

Figure 4-6. Modulator-Power Supply, Phase Inverter, Simplified Schematic

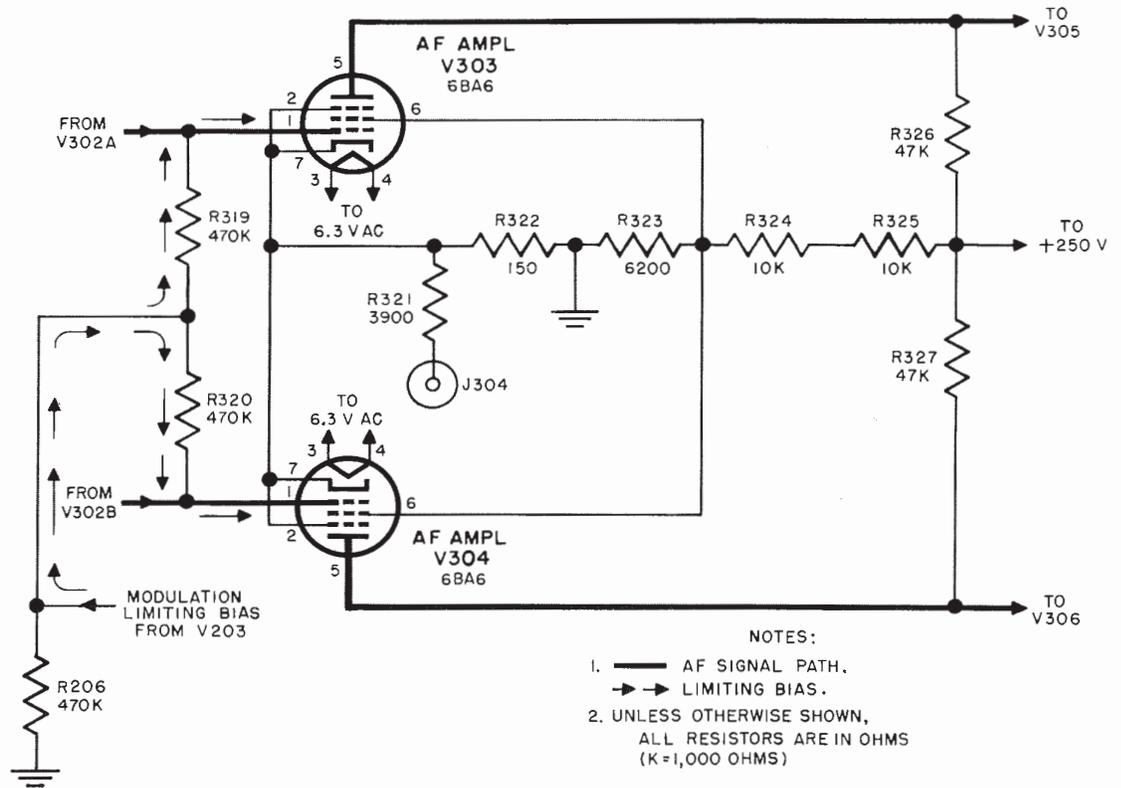
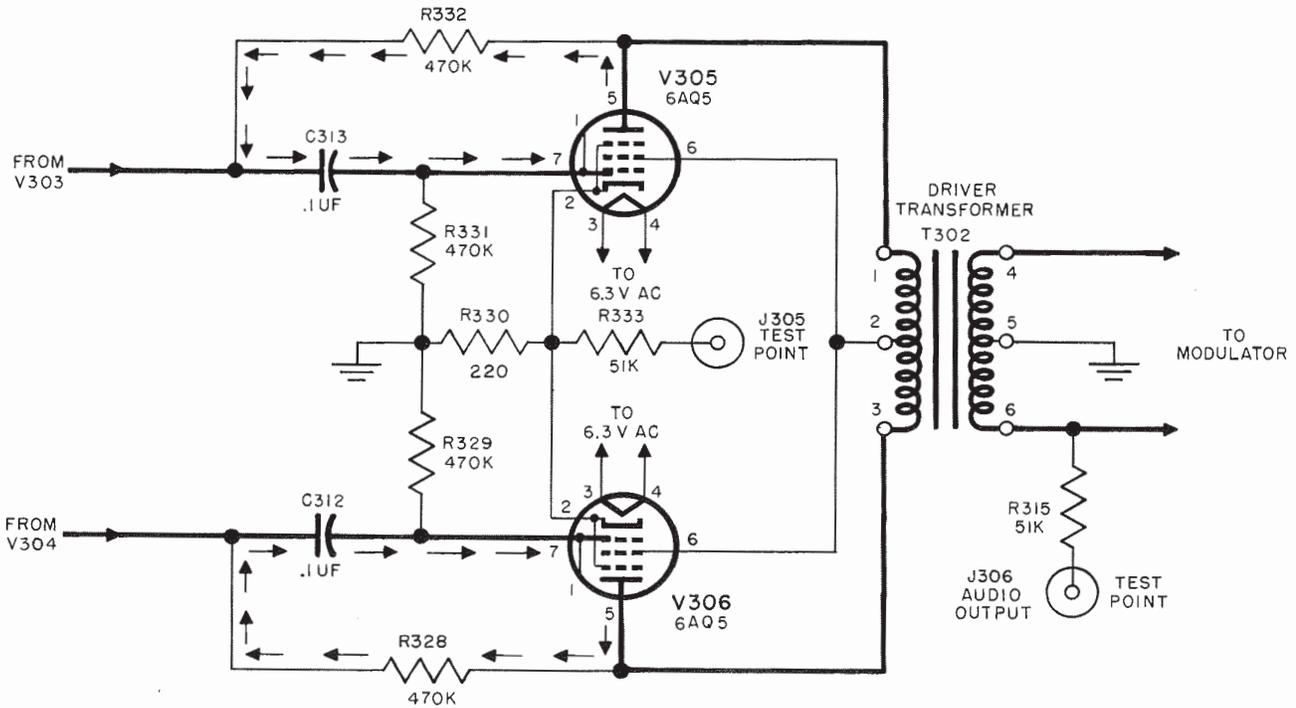


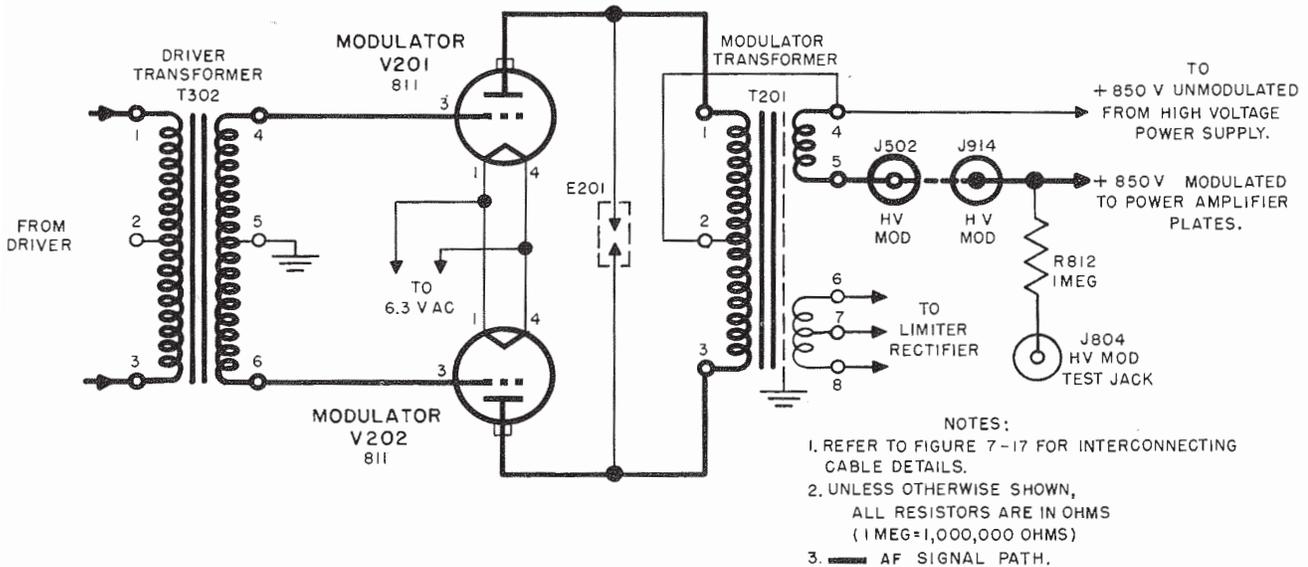
Figure 4-7. Modulator-Power Supply, A-F Amplifier, Simplified Schematic



NOTES:

1. — AF SIGNAL PATH.
- → NEGATIVE FEEDBACK PATH.
2. UNLESS OTHERWISE SHOWN, ALL RESISTORS ARE IN OHMS (K=1,000 OHMS).

Figure 4-8. Modulator-Power Supply, Modulator Driver, Simplified Schematic



NOTES:

1. REFER TO FIGURE 7-17 FOR INTERCONNECTING CABLE DETAILS.
2. UNLESS OTHERWISE SHOWN, ALL RESISTORS ARE IN OHMS (1MEG=1,000,000 OHMS)
3. — AF SIGNAL PATH.

Figure 4-9. Modulator-Power Supply, Modulator, Simplified Schematic

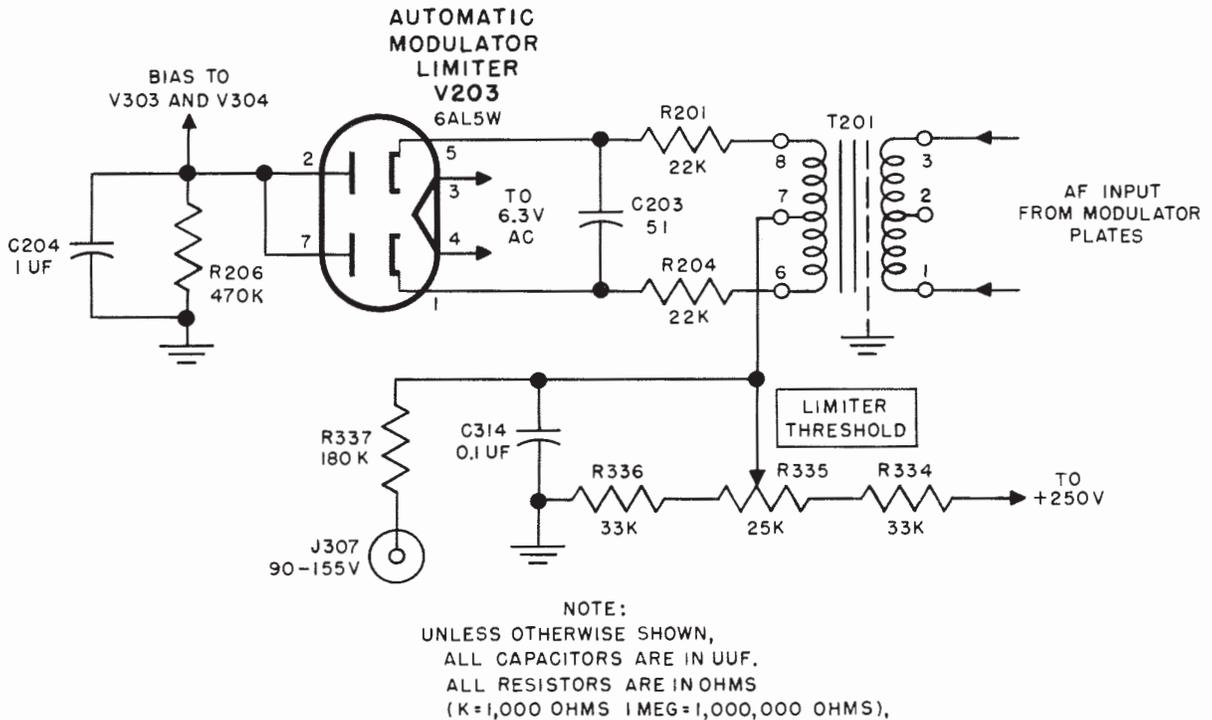


Figure 4-10. Modulator-Power Supply, Automatic Modulation Limiter, Simplified Schematic

Resistor R321 is a meter multiplier and J304 is a test jack for measuring the cathode self-bias (see paragraph 4-62).

4-21. MODULATOR DRIVER. (See figure 4-8.) Capacitors C313 and C312 couple the output of tubes V303 and V304 to the push-pull connected driver amplifier tubes V305 and V306 (each a 6AQ5), which furnish excitation for the modulator tubes (paragraph 4-22). R329 and R331 are the grid resistors. R330 is the common cathode resistor. Resistors R328 and R332 provide inverse feedback from the plates back to the grid circuit. The output of the stage is coupled by driver transformer T302 to the modulator stage. Resistors R333 and R315 are meter multipliers. J305 and J306 are test jacks for checking the cathode self-bias and the audio output (see paragraph 4-62).

4-22. MODULATOR. (See figure 4-9.) The output of driver transformer T302 is fed to the grids of the zero-bias class B push-pull modulator tubes V201 and V202 (each an 811). The secondary of modulation transformer T201, whose terminals are numbered 4 and 5, delivers modulated high voltage through connector J502 to the power amplifier in Radio Transmitter T-282/GR; the voltage can be measured at test jack J804 through meter multiplier resistor R812 (see paragraph 4-61).

4-23. AUTOMATIC MODULATION LIMITER. (See figure 4-10.) A separate modulation transformer secondary winding, whose terminals are marked 6, 7, and 8, supplies signal voltage to the automatic modulator limiter rectifier tube V203 (6AL5W). This tube has an adjustable positive d-c delay voltage

applied to its cathode by means of the bleeder string comprising resistors R334, R336, and "LIMITER THRESHOLD" variable resistor R335 across the 250-V d-c supply. If the peak signal voltage is less than the delay voltage obtained from R335, tube V203 does not conduct, there is no d-c voltage drop across resistor R206, and the amplifier stage consisting of tubes V303 and V304 operates only on the bias developed by its cathode bias resistor.

4-24. When the peak signal voltage applied to tube V203 exceeds the delay voltage, the tube conducts, and a negative d-c voltage to ground is produced across R206, filtered by capacitor C204. This applies a negative bias to the grids of V303 and V304 and reduces their gain. The entire action is similar to delayed automatic volume control action in a radio receiver. Thus the push-pull stage, comprising tubes V303 and V304, and the limiter rectifier stage, comprising tube V203, serve as a gain reduction system which functions to limit the gain of the modulating system whenever the output signal exceeds a level which is predetermined by the adjustment of "LIMITER THRESHOLD" variable resistor R335. Resistors R201 and R204, and capacitor C203, form a high frequency compensation network for the modulation limiter rectifier stage. Capacitor C314 is an audio filter. The delay voltage (90 to 155 volts) can be checked at test jack J307 (see paragraph 4-62).

4-25. SCREEN MODULATION CIRCUIT. (See figure 4-11.) Component parts of the screen modulator circuit are located within the monitor-screen modulator assembly. Triode connected screen modulator tube V706 (5763) is operated as a cathode follower.