RTTY

NEWS OF AMATEUR RTTY

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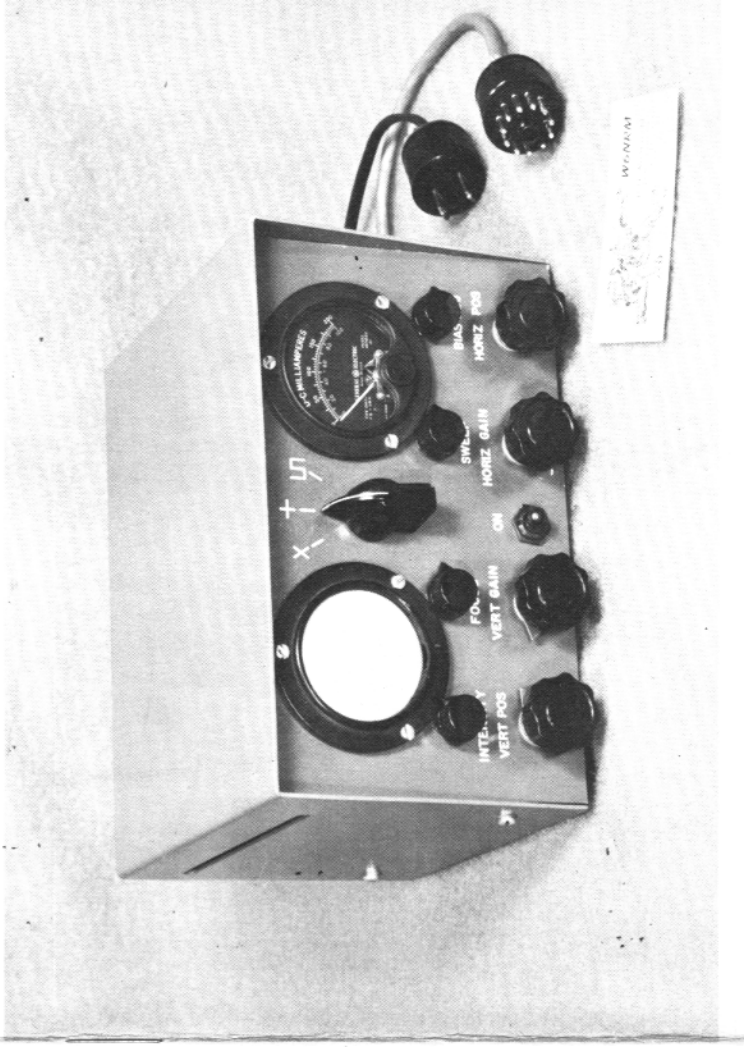


THE OSCILLOANALYZER—For RTTY Signal Monitoring and Bias Measurement

HORSE TRADES

This page of the Bulletin is for use of amateurs who have RTTY EQUIPMENT FOR SALE OR TRADE and those looking for equipment to buy or trade. It is a free service and may be the means of getting someone on the air.

FOR SALE: Model 15 with perf kybd, $175.00. Model 15 $115.00. Model 14 typing reperf $150.00, 14 TD $75.00, sold with reperf only. WE power supply 800 mils $15.00. Mike Ames, 610 Glencrest Place, Solona Beach, California.

WANTED: Motor and Gear for W.U. 22A dist-trans. Perforator or reperf, typing or non-typing K8VDU

FOR SALE/TRADE: M-K 7C Tape xmtr, M&S Filters, polar relays, AN/FGC-1 TU&Cab. F. A. Hatfield, K8VDU, 4080 East Fulton St., Columbus 13, Ohio.

FOR SALE/TRADE: Model 15 complete with cover and table, and sync motor, very clean. W8UUS, 2242 Stevens Ave., Kalamazoo, Michigan.

FOR SALE: Model 14 typing reperfs, Model 15 typing units only. Frank White, W3PYW, 2706 Harmon Road, Silver Springs, Md.

TRADE: Central Electronic 20A kit, New (mint condx, no soldering) for 14 TD. K9DOF, 922 Baldwin St., Elkhart, Indiana.

TRADE: Viking mobile Xmtr and Viking VFO, both in excellent condx, for Model 15 printer. W2LFL, 1757 Seaman Drive, Merrick, L.I., N.Y.

FOR SALE: Model 26 with table, Excellent condx, overhauled by W3CRO $90.00. W1OUG, 150 Brook Run Lane, Stamford, Conn.

FOR SALE: SP-600 JX RCVR with manuals, CV-57 (URA-6) converter with cables, TTY loop supply in URA-6 rack with new manual, also somparator unit with spare keyer unit (tubed) and hardware parts. Guaranteed in A-1 working condx, all for $575.00 COD to you. N. Leon, 4069 So. Pacific Hwy., Medford, Oregon.

FOR SALE: Several FCC-3A TU's (new) $20.00, FCC-3A AFSK units (new) $10.00, all postpaid. Write for pix, data etc. WØEWQ, 7332 Nall, Overland Park, Kansas.

FOR SALE: Teletype gear, surplus model 15 printers, reperfs, TD, sync motors and parts. Free flyer. MDC Industries, 923 W. Schiller St., Phila 40, Pa.

FOR SALE: Model 15 sync motor gears, 74912/74913, $6.05, RTTY, INC.

RTTY, Inc.
372 WEST WARREN WAY
Arcadia, California
Return Postage Guaranteed

FIRST "WORLD-WIDE RTTY SWEEPSTAKES"

This is a competition between all stations throughout the world to determine their ability to exchange messages via two-way radio teleprinter.

SWEEPSTAKES RULES

1. Test period:
0200 GMT Oct. 21st to 0200 GMT Oct. 23rd, 1961.

2. Bands:
This test will be conducted in the 3.5, 7.0, 14.0, 21.0 and 28.0, MCS. Amateur Bands.

3. Stations may not be contacted more than once on any one band. Additional contacts may be made with the same station if a different band is used. In the interest of encouraging multi-band DX operation, the same country may be claimed more than once if contacted on different bands. The same state worked on more than one band may only be claimed once.

4. Country Status:
For the purpose of this contest, KH6, KL7 and VO will be considered separate countries in addition to the ARRL country list.

5. Stations will exchange messages consisting of:
   (A) Message Number
   (B) Check (RST)
   (C) Time in GMT
   (D) State of foreign country

6. Points:
   (A) All two-way RTTY contacts by North American countries including KH6 will earn a maximum of two points (one sent plus one received).
   (B) All two-way RTTY contacts by countries other than in (A) above will receive a maximum of ten points (five sent plus five received).
   (C) All stations received 200 points per country worked not including their own.

7. Scoring:

INCLUDES ALL NATIONS

   (A) Two-way plus one-way exchange points times total states worked.
   (B) Total country points per band times number of continents worked.
   (C) Add item (A) and (B) above. (This is your total test score.)

8. Sample score sheet:

(A) Exchange points $\frac{(196)}{(800)}$ Times states $\frac{(40)}{(3)}$ equals $\frac{(7,840)}{(2400)}$

(B) Country points _____ times continents _____ equals $\frac{\quad}{10240}$

(C) Add (A) and (B) above _____ (Total Test Score)

9. Sample Log:

Station Log of W6TPJ (Call) Date 21, Oct. 1961

SENT					RECEIVED			STATE OR COUNTRY	EXCHANGE POINTS
NR	RST	TIME	BAND	STATION	NR	RST	TIME		
1	589	0200	14	W6CG	2	589	0204	Calif.	2
2	569	0230	14	VK3KF	6	579	0231	Australia	2
3	?	?	14	W6NRM	4	359	0240	-	1
4	599	0300	14	W2JAV	7	599	0259	New Jersey	2
5	579	0514	7	VK3KF	22	569	0514	Australia	2

Total exchange points (9) States (2) Countries (2) Continents (2)

Station Log of VK3KF (Call) Date 21, Oct. 1961

SENT					RECEIVED			STATE OR COUNTRY	EXCHANGE POINTS
NR	RST	TIME	BAND	STATION	NR	RST	TIME		
1	599	0201	21	ZL3HJ	1	599	0202	New Zeland	10
2	589	0204	21	W6CG	1	569	0205	Calif.	10
3	589	0210	21	W6NRM	3	569	0210	-	10
4	569	0220	14	W6AEE	2	569	0222	-	10
5	579	0224	14	VE7KX	9	589	0225	Canada	10

Total exchange points (50) States (1) Countries (3) Continents (2)

NOTE:
Log the state only once the first time contacted. Log the country the first time contacted on each band. (See Sample Log para. 9.)

10. Logs and score sheet should be received by RTTY, Inc., 372 West Warren Way, Arcadia, California by December 1, 1961 to qualify.

AN OSCILLOANALYZER FOR RTTY SIGNAL MONITORING

By R. H. Weitbrecht - W6NRM
3941 Brookline Way
Redwood City, California

There is a need for a fairly simple yet universal test instrument for analyzing RTTY signals for proper tune-in, sufficiency of signal strength, noise balance in the TU, and adjustment of frequency shift. The instrument, in addition, should permit detailed examination of the teleprinter signal itself for bias, distortion, transition clicks, and various phenomena in connection. Logically this also includes a test circuit for checking polar relay contacts for adjustment to zero-bias.

Although designed to work with the Mark III Terminal Unit described recently[1] the simple three-tube "Oscilloanalyzer" described here is easily adaptable to work with any other TU as the oscilloscope portion of this instrument has amplifiers for handling most any level of signal as may be available from particular TU discriminators — whether few volts as from transistorized versions, or hundred volts as from the Mark III. Also included in the unit is a Bias Meter which by itself is a wonderful aid in measuring teleprinter signal bias — signal obtained say off from a polar relay contact, keyboard, or the Mark III FSK output. And this teleprinter signal under measurement for bias can be inspected on the oscilloscope as well.

As might be surmised from the above description, the Oscilloanalyzer consists of two main portions — the oscilloscope unit and the bias meter unit. They are quite independent of each other and could be separated if desired to fit any particular TU configuration. The oscilloscope itself can be used in several ways governed by the type of display desired.

The Oscilloscope Unit

The 'scope unit has three displays available; the "X" display (WØHZR type), the "+" display (W6AEE type), and a 6 cps sawtooth based sweep. Any one of these three displays is quickly available via a front panel switch control which also connects the oscilloscope to each of the particular networks involved in the TU. All in all, once controls are adjusted as required for proper oscilloscope patterns, this "One Knob Picture Control" does the rest.

The basic 'scope circuit was designd to have some available gain to handle the relatively low-level signals as furnished by the "X" display circuit. This particular one is a phase-frequency sensitive presentation which directly indicates both amplitude and audio frequency of the incoming tone signal by length and angle, respectively, of the resulting trace on the 'scope screen. This display, as developed by Bruce Meyer, WØHZR[2], some years ago, employs just a single high-Q coil and a capacitor — suitably connected to the Vertical and Horizontal inputs of the oscilloscope. The input impedance in this system is fairly low, and in the Mark III TU, is connected to the output from the Band-pass filter, using a 10K/1K voltage divider as indicated in the TU's circuit diagram. Partly because of this attenuation and partly because we cannot have too much signal from the receiver's audio output, appreciable gain is needed in the 'scope amplifiers to yield adequate patterns on the screen.

The "+" display is simplicity in itself, as was designed by Merrill Swan, W6AEE, and described in another early issue of RTTY[3], AC voltages right off the Mark and Space filters of the TU's discriminator are directly applied to the Vertical and Horizontal inputs in the oscilloscope. With the Mark III system, AC voltages at the mark and space frequencies are quite plentiful so that to work with the built-in 'scope amplifiers, voltage dividers are installed and adjusted to bring these voltages down just enough to provide adequate traces on the 'scope screen. All in all, this presentation is probably the most widely used tuning indicator system in amateur RTTY terminal units, and its popularity is well deserved.

[1]The W6NRM Radioteleprinter Terminal Unit, Mark III, January - February 1961 RTTY

[2]High Speed Tuning Indicator for Teleprinter Converters, November 1954 RTTY; also see January 1956 RTTY

[3]Tuning Indicator for FSK, May 1953 RTTY

The third presentation — a 6 cps sawtooth sweep — is installed to enable display of a synchronously repetitive teleprinter waveform which then can be readily inspected for distortion or other deleterious effects. The sweep is generated by a neon lamp sawtooth oscillator running at an adjustable frequency rate around 6 cps, and it is applied directly to the 'scope's horizontal input. As the oscillator has a peak-to-peak voltage swing of only about 20 volts, some 'scope gain is indicated.

Hence the Oscilloscope circuit employs DC coupled amplifiers using high-mu triodes, contained in one 12AX7, driving a 902 two-inch cathode-ray tube. DC coupling is employed throughout in interest of obtaining constant gain and freedom from baseline shifts when working with very low frequencies, down to typically 6 cps, as has been mentioned previously. AC coupled amplifiers will not do because they have a limited low frequency response — governed by the necessarily-large capacitances in the inevitable coupling capacitors — and also they have an annoyingly long recovery time should transients (as caused for instance by switching the Picture Control) hit either or both amplifiers. Anyway, on either channel, deflection sensitivity is approximately 1.5 volts per inch.

The 'scope unit power supply is simple and contains few small parts, yet it is capable of generating not only 600 volts for the electron gun of the CRT, but supplies 300 volts for the deflection amplifiers as well. The parts required consist of a small TV-booster type transformer which now drives a voltage quadrupler rectifier-filter system using four diodes and four capacitors. This transformer also supplies heater power to the CRT. And a second 6 volt 1 ampere filament transformer powers the heaters of the amplifier tubes. (Due to difference in voltage levels, the 902 heater must be separately powered and insulated from the amplifier heater circuit.)

Just three tubes in the Oscilloanalyzer, arranged as follows:

½	12AX7	X- deflection amplifier
½	12AX7	Y- deflection amplifier
1	6C4	6 cps sawtooth output cathode follower
1	902	2-inch cathode-ray tube.

Also four 1N1695 silicon diodes are used in the voltage quadrupler as well as some NE-2 neon lamps involved as voltage regulator, voltage stepper, and relaxation oscillator. The Oscilloanalyzer is operated via connections on the Mark III Terminal Unit which provide not only the AC power but also the various signal connections to the Picture Control switch.

The Bias Meter portion

Frequently it is necessary to be able to determine the amount of bias or other distortion as may be in a given teleprinter signal — whether from one's own keyboard, TD, etc, or from the incoming RTTY signal. Various ways, some expensive, some simple, can be used to accomplish this end. If one asks for "cooperation" from the signal under test so it is repetitive at synchronous speed on any one particular teleprinter character — for instance the letter "Y", then a simple integrating meter will deliver a certain reading — 0.595 for the letter above — on a scale lying between 0 and 1. This way, knowing the exact Mark/Cycle ratio in a synchronously repeated signal, we note the meter reading to determine if it is exactly shown as expected, or is it "off" — indicating a biased condition the teleprinter signal. With mathematical formulae, to be given later, the exact amount of bias — whether Marking or Spacing — can be calculated and the sender may then take appropriate steps to adjust his transmitting circuits (polar relays, keyboards, etc) to exact zero bias. Likewise receiving circuits including the TU itself can be checked and made zero bias. Some detailed explanation of this Bias Meter method will be given as it is such a simple yet extremely effective means of adjusting amateur RTTY circuits to zero bias — to enable the best possible RTTY communications under all conditions.

A good quality 0-1 milliammeter is employed, together with a 2000 MFD 6 volt capacitor across the meter itself. A squarewave signal, alternating between zero and an accurately held voltage value, is fed through a series resistor into this integrating meter. Normally, the meter is set to read zero on a steady-space signal (no current) and the meter shunt is adjusted to have exactly full scale reading on a steady-mark (full current on) signal. On a steadily repetitive signal input, the integrator will reach an equilibrium state displaying the exact Mark/Cycle ratio which may be readily compared with one of six discrete values indicating perfectly zero-biased condition for the particular teleprinter character being repeated.

The signal for the bias meter comes directly off the output from the Mark III TU's FSK Diode Driver amplifier. As a matter of fact, the meter circuit blends smoothly into the TU, being inserted in series with the potentiometer employed for adjusting frequency shift voltage into the transmitter's oscillator. As this amplifier handles either the incoming RTTY signal or the Keyboard/TD signal as developed in the TU's "Teleprinter Loop", the bias meter is effective in either receive or transmit modes and forms a simple yet effective adjunct for evaluating teleprinter signals for bias.

Provision for Checking Polar Relays: etc.

Used by itself, the Oscilloanalyzer has provision for testing relay contacts for bias and contact bounce. The unit's signal-cable plug is inserted into a socket on its rear, and this automatically connects certain binding posts, placed on the same panel. The relay contacts under investigation are connected directly to the two posts marked "CONTACTS" and a signal is applied to the relay's coil. This signal can be the regular teleprinter signal synchronously repeated, and hence the oscilloscope display and bias meter reading will be as for a regular teleprinter signal. Or a 60 cps sinewave, suitably attenuated from the power line, may be applied to the relay coil, resulting in a symmetrical 50/50 balanced squarewave display on both 'scope and bias meter — if the relay contact is in proper adjustment. Misadjustment of same obviously results in deviations from the above mentioned balanced bias as well as possible spurious pulses originating from contact bounce.

Construction and Connections

The Oscilloanalyzer is built into a LMB type W-1C cabinet, of the same size as that used for the Mark III TU's housing. The photographs show the disposition of the various parts, controls, and wiring. Seen in the photograph of the opened up unit will be a galvanized sheet steel shield placed over the 902 CRT to minimize AC magnetic field effect on the 'scope's patterns. However a regular Nicoloi or MuMetal 2-inch 'scope shield is recommended to improve the magnetic shielding, and for this purpose a Millen type 80042 shield can be used, along with a 80072 bezel.

The power supply transformers, one the TV-booster type delivering 125 VAC at 15 MA plus 6.3 volts at 0.6 ampere, and the other a straight 6.3 volt 1 ampere filament transformer, are placed as far away as possible from the CRT area, on the other end of the chassis. The capacitors and silicon diodes contained in the voltage quadrupler system are mounted on a piece of Vector board and fastened under the chassis. The sweep and amplifier circuits generally occupy the center area of the chassis, and its parts are also mounted and wired on a piece of Vectorboard. The controls for both oscilloscope and bias meter are logically arranged as indicated in the photographs.

Another piece of Vectorboard is mounted on top of the chassis to carry the various voltage attenuating resistors, the 88 MHY toroid coil and capacitor for the "X" display circuit, and other related parts — of which are wired to the Picture Control switch located in the vicinity. For each display, when working with the TU, each voltage attenuator network is adjusted as needed, using fixed resistors, until suitable trace lengths are obtained on the 'scope's screen. The TU will always be in adjustment delivering optimum voltage levels to the Oscilloanalyzer, so why use a flock of adjusting potentiometers? Judiciously chosen resistors suffice and they take up much less room. And the result is essentially "One Knob Picture Control".

The diagrams (Figs. 1 and 2) show the complete circuits on both the oscilloscope, input signal connections and networks, and also the bias meter arrangement — including the sight modifications required to the Mark III TU. The lettered circles are for reference purposes, to be tied in with similar lettered circles in the diagrams of the Mark III TU. On the rears of both TU and 'scope units are mounted 11-pin sockets which are employed as indicated for connections to various points. A 11-pin plug and cable (8 wire) is made up, having sufficient length to reach either TU or 'scope unit itself. The arrows on the signal network diagram show the pins of this particular plug, and careful study of the various connections should set the reader at ease as to which network goes to which.

The important point in the "Picture Control" switching is that not only are both X and Y *inputs* switched but also including the oscilloscope's *neutral line*. This is necessary because the "X" display signal, the "+" display signal, and the 6 cps signal each lie at a different voltage level as far as *grounds* are concerned. For instance, the ground for the X-display is the TU's "O-line" which is at -150 volts with respect to TU chassis ground. The + display has its ground point right at the discriminator's centerpoint which is variously at signal voltage in addition to -200 volts, referred to the chassis ground. And the 6 cps display has its ground on chassis, inasmuch as the FSK voltage output from the TU is thereupon referenced. Thus it will be noted that at least a four deck 3 point switch is needed for the signal switching function contained in the "Picture Control". The fourth deck is used in the Synchronizing link which must be disconnected if the 6 cps sweep is not in use — so as to avoid upsetting the other displays due to the widely different "'scope neutral line" voltage levels. This switch must be of the NONSHORTING type, so that the various power voltages will not be inadvertently shorted during switching.

The DC amplifiers are quite conventional single-ended stages, feeding directly to the CRT deflecting plates. One deflecting pair (One X and one Y, plus accelerating anode, tied internally in the CRT) is connected to a point in the electron gun's voltage divider; this point being at some +200 volts above the "neutral line". Thus the plate swings from both amplifiers are centered around this point, resulting in symmetrical deflection on the CRT's screen. This is similar to the circuit used in the author's 3-inch cathode-ray oscilloscope published some 13 years ago[4], and it forms a simple and effective DC coupled 'scope system. Incidentally the 3-inch 'scope is still working and is in constant use in the laboratory.

An innovation is shown in the amplifiers' positioning control circuitry — 2N414 transistors are employed in cathode circuits of the 12AX7 stages. They serve two functions; one is to achieve adjustment of the cathode biasing on each stage for the purpose of spot centering — and the other is to serve as a sort of "infinite capacitance" to bypass cathodes to neutral line at any frequency down to d.c. to obtain maximum gain in both amplifier stages. These transistors, which can be of any inexpensive PNP type, say 2N109, 2N217, etc, operate as emitter-followers at a maximum voltage drop of several volts at very low current. Their bases are controlled by the VERT and HORIZ positioning controls so that the respective amplifier cathodes are forced to various levels between 0 and 5 volts. As a result instantaneous spot positioning is had and at the same time maximum possible gain from the amplifiers are obtained. The latter feature is needed because of the rather low levels in the "X" display signal network.

The 6 cps sweep consists of a RC oscillator using a NE-2 neon lamp as the discharging element. The output from across this neon lamp-capacitor combination is fed into a 6C4 cathode follower which in turn delivers a sawtooth signal into the network, shown, which adjusts and centers the "swing" about the oscilloscope's neutral line. A potentiometer, in the cathode follower's lead — called "TRIM" — is used for adjusting the center of the sawtooth swing so that when it is fed into the Picture Control switching system, the display will be properly centered when the 6 cps position is switched in. The neon lamp oscillator is powered by a high resistance plus a high resistance potentiometer (both 10 megohns), and they are in turn powered by 180 volts obtained from off a bank of three NE-2's operating as a voltage regulator. It is to be noted that all the neon lamps should be placed in close proximity to each other inasmuch as the one NE-2 used in the sweep oscillator wishes to have a "bit of illumination" from its brother lamps to stabilize its oscillation.

The oscillator is synchronized to the 6 cps repetitive teleprinter signal by means of the synchronizing circuit shown — connected to a point on the Picture Control's switch. This synchronizing feature is very nice as it stops the drift of the oscilloscope waveform, thus aiding in detailed inspection of the various pattern features. During use, the sweep frequency control is adjusted as necessary until the pattern "snaps" into lock.

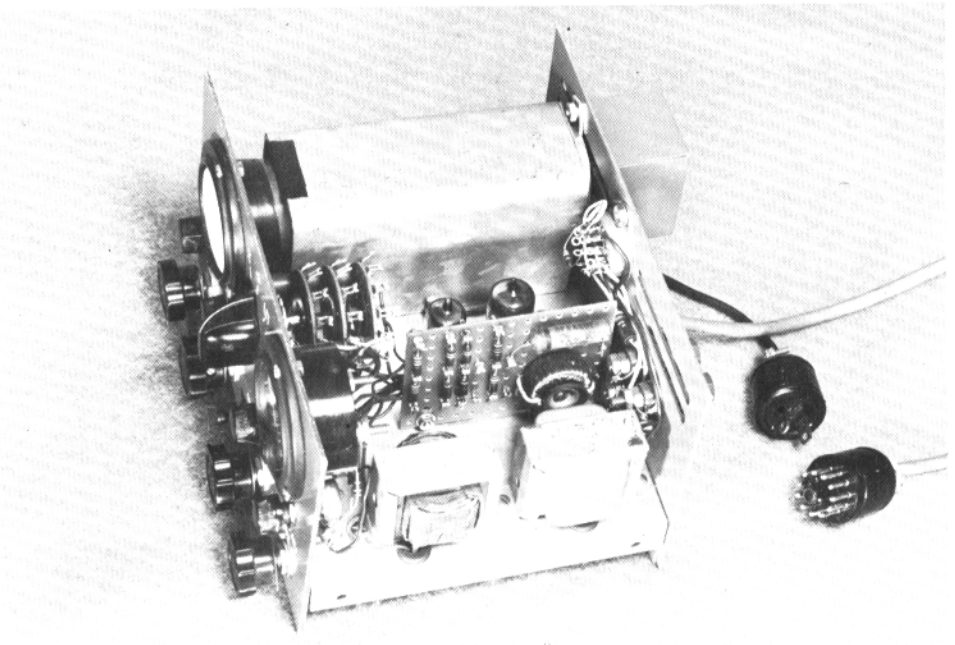
The VERT and HORIZ gain controls are only effective during the 6 cps display mode, and they are obviously utilized to yield the best pattern as required for inspection of the teleprinter waveform for distortions, transition clicks, or gross bias. The VERT and HORIZ positioning controls are effective at all times, and normally they are adjusted to center the display — any one of the 3 modes. (A potentiometer, mentioned above, called "TRIM", is on the rear of the cabinet, and is a semipermanent adjustment to properly center the 6 cps sawtooth sweep).

All in all, the construction of this Oscilloanalyzer should pose no particular difficulty. Just remember to construct the circuit without any connection to the chassis-cabinet ground, and then make the grounds where indicated. The oscilloscope's "neutral line" has to be isolated for the reasons stated above — several of the signal networks have different power voltages involved. Be sure to use vinylite covered shielded wire for the grid connections in the amplifiers, and connect these shields to the 'scope's "neutral line".

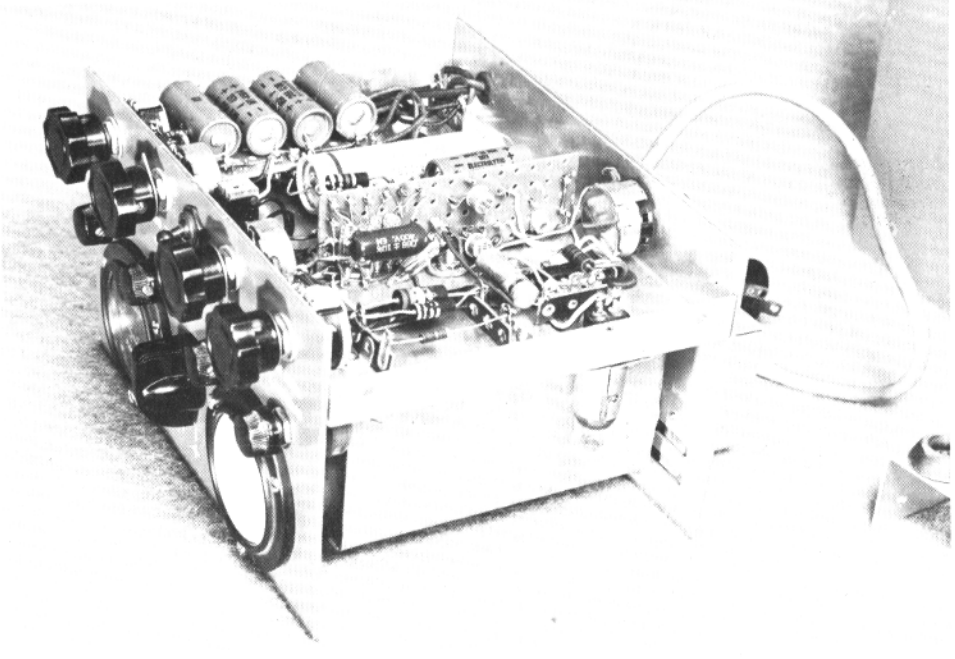
It is is important that the 0-1 milliammeter used in the Bias Meter be of a good quality type that has a minimum of linearity error, as close reading is needed to accurately measure teleprinter biases down to 1 or 2 percent. Exact 0-1 milliampere does not matter particularly — it could be 5 or 10 percent off, but linearity (scale readings agreeing with proportional values of current sent through) must be within a half percent or so. The meter used in this unit is a General Electric type DW-51 2-inch size which seems to be very common in the surplus houses, selling for $1.95. Its linearity has been checked against a precision standard and found adequate. Doubtless, good quality milliammeters such as Western or Simpson will be satisfactory.

Now we will discuss the various displays together with photographs of same, and then we will take up the story on the techniques of bias measurement.

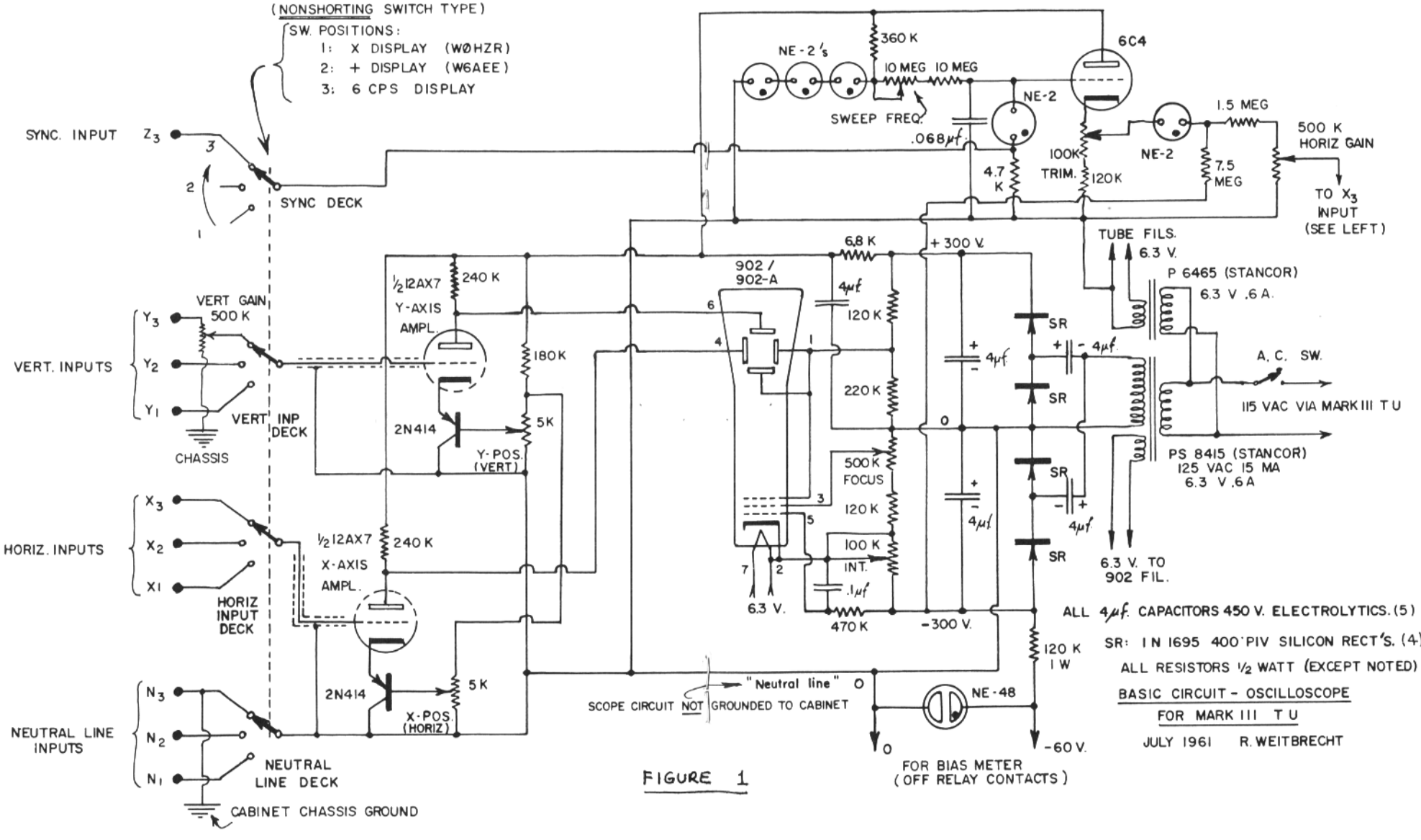
[4]A 'Scope for the Hamshack, February 1948 *QST*



VIEW SHOWING INTERIOR OF THE 'SCOPE UNIT



CHASSIS VIEW OF THE 'SCOPE UNIT



ALL 4μf. CAPACITORS 450 V. ELECTROLYTICS. (5)

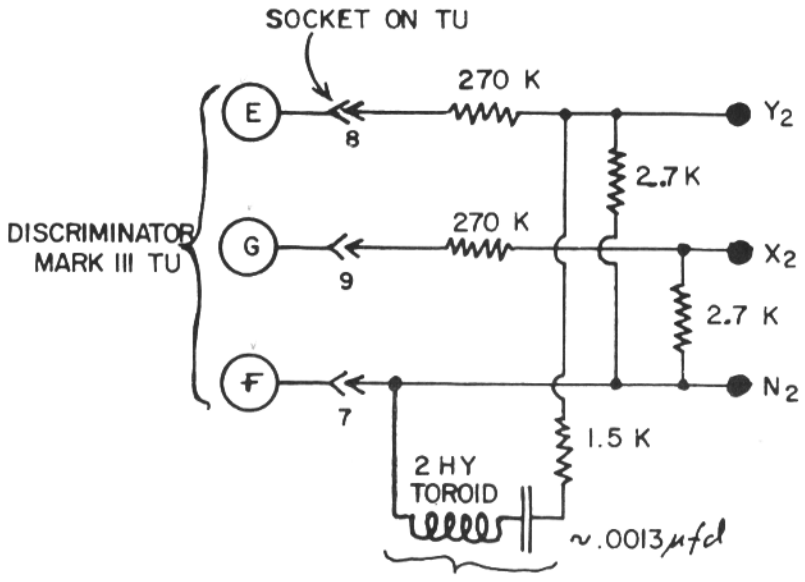
SR: 1N 1695 400 PIV SILICON RECT'S. (4)

ALL RESISTORS ½ WATT (EXCEPT NOTED)

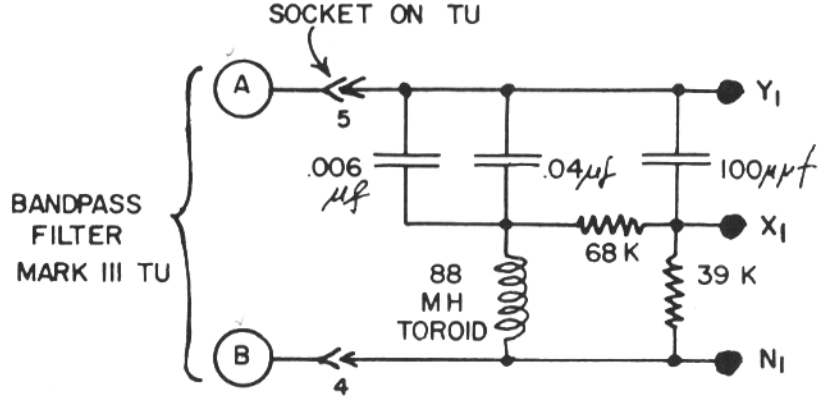
BASIC CIRCUIT - OSCILLOSCOPE FOR MARK III T U

JULY 1961 R. WEITBRECHT

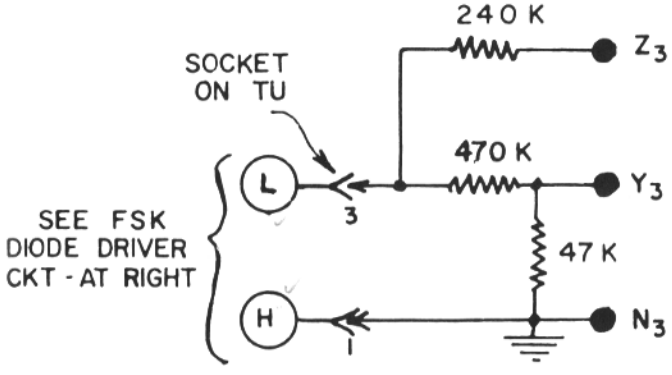
FIGURE 1



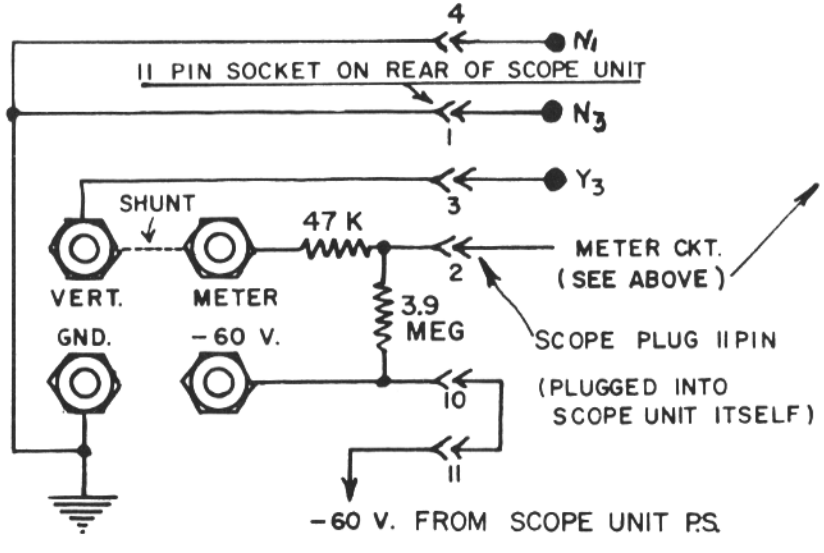
+ DISPLAY (W6AEE)



X DISPLAY (WØHZR)



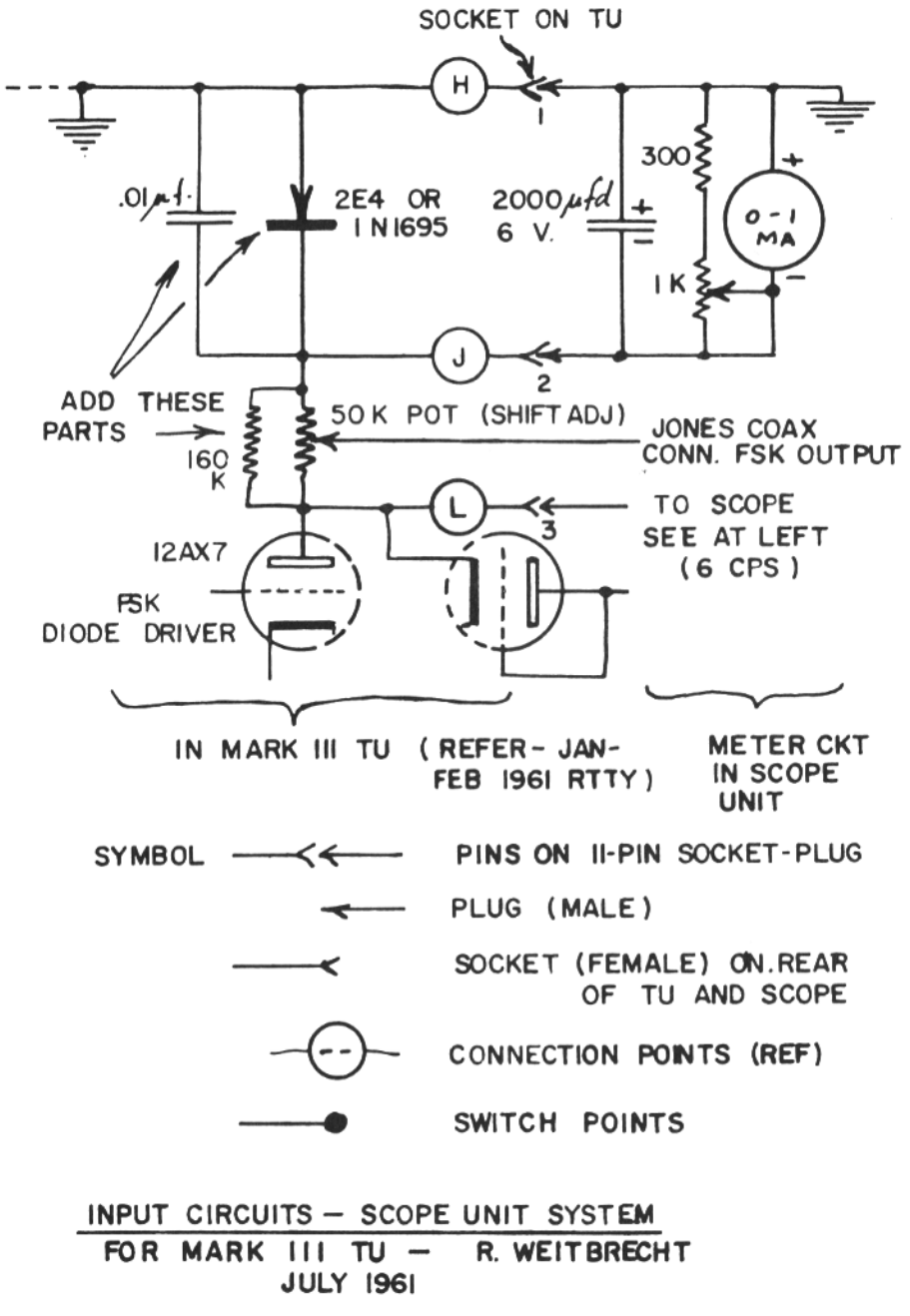
6 CPS DISPLAY



FOR TESTING RELAY CONTACTS

(USING SCOPE UNIT BY ITSELF)

FIGURE 2



INPUT CIRCUITS — SCOPE UNIT SYSTEM
FOR MARK III TU — R. WEITBRECHT
JULY 1961

Before the FEDERAL COMMUNICATIONS COMMISSION, Washington 25, D.C.

In the Matter of

Amendment of Section 12.82(a)(2) of the Commission's Rules, Amateur Radio Service, to Eliminate Multiple Identification of Station Employing Radioteleprinter Emission.

Petition for Institution of Rule Making Proceeding

Pursuant to Section 4(d) of the Administrative Procedure Act and Section 1.202 of the Commission's Rules and Regulations, The American Radio Relay League, Inc., requests that the Commission institute a rule-making proceeding to amend Section 12.82 (a) (2) of the Commission's Rules and Regulations to eliminate the present requirement for additional station identification by radiotelegraphy when radioteleprinter emission is being employed.

The proposed text of the said Rule, as amended, is as follows:

(2) The required identification shall be transmitted on the frequency or frequencies being employed at the time and, in accordance with the type of emission authorized thereon, shall be by either telegraphy using the International Morse Code, **or teleprinter**, or telephony. In addition to the foregoing, when a method of communication other than telephony, teleprinter, or telegraphy using the International Morse Code is being used or attempted, the prescribed identification shall also be transmitted by that method. (New language underscored.)

1. This request is filed pursuant to a decision of the Board of Directors of The American Radio Relay League at its meeting of May 5, 1961. As the Commission is aware, the ARRL Board of Directors is composed of amateur's nominated and elected by more than 75,000 FCC-licensed amateur radio operators to represent them in the formulation of League policy.

2. The present Section 12.82 imposes an unnecessary hardship on an amateur employing radioteleprinter emission in that Paragraph (a) (2) thereof requires dual identification of the station — once by the teleprinter mode and a second time by telegraphy using the International Morse Code. In the earlier stages of amateur teleprinter use and development, the League had no objection to this requirement because of certain practical problems which would otherwise have existed. These were:

(a) Difficulties encountered by the Commission in performing its monitoring functions in the amateur bands (such as lack of sufficient teleprinter equipment in monitoring stations) and amateur use of frequency shifts of widely different order.

(b) Undue administrative burden on the Commission in handling complaints from amateurs who, not having teleprinter equipment and not hearing a separate telegraphy identification, would erroneously conclude that amateur teleprinter stations are commercial operations improperly in the amateur band.

3. The League now believes, however, that the above difficulties either no longer exist, or are not sufficiently valid arguments for requiring the present inefficient procedure of dual identification.

(a) It is the League's understanding that at present the Commission's monitoring stations have adequate teleprinter equipment to accomplish necessary monitoring functions of such emmissions.

(b) The present rules permit any frequency shift less than 900 cycles, for experimental purposes. In practice, however, the standard frequency shift of 850 cycles is employed almost exclusively by amateur teleprinter stations.

4. It is the intention of the League, if the requested amendment is adopted by the Commission, to expand its Official Observer program, the "heart" of traditional amateur self-policing, by the inclusion of additional numbers of volunteer observers recruited from among present RTTY users. Informal discussions with individual RTTY amateurs and local societies have already determined a willingness on the part of numerous such amateurs to volunteer for such a program. The purpose would be, of course, to provide a means of identifying interloping commercial teleprinter operations in the amateur bands after the distinguishing procedure of dual amateur identification is no longer required.

5. Suitable information to amateurs in the League's publication "QST", will also help ti avoid any potential incorrect identification as between amateur and commercial use. Further, amateur teleprinter operations are almost exclusively conducted on, or adjacent to, specified frequencies within each amateur band where the mode is authorized. This is an additional means of broad appraisal of whether a radio teleprinter station is amateur or not.

6. Under the above proposed procedures, the League believes that no undue burden will be placed on the Commission as concerns complaints of "commercial" RTTY operations in amateur bands.

7. The present requirement works considerable hardship on amateurs employing teleprinter emission in that it requires periodic interruption of normal communication for the purpose of identification by means of an additional mode of emission. This is particularly a problem in single-frequency net operation, a common practice of teleprinter stations. Under the requirement of dual identification, the call-up of stations in such nets occupies more than double the normal amount of time. Thus an efficient means of communication is handicapped by an extremely inefficient procedural requirement. Further, during the supplementary identification transmission the teleprinter(s) at the other end of the circuit run "open" and uncontrolled, and awkward operating procedures are necessary to remedy this difficulty.

8. The application of the present rule to lesser-used modes of emission, such as television, or to special cases such as the use of American Morse telegraphy for the body of communications is a logical principle. In the League's opinion, however, this principle no longer applies to amateur teleprinter emission at its present stage of growth and development. There are an estimated 3000 amateur stations equipped for teleprinter operations.

WHEREFORE, The American Radio Relay League, Inc., requests that the Commission institute a rule making proceeding to amend Section 12.82 (a) (2) of the Commission's Rules and Regulations in the manner hereinabove first set forth in order to promote the efficiency of amateur teleprinter operations.

Respectfully submitted,

The American Radio Relay League, Inc.

By
Paul M. Segal
Its General Counsel

John Huntoon, General Manager

August 17, 1961

816 Connecticut Avenue, N. W.
Washington 6, D. C.

DX-RTTY

Bud Schultz, W6CG
5226 N. Willmonte Avenue.
Temple City, California

Hi DX'ers:

It's time to sift through the collection of letters, cards and copy in the "Goodie Box" again and pick out the high spots of the past month. DX conditions on RTTY have been better than expected with several real "juicy" new ones putting in an appearance on FSK.

Activity from Africa has been very consistent with Henry, ZS1FD, leading the pack from the Dark Continent. Henry continues to show up around 1700 GMT on 21,095 Kcs whenever that band is open. In addition to this, he has been putting in fine signals on 14,090 Kcs around 0700 GMT here on the Coast on some occasions. Jerry, W6TPJ reports that he had fabulous "20 DB over" RTTY contacts with Henry and Ron, ZS1NE, on the 14 MC band around 0800. Ron followed his Stateside contacts by working Cole, KR6MF, for another "first" on RTTY. Henry missed out on KR6MF because his breakfast call came at the crucial moment. K3GIF suggests that ZS1FD's XYL should feed him intra -venously during these DX periods so Henry won't miss any more rare QSO's. Might not be a bad idea to keep a supply of C rations in the Ham Shack for use on occasions when DX interferes with the regular meal schedule. G2UK reports that ZE4JN has just received the first RTTY authorization for ZE-land and hopes to be on FSK as soon as he obtains a printer. ZS6CR and ZS6KD are also reported to be active on RTTY according to word from G2UK.

According to the BARTG Bulletin - Geoff, G3FHL, spent his vacation in Denmark and met OZ5EL who has a teleprinter set-up in operation and OZ9DR, who hopes to acquire one in Germany shortly. Geoff reports that other OZ stations are very interested but finding the necessary gear is the big problem. G3AXN wants info on the U.S. Airforce Synchronous T/P Mixer - TT 160/A/FG. Any information would be greatly appreciated and can be sent via G2UK. No word from G3CQE since his trip to the Continent. Please come back, Bill, all is forgiven!! Some of the G lads enjoyed working Bill from PAOFB's shack during his stay in Tulip Land. Len, W4KZF, sent in a some excellent copy he made of DL3WUA on 14,090Kcs, at 0530 GMT. DL3WUA was in QSO with W8DU at the time and judging buy Len's copy the DL3 was really inputting a fine FSK signal into the States.

KG6AAY writes that he is copying many of the gang on RTTY and hopes to have Guam on the DX roster soon. All he needs to get going is a relay for his W2PAT xtal keyer. Al would appreciate any info he could get on this particular keyer arrangement. Al's home call is W1JEV. Eric, VK3KF, is temporarily off the air while he rewires his complete transmitter set -up to accomodate his new exciter and the new finals. He made his first foray into the Forty meter band by working W6TPJ and W6CG the first week in September. Eric's 7MC signals were of the same high quality and strength that have made him a "fixture" on 14 and 21 Mcs. Eric tells us that 5A5TB will be showing up on FSK very soon. (That should start some drooling!!) Alec, ZL3HJ, who shares the all time RTTY DX record with Bill, G3CQE, is impatiently waiting for the World Wide SS Contest to fatten his country status. Bruce, ZL1WB, has been working as Chief Stage Electrican for some theatricals and finds it cutting into his hamming hours. I'll give odds that there are some YL's mixed up in the deal somewhere. You can still find Bruce prowling around 14,090 several nights a week, however.

It's a real pleasure to hear Bob, TG9AD, back on the bands with his tremendous signal. Bob's signals never seem to drop below the S-9 mark out here on the Coast — day or night. Same can be said about Erosa, XE1-BI, who has been very active lately. Edwin, PY1KU, is still active on 14 and 7 Mcs but rumor has it that he is about to lose his printer which was borrowed from the Airforce. Ed, K3GIF, is in the process of trying to locate another printer for Edwin and has hopes of keeping him active. Speaking of K3GIF—"RTTY-DX" wants to offer heartiest congratulations to Ed and his XYL, Mary, on the occasion of their 25th Wedding Anniversary. Ed and Mary are celebrating by making a trip thru Central America and the Carribean. Ed hopes to plant some RTTY "poison" among the hams down that way and is planning on visiting Joe Sanchez, YV5AFA, who has recently re-

turned to the RTTY wars. More on this when Ed returns. Congratulations also to W7ESN who qualified this month for WAC-RTTY Award number eleven. Nice going, Wayne!! Cards submitted by Wayne were for two way RTTY contacts with OA4BW, G3CQE, KH6AED, HL9KT, ZS1FD and W7PQJ. A DX report would not be complete without reporting on the activity of Dale, KZ5DS, at Fort Clayton in the Canal Zone. Dale is the Army MARS Director in the C.Z. and spends a great deal of time dishing out RTTY contacts to those who need him for their Country total. Dale reminds me that he answers all RTTY QSL's by Airmail and you can't get a better deal than that!!

In closing: just a word about the Worldwide SS Contest — Please keep in mind that the idea of this test is to give everyone a real chance to fatten their country totals. Most of the overseas gang have promised to show up for the hassle and most have said they will be watching all band for possible openings. Don't overlook any bets!! I have received a number of inquiries concerning the apparent inconsistency of the 7MC RTTY calling frequencies as listed in QST and CQ magazines. Due to the untenable situation existing on 714 Kcs because of Foreign Broadcast and jamming stations, a number of the RTTY groups have sought to move the calling frequency to a more practical spot in the spectrum. After much discussion is was mutually agreed that 7040 Kcs. would be the new calling frequency. This change was further influenced by the fact that most Countries outside of North America are not licensed to use frequencies above 7100 Kcs. for Ham use. Nearly all the DX stations will be using this frequency of 7040 Kcs for RTTY so keep this in mind during the SS contest!!!

That's 30 for this trip - good luck and don't forget to get a bottle of tranquilizers to use during the SS — you'll need em!!

BCNU next month. 73

Bud W6CG

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For "RTTY" Information:
W6DEO W6CG W6AEE

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