

## HF radio device RUP-15 Transmitter PD-8

Short-wave SSB transceiver made in "RIZ" Zagreb in 1967 and named PD-8 transceiver, while the kit was named RUP-15. It is intended to serve as the basic HF device in the

command of the infantry battalion for the connection with the regiment brigade. It is made in transistor technology and mass-scale "RIZ" FET transistors are applied.



Works in the frequency range from 2MHz to 12MHz, types CW, SSB and AM. The frequency is

controlled by a frequency synthesiser with direct synthesis. The frequency is set with 4 decoding switches in steps of 1KHz. The output power of the transmitter is 15W pep, and it is a transistor linear amplifier. Its interference is quite low 500KHz and its bandwidth on reception and handover is controlled by the SSB crystal filter of the Institute "Mihailo Pupin".

It is powered by a DC 12V voltage from an external source, or from a lead-acid 12V battery in a manual bonding buffer.



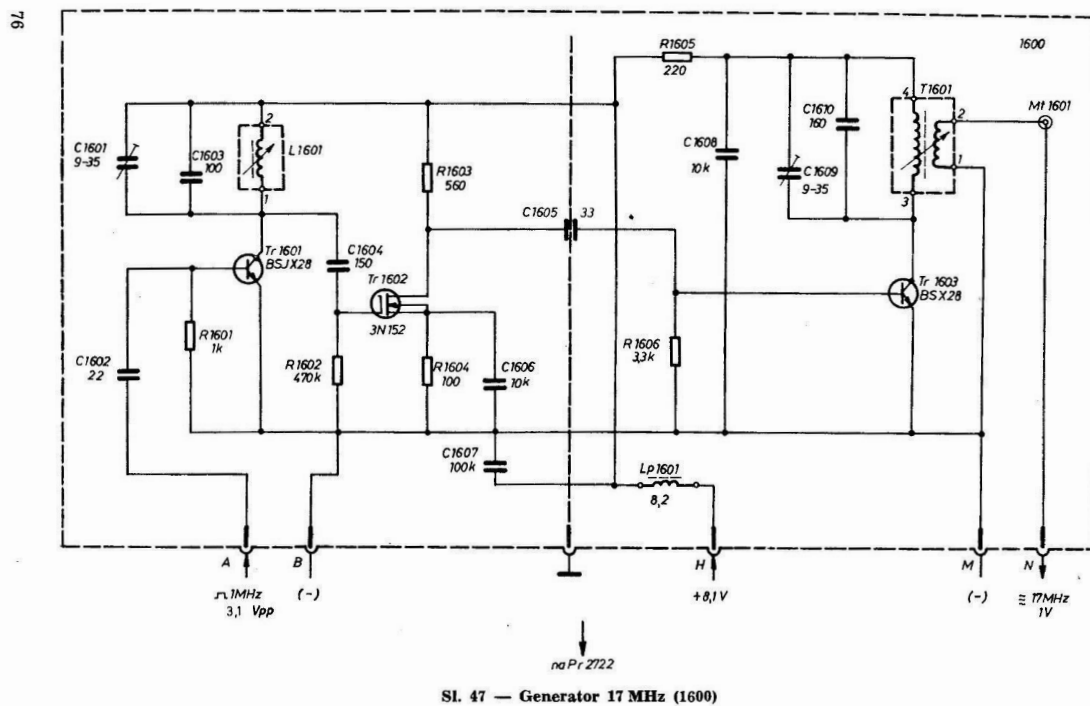
Built in the off-road vehicle Zastava AR-55V together with the VHF radio device RUP-12, and then it was named Radio-telephone system 15/12. With both devices, one radio operator was operated via the UK-6 control box. The devices are powered by a common lead battery 12V / 70Ah located in the cabin of the vehicle. Origin: Yugoslavia.

We are interested in the

frequency synthesiser and especially the 17MHz keyed oscillator board. This board takes in 1MHz square wave and outputs 17MHz 'frequency pure' sine wave. Studying the circuit, the first BJT running in class C has a tank circuit tuned to 17MHz, then it's buffered by a Mosfet in class A and then finally fed into another BJT running in class C with a tank also tuned at 17MHz with a slightly higher C and an inductively coupled output. Using various boards fed with a digital TTL waveform and then using harmonic / subtractive / additive mixing, The love of military radio

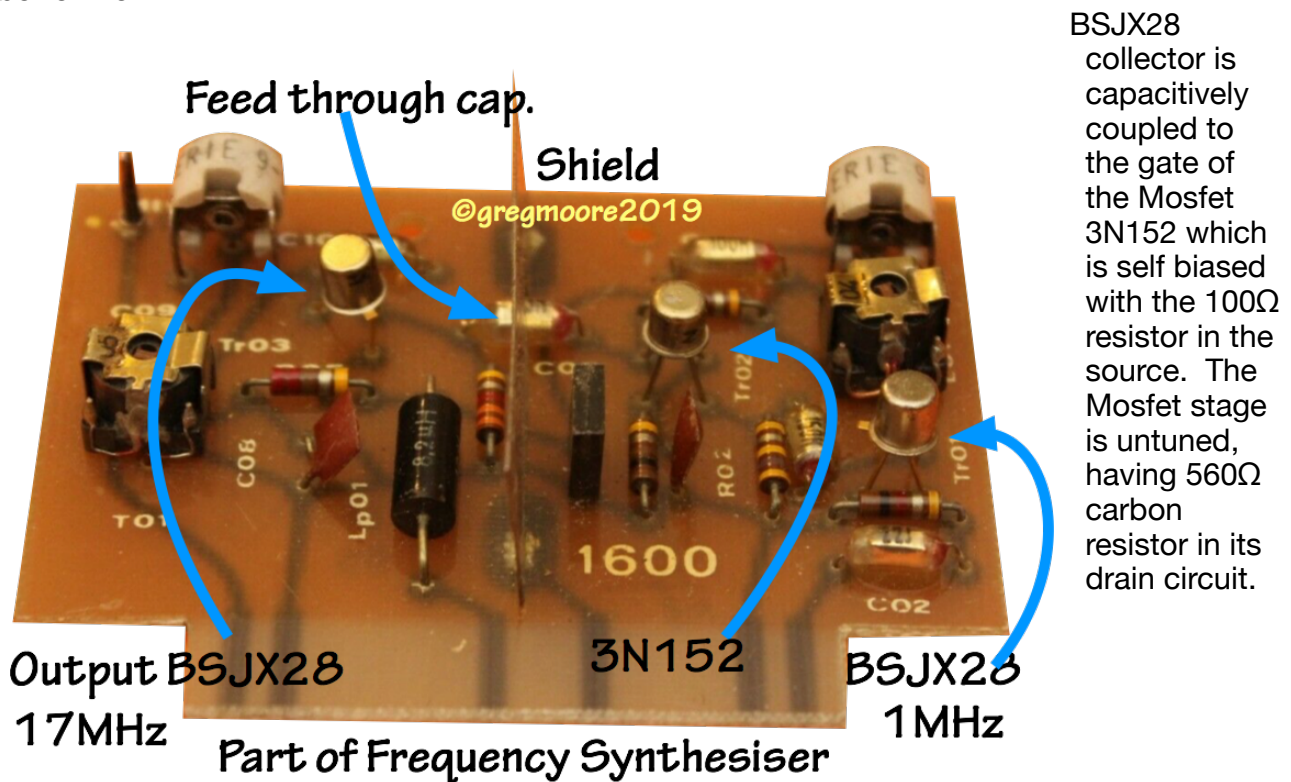


any frequency combination can be achieved. General Dynamics in the USA used this same



technique with the PRC-47 and GRC-106 SSB transceivers and the synthesiser techniques employed were years ahead of anything that had been seen at the time in the 1960s.

Here is the circuit for board #1600 showing 1 MHz @ 3.1Vpp (TTL) entering at pin A on the bottom left.



BSJX28 collector is capacitively coupled to the gate of the Mosfet 3N152 which is self biased with the 100Ω resistor in the source. The Mosfet stage is untuned, having 560Ω carbon resistor in its drain circuit.