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PLEASE SEE PAGE 3 FOR STORY ON COVER PICTURE

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COVER PICTURE

LEFT-ANDY, VE1ASJ, Right-Larry, K1LPS, The dog is Tina, the Pomeranian) July 1985.

Excerpts of letter from Larry follow:

Hello RTTY JOURNAL

Thought I should drop a line to say that I am still alive and well. (If not all that active on RTTY). I've really been busy with lots of other things the last couple of years, but still manage to get on RTTY at times. Have tried to get in the B.A.R.T.G. and C.A.R.T.G the last couple of years, but those weekends have been spoiled for me in all cases. But I hope to be on for the upcoming B.A.R.T.G. I've got to get my tribander back up, but that is a half day's work if the weather will let up just a little.

I'm enclosing a picture that I had taken last summer. I visit Andy, VE1ASJ every summer and we finnaly got this picture. Andy has been very active on RTTY the last couple of years. He also made a great number of contacts from St. Paul Island (Canada) a couple of years ago. We're both looking for some rare spot to put on the RTTY map, but the lottery tickets just won't co-operate HI HI!

Anyway...you might also note my Vermont automobile plates. "RTTY". I've had those since 1975 and there's a few people around this state that would like to see me abandon those- HI! Yes...there are plenty of people who have RTTY gear in this state, although judging from the number of requests I have for schedules, not many of them are all that active.

I may be making a move (locally) this year, but getting antennas up will have a lot of priority. I have yet to find the perfect place but hope to so that within a few months. We still have plenty of snow here so would not want to be moving this week.

Anyway, I expect to be a lot more active this year.... especially 20M as usual. For the moment, I just listen a lot, but haven't seen a lot of new DX around. Take care and keep the magazine coming.

73 L. L. "Larry" Filby, K1LPS

If you need Vermont for WAS Larry is available for skeds...be sure to send him a SASE.....

BY:Dick Uhrmacher, KØVKH
212-48th Street
Rapid City, SD 57702

MSO'S

Hi Gang! Hope things are going well for each of you, as we move into Spring 1986. Band conditions on 20 meters have improved somewhat, although still quite shaky at times. They could not have been much worse than this past Winter, and it won't be long until good band conditions will be here again.

This months "MSO Column" is going to be devoted mostly to information concerning "Automatic", (unattended) MSO or CBMS (computer based mailbox systems) operation. This subject has become prominent in many conversations recently, and there seems to be quite a variety of opinions as to just what is and what is not legal concerning this type of operation.

Let me start out by stating that true "automatic", (unattended) operation of a MSO or CBMS, below 50 MHz has NEVER been authorized by Part 97 of the commission rules. In fact, true automatic operation is still NOT authorized above 50 MHz, for Packet Radio, MSO, CBMS, VHF/UHF repeaters, or ANY OTHER type systems where "Third Party" traffic is involved. Each MSO/CBMS operator should become intimately familiar with Sub-Part 97.79, Part 97, "Control Operator" requirements, as to neglect these requirements may be cause for the FCC to cite their station. Rumor has it that the Commission recently cited a HF Packet station licensee, when they called him in reference to his activities. Unfortunately, the licensee's wife responded with, "he's out of town", and the Commission looked quite unfavorably upon his "unattended" Packet BBS activities! So, it behooves us all to review our activities in this area, unless we also desire to correspond with the FCC!

First of all, I think that a defination of "Third-Party" traffic is in order. It is: Amateur Radio communication by, or under, the supervision of the Control at an Amateur Radio Station to another Amateur Radio Station on behalf of ANYONE OTHER than the Control Operator". Obviously, that includes MSO/CBMS activities, including the forwarding of files from anyone other than the control operator of that system. (Automatic operation of your local two-meter Repeater is completely legal for instance, UNTIL you add that lovely Autopatch, and then it may NOT be left under Automatic control!).

If my interpretation of the Rules is correct, it would appear that so-called automatic operation of the MSO/CBMS equipment itself is legal, providing that a "Control Operator" directly supervises this activity anytime third-party traffic is being encountered. Thatis, a control operator must be present to review EACH file written to, or relayed by, a MSO/CBMS that involves a third person, (Someone other than the Control(s). For example, the control operator, most likely the station licensee) is completely responsible for the proper operation of the Amateur Radio station, (refer to Sub-Part 97.79). Although there is no specific rule or requirement concerning the physical proximity of the control operator from the stations controls, he or she MUST be present at the control point, in order to insure that the station is NOT utilized for inappropriate communications of any kind! Recently I was informed of a situation where a very inappropriate file containing obscene material was written to one of the 20 meter CBMS's. This file was then "called" by remote command, re-transmitting what was obviously inappropriate comments. It is this very type of activity that the Control Operator of EACH MSO/CBMS must preclude, as well as any others pertaining to business communications, retransmission of other radio services, communications with countries not on the Third-Party Agreement list etc.

The American Radio Relay League is at this time attempting to persuade the FCC to modify their stand on third-party traffic and automatic control above 50 MHz. (Please refer to 'League lines', March 1986 issue of QST). This would greatly facilitate the use of Packet Radio techniques for traffic handling of all kinds. However, this author feels that little or no hope exists for true automatic control of CBMS/MSO/PACKET BBS systems below 50 MHz. Consequently, SYSOP's of HF MSO/CBMS/PACKET BBS's must be aware of, and comply with the Rules as they are written now, or attempt to change the rules, the prospect of which I find very dim.

There are several things that MSO/CBMS SYSOP's can do to comply with these rules, but there's

no substitute for the requirement to properly monitor systems where third-party traffic is involved. It is also a requirement that BOTH callsigns be given as identification when third-party traffic is involved with a foreign Amateur

Radio Station, (again applicable to MSO/CBMS/ PACKET BBS operation).

I do not personally feel that I must hover around my MSO on a second-to-second basis to insure that it is utilized properly. I have my "MSO Sign-on" response constructed in a manner that it alerts me each and every time the MSO is activated, providing me with the opportunity to review current activity. If inappropriate or otherwise illegal activity is detected, it is, of course, a simple matter to terminate MSO service. When I'm away from the immediate station equipment, I disable my MSO, and revert to the "RXON" mode, where I copy all RTTY signals on the frequency to disk. I review these disk files when I return, and when I find a station has tried unsuccessfully to activate my MSO, I try to contact them at some later time to provide MSO services. This isn't the true automatic MSO srvices that I would like to provide, but under the present Rules, I think it's as close to that level that I can legally provide, and I would encourage others to review their operating habits as well.

MSO/CBMS/AMTOR INTERFERENCE WITH "DX" WINDOWS:

John, TG9VT, Guatemala City, Guatemala, points out some ways to preclude unnecessary interference to the "DX Windows" on 40 and 80 meters. Like this author, he feels strongly that CBMS "Beacon" activities are not only illegal in most cases, but that they indiscriminately interfere with RTTY, CW and in some cases SSB QSO's, ruining many DX and low level signal activities. John asked that the frequencies of 7080 to 7100 KHz, and 3640 to 3650 KHz specifically be avoided by RTTY and AMTOR operators.

MSO SOAPBOX

It is rather common knowledge that the National Autostart Frequency has in the immediate past been plagued by some very illegal, obnoxious and childish RTTY operation. Also, it is well known that many RTTY operators, users of the MSO's, SWL participants, etc., have filed formal complaints with the FCC concerning this illegal activity. Consequently, this author can assure users of the NAF that the FCC Enforcement Bureau, and several of the FCC Monitoring Stations have been routinely monitoring activity on the NAF. Anytime that monitoring takes place on a given frequency, all operating habits, and especially those not legal, are scrutinized by the FCC Technicians. It only makes sense for all to review our daily operating habits to insure that we run a "tight ship"! And, for those who may intentionally cause interference, use other stations call signs, use obscene language, etc., fair warning is given. Straighten up and fly right, or risk losing your Amateur Radio License!

MSO RAMBLINGS

As of 1 March 1986, there are thirty-three reservations for the "RTTY Dinner", to be held during the Dayton Hamvention in late April. The sponsor this year is none other than "The RTTY JOURNAL", and I'm certain that a good time will be had by all attending. Contact N6ELP. KØVKH, K4KOZ, AJØX or WA1IUF for information or reservations concerning this prestigious event. No registration fee, order off the menu, and just a good time for all RTTYers! Sketchy information

Sketchy information has it that Dick, WD4MTC, is making a good recovery after his recent surgery. We all look forward to seeing him back up and running on RTTY.

Don, W5QXK, reports that he has Hygain "Hytower" back up at his new QTH, and hopes to be more active with his MSO, as his job permits.

That's it for this month gang! Hope to see many of you at the Dayton HAMVENTION later this month. Takeumcare and Best 73 for now! DE:Dick, KØVKH...

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

DARC "CORONA" 10 METER RTTY CONTEST 1986.....

SCHEDULE- 1st test Saturday March 1st; Second test Sunday May 4th; 3rd test Saturday, September 6th; and 4th test Sunday, November 2nd. All from 1100-1700 UTC. For Logs and more info contact Heinz Moestl, DE8BUS, POB 1123, D-6473 Gedern 1, West Germany.

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OLD TELEPRINTERS NEVER DIE.....
THEY JUST LOSE THEIR BAUDS!!!!!!

DX RTTY

BY: **Roy Gould, KT1N**
POB DX
Stow, MA 01775

Hello fellow RTTY DXer's. I am happy that Dee, N6ELP has asked me to share with you some thoughts and happenings on the RTTY DX scene.

First, let me say thanks to Joe, AJØX, for all the fine columns in the past, Joe has decided to step down as the writer of this column and we will see if I can fill the shoes for awhile. Thanks Joe, and we will see you in the pile-ups.

About myself, I am 42 years old, a Ham for 29 years and first licensed as K1GSK then trading it in (why I don't know) for the present KT1N. I am active on all HF bands, RTTY, CW, SSB, and Packet. I've been on RTTY for just over 2 years and really enjoy it. Got into RTTY mainly looking for something new to do as I was back then, and still am today, one away from the DXCC mixed honor roll, and they were, and still are, few and far between. At present I have 141 worked on RTTY and 118 confirmed. Enjoy all the RTTY contests as well as DXing and rag-chewing. Now if I could only learn to type....

THe station consists of a TS930S, TR7, Alpha 76, 204BA, TH7DXXX, 4 element KLM4U, Slopers and dipole on 80 and 160 and assorted 2 meter antennas. The RTTY gear consists of a Commodore 64, AEA MBA-TOR, PH64, CP1, with a disk drive and printer.

RTTY JOURNAL CONTEST

Well, the '86 RTTY JOURNAL/73 Magazine Contest just came to a close. I was in it this year, but due to the flu and a long planned previous commitment for Saturday afternoon, I could not put a full effort in. However, I did manage to work 174 stations and 33 countries. Activity seemed good on 20 but there was no activity heard on 15 or 10 and very little on 40 and 80 this year. The 20 meter band seemed to be somewhat decent condition-wise and there was a lot of activity Saturday afternoon. Unfortunately, the band seemed to be in better shape Sunday with European signals a lot stronger here Sunday morning than they were on Saturday. Some of the countries heard or worked from here during the contest were: AZ1A, FO, GU, JA, KH6, YO, OE, UK, CO, HC, CP, 9H1, SV5, GW, LX, LZ, SP, XE, UB5, and LU. Jeff, 9H1EL was going great guns and seemed to have the highest score that I heard. We will have to wait and see when all of the results are in. So those that took part get those logs in. I am suggesting to Dee that next year we make this a two day contest, what are your thoughts??

B.A.R.T.G.

Don't forget the Spring B.A.R.T.G. contest March 22-24. This also is always a good one with lots of sctivity. Rules appeared in the January issue of the RTTY JOURNAL. See you in there!

DX NEWS

Now to some of the DX news that we have heard. **AZ1A**.....will be back in Argentina as you read this. He was departing the islands on February 26 and will tackle the QSL chores. Tnx Juan for a new one for many of us. QSL to LU8DTQ.

D68WS....., as I write this, March 2, I just worked Walter, DJ6QT, from the Comoros on 15 meters. He was good and strong and also was heard on March 1 on 20 meters. Hope you all get a chance to work him and he has a safe trip. QSL to DJ6QT.

JA1ACB....passes along the following:
DF9FA/4S7....is active on RTTY.
8Q7AV....also reported active.
CE9HOP....is in the South Shetland Islands and will be on RTTY mid March. ZK1WL is QRT but expects to be on RTTY from ZL9 later this year. His ZK3 operation has been postponed.
AH9AC... also reported on the keys now.
Gin reports that 9M6MA and A35PP are active also. Thanks Gin.

KP2N....is on the air from the Virgin Islands, he has been on RTTY only a few weeks and loves it. He will be on the air from the British Virgin Islands in April as VP2VAA. QSL information is via K8OHC or direct to: GPO Box 11325, Charlotte Amalie, St. Thomas, US Virgin Islands, 00801.

RTTY DX BANDPASS

CALL	FREQ.	UTC/DATE	QSL
TI2JIC	14.091	1240/25-01	CBA or Bureau.
LX1DA	21.091	1550/25-01	"
HC1SC	14.090	1510/26-01	"
LZ2KIM	14.091	1240/31-01	"
HC5KA	14.095	1350/01-02	via KT1N
CE2LM(ARQ)	14.075	1250/08-02	CBA or Bureau.
POØFM/P4	14.096	1351/09-02	via W2NHZ

TOO GOOD TO BE TRUE?

PAKRATT™ Model PK-64

shown with enhanced
HFM-64 option installed

★ MORSE ★ BAUDOT ★ ASCII ★ AMTOR ★ PACKET ★

FIRST FIVE MODE DATA CONTROLLER

The Pakratt model PK-64 by AEA is the world's first computer interface that offers Morse, Baudot, ASCII, AMTOR *and* Packet all in one box (hardware *and* software included) at a price many competitors charge for Packet alone (from $219.95 Amateur net). Do not let the low price fool you; coming from any other company but AEA it WOULD be too good to be true. The PK-64 works with virtually any voice transceiver. The Pakratt is the easiest of any to hook up and have operating in just a few minutes.

In Packet mode, the PK-64 offers virtually all the features of every other Packet controller on the market, plus many important features left out by others due to cost constraints. For example, we have included a hardware HDLC, true Data Carrier Detect (DCD), multiple connect with up to ten stations simultaneously and full implementation of version 2.0 of the AX.25 protocol.

Because the PK-64 was designed specifically for the Commodore 64 (or C-128 and SX-64) computer, we have been able to do many things not economically feasible with general RS-232 interface controllers. For example, the Pakratt includes true split screen operation with on-screen status indicators and an on-screen tuning indicator.

ENHANCED HFM-64 MODEM OPTION

The standard PK-64 will operate all modes with a phase-lock-loop (PLL) detector roughly equivalent to all popular packet modems in the marketplace (except we have included extra filtering). The enhanced HFM-64 modem option offers true independent dual channel filtering with A.M. detection (like the famous CP-100 Computer Patch™). The enhanced HFM-64 option also offers a hardware LED tuning indicator (like the CP-100) and a front panel variable threshold control for setting maximum sensitivity under various band conditions. We recommend the HFM-64 option for anyone keenly interested in weak-signal heavy-QRM HF operation. For anyone desiring to operate FM RTTY with the standard North American tone pair or CW receive, the HFM-64 is required. The HFM-64 is field installable with no soldering or test equipment required.

WORKS WITH THE POPULAR C-64 COMPUTER

AEA designed the PK-64 around the low-cost C-64 because of the special architecture features making it especially suited to Amateur Radio applications. The C-64 should not be viewed as a mainframe, but rather a very economical accessory to your data communications system. Many owners of expensive computers such as IBM, TANDY, APPLE, KAYPRO, ATARI, etc., are now buying the low cost C-64 and dedicating it to their operating position. They simply cannot find software for their machine that even approaches the power and user friendliness of the PK-64. Plus, think of the convenience of having only one controller and keyboard to go from one mode to another without having to redo cabling!

The PK-64 is so complete that all you need to do is wire up a microphone connector to the end of a cable (provided) and you are ready to go. There is no need to track down special terminal software, cabling or even a power supply. It all comes with the PK-64. So do not be the last on your block to own the most exciting new product in years. See the PK-64 at your favorite dealer or write for our specification sheet now.

Prices And Specifications Subject To Change Without Notice Or Obligation

Advanced Electronic Applications, Inc.
P.O. Box C-2160, Lynnwood, WA 98036-0918
(206) 775-7373 Telex 6972496 AEA INTL UW

AEA Brings you the Breakthrough!

DX COLUMN CONTINUED

CO2BB	14.086	0036/12-02	POB 1, Havana.
HK3AVR	21.076	2134/23-02	CBA or Bureau.
3C1MB	14.092	2200/05-03	via EA6KY.
D68WS	14.093	2045/05-03	via DJ6QT.
J28DS	14.089	2000/28-02	?
9U5TN	21.088	1400/06-03	?
T32AB	21.090	2139/01-03	via N7YL.
J37BG	14.093	2056/02-03	?
J39BY	14.089	0036/26-02	?
TZ6FE	14.086	2215/06-03	?

5Z4DU..He is on Snooky's net, 14.183, 1800-2100 UTC most days and will QSY upon request to RTTY. J37BG and J39BY are a husband team and are quite active.

Next month I will fill in the ? QSL information, sorry I forgot to ask when the info was passed to me. I should know better!

QSL MANAGER

I am QSL manager for HC1BW, Orbra, and also HC5KA, Ted. HC5KA's card is a large one so if you work him and need a card, please send along a large SASE. I just received Ted's log and am in the process of getting all caught up. I am amazed at the number of cards that have come in for these two that have the wrong date, time, no SASE's. Please check all of that information before sending a card to a manager.

DAYTON

I plan to be at the Dayton HAMVENTION again this year. I plan to arrive on Friday and will be at the RTY forum and also the RTTY dinner, so I hope to meet a lot of you there.

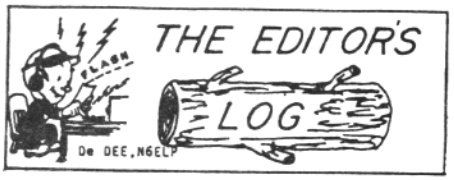
Well, that is about it. Remember, this is your column, if any of you have any suggestions, drop me a note or catch me on the air. Like wise pass that DX information on to me and we will get it in here.

Thanks and a tip of the DX hat to: **JA1ACB, WB1AEL, W1DA, WA4WIP, KP2N, DJ6QT, WB1AQA.** 73 and good DX, Roy.....

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SON", quite funny...and able to be told over the air!!

Take care, stay healthy. Before I sign off, I had better pat myself on the back for my new upgrade. Will keep the N6ELP though. 73 de DEE....



I have received the following info to pass on to all of you:

4Z4NL, Ayal Shapira, 71 Tray Essar, Shkunat Kaplan, Kfar Saba, Israel 44343.

4Z4NUT-Shalom Beacher, POB 1072 Beer Sheva, Isreal 84110. These are from Joe, 4X6JM/N2JM who informs us that the "N" in a three letter call denotes Class "C" and when the Amateur passes the Class "B" (similar to the USA General) the "N" is dropped. Tnx Joe....

Gary Moles, ZL2AKI wants the full QSL info for HL9AV.

Carl, K6WZ reminds us all that the 160 band does include RTTY and there is, as yet, no plan to allocate space for RTTY operation. Carl advocates the area around 1890 even though W1AW has their bulletins there. What say out there?

From 10 to 28 May 1986, DL4SBK/CU will be QRV from the Azores. OM Horst will operate both RTTY and AMTOR on all SW bands. The following islands will be activated: CU2 (Sao Miguel), CU3 (Terceira), CU6 (Pico), and CU7 (Faial). Good hunting RTTYers.

David Earnest, W7KJJ writes, from Saudi Arabia, that HZ1AB has been quiet due to having to vacate the old station location. The station's sponsor move to a new location with no room for HZ1AB. Hopefully, David will be able to find a new location/sponsor and be back on tne air soon. David says that he first operated HZ1AB in May 1954 while in the Air Force. David has been licensed as: KA2ZZ (Japan), KX6MX (Marshalls), KS6DY (American Samoa), ZL1BBA (New Zealand) and in the US as: KØBQE, W7YBI and W6HUQ. Home to Dave is Portland, Oregon and if anyone is concerned about HZ1AB QSLs, manager is Leo, K8PYD in Ohio or correspondence may be directed to Dave who is secretary of the club (no QSLs).

Lutz Hasse, DF6AI has worked all Continents on RTTY-all bands.

NE7L in, would you believe...Coat Hanger City, Washington has 200 RTTY contacts with 145 confirmed. He also has quite an extensive collection of jokes programmed into his computer. THe one he told me concerned "A LETTER FROM MOTHER TO HER

PLEASE SEE FIRST COLUMN AT BOTTOM OF PAGE.

KØVKH TECHNICAL LIBRARY CONTINUED FROM FEBRUARY

PG 14

UTILIZING THE ICOM-751 (COURTESY JOE WOOD, AJ0X).

The Icom-751 is a HF transceiver ideally suited for general RTTY and mailbox use. An IC-751 powered 24 hours per day had a measured maximum frequency drift of 4 (four) Hertz! It also had a receiver capable of general coverage for those that like to prowl in the commercial bands. Its sensitivity and SSB selectivity is surperior when compared to the Icom 740 and Icom 720A.

For the RTTY user who likes to keep his microphone and phone jacks clear of wires etc., the accesory socket in the back of the unit makes an ideal port to supply a common ground, audio input and output, PTT connection and even a source of 13.8 VDC. The socket is a 24 pin female requiring a 24 pin male (Icom P/N 24-PP) for mating. The socket pin connections are derived from the owners operating manual and once the wiring harness is complete, will have compatibility with the Icom 701, Icom 251A, Icom 451A, Icom 720A and with the addition of a PTT keying relay, the Icom 740. It, in all probability, will be compatible with the later model VHF and UHF base station Icom radios.

Typical connections for the IC751 to HAL ST-6000 modem are as follows:

LEAD #	Icom 751 Connections	Hal ST6000 conn.
1	Pin 3	Pin 1 KOS
2	Pin 4	PIN 1 Audio input
3	Pin 5 (1 MFD 15 WVDC Cap.)	
		Pin 1 Audio Output
Shield/Ground		
	Pin 8 20#	Pin 2 Audio input
Wire	Pin 8	Pin 2 Audio output

It will be necessary to increase the audio output level of the ST-6000 to compensate for the loss of audio amplification (in the Icom radio), when using the accessory port connection that bypasses the first audio amplifier in the transceiver. This is accomplished by adjusting the output tone level control on the input circuit board See HAL drawing number B11U2A dated July 12, 1976 on Page 5-28 of the ST-6000 instruction manual for the location of this control.

If by chance you do choose to use the microphone input connection please insert a 1 (one) MFD capacitor in series with the lead to Pin 1 of the connector. This is for D.C. voltage isolation and if not done will result in damage to the voltage regulator circuit that supplies the 8 volts to power the electret microphone. If this should occur take a look at the current limiting resistor on the voltage regulator board. It, in all probability is open.

PG 15

Utilizing the HAL DSK3100 Parallel port with the Epson MX80F/T printer.

The following information is designed to assist in construction of a parallel printer cable, to interface the HAL DSK3100 disk drive unit parallel printer port, to an Epsom MX80F/T or FX80 parallel printer port. All of these ports are defined as 'Centronics' compatible, and should be wired to conform to 'Centronics' signal wiring diagrams. (The following data is an abbreviated 'Centronics' signal wiring schematic).

The 'Epson' end of the cable must have a standard thirty-six (36) pin 'Centronics' male connector on it. (Amphenol part number 57-30360). The 'HAL' DSK3100 end of the cable must have a male 'DB25' connector installed. Connections are as follows:

HAL DB25 Connector	Epson Centronics Connector
Pin 1 (Strobe)	Pin 1 (Strobe)
Pin 2 Data Bit Zero	Pin 2 Data Bit One
Pin 3 Data Bit One	Pin 3 Data Bit Two
Pin 4 Data Bit Two	Pin 4 Data Bit Three
Pin 5 Data Bit Three	Pin 5 Data Bit Four
Pin 6 Data Bit Four	Pin 6 Data Bit Five
Pin 7 Data Bit Five	Pin 7 Data Bit Six
Pin 8 Data Bit Six	Pin 8 Data Bit Seven
Pin 9 Data Bit Seven	Pin 9 Data Bit Eight
Pin 11 Busy Line	Pin 11 Busy Line
Pin 14 System Ground	Pin 17 Chassis Ground

(Pins 14 thru 25 are grounded within the DSK3100. Unused cable wires should be tied to system ground on each end of the cable).

Note: There are eight (8) data lines in a 'Centronics' parallel configuration. 'Epson' calls the first of these data lines, 'data bit one', where 'HAL' calls the first data line, 'data bit zero'.

Although I have not tried the MX80F/T printer in a parallel mode, with the 'serial' interface board installed, I am told that the printer will not work in parallel mode, with this board installed. Additionally, be sure to set the internal 'dip' switches in the printers for proper operation.

PG 16

PROCEDURES FOR ADJUSTING THE DSK3100 "VCO" CENTER FREQUENCY.

This file is designed to provide information on where, and how to adjust the HAL DSK3100 disk controller chip "VCO Phase Lock Loop Center Frequency". It is I-M-P-O-R-T-A-N-T that you identify and adjust the CORRECT capacitor. Failure to identify the correct capacitor, or accidental adjustment of the wrong component, may cause problems that will require shipping the DSK3100 to the factory for alignment. Be careful!

References: Figure twelve (12), page 54, DSK3100 instruction manual.
Figure sixteen (16), page 58, DSK3100 instruction manual.

Test equipment required: Accurate, high impedance, frequency counter.

1. Open the disk unit drive doors, turn the A.C. power "ON", and allow the unit to warm up for approximately thirty (30) minutes. Remove the five (5) screws from the top cover, but leave the cover in place.

2. Orient the DSK3100 so that you are looking at the front, just as if you were going to use the unit. Refer to figure sixteen (16), page 58, of the DSK3100 instruction manual.

3. Figure sixteen (16) is a drawing of the disk controller board. This board is located immediately over the LEFT hand disk drive, (as viewed from the front of the unit). This figure shows the disk controller board with the BOTTOM of this drawing representing the FRONT of the DSK3100 unit.

4. Remove the top cover from the disk drive unit. Locate I.C. 10 (Ten), which is the 40 pin 'western digital' chip, (WD2797 printed on top of the chip), near the rear center of this board. This is the 'disk controller' chip. Locate adjustable resistors R1 and R2, which are small blue plastic squares, approximately one-half incn to the REAR of I.C. 10. Do N-O-T accidentally adjust these resistors. Located in between these two variable resistors is a variable capacitor, labeled "C2" in figure sixteen. It is this capacitor you will want to adjust, and none other.

5. Identify test point three (TP3) and test point four (TP4), which are located between variable resistor 'R2' and I.C. 10. Connect a short test lead from the post (ground) on the left-hand side of the circuit board, to test point four (TP4). (Connect the ground end first, and then TP4. Grounding TP4 puts the disk controller chip into a special test mode, allowing this adjustment procedure. DO NOT turn the A.C. power off and on while TP4 is grounded). Connect your high impedance counter to test point three (TP3) and you should now be reading the phase lock loop VCO center frequency on your counter. Carefully, adjust capacitor "C2" to obtain a reading of 250,000 Hertz. (It is a good idea to lay the top cover back on the disk drive unit, after you have connected the test leads, in order to maintain temperature stability within the unit. Be sure that your test leads do not short out some other component!).

6. This completes the adjustment. Remove test equipment, re-install the DSK3100 cover, and enjoy the disk drives!

PG16A

Additional Considerations When Aligning the DSK-3100 'VCO' Circuitry.

It is possible that long term drift of the 'VCO' is causing your problems. If you align the 'VCO' after it has been turned 'ON' for one hour, then subsequent use of the DSK for eight hours (or more) may cause the VCO to be 'out of range'. The solution is to align the VCO several times over an approximate eight hour period, and then leave the DSK turned 'ON' all of the time. This procedure has been successful in several DSK units, and I think it may provide you with more operating enjoyment as well. However, I stress the point, that you may have to align the VCO periodically even with this procedure in use! Here goes:

1. Set up your test equipment as per the directions in 'PG16'.

2. Once the counter and grounding clip are in place, replace the cover on the 'DSK' unit, and stuff a towel around the cover so that it is sealed as good as possible, (you won't be able to fully replace the cover, as the counter leads, and ground clip will be in the way).

3. My experience with the DSK shows that the disk controller chip is extraordinarily sensitive to temperature changes. When you remove the DSK cover, to adjust the VCO to 250K, you must be QUICK!! Removing the cover will allow the D.C.C.

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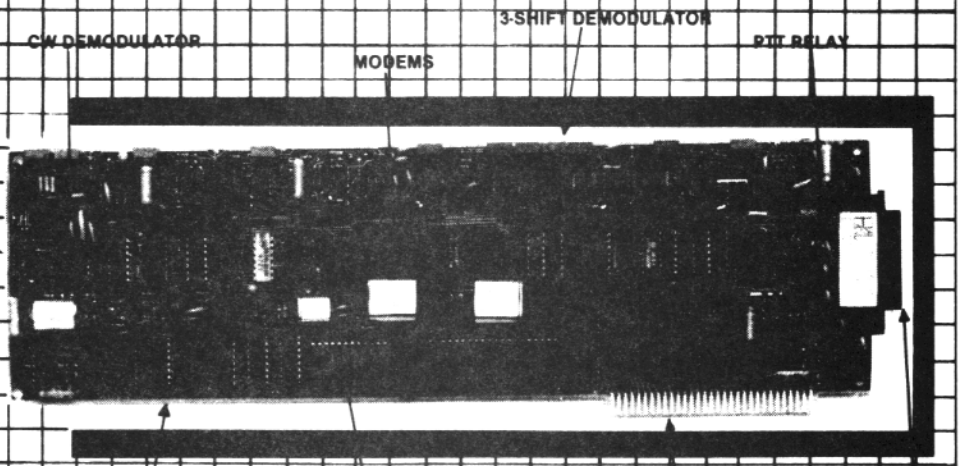

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KEY PiPPer

BY: Mark Spenser, WA8SME
General Delivery
Beale AFB,

Electronic keyboards, whether for RTTY or CW, are great. With type ahead buffers, even the poorest of us hunt and peck typists can sound good. My keyboard does have one irrirating flaw; I can not have split screen so I do not view what I type ahead while receiving text during a QSO. This dictates typing in the "blind" into the buffer which often results in some hilarious and embarrasing situations caused by a dropped, added or misplaced letters. Imagine the horror of watching your conversation scroll before your eyes and seeing the word "shirt" with a missed letter or "as" with an added one! My keyboard is silent and has little "touch feel" and typing errors are easy to make in haste.

What I needed was a little feed back from the keyboard to let me know that a key was pressed and how many times. My solution is the circuit in figure one. This circuit produces an audio "Pip" each time a key is pressed.

Most electronic keyboards have multiplexer decoder chips that:

1. Extract the key being pressed.
2. Pass this value to a microprocessor
3. And, signals that a key has been pressed to allow only one key to be accepted at a time.

In my keyboard, an Info-Tech M-300C, the row decoder, IC 13 (4017 chip) pin 3 produces a keyboard inhibit signal when a key is pressed.

This signal is fed to IC1 which is configured as a one shot timer with a period of about 25 ms. The resistor/capacitor between the trigger source (pin 3 of IC13) and the trigger pin of IC1 produces only one trigger pulse for each key stroke, no matter how long the key is depressed. Without these components, the one shot would be held high as long as the keys are pressed.

IC2 is configured as an astable multivibrator with a frequency of approximately 1000 Hz. The reset pin 4 is tied to the output of the one shot, pin 3 of IC1. This connection causes IC2 to output a 1000 Hz tone only during IC1 pulses. The result is a "Pip" for each key stroke.

The wave forms indicated on figure one (1), illustrate what happens along the component train.

This little addition to the keyboard has helped improve my "record" while typing in the blind. As a matter of fact, this little addition may help some handy-hams with vision disabilities to be sure that the key they intended to press was pressed.

CUL, Mark WA8SME.....

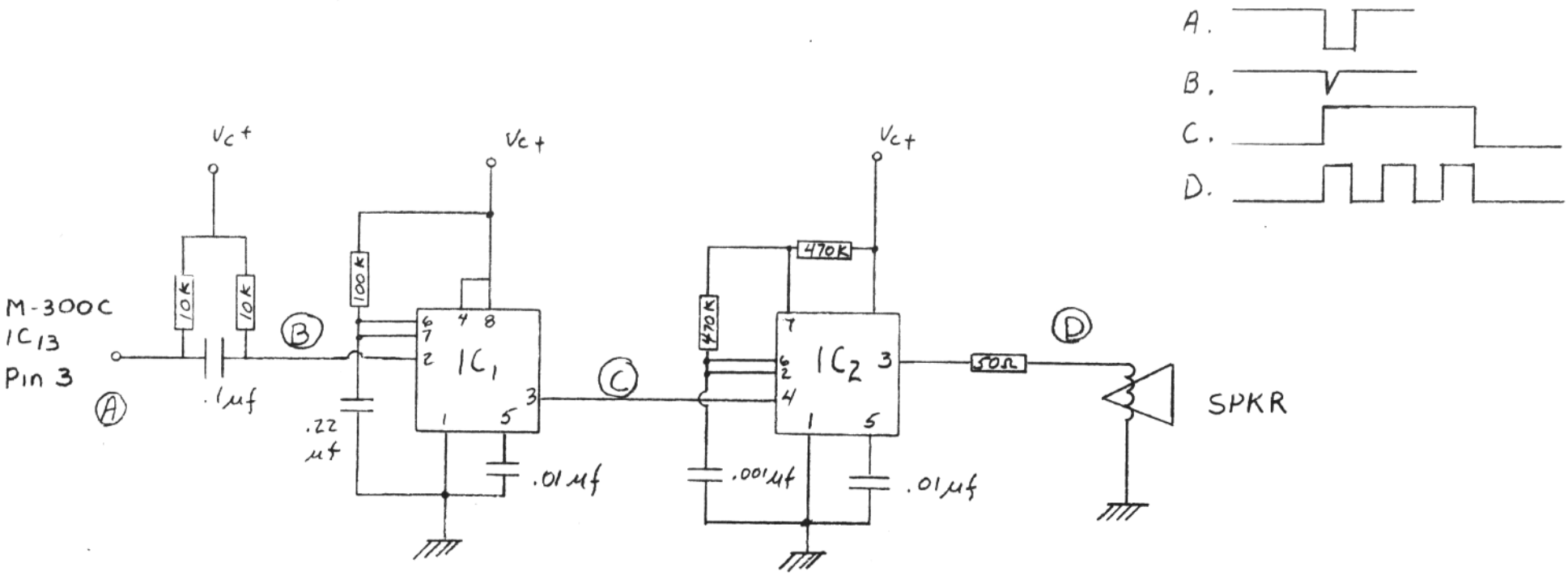
KØVKH TECHNICAL DATA LIBRARY CONTINUED

chip to cool, and this happens very quickly, and, of course, will cause you to have inaccurate counter readings. So, quickly remove the cover, adjust the VCO to 25UK, and then again quickly replace the cover and towel so that the internal temperatures are maintaining nearly as constant as possible.

4. Keep repeating this alignment procedure over approximately an eight (8) hour period. Don't give up after three or four hours and consider the alignment done, as LONG TERM heating, (both conduction (where the entire case heats up), and convection (mainly heat rising from the power supply portion of the DSK unit), will effect the VCO frequency.

5. Replace the cover, and use the unit until it requires alignment again, hopefully a long time in the future. You MUST leave the DSK turned ON all of the time after aligning the unit using this procedure. And, it is I-M-P-O-R-T-A-N-T that the DSK unit N-O-T be subjected to any additional neat, by being set on top of other electronic equipment! If you must 'stack' your equipment, be SURE that the DSK is the BOTTOM unit!!!

6. Finally, if you desire to experiment with 'cooling' the DSK unit, the two heat sources that should be considered with updated DSK units, are the exterior voltage regulator, (Black heat sink with fins, on back panel), and the 'power supply' portion, (extreme right side of DSK unit). Good luck, and let me know if I can help you out!!



$IC_{1+2} = 555$

Key PiPPer

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THE DAYTON-CINCINNATI chapter of the Quarter Century Wireless Association will hold its 1986 annual banquet on April 25th, the Friday night of the Hamvention. Leland Smith, National QCWA President will speak on, 'The Future Of Amateur Radio." Happy hour is at 6:30 dinner at 7:30 at the newly remodeled Imperial House, I-75 and Needmore Road. For tickets and information contact: Bob Dingle, KA4LAU, 657 Dell Ridge Dr., Dayton, OH 45429. Come and bring a friend. QCWA membership is not required to attend.

---

by GEORGE

HITS & MISSES

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

The FCC has released a Public Notice alerting Amateur Radio Service Applicants that form 610 issued prior to June 1984 will not be accepted. Effective January 1, 1986 only the June 1984 and later editions of the FCC form 610 may be used to obtain an Amateur License. Using the old forms will only delay your application and it will be returned with no action. You will be required to refile on the current form (FCC form 610 dated June 1984 or later.

SURVEY

The "ON LINE" column in QST did a survey on computers. I was pleased, but not surprised, to see that RTTY was the top usage of the computer.

1. RTTY	43.1%
2. CW	39.0%
3. Packet Radio	30.8%
4. General logging	28.7%
5. Antenna bearing	24.1%
6. Propagation forcasting	18.5%
7. Contest duping	18.5%
8. Antenna design	17.4%
9. Contest logging	15.9%
10. Circuit design	15.4%
11. Award tracking	14.4%
12. AMTOR	10.4%

HITS AND MISSES

I was surprised at several aspects of this survey. The low number of Amateurs using computers to track awards, only 14.4%. The computer is a natural for award tracking and in particular RTTY DXCC. I have devoted several columns to data bases for this purpose. I have my DXCC set up on a coded system: R (RTTY), S (SSB) and C (CW) in QSL column. So I just ask the computer for all QSL's received with "R" and I get a list in order of my confirmed QSL's for RTTY DXCC. There are many good Ham programs to do this.

I was equally surprised to see the low percentage of Hams using a computer for logging- 28.7%. I have reduced the duplication of QSL cards sent to zero... I try to work as many contests as possible, and work many stations over and over on the same band and/or mode. I have received as many as 25 QSL cards, in the last five years (computerized QSL system), from the same station for the same band and mode. Computer print outs are a lot cheaper than sending QSL cards. I have found many a new country on a different band or mode that way that got lost in my log book, but did not escape the computer sort.

THe absolute convenience of a computer assist for award tracking is unparalled. The temptation to just use it for logging or duping is short changing the computers capabilities. A data base for Ham radio that is well thought out is a thing of beauty.

The logging feature is first on the list.

1. Logging
2. Tracking DXCC, all band/modes
3. Tracking WAS
4. Tracking WAC
5. Tracking zones
6. Tracking prefix
7. QSL sent/received

I have listed just a few of the items my data base covers and just barely touched on the flexibility that you can build into an award data base.

The use of a computer to cover your Amateur records, i.e. awards is a small fraction of the computers fun and flexibility.

I will close out my column this month, with a special thanks to all who have taken the time to write.

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

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

The World Top Scores in the 15th S.A.R.T.G. 1985 Contest are:

CLASS A		CLASS B-Multi-op	
SM4CMG	274,960	LZ2KRR	155,540
UT5RP	266,265	HA5KAG	137,280
SM5FUG	193,500	OK1OAZ	58,500
F6BIG	160,200	WA7EGA	56,350
G4SKA	157,080	DFØBUS	15,840

SWL Operators : FE3700....152,250; DE1GMH..... 28,770; Y2-EA-19002/B31.....15,820; FE1107..... 13,200; OK1-30342.....7,300.

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