

A NON-OVERPRINT SYSTEM

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Probably the only drawback of a page printer is that overprinting can occur. Various systems have been devised to meet this difficulty, but most of them give rise to unwanted extra line turn ups, which harms the aspect of the text.

The purpose of this note is to present one more approach to the overline problem. Although the proposed system is fairly simple and does not require destructive modifications it does not leave much to be desired.

It has been designed for the Creed 7B page printer. This machine has a rather uncommon mechanism in that it is always one character after, in other words, printing of a character takes place while the next one is selected. It has not been investigated yet if the system is applicable to more conventional machines, but it is hoped that some people can use the idea.

Two main conditions were made. The first and most obvious one is that it must eliminate overprints completely. The other one is that in the case of undisturbed reception of a normal transmission one must get a true copy of the transmitted text. The latter condition simply means that the number of lines turned up must always be equal to the number of received line feed (LF) signals, irrespective of the end of line procedure the operator at the other end is adhering.

It is easily seen that the two conditions are met if:

1. a LF signal actuates both the LF and CR mechanisms;
2. one LF (and a CR) is carried out as a result of a first CR signal or when the carriage reaches the extreme end of its course, but only if no LF signal had been received before;
3. when receiving a number of LF signals, one of them is passed over in case a CR signal or reaching the end of the course of the carriage did already cause a line turn up.

To understand how all this can be accomplished in the case of the Creed 7B a short description of the operation of the CR and LF mechanisms may be useful. At the end of the selection of a CR signal—to begin with—a bellcrank drops in the lined up slots of the receiving combs. A lever resting against this bellcrank then presses upon a dog. During the selection of the next code signal a clutch cross head makes its to and fro movement, thereby grips the dog and actuates a bar (CR link) coupled to this dog. Through some couplings the CR link trips a retention pawl to release the carriage. Just after the dog has engaged with the clutch cross head the bellcranks are lifted, the lever ceases to press upon the dog, permitting the latter to jump out of the clutch

cross head as soon as the mechanism comes at rest.

The operation of the LF mechanism is quite analogous, the only difference being that the LF link pulls down the line feed pawl to turn the line feed ratchet one tooth, i.e. to turn up the platen one line.

Also the bell mechanism needs some attention. As soon as J upper case (not S upper case) is combined the corresponding bellcrank drops and actuates the bell lever which operates an electric contact. This contact remains closed until the bellcranks are lifted.

The following modifications and additions are now to be made:

1. An electromagnet (K) is fit up under the CR and LF dogs. A flat spring is screwed to the armature of the magnet and at the far end of the spring a brace is soldered which loosely encloses both dogs so that when energising the magnet both dogs are pressed down the same way as by the levers, and that the CR dog can still be actuated separately by the CR lever. Be sure that when energising the magnet the armature is immediately closed, thus bending the flat spring, and that the dogs are engaged with the clutch cross head by the tension of the spring while the next code signal is coming in. This is important. If for example, the spring is too stiff so that the armature is still open when the clutch cross head comes across, it generally will miss the dogs. Don't forget that only a few milliseconds are available for the engagement.
2. The LF lever is removed.
3. The bell lever is modified in such a way that it rest against the LF bellcrank, so that when receiving a LF signal the bell contact is closed.
4. The bell contact is replaced by a DPST micro-switch (S1).
5. A SPST micro-switch is mounted on the left side of the page attachment frame so that it closes when the carriage reaches the end of its course. This is the end-of-line switch (S2).
6. Two SPST micro-switches (S3 and S4) are mounted under the CR and LF links. They should close when the links move to the right, when the machine carries out a CR resp. LF.
7. A SPST micro-switch is mounted on the right of the page attachment frame. It should be open when the carriage is at the extreme right, and close as a new line starts, i.e. during the first or one of the very first displacements of the carriage. This is the reset switch (S5).

These switches control an electronic circuit

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NON-OVERPRINT (Continued) . . .

which on its turn drives the electromagnet. Fig. 1 shows the block diagram.

The circuit comprises three flip-flops (BMV1, 2 and 3) which we consider as being at rest in state 1. Passing to state 2 takes place when a positive going voltage step is applied to input point 1 and switching back with a voltage step of the same polarity on input point 2. Negative going voltage steps have no effect. The current amplifier which drives the magnet gets its input signal through an "or"-gate having two input points. Input 1 is driven by a first branch containing BMV1 and BMV2 and input 2 by a second branch consisting of BMV3 and a "nor"-gate.

Let us now see what happens in the first branch. When S1, S2 or S3 close, i.e. when receiving a LF signal, when the machine carries out a CR or when the carriage reaches the extreme end of its course, BMV1 receives a positive voltage step on its input point 1 and flips to state 2, thereby delivering a positive voltage step to input point 1 of BMV2. The latter also goes to state 2 and drives the "or"-gate. This causes the magnet to be energised. While the next code signal is received the machine carries out a CR and a LF. Because of the movement of the LF link S4 is closed and BMV2 is reset to its state 1. As a result the magnet releases. As long as the carriage makes no displacement to the right, the magnet can no more be energised, no matter what happens with S1 or S3 (nothing can happen with S2 in this case). As soon as the new line starts S5 closes and brings BMV1 back to state 1. Now everything is in the rest state and S1, S2 and S3 can again have their effect.

If only this first branch was used we would have a so-called "non-overprint/paper saving system." Indeed, no overprints can occur and there can never be more than one line turn up per line, even if several CR and/or LF signals are received before the first character of a new line is printed.

When now, while receiving a code signal following a LF signal, S1 goes back to its initial position (for a rather short time if this next signal is also a LF) a positive going voltage step is impressed upon input point 1 of BMV3 causing it to flip to state 2. This brings input point 1 of the "nor"-gate to zero level. When S1 again closes due to reception of a next LF signal, input point 2 of the "nor"-gate also comes to zero level. The output signal we get now from this gate drives input point 2 of the "or"-gate which causes energising of the magnet. Due to the diode D, S2 or S3 cannot drive input 2 of the "nor"-gate, so that only S1 can control the second branch. BMV3 is reset by S5, together with BMV1.

You understand that the second branch can drive the magnet only from a second LF signal on. If only this branch was used we would always have one line turn up short. Since the

first branch always provides one, and never more than one line turn up after each line (as a result of a CR or a LF signal or closing of S2) it is clear that the number of lines turned up is always equal to the number of LF signals received, at least if the latter is larger than zero.

Fig. 2 shows the complete circuit diagram. S6 is the mode switch. In position 1 the electromagnet is operated directly by S1. This is the quasi normal position in which there is (almost) no non-overline protection. This position is necessary for the cases where, to obtain some special effects, an operator intentionally overprints. However, even in this case there will still be both a CR and a LF when only a LF signal is received. This is not to be considered as a serious shortcoming. In position 2 we have what we can call the "hi-fi non overprint" system. Finally in position 3 the output of the "nor"-gate is short-circuited to earth so that we obtain the "non overprint/paper saving" operation.

The values of C1 and R1 are strikingly large. The reason for this is that due to the repercussion of the bell lever after dropping to close S1, this switch can hit back to the break contact before staying steadily in the make position. This would cause BMV3 to go to state 2 prematurely if no measures were taken to prevent this. Due to the time constant of the RC combination S1 must have been for roughly 50 milliseconds in its make position before the positive voltage step on the break contact of S1 can override the bias provided by R3 and R4 (6 volts). The steepness of this voltage step is not affected by this time constant.

The electromagnet has a magnetomotive force of 350 ampere-turns at 24 volts. It could be stronger but not much weaker. At 18 volts it becomes unreliable. At 24 volts the magnet drains 120 milliamperes, so Q8 must be able to carry this current. Most small medium power audio transistors will do the job. No cooling fin is needed since the dissipation is small (the transistor is whether in cut-off or bottomed). Q1 to Q7 can be any low cost low power audio units. When using NPN transistors, just reverse the polarity of all diodes and all electrolytic capacitors. D1 to D7 can be of any type and D8 to D10 are silicon units of the type used as mains rectifiers in television receivers.

Some readers may be anxious about the bell which indeed has been disabled by the described modifications. Well, the bell of the Creed 7B is rather unwanted. As said before, it is on J upper case. The apostrophe on the other hand is on S upper case. This makes the bell strike each time a fellow using an American machine types an apostrophe, which is somewhat annoying. Fortunately enough the bell of the Creed is an electric one so that it can be switched off easily. The modifications described above bring a good

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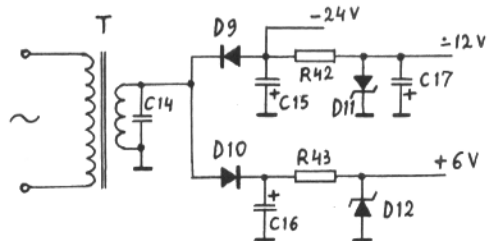
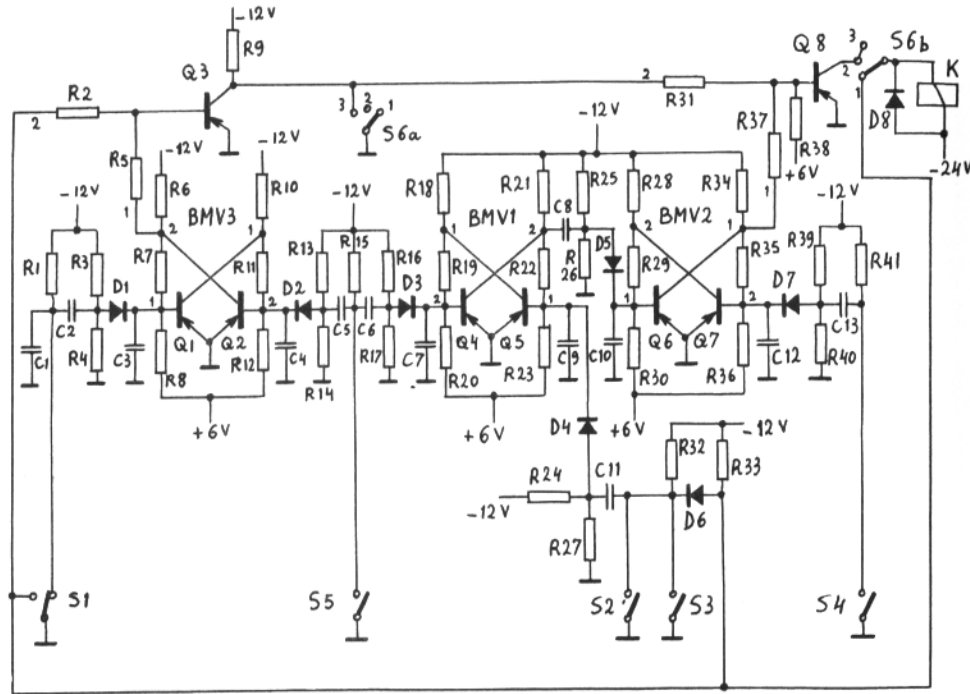


FIG. 2

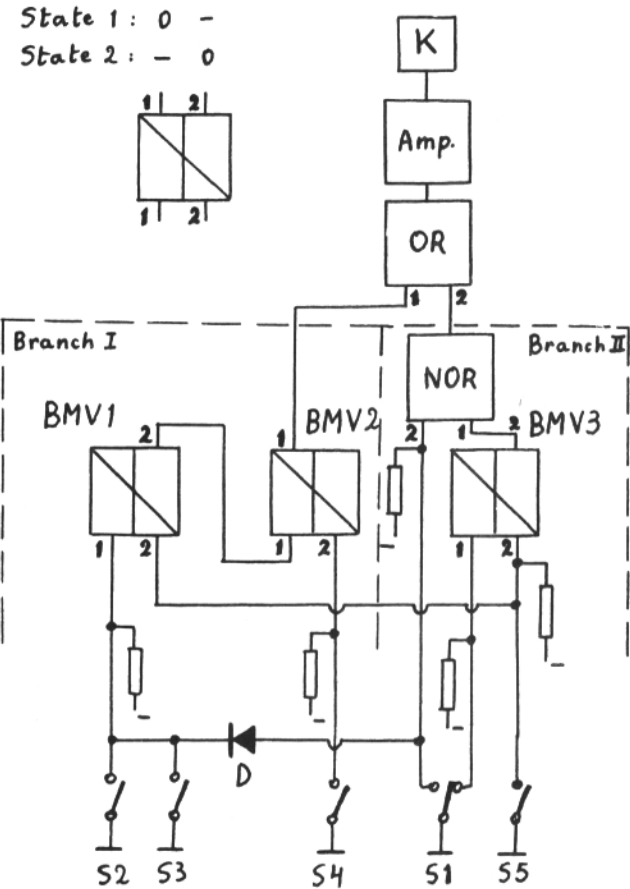


FIG. 1

solution to this bell problem. As the bell bellcrank no longer actuates a control lever, there is no feed throw-out either. Therefore when receiving J upper case you just get a space. If you now remove the apostrophe from its original place in the typehead and put it in the hitherto empty place corresponding to J upper case, you'll have a Creed that is compatible with American machines, as far as the apostrophe is concerned of course. If by all means you want a bell signal you can fit up a micro-switch along the combination head and make it be operated by the S upper case bellcrank. The latter can be reached easily without removing the combination head. Because of the bellcrank lifting it won't be too easy to make the switch work purely, but it should be possible.

Wilf, ON4HW

Parts list of fig. 2 -

All resistors are 1/2 watt unless otherwise indicated.

R1 : 330,000 ohms
 R3, R4, R8, R12, R13, R14, R15, R16, R17, R20, R23, R24, R25, R26, R27, R30, R32, R36, R39, R40, R41 : 47,000 ohms
 R2, R5 : 33,000 ohms
 R7, R11, R19, R22, R29, R35 : 18,000 ohms
 R33 : 10,000 ohms
 R38 : 8,200 ohms
 R6, R10, R18, R21, R28 : 5,600 ohms
 R43 : 3,300 ohms
 R9, R31, R34, R37 : 1,500 ohms
 R42 : 390 ohms 2 watts

C1, C2, C5, C6, C8, C11, C13 : 0.1 μ f. 30 volts polyester
 C3, C4, C7, C9, C10, C12 : 10,000 pf. polyester
 C14 : 1000 pf ceramic
 C15 : 1000 μ f. 30 volts electrolytic
 C16 : 250 μ f. 30 volts electrolytic
 C17 : 250 μ f. 15 volts electrolytic

Q1 to Q7 : PNP germanium transistors; OC71 or equivalent (see text)
 Q8 : PNP germanium transistor; OC77 or equivalent (see text)
 D1 to D7: small germanium diodes; OA70 or equivalent (see text)
 D8, D9, D10 : BY114 or equivalent (see text)
 D11 : 12 volts 350 milliwatt zener diode; OAZ213 or equivalent
 D12 : 6 volts 200 milliwatt zener diode; BZZ10 or equivalent

S1 to S5 : see text

S6 : two pole, 3 positions switch

K : electromagnet (see text)

T : power transformer, 18 volts r.m.s. 0.3 ampere secondary

In the July 1965 issue of RTTY a diagram of the TU5R6 was published, it had several mistakes. They are:

1. No B+ is shown for T5, it should be 250 volts as the rest, and the resistor between the two plates should be 4.7 megohms.
2. R 13 and R 14 should be 2.2 k, not 200 k as originally mentioned.
3. The diode from the grid to the cathode of the keyer tube should be connected in reverse to what is shown, i.e., plus to ground and negative to the grid.
4. Point M3 as mentioned in the November, 1965 article by the author is located at the junction of R22 and R23.
5. The point in the July article labeled as "gv." should be connected to a bias supply of about 300 volts.

Again it should be mentioned to take extreme caution about overloading, too much signal causes a very high error rate.

WA6USU

DAYTON HAMVENTION APRIL 16, 1966

The Dayton Amateur Radio Association is again sponsoring the 15th DAYTON HAMVENTION to be held at Wampler's Arena Center. We invite you to attend the RTTY session, also MARS, VHF, SSB, DX and the big banquet at 7 PM. Last year 2500 amateurs enjoyed this outstanding event. Don't miss it this year. For program brochure, write DAYTON HAMVENTION, Dept. RT, P. O. Box 44, Dayton, Ohio 45401.

SWAN 350 FSK MODIFICATION

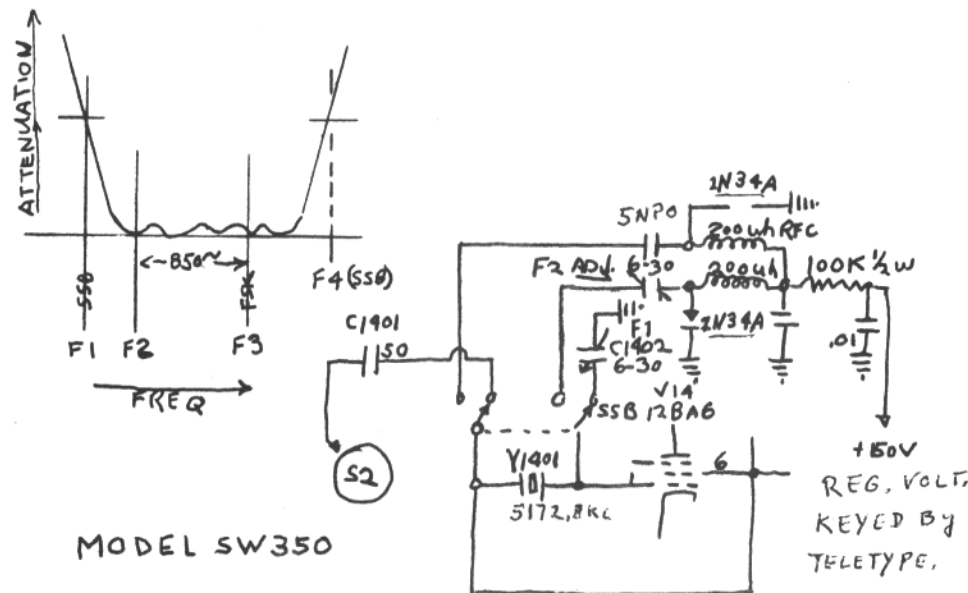
The following circuit modifications are suggested for FSK of the carrier oscillator in the Swan 350 and may be adapted in the Model 240, with no changes. A DPDT switch must be installed close to the oscillator tube, under the chassis, with its shaft facing downward. A hole is drilled in the bottom cover for the switch shaft and a lever arrangement added to the shaft for operating the switch. After installing the switch add the other components and wire them as shown in the schematic. The two switch positions are labeled SSB (normal) and FSK, the normal carrier frequency is F1, and is below the pass band for a 6 db roll off at 300 cycle A.F. input.

With the switch in FSK position, the carrier freq. will shift up to F3. Stray wiring capacity of the diode switching circuit will

determine the frequency of F3. It will be from 1500 to 2500 cycles above F1. When 150 volts is applied to the diode circuit, the carrier Freq. drops to F2, and is adjusted to the desired freq. by the added trimmer.

When transmitting FSK with a Swan transmitter, Tune up according to instructions for AM transmission; That is, Insert carrier by turning the car. bal. control until cathode current reached the recommended level for AM. Set the P.A. Bias control for min. idling current. This will produce higher plate efficiency and less heat dissipation in the Final during FSK transmission. REMEMBER to return to proper idling current for SSB.

Material furnished by
W7VFR, Richland, Wash. 99352



HEATHKIT SB-200 AND RTTY OPERATION

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I have used the SB-200 in the last two RTTY contests with very good results. The SB-200 has a key down rating of five minutes. To increase this for the time of ten minutes, the following was done:

The cabinet was removed and stored away. A blower of approximately 100 CF/M was installed on the top plate directly over the final tubes. This is to provide maximum ventilation for the final tubes.

Operation and tune-up is the same as outlined in the manual with the exception of maximum plate current. I operate the Linear

at 400-450 ma at 900 watts input. This would vary from installation to installation, due to variance in line voltage. Do not exceed 900 watts input.

It is best to run the Linear with 50-75 ma of grid current. If the 450 ma plate current is exceeded, there will be considerable color on the tubes although the tubes are designed to run this way.

It should be noted that the SWR must be 2:1 or there will be a loading problem.

As a matter of policy, the Heath Company does not recommend the SB-200 for RTTY operation.



CONSTRUCTION OF AN EFFICIENT OILER FOR TELEPRINTER MACHINES

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It had been the author's experience in several years of maintaining teletypewriter machinery that regular hardware store oil cans and pump oilers had two basic faults; 1) they had small capacities, requiring constant filling and 2) they had poor long term integrity, resulting in leaked oil in the tool kit.

Both of the above problems were solved completely with construction of an oiler from common discarded household items.

While any similar container might do, the author used one of the plastic "squeeze bottles" in which liquid kitchen detergents such as Lux Liquid or Dove are packaged. Basically, these containers are fine for oilers, having excellent integrity and holding 12 ounces or so while being compact enough to fit a tool case. However, to reach all the oil points on typing units, some kind of nozzle must be used.

It was found that the popular Japanese disposable Pentel marking pen contained a plastic breather tube of ideal characteristics for a nozzle. About four inches long, this clear plastic tubing has just the right bore (.05) for the standard SAE 10W oil used in tele-machinery and is stiff enough to accurately poke through openings in a horizontal position, yet pliable enough to be easily bent, at right angles, if required.

To remove the tubing from a discarded Pentel, crush the plastic barrel in the jaws of a vise. Compress the pen just enough to cleanly crack the plastic. The tubing can be easily lifted out. There may be some ink still on the tubing. It will wash off readily with soap and warm water.

Obtain a discarded liquid detergent squeeze bottle. It would be most advisable to

use the screw-on top from a new bottle of the same type. This can be obtained by simply trading the old cap for the new one when starting a fresh bottle, instead of cutting off the top, as the manufacturer instructs.

Wash the bottle very thoroughly in hot water to remove every evidence of the detergent. If desired, the label may also be removed by diligent hot water soaking.

The nozzle may be affixed to the bottle in the following manner. Heat a wire slightly smaller in diameter than the tubing, (a paper clip will do). While still hot, thrust the wire through the tip of the plastic screw cap of the bottle, making a smooth opening. Repeat the process, enlarging the opening so that the tubing just fits the hole. Use care, so that the wire is not hotter than necessary to melt the plastic. A match flame will heat the wire sufficiently. After inserting the tubing into the hole in the cap about 1/8 inch, seal the opening between the outer wall of the tubing and the bottle cap with the hot wire, going carefully around the entire perimeter. Avoid damaging the tubing with a too-hot wire. Several "heatings" of the wire may be necessary to prevent this. Test for leaks with water in the bottle. If there are any, seal them with the hot wire.

A short piece of wire, slightly larger than the bore of the tubing, may be used as a stopper, when carrying the oiler in a tool kit. A neatly typed label completes the project.

The author has found that this oiler has exceeded expectations on integrity, being absolutely leakproof, is easy to fill, simple to make, takes but a few minutes of construction time and costs nothing. It has been an entirely satisfactory addition to the tool kit.

W6CG DE K3GIF—Good Morning, Buddy. Where have you been?? No ISNG on Thursday and Friday, tsk, tsk!! Sigs are good. Jean FG7XT and I got up at 1030 GMT to try for FB8XX in Kerguelen at 1100 GMT weekends and he is on at 0300 GMT weekdays.

Here is news for Merrill —

WIAW reported last nite on their 0400 GMT RTTY Bulletin from Oscar Hdqtrs. as follows: K2GUN and K2MWA have reported their own FSK repeat FSK signals thru the ST Satellite Oscar four!! For continuous periods — and they say that the translator can capture continuous input!! Such as FSK (RTTY). So FG7XT has now planned to try with RTTY on orbit 80 beginning and I hope

you can get some W6's. Listen for him around the equatorial crossing time for orbit eighty. That news?? Missed Bill on Thursday as I got home late from town.

W6CG DE K3GIF KKKK

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"Just a note to indicate that I forgot to label G-10 on Fig. 2 of the keyer (page 8, March RTTY) which is just to the left of BMV7. It consists of the two diodes connected to Q19, Q20.73." —ON4HW

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It is with regret that RTTY announces the death of Michael P. George, K1CPX, on February 16, 1966.

'66 ARMED FORCES DAY COMMUNICATION TESTS

In appreciation of the United States amateur radio operator's loyalty and patriotism the Department of Defense through the Departments of the Army, Navy and Air Force, annually sponsors a military-amateur radio communication program on Armed Forces Day. This year's program will be conducted on Saturday, May 21, 1966.

The Radio Amateur's contributions to communication training, international goodwill, military morale and emergency services are recognized by every echelon of the military services. The Armed Forces Day Communication tests are designed to be a tangible demonstration of the firm and long standing Department of Defense policy to encourage and support amateur radio activity. On this seventeenth observance of Armed Forces Day, all radio amateurs are invited to participate and demonstrate to the world the close partnership and mutual respect that U.S. amateurs and U.S. military enjoy.

This year several military radio stations are scheduled to participate in the communication tests which include military-to-amateur crossband operations and receiving contests for both continuous wave (CW) and radioteletypewriter (RTTY) modes of operation. Special QSL cards will be forwarded to those amateurs who establish two-way contact with the participating military stations. Certificates will be awarded to those who aptly demonstrate their

operating ability and technical skill by receiving a perfect copy of the Secretary of Defense originated "CW" and/or "RTTY" message(s) transmitted during the receiving contest portion of the communication tests. Interception by short wave listeners (SWL) will not qualify for a QSL card. However, anyone who has the equipment and abilities may copy the Secretary of Defense messages and receive a certificate.

MILITARY TO AMATEUR TESTS

Washington, D.C. area military stations WAR, NSS and AIR will be on the air from 211400 GMT (1000 EDST, 0600 PST) to 220245 GMT (2245 EDST, 1845 PST). NPG (Navy, San Francisco) will be on the air from 211800 GMT (1000 PST) to 220801 GMT (220001 PST). The military stations will operate crossband by transmitting on spot frequencies outside the amateur bands and establish radio contacts with amateurs in the appropriate sections of the amateur bands. This is a test of crossband operations and contacts will consist of a brief exchange of locations and signal reports. No traffic handling will be permitted.

Amateur contacts from NPG (Navy, San Francisco) will be discontinued from 220245 GMT (211845 PST) to 220400 GMT (212000 PST) during the Armed Forces Day "CW" and "RTTY" receiving contests.

STATION	MILITARY FREQUENCIES KCS unless otherwise noted	EMISSION	APPROPRIATE (MCS) AMATEUR BANDS
WAR (Army Radio Washington, D.C.)	4001.5	CW	3.5 — 3.65
	4020	CW	3.65 — 3.8
	6992.5	CW	7.0 — 7.1
	7325	CW	7.1 — 7.2
	14405	CW	14.0 — 14.2
NSS (Navy Radio Washington, D.C.)	3269	CW	3.5 — 3.65
	4012.5	RTTY	3.65 — 3.8
	4015	CW	3.65 — 3.8
	4040	SSB/AM	3.8 — 4.0
	7301	CW	7.0 — 7.2
	7380	RTTY	7.0 — 7.2
	13992	CW	14.0 — 14.2
	14385	SSB/AM	14.2 — 14.35
	14480	RTTY	14.0 — 14.2
	*143.820 MCS	RTTY AFSK/AM	144 — 145.5
AIR (Air Force Radio Washington, D.C.)	3347	RTTY	3.5 — 3.8
	3397.5	CW	3.5 — 3.8
	4025	SSB	3.8 — 4.0
	6997.5	CW	7.0 — 7.2
	7305	SSB	7.2 — 7.3
	7315	RTTY	7.0 — 7.2
	13995	CW	14.0 — 14.2

* Provided it is consistent with operational and training commitments, this frequency will be keyed from a U.S. Navy aircraft flying between Washington, D.C. and Boston, Massachusetts during the major portion of the time allotted for military to amateur crossband contacts. The flight path will be over Baltimore, Philadelphia, New York City and Hartford, Connecticut. The call sign NSSAM will be utilized from the aircraft.

STATION	MILITARY FREQUENCIES KCS unless otherwise noted	EMISSION	APPROPRIATE (MCS) AMATEUR BANDS
NPG (Navy Radio San Francisco)	14397	SSB	14.2 — 14.35
	49.980 MCS	CW/SSB	50.0 — 54.0
	143.950 MCS	CW/SSB	144 — 148
	4001.5	RTTY	3.65 — 3.8
	4005	CW	3.5 — 3.65
	4013.5	SSB	3.8 — 4.0
	4016.5	CW	3.65 — 3.8
	7301.5	SSB	7.2 — 7.3
	7332	RTTY	7.0 — 7.2
	7375	CW	7.1 — 7.2
	13975.5	SSB/CW	14.0 — 14.35
	14385	CW	14.0 — 14.2
	49.692 MCS	AM	50 — 54
	143.700 MCS	RTTY AFSK/AM	144 — 148
	148.410 MCS	AM/FM	144 — 148

CW RECEIVING CONTEST

A "CW" receiving contest will be conducted for any person capable of copying International Morse Code at 25 words per minute. The "CW" broadcast will consist of a special

Armed Forces Day message from the Secretary of Defense addressed to all radio amateurs and other participants. The schedule for this broadcast is as follows:

TIME	TRANSMITTING STATION	FREQUENCIES (KCS)
21 May 1966 220300 GMT (212300 EDST)	WAR — Army	3347, 6992.5, 14405
(211900 PST)	NSS — Navy	3269, 4015, 7301, 13992
	AIR — Air Force A6USA — Army Radio San Francisco, California NPG — Navy Radio San Francisco, California	3397.5, 7315 6997.5 4001.5, 4016.5, 7301.5

RTTY RECEIVING CONTEST

A radioteletypewriter "RTTY" receiving contest will be conducted for any individual amateur or station possessing the required equipment. This is a test of the operators technical skill in aligning and adjusting his equipment, and serves to demonstrate the growing number of amateurs becoming skilled

in this method of rapid communications. The "RTTY" broadcast will consist of a special Armed Forces Day message from the Secretary of Defense to all radioteletypewriter enthusiasts. The message will be transmitted at 60 words per minute in accordance with the following schedule:

TIME	TRANSMITTING STATION	FREQUENCIES (KCS)
21 May 1966 220335 GMT (212335 EDST)	WAR — Army	3347, 6992.5, 14405
(212135 CST)	NSS — Navy	4012.5, 7380, 14480
	AIR — Air Force A6USA — Army Radio San Francisco, California A5USA — Army Radio Fort Sam Houston, Texas NPG — Navy Radio San Francisco, California AB6EA — McClellan AFB, Calif. AG3HQ — Scot AFB, Illinois	7315 6997.5 4025 4001.5 4580, 7332 4590, 7540

SUBMISSION OF COMPETITION ENTRIES

Transcriptions should be submitted "as received." No attempt should be made to correct possible transmission errors.

Time, frequency and call sign of the station copies as well as the name, call sign (if any) and address of the individual submitting the entry must be indicated on the page containing

the text. Each year a large number of perfect copies are received with insufficient information, thereby precluding the issuance of a certificate.

Completed entries should be submitted to the Armed Forces Day Contest Room 5B960, the Pentagon, Washington, D.C. 20315 and postmarked not later than 31 May 1966.

RTTY STANDARDS - A PROPOSAL

With the advent of many new TU's in the last few years, one might well ask, "which is the best?". But in order to answer a question such as this, first several things have to be done. Among such things are the agreed upon standards to which measurements will be made, definitions of test methods, equipment used to obtain measurement values, and definition of what is good performance.

RTTY as one mode of amateur radio operation, has among its operators, many engineers who are engaged professionally in work of this type, designing commercial and military RTTY equipments. Also many amateurs who enjoy designing such equipment, and are well informed on components used in such equipment. With amateurs such as these, it should be possible to form a Standards Committee and discuss suggested items for consideration in standards for our amateur evaluation tests.

Most commercial and military Teleprinter equipments have specifications which can be used as a starting point. These specifications in some cases define the method of establishing performance. While not all amateurs have test equipment to make the evaluation tests, "without bias," there are many who do have access to necessary Test Instruments and by running cross comparisons, a good set of Test Results can be obtained.

The establishment of such Standards and tests performed to them, it is felt much progress could be made. Amateurs who started with the Model 12, to those who now have latest of Teleprinters such as the 28ASR, 32ASR to mention a few, has attracted many amateurs. To listen most any weekend, when normal band conditions are present, you will find calls of the newest licensed amateurs to the calls of amateurs who have operated from the days of the first Hartley oscillators (after Spark), VFO, crystal, SSB and VHF. The desire to try a new mode of operation is still with us. Even looking over the last 14 years of RTTY will show one, many new circuits developed by amateurs. The urge to outperform the lad down the street from one, stimulates new circuits, and the opportunity to test them on the air. RTTY unlike other modes, provides proof of performance unlike CW

SSB or any other mode. Either you can read the copy, with no errors, or there are errors. RTTY, INC., does not propose to establish such Standards, but rather to act as a coordinating point, reporting proposals, results of tests, kindred matters. Amateurs interested in taking part in such a program are invited to write RTTY, giving suggestions, ideas, offers of taking part, and suggestions on any phase of this proposal.

Items which could be considered but not necessarily in order are:

- A. TERMINAL UNITS (TU)
 1. Audio type
 2. IF type
 3. Limiter type
 4. Limiterless type
 5. AVC or linear amplifiers
 6. Bandwidth of filters
 - a. Standards of measurements for filters
 - b. Active or Passive type filters
 7. Detection
 - a. Half wave
 - b. Full wave
 - c. Miscellaneous types
 8. Post detection filtering
 9. Loop circuits
 - a. Driven from DC amplifier
 - b. Polar relay operation
 10. Auto-start
 11. Special circuit features
- B. TEST EQUIPMENT
 1. DXD distortion test set
 2. Audio or DC test signals
 3. Level of signal to noise (how established)
 4. Distortion measurement standards
 5. Oscilloscope, meters used for tests
- C. STANDARD REPORT FORM

The writer is sure this proposal will cause discussion and differences of opinion, but if carried out properly, much good should result. After reading this proposal, wait a day or so, re-read, then send in your suggestion or proposals. Those who have TU's which they would like tested under such a program should so indicate when writing. When and where such tests will be made, depends on response from you, our readers.

— Ed.

RTTY-DX

BUD SCHULTZ, W6CG
5226 N. Willmonte Avenue
Temple City, California 91780

Howdy Gang:

It's a real pleasure to compose a DX column when conditions are as good as they have been in the past 30 days! It makes this job a real easy one. As I am writing this KG4CC, Gus, is banging in here S-9 on 3620 Kcs. which is really something for us out here on the Coast. It will be interesting to see how much DX activity takes place on 80 meters during the Spring Contests.

The latest new one to show up—and really cause a stir is SU1KH in Cairo! The operator's name is Mohamed and so far a number of the East Coast gang have managed a QSO with him. VP9BY in Bermuda is another new Country to show up on FSK with a terrific signal and fine copy. VP9BY's name is Jim—he uses an HT-32B, a model 19 printer and promises to keep some real activity going from his area. FG7XT also reports working VP3AA on British Guiana and says that the name there is Hal. Ed. K3GIF, logged KH6BCB/KS4 on Swan Island for another new Country. It would appear that now is a very good time to fatten up your "country" list on RTTY. All of the above were reported on the 20 meter band. Incidentally, I should also mention at this point that VP3AA was nr. 53 for FG7XT! Jean is now starting to crowd K3GIF for that top spot. How about some more of you top DX'ers sending me your claimed scores for "countries worked."

After reporting the debut of PY2ON in last month's column it is a real treat to be able to announce two more new ones now active from Brazil. PY2CQ and PY2SO, José and Sonia Rotenberg of Sao Paulo have been very active on the keyboard for the past few weeks. Sonia writes—"The gang has been really wonderful, giving us such a warm welcome and being so patient with us!" If any of you need a PY for your list just watch for Sonia or her OM—you can't miss their S-9 signals!

Africa is now well represented on FSK and in addition to SU1KH, mentioned above, there are a number of other goodies to be found on the dark continent these days. EI2F in Liberia continues to pound into the States nearly every day. Orbra told W6AEE that EL2S will also be on in the near future and EL8B is also said to be on RTTY but I have no confirmation on the latter as yet. In the Southern part of the Continent ZS6UR and ZS6BCT are also very solid copy up here. Wonder if anyone has any word from Henry, ZS1FD?

Here's some good news I picked up while "reading the mail" on LA6VC last week. Finn

tells of the RTTY group there sending a machine on the first boat going to Jan Mayen Island. This will be another rare one for you DX chasers! I know a lot of real hard shell CW and SSB DX men who still could use Jan Mayen Island, so don't pass over this one too lightly.

— And speaking of the far north; has anyone heard or worked Martin, OY7ML lately? Have some inquiries on OY7ML and sure would like some late reports on him and his RTTY activity.

Not too many Europeans showing up out here on the Coast lately, but by the time this is in print they should be back in here with good solid signals. I1ROL writes that he worked VK3KF and ZS6BCT and all he needs now for his WAC is a South American contact. Try some of those new PY stations, Lamberto, they should really be easy for you! PAØLOU reminds us of the weekly RTTY bulletin that is broadcast on PAØAA each Friday evening and asks permission to translate material from "RTTY" into the Dutch language for use in their Society magazine "Electron." Jan, PAØFB, now has a new HT-44 and an SX-117 receiver—also a G4ZU Mini-beam and plans on taking an active part in the up-coming contests. Several new Russian stations have been reported active on RTTY in the past month with good signals into the States. K8DKC received word from KA2RJ that he and KA2LD are still watching 28.9 Mcs. for some activity from the States. Ron points out that the MUF is going up so conditions on ten should improve considerably. Ron's Stateside call is W9VCH and his hometown is Milwaukee.

Eric, VK3KF, has his Model 15 repaired and is once again very active on the bauds. He logged QSO's with OK1KUL, UB5KBA, HB9ET, LA6J, I1ROL, DL4WG, UR2KAX, I1KG, 5X5FS, DJ6ZBA and HB9XJ/MM in ten days! Eric now has 43 countries on RTTY and says he hopes to survive long enough to log 50. At the rate he's going it should take him about another month! VK3KF was particularly pleased with his QSO with Terry, 5X5FS, and gives following mailing QTH for him: 5X5FS, P. O. Box 920, Jinja, Uganda, Africa.

Bill, VK2EG, writes to ask if anyone knows where there is a decent Drake 2BQ receiver for sale at a reasonable price. If someone can give him some information on this please let him know and he will make the necessary arrangements to secure it. He is listening on 7040 and down for the Stateside typers but

Continued . . .

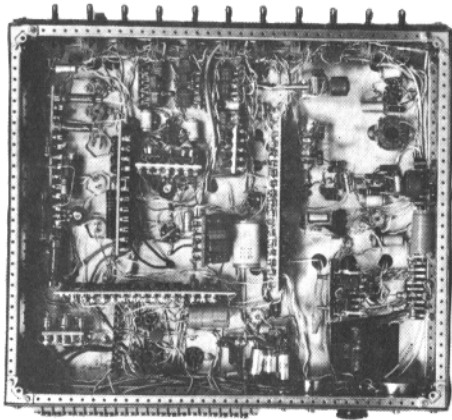
RTTY-DX (Continued) . . .

so far he has drawn a blank. If any of you happen to be in the shack during the early morning hours why not try 40 for a change of pace. Both VK3KF and VK2EG use 40 meters for their RTTY sked and both have fine signals so it should be a cinch if you are on the spot at the right time. No late word from Bruce, ZL1WB, but rumor has it that he is very busy with his UHF gear and the Oscar satellite. Chuck, W6SCR, tells me that he logged ZL3HJ on 20 one evening this week but conditions were not good enough at the time for a QSO. It's good to know that Alec is back in business.

By this time next month the BARTG Contest will be history and I expect to be swamped with news of a flock of new countries showing up. Hope all of you managed to get your share of the rare ones!

I'm still hurting for photos to use along with the DX news, so certainly would appreciate any that are available. If you have a photo of your shack please send it to me for use in future issues. Thanks this month go to the following for helping out with news: W3KDT, FG7XT, 11ROL, K3GIF, K8DKC, W6SCR, W6AEE, VK3KF, VK2EG, PY2SO, PAØFB, and PAØLOU. (If I have overlooked anyone, please excuse it!).

B C N U - 73
Bud, W6CG



FOR SALE: CV 57 converter, clean, operating \$75.00. WANTED: TT Tape splicer, W8IGL, P.O. Box 23, Delaware, Ohio 43015.

FOR SALE: Bound RTTY's, one each, 1958, 1959, 1960, 1961, 1963. \$7.55 plus 50¢ postage. RTTY, INC. 372 Warren Way, Arcadia, California 91006.

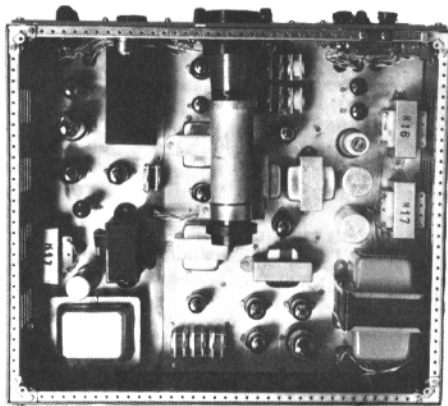
WANTED: 51J4 or R-390 receiver, Johnson 6&2 Thunderbolt. Electrocom Converter, URT or SRT type transmitter, W3LST, 228 Plummer Street, Oil City, Pa. 16301.

FOR SALE: Collins 75A4 receiver, serial No. above 5,000, top condition. 0.5, 2.1, & 6.0 kc filters, \$475.00. Hallicrafters SX-117 receiver, 5 months old, \$260.00. Hallicrafters HT-37 and matching line, \$440.00. Prices are for pickup at my QTH. Will crate and ship at buyers expense. K8NQT, 1830 Toepfer Road, Akron, Ohio 44312.

FOR SALE: CV-71/URR RCA Teletype converter, perfect condition, with manual \$85.00. K3RRRT, 4604 Griffin Drive, Wilmington, Delaware 19808.

FOR SALE: Model 15 Page printer, perfect condition, \$75.00. Contact K5AON, 10610 Royalwood Drive, Dallas 38, Texas.

Below to left are three photographs of a TT/L Mainline FSK demodulator, built from schematics in RTTY. Added scope indicator, and AFSK oscillator. Giovanni Guidetti, I1KG, Altopascio, Lucca, Italy.



HORSE TRADES

FOR SALE: Model 14 TD and reperf. Model 15, excellent condition. W4AIS, 7 Artillery Road, Taylor, South Carolina.

FOR SALE: =14 TD bases (new) \$4.00; WECO CANADIANS KS type power supply - 60 ma \$4.00; 800 ma \$7.00; =15 type covers \$5.00; =15 keyboards \$8.00; 28 type block \$10.00; copy holders (new) \$2.00; =15 series type motors \$6.00; 255A relays e/w socket \$4.00; WAIVERS REQUIRED ON ALL ABOVE ITEMS. =14 typing reperf 60 wpm sync motor mint cond. \$75.00; Viking II with Johnson VFO factory wired \$150.00; TMC - SFO new condition \$40.00; Linear Amp pair 4-125's less HV supply \$75.00, 28 type motor \$10.00. WANTED: Manual and I22 tube for CV-89 Converter. VEMZR, 118 Lincoln Drive, Beaconsfield West, Quebec, Canada.

FOR SALE: 3/8" perforator tape, two 32 roll, 50 pound cases, \$7.00. UTC HQB toroids \$2.50. WANTED: Jumper cable for CV-89/URA8B converter. W5WBA, 3648 Vista Grande, N.W., Albuquerque, N.M. 87105.

FOR SALE: Brand new Nylon Teletype ribbons \$2.35 each or 3 for \$6.25 postpaid. WA5DAJ, 4305 Windsor Drive, Garland, Texas 75040.

FOR SALE: One base distributor-transmitter, Model =MT-1371/FGC-39 with 3 heads. Model TT-168/FGC39, 115 V AC 60 cycle, sync motor, 60 WPM, used little if any. \$25.00. One Base distributor-transmitter, Model MT-1374/FGC-39 with 3 heads, model TT 170/FGC-39 and 3 windup reels, 115 V AC, 60 cycles, used little if any. \$35.00. One Typing reperf Model TT-204/FGC-39A, less dust cover and less keyboard, 115 V AC, 60 cycle, sync motor, 60 WPM, used little if any. \$25.00 (Holding magnets with switch for either 20 or 60 ma). Tape reel has out of tape warning, etc. One Reeling machine, Tape, motor driven, Model RL-173/FGC-6, 115 V AC 60 cycle motor. \$10.00. Used little if any. One power supply Model REC-5, both coarse and fine adjustments, \$15.00 used but perfect condition. Above all mfg. by Teletype Corp. One Mu-Western Model MU-1 Terminal Unit. Regular net \$111.50, first buyer can have for \$75.00. NEW. W7ARS, 8355 Tanque Verde Road, Route 2, Box 694R, Tucson, Arizona 85715.

REWARD: 50 cents each for January, March, April, May, July 1953 RTTY. Have about 100 RTTY's to swap or sell. K6DZN, 1941 Oakdell Drive, Menlo Park, California 94025.

FOR SALE: Model 15 complete, Model 107 Northern Radio FSK converter. Variable shift and scope built in. K6PZI, 9337 Gotham Street, Downey, California. Phone T0paz 9-3292.

SWAP: New Boxed tubes: 8236's, 6146B's and others for TD tape transmitter, KP4-AQL, P.O. Box 964, Ponce, Puerto Rico 00732.

FOR SALE: TT-2041 FGC39A (14 Typing reperf) and electric tape windup base \$15.00. TS I-139A with Comm. P/S \$15.00. Polar relays Comp. \$2.00. TA-3340 (add to your TA33 to make a 40 meter dipole) \$18.50. WA0GUN, 231 South Jasmine Street, Denver, Colorado 80222.

FOR SALE: Model 15 with holding magnets, \$75.00. Model 19 complete with TD, power supply, and table, \$135.00. Model 14 typing reperf with end of line indicator, \$55.00. Some parts for 14, 15 and 28's. Send for list of needs, K6BNS, 17431 Oak Street, Fountain Valley, California Phone 847-7886.

FOR SALE: Teletype paper 8 1/2" roll to fit all model Teletype machines (page printers) new stuff, case of 12 rolls \$8.00. Teledeltos Electro sensitive FAX pen recorder paper, \$1.00 roll. Pink oilskip paper in 1K pkg. Sample for SASE. REC-29-RA87 Power supply for loop \$6.00. Model 101 \$25.00. Model 26 \$52.00. Model 15 \$65.00. All operating. Clegg 99'er \$85.00. Conset II 2 meter \$110. HQ-129X \$70.00. DX-35 \$35.00. 6146B Brand New \$4.00. Two'er with power supply (DC) \$45.00. W2DLT, 348R Essex Street, Stirling, N.J. 07980.

PLEASE NOTE: RTTY subscriptions are being accepted through December 1966 only. If your subscription expired between this date and December, send amount equal to number of months times 30¢ surface mail or 40¢ for airmail. No exceptions will be made. Be sure and include your call if you have one, as well as your Postal Zip Code. Thanks, RTTY, Inc.

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