



# NCARTS

WESCON 1957

The NCARTS gang met on August 22, 1957 at Joe's of Westlake in San Francisco, starting out with the usual pre-dinner libations and teletalk.

It was a pleasure to welcome the many "out-of-towners"—including Merrill Swan, W6AEE, of Arcadia, California, and his XYL, Margaret. Other "special" guests were the Segerstroms, W6CQI, of Sonora, California, Roy LaViolette, W6NYF, of Los Angeles, Dean Cortright, W9NOE, of Niles, Illinois, Ed Phillips, W6IZJ, of Sierra Madre, Frank Ashby, W6AJU, of Pacific Palisades, Jack Paton, VR2AC, of the Fiji Islands, and our guest of honor, Bruce Rowlings, ZL1WB, of New Zealand. (See Cover)

Bruce delighted everyone by saying he was "a wee mite overwhelmed" at the reception he has received in this country. He was elected an honorary life member of NCARTS.

Tom Lott, VE2AGF/W6, entertained the group with a series of slides depict-

ing the construction and completion of the fabulous \$20,000,000 communications system, using the scatter principle of transmission and reception, linking the Far North with civilization.

Everyone connected with the project performed tasks above and beyond the call of duty to get the system in operation in the shortest possible time. Besides racing against time they had to outguess the elements and get equipment and supplies to remote spots before they were snowed in for months at a time. To transport the tons and tons of materials every possible type of conveyance was put to use — from snowmobiles to ski-planes to dog sleds.

Numerous prizes were given away, including a Model 26 which was won by Dean Cortright of Niles, Illinois (W9NOE).

A grand time was had by everyone getting caught up on the latest news and activities of fellow teletypists.

## HONORING BRUCE ROWLINGS, ZL-1-WB

Attendance, NCARTS Dinners Meeting . . . "Westlake Joe's  
San Francisco, Thursday, August 22nd, 1957

CALL	NAME	HOME QTH
W6AEE	Merrill Swan	Arcadia, California
	Margaret Swan	Arcadia, California
K6GDO	Al Prien	Oakland, California
	Doris Prien	Oakland, California
W6WEM	Jim Johnston	Fairfield, California
W6FYM	Howard Hale	Belmont, California
	Jeanne Hale	Belmont, California
W6CQI	Dick Segerstrom	Sonora, California
	Jean Sergerstrom	Sonora, California

CALL	NAME	HOME QTH
	Claudia Buchanan	Daly City, California
	Neale Buchanan	Daly City, California
	Al Delbex	San Francisco, California
	Doris Delbex	San Francisco, California
W6NQH	Solomon Field, Jr.	Sacramento, California
W6AHH	Bob Browne	San Francisco, California
	Myrtle Browne	San Francisco, California
	Jeri Bey	San Francisco, California
W6QMO	Chuck Bey	San Francisco, California
W6PHS	Roy LaViolette	Los Angeles, California
W6NYF	Hal Jones	Oakland, California
W6ZVV	Bob Mead	San Mateo, California
K6GZ	Bin Unsworth	San Francisco, California
W6LFF	Bob Unsworth	San Francisco, California
W6MTJ	Ken Child	San Francisco, California
W6YNO	Lyn Bradshaw	San Francisco, California
W6RN	Dean Cortright	Niles, Ill.
W9NOE	Cec Crafts	Pasadena, Calif.
W6ZBV	Archie Waring	Oakland, California
K6ACN	Walter Buckley	San Francisco, California
W6GGC	Rose Buckley	San Francisco, California
W6UQ	Chas. Thompson	Hillsborough, California
	Kathleen Thompson	Hillsborough, California
W6NKP	Harold Graham	San Jose, California
	Pauline Graham	San Jose, California
	Edith Robertson	Colma, California
	Jane Feller	Sacramento, California
W6PZV	J. Isaacs	Compton, California
K6OUR	F. Ivey	San Francisco, California
	XYL - Ivey	San Francisco, California
K6KVZ	F. W. Taylor	Oakland, California
	XYL - Taylor	Oakland, California
W6ASJ	Chas. Elvin	Piedmont, California
	XYL - Elvin	Piedmont, California
W6CBF	Cylde Sunderland	Oakland, California
W6IZJ	Ed Phillips	Sierra Madre, California
W6EFT	Roger Bunce	Burlingame, California
K60FH	Eddie Lando	Mill Valley, California
K60FI	Mike Lando	Mill Valley, California
K6IZY	Jim Wren	Oakland, California
W6BIK	Sam Feller	Sacramento, California
W6AJU	Frank Ashby	Pacific Palisades, California
W6WIS	Ken Moore	Millbrae, California
VR2AC	Jack Paton	Fiji
ZL1WB	Bruce Rowlings	New Zealand
VE2AGF/W6	Tom Lott	San Mateo, California
	Mary Lott	San Mateo, California
W6VPC	E. Buchanan	Oakland, California
	Maribel Buchanan	Oakland, California



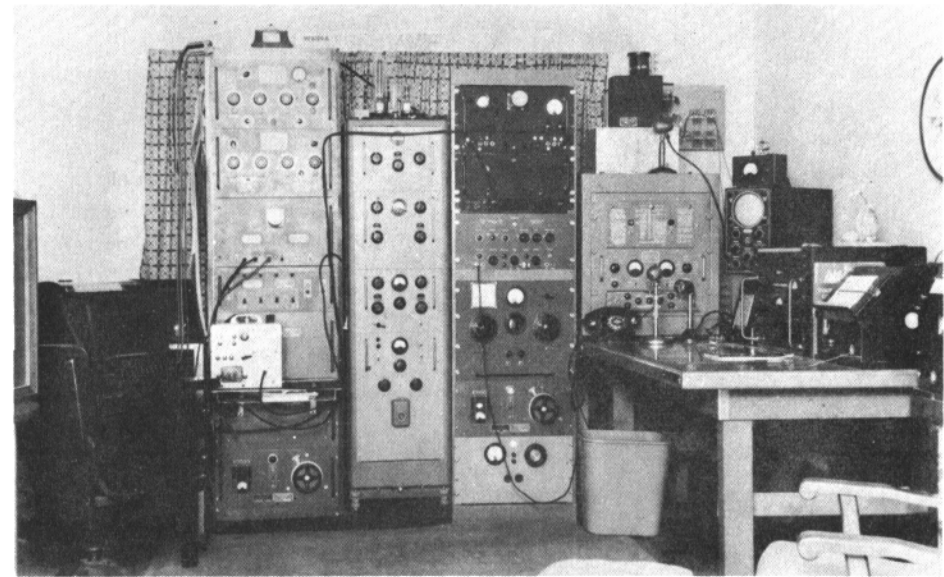
mark and space frequencies and both frequencies can be set exactly to their desired frequency by means of the variable inductors. Mark frequency should be adjusted first and space frequency second for obvious reasons. It should also be pointed out that the two coils should be so mounted as to minimize coupling between them. If they are coupled the two adjustments will interact and several repetitive adjustments may be necessary to obtain the desired frequencies. It has appeared that this unit is extremely stable from a frequency stability standpoint. A reduction in battery voltage to 4½ volts caused only a few cycles change in frequency.

The switch has been provided to permit both normal and reversed keying. This switch can serve two functions, (1) to provide reversed keying for checking a system which is reversed somewhere along the line, and (2) to permit a change from mark to space frequency regardless of whether the keyboard contacts are open or closed. A note of caution should be expressed here. In the normal keying position the keyboard contacts are returned to the 7½ volt supply battery in the shifter. If the keyboard contacts are grounded some place in your system you may find it necessary to use the reverse position on the switch and replace the shunt inductor with a capacitor to achieve right side up keying. This capacitor will be approximately .14 mf with the other constants as shown. The 10K resistor from collector to ground on the frequency shifter will then have to be adjusted to equalize the space frequency

output with the mark frequency output for this configuration.

A few words may be in order here regarding the use of transistors. The type 2N107 transistor which is used is manufactured by GE for amateur and experimental use and is widely sold at a price of less than \$1.00. It would seem that its characteristics are not closely controlled, and it is possible that some variations in circuit constants may be necessary to accommodate individual units. The best way to accomplish such variation is to put a variable resistor, such as a potentiometer, in the circuit and adjust it while observing the circuit performance with an oscilloscope. I find the Heathkit resistance boxes to be ideally suited for this type of thing, since their use results in regular RMA resistance values being chosen. Please bear in mind also the temperature limitations on these transistors. No attempt has been made in this circuit to provide thermal stabilization, since the operating currents in all the transistors are low enough so as to preclude thermal runaway. The unit, however, should not be placed within a case with other electronic components operating at high temperature, or on top of such units. These transistors have a maximum allowable temperature of 60°C, (about 120°F). Allowing their temperature to rise impairs the performance of the unit and may permanently damage the transistors.

The unit is powered by a 7½ volt battery of the bias battery type. The total current drain is approximately 5 milli-amperes so that very long battery life should be realized.



### W6VVF

TV set for TVI Monitor and 2-meter AFSK Monitor Model 26 Teletypewriter tape distributor-Gonset communicator behind Gonset is BC640B 75 watt rig used mostly on Mars 2meter net next is Techrad ½ KW for CW-FSK all band. Next top rack is Gates TU-Next Down

20-A-Next Down 4-400 side band and PM linear. Next is CV-31D diversity converter working on 500KC output of the Collins 51-J4.

Last on table is receiving only typing reperforator.

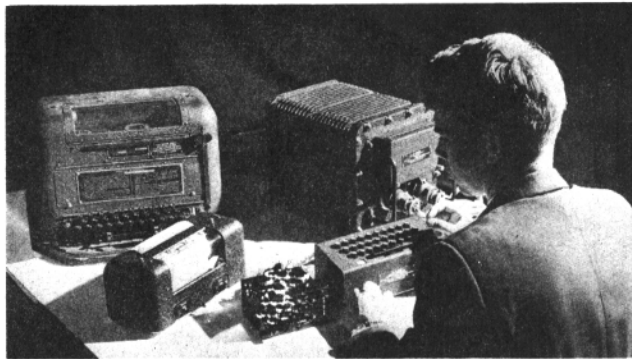
W. E. NICHOLS W6VVF

### MODEL 26 CLUTCH

—W9TCJ

On Model 26 typewheel clutch adjusting, make sure that the jam-nut is set tight against the castellated nut after each adjustment. Otherwise the nuts will work themselves around and tighten up on the clutch more than necessary, causing it to run hotter and possibly cause damage to stop-arm or other components.

It is very easy to remove the clutch assembly whenever it is required to adjust or inspect this part. Merely loosen a set screw on its bottom end, and the whole thing slips out! Be sure, when replacing the assembly, that the typewheel shaft does not have much up-and-down play.



Bulky, standard teletypewriter, upper left, is shown with new airborne teletypewriter developed for ARDC by Kleinschmidt Laboratories, Inc. Paul T. JaQuay, WADC engineer, scans copy on printer at lower left. To its right is control box, while at upper right is terminal unit, the heart of the machine. Units can be placed apart.

## New Airborne Radio Teletypewriter

An airborne radio teletypewriter, incorporating a unique method of printing, has been developed for the Air Force.

Messages have already been successfully transmitted between two of the 46-pound machines and extensive flight testing is being planned.

Radio teletypewriters have been used in aircraft for about 15 years, but until now have been used only in the large type of aircraft because of the weight and bulk of the equipment. The device now being tested at the Wright Air Development Center was devised by the Kleinschmidt Laboratories, Deerfield, Illinois.

It is constructed of four units, enabling engineers to place the equipment in convenient, and if necessary, remote parts of the airplane where space can be found.

Instead of the conventional teletypewriter's bank of strikers and ribbon, similar to a typewriter, the new machine uses a type wheel and hammer, making it operative under extreme gravitational forces and in all positions of flight.

This type wheel, only one and one-half inches in diameter, is faced with letters. The production models will have figures, as well. A roll of pressure-sensitive paper, which requires no carbon is inserted between the type wheel and hammer.

The airborne teletypewriter's four units are a keyboard, control box,

printer and terminal unit. Largest of these is the terminal unit, which measures  $10\frac{3}{8} \times 10\frac{1}{8} \times 17$  inches, and which can be placed anywhere it will fit. The other three small units would be grouped close to the operator.

The control box permits the machine to send or receive messages, store them, or transmit them from storage. Messages up to 600 words can be stored in a magnetic storage unit and transmitted later.

One advantage of the radio teletypewriter will be its ability to receive or send a written, permanent message to replace the verbal, and sometimes garbled, messages now used for communication. WADC engineers pointed out that this will avoid confusion often caused by various pronunciations and accents, and will furnish a written message which can be studied at will.

A selective call system will eliminate all messages except those directed to the particular aircraft, or all messages can be received if desired.

Although it uses a different printing method, the new teletypewriter is compatible with conventional equipment. It operates at the same speed—60 words per minute—and uses the universal Baudot teletype code.

The teletypewriter was developed for WADC's Communication and Navigation Laboratory.

WADC project officers are Paul T. JaQuay and Wolfgang A. Pohl, both of Dayton.

*This unique teletypewriter developed for the Air Force will operate under extreme gravitational forces and in all positions of flight. Anyone for typing upside down?*

## A "ZL" in "W" Land



In the beginning—Tuesday August 6th 1957 to be precise—I boarded a DC-6 Aircraft of Tasman Empire Airways Ltd. at Auckland, New Zealand, on the first "Leg" of my journey across the "Blue Pacific" to the United States of America — The initial stage of an "Adventure of a lifetime" to attend the 9th National ARRL, and 3rd CHI-RTTY Convention in Chicago, (In particular the RTTY section) at the invitation of "BEEP" WØBP. Arrangements were available for me to take time out to visit acquaintances derived via amateur radio teletype. Principal among these being the fellow whose generosity, and kindly assistance made possible my participation in amateur teletype—Merrill L. Swan, W6AEE.

Six hours flying time, and I was in the Fiji Islands where I joined a "Qantas" Super Constellation Airliner for the

long non-stop hop to the Hawaiian Islands, during which this giant aircraft consumed some sixteen tons of aviation spirit. At Honolulu I set foot on American soil for a "stop over" of a few hours, for custom formalities prior to departing on the same airliner for San Francisco. Having crossed the International Dateline, the day was still Tuesday, and my scheduled arrival at San Francisco International Airport was for 7:40 a.m. Wednesday, just two days after leaving my home at Onerahi, New Zealand!

Greeting me upon my arrival were Dick, W6CQI; "Chuck," W6PHS; and Tommy VE2AGF/6. Dick was instrumental in providing vital documents which facilitated the processing of my entry visa, without which my visit would not have been possible. I shall never forget that moment as I walked up the ramp into the Terminal Building—An "accusing" finger pointed my way, and an excited voice declared "I know that is him"!!! So simply, I came to meet, Dick, "Chuck" and Tom, who had taken "time out" to welcome me to this wonderful country.

I was driven to the home of Tom and Mary in San Mateo, where I met Doc, W6NKP, and Wayne, W6???. Here, I had my first introduction to television. After an interesting drive to the "Skyline" with the fellows I took leave of the "gang" and motored with Dick to his home in Sonora — A delightful little village, east of San Francisco—where I

was invited to spend a few days prior to travelling thru to Los Angeles. Dick, and Jean gave me a truly wonderful time—such that I shall never forget, and I was so happy to be with them, and their sons John, Kris and Karl. With Dick, I was able to visit Yosemite National park, and Columbia—create my “first” TVI, and view colour TV also, In addition Dick explained, and demonstrated the TV SYNC generator which he had built some years ago. I was able to operate on RTTY with Dick's fine equipment, and speak back to New Zealand on single sideband, which was also a “new” experience for me. I met Bob, K6KXSX, who showed me thru the telephone automatic exchange in Sonora; Howard, W6FYM, . . . W6BXX,” and latterly Bud, W6KUY, who so kindly offered to drive me thru to Los Angeles on the coming Sunday.

Travelling via highway 99 thru Fresno, and Bakersfield, we arrived in Los Angeles around 8 p.m., to find ourselves “lost” with the fall of darkness “Obliterating” the street signs! Evenutally, we located 372 Warren Way; I was there . . . at last I was able to meet Merrill, and Margaret, a very happy sequel to events which followed my first airmail correspondence with Merrill, and the arrival of the model “26” page printer which enabled me to communicate with so many of you, on radio teletype.

Merrill showed me a wonderful time, and I spent several days at the Connon Electric Plant. Later I was to meet Ted Swift, W6CMQ; and Virg, W6FGS. I was conducted thru Mutual “TV” and the

Pacific Telephone Co., from the “roof to the basement.” We visited Ted at his “Shack” and here I saw his teletype, and facsimile establishment. This was most impressive. That evening I was able to participate in the “CD” net on 2-Metres. Come Wednesday evening, I visited Bud, W6CG, and Mary, K60WQ, along with Merrill, Margaret, and Bill. I was indeed most happy to meet with Bud and Mary. Next, I visited “Ham,” W6EV, and had a very interesting time with “Ham.” I was to leave him, with many “souvenirs” in my possession. What a fellow!!

Thursday evening Merrill drove us to Mt. Wilson, where I was able to see the transmitting station of KRCA NBC TV. The next evening we went to Mutual Don Lee TV Studios at Hollywood, where I again met Bud, W6CG, who showed us the station in operation. On Saturday, Merrill drove me out to the ARRL Convention at Long Beach, and here I was able to meet many amateurs with whom I had contacts over the years. I spent time there with George W6RCM, and Dick, W6AFX.

The following day, in company with Bill and Margaret, Merrill and I motored via the Coast Highway, to San Francisco, for the Wescon Show. I stayed in San Mateo with Tom, and I was pleased to attend the meeting of the San Francisco Radio Club, with him. I was also enabled to visit the “Timac” Plant in San Bruno. I was fortunate in having a pair of 4CX250B Tubes given to me, complete with sockets, and very soon I shall have these in operation “Down Under.”

Buck, W6VPC, took me on a sight-seeing tour about San Francisco, and in the evening, I was privileged to be present at a meeting held in my honour by the Northern California Radio Teletype Society. I was greatly thrilled to meet so many of the amateur RITTY'ERS and their wives there, and it was a wonderful event for me. I was, by some curious twist of fate, to renew my acquaintance with Jack, ZL1PL/VR2AC, who I had last seen in Auckland, N. Z., some six years ago, at the time when Jack was regional tech, at Musick Point! He so happened also to be “on vacation” in this country!

I was honored to be associated with the NCARTS.

On Friday I was driven around the outskirts of the Bay Area by Chas. W6UQ, which was most interesting. That evening, Chas. and his wife, took me to the Planetarium which was a very interesting experience for me. Saturday, found me in the company of Bob, W6MTJ, and Tommy, VE2AGF/6 making a call on the many RTTY Stations around San Francisco. These included a short stop at the home of Bob, and Gin, W6LFF, prior to accepting an invitation from Frank, K6OUR to visit the Mars Station at the Presidio. I was able to meet Mrs. Ivey, and see Franks neat RTTY equipment, after which we set off for Oakland, to visit Buck, and Maribel W6VPC, where I also met Roger W6FDJ. Our next call was to see Charlie, W6ASJ, and Clyde W6CBF, and their wives. From Clydes home we were able to contact Doc, W6NKP on two metre fone, and latterly, RTTY!

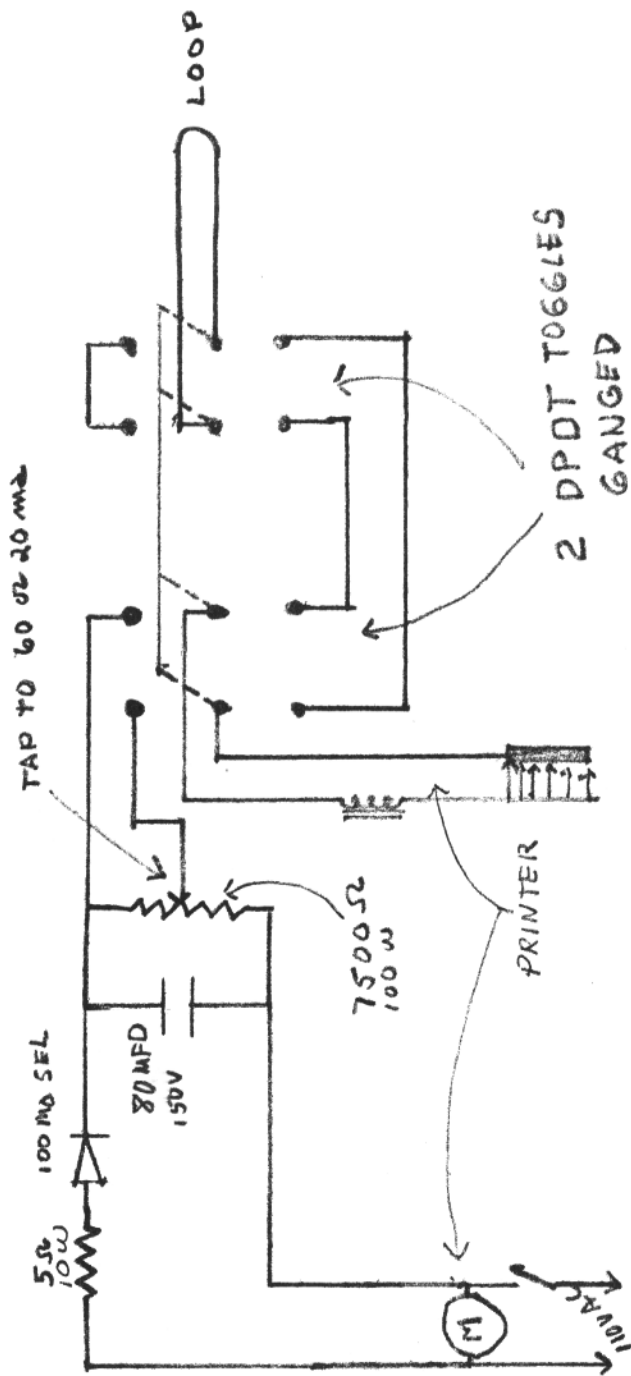
The next day, Howard, W6FYM, staged a barbacue at the home of Tom and Mary. Toms people, Howard's wife Jean, and daughters, Susan and Sally, his son Ed, Ted W6FL and Kay, attended to make this a very pleasant “outing” on the front lawn. Several photographs in my possession “testify” to the success of the occasion!

I took leave of the Bay Area “gang” and with Tom, Mary and Howard to farewell me, I boarded a bus of Greyhound Lines, and so began my journey eastwards, with Chicago as my stopping place. This trip took me thru Sacramento, Reno, Salt Lake City, Omaha, and Des Monies, and I arrived in Chicago three days later. Here, I was greeted by George, W9SPT, and Ray, W9GRW, with whom I was to spend many interesting hours. Mrs. Morrison was more “keener” than Ray, to show me the “fabulous” basement at 8029 Keeler Ave!!!

Ray, kindly took me to visit the Teletype Corporation in Chicago, where I saw the diminishing line of 15's being constructed, and the expansive lines of 28's, from the beginning to end, of assembly, and testing. In the afternoon, I was invited to the home of Bill, and Mrs. Procnier, W9HEP. They gave me a wonderful time, and showed me the “sights” of Chicago.

Friday saw me transferring to the Palmer House, where I met “Ole Beep” “Looking Lost” in the Fair! It gave me considerable pleasure to meet so many of the gang with whom I had made con-

*(Continued on Page 13)*



### W1PBS CIRCUIT FOR A 14-TYPING REPERF

BY W1PBS

Here is a circuit for reperfering a tape while another printer is printing the QSO. The ganged DPDT toggles in the up position, close the loop thru and the local power-supply that is built into the base of the tty on the machine. In

the down position the loop is closed thru the machine and the local supply is standing by at very low current.

With this set up, a tape can be made while rec. or the incoming sigs can be reperfed.

(“ZL” continued from Page 11)

tact on RTTY, or whom I had come to “know” so well thru the pages of “RTTY.” Such fellows, as Bob, W9TCJ, (what a fellow!) Ed, the “clam” W2BDI, Byron, W2JTP! Phil, W2JAV, Dick, W3CRO, Jack, W6CQK, Ed Handy, W1BDI, BOB, WØYKZ, and many more, sufficient to fill any “Book!”

I had the pleasure of meeting Doris, K5BNQ, one of the few “YL” amateurs with whom I have previously “worked” on phone. Thanks to Christ, K9AMC, I had the privilege of introduction to Mae, W3CUL, the 1956 winner of the Edison Award. We did not retire until the very small hours of the morning, that day, but I was glad to have been awoken by a telephone call from Geo. W9SPT, who conveyed a message to me from Don, W9KUI, to the effect that I had the good fortune to be included in the allocation of a free air trip over and around Chicago with United Airlines! What a treat! This was particularly enjoyable.

Then followed the RTTY banquet — and this was an excellent function, to be sure. I was presented with a model 14 typing reperf, which was converted from a non-perf, unit donated by Dick, W6CQI, with parts likewise donated by W9JBT, and the modification was undertaken by Ray, W9GRW. This was a wonderful gesture by the fellows, which I appreciate immensely. Throughout the entire convention, I met many hundreds, of YL'S and OM'S, as the “stack” of cards which I received from them so readily testifies! It was a most happy and memorable occasion for me, and the

friendships which I made, I value very much.

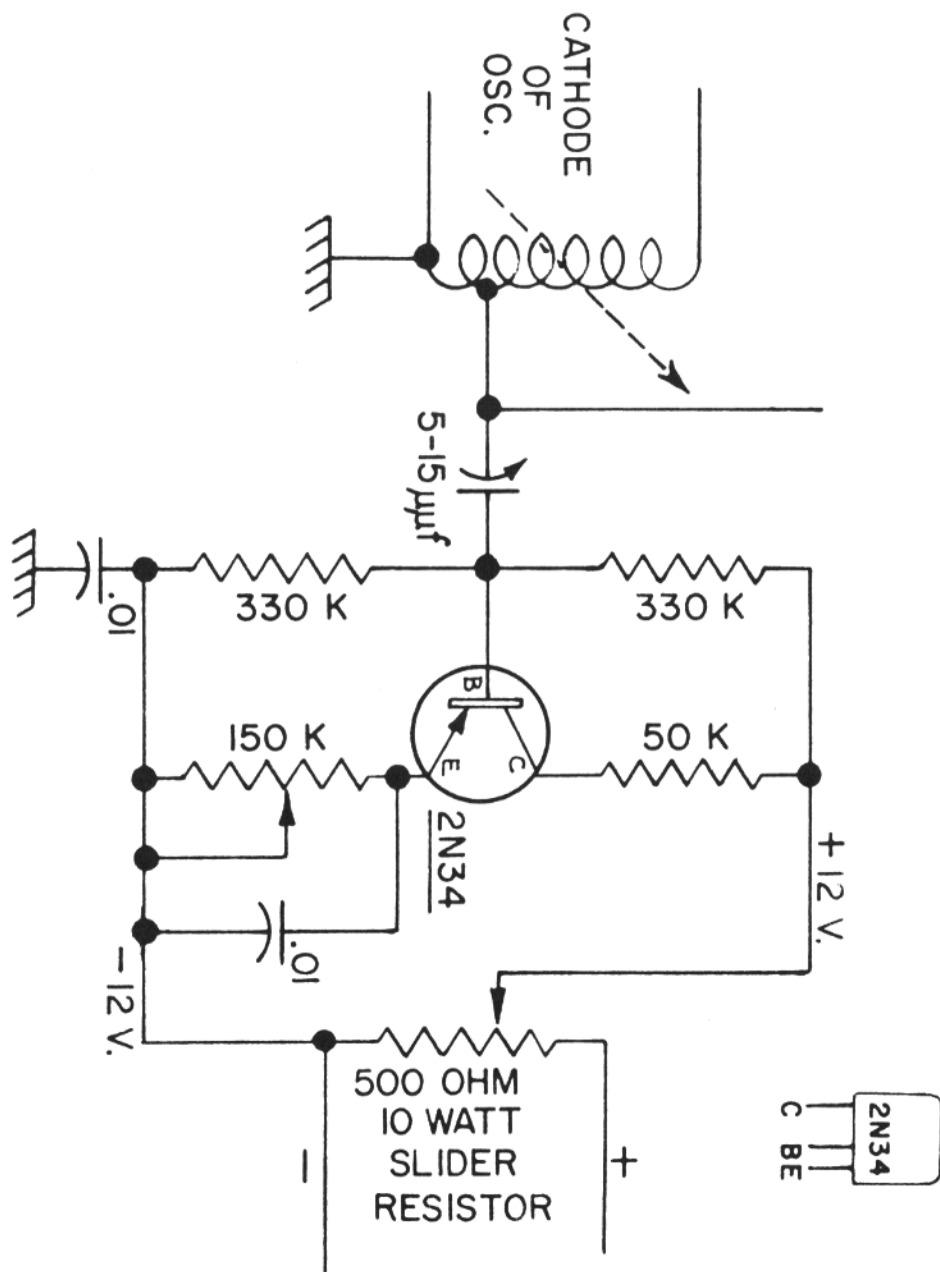
After the grand banquet was thru, and the many amateurs drifted homeward, Ole Beep drove me to his home in Minneapolis, where I stayed with Boyd. I was honoured to attend a gathering of the “Rats” in Minneapolis, and here I was able to renew acquaintances whom I had met initially in Chicago, and to meet Bob, WØAUS, Bruce, WØHZR, Bob, KØAKG, Otis, WØDFP, Harry, WØKKP, and Clete WØRWF. I was the recipient of a “proclamation,” making me an honorary member of “Rats.”

This too was a most happy event.

Next, Beep, Bob, and myself, were shown thru the UNIVAC Division of Remington Rand, over in St. Paul, where we saw many ingenious devises. Later we were shown thru the plant of Northwest Airlines out at Holman Airfield, St. Paul.

With Bob, KØAKG, Beep and myself toured the E. F. Johnson Plant in Waseca, being conducted thru the plant by Bill, W9ZSO. This was extremely interesting, and so “convincing” that Ole Beep purchased one of the latest 40-watt rigs, “hot” off the assembly line!

On Saturday, Beep drove me out to his Antenna farm establishment, “Belly Acres,” where we fought for possession with the mosquitoes that had almost taken charge, along with the jungle-like undergrowth!



## TRANSISTOR SHIFTER

BY W9NOE — DEAN CORTRIGHT

I am enclosing a circuit diagram of a single transistor shifter which can be readily mounted in a tiny space near a VFO. The resistors and fixed capacitors can be mounted together with the transistor on a six-terminal and ground board, like printed circuitry. The components provide the necessary interconnecting leads. The 150 K pot mounts on the control panel, any distance away. The 5-15 MMF variable, a ceramic such as CRL 822-AZ,, mounts near the oscillator tube. To connect to the cathode of the oscillator tube, I cut a solder lug in half and hook the remaining hooked portion down inside the socket connection (cathode). The tube can then be removed and reinserted without disturbing the connection.

The 500 ohm resistor with slider is mounted at the rear of the transmitter wherever convenient. In the Elmac AF67, where I have used this circuit several times, I enlarged the connector hole at the rear of the dust cover, then mounted the resistor on a Jones barrier type connector block. To this, the leads to the DC loop can be easily attached.

The transmitter functions quite as normally would, until the DC loop is energized, when the oscillator will shift upward in frequency, as desired.

To first set the controls, the DC loop is energized and the slider positioned to the point where something under 10 volts is applied to the slider lead. Then, with the transmitter on the lowest frequency band, the capacity (5-15) is adjusted to the minimum which will give about 900 cycles shift with the control full out (slider nearest ground). It will

then be found that higher frequency bands can be satisfactorily adjusted.

Adjustments of the pot do affect both mark and space—you can't have everything with such a simple circuit. However, by getting an approximation, it soon becomes easy to set the space frequency, then establish the mark condition and fix the shift. When interaction occurs, this step is repeated, viz — set the space frequency with DC loop open, then energize the loop and adjust the mark.

This is so handy and easy to do that I thought some of our compatriots might find the info useful.

—Dean, W9NOE

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