

Figure 18

INEXPENSIVE 500 WATT MODULATOR USING 803 TUBES

T—"Poly-pedance" Class B driver transformer or 2:1 ratio. Stancor A-4761
T—500 watt output transformer. 18K primary, 6.25K secondary. Chicago CMS-3
T—10 volts, 10 amperes. Stancor C-6461
M—0 - 500 ma.

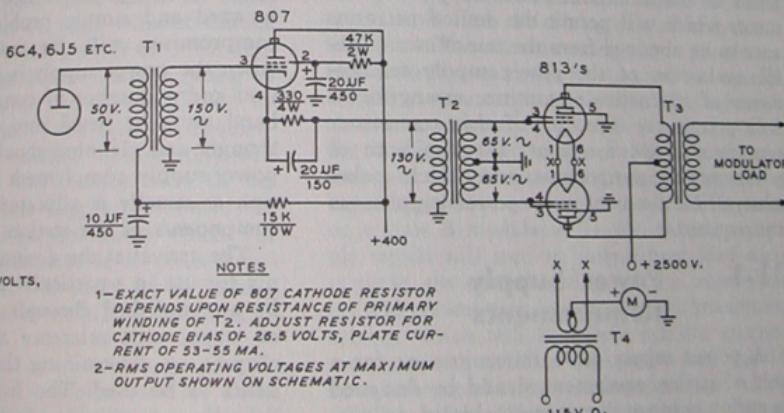
30-7 Zero Bias Tetrode Modulators

Class B zero bias operation of tetrode tubes is made possible by the application of the driving signal to the two grids of the tubes as shown in figure 17. Tubes such as the 6AQ5, 6L6, 807, 803, and 813 work well in this circuit and neither a screen supply nor a bias

supply is required. The drive requirements are low and the tubes operate with excellent plate circuit efficiency. The series grid resistors for the small tubes are required to balance the current drawn by the two grids, but are not needed in the case of the 803 and 813 tubes.

Of great interest to the amateur is the circuit of figure 18, wherein 803 tubes are used as high level modulators. These tubes will deliver 500 watts of audio in this configuration, yet they require no screen or bias supply, and can be driven by an 8 watt amplifier stage. The use of 803 tubes (in contrast to 813's) requires a higher level of driving power which is offset by the fact that these tubes can often be purchased "surplus" for less than four dollars. A pair of 6B4 tubes operating with cathode bias (figure 12) will suffice as a driving stage for the 803's. The power supply of the speech amplifier provides high voltage for the suppressors of the modulator stage.

Shown in figure 19 is a high level modulator using 813 tubes. A full 500 watts of audio may be obtained at 2500 volts plate potential. Grid driving power is 5.5 watts. A single 807 operating as a cathode follower for the modulator stage. Plate to plate load impedance for the 813's is not critical. The Chicago CMS-3 500 watt modulation transformer having a primary impedance of 18,000 ohms has been used with success, although the optimum plate load impedance of the modulator is closer to 20,000 ohms.



500 WATT MODULATOR USING 813 TUBES

T—1:3 interstage transformer, Stancor A-53
T—"Poly-pedance" Class B driver transformer. 2:1 ratio. Stancor A-4761
T—500 watt output transformer. 18K primary, 6.25K secondary. Chicago CMS-3
T—10 volts, 10 amperes, Stancor C-6461
M—0 - 500 ma.

350 watts of audio are obtainable from this circuit at plate potential of 2000 volts.