extension will remain up thus blocking the top of the sword guard. Now the selector lever connected to the handle of the sword forces the point of the sword down and the "T" lever up. If the information segment will become a SPACE, the armature will fall back (the armature will not move at all for pulling magnet) and the armature extension will remain down thus blocking the bottom of the sword guard. So the selector lever connected to the handle of the sword forces the point of the sword up and the "T" lever down. The "T" lever has a ball joint which fits into a socket joint on a vane and sets the vane up or down. There are five information vanes and a sixth vane which is used to set up the control functions such as motor stop and signal bell when in a figure shift position. These vanes run about two thirds of the way from left to right in the front of the machine. Next month we will continue with the cam sleeve locking section.



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