RTTY Journal

EXCLUSIVELY AMATEUR RADIOTELETYPE

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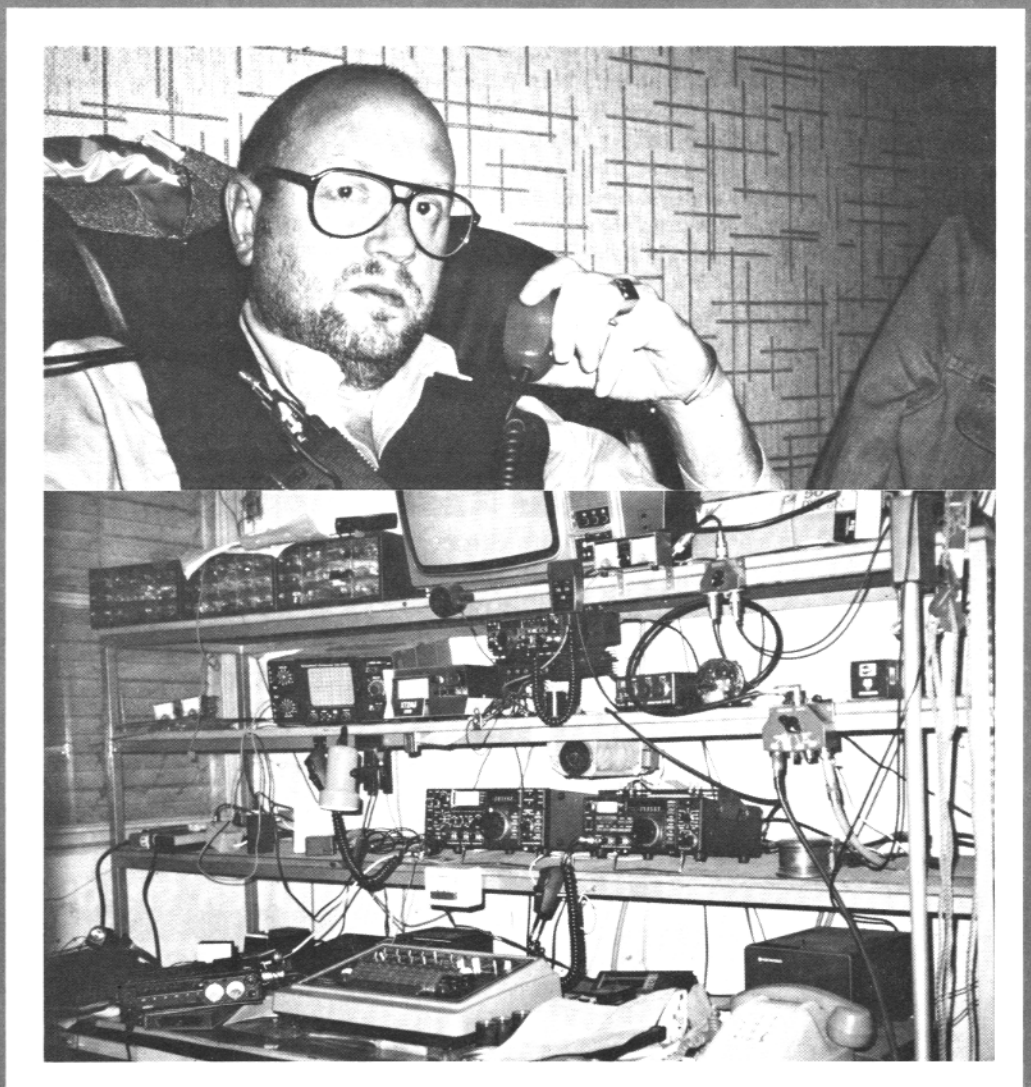

ENNO, XT2AU AND HIS SHACK

Contents

RTTY JOURNAL

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DX and AMTOR

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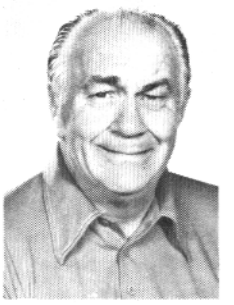


"GEE, A NEW VIDEO WAR GAME!"

"THE DXERS VS. THE MSO GANG"

The St. Paul Island DXpedition was the biggest DX operation of early fall. Andy, VE1ASJ, made certain that everyone knew about his trip to the little island beforehand, so nearly every DXer in the world was waiting for him to appear. The group that operated from there in 1982 had the misfortune to blow their RTTY XMTR after they had worked only 23 stations. This year it was different. At press time Andy had well over 388 QSO's and 33 countries. The grand total for the DXpedition was 18,000 QSO's all bands and modes. They also worked a few ASCII contacts, WD5ELJ, Jack being the first.

The Tono gear was supplied to the DXpedition by Gin, JA1ACB. Larry, K1LPS, was also instrumental in helping get RTY on the island expedition. I think Andy had a very good time, both in getting ready for the trip and hacking away while on the island. Andy is a well experienced trouper on the overseas DX circuit. Back in 1969-70 he was operating as ZD9BP, TU2BB and CR4BC, so you can see he is no newcomer to pile-ups. QSL's for the group go to his home call:VE1ASJ.

The saddest news of the month was the death of our good DX friend K7BV. Mac was a really dedicated DXer. The minute a new country showed up on the bands, you could bet Mac would have the news and he would share it with everyone. Mac worked for 32 years at NBC studios in Washington, D.C. He held the call W4YG when he lived in Virginia and was active from there. John, W3KV, who used to author this column, says Mac was a regular contributor to the JOURNAL even then. Mac had a number of physical ailments and as the years passed, he had many surgical operations. I talked to him on the land-line just a few days before his passing, and I could tell he was in lots of pain, but he kept right on talking DX and QSL's. As the word of his death spread around the world, many DXers told me how much they thought of him, and how they were going to miss his broadcasts telling of impending DXpeditions,etc. I can still remember how happy he was when he passed the 200 mark. I for one, am going to miss Mac, and I know I speak for all DXers when I pass everyone's sympathy along to Mac's devoted wife, Irene.

K6WZ, Carl, tells this story about Mac. It seems an 8R1 station would not respond to Mac's numerous requests (with IRC's) for QSL cards. So Mac contacted the station again and asked if his card had arrived. The 8R1 station replied:" I have it hanging right here on my wall!". Carl says he could almost see his TTY machine vibrate from Mac banging on his keyboard in responce.

W3KV, John, mailed us this list of goodies which he says came down his antenna leads: W5RYW/DU3; LXØWCY (World Communications Year); OX5JM, C53CL, Luis, Gambia; 5N7HKR; A4XGY; OH3TT/A4XES; EA8MU; 6Y5MC, Mac, QSL via WA4WTG; 8P6MU, Clyde; 8P6AY, Gordon; 9Y4VT; and HP2SM. John also reports a QSO with the globe-trotter G4CTQ, who is now active from Khartoum in ST2 land. Sid has been in the Sudan for 6 months but has only recently been active. John thinks Sid will be there for some time.

According to KOVKH, Dick, a seven-year veteran of MSO operation, there are only four principal MSO frequencies on the 20 meter band. Their frequencies are: 14097.5, 14087.75, 14082.5 and 14075.0 KHZ (which is also the European AMTOR calling frequency). There are other MSOs that show up now and then, but these four QRG's are the main focal points for message storage QSO's. The ARRL now has a committee for plans and programs which is going to do a study on band useage for the RTTY-AMTOR segments of the various bands. (See N6ELP. Dee's column for further information on this).

While on the subject of MSO's, I found another one on dial reading 14079.15 (low tones). There were 25 messages the day I discovered it. One contained the W1AW broadcasr schedule and there were a number of want-ads in the balance of the messages. Do we need the W1AW schedule available for random access? It is published in QST and I think it should stay there. I'm certain that the WB5 station who spent all that time punching it into his computer feels he is doing a service to the Ham community, or he wouldn't have done it. And the want-ads..it has been pointed out that they are blatant commercialism. The old-time MSO operators do not allow advertisements for Ham gear, cars or what-have-you on their units, so why should the newcomers? If we are going to put this kind of thing on RTTY then let the SSB operators play phonograph record music to entertain the SWL's.

I have no quarrel with message storage units that are used for person-to-person communications, but let us eliminate the surplus QRM caused by junk mail in the mailboxes (we have enough junk mail in our regular mailboxes!) Perhaps the ARRL should put a mailbox on W1AW, then the bulletins could be accessed one place instead of many. It has also been

suggested that W1AW be moved up above 14100, for that area seems to be the least utilized of the band. You see, I am not trying to knock MSO's off the air, I'm just trying to get some guidelines that will make the bands better utilized and provide enjoyment for everyone, everywhere. It will take input from many Hams to provide a base for decisions. I'm afraid that with all of these technological advances someone will put a big hard disk on a computer and then stuff the FCC regulations, the ARRL handbook and the Encyclopedia Britannica into memory!

I've been accused of being "childish, inane and deleterious" in my comments about MSO usage and have been challanged to list MSO's that have been "stuck on the air for Days." It has been said that I have been attempting to "discredit these significant advances in technology (MSO's)" and further the cause of RTTY DX operating, at the expense of the pleasure, effort and right of others engaged in MSO type operations." Gee, I didn't think that asking for a band-use plan, and a study to help bring some semblance of sense to RTTY-AMTOR automated operations, was going to cause all that furor.

Well, many have asked how I like AMTOR. Well, there are things I like, and things I dislike about the mode. If the link is good, I prefer RTTY. If the link is full of woodpecker, QRM and noise, and you want to get the message through, them AMTOR is it! In conditions like the latter, AMTOR can get mighty slow. The throughput slows down every time the machine asks for a repeat. I spend a lot of time just listening to other contacts, scanning the bands for DX and monitoring the output of MSO units. On AMTOR eavesdropping is mighty tough. Most of the time you get a lot of gibberish caused by not being linked to the sending station, but when I see ON4UN turn his power down to milliwatts, instead of a kilowatt, then there is a lot to be said for AMTOR.

WA8DRZ, confesses he is not a DXer, but he is amazed at the DX he has worked on AMTOR. Craig has worked ST2 ZS6 and VK2 for starters, all without a fancy antenna!

AMTOR EAVESDROPPINGS: "Tube type radios are too slow for AMTOR."..... "Just bought the interface and have been having trouble understanding the book."...."One of the things I dislike about AMTOR is no party lines, no roundtables and no breakers."..... "I am trying to figure out how to send exclamation points on AMTOR."... ..."You have to use the apostrophe instead of quotes on AMTOR"......."No QRM, just good signals and poor typing."......

RTTY EAVESDROPPINGS: "I'm awake, but the keys don't know it!"...."I'll try and turn the antenna, but the house is stuck."....."If we can say 'warmth', why can't we say 'coolth?'" ....."We are having our driest wet season in years."....."Gotta QRT, all five of our dogs are bothering me."... ...."The orchestra was playing "TAILS OF HOFFMAN."....."There is an old Portugese saying:'An old donkey doesn't learn languages!'"

KOJH, Jerry, back on land after sailing the Pacific Ocean for a few months, worked 9V1UC for number 100 and FK8AX for 101. Jerry, who knows the ropes of working SITOR--the shipboard version of AMTOR--sent along a list of stations transmitting SITOR. So I spent a little time eavesdropping on the shipping lanes. I can see why the mode was developed for that use. It seems like a very good system.

Jerry has been quite active on RTTY since his homecoming. Here are some of his catches on 20: SP9BCH, Jan 2045Z, QSL direct to SP buro; OX5JM, Joe, 2000Z QSL via Box 416, APO NY 09121; A4XGY, Alan, 2200Z via K2RU; and OX3FG, Walther, 2300Z to callbook QTH.

I had a very nice AMTOR QSO with G4JGJ/MM, Charles, who lives and operates on a 40 foot yacht. At the time of the contact Charles was tied up to a marina dock in Brighton, England. His antenna is a dipole hooked to a mast. If you cannot put up a beam, AMTOR will get you through, but remember there are not a lot of Hams on the chirpy mode (yet).

VE8DX, Bob, is active from Zone 2. Our RTTY contact went to pieces when he was telling of his location, but if I had everything correct, he is located on Baffin Island, 480 miles north of the Artic circle. We were fighting aurora about the time of the QSO, so didn't get the QSL info.

EL2AT, Hans, is now on with a 930 and a Henry 2K working into a 6 element antenna. Had a nice chat with him until his XYL, EL2BJ, hauled him off to play Bingo. I know what Bingo is in the African bush--it's the social event of the week! Ask Hans about a green mamba snake! QSL via OE3NH.

CT2AK, John, has been very active from the Azores. John told us to be on the lookout for a new station there CT2DF, who is hooking up a TRS-80 Color computer to his rig.

W2PSU, Ken, reports working JY9KV, via G3MUL, and JY9CL, via GW3RVG. I am not too sure of the QSL calls, so I just list them for a starting point. Ken reports flooding UA9PP with cards over the years. Well, a recent envelope from the bureau contained six cards from the Russian. Gee, Ken, I only got one--after two years wait!

ZS3GB is on the air from South West Africa (Namibia). Heard him on 15 working KB2VO and W4CQI. Look for him Saturday afternoons (US time). ZS3E, Kosie, and ZS3NH are two more stations on from that African area. 5Z4RT, Hermann, is on quite often from Kenya. Look for him on 20 around 1700Z. ST2SA is on from Khartoum in the Sudan. QSL direct to callbook address.

A nice note from Mort, PJ8UQ, who will be back in St. Martin during November and all of December. In the September column I said FG7AR, Alain, who is operating now from the French side of the island, did not speak English. Well I was wrong. Alain does speak English, but prefers French. If you write him for a sked, make it in French, for, as Mort puts it, "guaranteed results." I also said Mort wanted his RTTY QSL's sent to him directly. Between then and now Mort has changed his mind and so all

DX COLUMN CONTINUED

QSL's for PJ8UQ and FGØUQ/FS go to W3HNK. Mort also adds that cards that come through the bureau, or without an SASE have very low priority.

Alain is now quite active on RTTY. He is using Mort's Telereader while his own CT-2100 is in the factory being up-graded to a CT-2200. Mort also says that Alain is really enjoying the pile-ups on RTTY.

KA5CQJ, Camille (106/85), has listed a few new ones: C21BD, ZS3GB, A2XRS, EL2AT and 4U1ITU.

SHORT ROLLS: ZF2OGZ QSL via WA3UFI. YO8FR on 20 at about 1230Z. GU4/DJ2YE Diet, worked by K1NVY/7.

NOTE TO AMTOR OPERATORS: I suggest you always use both callsigns when communicating, then those waiting to catch a DX station will know who you are chatting with. I have noticed a number of times that I have been only able to identify one station in a QSO.

9V1VC, Ken, in Singapore, says he is having trouble working the east coast of the USA. The last time I worked him was on Sunday AM local time. When he finished with me he was called by YBØZX. Not a single US station called him!

JA1JDD, Taka, advises us that K9-KXA, a well-known QSL manager for rare stations has passed away. I had a nice three-way QSO on 20 meter RTTY with Taka and Dee, N6ELP, editor of the JOURNAL.

For a long time OX5FG, Walter, was the only RTTY station on Greenland. Now he has been joined by OX5JM who has been heard around 1200Z on 20.

A6XJC, Al, was recently heard calling CQ Japan on 20 meters at around 1800Z. QSL is via I8ACR.

Remember to look for K8CV on Anguilla island during the period November 21st to December 14th. He will be on RTTY only during non-contest periods.

I heard CT2AK work K4YYL on 40 meters about 0300Z. 9Y4VT is back on again. Look for him around 1200Z on 20.

UO5OWS was recently a new one for me. I worked him at 1800Z. He can be QSL'd via Dima, UT5RP.

N1BNK, Bert, chirped the following mod for the TRS-80 to me. He got it from DF1SX. It speeds up the recovery time constant of the receiver..Jumper both R27 and R61 with a 100K resistor. Then cut jumper 17 on the AF board under the chassis and insert 1.1 ohm resistor in series with the main control relay. Bert also tells of an AMTOR contact with ON4UN, John, in which John reduced power to one watt and kept the link going. After that contact it was ON4KIP, Paul; ST2SA, Syd; and TI3DJT, Chuck. Chuck told Bert of working KØKXR using only 100 milliwatts. Bert also mentions the letter in the September issue down-grading AMTOR. "It's full of misunderstandings about the mode," said Bert, and I agree. Bert is due congratulations for ARRL DXCC RTTY!

THOUGHT FOR THE MONTH(Stolen from the TCARS JOURNAL): DEFINITION OF POLITICAL PROPAGANDA--LYING IN STATE. (G6SYQ)

KB2VO, George, seems to have the AMTOR bug brewing in his shack. He is still elated after working SVØBE , UR2FU, ZP5JAL, ZM3AAX and OHØTTY in the SARTG contest. But his biggest success was a QSL card from YV5AIE. Wish I could do that George.

K1LPS, Larry, writes to say the European RTTY group congregate around 7040, if you are interested in chasing DX on that band, but on 80 many of them cannot go above 3600, so look for them around 3590.

ON4UN, John, recently had a QSO with AP2MQ on 20 meter SSB. John asked Mansur if he could give him a QSO on RTTY as he had at one time been on the mode. Mansur reported his Tono unit and all his other Ham gear had been stolen and he was operating with borrowed equipment. He also told John he would never get his own gear replaced as it was much too expensive. So John asks this question: would it be possible for Hams to contribute a few bucks to a fund to replace his RTTY gear? What do you readers think? John would also like QSL info for KG4AH, HL9KT and VQ9DO.

Here is a partial list of stations chirping AMTOR: WA8DRZ, AC3G, ON4UN, KB6BT, K4EIK, LA5EF, VK5RY, VK2RT, VK3BUS, TI2DO, K9TB, HB9AXA, W7KPZ, KB9IS, GI4AHP, KA2CAH, N7ML, DK8KA, KC8U, PAØBJE, N2CKA, KC4PO, AB6A, WA2ZIS, K4IHP, OZ9OU, JR2TZL, WB5OAS, K4WZ, YBØAQT, KC6CM and WB4HFQ.

I wish to thank everyone who contributed to this column. 73, dit dit and chirp chirp.. Bill, WØLHS.....

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

AWARDS

DXCC #85 to Valentin Sanchez, XE1M, September 26,1983.

DXCC # 86 Katsuo Makita, JA1DXV, September 27,1983

DXCC # 87 Hiroshi Aihara, JH1BIH, September 28,1983.

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

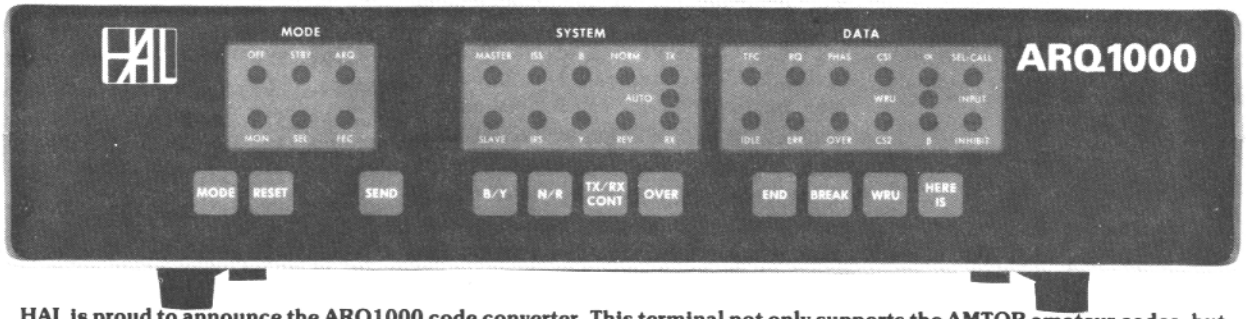
CONTEST CALENDAR

DARC "Corona" 10 meters only, final part November 6,1983.

WAEDC-HF Bands November 12 & 13,1983.

RTTY JOURNAL/73 World Championship February 25,1983.

AMTOR RTTY

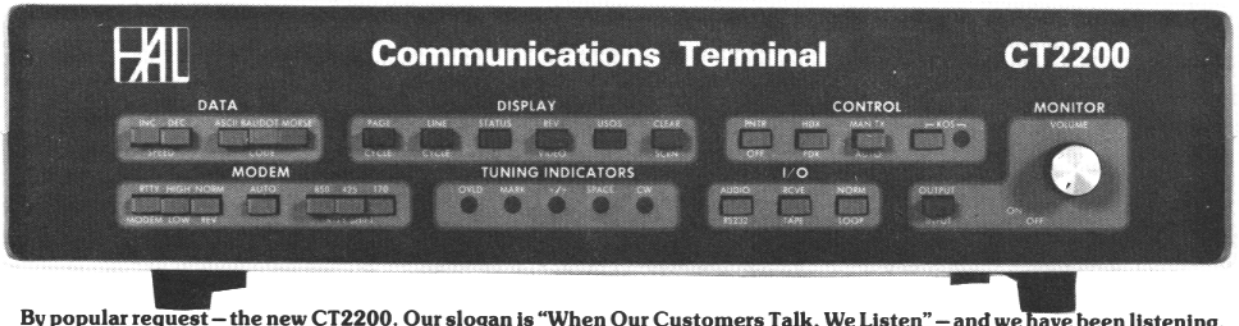


HAL is proud to announce the ARQ1000 code converter. This terminal not only supports the AMTOR amateur codes, but meets ALL of the commercial requirements of CCIR Recommendation 476-2. The ARQ1000 can be used with present and previous generation HAL RTTY products. In fact, any Baudot or ASCII full duplex 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
- Automatic listen mode for ARQ, FEC, and SEL-FEC
- Meets commercial requirements of CCIR 476-2
- By-pass mode for normal RTTY without changing cables
- Programmable ARQ access code, SEL-CAL code and WRU
- Programmable codes stored in non-volatile EEPROM
- Keyboard control of normal send/receive functions
- 30 Front panel indicators and 11 control switches
- Interfacing for loop, RS232, or TTL I/O
- "Handshaking" control for printer and keyboard or tape
- Self-contained with 120/240V, 50/60 Hz power supply
- 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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Urbana, IL 61801 (217) 367-7373

THE DOVETRON AT HIGHER BAUD RATES

With higher speed ASCII and AMTOR becoming a little more popular on the HF bands, some work is required to maintain the copy that is expected from the DOVETRON TU. When copying ASCII the occasional error will be seen. When copying AMTOR on the commercial units available, there will be more 'ERROR' indications than normally encountered.

These problems are encountered due to the standard DOV being limited to baud rates below 75 bauds. How this is done is by limiting the Low Pass Filter (LPF) to pass all baud speeds up to 75 bauds. ASCII and AMTOR run and 110 and 100 bauds respectively. These speeds are over the knee of the Low Pass Filter and is only due to the multi-path corrector which allows good copy. If the signal is good then copy will be good, but when the signal drops then copy will drop off even quicker due to the poorer signal to noise ratio (poorer S/NR).

What is required to be able to tailor the TU to suit the baud rate that is being received?,To do this the LPF has to be modified each time the baud rate is changed. DOVETRON has a board, the BINARY BIT PROCESSOR, which plugs into the mother board. This allows the operator to select 3 different baud rates off of the front panel. For example 45/75/110 bauds or 45/110/300 etc. This is probably the easy way to attack this problem (but the cost is approximately $145).

The way I approached this problem was to look at the speeds at which I operate on, which are 45/100/110 bauds. Therefore, I concluded that all I required was to change between 50 and 110 bauds. With this in mind, I looked at the DOV information and came up with the following modification.

A. Replace all resistors in the LPF R45 to R48 and R70 to R73 (510K ohms) with 750K ohms resistors.

B. Out of the junk box I got a two mini 4 pole 12 volt relays, these I mounted on a piece of PCB and mounted under the DOV motherbaord. I connected up the contacts of the relays through 560K ohm resistors and connected them across the 8 resistors in part A.

C. The relays are switched on from the re-labeled MPC ON switch on the front panel (well its' only left on). The switch is labeled 'BANDWIDTH HIGH/LOW'.

What this does is, when the switch is in the LOW (OFF) position, the LPF is fitted with 750K ohm resistors limiting the TU to 50 bauds. When the switch is on HIGH (ON) the 750K ohm resistors are then connected in parallel with the relay contacts with the 560K ohm resistors. The total resistance then is 320K ohms which effectively opens up the LPF to a little over 110 bauds.

This method was completed by myself, Bruce VK2RT and SID VK2SG. We have found that the modification costs nothing, and works 100 percent both for the low and high speed operation. On AMTOR before and after there is a very noticable difference in the amount of 'ERROR' indications given by the AMTOR unit over similar circuits. On ASCII the copy is again good and does not fall off as the signal falls into the S1 levels.

Another method would have been to connect the parallel resistors through some C-MOS 4066 switches and switch them the same way.

Ian Eddy, VK2IE
C/P.O. 2233
NSW 2233
Australia

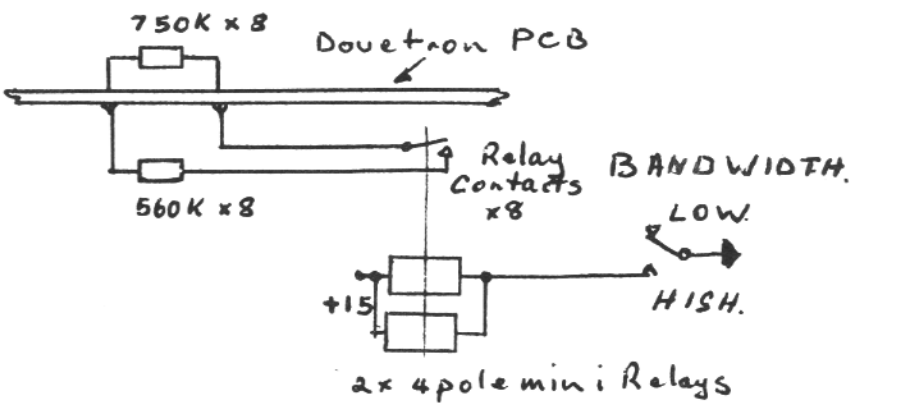
KENWOOD TS-830S Modification for RTTY

Here is a simple mod to use the CW filter on RTTY with the Kenwood TS-830S!

1. Buy a small SPDT switch from Radio Shack that will fit the hole in the rear panel.
2. Remove the top cover.
3. On the I.F. board locate diodes D-46 and D-47 (they activate the SSB filters in receive).
4. Remove the screws holding the IF baord down and tilt it up just like you did when you put in the CW filters, and unsolder diodes D-46 and D-47 anodes. Be careful!
5. Wire the center of the new switch to punching CW1.
6. Wire one side of the switch to the twisted leads of diodes D-46 and D-47. Insulate this connection when you are done.
7. Wire the other side of the switch through a diode (anode to switch) to CW-2, CW-3 or CW-4 for the filter combination you have on your rig. Now in LSB, if you put the switch one way you have SSB filters and put it the other way you have CW filters.
8. To operate normal SSB the switch must be in the SSB position or the CW filter will not be active on SSB.
9. Transmit not effected as it is activated through diodes D-56 and D-57.
10. To speed up the fan take off the bottom cover and move the red wire from 100V punching on power transformer to 120V punching.

Have fun.

Walt Amos, K8CV
4612 Woodland
Royal Oak, MI 48073



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

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WEIGHT-9 pounds - shipping weight 12 pounds.

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GEORGE HAMMON, WA6CQW
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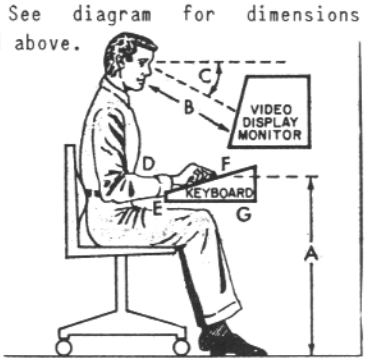
ERGONOMICS

I guess like most Amateurs I jumped into the computer explosion. I bought an Apple II, two drives and a monitor. I put all of this on a homemade desk but after several years the need to Maximize my comfort and efficiency was painfully apparent. Long sessions at the computer left me with all the classic symptoms, eye, back and arm strains.

I found in my simple research, a term called Ergonomic's. Human engineering into computer work stations was becoming really important to manufacturers of computer equipment. The term 'Ergonomics' was what I was looking for as I soon realized that this was a complex term covering all aspects, desks, chairs, monitors etc.

The National Institute for Occupational Safety and Health (OSHA) established some general guide lines. The height of the home row of keys on the keyboard (A) should be between 28¼" to 31". Viewing distance to the monitor screen (B) should be between 17¼" and 19½". The viewing distance should be 10 to 20 below the horizontal plane of the viewers eye level. The recommended angle between upper and lower arms (D) when seated at the keyboard is between 80 and 120 and the angle of the wrists no greater than 10 . The keyboard (F) should be at elbow height and generous room should be left under the work surface to allow leg movement (G). See diagram for dimensions listed above.



The type of desk I settled on measured 47" long, 26" high and 26" deep. This allowed ample room for my equipment with room for copy stand, floppy disc storage etc. I put slots in the rear for cables and paper for the printer.

The chair I settled on had arm rests, was adjustable in regards to height and back support. The chair also had casters to allow easy movement. The chair was heavily padded to aid in comfort and circulation.

The monitor I currently use is a 12" black and white (monochrome). I use a green monitor at work and found it to be far superior to monochrome. Studies have found green to be far superior to monochrome. I was about to purchase one when amber appeared on the market. I was surprised to find studies in this matter were going on all over the world. The Europeans seem to be leading the way. Norway, Sweden and Germany are starting to use green, amber and yellow. The Austrian study, interestingly, found no difference in yellow and green. Heath is now offering non-glare white, green and amber. (Confused?? I hope not). The bottom line I feel, is the hours spent in front of your monitor. The longer the time lends the user to green or amber. Light reflections on the face of the monitor should be avoided. I also added a small platform (lazy susan) which allows the monitor to swivel. This is most helpful when I am at the printer, able to glance back at the screen. A few people use a tilting swivel which allows 5 to 10 up and down movement.

The arrangement of equipment is a decision that takes some experimentation and I have included a few general guidelines. The more adjustments built into your system allows you to fine tune it to your body dimensions. The one size fits all is the foe of the ergonomic computer station.

A last touch to your system is a foot rest. Studies reveal that leg strain occurs with your feet flat on the floor. A foor rest will promote circulation and reduce leg strain.

The casual computer user will write off the foregoing as overkill but any Amateur using his computer in a contest will realize the need to maximize their comfort. The long hours needed to complete a lengthy data base will make your efforts worthwhile.

I have briefly explored the area of ergonomics. Several other areas to be considered could be: lighing, external noise sources, dust, temperature, wall colors and floor covering.

A survey of your work environment will allow you many pleasant hours of computer operating the same principals can be applied to your Ham station. I hope you find ergonomics as exciting as I did.

So long for now....George, WA6CQW

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

HAM HELPS

"Irv" Emig, W6GC, writes that he has the HAL 2200 system and would like to interface it with a Kenwood TS-180S with FSK. The system is designed to interface with an exciter using AFSK and so he must use the SSB filter in his Kenwood and it limits his selectivity considerably. Send help to Irv at 737-12th St. Manhattan Beach, CA 90266.

Irv also says that he has been on RTTY about 4 months and has worked 42 countries. Way to go !!!!!!!!!!

ICOM IC-751

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NEW Competition Grade Transceiver!

ICOM is proud to announce the most advanced amateur transceiver in communications history. Based on ICOM's proven high technology and wide dynamic range HF receiver designs, the IC-751 is a competition grade ham receiver, a 100KHz to 30 MHz continuous tuning general coverage receiver, and a full featured all mode solid state ham band transmitter, that covers all the new WARC bands. And with the optional internal AC power supply, it becomes one compact, portable/field day package.

Receiver. Utilizing an ICOM developed J-FET DBM, the IC-751 has a 105dB dynamic range. The 70.4515MHz first IF virtually eliminates spurious responses, and a high gain 9.0115MHz second IF, with ICOM's PBT selectivity. A deep IF notch filter, adjustable AGC and noise blanker (can be adjusted to eliminate the woodpecker), audio tone control, plus RIT with separate readout provides easy-to-adjust, clear reception even in the presence of strong QRM or high noise levels. A low noise receiver preamp provides exceptional reception sensitivity as required.

Transmitter. The transmitter features high reliability 2SC2097 transistors in a low IMD (-32dB @ 100W), full 100% duty cycle (internal cooling fan standard), 12 volt DC design. Quiet relay selection of transmitter LPF's, transmit audio tone control, monitor circuit (to monitor your own CW or SSB signal), XIT, and a high performance speech processor enhance the IC-751 transmitter's operation. For the CW operator, semi break-in or full QSK is provided for smooth, fast break-in keying.

Dual VFO. Dual VFO's controlled by a large tuning knob provide easy access to split frequencies used in DX operation. Normal tuning rate is in 10Hz increments and increasing the speed of rotation of the main tuning knob shifts the tuning to 100Hz increments automatically. Pushing the tuning speed button gives 1KHz tuning. Digital outputs are available for computer control of the transceiver frequency and functions, and for a synthesized voice frequency readout.

32 Memories. Thirty two tunable memories are provided to store mode, VFO, and frequency, and the CPU is backed by an internal lithium memory backup battery to maintain the memories for up to seven years. Scanning of frequencies, memories and bands are possible from the unit, or from the HM 12 scanning microphone. In the Mode-S mode, only those memories with a particular mode are scanned; others are bypassed. Data may be transferred between VFO's, from VFO to memories, or from memories to VFO.

Standard Features. All of the above features plus FM unit, high shape factor FL44A, 455 Khz SSB filter, full function metering, SSB and FM squelch, convenient large controls, FM option, a large selection of plug-in filters, and a new high visibility multi-color flourescent display that shows frequency in white, and other functions in white or red, make the IC-751 your best choice for a superior grade HF base transceiver.

Options. External frequency controller, external PS-15 power supply, internal power supply, high stability reference crystal (less than 100Hz, -10°C to +60°C), HM12 hand mic, desk mic, filter options: SSB: FL30
CWN: FL52A, FL53A
AM: FL33

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45 BAUD FOR THE TRS-80 RS-232 BOARD

BY Alejandro Lieber, LU1FCR, BV. Argentino 8060, 2000 Roasrio, Argentina

The crystal controlled baud rate of the TRS-80 I and III serial interface (RS-232C) can be software programmed from 50 to 19200 baud.

For 45 baud, it is possible to add an external clock with a frequency of 727 Hz (45.45 x 16) using a 555 timer I.C., but it's frequency stability can't be maintained to a reasonable degree.

Luckily the crystal controlled baud rate generator (BRG2941) of the RS-232C baord has the 134.5 baud rate. This speed can be hardware divided by three, so that a very accurate and stable 45 baud rate can be obtained with a single I.C., the 741S76. Actually, there is a small 1.3% error between the 45.45 baud and 44.83 obtained with this circuit.

The "divide by three" circuit is shown in Figure 1.

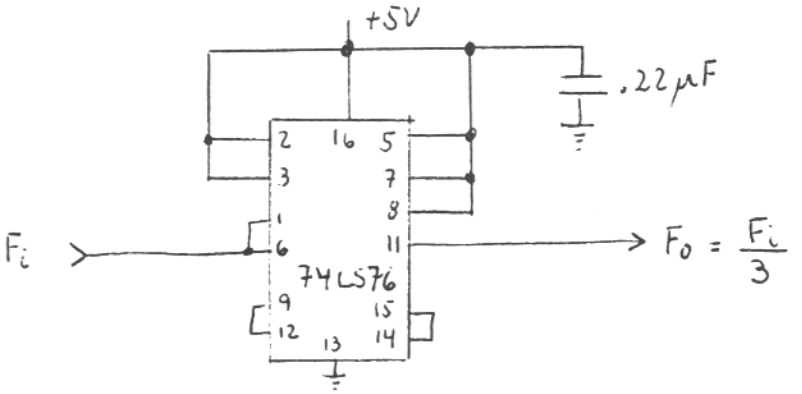


Fig 1

IF you have a Model I RS-232C board, insert this circuit between the baud rate generator (BR2941) and the UART (TR 1602B) as shown in Figure 2.

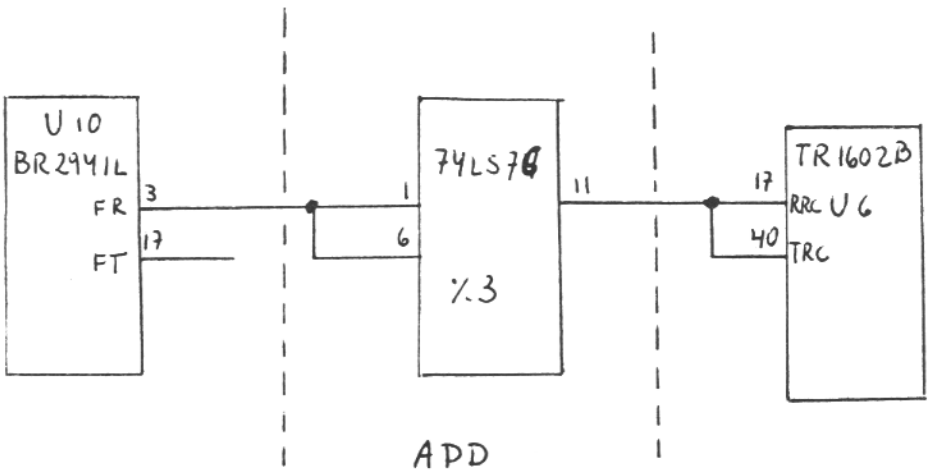


Fig 2

If you have the Model III RS-232C board, insert this circuit between the 5.0688 MHZ clock signal entering the board at pin 14, and the baud rate generator (BR 2941L), as shown in Figure 3.

You are still able to use the 50 bauds if you program the board for 150 baud. This speed is then hardware divided by three for 50 baud.

PROGRAMMING THE RS-232C MODIFIED BOARD FOR 45 AND 50 BAUD

For Model I and Model III board
For 45 baud execute: LD A,33H
OUT (ØE9H),A

In Basic: OUT 233,51

FOR 50 baud Excute: LD A,44H
OUT (OE9H),A

In Basic: OUT 233,68

For Model III only, using the $RSINIT ROM subroutine.

For 45 baud: POKE16888,51

For 50 baud: POKE16888,68
Alejandro Lieber, LU1FCR

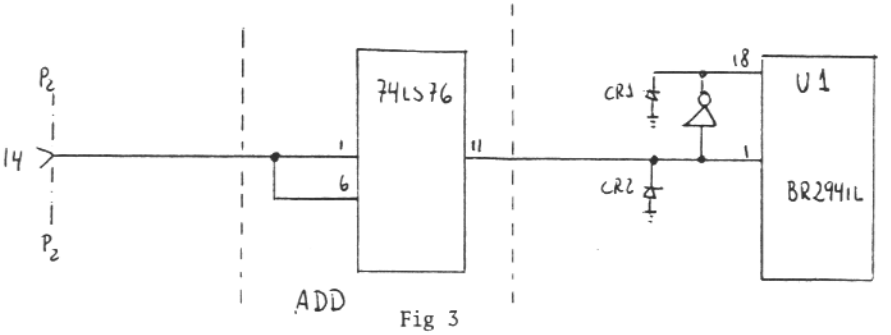


Fig 3

FROM THE EDITOR

John, KA6NYK and I have just returned from the National ARRL Convention in Houston, Texas. Had a fine time there, just wish more RTTYers had checked for us at the HOTEL desk instead of the Convention information desk, because we were unaware of the information desk until late Saturday.

Many of the 'gang' did find us however, and we did enjoy meeting everyone of them. Check-ins were: NØAPJ, WA5RAU, WB4ETT, KA5DNP, N5FSW, XE1TIS KB5MU, VE3DQG, VE3AYL, K5FP, WD5CHK, W5DOZ, N4MM, W5GHK, AG5P, N5BCK, K5-IMC, KD5TI, N5EN, WB5FNZ, KC8IV, Joe McKinney, W8GPB, K5UWD, KK5P, WB5FZA, KØPVI, KØPGM, W8RJB, AK5B, WB5VWX, WD8AJJ, AE5X, KS5R, KA5FUI, AG5G, WOQBK, W5VQC, W9DDD, WB5SQC/KA5ODI, KA4CFZ, KA4AOK, K5YFO, W5BKK, WØRSW, W5JC, W5BE, WA5WYD, WB5YWZ.

If you did not find us I am sorry. We were on the sixth floor (you could tell, we had a twenty meter antenna extended from our window). We had most of our RTTY station there and talked with quite a number of Amateurs around the world. Just a short list is: N6GZB, WA6LML, WD4DTG, N7FKW, VE2DC, H13ADI, XE1EOM, CT2AK, AB0T, VE7HS, DK2OC, OE1CI, VE4ADQ, J28OG, XE1U and W4EZI. That is quite a list from the sixth floor of the Astro Village Hotel with a mobile antenna.

We were very pleased to meet Gwen Burnett VE3AYL (of C.A.R.T.G.) and her escort Cec Ludlow, VE3DQC both of Toronto. Gwen has been an active Ham for fifty years she tells me.

Lys Carey, KOPGM of Lakewood, Colorado and the program chairman for ARRL, of a committee to study useage of AMTOR and MSOs on the bands asked if he could use this column to ask a favor of RTTYers in the U.S.A. He would like all of us to write to their ARRL section manager (found in QST just before the classified ads) and tell them what you think of MSOs, should they be allowed; should they be permitted in only 'certain' sections of the bands; should ARRL/FCC take a stand/mandate where MSOs shall be, and what of the contents of MSOs? Should they contain everything; ads for cars; for equipment; homes; etc.? In other words describe what you think a MSO should be permitted to post. Where you think they should be limited to (if at all) and whether or not MSOs should be limited (to 4 or 6 or be unlimited).

Lys also wanted input on AMTOR, essentially the same information as for MSOs. i.e. where to locate them/or not locate them at all; limit their content/or not etc. The input will indeed be very much appreciated. Here is our golden change to state just what you would like the ARRL to do about/to MSOs and AMTOR. Please be specific in your letters and short concise letters (I am sure) would be greatly appreciated.

On the subject of appreciation, I sure appreciated all of you answering

RTTY-CW 1002

The RTTY-CW 1002 system is a design similar to the circuit that appeared in the September 1983 issue of 73 Magazine with several enhancements including a CW keying and detector circuit. The two board design allows flexibility for the VHF FM operator who does not need the high Q filters. The components for various speeds and shifts may be mounted on plug-in modules for various operating options. The second board contains eight pole mark.space filters for 170 Hz shift, and the CW detector.

Features include: All power supplies on main board; two sided board with ground plane and legend; Only six wires interconnect 4.75 X 4.1 inch boards; no panel wiring....PC mounted switches, jacks, etc.; true RS232 or TTL output and input levels; adjustable linear or full limiting input circuit; limit and lock detect indicators; XR2206 modulator; XR2211 demodulator; scope output jack (second board); mark, space, and CW detect indicators (second board).

Two board set is $29.50..main board only $18.50..Filter board $14.50. Add $2.50 for postage, handling and insurance. Boards available only from Dynamic Specilaties. Assembled units are not available at this time. Dynamic Specialties, POB 20903, San Jose, CA 95160.

MORE ABOUT OUR BOARDS

We realize that many people hesitate in attempting a construction project if they are not sure if they can handle it. Dynamic Specialties has a 100 percent refund policy if you decide you cannot handle the job. All that is required is that the board(s) be returned within 30 days from the shipping date. Of course, this offer is VOID IF ANY SOLDERING HAS BEEN DONE on the board(s) or the board(s) are damaged in any way. This policy gives you the opportunity to check everything out before you commit your hard earned money to a project. We do not refund funds for postage, handling and insurance. So far only 2 or 3 customers on our 800A RTTY board have elected to exercise this guarantee. We have received several letter of satisfaction on the operation of the 800A system. It does require some time and money however, and some construction expertise.

By the time you read this we will have the boards for the new RTTY-CW 1002 system. As with the 800A the boards are double sided with plated through holes. The top of the boards is covered, primarily, with a ground plane shield to assure good performance in a RF environment. Also, a legend showing where all the parts go is silk-screened on the board for easy location of parts, and alignment. The 1002 system is very simple to assemble since there is no wiring. All switches, pots, jacks, and LED's are mounted on the board and simply go through the front and rear panels. The only wiring is 6 wires that plug in between the main board and the filter/CW board. Alignment requires a counter to set the frequencies on the modulator. This can be done over the air on VHF FM with a friend who has a counter. The demodulator can also be setup in a similar way, but a scope, VOM, and a counter are really desirable to set everything up.

As far as parts are concerned, we provide filled in order forms for parts from Jameco Electronics and Mouser Electronics. Some components can be ordered from Dynamic Specialties. All you have to do is make additions/delections from the order form if desired, add up the total, and send off for the parts.

The approximate cost of parts for the main board of the 1002 system is $45.00 including the cabinet and power transformer. The parts for the filter board run about $23.00 including a keying relay and DPDT dwitch for the main board.

With the main board only you can send and receive RTTY at speeds up to 1200 baud. Various component options allow different baud rates and shift frequencies. These components are arranged so they can be mounted on a plug in dip header and changed for various options. Performance will be good on HF with strong signals and excellent on VHF FM. The filter board is currently designed for 170 HZ shift only with 2125/2295 HZ. Baud rates up to 300 baud ASCII will work with the filter board as it is currently designed without any changes in the XR2211 circuit. Filter bandwidth and frequencies can be changed to 425 and 850 HZ shifts, but this is a permanent change. The CW detector is on the filter board and uses one of the eight pole filters for its' operation. CW keying is on the main board and can be either a tone or reed relay contact. Computer I/O is either TTL or true RS232 using a 1488 chip.

ON THE AFSK/CW 800A from DEAN, K7NO

I put the 800A into a slightly different cabinet than the one supplied, because it matches my FT101ZD and allows a bit more room for everything.

The thing works just as promised and was easy to put together. I did have a bit of trouble with it in the CW position, but found that if the caps, in the CW demod, are changed to mylar, everything perks. The meter I used is from 'Circuit Specialists' in Tempe, Arizona, and sells for About $12.00. The only 'error' I found in the whole thing was the labeling on C47. It is reversed on the top of the board, but it is okay on the solder side.

If anyone is hesitant in tackling this project, I will be happy to put them together for a nominal charge. I will handle each one individually as far as costs are concerned since the major expense is the case and connectors. Assembly time was about 20-30 hours on this one and I expect that others will be in the neighborhood of 15-20 hours.

It is a pleasure to work with a project that is as well designed as this one. Never in my 27 Amateur years have I had a project work out as well as this one. Dean Norris,K7NO 2431 E. Pebble Beach, Tempe, AZ 85282

RTTY-CW A COMPLETE SYSTEM- - 800A

The AFSK-CW 800A is an integrated modulator/demomulator using the newest active filters available. An eight pole filter design is used. The filters track any mark/space frequency selected. The space frequency may also be tuned for any odd shift not programmed. The system is useable with any computer (with appropraite software.) Input/output is compatible

AFSK-CW 800A CONTINUED

with RS232, TTL, or current loop.

FEATURES; Programmable, any 4 mark and any 4 space frequencies; crystal controlled accuracy of 0.5 percent or better; 1KHz keying tone or reed relay keying; phase coherent, frequencies change at zero crossing; input bandpass filter; separate mark/space filters follow modulator programming; all popular shifts and speeds up to 600 buad; input level adjustable:full limiting or linear operation; filter bypass switch; XR2211 PLL demodulator for wide dynamic range; simple alignment procedure; opto-isolated current loop output; all power supplies on board; six by eight inch double epoxy board with legend, 1300+ plated holes. All parts are easy to obtain. IC's cost about $49.00. Total cost for all parts, meter, cabinet, pc board, connectors, switches, etc. runs about $260.00.

PC board only $45.00, add $2.50 for postage, handling, and insurance. Dynamic Specialties, POB 20903, San Jose, CA 95160.

FROM THE EDITOR CONTINUED

the survey in last months issue. It was placed in the JOURNAL by a fine manufacturer of electronic gear. I hope that more surveys will come in this month from the rest of you as we really did get some solid information for our petitioner and also some very good input for the JOURNAL (yes, I read every one of them).

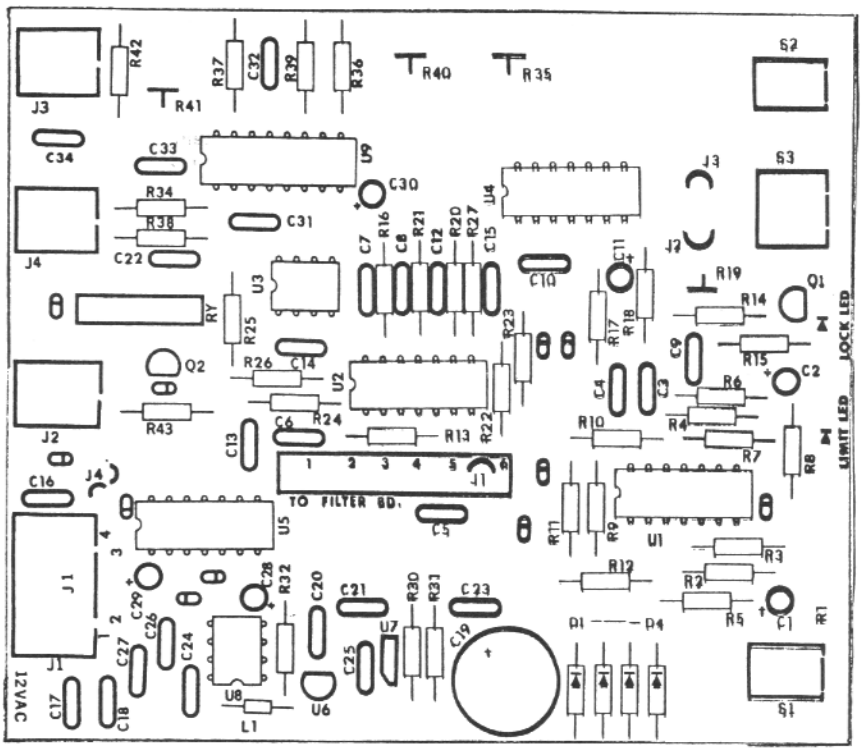
Some comments were of readers wanting more how-to articles.... If we do not get any we can not print them. So let's get the pens and pencils out and start writing. This JOURNAL is for and by all of you out there so keep those articles, stories, pictures coming in.

Some comments on the absense of a VHF column..No news of VHF RTTY activity coming in here, even in San Diego/L.A. there is NO RTTY extant on 2 or 220..I have looked in vain since returning from Houston.

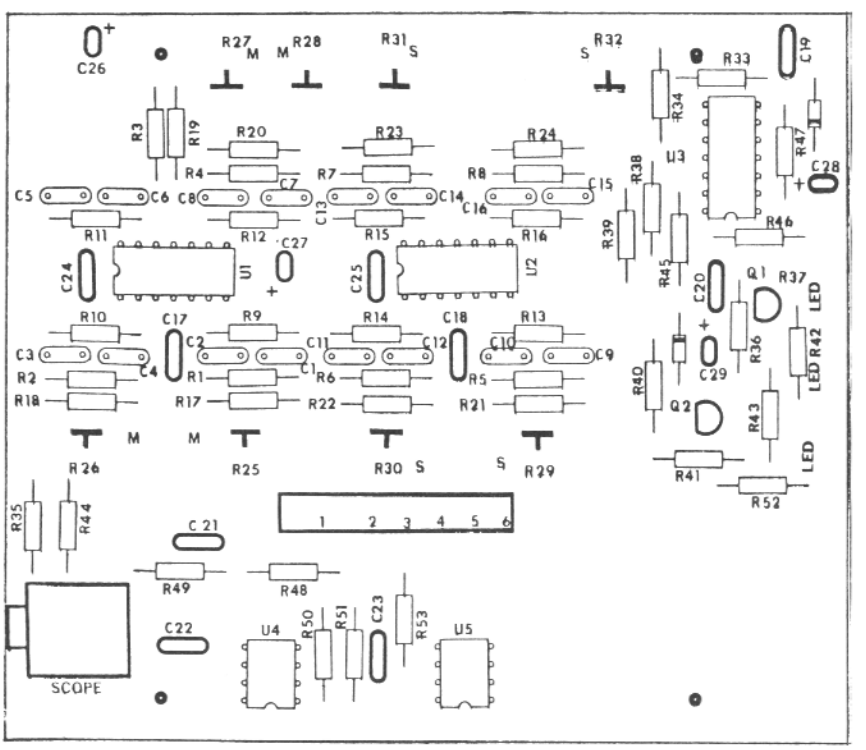
Good luck, good health and prosperity if it benefits you. Dee, N6ELP

FULL SIZE LAYOUT OF RTTY-CW 1002 PC BOARDS COMPONENT LEGEND PRINTED ON BOARDS

MAIN BOARD



FILTER BOARD



CLASSIFIED ADS

30 words $3.00, additional words 5 cents each - Cash with copy. Deadline 1st of month for following month.

MODEL 33RO's (receive only) $100. KSR (keyboard send receive) $115. Units are less stands with standard private line electronics (UCC6) 20 or 60 Mil loop strapable. Model 33 ASR's $130. Model 32 (5 level) RO $115, KSR $125, ASR $139. Standard UCC 5 private line electronics 20-60 mil. All units sold as is but have been fully tested line and local prior to shipment and checked for any major visible wear. Used stands for M-33 and 32 terminals complete with hardware $15 ea. with castors $25 ea. Parts available both new and used for M-33 and 32. Call or write reference your needs.(Please try to site part numbers). Paper for above units $1.60 per roll G/W grade. Ribbons $1 ea. M-33 schematics sets $11 ea. M-33 manuals 3 vol. set $25. 8 level or 5 level tape $1 per roll. Sprocket form paper 9½ x 11 with tear away perfs $35 per box 3000 forms. Cable ties 5" strong nylon 100 for $1.50. Good used RS232 connectors female or male removed from equipment and cleaned, without hoods $1.60 with hoods $2.50. T & B 25 pin ribbon type $3.25 ea. RS232 interface installs into UCC 5 or UCC 6 with instructions good used $40, new $129. Video recording tape boxed used but good $5 ea. 7" reel. Used M-33 and 32 copy holders #182036 $4 ea. Chad box #182965 $2.50 ea. Platten #185877 resurfaced like new $16 ea. Motors good used #182241 or 181870 $19 ea. UCC 6 good used $30 ea. Many parts available. Call or write about your needs. All items subject to prior sale. New York residents add applicable sales tax. All items FOB Bayshore, NY. COD orders are accepted. When enclosing payment with order, please enclose exact amount for items purchased. Shipping costs will be COD BEST WAY (Cheapest) unless otherwise stated in your order. Please reference AD 300P when ordering from this list. TRAM TELETYPEWRITER SERVICE 50-0 Corbin Ave. Bay Shore, NY 11706 (516) 242-5011 or Telex #64590.

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MICROLOG AVR-2/AKB-1 RTTY system with all extra options and manuals. Perfect working condition $375 UPS PD. Martin Perry, K9HVS, 1403 N. Gilbert, Danville, IL 61832 (217) 442-8613 after 0100Z.

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WANTED:TELETYPE SPARE PAARTS and/or unsued Teletype equipment and subassemblies. Any quantity, model 28, 35,37,40,43.Send list for best offer to:Morris Precision Parts CO, Box 157 Morris Plains, NJ or call 201-993-9669.

FOR SALE: HAL DS-2000 Keyboard, HAL ST-5000 Demod. Asking $200 for both. Call 616-676-1491 after 5 PM EDT or write:Tom Van Kuiken, 1108 Paradise Lk. Dr., Grand Rapids, MI 49506.

WANTED: SPARE PARTS FOR Teletype and Kleinschmidt machines, also unused subasm. Phil Rickson, W4LNW,POB 70, Morrisonville, NY 12962. 518-561-3479

FOR SALE: HAL RTTY CT-2200 complete with keyboard, screen. $25 extra for tech manual and $50 extra for factory wiring harness. My cost $1225 will sell for $795. Larry, KAOJRQ. 712-322-8753.

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