

HF transmitter-to-antenna interface equipment



BALUN TRANSFORMER 2 TO 30 MHz

CB-2F

Couples 50-ohm coax to open lines, permitting use of coaxial cable in the vicinity of transmitters and use of economical open lines running to antennas. Greater than 97% power transfer efficiency. 1.2:1 insertion VSWR.

SPECIFICATION SUMMARY

Frequency range	2-30 MHz	
Voltage balance	less than 5%	
Power Rating	-1K	-3K
average/PEP KW	0.8/2	2/4
Insertion VSWR	1.3:1 maximum	
Insertion Loss	Less than 0.2dB	
Impedance Ratio	1 : 1	
Max. VSWR Load	2.5 : 1	
Input connector	type -M-	
Net weight	240g	280g



Figure 1. Model CB-2F.

CREATIVE DESIGN CO., LTD.

4-8 Asano-cho, Kawasaki-ku, Kawasaki, JAPAN, 〒210
TELEX : 03842773 CDC J CABLE : CREATE KAWASAKI

1. GENERAL DESCRIPTION

Balun transformer Model CB-2F is an interface between a transmitter and an antenna, which are different in the impedance. Generally, a half wave length dipole is used for the driven element. A current distribution in the dipole must be balanced with respect to its center. This state is called a balanced state. The coaxial cable, however, is unbalanced, so that the cable is directly coupled with the driven unit, most high frequency energy is reflected at the feeding point to the feeder side, that is a transmitter or receiver. This reflection takes place irrespective of VSWR. The result is that 100% high frequency energy from the transmitter can not be radiated from the antenna, causing trouble the transmitter, television interference, etc. (see figure 2).

Balun is used to interface between the balanced and unbalanced system. Model CB-2F, designed for large power use, has a wide frequency characteristic, a high degree of balance, and a constant impedance characteristic.

The Model CB-2F is classified into two types on the basis of the power handling capability. The power withstand of the balun is high for the wave form of SSB, but is about a half of the SSB for the wave forms with a large average power such as CW and FSK.

When the VSWR is about 2.5 or more, a degree of the balance and the power handling capability are reduced and the insertion loss increases.

2. MOUNTING OF BALUN

Most of the Yagi type antennas manufactured by the CD company are provided with the balun, as shown in figure 3. Each antenna is designed allowing for the residual reactance of the balun and matching stub.

Mount the balun avoiding the clamp for the driven element, after the element is mounted. In mounting the balun, the drain hole of the balun case is faced downward.

3. STUB ASSEMBLING

Before fixing the impedance matching stub to the element, bend or shape the stub using a cutting plier, as shown in figure 3. Some models do not require such bending work. Bend and adjust the width between the each stub ends so as to meet the each ends with proper stub mounting position. For further details, see the instruction manual of each model.

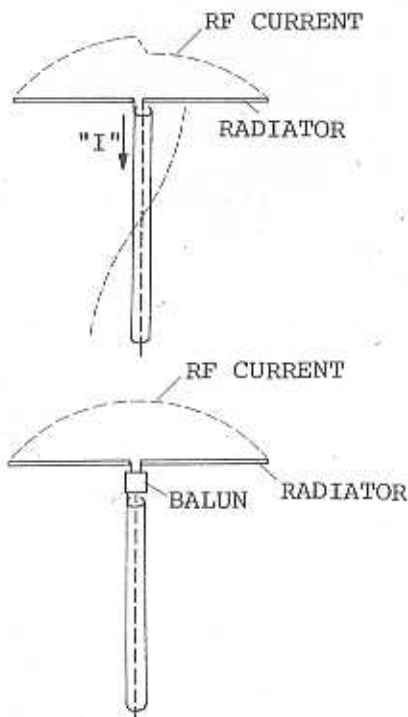


Figure 2. Function of Balun.

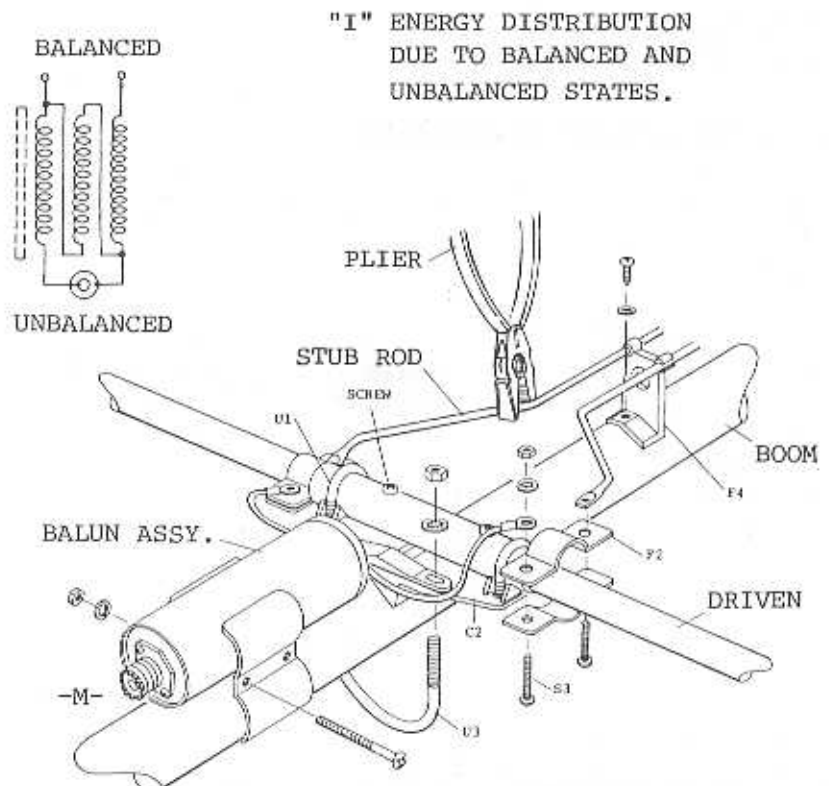


Figure 3. Balun Installation.