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An Audio Interface for the Soviet R107.

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Having been successfully operating one of these intriguing sets on 6m for some time now, it came as a surprise recently to find out just how many other amateurs have these or related sets. It is very easy to get them up and running, only needing a power supply of 2x 2.4 volts (see NL 24), and some audio gear.

Most of the sets are supplied with a headset incorporating a throat microphone, which is not the most comfortable thing to use and doesn't do justice to the audio quality of which these sets are capable, and in addition the microphone in mine had become intermittent, a common fault so I understand. I therefore decided to look into the possibility of using a Larkspur/Clansman headset or handset instead. I have a collection of various headsets and microphones, and to make them interchangeable between different pieces of equipment I use 5 pin DIN plugs wired to a common standard ("Oh horror" cry the purists, but the sets are not modified, I just make up a lead from a plug to fit the set to a 5 pin DIN socket.)

Looking at fig. 1, taken from the R107 manual, it will be seen that the original headset incorporates a pair of low impedance dynamic microphone capsules transformer coupled to a single transistor preamplifier. -2.4 volts is available at pin 5 of the headset socket to supply the pre-amp, and the audio input (pin 3) is also returned to -2.4 volts via an audio frequency choke, the audio being capacitively coupled into the modulator. A carbon microphone can be connected between pin 3 and earth (pin 4), and works, but again the audio quality is only what can be expected with this arrangement. Instead I decided to make up an interface box incorporating a preamplifier, so I can have the choice of audio gear from my collection of various different types.

I removed the plug from the original headset unit (it can always be re-fitted!), made up the preamplifier on a small piece of veroboard and mounted this, together with the 5 pin socket in a small plastic 'project box'. Note that a germanium transistor is used, the advantage if this is twofold — they work better on the low (2.4V) supply voltage, and they are less prone to detecting the transmitter RF. The dynamic microphone in the larkspur headset does not need a matching transformer and is coupled directly to the base of the pre-amp transistor and switch in series with the preamp output was not found necessary either, although it may be if the remote control facility is used.

Connecting this to the Larkspur headset and switching on, I was nearly deafened by the noise!

There is no volume control on the R107, and the Larkspur headphones are considerably more sensitive than the original Soviet ones! There is in fact sufficient audio output to produce useable results with a loudspeaker. To get round this, I added a simple volume control using a $1k\Omega$ potentiometer of the Pye squelch type to the interface unit, and also a $\frac{1}{4}$ inch Jack socket so I could also use domestic type headphones if I felt like a bit of comfort. The circuit of the complete interface is shown in Fig. 2.

Like many contemporary Western sets, the R107 does not have squelch, how any FM set is useable for meaningful communications without squelch is beyond me, but obviously they were, and I used the 31 and 88 sets in the CCF so we must have managed somehow. The subject of a future article will be a simple way of adding squelch to the R107 – again a 'non- destructive' mod.

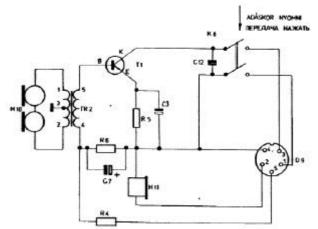


Fig. 1 – The original Soviet Headset circuit

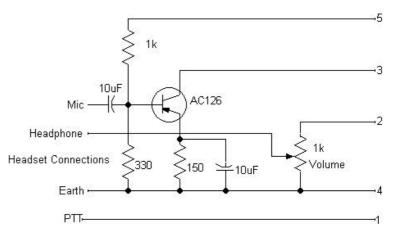


Fig. 2 - Interface unit. The numbered connections on the right are the pin numbers for the R107 audio plug.