RDH4, 1953, 332-333

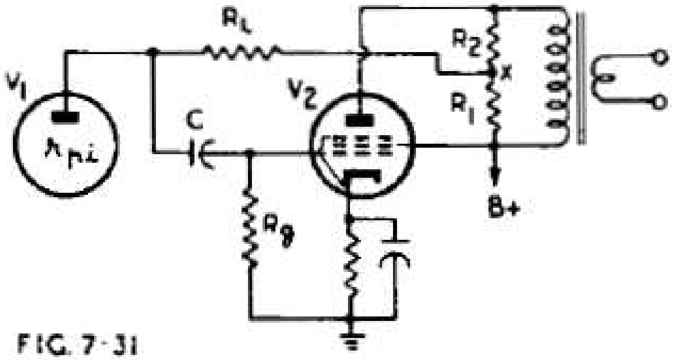

FIG. 7-31

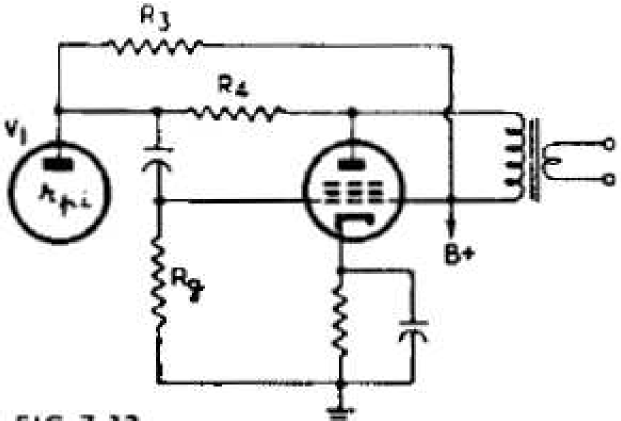

FIG. 7-32

Fig. 7.31. *Voltage feedback applied in series with the load resistor. The reduction in effective resistance occurs in the load resistor itself.*
Fig. 7.32. *Electrically equivalent circuit to Fig.* 7.31, *using one less resistor.*

Both these circuits (Fig. 7.31 and 7.32) have the effect of reducing the effective load into which V_1 works. This has the merit of extending the response to higher audio frequencies. In Fig. 7.31 the effective value of R_L becomes

$$R_L' = R_L/(|\beta|A_2 + 1) \text{ where } |\beta| = R_1/(R_1 + R_2)$$

and A_2 is the numerical voltage gain of V_2. For example if $|\beta| = 0.1$ and $A_2 = 17$, the effective load resistance changes from R_L without feedback to 0.37 R_L with feedback. The load R_L' into which V_1 works is, however, not constant because A_2 varies due to distortion. This circuit is usually limited to values of $|\beta|$ not greater than say 0.05 to 0.1 for typical applications.

A similar effect occurs with the equivalent circuit Fig. 7.32 in which the feedback causes the effective value of R_4 to change to $R_4/(A_2 + 1)$. In both circuits V_1 is preferably a pentode, although a high-mu triode may be used with less effectiveness.