

## The Gonset G-76 Transceiver

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**T**HOUGH the G-76 is at home in either fixed or mobile operation, it is obvious that the mobile amateur was very much in mind when this unit was on the drawing board. The small size of the front panel (12 $\frac{5}{8}$  inches wide and 5 $\frac{1}{8}$  inches high) considerably eases the problem of finding available mounting space under the dash of modern cars. The compact grouping of controls is another contribution to greater mobile operating.

The G-76 is a transceiver by definition only. Other than the sharing of 1 $\frac{1}{2}$  audio tubes and a common power supply, the receiver and transmitter function independently of each other. In fact, it is necessary to zero beat the v.f.o. to the receiver frequency if transmission and reception on the same frequency are desired. This arrangement provides the flexibility required for convenient phone DXing where the receiver may be tuned to the DX portion of the band while the transmitter is operated in the U. S. allocation.

### Receiver

The receiver is a "ham-bands-only" type in that it covers only the amateur assignments in the bands from 3.5 mc to 54 mc. The sensitivity of the receiver on the lower frequencies is quite satisfactory though there appeared to

The G-76, in a very successful effort to reduce the number of panel controls, incorporates the AUDIO and R.F. gain controls into one control. Switching is accomplished automatically. In the s.s.b. and c.w. position of the receiver function control, the volume control becomes the r.f. gain control. In the A.M. position the r.f. gain is fixed and it then becomes the volume control. The a.n.l. is activated in either operating mode by pushing this knob in. The b.f.o. has a convenient marking to indicate the correct setting for either upper or lower sideband reception.

An outstanding feature of the receiver is its inherent stability. It performs extremely well, in this respect, on both c.w. and s.s.b. where it would be noticed most if this consideration had been neglected. There was a tendency, however, toward premature overload when operating on c.w. and s.s.b. just prior to the point where sufficient audio output was available, on the unit reviewed. This condition was not observed on a.m. operation.

The antenna input, common to both receiver and transmitter, is designed for 50 ohm unbalanced (coax) line. The antenna change-over relay is included in the G-76 circuitry, and is automatically operated by the front panel TRANSMIT switch.



Front view of the G-76. Controls from l. to r., along the bottom edge: dual purpose r.f.-a.f. gain, function switch, calibration reset, rcvr. band switch, grid tuning, v.f.o. spot switch, 80-10 m v.f.o. In the second row from l. to r.: T-R switch, b.f.o. set, main tuning, drive switch, plate tuning and loading. The transmitter function switch, final bandswitch and main on-off switch are at the upper right.

be some lack of sensitivity on six meters. Recent correspondence from the manufacturer reports that present production has reduced the a.v.c applied to the first i.f. stage and corrected this condition. The unit your reviewer examined also seemed to be extremely critical in tuning on the higher frequencies. Gonset advises that a small amount of capacitive coupling has been added between the primary and secondary of each i.f. transformer to broaden the response. It is to be expected, therefore, that present production units will not be as critical in tuning on the higher bands.

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In addition to oscillator temperature compensation for both transmitter and receiver, the manufacturer claims a tolerance of as much as a 30% decrease or a 50% increase in plate supply and heater voltages with negligible frequency shift.

The first i.f. is 2065 kc and the second i.f. is 262 kc. Selectivity is fixed, and there is no adjustment or change that can be made by the operator. The overall selectivity is approximately 3 kc at 6db down, and 14 kc at 60 db down.

The 100 k.c. crystal calibrator is an accessory, and was not included in the unit reviewed.

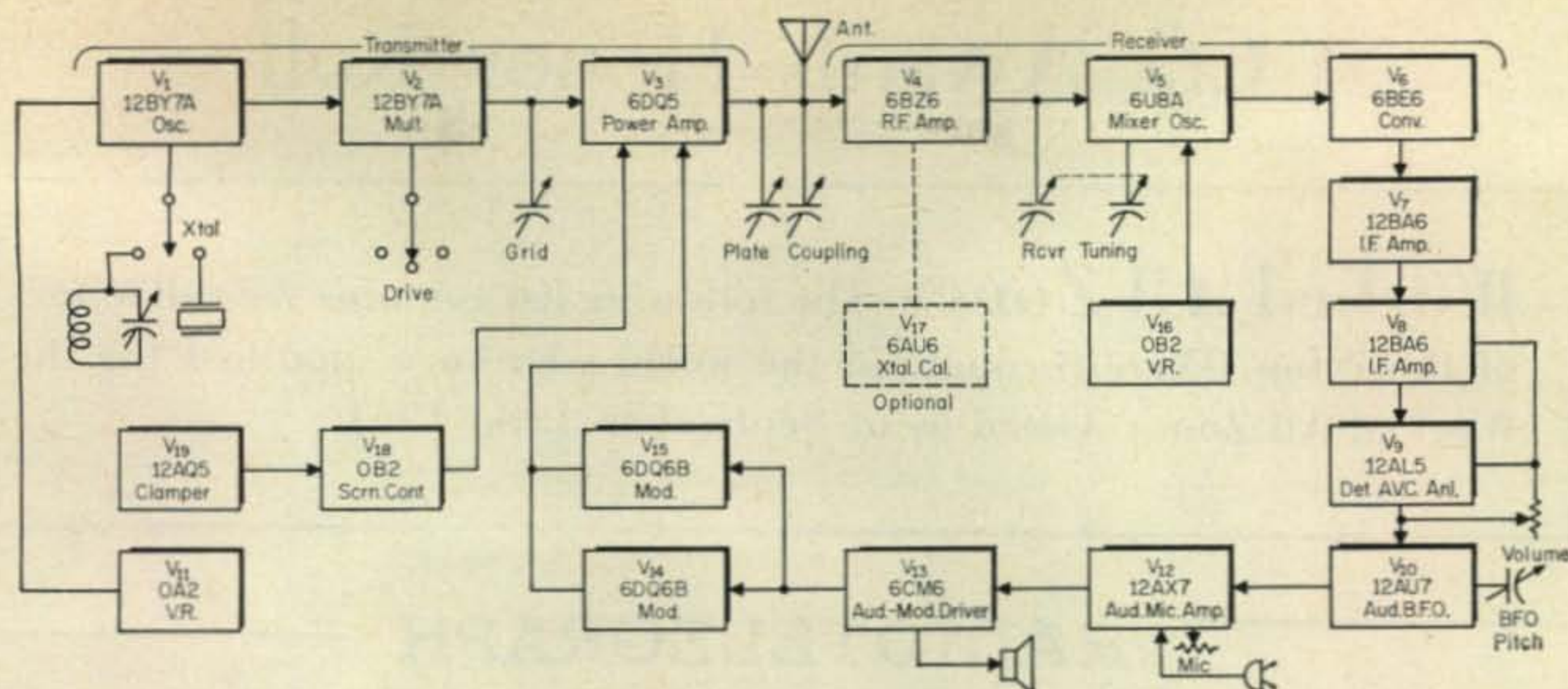


Fig. 1—Block diagram of the Gonset G-76 100 watt multi-band transceiver.

### Transmitter

All reports, both on c.w. and a.m., have been excellent. The v.f.o. is extremely stable, and the "spotting" control makes it very easy to zero-in at any frequency to which the receiver is tuned. Either v.f.o. or crystal control may be used on all bands from 3.5 to 29.7 mc, while crystal control must be used on the 50 mc band. The v.f.o. does not cover the 8.334 to 9.000 mc range required for this band.

A 6DQ5 serves as the output power amplifier and it is rated by Gonset at 100 watts input on a.m., and 120 watts input on c.w. A pair of 6DQ6s do a fine job in providing the a.m. modulating power. A 100 watt light bulb, used as a dummy load, was lighted to approximately half brilliance on the lower frequencies.

External provisions must be made for monitoring when on c.w.; further evidence that the G-76 was designed with the mobile a.m. operator in mind. The cathode of the final amplifier is keyed on c.w., and curiosity as to the voltage present across the key prompted your reviewer to measure the potential at this point. It was an unhealthy 350 volts. Upon calling this to the manufacturer's attention he advised that all future units would be keyed in the cathode of the 12BY7A driver, and that two additional tubes had been added to the transmitter circuit; a 12AQ5 to clamp the final amplifier screen, and an OB2 voltage regulator, also in the screen circuit. Gonset has provided a new schematic, and on the basis of the changes indicated it appears that any potentially lethal voltage has been eliminated from the key.

The pi-network amplifier tuning controls also tune the receiver r.f. amplifier circuit, and once adjusted for optimum transmitting conditions should not be de-tuned in an effort to peak them for receiving conditions. Though they tune quite sharply when loading the transmitter, they are broad enough to amply cover each amateur band without the necessity for re-tuning.

### Power Supplies

Two matching power supplies are available for use with the G-76, and each must be purchased separately. The d.c. supply is designed for 12 volt service, and the 115 volt a.c. supply includes a speaker and a headphone jack. The a.c. supply was provided for review. For several days, and a good number of contacts, this power supply functioned perfectly. Then trouble developed in the low voltage (280 volts) supply. Two silicon rectifiers were found shorted and they in turn had blown the line fuse on one side. Replacing them with heavier duty units provided satisfactory operation for a few days before the new rectifiers shorted. A telephone inquiry to the manufacturer brought the reply that current production was now incorporating units with a higher p.i.v. Samples of the new rectifiers, provided by Gonset, have been functioning now for several months without failure.

With the changes now incorporated in the G-76 I believe that this unit is everything it is represented to be. It is unquestionably a well designed and carefully built transceiver for the mobile a.m. amateur that will provide very nearly the ultimate in flexibility and operating convenience.

The experiences outlined here, in the review of the G-76, demonstrate the objectivity of the reviews published in *CQ* and the service that they can perform for the amateur fraternity. Each unit reviewed is tested under actual operating conditions, just as you would use the equipment, for at least a month and often longer. While consideration is given to circuit configurations of unusual design, their ultimate worth must bear the brunt of on-the-air performance, and not merely a dissertation on their technical novelty. Every effort is expended to insure that the manufacturer's equipment is fairly represented to you, and that on your behalf, your interests are brought to the attention of the manufacturer. Anything less would almost surely be a waste of your time and this space.