

SOUPING UP THE 75A-4

We have been hearing much about a modification to the 75A-4 which improves its performance no end. In many cases it is represented as a bona fide Collins modification on which a service bulletin is forthcoming. The rumor has it that removing R46, a 22 K resistor across the 2nd I.F. amplifier tuned circuit, will do wonders with the overall gain. Also that changing the first RF tube for a later and hotter version improves the receiver performance.

Removing R46 increases the IF stage gain up to about 20 db. But this is not good. The 75A-4 is designed to produce AVC action on 1 to 2 microvolts of signal input. Removing R46 causes AVC action to start at about 0.2 microvolts, which is within the receiver noise region, so that AVC action is taking place on receiver or received noise alone. Applying AVC to the RF stage deteriorates the noise figure of that stage. Noise, of course, is the final limiting factor on how weak a signal can be before it is no longer copyable. Thus the weak signal performance is poorer. In other words, performing this mod does increase the signal level, but it increases the noise level even more, so in making your S-meter read higher you have lost some of those weak signals in the noise.

Using hotter RF tubes will also upset the AVC design balance as described above, and also, unless care is taken, noisier tubes might be used, which would further reduce the weak signal performance.

We do not recommend these modifications in the 75A-4 Receiver.