

The FERRANTI AUDIO FREQUENCY TRANSFORMER

TYPE AF4

THIS Transformer has been designed to meet the needs of those who require good results at a low price. Its performance is as good as that of any of the new small Transformers at higher prices and using special kinds of iron.

The curve below shows the performance under NORMAL WORKING CONDITIONS.



Ratio 1/3.5.

Inductance : 20/45 Henries.

Dimensions : 2 1/4" x 3" x 3 1/4"

Weight : 1 lb. 8 ozs.

PRICE 17/6 NETT

Price in Irish Free State, 20/6.

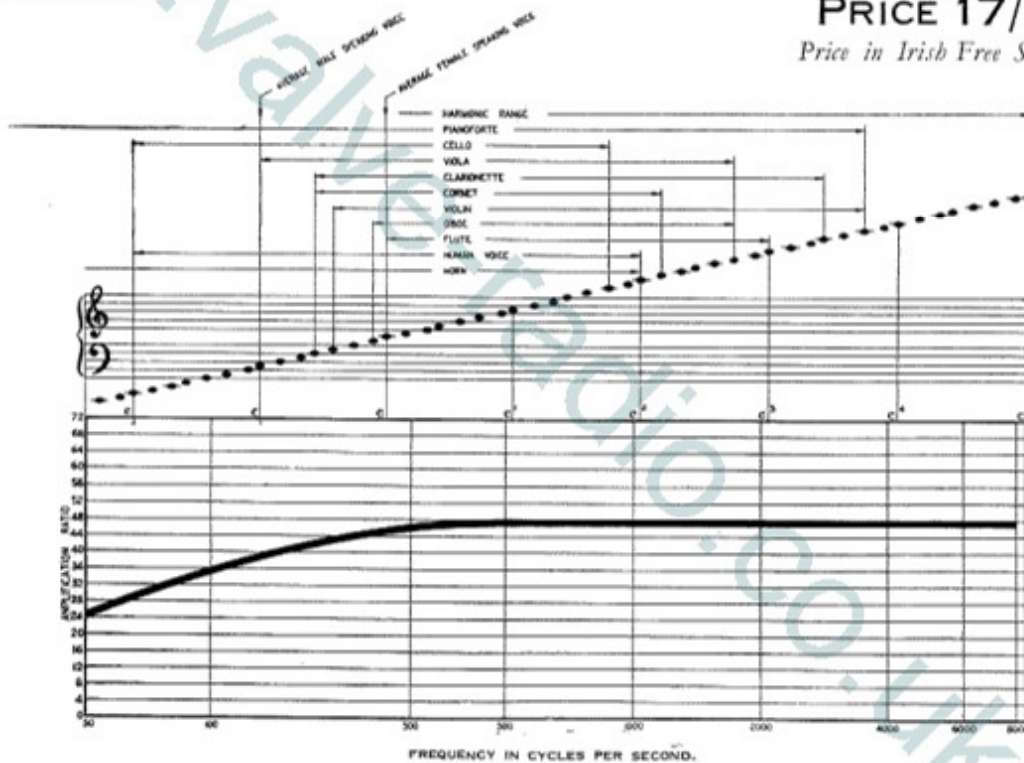


Fig. 1.

The above curve is obtained when the AF4 Transformer is used following a Valve having a working impedance of 10,000 ohms, followed by a Power Valve with a non-inductive load in the anode circuit. The following are the conditions :—

Preceding Valve Impedance	=	10,000 ohms.
Amplification Factor	=	14.0.
H.T.	=	100 volts.
Milliamps	=	3.5.
Grid Bias	=	-1.5.
Filament	=	4 volts.

The curve is drawn on a musical scale and should not be compared with curves drawn on a misleading frequency scale. A vertical logarithmic scale is not used, as it tends to make the performance of any amplifying device look better than it is.

It will be seen from the curve, Fig. 1, that the cut-off at 50 cycles (more than 2 octaves below middle C) is 48%, a figure which is better than that given by cheaper Transformers and at the same time is not surpassed by the new higher priced Transformers using special iron cores that have recently been placed on the market.

INDUCTANCES. High Primary Inductance under working conditions is the most important requirement of a good Audio Frequency Transformer. Inductance varies with signal strength and anode current. The curve Fig. 2 shows the inductance of the AF4 under normal conditions of signal strength with various anode currents. It should be observed that the Inductance of Transformers using special iron cores, such as Permalloy, falls off much more rapidly with increased anode current, and in many cases such special cores become permanently highly magnetised, rendering the Transformer inefficient.

IMPEDANCES. The AF4 Transformer with 2.5 milliamps flowing through its primary has the following primary Impedances:—

At 50 cycles ... 8,750 At 100 cycles ... 17,500 At 500 cycles ... 90,000

With lower milliamps the Impedances are greater. The Valve preceding the AF4 with suitable H.T. and Grid Bias should not take more than 6 milliamps.

A .0003 mfd. by-pass Condenser is incorporated in the AF4 across the primary. Without such a Condenser proper rectification cannot take place, and the Condenser is included to ensure that the correct capacity shall be used. It is important to note that the Transformer gives its characteristic curve under working conditions with this condenser in position and so avoids the cut-off in the L.F. Amplifier that occurs with all other forms of coupling when a by-pass Condenser of adequate capacity is employed.

This Condenser does not affect the satisfactory functioning of the Transformer in any well designed circuit.

VOLUME CONTROL. Where this is necessary, it should be carried out by means of a variable high resistance, having a total value of 50,000 or 100,000 ohms placed across the primary of the first Audio Frequency Transformer.

The curve at the bass end may be made flat by feeding the Transformer through a resistance and blocking condenser, but the complication of this is usually not worth while, as a similar result may be more readily obtained by the use of an AF5 Transformer.

Reversible feet are fitted to permit the Transformer to be mounted in any convenient position.

The AF4 is a proved Transformer that has shown its reliability over a number of years. It incorporates the FERRANTI patent air spaced windings, and its small size renders it specially useful where space is a consideration, as in Portable Receivers.

It is the ideal Transformer for Set Manufacturers, and is used by many leading Makers who consider performance before price.

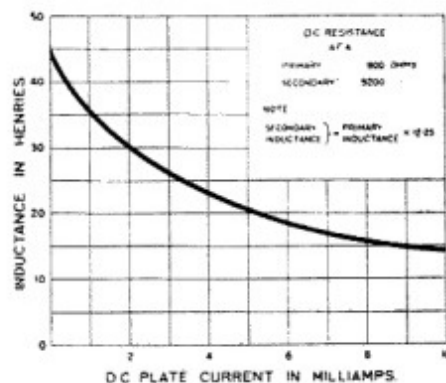


Fig. 2.

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