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The Clegg 66'er Six Meter Transceiver

Interested in 6 meters? The Clegg 66'er from Squires-Sanders does an outstanding job and is an ideal rig for the ham who operates on our 50-MHz band. This transceiver contains a stable and sensitive receiver and a 22-watt transmitter in one compact package. It was designed specifically for the six meter band and will cover the amateur frequencies as well as those for MARS, CAP and Civil Defense. In addition, both the 117 Vac and 13 Vdc power supplies are included in the package.

The dual conversion superhet receiver is extremely sensitive and less than $0.35 \mu\text{V}$ signal will provide a signal plus noise to noise ratio of 10 dB. The basic frequency range is 49.9 to 52.1 MHz, but for special applications, an expanded tuning range is available on special order. The two *if* frequencies of 10.7 MHz and 456 kHz provide 8 kHz selectivity and result in rejection of spurious responses by more than 60 dB.

The receiver is relatively straightforward with a 6EH7 in the front end, followed by a 6DJ8 converter to the 10.7 MHz *if* and a 6BA6 *if* amplifier. The injection frequency for the first conversion is provided by a 6KE8 VFO/buffer; this combination is quite

satisfactory and results in less than 3 kHz drift per hour after a 20 minute warmup. The 10.7 MHz *if* signal is converted to 456 kHz in a crystal controlled 6BE6 converter and further amplified in another 6BA6 stage, followed by a 12AL5 detector, a 6AN8 audio amplifier and a 6AQ5 audio power stage.

The AGC voltage generated in the 12AL5 detector stage is applied directly to the two *if* amplifiers and the 2nd mixer and through a Zener diode to the rf amplifier; in this way no AGC is applied to the input stage until comparatively large signals exist. The other half of the 12AL5 is connected as a series gate impulse limiter; it is very effective in cutting down ignition and other types of impulse noise.

A semiconductor diode is connected as a series squelch diode between the output of the detector and the input to the first audio stage. Whenever the cathode of this diode is more positive than the anode, the audio sections of the receiver are effectively disconnected from the front end of the receiver. Since the anode of the squelch diode is connected to the screen voltage of the

6BA6 456 kHz *if* amplifier through a decoupling network, the voltage on the anode varies automatically as the screen voltage follows the AGC level. The cathode of the squelch diode is connected to a voltage divider across the B+ supply; the cathode voltage (and therefore the squelch level) is set to the desired threshold with a potentiometer in this divider.

No tricks in the transmitter section of the Clegg 66'er either; time proven circuitry starting off with the triode section of a 6KE8 in a Colpitts type crystal oscillator. The 25 to 26 MHz harmonics of this oscillator are coupled to the pentode section of the 6KE8 through a bandpass coupler; this pentode is operated as a frequency doubler to 50 to 52 MHz and is bandpass coupled to the 12BY7 driver stage. Considerable reduction in undesired outputs is obtained by using bandpass coupling and straight through operation of the six meter driver stage.

In the final rf power amplifier, a 2E26 provides 13 watts output with 22 watts input, an efficiency of 59%. This final stage is plate and screen modulated by a pair of 6AQ5's. By carefully choosing the design constants in the modulator circuit, high frequency splatter components are completely filtered out. In addition, the operating level of the 6AQ5's was chosen so that grid clipping and plate bottoming occur at approximately 10 watts audio. Therefore, over-modulation is prevented while providing effective speech clipping at the 90 percent level.

The triode and pentode sections of a 6AN8 are used respectively as a microphone amplifier and audio driver. The pentode actually does double duty in the 66'er; in the receive mode it operates as an audio amplifier.

One of the big advantages of the Clegg 66'er is the built in power supply which will operate from either 117 Vac or 13.8 Vdc by simply plugging in the correct plug. Furthermore, either positive or negative ground dc systems may be accommodated by a simple rewiring job. The versatility of this power supply is a direct result of the two winding transformer which it uses; in the ac mode, the 117 Vac is connected to one of the two primary windings on the transformer. In the dc mode, the 13.8 Vdc drives a two transistor inverter which is connected to the other primary winding.

The Clegg 66'er transceiver is one of the most versatile six meter transceivers that this reviewer has seen. It fits right in with fixed station operation, mobile operation or even for mountain topping during VHF contests. And—if you're not satisfied with 22 watts input, you can always plug it into the Appollo linear. Zingo—675 watts dc!

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Receiver

Frequency coverage:	49.9 to 52.1 MHz.
Sensitivity:	Less than 0.35 μ V for 10 dB signal plus noise to noise ratio.
Spurious responses:	Suppressed more than 60 dB.
AGC:	More than 10 db compression for 40 db signal increase.
Selectivity:	8 kHz.
Tube lineup:	6EH7 rf amplifier, 6DJ8 1st mixer, 6KE8 oscillator/buffer, two 6BA6 <i>if</i> amplifiers, 12AL5 detector/ANF, 6AN8 audio amplifier, 6AQ5 audio output, and three semiconductors.
Features:	Dual conversion superhet with <i>if</i> 's at 10.7 MHz and 456 kHz; less than 3 kHz drift per hour after warmup; ANL, adjustable squelch; greater than 2 watts audio output.

Transmitter

Frequency coverage:	50 to 52 Mhz with external crystals or VFO.
Crystals required:	8.333-8.667 MHz, 12.5-13.0 MHz, or 25.0-26.0 Mhz in HC-6/U holders.
Power input:	22 watts.
Power output:	13 watts.
Output impedance:	52 ohms.
Harmonic and spurious outputs:	Harmonics suppressed more than 50 db; spurious outputs other than harmonics suppressed by more than 66 dB.
Tube lineup:	6KE8 crystal oscillator/frequency multiplier, 12BY7 driver, 6AN8 speech amplifier, two 6AQ5 modulators, 2E26 rf power amplifier.
Features:	100% modulation with more than 10 dB speech clipping with a -56 dB microphone; audio response ± 2 dB from 300 to 3000 Hz; exciter stages broadband and multituned for rapid QSY and low spurious and harmonic outputs.
Power supplies:	117 Vac, 50/60 Hz and 13.8 Vdc supplies included.
Power requirements:	50 W on receive; 85 watts on transmitter.
Size and weight:	12" x 12" x 6½". 19 pounds.
Price:	\$249.95.