(2) The value of $R_1 + R_2$ must be large compared with the optimum load of the valve.

Let $r_a$ = 50,000 ohms
$\mu$ = 500
$g_m$ = 10 mA/volt
optimum load = 5,000 ohms
external load = 600 ohms

It is required to find :

(a) turns ratio of the output transformer for maximum power output,
(b) voltage gain from grid-cathode to output transformer secondary.
(c) output impedance without feedback,
(d) value of $\beta$ to give an output impedance of 600 ohms,
(e) value of $R_1$, $R_2$ and $C$ to satisfy (d),
(f) gain from input-transformer secondary to output transformer secondary with feedback,

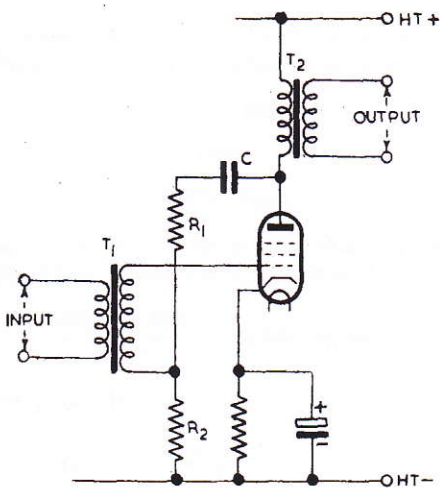


*Fig. 27. The Potential-divider Method of Applying Voltage Feedback to a Single-valve Amplifier*

(a) The turns ratio for maximum power output is given by the usual expression

$$T = \sqrt{\frac{optimum\ load}{external\ load}}$$

$$= \sqrt{\frac{5000}{600}}$$

$$= 2{\cdot}89 : 1$$