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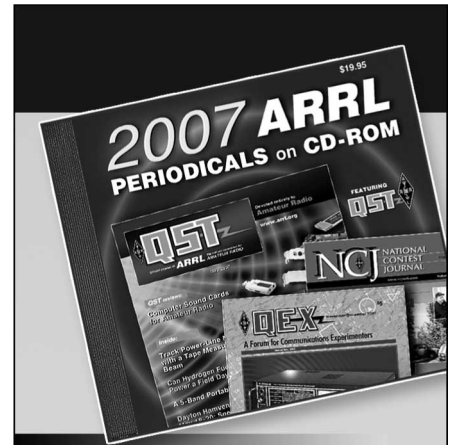
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The Eico 753

Rides Again!

BY ALLEN WOLFF,* WB2NTL

AS EVERY ham who has ever used, heard, or worked on one knows, the Eico 753 is one of those pieces of equipment that could stand some improvement. The writer had one lying under a bench for a long time. It was his first ssb set and had been pushed into a dark corner when a new rig was obtained. Recently, it was decided to try mobile operation but the SB-102 was too good to just toss into the family buggy and cart to and from the shack. The Eico 753 seemed to be the last resort.

The major problem with these rigs is the VFO . . . it just doesn't pay to rebuild it because of its inherent mechanical and electrical deficiencies, especially for mobile operation. For a fixed location, it can be stabilized satisfactorily. But in a car, there are rapidly changing temperature conditions and vibration which cause frequency instability. This problem can be so severe that you just don't drift down the band, you bobble!

The Modification

Knowing all the above, and being lazy, the writer decided to perform a lobotomy on the VFO. The tuning capacitor, dial, knob, and other VFO components were removed. On the dial window, an aluminum plate was installed with four crystal sockets connected to a switch located in the dial-set hole. On top of the VFO compartment, a one-transistor crystal-controlled oscillator was mounted (circuit taken from the *Handbook*) and connected to the existing transistor buffer amplifier. (For units with the tube-type VFO, a buffer/amplifier stage and a suitable low-voltage

* 2 Collinson Dr., New Monmouth, NJ 07748.

supply would have to be added.) Power for the oscillator was taken from the regulated-supply terminal on the VFO card. The old oscillator was disconnected from the supply. A 150-pF variable capacitor was also connected between the crystals and the oscillator to pull the frequency approximately plus and minus one kHz for a little tuning capability.

Now for the *coup de grace* . . . the crystals. The Eico 753 transceiver has a 5.2-MHz carrier oscillator. This oscillator output is mixed with the VFO output to produce the operating frequency. For 80 and 20 meters, a 9-MHz crystal will produce an output on 3.800 or 14.200 MHz. Would you believe that CB crystals work just fine? For example, a third-overtone CB channel-17 crystal at 27.165 MHz has its fundamental at 9.055 MHz which, when mixed with 5.2 MHz,

Channel	MHz	Channel	MHz
1	26.965	13	27.115
2	26.975	14	27.125
3	26.985	15	27.135
4	27.005	16	27.155
5	27.015	17	27.165
6	27.025	18	27.175
7	27.035	19	27.185
8	27.055	20	27.205
10	27.075	21	27.215
11	27.085	22	27.225
12	27.105	23	27.255

comes out on 3.855 MHz and 14.255 MHz. Therefore, with CB channels 5 through 23, 14.205 through 14.285 MHz can be covered and with channels 1 through 23, 3.788 through 3.885 MHz can be covered. For 20-meter operation, the exact frequency can be found from the formula: $fc/3 + 5.2002$ MHz, and on 80 meters, $fc/3 - 5.2002$ MHz. In both cases, fc is the transmitting frequency for the particular CB crystal used. (Also see Table 1.) While you are digging around in the set, a .001- μ F capacitor should be added in series be-

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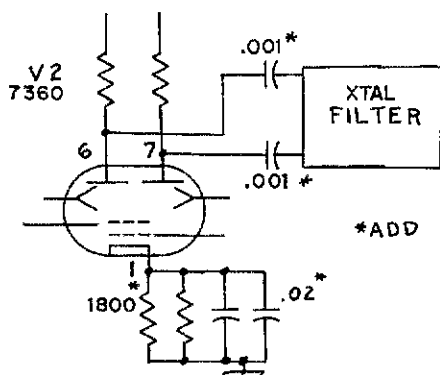
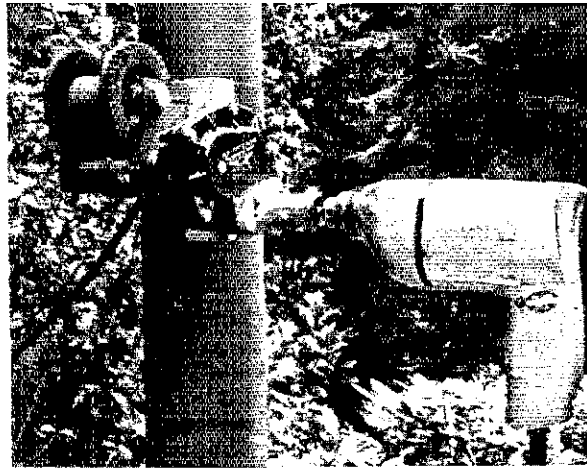


Fig. 1 - Modified balanced-modulator circuit (see text).

Close-up details of the winch, hoist, and drill, in place.



Mounting

Refer to Fig. 1 and the photographs for mounting details. My junk box yielded the 1-1/8 x 1-1/8 x 1/8-inch (29 x 29 x 3 mm) aluminum channel stock. I fitted this to the bracket that holds the winch to the tower mast. There are plenty of external bolts and nuts on the gear box, so it was easy to fasten the box to the aluminum channel. It may be necessary to use shims to align the box with the winch, depending on the type of winch used.

I might mention that the gear box weighs less than 5 pounds. It measures 6 x 4 x 2-1/2 inches

(152 x 102 x 64 mm) and is completely sealed against the weather. My guess is that they were originally used for bomb hoists. I just plug in the drill, turn it on, and all the tedious cranking is a thing of the past. QST

Eico 753

(Continued from page 31)

tween the crystal filter and each plate of the 7360. This will prevent oscillation and make it easier to obtain carrier balance when there are slight changes in voltage, as in mobile operation. Changing the cathode circuit to that shown in Fig. 1 also helps.

The above modifications make the Eico 753 quite useful as a "rock stable" mobile rig with little or no expense. The writer has the Hustler antennas

on the car and has found that on 80 meters a few crystals around the narrow resonant point of the antenna are sufficient. Recently the writer drove from home to Toronto, Canada. On the way up he used 80 meters and had continuous contact with the stations in New Jersey, right into downtown Toronto. He has also worked Germany from the parking lot at work, on 20 meters. For 40-meter operation crystals in the 12.350 to 12.500-MHz range are needed. QST



July 1924

... Featured this month was the work by Argentine station CB8, which worked New Zealand to set a new DX record, and which also worked 3BWJ to establish the first North-South American QSO. We don't know about CB8, but 3BWJ is still active as K4HE.

... The editor reported a great amount of interest in short-wave propagation, as a result of the work being done by amateurs, with tests being conducted by various commercial and military outfits, often cooperatively with amateur stations.

... "Oscillating Crystals" were discussed by H.S. Shaw, and the technical editor waxed enthusiastic over the possibility of a transmitter that never shifted its wave by even a hundredth of a meter. But, in July of 1924, the source of supply for properly mounted and calibrated crystals was pretty much an unknown quantity.

... Another article lauded the advantages of Esperanto, realizing that the time was rapidly approaching when there was going to have to be some sort of language of international radio. ... and another photo and write-up of 1BD1 in Orono, Maine, operated by one F. E. Handy, who even then was beginning to establish his reputation in amateur radio.

July 1974



July 1949

... This issue carried the minutes of the May meeting of the ARRL Board, and a busy meeting it had been. Some of the motions carried which had long-term impact included the appointment of Arthur L. Budlong as Secretary of the League, the authorization to purchase the property at 38 LaSalle Road, the establishment of a new staff position, "Assistant Communications Manager, Phone Activities," and vigorous opposition to FCC proposals for extensive changes in the amateur regulations.

... W2AOE presented some "revolutionary possibilities in amateur communication" using narrow-band pulse transmission, while W2SFX described a 10-meter handie-talkie and W1FTX presented an inexpensive VFO transmitter using a 6AG7 and three 6V6s.

... W2IOP, who since then has been W9IOP and W8IOP but who is about to become W2IOP again, was high man in the c.w. sweepstakes, chalking up 1025 contacts. And right behind him were a lot of other well-known calls who are still around today in 1974 (although not always with the same call sign). - WIRU

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