RTTY Journal

EXCLUSIVELY AMATEUR RADIOTELETYPE

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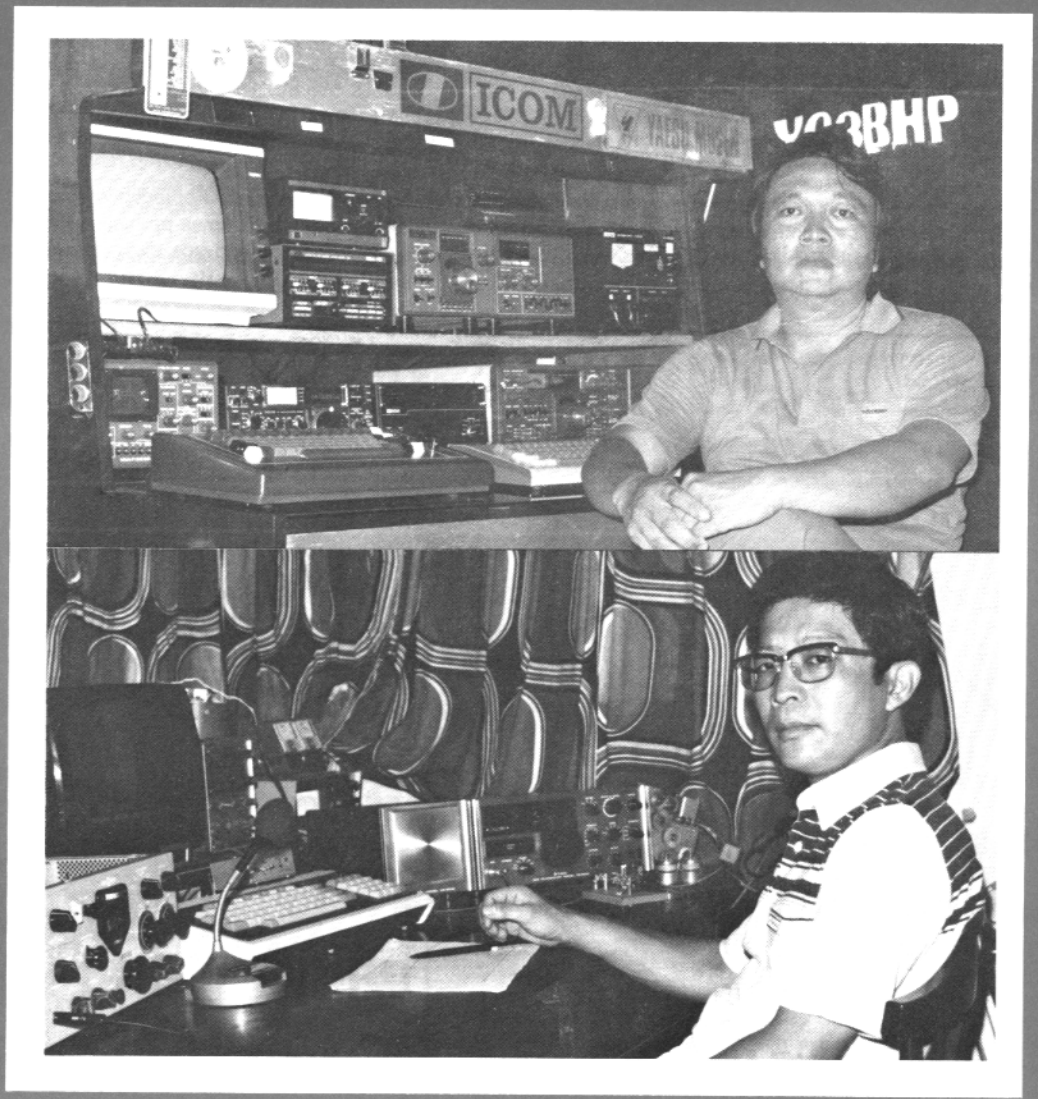

YC3BHP — "TONNY" (top), **9V1UC — KEN**

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RTTY JOURNAL

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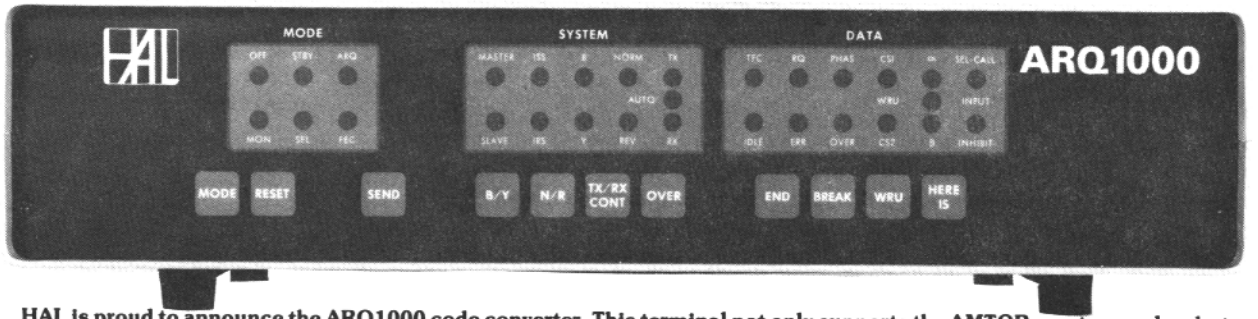
AMTOR RTTY



HAL is proud to announce the ARQ1000 code converter. This terminal not only supports the AMTOR amateur codes, but meets ALL of the commercial requirements of CCIR Recommendation 476-2. The ARQ1000 can be used with present and previous generation HAL RTTY products. In fact, any Baudot or ASCII full duplex terminal at data rates from 45 to 300 baud may be used with the ARQ1000. Some of the outstanding features of the ARQ1000 are:

- Send/receive error-free ARQ, FEC, and SEL-FEC modes
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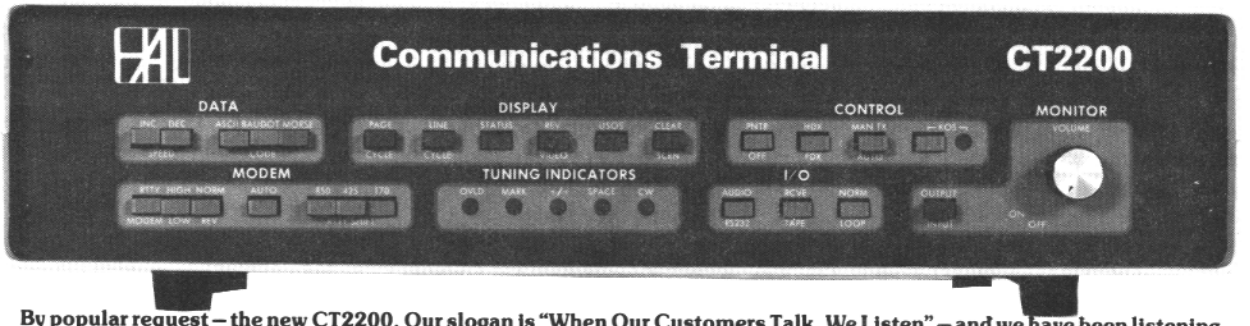
- Cabinet matches style and size of CT2200 and CT2100
- Table or rack mounting
- Built-in DM170 modem option available
- Encryption option available for commercial users
- 8½" × 17" × 10½"

The ARQ1000 is commercial-quality equipment that will give you the outstanding performance you expect from a HAL product. Write for full details and specifications of the ARQ1000.

BY POPULAR REQUEST



By popular request – the new CT2200. Our slogan is "When Our Customers Talk, We Listen" – and we have been listening. The CT2200 includes these often requested features:

- New AMTOR connections for use with ARQ1000
- Keyboard programming of all 8 "brag-tape" messages
- Programmable selective call code
- Expanded HERE IS storage for a total of 88 characters
- Non-volatile storage of HERE IS, "brag-tape," and SEL-CAL code
- 3⅝" × 17" × 10½"

All of the proven CT2100 features are retained. Some of these features are:
• Tuning scope outputs (a MUST for AMTOR) • Built-in demodulator for high tones, low tones, "103", or "202" modem tones • 36 or 72 character display lines • 2 pages of 72 character lines or 4 pages of 36 character lines • Split screen or full screen display • Baudot or ASCII, 45 to 1200 baud • Full or half duplex • Morse code send/receive at 5 to 99 wpm • Send/receive loop connection • Automatic transmit/receive control (KOS) • Audio, RS232C, or Loop I/O • On-screen tuning and status indicators • Clearly labeled front panel switches, not obscure keyboard key combinations • Separate convenient lap-size keyboard • Internal 120/240, 50/60 Hz power supply • Attractive shielded metal cabinet

In addition, an update kit is available so that all CT2100 owners can update their CT2100's to include CT2200 features. The kit even includes a new CT2200 front panel! Rather than making a proven product obsolete, HAL put even more behind the buttons. Pick up a CT2200 at your favorite HAL dealer and join the RTTY fun. Write for our full RTTY catalog.

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AMTOR

Operating techniques peculiar to AMTOR.

1. Always put out CQ calls in mode B (FEC). The original idea of a mode A (ARQ) call with the selcal code CQCQ causes a lot of trouble nowadays when there is a risk of more than one other station hearing either the inital call, or a repeat of it if re-phasing operation takes place during the contact due to interference or fading. It is also recommended that initial tests of a new installation are done on FEC, as it is much easier to sort out such things as incorrect keying polarity than on ARQ where nothing will work until everything is correct.

2. The concept of the SELCAL code often needs a little explanation in the ARQ mode. The idea is that the two stations wishing to establish contact in ARQ mode synchronise by one of them transmitting a "key" code, which must match a "lock" code in the other station who is receiving. The code consists of a four-letter group, and by convention, the receiving station chooses his "lock" code from the first letter and the last three letters of his callsign. Thus, to start a contact, the first station must transmit a "key" code consisting of the four letters of the callsign of the station he is calling. There is no point, for example, in making an ARQ call consisting of your own selcal letters. Anyone copying that would assume someone else is calling you.

3. When putting out an ARQ call for another station, for example, calling him back after he has been calling CQ on FEC, keep an eye on the AMTOR status display, and be ready to type your initial introduction as soon as the display shows that the called station has replied. It is often not possible to hear the reply in the speaker, and the called station, who will already know that he has been called, will be waiting for the caller to introduce himself.

If the reply to an ARQ call is heard to be slightly off-tune in the receiver, and a transciever is in use, then do not re-adjust the main tuning dial to bring the signal into tune, because this will move the transmitter out of tune at the far end. Use the RIT control instead. This convention, namely that the master station (the one that made the first call) should use the RIT to keep the slave on tune, and conversely, the slave should leave his RIT in its normal position and keep on tune with tuning knob, ensures that the tuning errors don't build up during the contact, and prevents the contact from "walking" up the band as a result of both stations attempting to retune each other every few moments.

4. For the above point, it is important to remember which station is the master and which is the slave, especially as there will not normally be any indication of this on the AMTOR unit. This also becomes important if one is going to try one of the most useful AMTOR techniques, known as the "hot QSY". IF an ARQ contact stalls due to persistent interference, then since one is always "listening through", it is possible to move frequency slightly to sidestep the interference without losing any copy. It is important that the master station leads in this operation, so that in the event that the QSY is not complete before the 15 second time-out, the master is then chirping away on the new frequency for the slave to find him. If the slave were to move first, then there would be no way for the master to find him after the time-out. In the early days of AMTOR, this technique was widely used to dodge deliberate interference, but the nature of the now familiar chirping sounds are more well known now, and this is not so much of a problem, but the technique is still very useful.

5. Although not specifically an AMTOR operating point, but a general RTTY one, each transmission should be started out with a carriage return, line feed, and "letters" character. On ARQ mode, since the changeover is always done with a +?, the other printer is left in "figs." between transmissions, and must be brought back to "letters" at the start of each over. It's a fact that with a lower overall error-rate on AMTOR, things like missing shift and CRLF characters seem more annoying by comparison.

6. The ability with AMTOR to maintain a standby watch without having to print unwanted signals or garble, has stimulated activity on spot frequencies such as 14075 and 3588 kHz. The question arises as to what is meant exactly by the "frequency" of an FSK signal. By convention in the RTTY and AMTOR field, a nominal frequency of, for example, 14075 kHz, is taken to mean that the upper FSK tone is exactly on 14075.00 and the lower one is on 14.074.83, 170 Hz. lower. Thus, to set the transmitter exactly on frequency by using a counter, it is necessary to ensure the system is sending out the higher, or "mark" condition and then the transmitter frequency can be set to read 14075 on the counter. The situation with an SSB transciever using audio tones to generate the FSK signal is more complex. Assuming the transmitter is on upper sideband and IARU tones are being used, then the mark tone will be radiated 1445 Hz higher than the suppressed carrier frequency which is shown on the dial. Thus, to set the transciever exactly on to 14075, the dial should be set 1.445 kHz lower, on to 14073.555 kHz, although perhaps the last one of two decimal places could be regarded as a bit academic. A station using the 2125/2295 Hz tone pair and lower sideband, would set the dial 2.125 Khz higher than the required frequency, namely to 14077.125 kHz. Incidentally, the commercials use the convention of defining the imaginary centre-frequency, halfway between the two tones, as the "nominal", and they use AFSK tones of 1615 and 1785 Hz. The point halfway between these is 1.7 kHz, and so it becomes relatively easy to subtract 1.7 kHz from the wanted channel frequency, and dial that up on a synthesized system even if it only has 100 Hz steps.

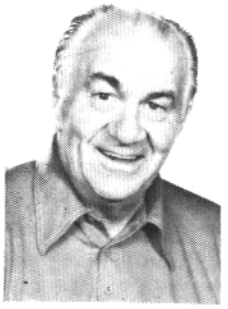
Peter Martinez, G3PLX
11 Marchwood Ct. Fort Gomer,Gasport, Hands, England

Courtesy of B.A.R.I.G. Newsletter....

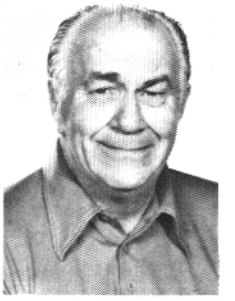
DX and AMTOR

by BILL

WØLHS SNYDER, 1514 S. 12th Street, Fargo, ND 58103



"I'M READY FOR AMTOR!"



"IF I CAN FIGURE OUT THE BOOK!"

One of the best contests of the summer is the S.A.R.I.G. I always look forward to it. I meet a lot of old friends and I particularly like the three-segmented time-frame they operate on. I had finished up-grading my trusty Robot 800 to the C model just three days before the contest began. It was really great to have the extra memories, and I was ready to do battle in one of favorite contests. But alas, due to a death of one of my in-laws, I had to surrender my shack for use as a bedroom during the contest. So, I really didn't get to do much operating during the period. But I managed to work Mort, FGOUQ/FS for a new one.

I recall one night a couple of years ago when I was QSO with Syd, VK2SG. "Bill, see if you can copy this, Syd typed. With that he unleashed a string of marks and spaces that would not decipher no matter which button I punched on the Robot. I could almost see Syd laughing at me. Well, now Syd, try me--I think we can decipher your AMTOR stuff because I have added that to my growing pile of Ham gear.

It began when Jim Smith, the friendly Ham equipment dealer in Watertown, South Dakota, called and asked if I would like to try out an AMTOR black box. Jim is the guy who sold me my Robot about three years ago. Reluctantly I said yes. So the next day the UPS man dropped off a box at the shack. In it was the AMT-1, designed by Peter, G3PLX, and I guess manufactured in Jolly old England.

In order to use it I had to get a Vic-20 computer, because Jim had included a software package for that little unit. So, I put it all together and smoke-tested it. It didn't smoke at all, but I did. The booklet for the AMT-1 told of all the buttons to push if you hooked it up to a RS-232 input/output of a modern computer, and the booklet for the Vic-20 software told which buttons to push to make that combination work. But... the little Vic-20 software leaflet made reference to cut-out labels to be placed on the function keys of the Vic-20. With my luck, the cut-out thing was not in the box at all. So I spent the weekend trying to figure out what I was supposed to push to make it work.

No matter what I did, I didn't have the right combination. So, I studied both books and finally called Jim at his home, where he had a twin of the black box I was struggling with. Jim gave me a couple of clues and so I kept struggling (and swearing).

The following morning I got up early, slipped down to the shack and lo and behold there was an AMTOR station calling CQ. I found the right button to input the shortsign and pushed it down. It worked! Back came one of my good DXing friends from Tokyo. What a thrill! After I figured out how to pass it back and forth, we had a very nice 100% contact. I was really enthused! In good conditions RTTY is faster, but when the going gets tough AMTOR is the reliable way to get the message through. And there is more--the selcall feature works fine. I have contacted G3PLX three times simply by calling him blind, and having him come back. Peter must be called the "godfather" of AMTOR. He operates in an area of England where he must use an indoor antenna, and monitors with selcall on 14075, 21075, 28075 and 3588. He will soon do the same on 10140, so all the bases are covered. Peter has worked 26 countries on DX AMTOR, but cautions not all of the contacts are legal, due in part, to governments not really authorizing the chirping mode. AMTOR is five years old now, and just beginning to catch on.

It really takes very little power on AMTOR. A QSO with a station in New York drove this fact home--he turned his power down to one watt, while mine was down to about three--and we never lost contact! Amazing AMTOR.

Well, RTTY fans, AMTOR is great, but it bringing along a new set of problems. And, the influx of newcomers to both RTTY and AMTOR, is adding fuel to a bonfire that is smouldering on the 20 meter band. In fact, I wrote a letter to all of the directors of ARRL in whick I outlined the trouble with band usage we are experiencing on RTTY and AMTOR. President Vic Clark has referred this matter to a committee for study. If you have any feelings about band-use and frequency layouts, please contact your director and spell out your feelings. Now is the time to get things underway, not wait until we have 10,000 Hams chirping away.

You have all heard about MSO's being accidentally hung up in the transmit mode. Well, it happens on AMTOR also. For three days there was a carrier on the calling frequency. One AMTOR fan in Atlanta called the FCC monitoring station and they triangulated it as coming from Central America. They even pinpointed the town of origin. I saw another on RTTY that was stuck running line-feeds. I wonder how much paper went on the

floor before it got shut off!

We have all experienced jamming. It has been with us since that first HF RTTY weekend back in 1953. We have it now, and it is getting worse. The other night I accidentally QRM'd a CW QSO (I could only hear one side of it) by sending CQ on the AMTOR calling frequency 14075.00. So, the CW operator got upset and started a one-man war against digital communications. He must have put a book against his dot-keyer and let it run for prolonged periods (minutes). I called him on CW and I tried to explain that 075 is the only 20 meter calling frequency, and transmissions must be within a few cycles to work on selective calling, which is one of the fine features about AMTOR. His reply was very spirited:"Two can play your game and I have just as much time as you. You are in the CW portion of the band, and you should be up above 80. I will challenge anyone every time I am on this frequency. I will not submit to your kind of brow-beating!" I have written to this fellow Ham and tried to explain the story behind the incident; and also, that the frequency of 14075 was selected by AMTOR Hams in Europe as a common calling frequency. I hope he understands I was only trying to communicate on AMTOR, and not deliberately QRMing him with my chirping.

Well, this kind of thing is just one more problem to solve if we are going to keep digital Ham communications from starting a range war. We had jamming back in the early days of HF RTTY. But now, with hundreds of newcomers trying to enjoy the mode, we are in for some bad times unless we start now to make a band-use plan that has some sense to it.

K7BV, Mac, tells of a number of worked/heard stations that are on: UKLAK, in Vladivostok, 0530Z on 14088 ...CX7BZ, Fred is on 15 meters weekends from Uraguay...TN5DGE and TK2HOI were heard working each other at 0545Z on 20....JY6CL in Jordan, on 14080 at 2000Z...KW6HC/KH9, Wake Island has been heard in Europe..... UL7AA is a possible pirate, because we have no other confirmation of his existance. He was reported at 0200Z on 20....Mac laughs when he tells of working LU1ASU. It turns out that this call belongs to a 14 year old young lady who types excellent English. Her father is LU4BR. Mac was so surprised he forgot to say 88 instead of 73!

K6WZ, Carl, sends in recent new ones: C21BD, YS70B, KØSD/HR2, and FGØUQ/FS.

C21BD, Det, sends the following with his king-sized QSL card (which is worth getting!): "I took up Amateur Radio operation on April 26th, 1983, and began operating RTTY from 16th June." Now that is really making smoke! Det also tells us his RTTY operations have sparked interest among his other friends on the tiny island, so there should be three new C21 stations on RTTY. Det is Minister for Works and Community Services for the Republic of Nauru. He can be QSL'd via Box 225. If you collect stamps, the Nauru stamps are really something!

W5HEZ, Jack, lists new ones as follows: A4XRS, Alan, Box 981,Muscat. Also, EL2AT; VP9AT; FGØUQ/FS; J6LOV; and C21BD.

W2PSU, Ken (157/149), lists these: KX6PO, C53CL and OHØTTY. Ken also adds that cheap computers are really bringing them out of the woodwork with plenty of "upside-downers" and off frequency tones. That's nothing Ken, I ran upside down for my first contact with the Robot. Skip, the former DX editor, formerly WB6CYA, now KG6CM, was the guy who got me right side up!

K1LPS, Larry, spent his vacation helping VE1ASJ check out the Tono that JA1ACB supplied for use on the upcoming St. Paul Island DXpedition. By the time this gets into print, the DXpedition will be in its' last few days. Larry's big operation in the SARTG was on 80 meters. He worked ON4UN and UT5RP! He also heard a lot of DX on 80 RTTY but was unable to work any of it. Heard were:SM, OZ, HB, I and OH. Larry worked OHØTTY, QSL via OH2AA. Larry is asking for the last name of P29AX. He and I both worked the New Guinea station on 20 meter ASCII.

W6MI, Al, tells us he worked YV5GZU and actually got a QSL card. I'm looking for that one Al!

N1BNK, Bert, and KB2VO, George, both send information about EL2AT, Hans. Hans is running a 930 with a vertical, but hopes to have his beam and linear on soon. Hans is the famous CN8AT who many of you remember for Tangiers, George knows Hans has QSL cards, because he printed them.

EAVESDROPPINGS (ON RTTY): "The company bribed us old goats to retire".. ."I'm taking a touch-tiping coourse." ..."SSB is a hassle, RTTY is great.". ..."I watched a TV evangelist pray for ten million dollars. I wonder how much he would get if he wasn't on TV" ...."The ten most popular excuses to QRT are as follows:..."....."OK except for QUARM."..."I was in the gas and owl exploration business."...."Have three KWM-380's tied together for diversity reception."....."I was just back in your neck of the bottle."... ..."Cq Cq Cq de P")G!="...."we have had 1 heart attack, 6 by-passes, 4 strokes, carotid artery surgery, diabetes and two sponge retrieval operations."...."Ooops, its past 7 PM, my TV quiet hour has begun, must QRT!".. ..."I've been trying to get into that mailbox for an hour."...."My memory is not all that food."...."We have high temperature, but low humility.". ..."My keyboard doesn't think like I do!"...."I told that girl, come on up and do your homework on my computer. That works better than etchings!"....."I read the JOURNAL while in the ceramic library."......When I type, I never know what to do with the remaining 8 fingers."....."all you need for AMTOR is a terminal and an RS232 piano."...."His gal thinks he's nuts to play with his radio instead of her."...."Let's crack a tube of beer."

The most surprised Ham on RTTY must be W4BTX. I heard him tell another station he needed only North Dakota for WAS. The other station told him to look for me. So I waited, ready to call him when he finished the QSO. Just as I was about to call him, he began to call me. I don't think he really believed me when I answered

DX COLUMN CONTINUED

his page.

A note from K8CV tells of another DXpedition to Anguilla Island this coming November 21st to December 14th. Walt informs us he has the loan of a CWS-6850 from HAL for the junket. He also will run a linear so he should have steam this time. He will be on RTTY only during the non-contest times, for he'll be working 80CW in the contest. Walt also wants to try 110 ASCII to speed up things, but will work 45 baud most of the time.

A note from WA2IUJ, Charlie, telling he is listening in on AMTOR, but not on the air yet. Well, Charlie, eavesdropping on AMTOR is nowhere! You have to get linked up with another station to make it really worthwhile. You can copy fine in the forward error correction mode (FEC), but to try and look in on the automatic request mode (ARQ) results in all kinds of garble most of the time. It's when you get linked and chirping, that's when AMTOR shines.

A note from John, W3JF, who is living in Egypt, tells us he still has not been licensed for SU land. He has been recently joined by CN8CO and both are hoping to get permission this fall.

CT2AK, John, is busy from the Azores with a Tono supplied by JA1-ACB. He may be QSL'd via Box 143 Zip 9502, Ponta Delgada, Sao Miguel Island, Azores. He is also OK in the Callbook.

UR2FU hangs out right smack under a very busy US MSO. If you are lucky and catch him, be prepared to tell him to find a new QRG if he wants to work the States. I tried and failed. As one reader puts it: "I lost him under a bunch of 'bytes remaining' QRM."

CE3EEY, way down on the tip of South America was worked right after I had QSO's with JA1JDD and YBØBEG. , Fernando was using a dipole, but was good copy in North Dakota. YBØBEG, Rein, is in Jakarta. He indicated he works 20 from about 1200 to 1500Z regularly.

Many operators on RTTY have commented that they see no reason for "billboards" on every transmission. By that they mean things like "WØLHS-:-:-: BILL.:-:-:- IN FARGO, NORTH DAKOTA OCTOBER 5,1983, 0234Z UCT." How do you feel?

OH2WCA, was a special events station from the WORLD CHAMPIONSHIP IN ATHLETICS. QSL via OH2TI.

I was talking to OK1JKM, Milos, asking who was on from Monaco. Milos replied it was 3A2EE. When we finished there was the Monaco station calling me. He must have been listening in!

9V1UC, Ken, in Singapore can be found on weekends working 15 and 20. Ken, whose home call is JA1HHM, says he will be there for five years. His antenna is on a 20 storey building, so he gets out rather well. I worked him on 20 and half hour later on 15.

SHORT TAKES: YC3BHP, on 21 MHz at 1600Z. QSL via Box 240, Surabaya, Indonesia. SL1RFO is a special call activated only 14 days a year by the Volunteer Radio Operators In Sweden. EKØKA is a Russian artic polar expedition operating near Pevek. 5B9CV has been on from Cyprus and ISØZPH from Sardinia. ZP5JAL via Box 1311, Asuncion, Paraguay. FM7WO, Laurent, reports working 9K2DN and also adds his wife Aurore, FM7CF, is pictured on page 26 in the December '82 QST.

Because AMTOR is not legal in all countries, I will not list calls in the DX news until I am certain they are legal operations. If your country authorizes such transmissions, please let me know, then I will list them in the DX news. I do not wish to embarrass anyone. W2JUP has 28 countries on AMTOR. G3PLX, Peter, has 26. That's a long way from 318.

KØSD/HR5, Stephan, will be in Honduras for two more years. He is a radio technician with a missionary group there. He usually operates 0000 to 0300Z on 14095 plus or minus a clear spot. QSL via WBØMZB.

Overheard on AMTOR:"AMTOR is bringing the kids and the lids and space cadets out of the woodwork."

I wish to thank all those mentioned above, plus N6EGY, F8XT, TI3DJT, AD7I IØAOF, DK4KK, JA1DSI, AB6A, K4IHP, ON4KIP, WB4UBD, ON4UN, N1BNK, W3KV, JR2TZL and a batch of others I peeked in on.

Last month we incorrectly identified Mort, PJ8UQ from the island of St. Martin, as PJ8UG. Sorry about that Mort, my finger strayed.

73 de Bill WØLHS DIT DIT.....

AWARDS

WAC #13 All on 10 meters to Larry Filby, K1LPS 1, Aug, 1983.
WAC #22 All on 15 meters to Larry Filby, K1LPS 1, Aug,1983.

DXCC #83 goes to Hans Rostek, DK4KK 29 August, 1983.

DXCC #84 to Bert Ryland, N1BNK, 10 September, 1983.
WAC #105 to Graeme Phanco, GM4KHE, 16, September, 1983.

Please refer to page 16 of last months issue for guide line on RTTY JOURNAL awards. Also, we would honor the ARRL credit sheet for DXCC.

CONTEST CALENDAR

CARTG DX Sweepstakes October 15 & 16.
DAFG short contest 40 & 80 meters October 15,1983.
DARC "Corona"-10 meters only, final part. November 6,1983.
WAEDC HF Bnads Contest November,12 & 13,1983.
RTTY JOURNAL/73 World Championship February 25,1983.

EUROPEAN DX-CONTEST WAEDC

Contest periods: November 12 and 13.

Bands: 3.5, 7, 14, 21, 28 MHz.

Classifications: Single operator all band; Multi-operator single transmitter. Multi-operator/single transmitter stations are only allowed to change band one time within a period of 15 minutes. A quick band change and return for working new multipliers is allowed.

Rest Period: only 36 hours of operation out of 48 hours are permitted for single operator stations. The 12 hours of non-operation may be taken in one, but no more than three periods at any time during

CONTEST RULES CONTINUED

the contest and must be logged.

Exchange: A contest QSO can only be established between a non-European and a European station. Exchange the usual five or six digit serial number RTS/RS report plus a progressive QSO number starting with 001. W/K stations in addition give their state (two letter).

Points: Each QSO counts 1 point. A station may be worked once per band Each confirmed QTC-given or received-counts 1 point.

Multipliers:The multiplier for non-European stations is determined by the number of European countries worked on each band. European stations will use the last ARRL countries list. In addition each call area in the following countries will be considered a multiplier: JA, PY, VE, VO, VK, ZL, ZS, UA9O. Each W/K state will be considered a multiplier.

Special Regs for RTTY: Contacts between all continents and also one's own continent are permitted. Multipliers will be counted according to the European and ARRL countries list. QSO as well QTC traffic with one's own country (district) is NOT allowed. SWLs apply rules accordingly.

The multiplier on 3.5MHz is four. The multiplier on 7MHz is three. Multiplier on 14/21/28MHz is two.

Scoring: Total QSO points plus QTC points multiplied by the sum total multipliers from all bands.

QTC-Traffic: Additional point credit can be realized by making use of the QTC traffic feature. A QTC is a report of a confirmed QSO that has taken place earlier in the contest and later sent back to a European station. It can only be sent from a non-European station to a European station. The general idea being that after a number of European stations have been worked, a list of these stations can be reported back during a QSO with another station. An Additional 1 point credit can be claimed for each station reported.

Contest Awards: Certificates to highest scorer in each classification in each country, reasonable score provided. Continental leaders will be honored. Certificates will also be given to stations with at least half the score of the continental leader.

Logs: It is suggested to use the log sheets of DARC. Send large size SASE to get the wanted number of log and summary sheets.Use a seperate sheet for each band. All entrants are required to submit cross check (dupe) sheets for each band which they worked more than 200 QSOs. A penalty of three contacts will be crossed out for each duplicate contact crossed out by checker

Deadline: December 15th, 1983.

European Country List: C31, CT1, CT2, DL, EA, EA6, EI, F, FC, G, GD, GI, GJ, GM, GM Shetland, GU, GW, HA, HB9, HBØ, HV, I, IS, IT, JW Bear, JW, JX, LA, LX, M1, OE, OH, OHØ, OJØ, OK, ON, OY, OZ, PA, SM, SP, SV, SV Crete, SV Rhodes, SV Athos, TA1, TF, UA1346, UA2, UA Franz Josef Land, UB5, UC2, UN1, UO5, UP2, UQ2, UR2, Y2, YO, YU, ZA, ZB2, 1AØ, 3A, 4U1, 9H1.

Mailing address:WAEDC-Committee, Postbox 1328, D-895 Kaufbeuren, Germany.

Contest Manager: DJ1KK

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

Federal Communications Commission Release dated September 14,1983:

RE: using the use of "23", for the 23rd Olympiad, or "84" for the 1984, in Amateur call signs in California. The numbers "23" or "84" would be used in lieu of the digit "6" normally used in California. Having the option of using a commemorative callsign would be a 'chance to spread friendship, good will and excitement from the location of this international event to the world".

This request has merit and therefore waive the provisions of Section 97.51(b), which prohibits granting requests for specific callsigns, for the period beginning July 1,1984, and ending August 31, 1984. This waiver to use either "23" or "84", in lieu of the digit "6", will apply only to Amateur radio stations located in California whose call signs contain the digit "6".

Robert S. Foosaner, Chief, Private Radio Bureau. 7230-D

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

HAM HELPS

I am looking to interface the HAL ST6 with Kantronics Hamsoft card with the TRS80 color computer. Can anyone help me? Vaugn A. Jupe, N6VA, 59 Church Lane, Carlotta, California 95528.

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

Tear along dotted line

RTTY SURVEY

1. How many years have you been active with RTTY?

   _____

2. Do you use RTTY on HF, UHF or VHF?

   ( ) a. HF ( ) b. UHF ( ) c. VHF

3. Do you run RTTY with a computer or with a teletype machine?

   ( ) a. Computer

   Brand:_____ Software: _____

   ( ) b. Teletype Machine

   Brand: _____ Model: _____

   ( ) c. Terminal Unit

   Brand: _____ Model: _____

4. How important is error free RTTY (AMTOR) to you:

   ( ) a. Very important
   ( ) b. Somewhat important
   ( ) c. Not important

5. Which of the following do you use?

   ( ) a. Baudot ( ) b. ASCII ( ) c. AMTOR

New technology has made it possible to design a microprocessor-based, dedicated video RTTY (KSR) system capable of sending and receiving Baudot, ASCII and Morse code. The unit would consist of 3 modules: video display, smart electronics box, and full ASCII keyboard. It would have built-in terminal demodulator, tape recorder storage interface, user-friendly menu prompts, all controllable from the detachable keyboard.

6. Would you consider purchasing a dedicated RTTY/CW system such as the one described above for the approximate retail price indicated below?

   a. In kit form at $800.00.

   ( ) Yes ( ) No

   b. Fully assembled at $1500.00.

   ( ) Yes ( ) No

7. What is your present amateur license class? _____

Fold

Return to:

_____

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Place
20¢
Stamp
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RTTY JOURNAL
P. O. Box RY
Cardiff by the Sea, CA 92007

ATTN: SURVEY

Fold

Please fold your completed survey on the lines indicated above, staple or glue, and return to RTTY Journal. Your participation and cooperation are greatly appreciated.

NEW UNIVERSAL M-600
MULTI-MODE, CRYPTO-DECODER

UNIVERSAL M-600 RTTY CODE RECEIVER

THE ONLY RTTY UNIT THAT DECODES —

- **BIT INVERSION**-method used for security and privacy by governments, business, press and others, automatic system opens up a new world of RTTY listening. Now you can copy those stations that defied copy on standard RTTY units.

- **TOR-SITOR**-Both ARQ and FEC modes used by Marine, telegraph, World Press, Coastal Stations and Government Services. This approaches error-free copy.

- **NON STANDARD SHIFTS**- Used by RTTY services to effect a form of security to their transmissions by the use of non standard shift of RTTY signals, quite common in commerical RTTY. The M-600 has a continuously variable shift capability over a wide frequency range.

- **WEATHER FORMAT**- Allows reception in straight text of many weather stations with the use of standard weather map symbols in everyday use around the world. This is very interesting to copy.

PLUS — All speeds of BAUDOT, ASCII and MORSE (CW). M-300 keyboard plug-in for transmit. BAUDOT, ASCII, CW.

★ AMTOR when approved.

Partial List of Features of the New Revolutionary UNIVERSAL M-600

BIT INVERSION-5 level security bit inversion for baudot decoding from key pad. Decodes any combination of bit inversion being used for security.

TOR-SITOR-Both ARQ and FEC modes with full receive only function on these codes. Amtor when approved.

WEATHER TEXT-Weather Bureau symbols, arrows and other weather type uses. Key pad Controlled.

SHIFTS-Key pad selectable shift selection, 170, 425 850 plus variable space channel allows copy on mnay non-standard shifts being used as security mode. There is a separate demodulator for 150 through 1200 baud rate high speed RTTY.

ASCII-110, 150, 300, 600, and 1200 baud rates

BAUDOT—60, 66, 75, 100 and 132 WPM

MORSE-CW-AUTO-RANGE up to 60 WPM

SPEED READOUT-ASCII and BAUDOT

MULTIPLE SCROLL INHIBIT

UN-SHIFT ON SPACE

SELF-TEST SYSTEM-Allows check out of M-600 operation.

AUDIO INPUTS-4 to 600 OHMS .25V.P-P.

VIDEO OUTPUT-Composite video. 1.5V.P-P., negative sync.

PRINTER DRIVER-Isolated loop, Mil-188 or RS232 and optional parallel ASCII. All with handshaking available. Baud rates of 45, 50, 57, and 74 in baudot and 110, 150, and 300 in ASCII. The M-600 will drive almost any printer available at any of the input modes.

PRINTER MODE-Baudot 60, 66, 75, and 100 WPM.

PRINTER SPEEDS-ASCII 110-150 and 300-parallel ASCII.

PRINTER BUFFER—A 2K printer buffer allows reasonable down conversion and handshaking of printer.

LOOP SUPPLY-60MA/20MA auto adjusting loop supply available as an option.

STATUS LINE

OPTIONS-Built-in loop supply /parallel printer output

WARRANTY-115/230V 50/60Hz 25 watts

SIZE-16 3/8 x 3-1/2 x 10-3/4 in. deep.

WEIGHT-9 pounds - shipping weight 12 pounds.

PHONE: (614) 866-4605

UNIVERSAL AMATEUR RADIO
1280 Aida Drive
Reynoldsburg, Ohio 43068

PRICE $799.95
Shipping Extra
VISA & MC Accepted

INFO-TECH PRESENTS:

THE M-44 AMTOR CONVERTER

Features:

Usable with most ASCII or Baudot video terminals
Fully programmable from keyboard
Built-in, high quality, modulator & demodulator
TTL and RS-232 interfacing levels
Commercial quality construction
Designed & built in the USA
Suggested List Price $379.95

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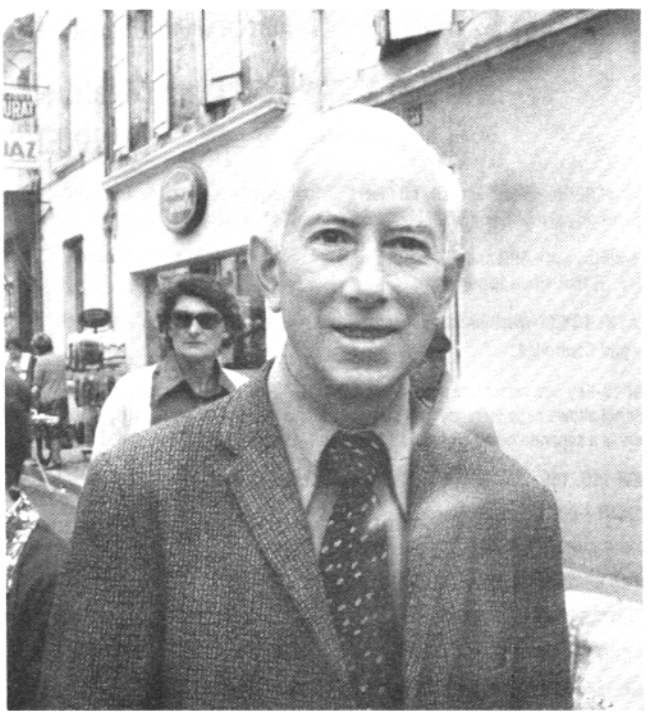
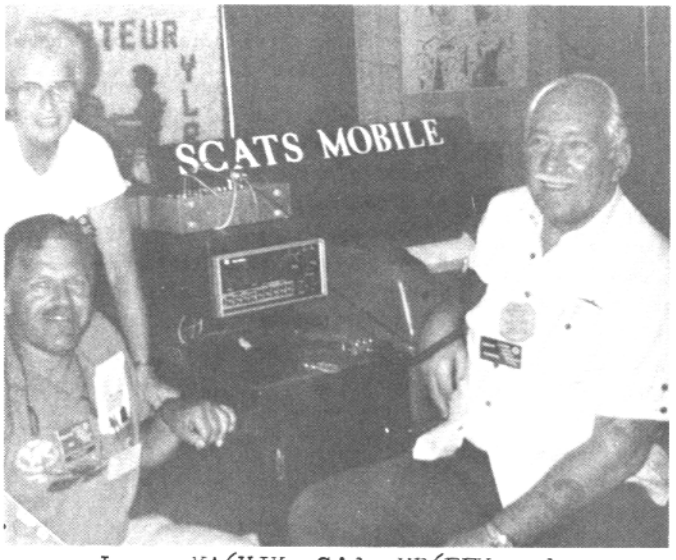


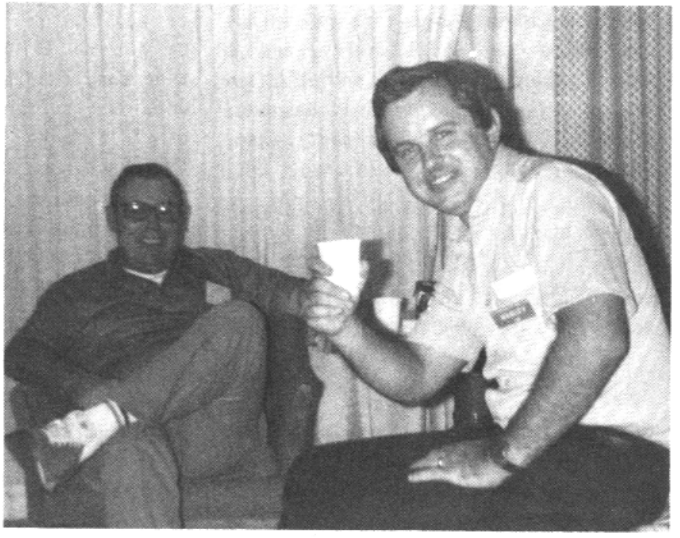
Jean, F8XT

Jun, JR2TZL

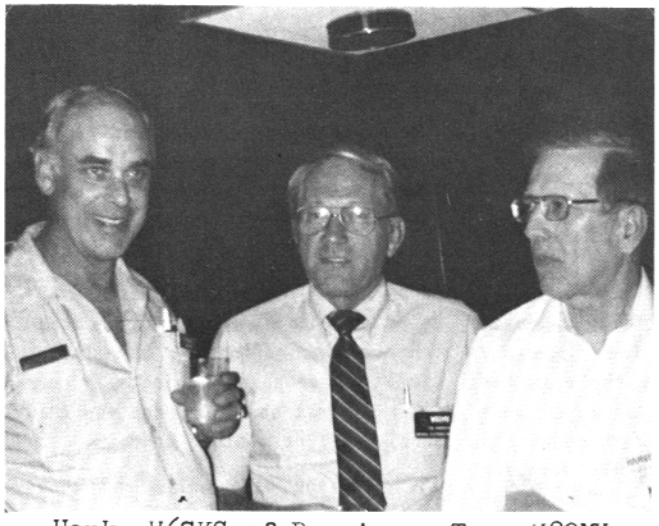
Louis, FO8FN



Jean, KA6HJK, Sid, WB6FFW and
Howard, N6CPP at Anaheim



George, WA6CQW and Jim KA6UFY at Anaheim



Hank, W6SKC of Dovetron, Tom, W8OMV
of Universal and ???? at Dayton

Art, XE1LL and ????? at Dayton

by GEORGE

HITS & MISSES

GEORGE HAMMON, WA6CQW
14215 Pecan Park Lane Space 73
El Cajon, CA 92021

HAMCON '83

The ARRL Southwestern Division Convention was held on September 2, 3, and 4th 1983. The site was the Marriott Hotel in Anaheim, California. I was able to attend on only one day, Saturday. I made the short drive to Anaheim and met John and Dee. The day ended much too soon. The HAL products booth is a must stop for me at any convention and Bill Henry and I talked about computers and RTTY in general. The new items Bill has out, the ARQ 1000 for AMTOR in particular, caught my eye.

The subject of AMTOR was covered nicely in the letter by Paul, W1ZXA in the September RTTY JOURNAL and provoked a lot of thought for this author.

While traveling this summer I was asked, by many RTTYers, for my thoughts on AMTOR. I was preparing an article on AMTOR when I received the following letter from Joe Mchaffey, K4IHP.

Dear George;

"I feel compelled to respond to the 'Regarding AMTOR' comments of Paul, W1ZIA in the September 1983 JOURNAL.

In this column Paul had some interesting questions in the area of 'Why AMTOR'. Many of his comments and questions are voiced by many prior to trying AMTOR.

Let me try to give a few reasons why I think AMTOR is going to progressively and quietly replace regular RTTY on the Amateur bands.

1. It provides virtually error free communications with an unbelievable mix of poor signals and QRM.

2. It provides this 'virtually error free' transmission with about 1/20 of the power required for a good circuit on regular RTTY under the same conditions. I regularly work VK2SG from Atlanta, Georgia on five watts with AMTOR when 1KW would be required for even passable performance on regular RTTY. No station I know of uses a linear on AMTOR.

3. The equipment, while different, newer, and 'more sophisticated' (anything with software is sophisticated to me), it is actually much cheaper to put an AMTOR station on the air than many imagine. If a Ham can wire-wrap and solder a 6 x 9 inch group of IC's onto a board, a complete interface can be built from scratch using readily available plans for under $200.00, including the FSK demodulator and FSK tone generator. Printed circuit bare boards will be available shortly for at least one of these 'Ham grown kits'. One such 'kit' is scheduled to be the subject of a QST article in 1984. One enterprising Britisher has a TRS80 design that uses the TRS80 CPU and a few external parts and provides 'all-in-one' split screen terminal and AMTOR controller.

4. Unlike more exotic modes like 'narrow band voice modulation' cited by W1ZIA, AMTOR is developed, cheap, available, and it works and works well.

5. Virtually 100% of available transcievers can be made to work on AMTOR. Some with no mods, most require a few simple changes. The biggest problem is getting the transmit to receive change over time down to about 25ms or less. Usually, this requires a bit of schematic understanding to sniff out the long time constants in the RX and TX power supply and AGC switching. This may require some work, but the work has been done on about a dozen or more common transcievers and the data is readily available. With the dozen or so new AMTOR operators showing up every week now, the 'what-do-I-do-to-my-transciever' question is being rapidly answered.

Most RTTY enthusiasts are extremely skeptical about item #2 above. I know I was. The power advantage and it's accompanying ability to work DX a much greater portion of the day quickly wins over the greatest skeptic. For instance, a A4XFW in OMAN is workable from Atlanta for about 10 hours most days with about 25 watts.

Why upgrade your station for AMTOR? The only reasons I can think of are to grossly improve RTTY station performance. I think AMTOR vs regular RTTY performance advantage can be compared to SSB VS AM performance improvement about twenty years ago.

Should everyone use AMTOR? No, I don't think so. Many will be uncomfortable with anything that smacks of 'computers' or 'new technology'. In a few years AMTOR will be as broadly based as SSB is now and will be compatible with new design transceivers. Then everyone can enjoy this new technology.

Meanwhile-my best regards to all! Joe Mehaffey, K4IHP."

First I would like to thank Joe for his thoughts on AMTOR.

I think both Joe and Paul have valid points. The views of All Amateurs on the subject of RTTY and in particular AMTOR are always solicited

RTTY has always been a state-of-the-art group. The systems used by Amateurs are, to say the least, varied. The constant refinement of each system is an on-going project. The computer is just one more step and AMTOR surely will be another step.

I hope you will write and convey

RTTY OPERATION WITH DRAKE EQUIPMENT CONTINUED FROM LAST MONTH

Last month we were discussing the two methods of utilizing your Drake equipment on RTTY. The first method was discussed and the second using FSKing of the PLO is concluded with the schematics, below.

after constructing the shift circuit mount it under the nearest convenient screw. The PTO in the TR-4/TR4C, RV-4/RV-4C, T-4X/T-4XB/T-4XC or R-4A/R-4B/R-4C is a small lug located between the prongs of the mounting clips on the right side of the PTO as viewed from the front.

Detail-PTO FSK method for Drake 4-Line transmitters.

If only separate receiver/transmitter frequency control is desired, the installation of the shift circuit on the transmitter PLO is all that is necessary. However, if transceive operation is desired, the 5645 kHz oscillator circuit in the transmitter must be modified as described below, and the station terminal unit must be modified to receive Mark at 1275 and Space at 2125 instead of the more commonly used values of 2125 and 2975 Hz respectively. This requirement is based on the fact that the 5645 kHz oscillator of the transmitter must be shifted by the amount of the mark audio frequency when the transmitter Function switch is in the X-CW positin to insure that you are receiving and transmitting on exactly the same frequency. This oscillator cannot be shifted 2125 Hz. To modify the oscillator circuit, remove the capacitor (C1 in T-4X/T-4XB, C177 in T-4XC, see transmitter schematic diagram) and replace it with a ceramic trimmer having a value of approximately 5.5 to 18 pf (NPO). This trimmer should be carefully adjusted so that the frequency shift of the 5645 oscillator is 1275 Hz when switching the Function switch from SSB to CW.

NOTE: This modification is necessary only when the PTO FSK method is used and transceive operation is desired.

DETAIL-PTO FSK METHOD TR-4/TR-4C.

In order to use the PTO FSK method with the TR-4/TR-4C, the following modifications in the transciever and in the station terminal will be necessary.

a: Modify the station terminal unit to respond to tones of 1275 Hz and 2125Hz for wide shift or 1275/1445 for narrow shift.

b: Install a reversing switch in the terminal unit so that the above mentioned tones can be used for either mark or space.

c: Install FSK circuits in the TR-4/TR4C or RV-4/RV-4C as described previously. One circuit will be used for 80, 40, 15 and 10 meters and the other will be used for 20 meters. Two circuits are required since a circuit which is correct for 80,40,15 and 10 meters will produce upside-down shift on 20 meters.

d: Modify the 9mHz oscillator in the TR-4/TR4C by installing an 8-50 pf trimmer capacitor in place of C84. C84 is connected to one terminal of the SPDT relay (K2) mounted in the small compartment under the chassis. For proper operation of your terminal unit, this trimmer must be adjusted for a shift of 1275 Hz between send and receive on 40,15 and 10 meters and 2125 Hz on 80 and 20 meters to insure that you are transmitting on exactly the same frequency as the station you are receiving when you have the receiving station tuned in.

CONTROL- SEND/RECEIVE

Switching may be accomplished by opening and closing the CW keying circuit. This can be done by connecting a cable from a plug inserted in the Keyjack to the Send/Receive switch on the printer. The switch should, of course, be open on Receive and closed on Transmit.

OPERATION

To operate RTTY, set controls for CW operation if the PTO FSK method is used. Set controls for SSB operation if the Audio method is used. When using the audio method, set AFSK generator audio output just high enough to give full output with the XMTR GAIN control at 12 o'clock position, then reduce the XMTR GAIN until output just starts to fall off.

Because of the continuous duty cycle of RTTY, it may be desirable to place a small cooling fan above the power amplifier tubes of the transmitter to extend tube life.

SUMMARY

The "audio" method is recommended if a good AFSK generator is available as this method requires no modification to the transmitter or transciever and operation is more flexible. Also, shift will remain constant at any frequency in a band as well as from band to band. The following table summarizes the necessary steps which must be followed for use of either RTTY method. Find your combination of equipment in the left hand column and the method of keying in the second column then read to the right to see what is necessary to use this method.

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

HITS AND MISSES COLUMN CONTINUED

your opinions to me. The RTTY mode is rapidly changing. The paradox is that we all need not change. There will always be a place for the Model 15, 19, 28's etc. They were and are still the 'workhorses' of the teleprinter society. I still have my model 28 here ready to put on line any time the computer goes out and I hear from a lot of RTTYers tell me they do the same. Some are still exclusively on the older 'mechanical' RTTY machines, and some are exclusively on computerized RTTY modes. There is a place for all to enjoy our hobby and none should be excluded from consideration.

The RTTY JOURNAL would like to hear from all of you, whatever equipment you have. Articles on how-to-do-it, or how-to-change-it are expecially appreciated.

So long for now.
George, WA6CQW.....

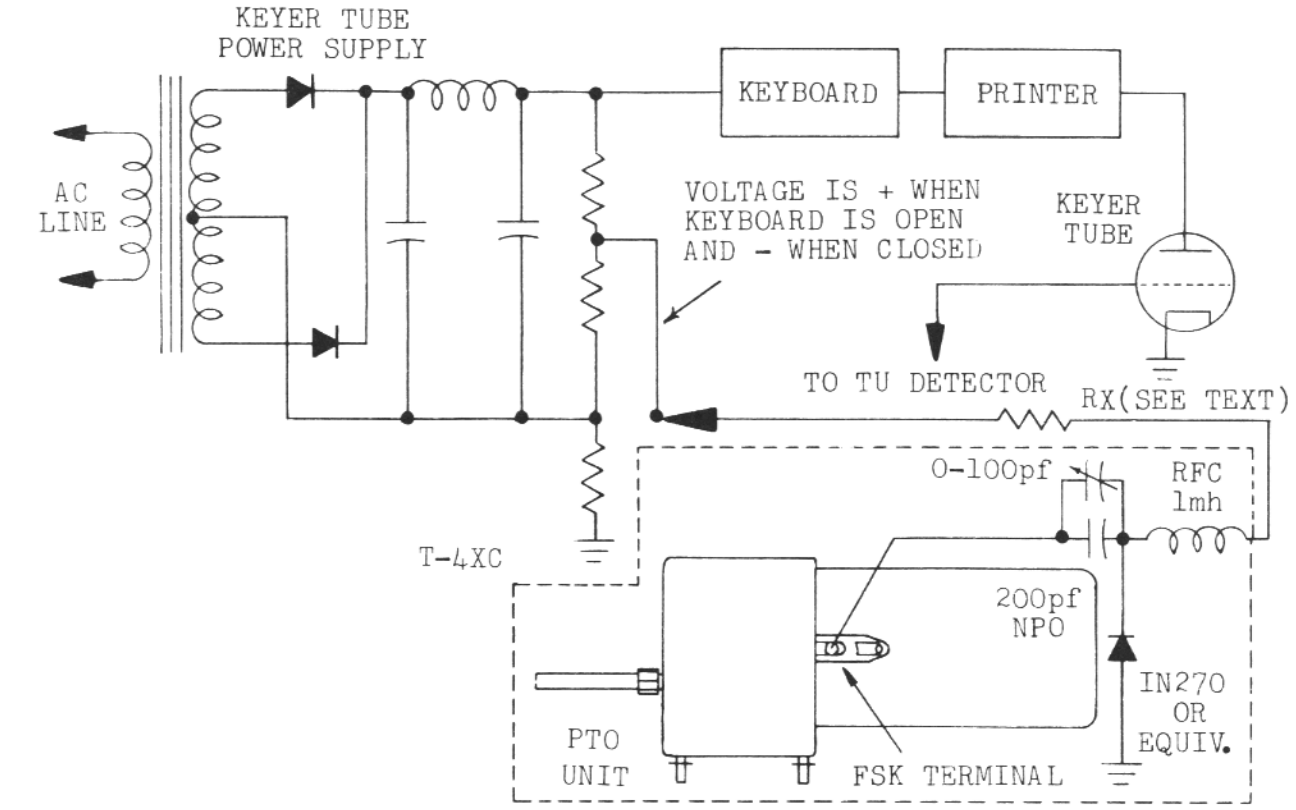
EQUIPMENT COMBINATION	RTTY METHOD	SHIFT	MODIFICATION TO RECEIVER	TERMINAL UNIT TONE FREQUENCIES: MARK/SPACE	MODIFICATION TO TRANSMITTER
Any R–4 Series receiver and T–4X/T–4XB transmitter	1. Audio Method. RCVR or XMTR transceive or Separate control *	170	None	2125/2295	None – Apply 2125/2275 Tones to mic input on SSB.
		850		Mark – not below 1500 Hz Space – not above 2600 Hz	None – Apply audio mark/space tones to mic input. Mark tone not below 1500 Hz, space tone not above 2600 Hz.
	2. FSK Method Separate control only	170	None	Any combination	Addition of FSK Ckt to PTO. Adjust capacitor for 170 Hz shift.
		850			Addition of FSK Ckt to PTO. Adjust capacitor for 850 Hz shift.
	3. FSK Method Separate or Transceive with Transmitter PTO	170	None	Must Use 1275/1445 tones	a. Addition of FSK Ckt to PTO. Adjust capacitor for 170 Hz shift. b. 5645 OSC modification. See text.
		850		Must Use 1275/2125 tones	a. Addition of FSK Ckt to PTO. Adjust capacitor for 850 Hz shift. b. 5645 OSC modification. See text.
	4. FSK Method Receiver Transceive control only	170	Add FSK Ckt to receiver PTO	Must Use 1275/1445	5645 Osc. Mod. See text.
		850		Must Use 1275/2125	
	5. FSK Method RCVR or XMTR Transceive or Separate control	170	Add FSK Ckt to Rcvr PTO	1275/1445	a. Same as 3 above. b. Same as 3 above.
		850		1275/2125	a. Same as 3 above. b. Same as 3 above.

Audio Method

*Not recommended for use with T–4X on HF amateur bands.

EQUIPMENT COMBINATION	RTTY METHOD	SHIFT	MODIFICATION TO RECEIVER	TERMINAL UNIT TONE FREQUENCIES: MARK/SPACE	MODIFICATION TO XMTR/TRANSCEIVER
R–4, R–4A or R–4B and T–4XC	1. Audio Method Transceive or Separate	170	None	2125/2295	None – Ground RTTY SHIFT only if transceive operation is not desired.
	Audio Method Separate control only	850		2125/2975	None – Must ground RTTY SHIFT jack.
	2. 3. PTO FSK 4. Methods 5.			Same as for T–4X except capacitor to change for 5645 Osc. Modification is C177.	
R–4C and T–4XC	1. Audio Method RCVR or XMTR Transceive or Separate	170	None	2125/2295	None – Ground RTTY SHIFT jack.
		850		2125/2975	
	2. 3. PTO FSK 4. Methods 5.			Same as for T–4X except capacitor to be changed for 5645 Osc. Modification is C177.	
TR–4 or TR–4C Transceiver	1. Audio Method *	170		2125/2295	None
		850		Mark – not below 1500 Hz Space – not above 2600 Hz	None – The tone combination used must fall between 1500 and 2600 Hz.
	2. PTO FSK	170		1275/1445**	1) Add FSK Ckt to PTO 2) Modify 9 MHz oscillator as described in text (4. d).
		850		1275/2125**	

*Audio Method not recommended for use with TR–4 transceivers with serial numbers below 26000.
**Mark/Space may be reversed depending on band.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VOLTAGE IS + WHEN
KEYBOARD IS OPEN
AND - WHEN CLOSED
KEYER
TUBE
TO TU DETECTOR
RX(SEE TEXT)
0-100pf
RFC
1mh
T-4XC
200pf
NPO
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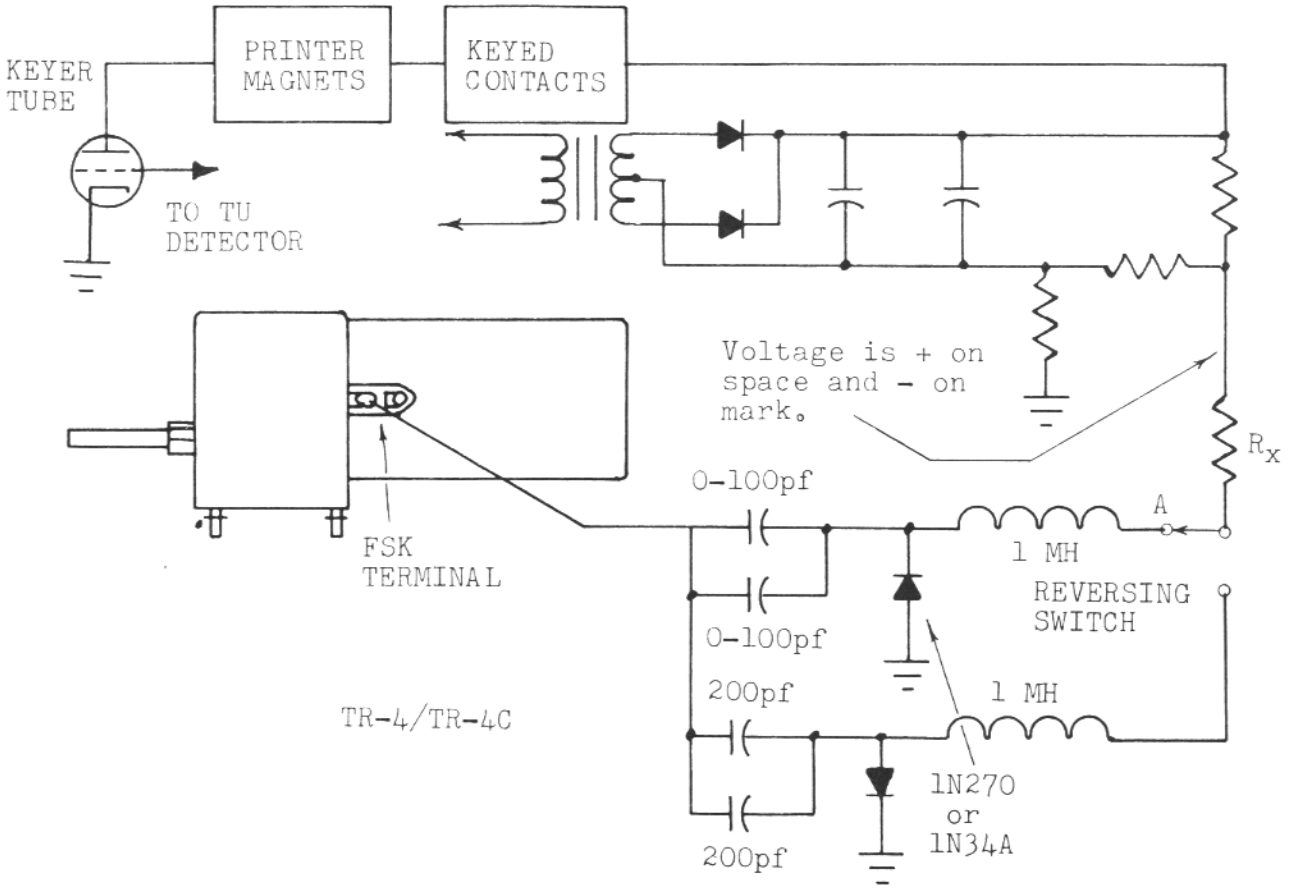
PTO
UNIT
FSK TERMINAL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space and - on
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0-100pf
A
FSK
TERMINAL
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SWITCH
0-100pf
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or
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200pf

TR-4/TR-4C

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WANTED: Teletype spare parts and/or unused Teletype equipment and sub-assemblies. Any quantity, model 28, 35,37,40,43. Send list for best offer to Morris Precision Parts Co., Box 157, Morris Plains, NJ 07950 or call 201-993-9669.

AVAILABLE NOW! In color or B & W! Full featured, all speed Baudot and ASCII for your IBM-PC. SASE for details. E. Alline, NE5S, 773 Rosa, Metairie, LA 70005.

FOR SALE: 9th edition of the "RADIO-Teletype frequency list', now contains 2463 frequencies monitored in 1982-83 of commercial stations like, press, aeronautical, weather, telex, military, diplo, maritime etc., on shortwave. Schedules of 89 press service stations on 673 frequencies are given, and these stations are also filed in a comprehensive chronological list for easy access around the clock. Hundreds of commercial SITOR (AMTOR) and FEC stations are also listed. The price of $20 includes the SUPPLEMENT SERVICE which keeps you up to date with two quarterly supplements. Book and supplements are AIR-MAILED to anywhere in the world. - Furthermore available are really up to date call-sign, code and general (non-RTTY) frequency reference books compiled from nonstop monitoring the complete shortwave spectrum. Write to Joerg Klingenfuss, Panoramstrasse 81, D-7400 Tuebingen, West Germany.

AMTOR-AMTOR-AMTOR-AMTOR-AMTOR*
The new HAL ARQ1000, Error Correction Terminal, will provide no compromise AMTOR capability for your RTTY station. This full featured unit must be seen in operation to be appreciated. For full details write or call Dick, KØVKH, DIALTA Amateur Radio Supply, 212- 48th St., Rapid City, SD 57701. (605)343-6127. All of your HAL and INFO-TECH equipment needs. Our prices can't be beat!

QSLs PRINTED my Standard or your copy (ANYthing typed, written, drawn, photo) 1:1. Quality Tone Photo-Lathe engraved cuts used. Limited time, prices: 100/$4.75, additional 100's @ $2.25. Send copy. Add estimated shipping; 1,000+, other Printing/inquire; D. Testa, 390 Lincoln Ave., RJ, Newark, NJ 07104.

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FRED SAYS: "Cash in on those unused teleprinter repair parts." Trades too. Send SASE for list of parts, supplies, gears, manuals, tools, toroids. Fred Schmidt, N4TT, TYPE-TRONICS, Box 8873, Ft. Lauderdale, FL 33310 (305)583-1340 after 9 PM.

COMMODORE VIC-20 OWNERS: At last! CW/RTTY send-receive software by RAK Electronics with schematics for simple homwbrew interfaces. Will work with popular TU's also. Low, low prices. SASE for information on these and many other cassette programs for games, finance, education, Ham radio. AMATEUR ACCESSORIES, 6 Harvest Ct., RD 7, Dept.R, Flemington, NJ 08822. 201-782-1551.

IMB-PC & MS-DOS OWNERS. Full featured all speed RTTY and ASCII for your computer. SASE for complete setails. E. Alline, NE5S, 773 Rosa, Metairie, LA 70005.

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INFO-TECH RTTY-CW EQUIPMENT. Mint condition. Used less than 10 hours. Keyboard Model M300C, Demodulator Model 200F. $750 for both units or seperate $400 each. M. Robinson, X-3 Crowfields Dr., Asheville, NC 28803 (704)274-5152.

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