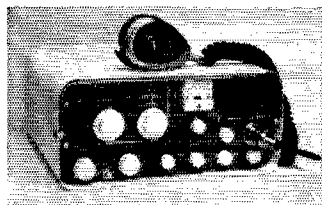


• Recent Equipment —

The Poly-Comm PC6



THE Poly-Comm PC6 is a transceiver for the 50-Mc. band, having a physical resemblance to the two-band 62B, described in *QST* for April, 1962. A similar model for 144-Mc. use was being readied for the market at the time this was written, and has since been announced. By building for one band in each model, the designers were able to make several marked improvements over the earlier two-band version, while retaining the desirable features.

The block diagram shows the tube lineup and stage functions in the PC6. In the receiver 6DS4 and 6CW4 Nuvistors, V_1 and V_2 , in a cathode-coupled r.f. amplifier, feed a 6CW4 mixer, V_3 . Injection from a tunable 6CB6 oscillator, V_{11} , covering 44.495 to 48.495 Mc., gives an i.f. output at 5405 kc. The mixer grid circuit is gang-tuned with the oscillator circuit to avoid the need for broad-banding, with its increased possibility of overloading and spurious responses. There is a 6BJ6 5405-kc. i.f. stage, V_{16} , and then a second mixer-oscillator, V_4 . This is a 12AT7, with the oscillator portion crystal controlled at 4950 kc., to give 455-kc. mixer output. There are two 455-kc. amplifier stages, a 6BJ6, V_5 , and the pentode portion of V_6 , a 6CM8. Diodes are used for detector, a.v.c. and noise limiter. A 12AX7 squelch and first audio, V_7 , completes the receiving lineup.

In the transmitter, a 6CB6 oscillator, V_{12} , operates with crystal or self control between

8.33 and 9 Mc. Two 12BY7s, V_{13} and V_{14} , triple to 25 and double to 50 Mc., driving a 7551 final amplifier, V_{15} . The doubler and final have pi-network tank circuits. Output on 50 Mc. is approximately 10 watts. The modulator uses paralleled 6BQ5s, V_8 and V_9 , which also serve as the output amplifier for the receiver. Speech amplification is provided by a 6BJ6, V_{10} , and the triode portion of V_6 .

Send-receive control is by means of the switch on the hand microphone, though an external control independent of the microphone can be installed if the operator desires. The receiver and v.f.o. tuning controls are side by side in the upper left portion of the panel. The receiver dial scale has marks every 100 kc., but these are omitted on the v.f.o. scale. This seems to be good psychology, emphasizing as it does the need for checking the v.f.o. frequency by some other means when working near to band edges.

Just above the v.f.o. dial is a switch for selection of v.f.o. or crystal control. A crystal socket occupies a similar position with respect to the receiver dial. (Incidentally, an 8T-243 crystal in this socket blocks the operator's view of the receiver scale, unless the PC6 is tilted upward at an appreciable angle.) A combination S meter and tuning meter and the small built-in speaker occupy the upper right portion of the panel. A meter-function and v.f.o.-spot switch is just below the meter.

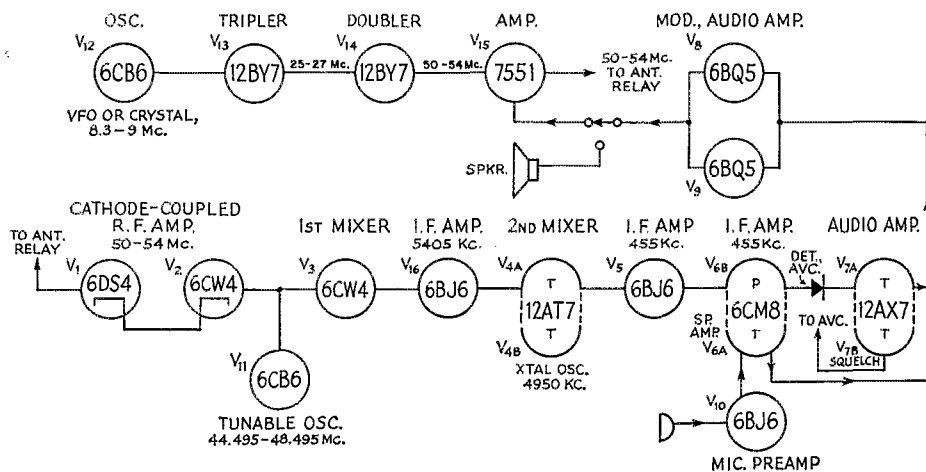
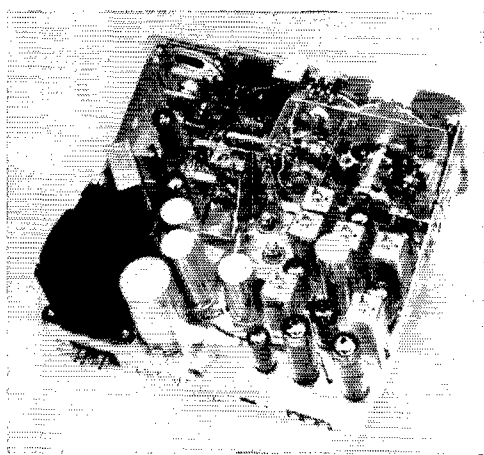
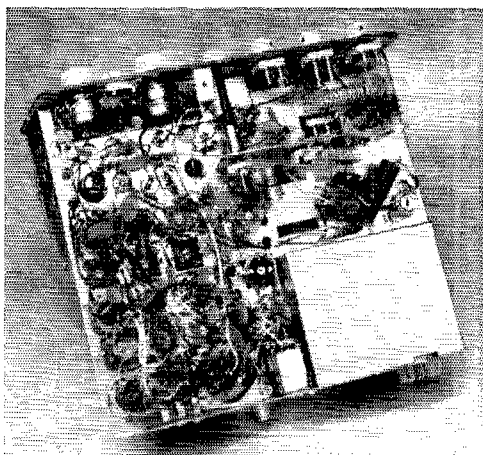


Fig. 1—Block diagram of the PC6 50-Mc. transceiver.



(Left) Interior view of the PC6, with the cover removed from the v.f.o. and receiver-tuning circuits, upper right. The balance of the receiver layout is at the lower right of the picture. Transmitter circuits are at the upper left, and power-supply components at the lower left. (Right) Bottom view of the Poly-Comm 50-Mc. transceiver. Transmitter tuned circuits are visible at the upper right. The receiver occupies most of the side of the picture.

Receiver volume and squelch level controls are at the lower left. Between them is the noise-limiter on-off switch. Smaller knobs at the lower center and right side are for receiver antenna trimmer and transmitter tuning. The built-in carrying handle swings up into the top of the case above the panel. A mounting clip for the microphone can be attached to the case at any spot the owner likes.

The power supply has silicon diode rectifiers, and provision for 115-volt a.c. or 12.6-volt d.c. input. Two power cables are supplied, choice being governed by the power source to be used at the time. The screen voltage applied to the transmitter oscillator and the tunable oscillator in the receiver is regulated by means of separate pairs of NE86 neon bulbs in series. Total power consumption is 90 watts, *receive*, and 140 watts, *transmit*, when operating from the a.c. line. On battery power the drains are 10 and 16 amp., respectively. A convenient mount for attaching to the under side of a car dash is supplied.

Performance

The PC6 is considerably better than its two-band predecessor on several counts. Stability in both the v.f.o. and receiver oscillators is much improved, the transmitter stability being as good as will be found in any but the very best v.f.o. transmitters on 50 Mc. The note, while not perfectly T9, is acceptably pure, and frequency shift of the signal by the voice modulation is substantially nil. Warm-up drift is apparent, but slight, and the short drift cycles on each transmission that characterized earlier models of this line have been all but eliminated.

Receiver sensitivity is adequate, and the selectivity is all that one could use comfortably in mobile or casual home-station operation. We

encountered no spurious signals or oscillator birdies in the course of quite a few hours of operation of the PC6. Most of this was during portions of the 1963 V.H.F. Sweepstakes, when the going is about as rough as is likely to be encountered in 6-meter work.

Still missing: provision for c.w. keying, and reception of c.w. or sideband signals. It is believed that these modes could now be accommodated, with the improved stability of the PC6. In fact, the writer proved that c.w., at least, is practicable, when a lone Maine station showed up in the contest on c.w. Quickly swinging the v.f.o. down to his frequency, we called him by pumping the push-to-talk switch on the microphone. The whisper of his c.w. was strong enough to make solid copy, and the section multiplier was added to the W1HDQ log. K1NTC said that it was by no means the worst c.w. he had to copy that day, though he was somewhat taken aback by the erratic nature of the sending! We had less luck a few contacts later when a station attempted to raise W1HDQ by calling on s.s.b. —E. P. T.

Polytronics PC6 50-MC. Transceiver

Height: 5 inches.

Width: 11 inches.

Depth: 10 inches.

Weight: 15 pounds.

Power requirements: 115 volts a.c., 140 watts on transmit, 90 watts on receive; or 12.6 volts d.c., 16 and 10 amp., respectively.

Price class: \$330.

Manufacturer: Polytronics Lab, Inc., 388 Getty Ave., Clifton, New Jersey.