V-100
Country of origin: USA

DATA SUMMARY

Organisation: Soviet Union.

Design/Manufacturer: Pilot Radio, USA.

Year of Introduction/manufacture: 1942-1945.

Purpose: General purpose.

Transmitter: CW, MCW, AM.
Circuit features: MO/CO, buffer/doubler, RF PA, modulator/ALC, AF amplifier.
Frequency coverage: 3-7MHz in two ranges. The dial was calibrated in 25kHz spaced channels 120-200 and 200-280. **) See note below.*
Four standard crystals on channels 130, 160, 190, 220.
RF output: 15W in CW and 5W in R/T. Modulation 95%.

Receiver: Single conversion superheterodyne,
Circuit features: RF, Mixer/LO, IF stage, Det/AVC/AF, BFO, AF output.
Frequency coverage: 3-7MHz. Calibrated in channels.
Sensitivity: ½ µV CW; 5 µV AM.

Range: CW: vertical rod 75km; dipole 100km.
AM R/T: 2½m telescopic 10km; vertical 35km; dipole 50km.

Aerials: Telescopic rod aerial 2.4m. Dipole supported on two 6.7m masts; vertical mast 6.1-9.7m;

Valves: Transmitter: 6J5, 6V6, RK25, 6SS7, 6ST7.
Receiver: 1N5GT (2x), 1A7GT, 1A5GT (2x), 1H5GT.

Power Supply: *Transmitter:* hand generator providing 500V HT at 100mA and 6.3V LT at 2.5A.
Receiver: Dry batteries carried in the bottom of the set: 2x 45V and 2x 1½V, or hand generator. Russian equivalent of the batteries: BAS-80 HT and 4-NKN-10 accumulator.

Dimensions (cm): Height 37, length 25½ , width 47.

Weight in transport bag (kg):
Set 22.7, hand generator 15.7, aerials 18, remote control 6.

REMARKS

The V-100 and later versions V-100-A and V-100-B were general purpose portable short wave transmitter-receivers, primarily used for communication in the field.

V-100 stations, manufactured by Pilot Radio Corporation (Long Island City, NY) from 1942 till 1945, were developed for and supplied to the USSR. This was not under the Lend Lease agreement as might be expected, but under a special contract with AMTORG, an American corporation with Soviet capital based in New York.

All panel markings on the V-100 radio stations, accessories and technical documentation were in the Russian language, just the names of the companies associated in the production were in English (e.g. Pilot Radio, Atlas Aircraft).

The transmitter was powered by a hand generator with foldable seats type GN-45; the receiver from dry batteries, or by the GN-45.

The RF output power of the transmitter was 5W on AM with a modulation depth of 95%, and 15W in CW mode.

A complete station was equipped with several types of aerials: a 2.5 meter vertical telescopic rod; a dipole suspended on two 6.7 meter sectional masts; the supporting masts could also be used as a separate 6.1 or 9.7m vertical rod aerials.

The set was fitted in a metal enclosure with a hinged lid which protected the front panel controls during transport or storage. The receiver unit was a separate assembly connected by two plugs,which could easily be removed.

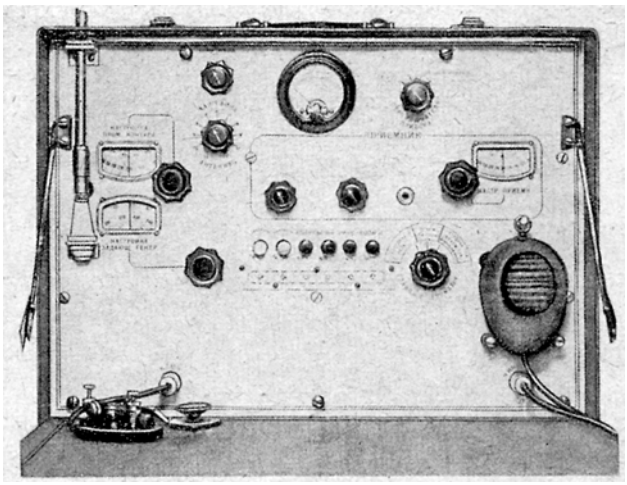
References:

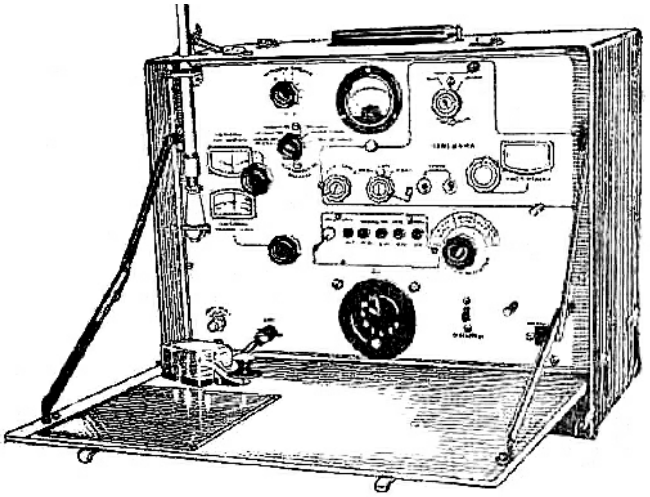
- With many thanks to Roman Buja, Poland, who kindly provided photographs, scans of drawings and circuit diagrams, and translated the Russian text.

Channels

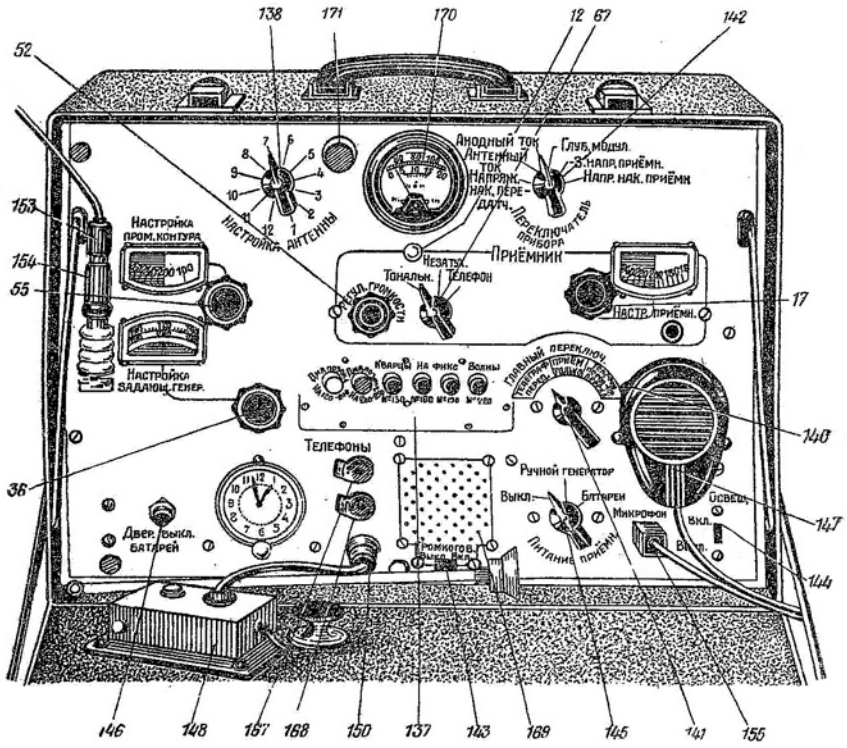
The frequency dials of the V-100 receiver and transmitter were calibrated in numbers. Each number represented a channel with 25kHz spacing, for example:
Channel 120: 120 x 0.025 = 3MHz.
Channel 200: 200 x 0.025 = 5MHz.

Russian wireless operator with a V-100-B.

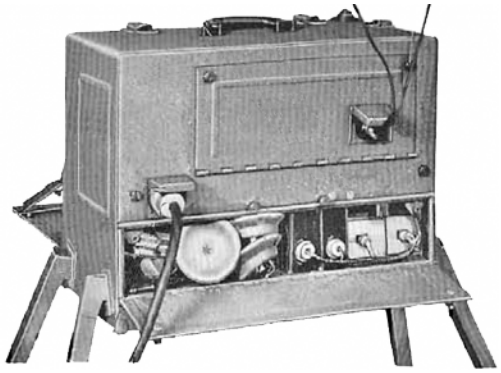




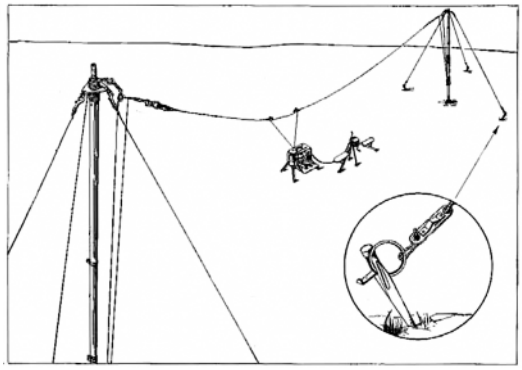
The initial V-100 (above left) and V-100-A (above right) differed in details to the later V-100-B (below) which had a built in loudspeaker and clock, remote operation via a two wire line, a different version of hand generator with two seats, accumulator charging and a number of minor enhancements. The initial V-100 had different valves in the transmitter and a standard J-37 Morse key without protection cover.



Functions of controls V-100-B.



Rear view of a V-100-B showing inspection hatch (above), hand generator and dipole aerial sockets. The hatch at the bottom gave access to the accessories and dry batteries for the receiver.

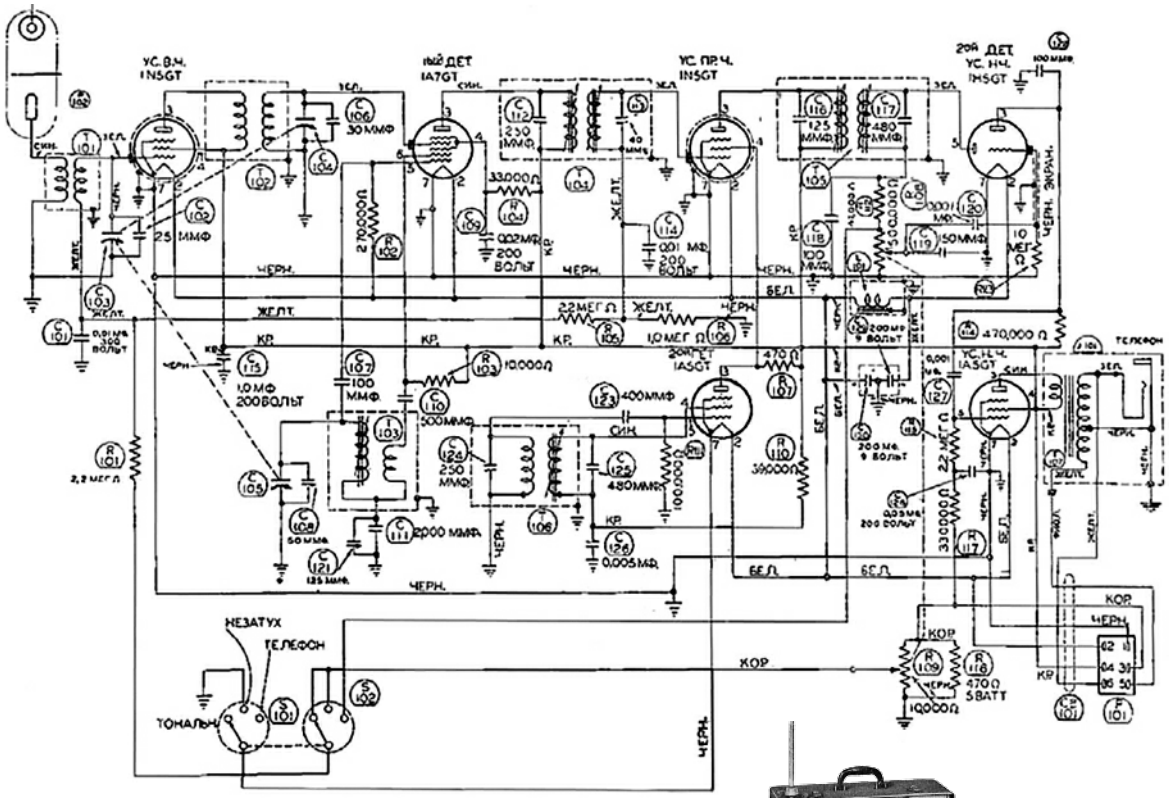


The dipole aerial was slung on two 6.7m sectional masts. These could also be used to construct a 6.1m or 9.7m vertical aerial.

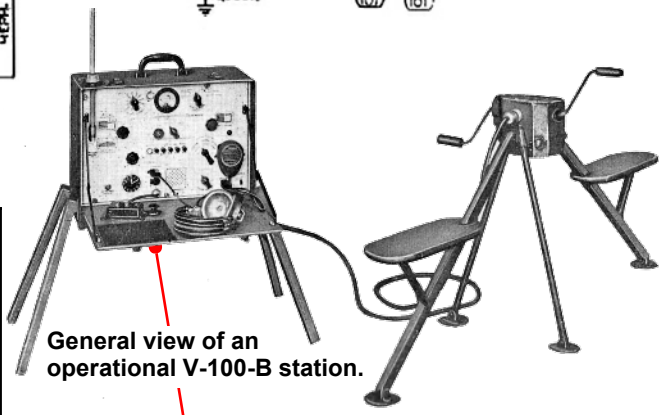
	Transmitter		
36	Master oscillator tuning	153	Rod aerial plug
55	Power amplifier tuning	154	Rod aerial socket
137	Range selector panel	155	Microphone plug
138	Aerial switch	167	Headphones socket
140	Microphone PTT button	168	Headphones socket
141	System switch	169	Loudspeaker
142	Meter Switch	170	Meter
144	Light switch	171	Front panel lamp
145	Receiver power switch		Receiver
146	Battery off switch	12	Open for BFO setting
147	Microphone	17	Receiver tuning
148	Morse key	52	Volume control
150	Morse key plug	67	Mode switch

Transmitter range selector panel:

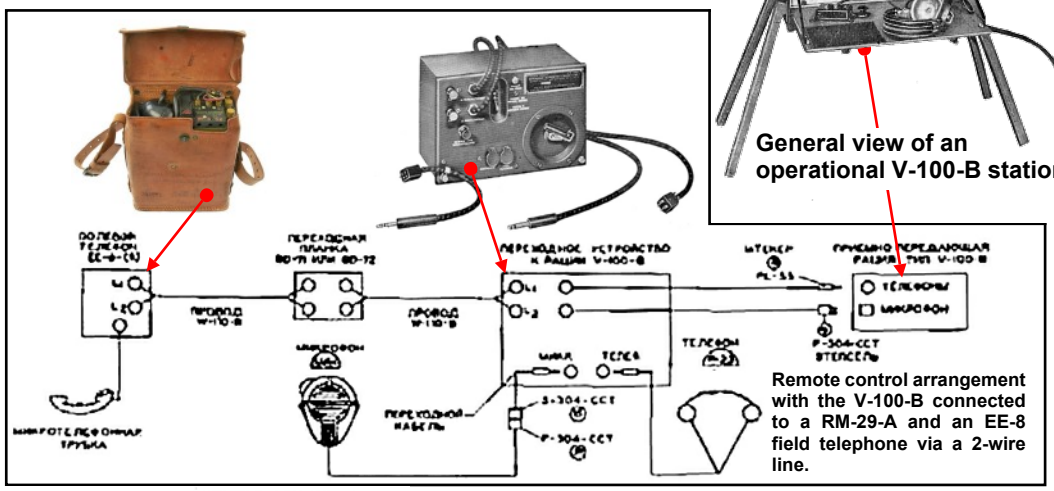
- **White button: lower band 1 (channels 120-200).**
- **Red button: upper band 2 (channels 200-280).**
- **The red and white buttons corresponded with the colours on the tuning dials.**
- **Black push buttons: crystal controlled channels).**



Circuit diagram receiver unit assembly V-100-B.

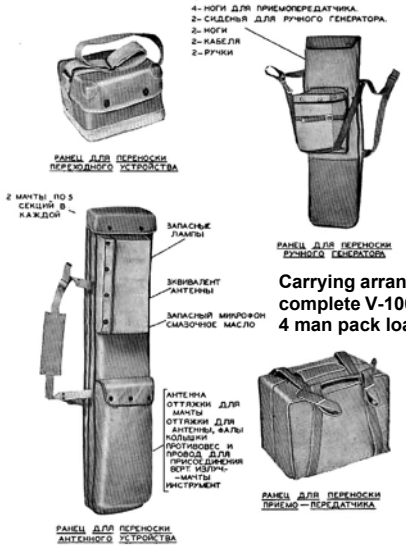


General view of an operational V-100-B station.



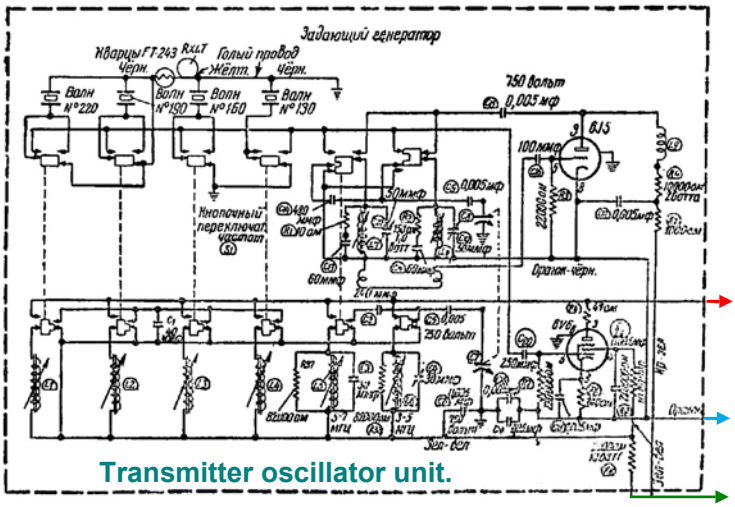
Remote control arrangement with the V-100-B connected to a RM-29-A and an EE-8 field telephone via a 2-wire line.

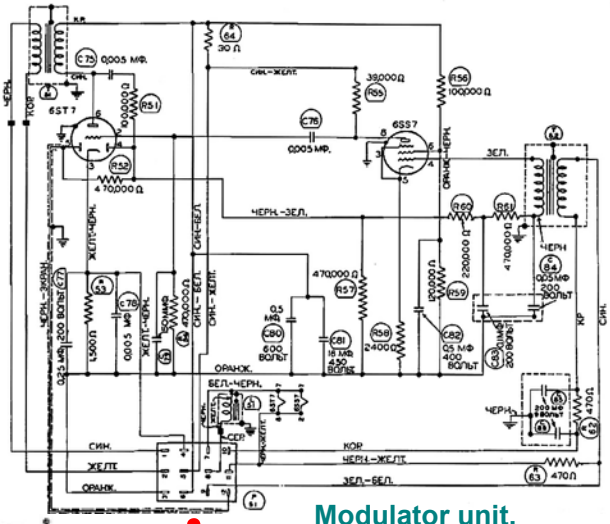
Top view of the V-100-B Morse key.

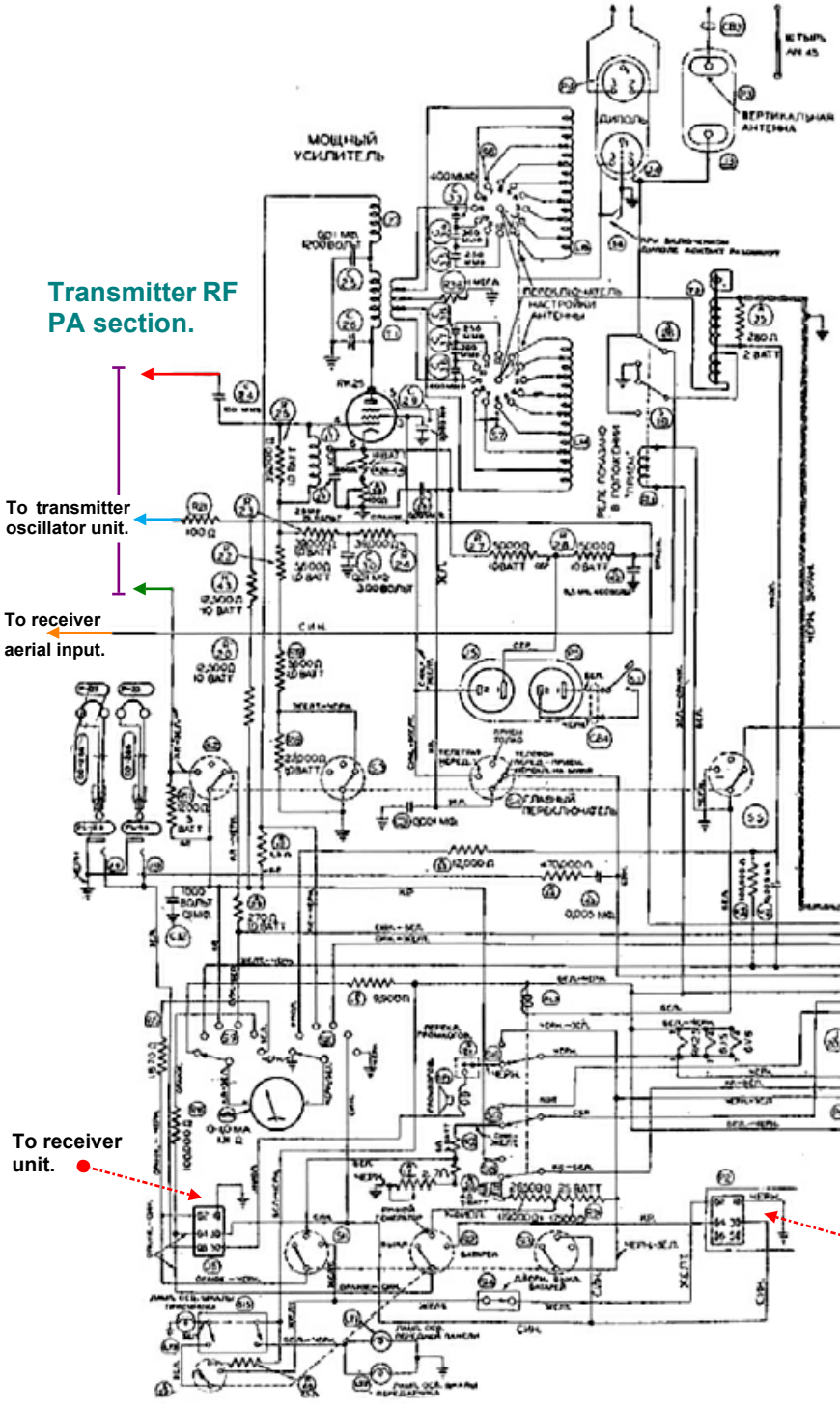


Carrying arrangements of a complete V-100-B station in 4 man pack loads.

Top view of V-100-B chassis. Note that the receiver section is a separate assembly. The original USA receiver valves were probably at a later stage replaced by valves from Soviet production.

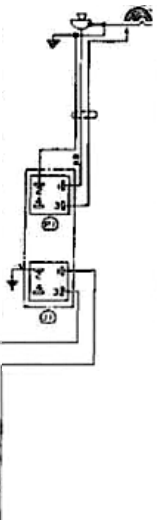




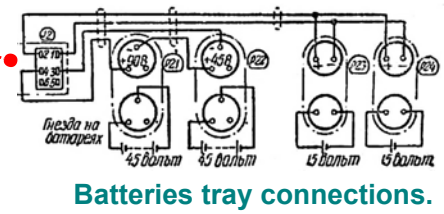


Circuit diagram of V-100-B transmitter and modulator.
The unfortunately rather low resolution source file of the transmitter RF output circuit was enhanced as far as possible and is the best which could be produced.

Microphone.



Hand generator.



Batteries tray connections.