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**Model BN-86**  
**3-30 MHz 1500W 50-ohm**  
**Current Balun**

# INSTRUCTION MANUAL

## General Description

This balun is a ferrite, balanced to unbalanced, antenna matching device. With a transformation ratio of 1:1, the balun will couple into any 50 ohm balanced system such as dipoles, multiband doublets and beam antennas.

This balun is supplied with stainless steel hardware except for eyebolts.

For higher power and higher VSWR, use the Hy-Gain BN-4000 current-type balun rated at 2000 watts ave., 4000 watts PEP

## CAUTION

DO NOT use this balun with any type of antenna tuner or match box when the VSWR (before matching) is greater than 3:1. If the VSWR is below 3:1, a match box can be used as long as the power levels are kept below the limits shown in the Specifications. When these power and VSWR limits are exceeded, the extremely high standing wave voltage present at the feedpoint causes the breakdown voltage of the balun to be exceeded.

## Specifications

### Electrical

Impedance .....	50 ohms
Frequency Range .....	3 to 30 MHz
Insertion Loss .....	negligible (less than 1 dB)
SSB/CW Power Handling Capabilities .....	1500 W PEP, 800 Ave at less than 2:1 VSWR 500 W PEP at less than 3:1 VSWR
RTTY Power Handling Capabilities .....	500 W continuous at less than 2:1 VSWR

### Mechanical

Weight .....	1 lb. (0.45 kg)
Dimensions .....	3 1/4" x 6 1/4" (8.3 cm x 15.9 cm)
Input Receptacle .....	SO-239
Output Receptacle .....	standard terminal lugs
Weather Protection .....	weatherproof housing with condensing drain opening
Housing Material .....	highimpact injection molded, Cycliclac® plastic

## Mounting on Boom or Mast

Refer to Figures 1 and 2.

Place balun against mast or boom and insert the U-bolt through the holes on the sides of the balun.

Place U-bolt around mast or boom - diameter 1 3/8" to 2 3/8".

Cycliclac is a registered trademark of Borg-Warner

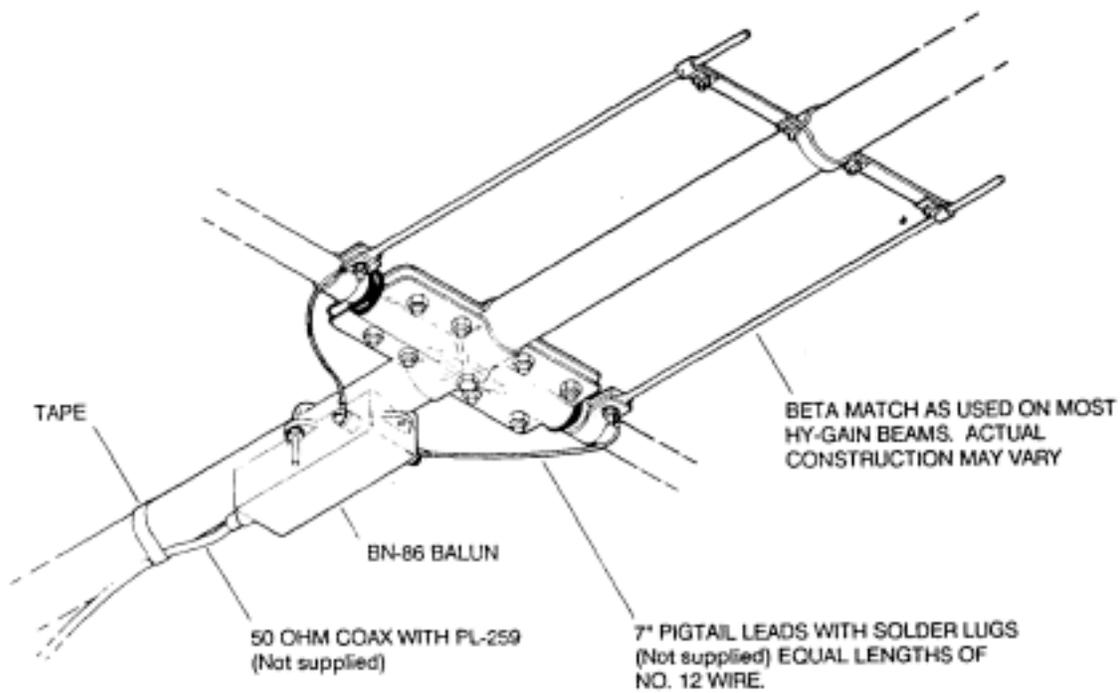
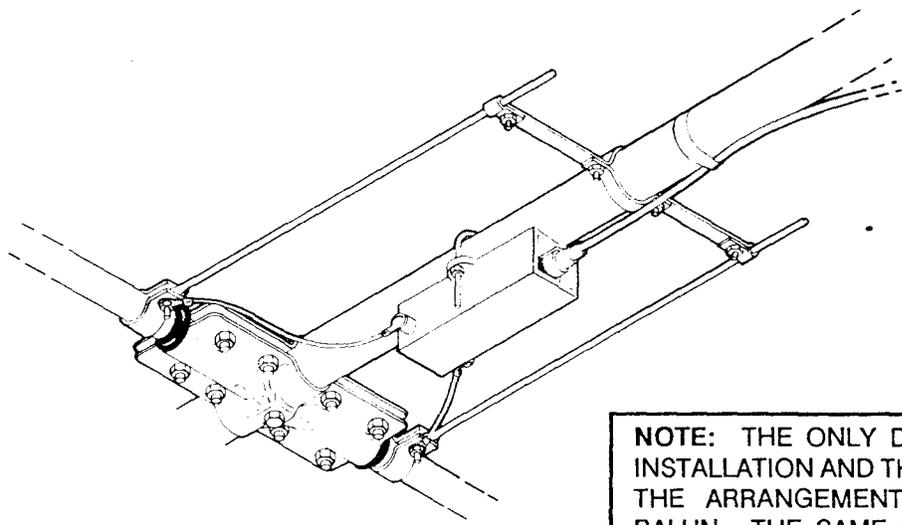


Figure 1  
 Typical **Balun Installation**



**NOTE:** THE ONLY DIFFERENCE BETWEEN THIS INSTALLATION AND THE TYPICAL INSTALLATION IS THE ARRANGEMENT AND LOCATION OF THE BALUN. THE SAME CALLOUTS APPLY TO BOTH ILLUSTRATIONS.

Figure 2  
 Alternate Balun Installation

Tighten all hardware securely. Connect the leads to the driven element. (See Note)

Connect the coax to the receptacle on the [balun](#).

NOTE: Fasten the balun as close as possible to the driven element. Leads from the two terminal outputs to the driven element should not exceed either 7" or existing lengths of the coax leads. Longer lengths will lower the resonant frequency of the antenna system. Make sure these two wires do *not touch* the driven element bracket.

NOTE: Always connect the balun directly to the driven element. In some antennas the beta match is connected to the driven element with two insulated wires. These wires from the beta match and the wires from the balun should both be connected to the driven element. When using this balun with the Hy-Gain TH7DX or TH5/MK2 antennas, disregard this note.

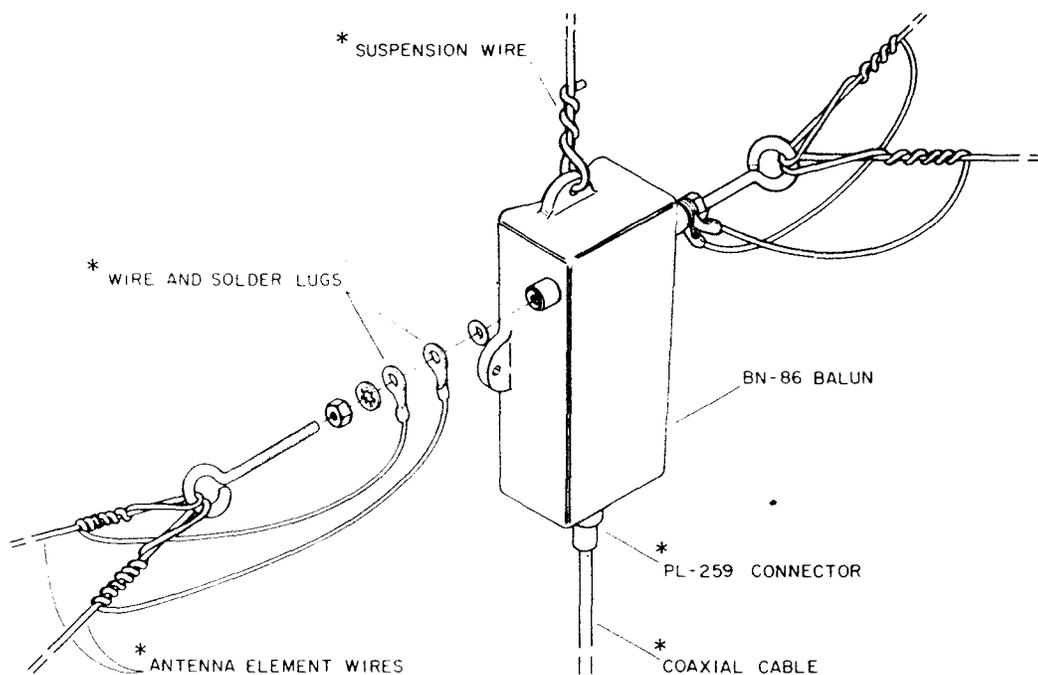
## Mounting on a Doublet System

Refer to Figures 3 and 4.

Insert two eyebolts in brass fittings at top of balun.

Hook doublet wires to eyebolts (the balun replaces the insulator completely).

Connect coax to receptacle on balun.



\* ITEMS NOT SUPPLIED AS PART OF THIS PRODUCT

Figure 3  
Dipole, Doublet or inverted "V" Antenna Arrangement

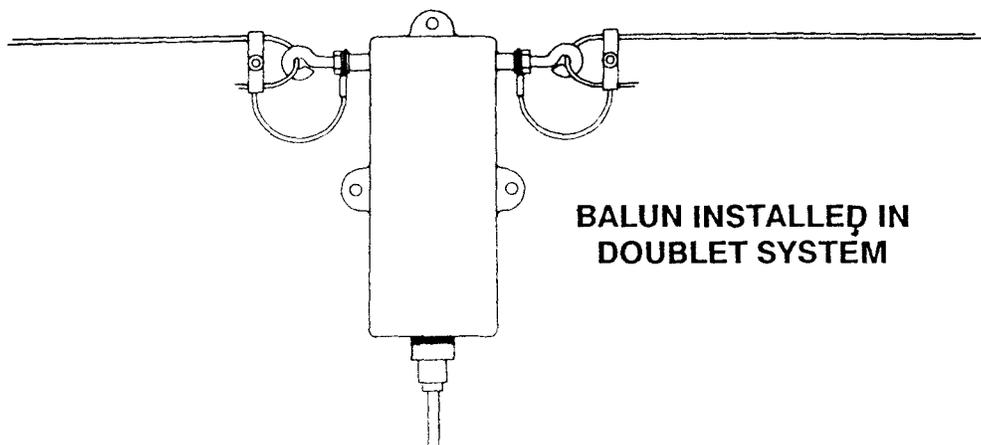


Figure 4  
Typical Doublet Antenna Arrangement

### Weatherproofing

The coaxial connection may be weatherproofed with hand-moldable plastic Coax-Seal®. This substance should be applied liberally to the connection and pushed into tight areas for complete sealing.

### CAUTION

This substance permanently seals the coaxial connection and is very difficult to remove from the connector.

### Customer Service

If you are unable to resolve your problem or if you need to order replacement parts, you should contact the Hy-Gain Customer Service Department.

All requests, inquires, warranty claims, or for ordering replacement parts, contact:

Hv-Gain  
308 Industrial Park Road Starkville,  
Mississippi 39759 USA Phone:  
662-323-9538  
FAX: 662-323-6551

### PARTS LIST

Part No.	Description	Qty
873424	Balun Assembly .....	1
872079	Parts Pack, 242S .....	1
540087	U-bolt, #10-24 x 2 1/2" x 2 3/4" stainless steel .....	1
540066	Eyebolt, 1/4" x 1 1/2" .....	2
554099	Nut, hex, 1/4"-20 .....	4
554071	Nut, hex, #10-24 .....	2
562961	Lockwasher, internal, 1/4" .....	5
500156	Bolt, hex head, 1/4"-20 x 3/8" .....	2
850050	Coax-Seal® .....	1

## **hy-gain**® LIMITED WARRANTY

**Hy-Gain** Warrants to the original owner of this product, if manufactured by **Hy-Gain** and purchased from an authorized dealer or directly from **Hy-Gain** to be free from defects in material and workmanship for a period of 12 months for rotator products and 24 months for antenna products from date of purchase provided the following terms of this warranty are satisfied.

1. The purchaser must retain the dated proof-of-purchase (bill of sale, canceled check, credit card or money order receipt, etc.) describing the product to establish the validity of the warranty claim and submit the original or machine reproduction of such proof of-purchase to **Hy-Gain** at the time of warranty service. **Hy-Gain** shall have the discretion to deny warranty without dated proof-of-purchase. Any evidence of alteration, erasure, or forgery shall be cause to void any and all warranty terms immediately.
2. **Hy-Gain** agrees to repair or replace at **Hy-Gain's** option without charge to the original owner any defective product under warranty, provided the product is returned postage prepaid to **Hy-Gain** with a personal check, cashiers check, or money order for \$8.00 covering postage and handling.
3. Under no circumstances is **Hy-Gain** liable for consequential damages to person or property by the use of any **Hy-Gain** products.
4. Out-of-warranty Service: **Hy-Gain** will repair any out-of-warranty product provided the unit is shipped prepaid. All repaired units will be shipped COD to the owner. Repair charges will be added to the COD fee unless other arrangements are made.
5. This warranty is given in lieu of any other warranty expressed or implied.
6. **Hy-Gain** reserves the right to make changes or improvements in design or manufacture without incurring any obligation to install such changes upon any of the products previously manufactured.
7. All **Hy-Gain** products to be serviced in-warranty or out-of-warranty should be addressed to **hy-gain, 308 Industrial Park Road, Mississippi 39759, USA** and must be accompanied by a letter describing the problem in detail along with a copy of your dated proof-of-purchase.
8. This warranty gives you specific rights, and you may also have other rights which vary from state to state.