

Seneca Modulation and Keying

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MANY times when a Seneca user gets on the air someone will remark that the rig sounds good but doesn't have the punch of plate modulation. This is quite true—it isn't quite like plate modulation.

First of all, we must understand that by plate modulation we don't mean basic Heising modulation. We mean regular, run-of-the-mill transformer coupled, plate modulation. We now want to know whether plate modulating the Seneca will be an advantage or disadvantage. Let's consider good and bad points of both plate modulating the Seneca or leaving the rig as the factory recommends—with controlled-carrier screen modulating.

True, with plate modulation you can run a little higher plate current, but not as much as you would for CW operation. Since you are doubling your plate voltage with 100% modulation you cannot run the Seneca at as high a level of plate current as on CW because you would exceed normal plate dissipation by doing so. In practice you can run the 6146's at 140 watts plate modulated, however, many tricks have to be employed such as changing your final plate feed-through capacitor and using forced-air cooling. Heath, however, frowns on this since it still exceeds the published ratings on 6146's in push-pull.

When running the Seneca with plate modulation, you can always watch the average plate current on the meter, which now should remain steady. You would also have an advantage inasmuch as your signal would always be "covering the noise-level" more than with screen modulation that Heath uses. These are a few of the reasons for using external plate modulation. Before running out to buy an Eico modulator let's look at the advantages of playing with the screen modulation Heath says is more practical.

The major reason for leaving the screen modulation alone in the Seneca is probably the best: money. The second reason is almost as good: time and work.

When using the Seneca as is, I have found that it has a certain punch to it that no amount

of clipping or speech compression in a plate modulator can deliver. This is due to the fact that you nearly fully modulate the carrier at any instant during the talk cycle. Since the carrier power varies with speech, your voice will cause enough modulation of available carrier at any instant to give "solid modulation" of what power there is instantaneously. Since no form of clipping is employed to get this punch, no distortion occurs as it does when a high level of speech clipping is used. This seems to me to be a definite advantage over plate modulation. This punch is especially useful on aurora openings where the "mush" of the reflection seems to swallow the signal. The punching effect of controlled-carrier modulation will get through when other forms will fail. This can also be seen in single-sideband where the carrier is not important, but where the modulation pulls through because of its punch. A Seneca can be tuned in during an aurora opening the same as a sideband station and the effect is much the same. When a plate modulated station is tuned in this way the carrier is much more steady and therefore the "mush effect" has a greater action on the modulation.

These aren't all the pro's and con's on the subject, but are to be considered seriously before making a decision about it. I have been plate modulating my Seneca for about five months with an Eico model 730 modulator and have gotten excellent reports. I have gone back to screen modulation recently for aurora DX'ing. If you are interested in plate modulating the Seneca, you will be surprised how easy it may be done.

For the CW man on 6, a simple modification on the Seneca will give you better keying. Change the key to key the triode section of the 6AN8 multiplier. This will reduce receiver blocking and reduce the possibility of clamp tube oscillation.

Step-by-step instructions:

Referring to pictorial #15, page 42 of the manual, install a .001 mfd capacitor between lugs #1 and 4 on socket V-9. Next install a

small #6 solder lug under the mounting nut adjacent to lug #4 of the same socket. Place it close to lug 4 and solder. This will prevent the clamp tube oscillation which may have occurred.

Remove the lead between pin 7 of V-10 and ground lug on V-11. Install an insulated lead from V-10, pin 7 to terminal strip GG-4.

Referring to pictorial 18, page 52, install a .005 mfd disc capacitor between lugs #1 and 3 on terminal strip DD. Disconnect the negative lead of the 40 mfd capacitor from ground lug GL and reconnect to lug #2 of relay at location K.

These changes will connect the OA2-VR tube and 40 mfd capacitor to the center tap of the low voltage transformer and should reduce receiver blocking.

Referring to pictorial #8, page 20, and pictorial #29, 74, install a .001 mfd feed-through capacitor in a convenient location near FT-4 so it will not affect the operation of the multiplier bandswitch. Disconnect the ground end of the 1000 ohm resistor coming from pin #3 of the 6AN8 socket and reconnect to the feedthrough capacitor. Connect a lead from other end of feed-through capacitor to FT-7 on driver housing.

This modification should be of definite advantage to the CW man, and if you're an AM man like myself you may wish to perform this operation on your rig just in case some good aurora comes along.
... WA2GCF

Polaroid Plugs

Unbeknown to many hams who own or use Polaroid cameras, is the fact that many useful objects may be salvaged from a box of Polaroid film. The first item is the container which holds the print coater. This little gem can be used as a coil form or as a container for hardware or non-corrosive liquids. Mounting the tube on a chassis or workbench is accomplished by drilling a small hole through the cap and fastening this to its mounting with a small screw. The print coater itself can be used to coat decals (if you're careful not to press too hard). The empty film reel can also be saved and used as a spacer (up to three and three quarter inches) for open lines, etc. So the next time you finish a roll of Polaroid film save all that "junk," it might come in handy.
K2KQJ

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