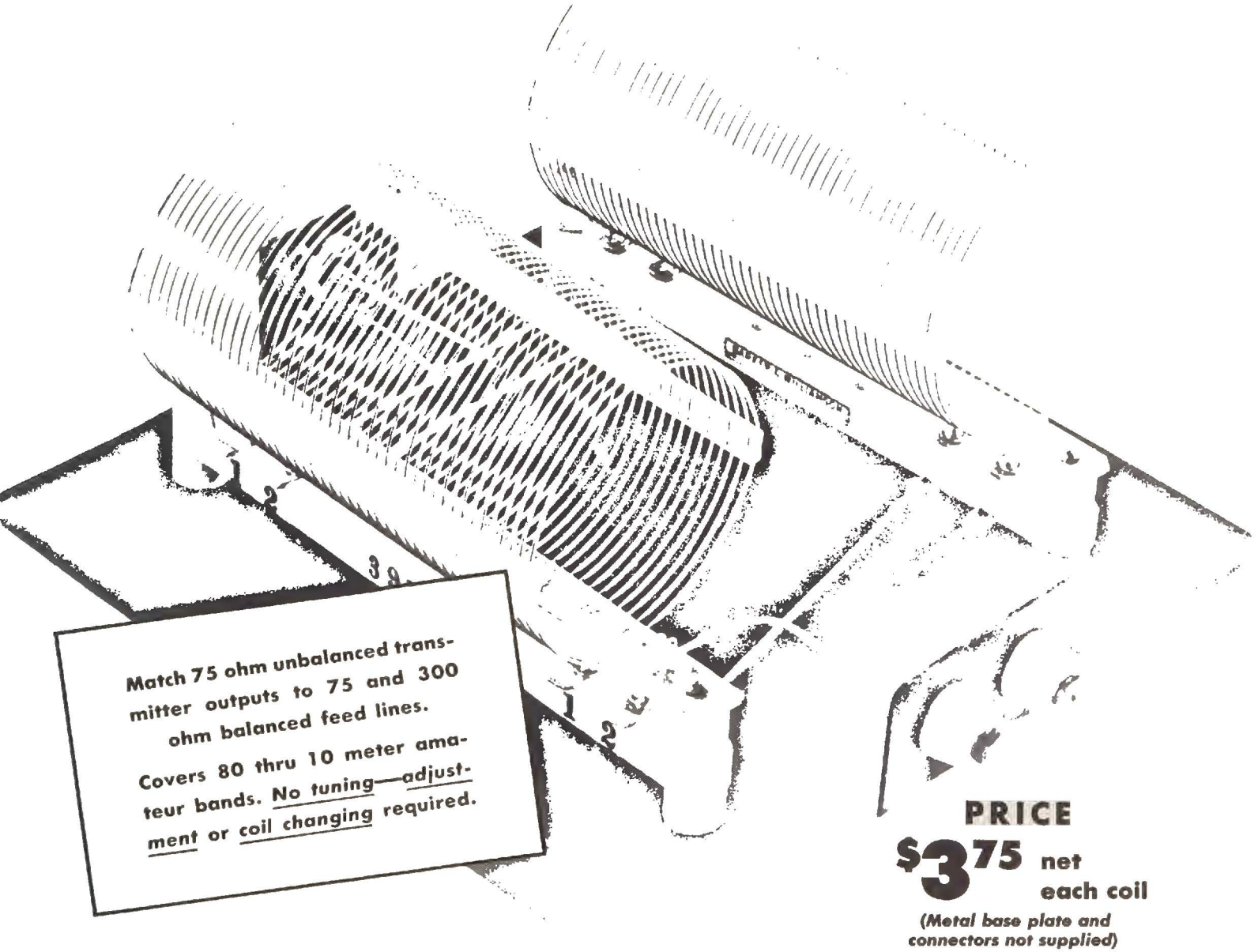
B&W Balun Coils

TYPE 3975



Match 75 ohm unbalanced transmitter outputs to 75 and 300 ohm balanced feed lines.

Covers 80 thru 10 meter amateur bands. No tuning—adjustment or coil changing required.

PRICE

$3.75 net each coil

(Metal base plate and connectors not supplied)

THESE sturdy bifilar air-wound inductors may be used for impedance matching in both transmitters and receivers. When two of these coil units are assembled and wired together conforming to wiring instructions, the assembly will provide a multiband Balun type impedance matching device which can be used to meet the following impedance matching requirements.

1. Unbalanced 75 ohms to balanced 75 ohms as shown in Fig. 1.

2. Unbalanced 75 ohms to balanced 300 ohms as shown in Fig. 2.

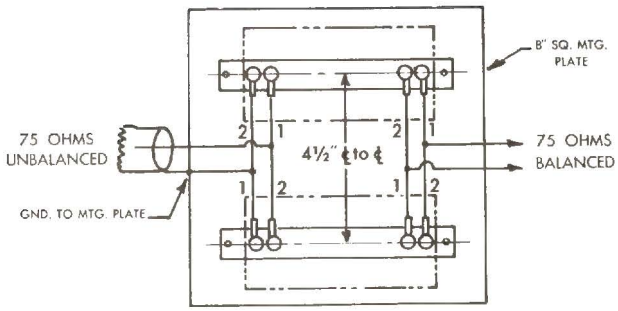


Fig. 1

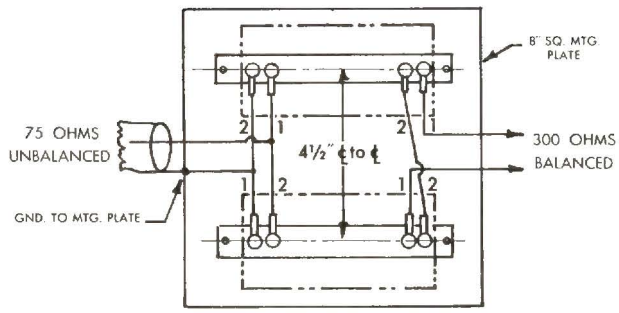


Fig. 2

THE BALUN — HOW IT WORKS

The word "Balun" is derived from a combination of the two words "Balance" and "Unbalance". Thus any device bearing the name "Balun" implies balance to unbalance and vice-versa.

Baluns can be made for single band operation; several of these types for use in amateur applications have been described in technical articles published by various radio magazines.

For greater detail in theory and operation, reference is made to the article titled, "The Impedance Matcher", by Vince DeLong and Ben W. Roberts, on page 20 of C. Q. Magazine, May, 1951.

This bifilar type balun is essentially a parallel wire transmission line wound into the form of a coil which acts as an R-F choke, effectively isolating the input and output of the transmission line.

Since each B & W type 3975 balun coil has an inherent characteristic impedance of 150 ohms, 75 ohms is acquired by paralleling the inputs of two type 3975 coil units, while 300 ohms is obtained by connecting their outputs in series. This connection provides a transformation ratio of 4 to 1.

By paralleling both the input and output circuits of these two coils, the impedance value of each coil is reduced to exactly half of their respective normal value of 150 ohms, thus providing the impedance matching value of 75 to 75 and a transformation ratio of 1 to 1.

Because the construction of this type Balun fixes the impedance relationship, it cannot be used for any impedances other than those given above.

CONSTRUCTING AN IMPEDANCE MATCHER

Figures 1 and 2 show how two B & W type 3975 coils may easily be mounted and wired together. Selection of either one of the two wiring examples will provide for proper match between 75 ohm unbalanced transmitter outputs to 75 or 300 ohm balanced feed line systems.

The assembly should be mounted on a metal plate at least 8″ x 8″ with the coil centers spaced not less than 4½″.

The unbalanced ground should be connected to the mounting plate with as short a lead as possible.

The unbalanced side of the unit should employ a suitable coax connector while a pair of ceramic feed through insulators result in a convenient method of connecting the unit to the balanced feed line system.

Placing the Balun in a metal box for purposes of shielding is not recommended. Doing so may limit the heat dissipating qualities of the coils in addition to adversely affecting the impedance relationships.

PRACTICAL APPLICATIONS

The completed impedance matching unit may be connected as shown in figure 3. The B & W low pass filter is an optional accessory for reducing TVI by attenuating harmonics above 30 megacycles and is recommended in such troublesome cases.

A booklet titled "Filter-Facts" covering details on proper use of B & W Low Pass Filters and Faraday Shielded Links and a wealth of information on how to lick your TVI, is available by sending 15 cents in coins or stamps to the factory.

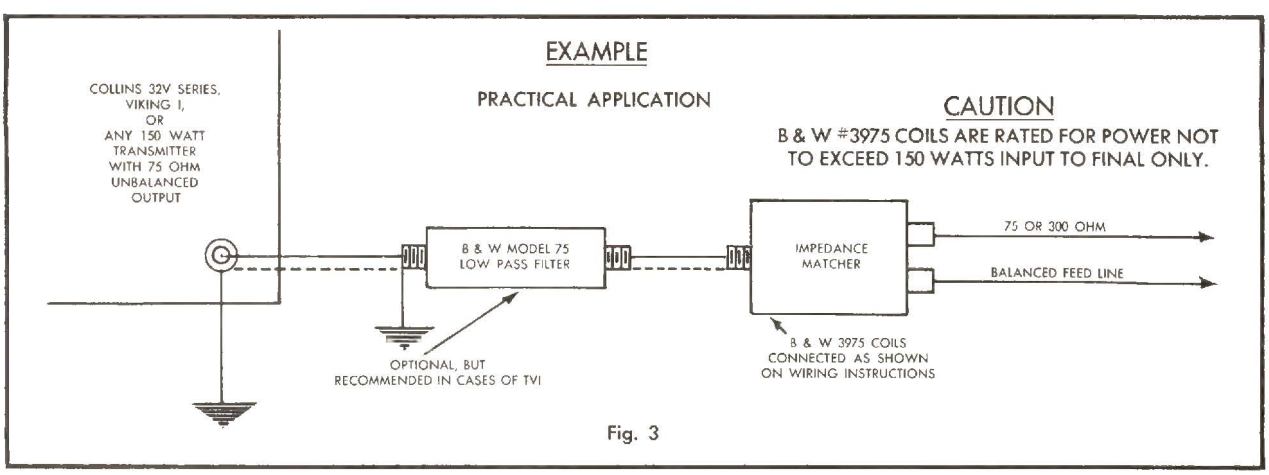


Fig. 3

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