



# TORN TAPE RELAY EQUIPMENT

By KLEINSCHMIDT LABORATORIES

MODEL 179 — Prototype AN/TGC-5( )

A high speed typing reperforator and tape transmitter for sending, receiving, or relaying information in the form of sequential electrical signals over a pair of wires. Typical applications of the Teletypewriter Model 179 include general communication systems, telemetering, integrated data processing, and torn tape communication.

This extremely versatile unit combines two tape transmitters and two typing reperforators. In addition to reception and transmission of messages in perforated tape form, the Teletypewriter Set Model 179 permits tape reproduction.

"Semi-Rev" operation reduces maintenance and increases the effective life of the equipment. New-style selector magnet allows reception of neutral or polar signals without additional line relay. Equipment is enclosed in a receive console which houses the two typing reperforators and the power supply, and in a transmit console, which houses the dual tape transmitter and the associated relay equipment.

## GENERAL SPECIFICATIONS

- Transmits or receives at preset speeds of 60, 66, 75, or 100 words per minute, depending upon the motor drive gear sets used.
- Operates on 20-60 ma. neutral lines, using standard five-unit (plus start-stop) communications code.
- Prints and perforates tape 3/8-inch wide, ten characters per inch. Accommodates tape roll of 20,000 word capacity.
- Visual tape-out alarm.
- Copy light illuminates tape messages.
- Manual tape feed-out mechanism — automatically disabled upon reception of incoming messages.
- Automatic tape feed-out allows space between messages.
- Messages automatically numbered.
- Alarm indicates message being received.
- Tape transmitter transmits from either 3/8- or 11/16-inch wide tape.
- Equipped with a start-stop switch and an automatic stop which functions if the tape runs out or becomes too taut.
- Brake-lock circuit prevents transmission into an open signal line.
- All components easily removed from console for maintenance.
- Motor: Synchronous 115 volt AC, 60 cycles.

Dimensions (inches):	Height	Width	Depth
Receive console	67	20 3/4	18
Transmit console	50	19 3/4	18

## ADDITIONAL FEATURE AVAILABLE —

- Governed motor, 115 volts AC 50-60 cycles; speed adjustable while in operation for Teletypewriter Set Model 180.

# HT-32 Frequency Shift Keyer Addition

DICK SEGERSTROM, W6CQI

To the owners of HT-32 equipment, who want the very best in FSK attainment without the necessity for making wiring or radical equipment changes which might spoil the re-sale or trade value of this fine piece of equipment, here's how to do it.

Remove the V-9 tube from its socket and make up the adapter assembly as per Figure 2. Now I was unable to find in any radio store here in San Francisco, the exact combination of 7-pin socket and 7-pin plug with turret, so I improvised a bit as indicated in the detail figure. If you can get your dealer to show you the latest Vector catalog, under section II page 3, issue 58-8, there can be seen special types of socket-turret arrangements. If none are available, secure a 7-pin socket and 7-pin plug and assemble with a round or square terminal card using a hollow brass tube through which a suitable machine screw can pass to hold the socket and the plug in position as shown. The support tube should not be more than about 1 and 1/2 inch long. Use rather stiff wire number 18 is ok, and wire the corresponding pins between the socket and the plug. Pin 1 on the socket wired to pin 1 on the plug and so on all the way round. A good way to attach the round or square terminal card to the bottom of the socket is to drill a snug fit hole through the card to pass the socket lugs and drill at the sides, the holes for the socket ears as shown. Be sure that in assembly, the machine screw that passes through the base of the socket and tube through the plug has a fillister head or equivalent and recessed opening for the nut on the bottom so that the tube will fit down in the socket and the plug will likewise fit into the chassis socket. The upper socket should have the shield base since you will need the shield for attachment of the clamp. There is now a hole in the upper frame of the VFO condenser which is just in the right place for attachment of the clamp. My frame had the hole tapped for a 6-32 screw.

Wire neatly and it is a good idea to first lay out on a piece of paper the actual arrangement of the component wires so that a compact and symmetrical result is achieved. Be sure to observe the correct polarity of the diodes. If not marked, check them for forward current with a volt ohmmeter using the medium scale so as not to pass too much current through them. Don't use junk box parts since the functioning of the shifter can be seriously debased with poor quality parts and departures from specified values of resistors and capacitors. Don't attempt to use any but the NPO CRL 822-AZ capacitor or exact equivalent in the circuit to V-9 cathode if you want to have best stability for you VFO shifter.

An advantage of this shifter is that one side of the keyboard line can be grounded. This eliminates hum and the effects of extraneous voltages.

The 150 volt supply is taken from pin 5 on VR tube V-20 by using a long piece of NR. 22 insulated wire skinned at the tube end and wrapped around the pin of the tube which is then reinserted in its socket. The wire from the keyboard can be connected to the HT-32 by means of a miniature co-axial plug and socket fastened to either the side or back. RG-58 co-ax is just right for this purpose.

The "sense" switch is mounted in a hole now provided on the right side of the chassis frame—you don't have to make a hole for the switch! If you want to, you can remove one of the front panel screws and use the hole for a push-pull rod to actuate the "sense" switch.

How does it work? See figures 3A, B, and C.

For analysis of the circuit the diodes are disconnected. With the "sense" switch thrown to "A" or "B" there are three configurations as shown:

Fig. 3A shows voltages when switch is on "A," keybd closed, or switch on "B" keybd open.

Fig. 3B shows voltages when switch at "A" with keybd open.

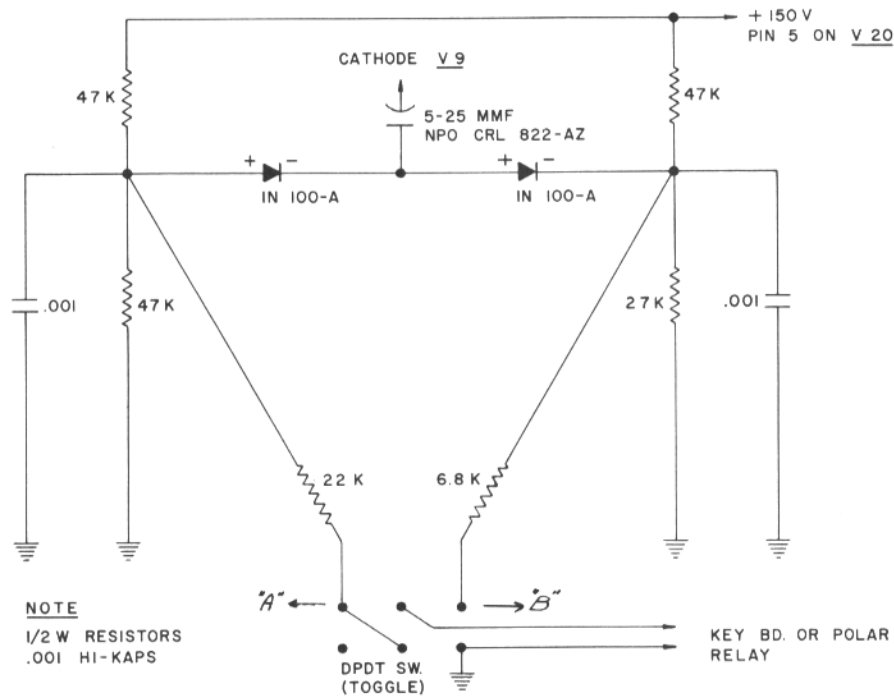
Fig. 3C shows voltages when switch at "B" with keybd closed.

The "A" mark — "B" space voltage is very low when the diodes are connected as it is a "forward voltage." (Resistance about 200 ohms).

The "A" space and "B" mark voltages "Back-Bias" the diodes and they are effectively open.

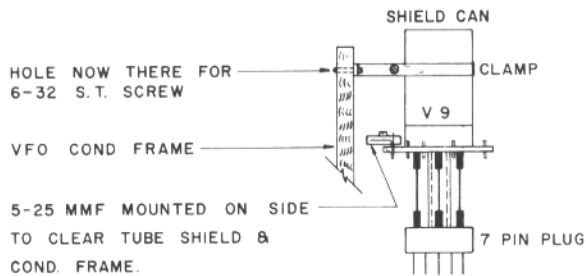
For narrow shift a simple modification of Fig. 1 is necessary by just adding a 10 micro-

**HT - 32 FSK ADDITION**



**NOTE**  
1/2 W RESISTORS  
.001 HI-KAPS

**FIG. 1**



**FIG. 2**

**NOTE**  
7 PIN SOCKET & SHIELD.  
1/8" FIBER - ROUND OR SQUARE  
FOR TERMINALS TO TIE  
RESISTORS - COND. & DIODES.

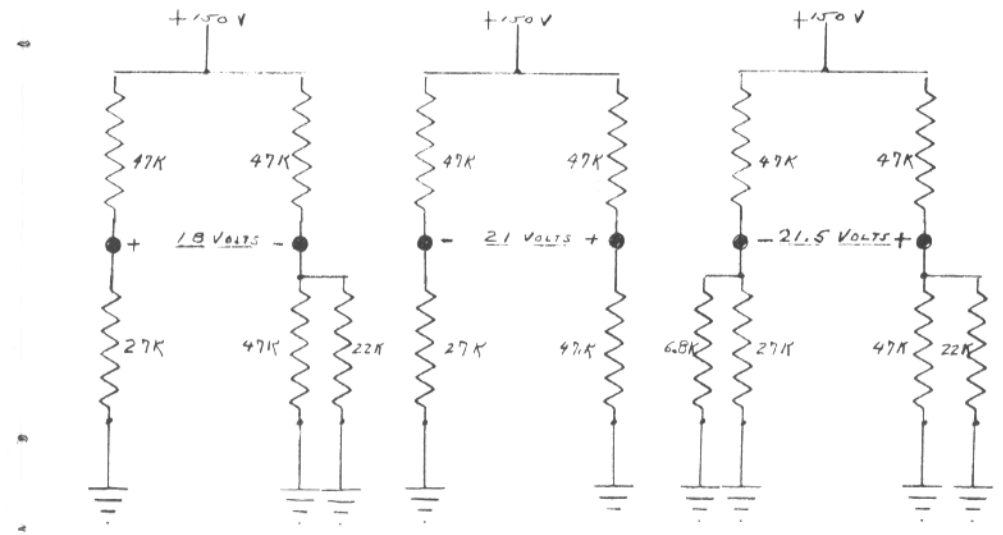
*W3N*

micro farad silver mica between ground and the junction of the two diodes connected to the NPO trimmer condenser.

Adjustment of the trimmer is very easy. Set your receiver to 14340 KC and tune and set for CW operation, key closed. Observe the mark pattern on your scope for being straight up and down with proper amplitude. Operate the "sense" switch and observe the "space" line on the scope. It should be a horizontal line of the same length as was the mark line. If not, adjust the trimmer with A-N insulated alignment tool - be sure it is very well insulated and of sufficient length that your hand capacity does not foul you up. It should be only necessary to make one or two passes at the trimmer with the alignment tool to get the perfect "cross" pattern on the scope. You can now go all the way through the bands with nearly the same "cross" pattern without ever adjusting the trimmer - if you adjust correctly on the 20 meter band.

This FSK shifter will change your dial reading about 3 KC which can be corrected for with the VFO trimmer. It's just that simple and everyone around here who has installed this shifter have the same comment - it really works perfectly and I didn't have to make any wiring or other changes to my HT-32!  
DE W6VVF

*SENSE SW. THROWN "A" OR "B" CONFIGURATIONS*



*FIG. 3-A*

*FIG. 3-B*

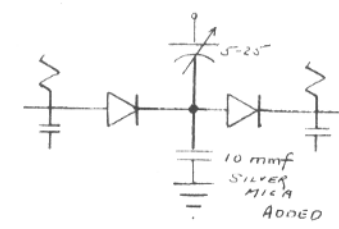
*FIG. 3-C*

*"A" MARK*

*"A" SPACE*

*"B" MARK*

*"B" SPACE*



*170 W SHIELD*

*FIG. 4*

## W6NRM Visits the CCIR Amateur Station K6USA

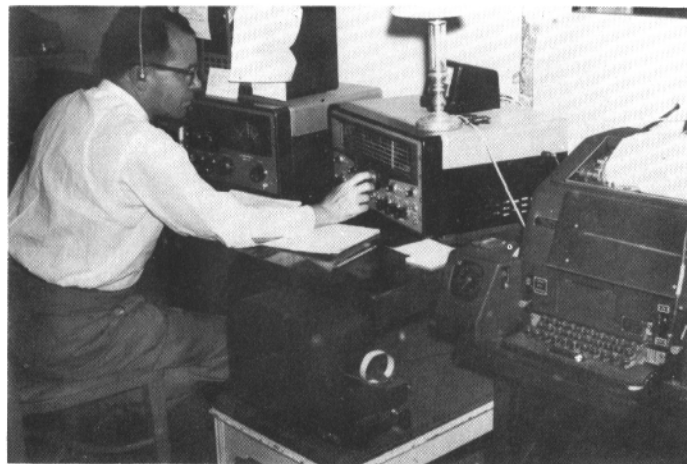
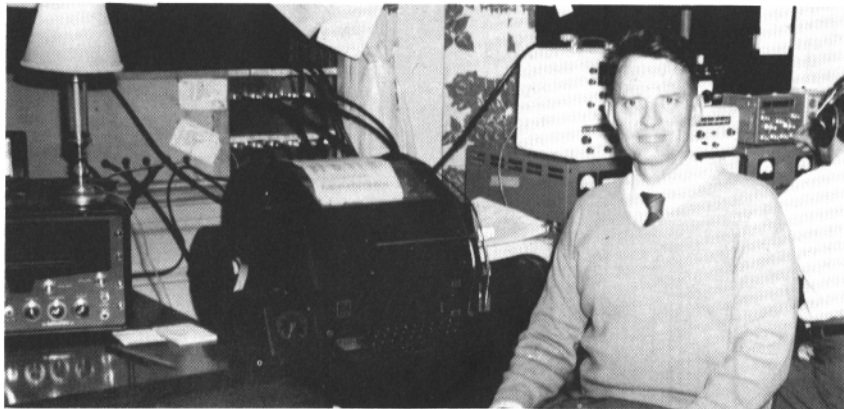
BOB WEITBRECHT, W6NRM

An international organizational conference for the study of frequency allocations was held at the Hotel Biltmore in Los Angeles during the months of April-May, 1959. During this time an elaborate multitransmitter amateur station, with assigned call letters K6USA, was operated by a committee of Los Angeles area amateurs spark-plugged by such prominent amateurs as Herb Hoover, W6ZH, Merrill Swan W6AEE, and Ray Meyers W6MLZ.

As indicated in the pictures, various amateur gear was operated on many bands extending from 40 to 2 meters. The major equipment makes, such as Eldico, Hallicrafters, Gonset, Collins, Drake, and Lakeshore were noticed among the pieces of gear scattered around the hotel room. Of course we should mention Teletype Corporation, as represented by that Model 19-type printer occupying the prominent portion of the room, as one enters the room from the hallway! Next to the printer is a Model 14 TD with an endless tape mounted thereon. Hmmmm. So that was where the Quick Brown Fox began! One wonders how many times that stuff has been sent in the years since somebody cooked up that to contain all the letters of the alphabet!

I visited K6USA right after we arrived back in Sierra Madre from a 12000 mile trip from the mountains of western Texas. (Yea! there are mountains there, and plenty wild and wooly scenery, too!) Anyhow, I dropped right into Merrill's place and requested instructions to find K6USA. Having procured same, Blackie and I headed out towards the big city over the San Bernardino Freeway . . . and almost got lost in the maze of overpasses and throughways downtown. We found we had overshot the mark, so backtracked from off the Hollywood Freeway, getting into down town section and finally found the Hotel Biltmore. After having parked the stationwagon in a lot and making the dog comfortable, I got my photo gear bag and headed towards the hotel.

After making several tries on the 11th floor level, at a door which I thought was 11326 (but actually 11362), I found the right door. So I was at K6USA! Stayed awhile and took various photographs. Quite a few operators were busy on the various bands. Much as I would like to, my visit was quite unexpected and so I was unable to do any operating, let alone RTTY. But I had a good time inspecting some of the gear, talking to various people, and in general impeding the crowd with my photogear. Hi. Indeed a very impressive setup, with a great many QSL cards from all over the world on the walls. In short, I feel that stations like this do much to promote friendships among the people of the world. The hams of Los Angeles area are to be congratulated for aiding towards the success of this K6USA station.



## K5BSS, TULSA, OKLAHOMA



### QSL



Sam (W5TVG) at left. Dan (K5BSS) at right.

## W3CRO

By DICK URIAN, Springfield, Pa.

The equipment lay-out here at W3CRO is as follows:

The main printer is a model 26, and is fed by either a home built version of a single channel AN/FGC-1, or the full military version of AN/FGC-1 . . . In this later condition the dual diversity requirements are met by two R-270/FRR (super-pro) receivers . . . One of these is fed by the same trap antenna I am transmitting with now, the second receiver is fed by a loaded vertical, thus giving the desired polarization diversity . . . This equipment is layed out in two relay racks, designated channel "A" and "B" . . . Each rack has its own jack field and is made up of co-axial jacks and straight wire line jacks . . . The former permit switching of antennas and/or shifter inputs or outputs . . . At the moment I am using an 0-5/FR, on 20/40/80 meters . . .

The 0-5/FR thru its jack field, feeds a

remotely controlled BO-447-F and runs about 800 watts input . . .

The cabinet housing the AN/FGC-1, is also remotely controlled, since its weight (685 lbs.) could hardly be tolerated on the second floor . . . The output of this converter joins the local loop circuit, thus permitting a choice of single or dual diversity selection . . . Channel "A" position houses the Model 14 perf and the 130 volt power supply . . . This position also contains the two meter converter and the transmitter control . . . A desk section joins the two rack cabinets together, and under the desk is found a model 14 non-typing reper . . . A radar position indicator is mounted in the desk section and serves as the beam antenna direction indicator . . .

All that is now required is plenty of RTTY stations to work and all will be complete!!!



# RTTY STATION IN A HOUSE TRAILER

By BILL CASMAER, K5UJD

P. O. Box 867

Tularosa, N. M.

I don't confess to be any sort of photographer so the picture quality isn't the ultimate. However they may do in a pinch.

Probably a brief explanation of the pictures and just where the shack was squeezed in the trailer is advisable. First off, the shack was squeezed in the trailer is advisable. First off, the shack is located in an "unused" bedroom. The trailer is a 45 foot two bedroom Zimmer, and since I am single and do not necessitate the use of both bedrooms one was converted to a "ham-shack." But with a few hours of moving things here and there, reconverting to a bedroom again is possible.

Picture No. 1 is pretty much self explanatory, showing the model 26 machine and the monitoring scope. The operating table as observed in pictures 1, 2, and 3 sets flush against one wall and between two full length clothes closets. The head of the other Hollywood bed fits into this area where the table is. When setting at the operating position, the machine is directly at the left elbow.

Picture No. 2 is as much of an "overall" view of the station as possible by using the camera which had only a somewhat Narrow Angle lense. The receiver however is an HQ-110. I moved the operating chair out of this picture Merrill to give a better coverage of the table, and the associated equipment. We also work a little 40 meter sideband just to see how the other half are doing.

Picture No. 3 includes the FSK exciter and its power supply. In this case the popular Elmac AF-67 employing your 6AL5 shifter circuit. I am presently experimenting with the NBFM circuit built into the AF-67 for a possible means of FSK also. Will let you know how it turns out. Understand that this has been done quite successfully by means of a couple of fellows in the Seattle area.

The line up within the relay rack is as follows:

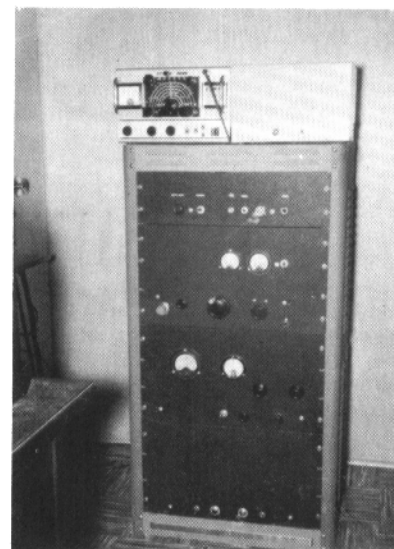
Top Panel is the converter, a W4TJU version.

Next Panel is the Class C amplifier, a 4D-32 loaded to about 180 watts input. Below this on the next panel is a Linear Amplifier for Sideband work, consisting of 4-6AG7's in Grounded Grid. And finally below this on the bottom panel is a common power supply for both the RTTY and SSB amplifiers.

About the only other explanation necessary for the shack is concerning picture No. 3, and this is the amplifier rack, located on the right hand side of the operating chair at the right elbow. So you can see that the operating position is somewhat sandwiched between and among gear but it works out quite well. A corner of the RTTY (model 26) table can be seen in the lower left hand corner of picture No. 3.

There is a couple of things that are somewhat beneficial about a set-up of this type. One is you are limited to just how much "Junk" you can cart home as you have a rather limited stowage area, and secondly, all the gear is within an arms length from the operating chair. However, I am not against walking across the room to put the final adjustment to a Kilowatt final such as yours and Beep's. Maybe one of these days we can get in a house, but for the time being we'll continue with this arrangement.

Almost forgot the antenna here Merrill, it is a tuned dipole approximately 37 feet long in the trees behind the trailer. That's about the set-up here Merrill, I am including an extra photo of the kitchen which is located in the extreme front of the trailer rather than the center like most trailers. The reason for the top of the couch appearing rather low in the picture is the fact that the kitchen is actually two steps or rather 1½ feet above the level of the living room and the rest of the floor level. Would of sent more pictures Merrill, but the kitchen shot was the last on the reel and just threw it in for kicks.



Subscription Rate \$2.75 Per Year

RTTY is the Official Publication

of the

**RTTY Society  
of Southern California**

and is published for the benefit of all  
RTTY Amateurs and Experimenters

Permission to copy is granted  
provided credit is given.

For Information Regarding the  
Society Contact the Following:

W6AEE — Merrill Swan

W6SCQ — Lewis Rogerson

For Traffic Net Information:  
W6FLW W61ZJ

For "RTTY" Information:  
W6DEO W6AEE