

# THE GERMANIUM MW & SHORTWAVE RADIO CRAFTED FROM AF178's AND PUSH-PULL OC16's

Dr. H. Holden.

This brief article and two pictures describe a radio built from unique and impressive germanium transistors from electronics history.

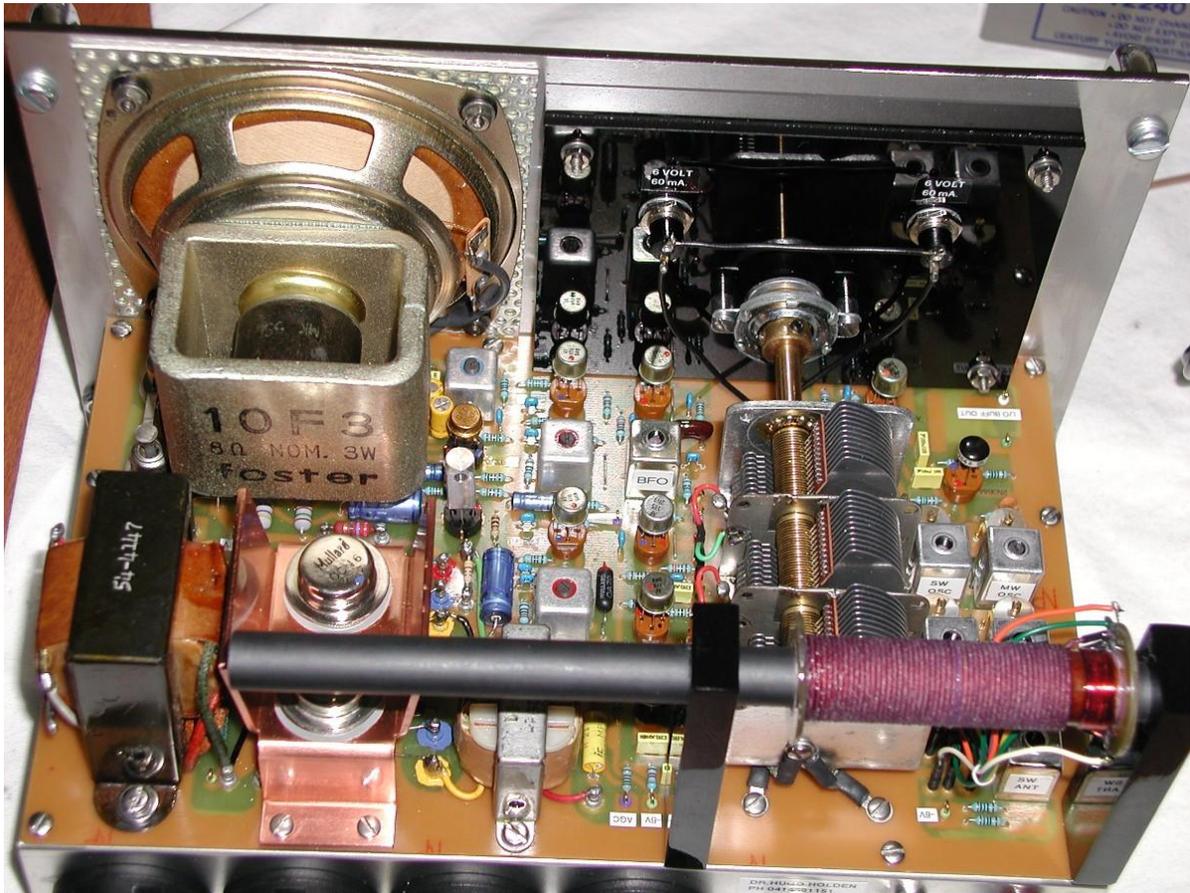
The radio is 12V operated from internal batteries or external 12V DC source. Both types of power can be used simultaneously as the power sources are mixed with two very low forward voltage drop germanium rectifiers, the Philips OA31.

The MW band covers 550KHz to 1600KHz, shortwave 6.5MHz to 19 MHz and has a BFO based on the AF178. The radio has a 3 gang tuning condenser and a tuned RF stage. All of the RF transistors are the spectacular AF178. Each is placed in a mil spec socket with gold plated contacts. The audio preamp is a GET880, the audio driver an AC188. One silicon transistor was used, a Signetics 2N3644 as a buffer to drive an external local oscillator BNC connector output for a frequency counter to display the tuned frequency.(the counter has an offset equal to the IF frequency)

The two output transistors are OC16's on a copper heat-sink. The speaker is the famous 4 inch Foster 10F3. The dial is an Eddystone reduction drive unit with epicyclic ball bearings. A "light box" was made to retro-illuminate the dial. The entire radio circuit in this case was crafted on one PCB which was attached to the top of an aluminium chassis.

The ferrite rod is ½ inch diameter, the winding is cotton covered 60 strand Litz. All of the coils except the IF transformers and the audio driver and audio out transformer were custom designed & made for the task. The hardware is mainly stainless steel, including all screws/nuts. The front panel is 3mm thick stainless, the speaker grill is lacquered aluminium:





The 4 panel mount battery holders are just visible on the lower edge of the picture each contain two C cells. The performance of this type of radio is practically identical to a communications radio like the Eddystone EC-10, except for the higher power 4 watt audio output stage.

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