

R108 to the movable contact of potentiometer R111 (DYNAMIC MIC. 2 control). The portion of the signal voltage appearing across R111 is fed to the grid of V102 through C119. Capacitor C119 blocks dc from the secondary winding of the carbon microphone input transformer (T101) and reduces its loading effect on the modulation limiter output. R108 provides a more uniform load impedance for V101 as R111 is varied. This improves the l-f (low-frequency) response of the amplifier at low settings of gain control R111. DYNAMIC MIC. 2 gain control R111 controls the output of the speech amplifier when a dynamic microphone or telephone is used.

c. The signal from the carbon microphone impressed across the primary of a-f transformer T101 is amplified by the second a-f amplifier stage. The a-f voltage developed across the secondary winding of T101 is applied to the grid of V102 through resistor R110, potentiometer R123 (CARBON MIC. 1 control), and capacitor C119. CARBON MIC. 1 gain control R123 controls the output of the speech amplifier when a carbon microphone is used. Resistor R110 and potentiometer R123 serve as a termination for transformer T101. In addition, resistor R110 isolates the low-resistance secondary winding of T101 from the grid circuit of tube V102. This effectively prevents the winding from lowering the gain of the amplifier in case the gain control for

the carbon microphone is left open when a dynamic microphone or telephone is used.

d. Current for the carbon microphone is obtained from the speech-amplifier power supply and is applied to microphone resistor R124 and the primary winding of transformer T101. Resistor R142 is effectively in parallel with the carbon microphone. This limits the current through the microphone to 9.5 ma. Resistor R124 and capacitors C120 and C110 form a pi-section filter which filters all the a-c hum voltage from the current supplied to the microphone. Capacitor C129 is connected across the microphone and serves as an h-f bypass capacitor to reduce microphone hiss and r-f interference which may enter the amplifier by way of the microphone cord.

e. The output voltage of tube V102 is developed across R113 and is applied to the third a-f amplifier grid (pin 1) through audio-coupling capacitor C103.

34. Third A-F Amplifier and Phase Inverter

(fig. 10)

Tube V103 is connected in a self-balancing phase-inverter circuit. The tube (type 6SN7GT) contains two triode sections in the same envelope. One section functions as a conventional resistance-capacitance coupled amplifier; the other section provides the 180° phase reversal required to excite

