



Charles Spitz W4API
Associate Editor

73 tests the

Gonset Communicator IV-220

GONSET UTILIZED A LOT of engineering skill in producing six and two meter transceivers that were identical in appearance and performance. Now they have come out with a 220 mc Communicator that conforms to this pre-set pattern. In common with other Communicator models, the IV-220 is a transceiver in the functional sense only. It utilizes a separate transmitter and receiver with the only common portion being an audio section. Just like the six and two meter versions, the IV-220 has a directly calibrated and illuminated slide-rule receiver dial, geared by a dual ratio planetary drive for fast or slow tuning. The illuminated meter can be made to read signal strength, a frequency spot, or relative power output. The new model 3357 vfo shown in the photograph may be plugged into one of the six crystal sockets on the rear apron. The vfo dial is directly calibrated for the output frequencies of any of the Communicators, and even has a provision for FM!

Unfortunately the Gonset Company no longer gives out microphones as standard equipment, and this change has been carried over to the later two meter models. The IV-220 uses a standard three contact PJ-068 jack for the mike connector.

On older Communicators it was necessary to switch meter function between receive and transmit, and be restricted to push-to-talk operation. Not so on the IV-220! Transmitting on manual will automatically change meter function from S readings to power output. A spot-

ting switch in the metering circuit shows not only your transmitting frequency, but the relative merit of your crystal by meter readings.

Receiver Section

There are many ways of arriving at 220 mc from some lower frequency, and the way that Gonset does it is interesting. The receiver portion of the system uses one of the new 6^{FY5} frame grid tubes as an rf amplifier, which is responsible for the low-noise front end. A 6^{J6} oscillator with an overtone crystal operating at 65.667 mc multiplies to 197 mc for injection into another 6^{FY5} which acts as the first mixer. The crystal controlled conversion thus achieved provides for excellent frequency stability. The second oscillator, a 7059 triode section, is tunable over the frequency range of 25.3 to 30.3 mc, and combines with the first *if* frequency of 23 to 28 mc. A 6^{AV6} is used as a second mixer, and produces a fixed frequency output of 2.3 mc. The pentode half of the 7059 second oscillator is used as another oscillator when crystal controlled fixed frequency operation is desired. These crystals may be selected from 6.9 to 8.566 mc so that they can be tripled to 20.7 or 25.7 mc for injection into the second mixer.

The 2.3 mc second *if* signal is coupled through a double-tuned bandpass transformer to the third mixer (a 6BE6) where it is heterodyned against a 2755 kc oscillator in order to produce the desired 455 kc third conversion frequency. Two stages of *if* amplifica-

tion are employed at 455 kc. Six tuned circuits in these stages are responsible for the outstanding selectivity. A vacuum diode (one-third of a 6AV6) is used as a detector, while the other portions are used as a rectifier to furnish delayed AVC to the rf amplifier. One-half of a 6AL5 is used as a conventional noise limiter, and the other half is used for squelch operation.

The triode section of the 6AV6 is used as the first audio amplifier. This audio is fed into the triode section of a 7059 in the modulator, and then into one of the 6BQ5 modulators that functions as the audio output amplifier as well. An audio jack is available on the rear apron and may be used for either headphones or external speaker.

Transmitter Section

The transmitter uses the plentiful and low priced 8 mc crystals or a vfo for the frequency source. The crystals connect to the input of a broad-banded 12BY7 that triples to 24 mc. A second 12BY7 triples between 73.332 and 75 mc, and is followed by a 6939 that triples to the 220 mc operating frequency. This signal then gets amplified by a pair of 6360's in push-pull. The Gonset people certainly had simplicity of operation in mind, because the only transmitting controls are plate loading and plate tuning.

The modulator uses the pentode section of a 7059 as a speech amplifier and the triode section as a phase inverter. The 7059 is followed by a pair of 6BQ5's operating in push-pull. This modulator is enough to provide 10 full watts of class AB₁ audio for real high level plate modulation.

The antenna changeover relay is built right in here, so it'll save you the expense of buying one.

Power Supply and Control System

Just as in the six and two meter models, the universal power supply uses two 2N1554 transistors for 12 vdc operation. Regular 117 vac can be used by merely changing the line cords in back of the set. The secondary winding of a two way power transformer feeds a power silicon diode bridge rectifier with a regular capacitor input filter. The push-to-talk relay changes the antenna connections between transmit and receive, as well as B plus from the modulator to the receiver, and ground from transmitter keying to speaker.

Observations

Even though the IV-200 was given its test

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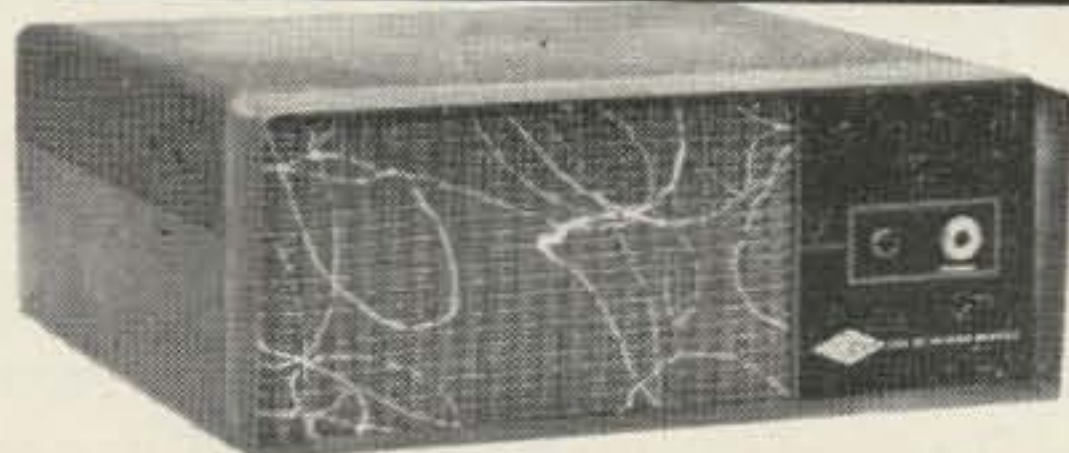


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For additional information contact your
Gonset Distributor or write Dept. 73-11

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runs with a poorly oriented 12 element Yagi, good signals were sent as far as 50 miles. My thanks go to the many hams who unwittingly took part in the tests with their unsolicited observations and constructive criticisms, not realizing the help they were giving.

Many good 5 x 9 contacts were held with Ernie, W3UJG in Maryland, and with other hams through Virginia and the District of Columbia. To give an idea of band possibilities, W3UJG has been working twice a week schedules with W3ARW 120 miles away in Scranton. This has been going on for years . . . and they've never had any QRM.

Scope patterns were clean as on the six and two meter versions. A better than average converter was placed ahead of a 75A4 receiver, and pitted against the IV-220. Every station that was heard on the 75A4 was heard on the IV-220. Frequency readings were within the parallax of the dial configuration; for practical purposes it was as accurate as anyone could desire.

I suppose that if modifications were to be made, a bfo would be one of the first things on the list. It sure would help in locating weak stations and working CW. Many veterans of the band may applaud the fact that there is no gain control, but a screw driver adjust positioned to discourage the over-modulators would have been an aid to my weak voice, provided more gain were available.

All on-the-air reports were very good without having to solicit them. All controls function uncritically in a manner one would expect from low frequency professional equipment. Shorting the antenna terminals on receive did not disclose any self-generated birdies.

It cannot be emphasized too much that there is a lack of activity on the band. The band must see more operation if we are to keep it and we all can help by devoting some time to these higher frequencies of ours. I am sure the availability of the Communicator IV-220 will do much towards that end on 220 mc. Amateurs who have not ventured on the

band will find much pleasure, companionship and the thrill of joining the pioneers in this portion of the spectrum. . . . W4API

Specifications

Frequency Range	: 219.7 mc to 225.3 mc
Frequency Control	: Front panel selection of 6 crystals, 8 mc and/or external VFO
Final Power Input	: 20 Watts, DC Plate.
Power Supply	: 12.6 VDC; Receive 7.2 amps, transmit, 10.3 amps. 117 VAC; Receive 87.5 watts, transmit 110 watts.
Modulation	: High Level, 10 watts, amplitude, 100% with high level clipping.
RF spurious and harmonic attenuation	: Down 50 db
Tuning Indicator	: Panel mounted meter for relative RF output or receive S meter.
Receiver Sensitivity	: 1.0 uv for 10db S/ N/N ratio.
Receiver Tuning	: Rear apron switch for one fixed crystal frequency or manual.
Triple Conversion	: 1st Conversion crystal, 2nd manual tuning, 3rd six tuned circuits.
Spurious Rejection	: Main image down 48db.
Noise and Hum	: Down 40db
Squelch Sensitivity	: 0.1 uv to 50 uv
Audio Output	: 2 watts nominal
Dimensions & Weight	: 5" high, 12½" wide, by 11" deep, 21.8 lbs
Power Supply	: 2-way 117 VAC/12 VDC built-in, solid state.
Microphone	: High impedance push to talk
Price	: Model 3351 Transmitter-Receiver \$394.50 : Model 3365 Universal Mounting Kit 3.95 : Model 3152 Telescoping Antenna 3.95 : Model 3363 Carrying Bag 12.00 : Model 3250 Ceramic Microphone 9.95 : Model 3357 VFO 69.50
Manufacturer	: Gonset Divison, Young Spring & Wire Corp., 801 South Main St., Burbank, California.

In Defense of the Operator

Douglas G. Hedin KØOFB/2
219 Blanchard Blvd.
Syracuse 9, New York

"The amateur that does not build his own equipment does not deserve to have a license!" These sentiments echo mockingly through the hallowed halls of the best (and worst) radio amateur circles. Unfortunately, though they are uttered with deepest conviction, they are based more on misguided sentiment than on