



RR-33 Country of origin: USA

DATA SUMMARY

Organisation: CIA, USA.

Design/Manufacturer: R&D Laboratory.

Year of Introduction: 1959.

Purpose: Radio receiver for agents.

Circuit features: Fully transistorised crystal controlled dual conversion superheterodyne; variable 1st IF 2.795 - 2.805MHz and second IF 455kHz. AM only.

Frequency coverage: 3-12MHz.

Sensitivity: 4-6 μ V at 10dB S/N ratio.

Semiconductors: 2N407 3x, 2N409 3x, 2N411, 2N544, 1N87G; (3x 2N128 in the convertor section).

Power: Four internal 1½V AA batteries or 4 type ZM-9 Mallory mercury cells; external 6V DC power source.

Consumption: 10 to 20mA depending on audio gain.

Size (cm): Height 13.7, length 8.9, width 4.5.

Weight (g): 570.

Accessories: 15 Ohm earphones, crystals, 10m aerial wire and counterpoise, 6V battery cable fitted with a 2-pt plug.

REMARKS

The RR-33 was a miniature crystal controlled general purpose agents AM receiver, most probably issued for listening to the so-called 'number stations'. The photos of the receiver depicted in this chapter were taken from a RR-33 found in possession of a captured American agent in the GDR in the late 50s. The fully transistorised dual conversion receiver, built into a small metal case, was powered by four internal AA dry batteries which lasted 100 hours, mercury cells with an operational life of 400 hours, or an external 6V DC source. A fine tuning knob 'F' allowed ± 5 kHz in frequency, mandatory to tune away spurious signals which were a serious drawback of the simple design. The explanation of the letter P engraved on top of the RF tuning knob was probably 'pre-tuning' as it controlled only the aerial input circuit, or as Pete McCollum suggested, readily available stock knobs fitting to the RF tuning condenser C32.

Since the urgency of the requirement for the RR-33 could not tolerate the time required to develop a complete receiver, a commercially available transistorised portable, the Zenith Model Royal 500-D, was modified to cover the 3 to 12MHz range and repackaged.

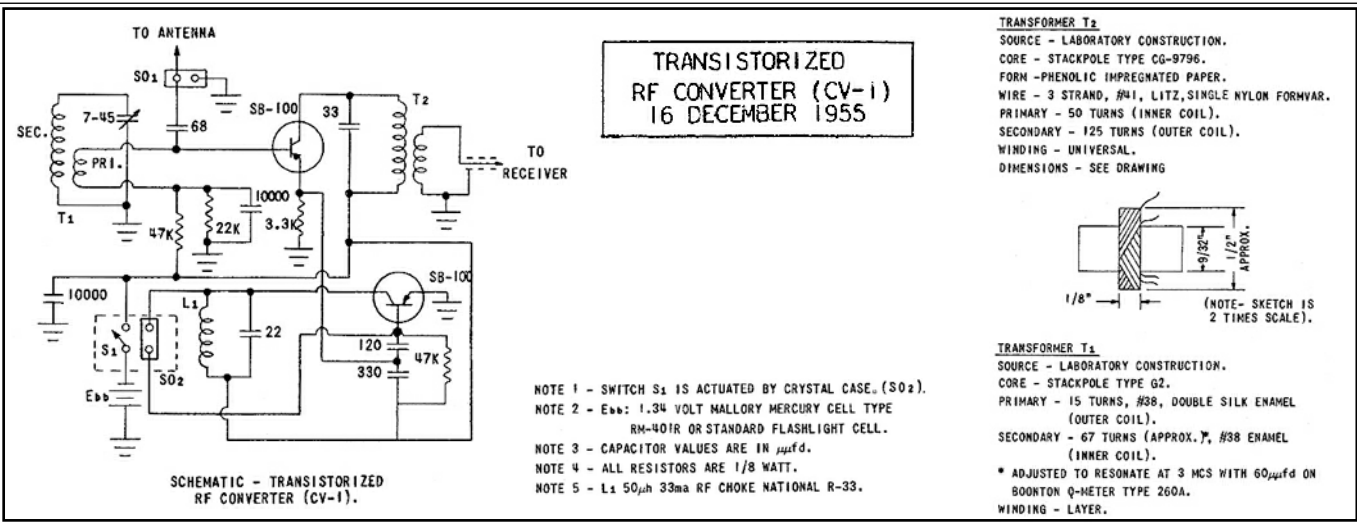
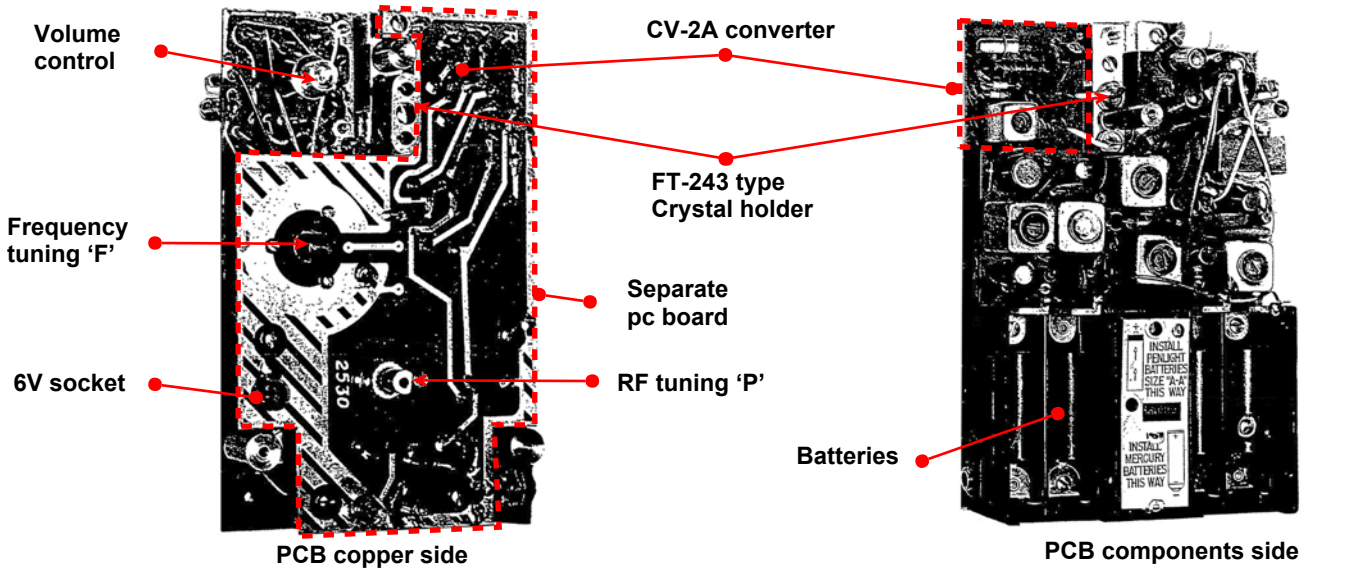
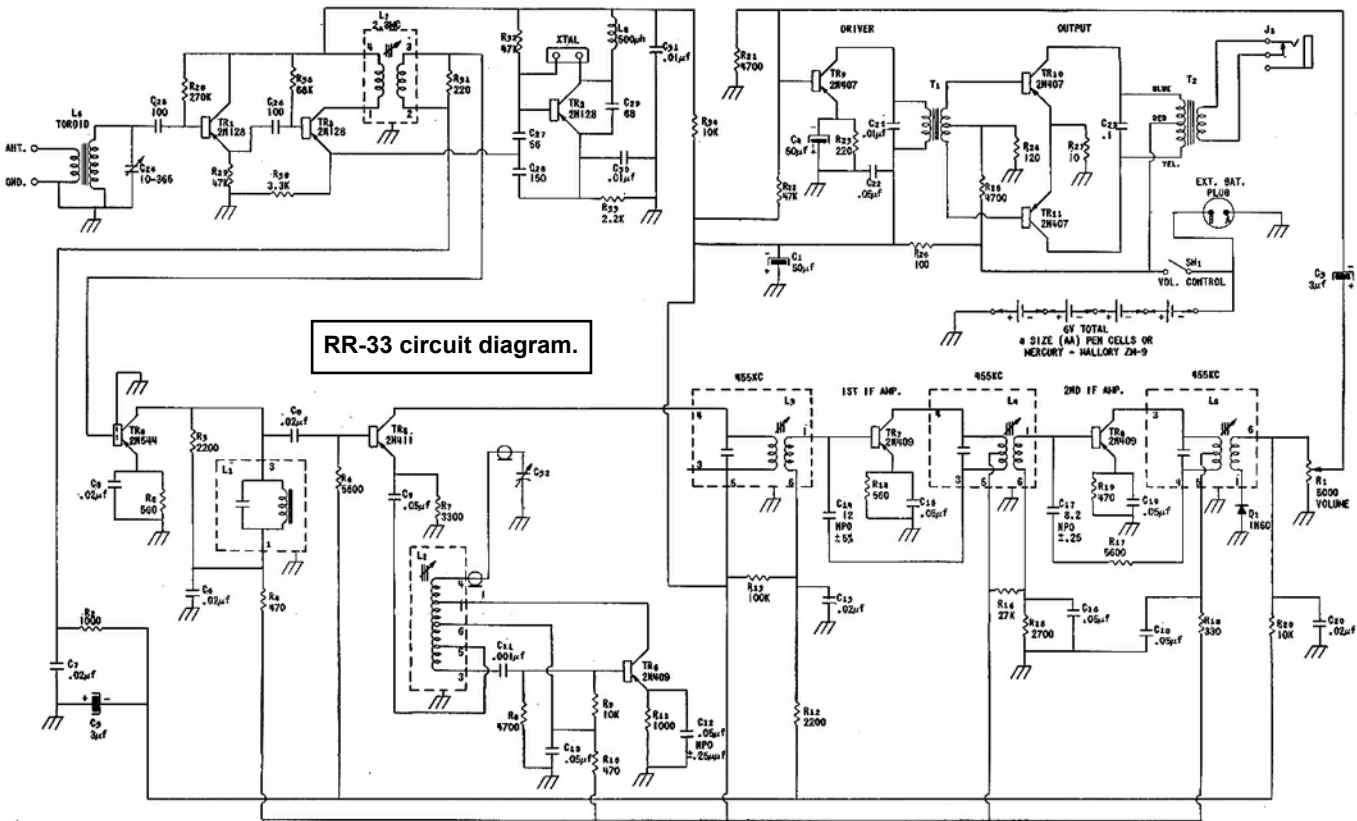
A circuit somewhat similar to the CV-2A converter* was used in the RF section to provide double conversion. To avoid the broadcast band, the first IF was set to 2.8MHz. The second IF was left at 455kHz which was normal for the Zenith Model Royal 500-D.

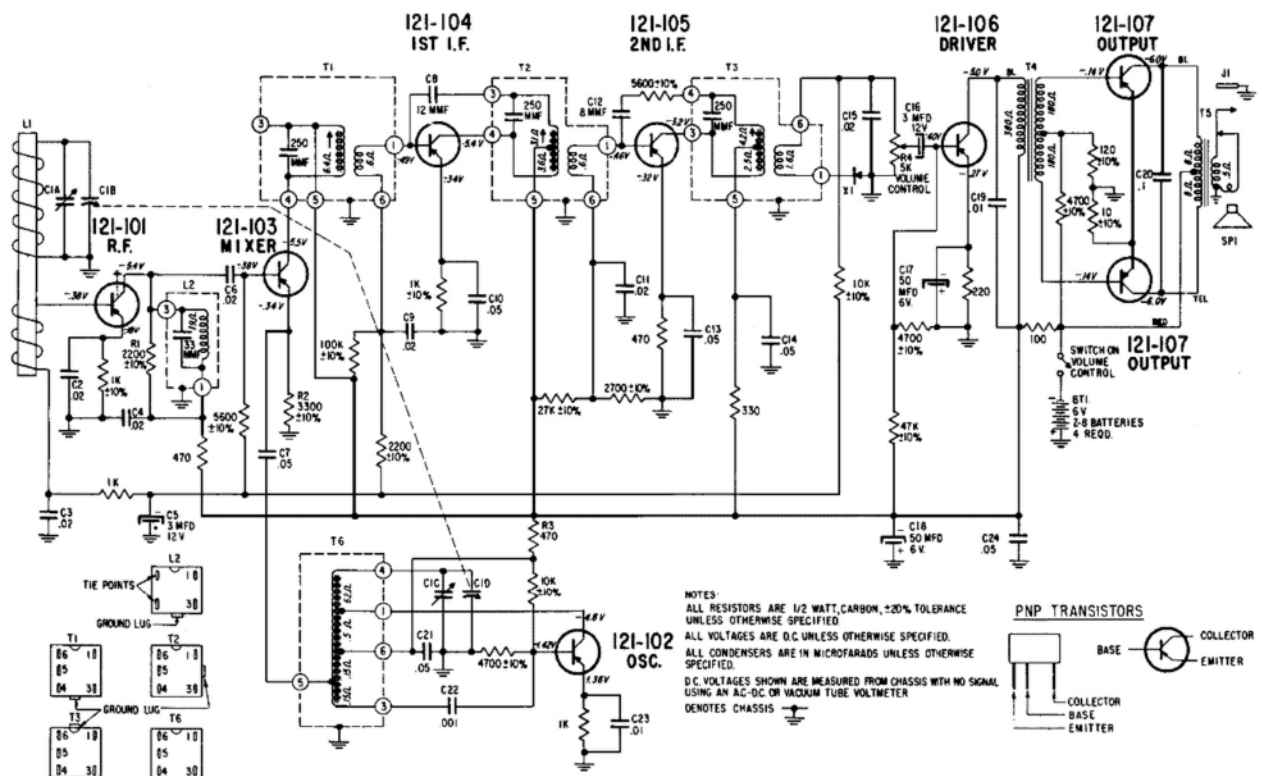
A second printed circuit board on which were mounted the modified CV-2A components and both frequency- and RF tuning condensers was sandwiched to the modified Zenith 500-D board. The simplicity of the circuitry used and the resulting low isolation gave rise to some objectionable spurious response. The frequencies to be avoided in preparation of signal plans were determined and listed in the instruction manual. Forty receivers were modified and delivered.

* The CV-2A (and earlier developed CV-1) was a miniature crystal controlled single frequency converter allowing an agent to receive messages broadcast on shortwave, down converted to medium wave.



Agents receiver RR-33 was based on Zenith Model Royal 500-D transistor receiver.





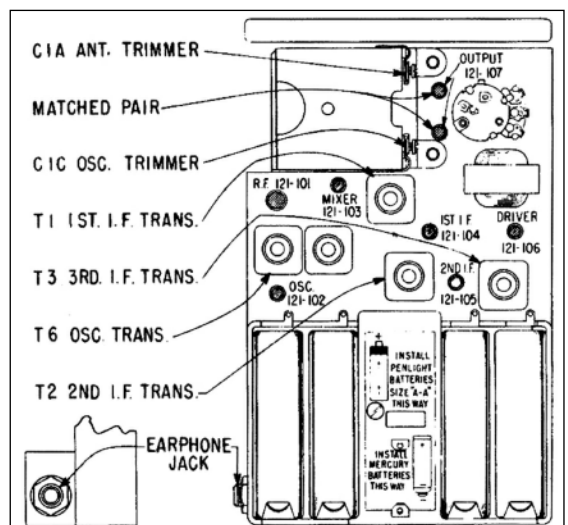
Circuit of original Zenith Model Royal 500-D receiver.



Printed circuit layout of the Zenith Model Royal 500-D all transistor portable medium wave receiver.

The RR-33 was based on this, at the time, very popular and successful commercial receiver.

With its RF stage the receiver had a better sensitivity than its competitor models. It was for this feature also advertised as 'long distance' radio.



The crystal frequency for use with the RR-33 was the operating frequency plus or minus 2.8MHz. Caused by the simplicity of the circuit, harmonics of the second local oscillator produced objectionable spurious responses.

It was for this reason recommended that no frequency assignments were made on or within ± 50 kHz of the followings frequencies:

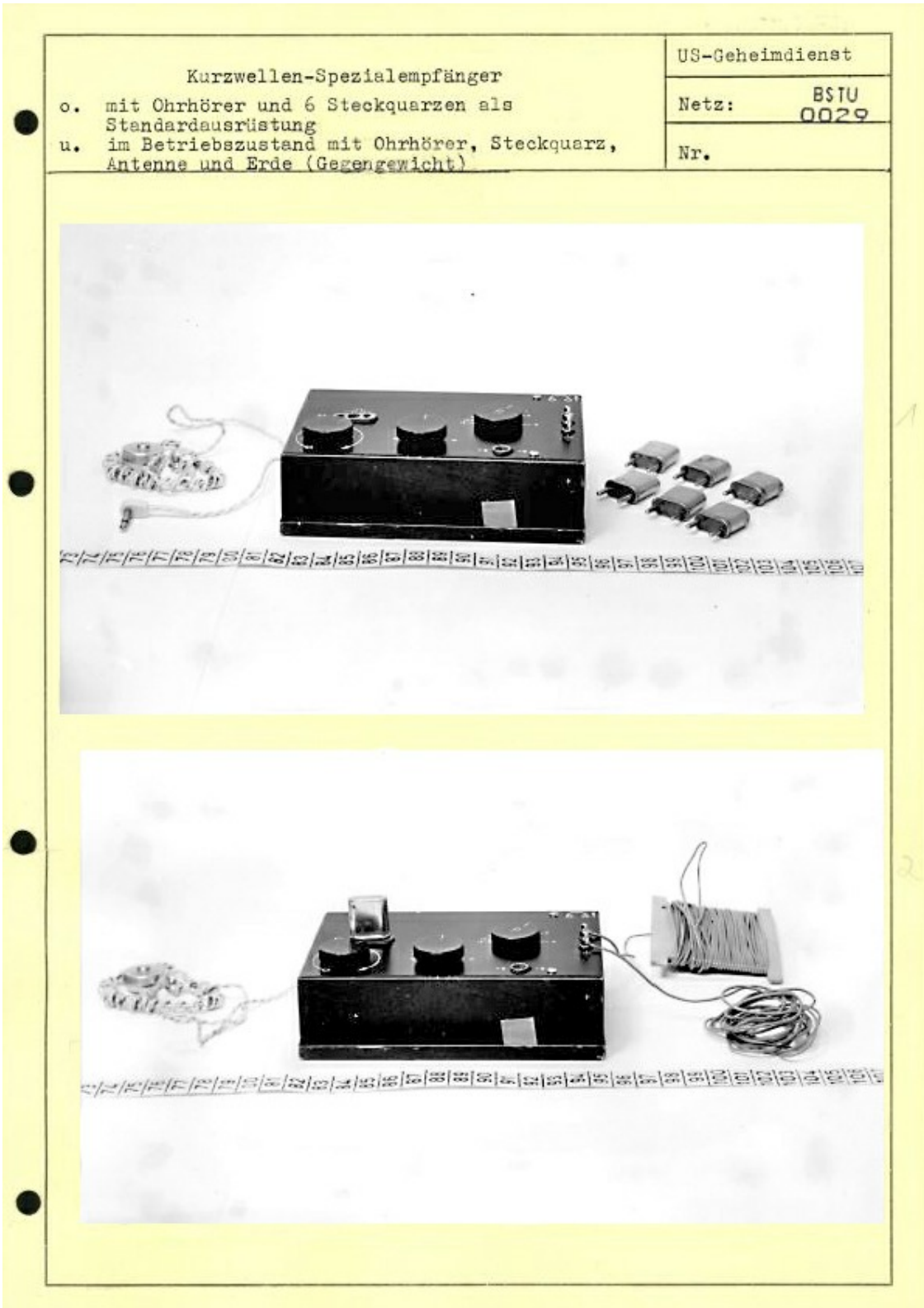
4325, 4960, 5145, 6580, 7035, 7490, 8925, 9380, 11370, 11825kHz

References:

- Correspondence with Pete McCollum, N0TDM, USA.
<http://militaryradio.com/spyradio/>
- Photographs, MfS Abt. II data sheet and information courtesy Detlev Vreisleben, DC7KG, Germany.
- Operating instructions and supplementary service manual of Zenith Model Royal 500-D all transistor portable radio.

Documents via Pete McCollum:

- Declassified document CIA-RDP78-03535A002000020003-3.
- Declassified document CIA-RDP78-03535A002000020014-1
- Declassified document CIA-RDP78-03535A000500070038-7.



Translation of the German text of a GDR MfS Abt. II data sheet of the RR-33 agents receiver.

<p>Special Short Wave Receiver</p> <p><i>Top: with earphone and 6 crystals as standard issue.</i></p> <p><i>Bottom: in operational use with earphone, crystal, aerial and earth. (Counterpoise).</i></p>	<p>US-Secret Service</p>
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