

ARMED FORCES DAY 1963 COMMUNICATION TESTS RESULTS

Once each year the Federal Communications Commission permits cross-band operations between selected United States military communication stations and the amateur radio fraternity. This event, by tradition, has been conducted on Armed Forces Day. On 18 May 1963 six military stations in the U. S. were selected for these tests. Each of the three sponsoring services, the Army, Navy and Air Force provided one station on the east coast and one station on the west coast. The east coast stations were WAR, NSS and AIR. The west coast stations were A6USA, NPG, and AG6AA. These stations operated on fixed frequencies outside the amateur bands and conducted the cross-band contacts with amateurs in the appropriate amateur bands from 181500 GMT to 190500 GMT with a break of one hour and fifteen minutes at 190245 GMT. The break was to permit special CW and RTTY broadcasts of messages from the Secretary of Defense.

During the twelve hours and forty-five minutes devoted to establishing contacts the six stations made 7366 individual contacts. This far exceeded the performance of any previous year, and the amateur radio fraternity is congratulated for an outstanding demonstration of the military communications potential inherent in their chosen hobby.

Appropriate one time commemorative QSL cards have been forwarded to each contact that could be identified in the Summer 1963 edition of the CALLBOOK. If you have not received your card for a firm two way contact you should contact the Armed Forces Day Contest, Room 5B960, the Pentagon, Washington D. C. for a clarification. Submit your call sign, station worked, time and frequency of the transmitting military station.

The messages from the Secretary of Defense were transmitted for competitive purposes. A Certificate of Merit has been issued to everyone who submitted a perfect copy of either or both of the messages. There were 654 perfect entries for the 25 WPM CW message, and 583 perfect copies of the 60 WPM RTTY message. Grading is completed and entries not considered perfect have been returned to the sender with an appropriate letter and explanation of the errors.

As always some perfect entries were submitted without name, address or call sign. If you submitted an entry and have not received your certificate your entry may be one of those unidentified.

The complete text of the CW and RTTY message were printed on page 3 of the July 1963 RTTY.

RTTY Certificate Winners

KIAAA	W2LBO
W1BGSW	W2LBX
K1BIM	WA2LKF
K1DVI	W2LVW
W1FGL	K2MAT
W1GWW	W2MFB
WA1HJP	K2MTW
W1JRV	W2MZZ
K1KAY	W2NRQ
W1KQY	W2OKO
W1LWV	W2ORX
W1MCG	W2ORY
W1MEG	K2OWC
W1MFJ	K2OWD
W1MX	K2OYW
K1NAN	W2PEE
K1NNC	WA2PFN
K1OCS	K2RJF
W1OMN	W2TAM
W1OUG	K2SDR
K1RPZ	K2SQL
W1SGU	W2SUC
W1TLZ	W2SUH
W1UHE	W2UUI
K1USN	W2WNV
K1YZG	WA2WWF
W2ABV	K2YCO
K2AJC	K2VAM
K2AMI	W2ZMK
K2AXM	VE2ZO
WB2BDT	WA2ZTO
W2BVE	K3ADS
W2BWN	AG3BA
W2BXW	W3BBV
W2BZA	K3BEG
WA2CKL	K3BHK
K2CUI	W3BHK
WB2CVN	W3CA
K2DDE	K3CES
W2DLT	K3CKB
WA2ELE	W3CRO
K2EQP	K3DDW
W2EW	W3DJZ
W2EXB	W3DTH
W2FAN	K3ECF
W2GQN	A3EOV
WA2GSV	K3GGQ
K2GYX	W3GUS
K2HAC	K3HGM
WA2HOH	AA3HIJ
AA2HOS	W3HIX
VE2HY	W3IDO
W2IGX	K3IDO
WA2IKL	K3IQQ
W2ISK	W3IZT
W2JAV	W3JNE
K2JTU	W3JRV
WA2KFT	K3JSK

W3KMH	W4UFO
AF3KNH	W4ULM
W3KQE	K4UMK
K3KVS	W4UNA
K3LLI	W4USA
W3MHD	W4VEY
W3MWV	W4VHX
K3MYW	W4VUE
W3NNV	K4VYX
W3NSI	W4WQQ
K3QBA	W4YPC
A3SXL	K4YTB
W3TDU	K4ZSX
K2MAT	W4ZZV
W3UCY	K4ZVQ
W3UDG	W5AJC
K3UPR	W5ANH
W3VVP	W5BHO
W3VYY	K5BQA
W3YC	K5BTZ
W3YRB	K5CIL
K3ZVJ	W5DKK
W4AIS	K5DNH
W4AIY	WA4AOM
WA4AOM	W5EDZ
W4AWY	W5DMM
A4BCO	W5EOT
WA4BDB	W5FCP
W4BOC	W5FHW
W4CAL	W5HCS
AA4CEK	AF5HXW
W4DDQ	K5JIC
AD4DQQ	W5LDU
K4DTQ	K5LEP
W4DYE	K5LFS
W4EBH	W5LHX
K4EID	K5MBB
W4FJ	K5OMQ
W4GJY	W5QJD
W4HAG	K5RAV
K4HAO	K5RDP
W4HHH	K5SGX
K4HNT	W5SQB
W4IAA	W5TBV
W4IET	KN5UWE
K4IKK	K5UY
W4IPL	K5VHM
W4ISM	W5WUU
K4JXC	K5YWX
K4JJK	K5ZXC
W4KH	W6ACN
W4KLT	A6AEE
W4KR	WN6AGM
W4KZF	WA6AMP
W4MDS	WB6AOG
K4MKO	KH6AOL
K4MKQ	K6ARR
W4NTK	A6ASH
W4NZY	WA6AVJ
AA4OHL	KH6AX
W4OSC	W6AXV
K4PAN	W6BHG
K4QLH	W6BHK
W4RDE	W6BNO
W4RHZ	K6BPI
W4RWM	W6CAL
K4TCZ	W6CBX
K4TKU	K6CCJ
W4TQD	WA6CDV

W6CEM	WA6OXR
W6CG	A6PDD
WB6CLR	WA6PDQ
K6CUO	WA6PLV
W6CUV	W6PRY
AD6DFT	W6PSW
W6DHX	W6QID
KH6DLE	W6QKN
W6DNV	K6QKY
W6DOU	K6QMJ
WA6DTH	K6QQV
K6DX	K6RBB
K6DYX	W6RGG
WA6DZM	W6RMM
W6EUC	K6SBL
K6EER	W6SCQ
W6EFM	K6SEA
W6EGZ	AA6SHZ
AA6EPT	K6SHZ
K6EPT	WA6SWA
K6ESZ	W6SYI
K6FDD	W6SYN
AFB6FIX	W6TDC
WA6FKN	K6TEN
W6FLW	W6TFH
W6FYZ	W6UGA
W6FZC	AB6USA
A6GCC	A6USA
W6GEB	K6UCT
W6GGC	WA6VGE
WA6GHC	W6VVF
K6GXT	WA6VVR
W6GYH	K6WBC
K6CZ	W6WLI
W6HKB	W6BHZ
W6HTS	W6WPF
K6HWL	WA6YQI
W6HXQ	WA6YZO
K6IBE	WA6ZCA
K6ITY	K6ZVC
K6JDN	W6ZVV
W6JDN	AF6AZYU
W6JOX	W7AUK
WA6JSA	W7BEG
K6JWS	AF7CGA
WA6JXW	W7CTK
K6KFF	K7DPO
W6KNI	W7EQU
W6LDG	W7ESN
W6LFF	AF7EXF
K6LIK	W7FEN
W6LKU	W7FKK
AFB6LUM	W7FPH
W6LX	W7FQW
WA6LZB	W7GHS
W6MAP	W7GTP
K6MDD	K7IAP
WA6MQL	W7JMS
WA6MRK	W7JMH
W6MTJ	AF6JWF
K6MYH	W7LI
W6MZO	W7LNG
WA6NDZ	W7LPM
A6NQH	K7LRK
W6NSS	K7LRV
K6OEH	W7MCU
W6OWP	W7MEV
K6OWQ	A7MUS

K7NKH
W7OHI
A7PBV
W7PGY
W7PHG
W7PRG
W7RGD
W7SMR
W7TCT
W7TYR
W7VPH
W7VZX
AB7WAF
W7ZT
W8AIC
K8AIR
K8AIZ
W8AAY
K8COI
W8CLX
W8CMH
W8CRY
K8CTI
W8DIE
W8DPW
K8DXB
K8EJI
W8EMO
K8ENX
W8FEU
K8FCI
W8FEV
K8FVP
A8GKN
W8GMX
WA8GWK
W8HPR
K8HTS
W8IMK
W8IND/2
K8IPN
K8INR
K8JHA
K8JIC
K8JON
W8KJK
W8KXD
W8LBI
W8LEX
K8LGI
W8LGL
K8LXJ
W8MGG
W8MTI
K8MYF
W8NIY
W8OMY
W8PHV
W8PQQ
W8QCU
W8QWE
K8RJI
K8SOE
W8SWC
K8SXE
W8TV
WA8TZO
W8VMP

K8WNE
K8YCO
K8YEK
K8YFV
W8YFX
K8YIF
K8YJQ
W8ZCK
W8ZEP
W8ZYW
W9BMJ
K9BRL
K9CCX
K9CMX
W9CUW
W9DGV
K9DOL
K9EHP
W9EPT
K9EYY
W9FAA
W9GDU
W9GSJ
W9HRH
W9ITY
W9LNH
K9MVJ
K9OJQ
W9ONI
W9PFK
K9PRD
W9PUU
AA9PZP
K9QYY
K9RDD
W9RCU
K9SQV
W9TVN
K9UHR
W9UMJ
W9WBE
W9WKM
W9WMR
W9ZGC
W0AJL
N0AQJ
N0ATZ
W0AUS
WA0BBA
WA0BDZ
W0BHA
K0CCP
W0CHV
K0CZO
W0DEL
W0EJL
W0FAH
K0FLK
K0GXL
W0HAH
AFA0HLC
K0IEB
W0HVA
W0HVC
K0HZO
K0IQR
W0JHY
W0JQQ

W0KIS
W0LFH
W0LQV
K0MAL
W0OKH
K0OXK
K0OYI
K0PHD
N0RQR
W0RWG
W0RWH
W0TUH
W0UMG
W0WWN
W0YTQ
K0YWT
W0ZFN
K0ZQD

JAMES H. BARNES
USS BOSTON
PHILLIP CATONA
CHARLES F. COOK
BASE COMM., 29 PALMS, CALIF.
W. H. ELKERTON
WILLIAM A. FARNSWORTH
DAVID J. GOODMAN
HAROLD "BUTCH" HAMMER
OTTO C. BONIN
D. R. CASON
COMCRUDESFLOT 3
ANDREW DOLACK JR.
EDWARD F. FAHEY JR.
ARTHUR J. FULKERSON
MICHAEL R. HAACK
GAYLE R. HERMANSEN
JAMES E. HICKS III
DUFFY HOYT
JEROME P. HUMPHREYS III
JACK D. LAYCOCK
DANIEL MENDOZA
NAS, SAN DIEGO, CALIF.
ROBERT OLIVARES
HARRY PHILLIPS III
CONRAD E. ROBERTS JR.
EDWARD R. SEIDLER
MARK SOLOMON
JAMES E. STEWART
LAWRENCE R. WINCHELL JR.
HERBERT L. HOLTON
JOHN J. HUMPHREY JR.
JORDAN KAPLAN
PAUL T. MENADIER
NORRIS G. NEWNHAM
NRSG 4-6 USNRTC
THOMAS M. PFEIFFER
MARK W. REISEN
JIMMY D. ROUSE
MICHAEL H. SMITH
RALPH B. SMITH
STEPHEN M. UDELL
HARRIS W. ZUELKE

If you did not receive the one time QSL card or one of the certificates, plan now to be with us in 1964. Plans are already underway for next year and it is hoped that the amateurs will once again demonstrate to the world that they can provide the necessary backup for our nation's communication needs if and when their services become necessary.

WA9IBB REVIEWS . . .

JIM HAYNES

966 CHESTNUT ST., DEERFIELD, ILL.

*formerly WB6ABF

I

A Comparison Between Alternative HF Telegraph Systems, by J. V. Beard and A. J. Wheeldon, both of the British Marconi Company. This paper appeared in *Point to Point Telecommunications*, a Marconi technical magazine, in June, 1960. This, and the following paper, are two of several which have proved quite stimulating to amateur experimenters, and especially to the group including K6IBE, W6NRM, W5HCS, K5AUM, W4MGT, and others. K6IBE is to be congratulated for his paper in the June issue of RTTY which describes a rather novel signal converter and which presents some of the results of actual experiments with circuits designed to overcome the limitations of the limiter-discriminator as an RTTY detector.

The authors first mention the several difficulties of making accurate comparisons among alternative signaling methods, noting particularly the sensitivity of the data to signal-to-noise-ratio (S/N). They introduce Law's concept of the 'ideal detector'; a detector which if it could be built would give the lowest error rate theoretically possible for a given S/N, and which thus provides an absolute basis of comparison for practical detectors.

It is shown that the performance of a practical detector can be expressed in terms of the equation:

$$P_e = \frac{1}{2} \exp \left(- \frac{W}{bN_0} \right)$$

where

P_e is the probability that a signal pulse will be received in error.

W is the energy in a signal pulse.

N_0 is the received noise power per unit bandwidth,

and

b is a factor, termed the "demodulation factor", which expresses the degree to which the actual system falls short of the ideal.

The quantity N_0 may disturb some readers; this is simply the amount of noise power which is passed through a receiver having a bandwidth limited to some arbitrary amount, such as 1 cps or 1 kc. This quantity has the dimension of energy, making it commensurate with the quantity w . The above equation applies to a non-fading signal. For a signal perturbed by typical flat fading the appropriate equation is:

$$P_e = \frac{1}{2(1 + \frac{w_0}{bN_0})}$$

where w_0 is now the average energy in a received signal pulse and the other quantities are defined as before.

Now p_e is the error rate for single signal pulses. This quantity requires some interpretation in terms of character error rates to be observed on a printer. This interpretation is conveniently provided by a table taken from C.C.I.R. Report No. 105 (Los Angeles, 1959).

TABLE I

CODE	CHARACTER ERROR RATE
5-unit synchronous	5 p.
7-unit synchronous	7 p.
5-unit start/stop, tape printer	17 p.
5-unit start/stop, page printer	34 p.

For the 5-unit synchronous code, this table simply reflects the fact that there are 5 signal pulses in each character, and an error in any one of them will cause the character to be in error. A similar condition exists for the 7-unit synchronous code. The start/stop situation is seen to be considerably worse, for an error which produces a false start pulse or which deletes the normal rest pulse may throw the machine so far out of sync that it cannot recover for several character times. The page printer is determined to be about twice as bad as the tape printer, because an occasional mutilated CR or LF can obliterate an entire line or two. Actually, all the figures should be a bit worse than those shown because for all systems the gain or loss of a shift will act to mutilate more than one character.

The authors next discuss the various stages of a receiver, other than the detector, which influence system performance. These are pre-detection bandwidth, receiver gain, and receiver noise figure. The salient fact about bandwidth is that the receiver bandwidth should not be so narrow as to discard signal energy before the detector has a chance to work on it, nor so wide as to allow receiver intermodulation and similar effects to take place. No more need be said about gain and noise figure since most modern receivers are adequate in these respects and since on the amateur bands the noise level (where interfering signals are counted as noise) is generally high. These factors are perhaps of greater importance to amateurs living in quieter parts of the world.

Next the three modulation methods are discussed; AM, FM, and PM. The detector for on-off keyed signals has a theoretical demodulation factor of 3 db, since it receives energy about half the time. The authors point out the difficulties inherent in AM detection, even when using a slide-back detector, and conclude that a demodulation factor of 10 db is to be expected in practice. A two tone setup has the same theoretical demodulation factor of 3 db, since again each detector is receiving signal half the time and noise half the time. Its peculiar ability is that of working in the presence of selective fading, giving a frequency diversity effect. The following properties are stated to be necessary for an optimum two-tone detector:

a) The mark and space filters should each have the minimum bandwidth of B cps (where B is the baud speed of the system, about 45 baud at 60 wpm).

(b) The detector should operate at a level halfway between the signal and noise levels. This will give the best noisy signal performance.

(c) Each mark and space tone should be detected by a separate on/off detector, thus obtaining the advantage of frequency diversity.

(d) The mark and space tones should be chosen to obtain the maximum frequency diversity advantage. For example, the tone separation should be 500 cps for a radio route where the path time delay is 1 millisecond. Path time delays of 1 to 2 millisecond are common on long distance short wave routes, and thus the optimum tone separation will probably be between 500 and 250 cps.

(e) The two detector outputs should be combined in such a way that each contribution is in proportion to its amplitude. The best results would be obtained if the 'ratio squaring' law as proposed by Kahn were used. (Linear addition by means of two resistors is a much simpler arrangement which only loses 0.5 db as compared with 'ratio squaring'.)

The predicted wave system, a synchronous two-tone detector using quenched resonators rather than envelope detectors, is next mentioned. This system has the advantage of using a very sensitive detector; it has the disadvantage of requiring synchronous operation. The predicted wave systems which have so far appeared in the literature are not arranged to take advantage of the frequency diversity effect and thus are vulnerable to selective fading.

The FSK detector consisting of a limiter and discriminator under optimum theoretical conditions has a demodulation factor of 0 db. One of these optimum conditions is a modulation index of unity, corresponding to a total shift of 45 cps at 60 speed. A somewhat larger modulation index degrades the performance somewhat, while a modulation index of less than unity results in very little

energy in the modulation sidebands and is thus inefficient in occupying bandwidth. The failure of the limiter discriminator in the presence of selective fading is noted.

PSK and delta-PSK (differentially-coherent PSK) are discussed briefly with the conclusions that they are not very useful under fading conditions because of the random phase perturbations which accompany fading. The need for synchronous operation is the same mixed blessing that it is with the predicted wave system; the detector is very sensitive, but synchronous operation is a necessity, and a costly one.

Compatibility of the various methods is next discussed. With large modulation index, signals generated by two-tone keying or by FSK can be received by an FM detector or a two-tone amplitude detector interchangeably. With small modulation index, this compatibility deteriorates in the presence of selective fading.

Next the bandwidth efficiency of the various systems is mentioned. This is concerned with the number of simultaneous transmissions which can take place in a given interval of bandwidth. This matter is of little concern to amateurs, because the stated efficiencies can be obtained only when all simultaneous transmissions use the same transmitter.

Considering the relative advantages of all of the systems discussed, it is concluded that two-tone detection is superior in HF operation where selective fading is encountered. FSK gives about equally good results when selective fading is not severe. The other systems are decidedly inferior, either because of the need for synchronous operation or because of the effects of fading.

II

A Flexible System for Receiving FSK Signals, by J. E. Danes and D. V. Tibble. This paper appeared in *Electronic Engineering* in November, 1962. The authors are with the British Government Communications Headquarters.

The authors first note the superiority of two-tone detection over other methods when selective fading is present. One popular two-tone detector uses simple envelope detection of the mark and space signals, with the outputs of the envelope detectors being subtracted and the result presented to a decision circuit. In such an arrangement it is necessary to make the decision level 'float' so that it is always midway between the peak mark and peak space levels, whatever they happen to be at the moment.

A circuit for this purpose is rather easily devised, and works well in synchronous operation. It fails in start-stop operation because during a long marking signal it has no information about the spacing signal amplitude. It assumes the spacing signal to be absent and adjusts the decision level accordingly. Rather rapidly it adjusts the decision level

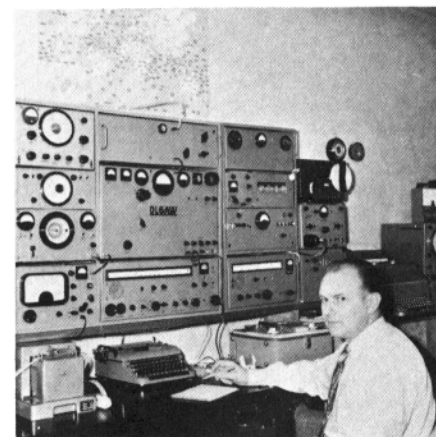
right up to the peak marking level, at which time the decision circuit is triggered by random fluctuations in the mark voltage and by noise; and the result is printed garbage. The authors conclude that the solution to this distressing problem is to treat the mark and space signals independently through the decision process and to combine them following decision. The decision level adjusting arrangement is called a ratio corrector, and appears to this writer to differ little from the slideback detector used by K6IBE and earlier by Law. Other features of the Danes & Tibble system are selective variable gain amplifiers in each channel and the method of combining the two detector outputs. The variable gain AGC amplifiers help somewhat in controlling the depth of selective fading by attempting to hold the tone input to each detector at a constant level. All of these amplifiers are operated with a common AGC circuit, which is used for a means of combining the outputs of the two space diversity receivers used in the system. The two detector outputs are combined in a sort of differential amplifier, the output of which passes to a fixed-decision-level circuit.

A schematic diagram of the significant parts of the system is given, so that any reader who has the facility for translating British schematic diagrams into American may duplicate the circuits. (Actually the only difficulty of translation is that of determining the characteristics of the transistors and diodes.)

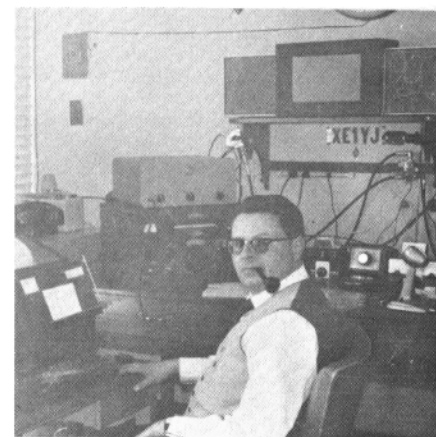
In a general discussion of modulation methods, the authors note a point which may be overlooked by those working with narrow shift: At narrow shifts, the bandwidth of the signal may considerably exceed the width of the shift. Thus a narrow shift discriminator must be made somewhat wider than might otherwise be expected; or, thinking in the other direction, the shift should not be adjusted statically so that the mark and space levels fall on the discriminator peaks.

The various slide back detectors do not entirely overcome the problem of loss of space signal amplitude information during a prolonged mark. Perhaps some reader will discover a solution to this problem. A partial solution is obtained by a proper adjustment of the combining and decision levels; this might be achieved by introducing a slight marking bias such that the space detector cannot trigger the decision circuit with its noise output during fades of a sustained mark. Another scheme might involve the use of independent decision circuits. In this case the two decision will not always agree as to whether a space or a mark is being received, so that some means must be employed to determine which decision circuit is most likely to be correct. When one tone is present the choice is obvious; when both tones are

missing the correct output can arbitrarily be called marking with a fairly high probability of success since a mark is more probable than a space in start-stop operation. It is hoped that several readers will construct and modify the K6IBE circuit with these ideas in mind. Actually there is some question as to whether these second-order effects are of practical importance. The introduction of the slide-back detector into amateur RTTY practice is, in any event, something of signal importance. (Editor: that's rather a poor pun, isn't it.)



DL6AW



XE1YJ

"LETTERS"

Now, on the article in the May 1963 RTTY, page 11, entitled Tape Clips by Ed Koch, W8QMI. I'd like to call attention to a slight detail that he left out of his suggestion about the cigar box for feeding the tape to the T-D. According to the scheme that Ed is using, as explained in the article, he must be winding up his tape backward. Here, I use a small 1½ volt electric motor about an inch in diameter which rimdrives a large flat knob out of a BC-375 tuning unit. This knob is on one end of a shaft and on the other end of the shaft through the panel there is a wire spool that I use to wind up the tape as it comes off either the reperf or the T-D. Consequently, the beginning of the tape is in the center of the winding and if I used Ed's method, I'd have to unwind the whole roll that I'd made and rewind it backwards. Here is a better method that is in use in my shack. I use an empty coffee can and drive a nail through the center of the bottom of the can so that the nail projects up inside the center of the can. A flat disc just small enough in diameter to fit inside the bottom of the can is then mounted on a piece of tubing which has an inside diameter just large enough to fit over the nail loosely and mounted so with a plug in the end of the tubing, the flat disc is free to spin around just above the bottom of the coffee can. A small slot is made in the side of the coffee can about one and one half times a tape width from the level of the disc. To use the coffee can tape dispenser, drop the roll of tape on the disc and feed the inner end of the tape through the slot in the side of the can. While the tape is being pulled from the inside of the roll, the roll, resting on the disc, spins around on the bearing (nail point) and everything runs smoothly. Incidentally, I found that if the tape is fed from anything where it rests on edge rather than on the flat, it will show less tendency to bind when it is being pulled out. I hope the accompanying drawing will show more clearly what I mean.

73 de Hal
W8MTI/A8QZT

Dear Sirs:

I have only been on Rtty about three weeks, and the first problem I found was paper from my model 15 printer running all over the floor. Being a little Scotch also, I had to develop some way to use the other side of the paper, so came up with the diagram on opposite side of this paper. I'm not an artist, but hope you get the idea.

The idea of the rollers inside the paper roll being smaller is that they are always climbing up hill and make a tension on the roll plus the fact they are not rigid, and the paper can be moved up and down with the carriage.

The motor is easily obtainable from most any merchant that has an old display.

It might be necessary to use an idler roller against the top of the roll and the weight of the roller would be enough to keep it tight. If you have a "Hints & Kinks" perhaps you could use it.

W8DXH, Floyd Davis

Strictly using "RTTY" and no other means of communication in 1962 we won the "PICON" awards for the Rocky Mountain Division. They were presented to us by the ARRL director in this division. Carl Smith was, I recall, in February. We won it for many things we did but mostly the thing that swung it our way was the help we gave the S. S. Hope during the mail strike in Peru. I think, by George, it speaks very well of "RTTY" when we won the ARRL "PICON" award using that mode exclusively for the winning of the award. "Public Interest, Convenience or Necessity" is what PICON means. Did you know Mace and I did that?

I think it's pretty good for an "RTTY" accomplishment!!

W6AEE DE W0AJL - K

NINE LIMERICKS FROM
"MY SON THE AMATEUR RADIO
TELETYPISIT" BY WILLY
I. MODEL TWELVE

A fellow from East Fond-du-lac
Had a printer whose thump, click, and clack
At odd hours made his landlady crochety.
But he often neglected to watch it, He
Now uses a tent for a shack.

II. SIMPLIFICATION

Involved as our TU's now are
More complex are coming by far.
But this much is sure—
The most wild and obscure
Is resolved by E equals IR.

III. UNDER YOUR SPELLING

A telegrapher's helper named Claude
Pursued an Orthography odd—
He mixed feat and feet,
Confused sweat and sweet,
And interchanged bod, baud, and bawld.

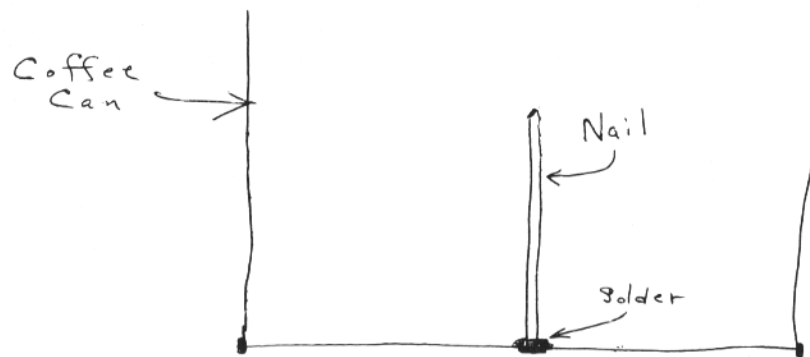
IV. PSYCHIATRONICS

When electronic gadgetries break,
The obvious cure's a mistake.
Wise technicians repair,
Like Doc's Casey, Kildare
The emotional trauma that ache.

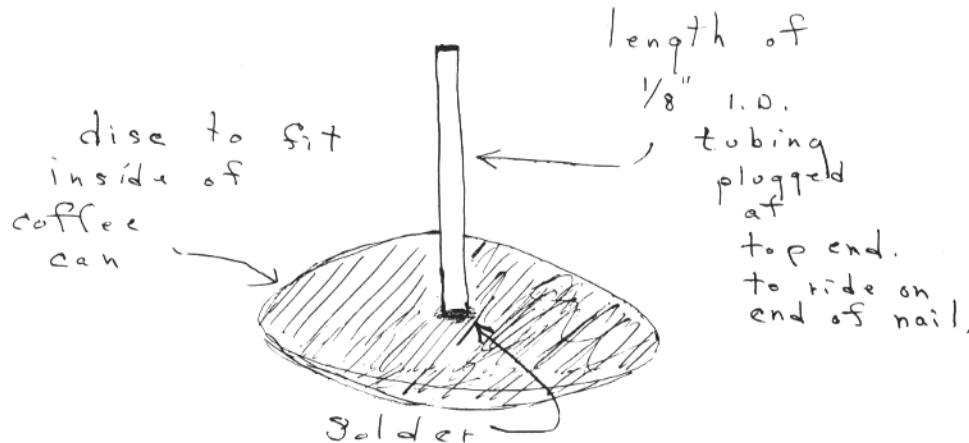
V. QSL BUREAU

The devotees of -----DX
Rely on the bureau's -----AX.
No idle request,
A stamped, self-addressed
Is a matter of dogged -----IX.

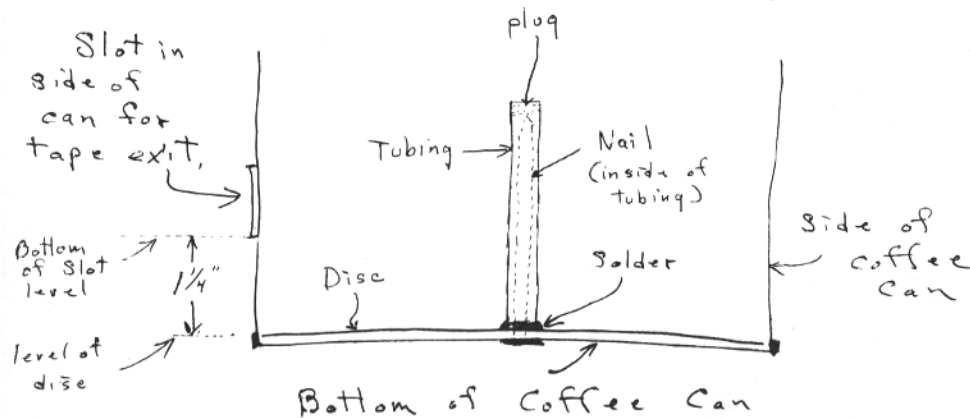
Side view of Coffee Can



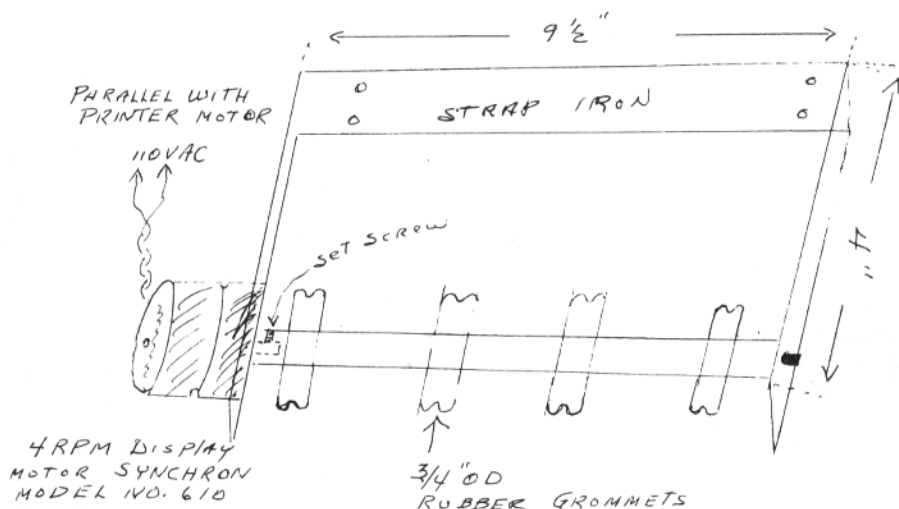
Spindle



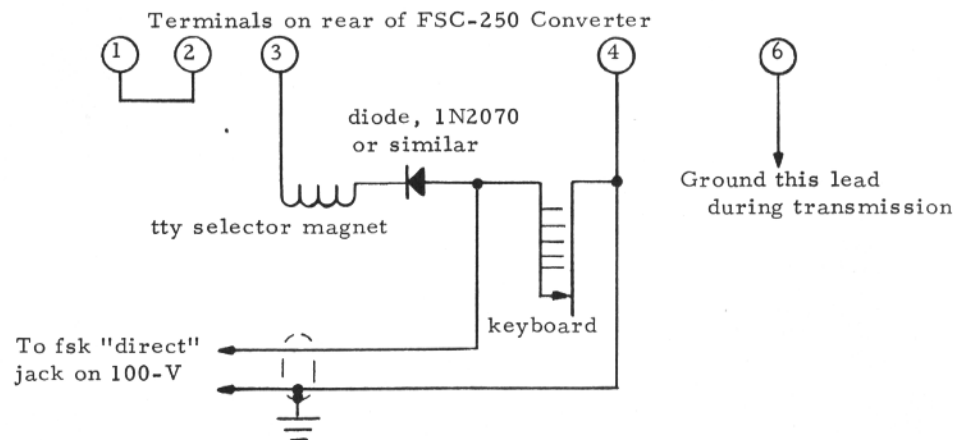
Side View (cut away)



Idle roller can be used on top
of roller if necessary.



INTERCONNECTION OF ELECTROCOM® FSC-250 CONVERTER WITH CENTRAL ELECTRONICS 100-V TRANSMITTER TO PROVIDE LOOP MONITORING OF TRANSMISSION



The above circuit allows normal reception on the FSC-250 converter and provides local copy, during transmission, from the loop supply of the FSC-250 while fsk keying the 100-V transmitter.

VI. FIVE LEVEL DETERMINATION

Jean Maurice Emile Beaudot

So wanted his system to go

That he worked day and night

To make it print right—

No time out for booze or a show.

VII. RTTY AT LAST

Our delivery schedule had slipped,

But we have on the tenth inst. shipped

Your as-is page printer machine,

With keyboard of shiny dark green.

And type-bars in Arabic script.

VIII. THREE QUARTS HOMOGENIZED

For letters and technical scoop,

Some type on DC local loop.

Gone, the pencil which wrote

The eggs-and-cream note

Found in bottles upon the back stoop.

IX. CALL ME MADAME

A procuress, whose art, though outlawed,

Brought a clientele spread far and broad,

Managed this set

Through a teletype net.

She was known as the fifty-baud bawd.

(Of course, "My Son" is a fictitious publication, publication being on 3620.)

PAUL WILLY

WHAT TO DO IF YOU ARE SUDDENLY BLESSED WITH A MODEL 26 TELETYPE

First: Thank the Lord unless you got it in such a way that you feel you should thank a couple of demons.

Second: Put on your old clothes and cover the floor and easily accessible areas with three or more thicknesses of newspaper. (Not funnies—this is no time to read.)

Third: Rig up some AC to the motor and give it a quick flick. Do not attempt to run the motor, do not run it! Just give it a flick and notice which way the fan on the rear of the motor turns.

Fourth: Turn the motor by hand in the direction it tried to run. If you did not let it make more than a few turns it should turn very easily. After a few turns, it should suddenly take from three to five times as much twist to move it. Shortly after that you should see the type hammer (that do-hinkus above the typewheel) move to the front, then back to the rear. After that it should get easy to turn again.

Fifth: If you know about loop current, etc., hook up some; if you are in doubt—hold the flapping armature against the magnet and while holding it with one hand turn the fan with the other. Soon all the gizzmos will stop except for some gears and a couple of cams. Notice what still turns—this is the normal resting function of the machine, it is "locked up"!

Sixth: Release the armature, turn the fan a tenth of a turn or less, then press the armature down and turn till it "locks up" again

and the typewheel should stop with the obvious slot about in the 2 o'clock position. If you are noticing carefully you will see that there is no type in the slot under the type hammer. Now release the armature and while leaving it released turn the fan some more. The type wheel should rotate and come to a rest at about the ten o'clock position while the type hammer moves again. If this is the case probably no important pieces are broken and you can proceed to give it a bath. The best bath would be in a mixture like out-board motor fuel but with about three times as much oil.

After the bath the gears will have to be re-lubed with either "Luberplate" or a good gear lube. The rest will have to be lightly oiled with any automotive oil that is not too thick or viscous, and the selector parts will need a light application of some low-viscosity non-drying oil. "Watch oil, thin" from surplus is even better than teletype oil but if you have neither you can use a thin spray of "WD-40" as made by Dupont.

teletype oil but if you have neither you can use a thin spray of "WD-40" as made by Dupont.

Now all that remains is to get it to print then correct the troubles found.

—NCARTS Bulletin

Thank you for the nice chat on Rtty June 21/63. I am enclosing the circuit we use here for replacing the polar relay to operate the model 12.

The reason we worked up this circuit was that the model 12 current requirements were just too much for the 255 A polar relay contacts and we did not have the wheatstone relay the machine calls for. After setting the circuit in operation we observed a marked reduction in pulse noise generated. Almost nil. Could you use a photo of the layout here? If I do say so I have a real picture of a shack. All the gear is built by me in a commercial manner. You might even have trouble finding the model 12.

At any rate we will look for you again on 20 RTTY. If I ever finish the terminal unit we started and find it has merit we will write you about it.

73 Nick, W2GWL

DX-RTTY

BUD SCHULTZ, W6CG
5226 N. WILLMONTE AVENUE
TEMPLE CITY, CALIF.

Hello DX'ers:

Due to hot weather, vacations, erratic conditions, etc., DX reports to this desk have dropped off to a mere dribble. However, activity appears to be still at a good level when compared to the past two summers. The hottest report to reach this rumor center in the past several months comes from Martin, OY7ML, in the Faeroes Islands. For a long time Martin has been trying to go RTTY but with many problems. Now he writes that thru the efforts of OZ5JT he has secured a printer and will be on FSK shortly. Along with Martin's letter came a subscription for "RTTY" so there can be no doubt about the fact that he really has "baud fever". Speaking of OZ5JT - Jens writes that as of June 1st, the OZ hams must apply for permission to use FSK and they are restricted to 50 baud speed. However, he states further that he is asking for an exception to use 45.45 baud speed on 14 Mcs. Bill, G3CQE, is away on a vacation thru Scotland and plans on visiting GM3GNR for a week and also stopping off to visit Arthur, G2FUD, on the way up. Contrary to statements made in previous DX columns, Bill says he has spent very little time on SSB since completing the new rig. He reports that the idea of making the SSB rig was to replace the old one which is very tired after nine years. He is planning a new linear and along with a reconditioned AR-88 receiver, Bill should be back on the RTTY channels with a big signal shortly. As usual, Bill has a fine column on RTTY in the June issue of "Short-Wave Magazine" with lots of news concerning European activity and considerable info on several Surplus type TU's available to the hams over there. From Bill's column I note that the RTTY Bulletin broadcasts from PAØAA are continuing on a weekly basis with reports of reception coming in from both Coasts of the USA and from South Africa in addition to many European hams. It is rumored that the Belgian U.B.A. also have plans for transmitting an RTTY bulletin from their Hq. station, ON4UB.

Congratulations to Herman, W9HJV and to Jerry, W5CME, for achieving their WAC-RTTY awards. W9HJV received nr. 31 and Jerry came in close behind for nr. 32. Here's an interesting quote from W5CME's letter: "I would like to offer a suggestion. How about some RTTY Society sponsoring a certificate for confirmed contacts with 100 different RTTY stations - not including any contacts made during an RTTY contest? This

would certainly encourage more RTTY operation." Wonder if any of the RTTY groups around the Country would care to kick this one around a bit? - And speaking of awards . . . what ever happened to the RTTY-DX 50 Country Award we were kicking around a couple of years ago. I just counted up the Countries I have confirmed on two-way RTTY and find I am stuck at 30. I know for sure that I am way down the list so it would seem that some of you chaps must be pretty close to that magic number of 50! No one has sent in a "countries worked" list for many months but if enough of you are still interested I will be pleased to revive the old DX Box Score deal and perhaps we can revive some of the old DX fever we had going for us a couple of years ago. Remember, if you do submit a list of countries worked, restrict it to two-way RTTY contacts that are confirmed. It won't be necessary to send in the QSL cards until you have 50 of 'em. Who's going to be the first to reach this plateau? In going over my DX list I can count only four countries, CE, KA, CN, and ZK1, that to the best of my knowledge are not currently active on RTTY. On the other hand I am able to count at least fifteen prefixes that are presently on RTTY that I haven't been able to add to my list. This would indicate that fifty countries "worked" is no longer just a DX'er's dream!

The DX committee has picked the weekend of October 18-20 for the Third Annual World-Wide RTTY DX Sweepstakes. This will be your chance to do some catching up on those rare ones you missed during the past couple of seasons. The rules will be identical to the ones used in last year's fracas. This was decided after last year's very successful results were evaluated. There were practically no complaints on the way the contest was operated last year and the committee decided not to break up a "winning combination." It is an excellent idea for everyone to refresh himself on the scoring arrangement between now and the count down time so you won't waste valuable operating time frantically. In case you wish to start "boning up" on the rules you will find 'em in the September '62 issue of "RTTY" and on Page 68 of October '62 QST. The only change will be the dates of the Contest. They will also be re-run in up-coming issues of both these magazines. If you have any questions on how the scoring goes - drop either Merrill or me a note and we will try and give you an interpretation.



HORSE TRADES

- FOR SALE:** Two model 15s complete with sync motors \$75.00 ea. Two Model 14TD sync motors \$75.00 each. W6LSG, 69 West Wistarai Avenue, Arcadia, California.
- TRADE:** Will swap a brand new (in unopened factory sealed carton) Model 14 Teleprinter-with keyboard base-dual speed 60/75 at flick of switch-for a small electric adding machine in good condition.
- FOR SALE:** Polar relays-model 255-a- \$1.00 each FOB, W9YVP, 11001 South Pulaski, Chicago 55, Illinois.
- FOR SALE:** Model 19 set complete with keyboard perforator, transmitting distributor, power supply, right hand counter table, etc. Machine is grey-green in color, has holding magnet selector, sync motor, gears for 60 wpm operation, and communications type. This unit has been completely overhauled and is in very good condition. No waiver is required. \$350.00, K9BRL, 1105 Ironwood Drive, South Bend 15, Indiana.
- FOR SALE:** Model 28 KSR, complete in new condition. Estate of W5ANW. \$375.00. Also tape distributor and tape reperfector. W5EYC, P.O. Box 22594, Houston 27, Texas.
- FOR SALE:** Model 26 complete with table. Also has new line feed and car ret kit, which is not installed yet. \$65.00 K6HDF, 8701 Firestone Blvd., Downey, California (also can furnish instruction manual).
- FOR SALE:** Teletype parts. Order by Teletype number. RA-87, \$9.00. FGC-1, \$75.00. 11/16" tape \$8.00 per case. Single copy paper, \$12.00. Reperf., \$39.00. 88 mhy Torids, \$1.00 each. 5 for \$4.00. FOB W5LCU, 7031 Burkett, Houston 21, Texas.
- FOR SALE:** TG-7 is Model 15 modified to be able to change from 60 to 67 wpm, if desired. Taken out of active service and packed in the Army chests, complete, in apparently excellent condition, but sold as is at this low price, same as we bought them. Only \$69.50. Add \$3.00 \$3.00 for the Handbook, but only if bought with the TTY. Net FOB, Stockton, Calif. warehouse, shtp by motor frt collect. R. E. Goodheart Co., Inc., P.O. Box 1220, Beverly Hills, Calif.
- FOR SALE:** Brand New-Original Packing, 14 strip printer unit (no base). Series govnm motor-75 wpm. \$4.00. Special cover for above, \$1.00. 14 TR or 19 tape reel, green or black, \$4.00. 14 TR keyboard base, green or black \$16.00. 14 TD with slip connection base, 60 wpm, sync motor \$40.00. Good Used. 15 complete, 60 cycle sync, \$75.00. 19 complete, 60 cycle sync, \$125.00. Picked up. Packing extra. W9GRW (CATS), 8029 Keeler Avenue, Skokie, Illinois.
- FOR SALE:** Hallicrafters SX-88 receiver with matching speaker, \$200.00. W6AEE, 372 Warren Way, Arcadia.

Even if you are not an ardent DX'er, plan on participating in this once-a-year confusion marathon. I will guarantee that it will make all the other 51 weekends of RTTY operations seem like "a moment of softness." Start training now so you will be in top shape!

In closing, I cannot resist a quote I recently read in "DX" and credited to W8IBX - "Confucius say: Self-appointed policeman running kilowatt often make more QRM than lid running 50 watts." If you don't believe this, wait until the contest starts.

73

Bud, W6CG

Subscription Rate \$3.00 Per Year
RTTY is the Official Publication
of the
**RTTY Society of
Southern California**
and is published for the benefit of all
RTTY Amateurs and Experimenters

Permission to copy is granted
provided credit is given.
For "RTTY" Information:
W6DEO W6CG W6TPJ W6AEE