

George,

I have never had much success with Screen Modulation but I do know that you need to drive the screen with a low impedance. Do you have a small step down transformer like a 5K to 600 Ohm military output transformer?

You also have to drive the screen negative by about 20 volts to get full modulation. Having the cathode well off ground can cause issues with the filament so be prepared to use a small isolated 6V transformer just for the 6L6.

The ARRL handbook always treated screen modulation very simply - it is not so simple to get clean distortion-free AM with this approach.

There was an interesting schematic in the old Editors and Engineers Handbook that claimed to solve the problems of non-linearity by using a cathode follower biased negatively at the cathode so it can swing below ground. By luck it uses a 6L6 and it would work on the 6146. I adapted the schematic and tied it to a representative (overly simple) RF section to show you how to hook it up.

Here is how they said to adjust it:

The loading of the RF stage should initially be adjusted normally. You will be adjusting the input power to the 6146 is 50% greater than the plate dissipation of the tube when we are done. The thing to remember is that if the carrier level screen voltage is correct for linear modulation of the stage, the loading will have to be somewhat greater than that amount of loading which gives maximum output from the stage.

R1 is Carrier level. R2 is Negative Peak Level. Now we have some controls to perfect the modulation envelope.

Initially set R2 for -50VDC at the pot wiper.

R1 should be adjusted until the carrier level screen voltage on the 6146 is about 1/2 of the rated screen voltage specified for Class-C CW operation. The current in the screen under carrier conditions will be about 1/4 of the normal current for CW conditions. You should try putting your choke in the grid to replace the 220K resistor at some point to see if that works better.

R2 should be adjusted so that negative modulation peaks, even when voltage which can cause overmodulation occurs, does not cause carrier cutoff.

The antenna coupling should now be increased while the carrier level is

backed down by R1 until you get a distortion free modulated waveform in the scope.

Mike WU2D