CROSS-OVER FILTER FL6/1

The cross-over filter consists of a low-pass filter to feed an l.f. loudspeaker unit, and a high-pass filter to feed h.f. units. These two filters are connected in parallel across the input terminals as shown in Fig. 1. With a low output impedance in the loudspeaker amplifier, interaction between the filters is negligible and a constant-resistance cross-over network is unnecessary.

Any change in input tapping alters the shunt inductance in the high-pass filter; the value of C2 has therefore to be adjusted accordingly to maintain the correct frequency characteristic. The output in all cases is taken from Tap 5.

For the normal condition, i.e., feeding the amplifier to Tap 3 and with the value of C2 equal to 1·5 μF, the cross-over frequency occurs at

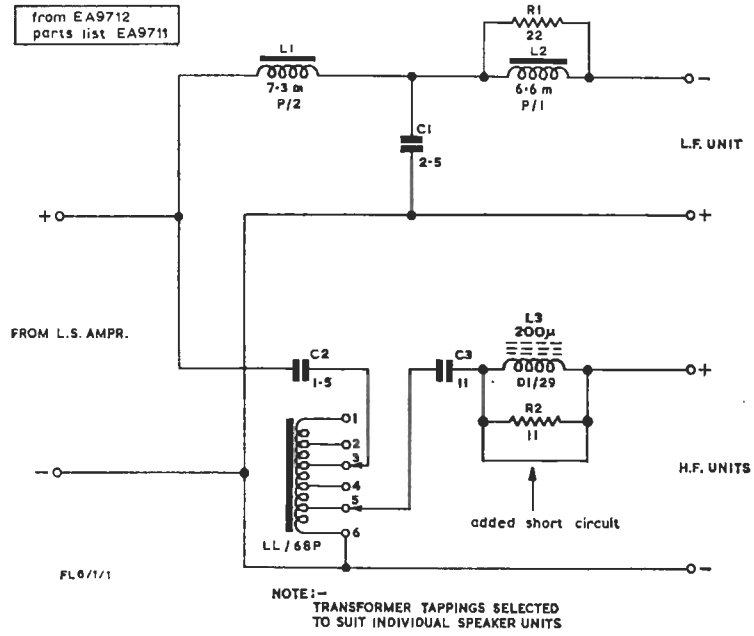

Fig. 1. Circuit Diagram of Filter FL6/1

The inductor L2 shunted by the resistor R1 in the low-pass filter equalises the frequency characteristic of the l.f. unit; the inductor L3 shunted by the resistor R2 performs a similar function for the h.f. units, but is short-circuited to improve h.f. response.

The transformer in the high-pass filter is used as a combined choke and auto-transformer, and is tapped to provide initial adjustment of the signal level to the h.f. units according to the relative sensitivity of the particular h.f. and l.f. units with which it is used.

1·75 kHz when the low-pass filter is loaded with 12 ohms to represent the input impedance of the l.f. unit, and the high-pass filter is loaded with 6 ohms to represent the input impedance of two h.f. units in parallel. Under these conditions the voltage loss introduced by each filter at the cross-over frequency is about 17 dB relative to the output from the loudspeaker amplifier, and the low-pass filter gives a loss of about 30 dB at 4 kHz and the high-pass filter gives a loss of about 30 dB at 1 kHz.

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