

## INSTRUCTION MANUAL

651136400 M

# BTY-LP-BB



## PROFESSIONAL VHF BROADBAND ANTENNA 12 ELEMENT

STOCK NO. 4874

### DESCRIPTION

The Blonder Tongue BTY-LP-BB is a professional quality VHF Broadband antenna for CATV and MATV installations. It is a 12 element broadband multi-channel design for TV Channels 2 to 13 with a 75 ohm output for coaxial cable. This antenna has high gain, flat response, good VSWR, high front-to-back ratio, narrow beamwidth and low side lobes. The antenna is a log periodic with a shortened dual boom, permitting less expensive shipment by UPS, easier handling and reduced shelf space. The heavy duty center mount is positioned at the antenna's center of gravity for balanced weight distribution to the mast. The antenna can be rear mounted by using a B-T Model #5760 Cantilever Kit. This permits attachment to vertical or horizontal tower members.

### DESIGN FEATURES

- UPS shippable for reduced freight and handling cost.
- End-sealed aluminum elements are fiber filled for maximum vibration dampening.
- Special designed clamps insure contact of elements to boom.
- Hard drawn, heavy wall aluminum boom for added strength. Square boom design assures positive lock with mast mounting bracket.
- Well suited for cantilever mounting.
- Short boom reduces the wind load.
- Heavy duty stainless steel mounting bracket has serrated teeth for added grip to mast. Bracket accepts mast sizes up to 2-1/2" outside diameter.
- B-T Cantilever Mount available for rear-end mounting on tower or mast. Unique mount design permits vertical or horizontal orientation of mast.
- UV Stabilized Polyethylene Mounting Plate.



## BLONDER TONGUE

One Jake Brown Road, P.O. Box 1000  
Tel: (732) 679-4000

LABORATORIES, INC.

Old Bridge, NJ 08857-1000 USA  
Fax: (732) 679-4353

## SPECIFICATIONS

### ELECTRICAL

Gain	
Over Isotropic:	8.2 dBi
Over 1/2 wave dipole:	6 dB
Bandwidth:	54-216 MHz (Ch. 2-13)
	1 dB Flatness Across One Channel
Impedance:	75 Ohms
Match	
VSWR:	1.62:1
Return Loss:	12 dB
Directivity	
Horizontal Beamwidth (-3dB):	70°
Front to Back Ratio:	18 dB

### MECHANICAL

Maximum Element Width:	114-1/8" (289.9cm)
Boom Length:	96.4" (244.9cm)
Turning Radius:	75" (190.5cm)
Wind Resistance:	80 lbs. (36.3 Kg)*
Maximum Cross Sectional Area:	2.0 Sq. Ft. (0.179 M)
Operational/Survival Wind Velocity:	125 MPH (200 KPH)

\* Thrust transferred to supporting structure based upon 100 MPH (160 KPH) sustained wind on antenna.

### MATERIAL AND FINISH

Boom:	† 6063-T6 aluminum tubing 1-1/4" (3.2cm) sq. 0.062 (1.6 mm) wall thickness
Elements:	† 6063-T52 aluminum tubing 1/2" (1.27 cm) round 0.049" (1.3mm) wall thickness
Element Mounting Clamp:	Solid aluminum, 1/8" (0.3cm) thick 11 Gauge aluminum, 2" x 1-5/16"
Mast Mounting Bracket:	Polyethylene 1/2" (1.27 cm) thick, overall size = (10.2 cm x 22.9 cm)
Output Connector:	"F" type female
Shipping Weight:	17-3/4 lbs. (8.1 Kg)
Shipping Size:	4" x 5-1/2" x 87-1/2" (10.2 cm x 14 cm x 221.6 cm)

### Contents of Carton:

- 1 Boom Assembly
- 1 Boom Extension Assembly
- 2 Packs of Elements (12 to a pack)
- 2 Hardware Bags

### Contents of Hardware Bags:

#### Bag 1:

- 2 Screws 1/4 x 20 x 2" SS
- 4 Screws 1/4 x 20 x 1-3/4" CP
- 2 Screws 1/4 x 20 x 2-1/4" CP
- 8 Washers 1/4 LK, SS (0.265 ID)
- 6 Washers 5/16" FL, SS (0.312 ID)
- 4 Washers 3/8" FL, SS (0.390 ID)
- 4 Washers 3/8" LK, ZP (0.390 ID)
- 8 Nuts 1/4 x 20 SS
- 4 Nuts 3/8"-16 x 18 SS
- 2 Element Mtg. Brackets
- 22 Element Mtg. Brackets

#### Bag 2:

- 2 U Bolts, 3/8"-16, ZP
- 2 U Mast Clamps, SS
- 22 Inner Bkt. Nut Assy., 10-32
- 2 Inner Bkt. Nut Assy., 8-32
- 22 Screws, 10-32 x 2-3/8" SS
- 2 Screws, 8-32 x 1-3/4" HW, ST, CC
- 1 Instruction Manual
- 1 Spare Danger Label
- 1 Safety Manual
- 1 Weather Boot for "F" Connector
- 1 Warning Label

### Miscellaneous (Not Supplied):

- 1 Tube Silicone Grease
- 1 Roll Electrical Tape
- 1 "F" Connector

### Tools Required:

- 1 each Nut Driver: 1/4", 7/16", 1/2", 11/32"
- 1 each Open End Wrench: 1/4", 7/16", 1/2", 11/32"

† 6063 is a Hi Strength Al/Mg/Ti Alloy

## ASSEMBLY AND MOUNTING INSTRUCTIONS

**CAUTION:** Open one carton and assemble one antenna at a time. Do not intermingle elements from one antenna with those of another antenna.

Check hardware and tool lists to ensure all required materials are present.

1. Read all instructions before commencing assembly.
2. Remove antenna from carton.
3. Insert the short boom couplers on to the rear of the boom. Using (4) 1/4-20 x 1-3/4" screws secure to the rear of the boom. The holes are provided. Tighten firmly but do not over-tighten. See Figure 1. NOTE: Make sure the RG/59U cable exit is on the bottom boom.
4. Remove plastic rear end cap near element #1 and insert coax cable ( minimum 12' length) into lower boom. Bring out the front, make a small loop, as per Detail A and connect cable to antenna's "F" connector. Re-insert end cap.

**NOTE:** The coaxial cable must be run through the boom. The cable becomes an electrical part of the antenna. The loose downlead may then be secured with tape along the outside of the lower boom toward the mast.

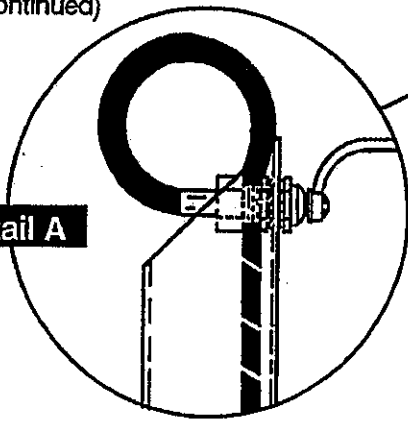
5. Remove two 1/4-20 bolts from plastic center mounting bracket and rotate bracket 90° from horizontal shipping position to vertical mounting position. Re-insert the two 1/4-20 bolts and hand tighten hardware. See Detail B.
6. Remove two 1/4-20 x 2-1/4" bolts from the bag and insert them into the remaining two boom holes on the center mounting bracket. Use two lockwashers, two nuts and wrench tighten all four 1/4-20 nuts.
7. Insert two U-bolts and clamps into the center mount bracket holes U, V & K, L. See Detail B. Fasten loosely with 3/8" nuts, washers and lockwashers.
8. Facing the antenna booms from the rear, mount element #1 on top of hole #1 (right side of upper boom). Mount the other element #1 section on the bottom side of lower boom below hole #1 (left side of the lower boom). See Details C & D.
9. Use the same procedure on the rest of the elements. Remember element #2 right side starts on the lower boom. See Figure #1.
10. Secure each of the 22 elements with a pair of mounting clamps as shown in Figure #1. This hardware and (2) 8-32 x 1-3/4" and (22) 10-32 x 2-3/8" hex head bolts will be found in the plastic bag. Use the (2) 8-32 x 1-3/4" bolts for element #12 only.
11. Note: Element #12 is inserted from the side of the boom using mounting clamps found in the hardware bag, (see Fig. 1). This is the only element mounted this way.
12. When using the Cantilever Mount, remove the lower U-bolt and use the (2) 1/4-20 x 2" screws, nuts and washers to mount the cantilever boom. (See cantilever instructions).

## ANTENNA STACKING

Stacking antennas (using more than one antenna for the same channels) increases gain and improves directivity. Antennas are stacked to raise the signal level in "marginal signal" areas and/or to create an antenna run in the direction of unwanted interfering signals. Blonder Tongue can provide mounting hardware to stack its antennas and will provide assistance in designing a stack (or array) of antennas. If help is needed, call our Systems Engineering Department.

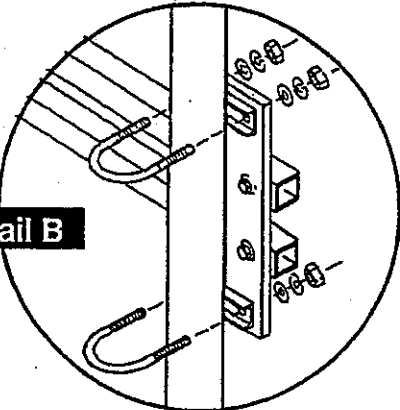
Downlead Connection

Detail A



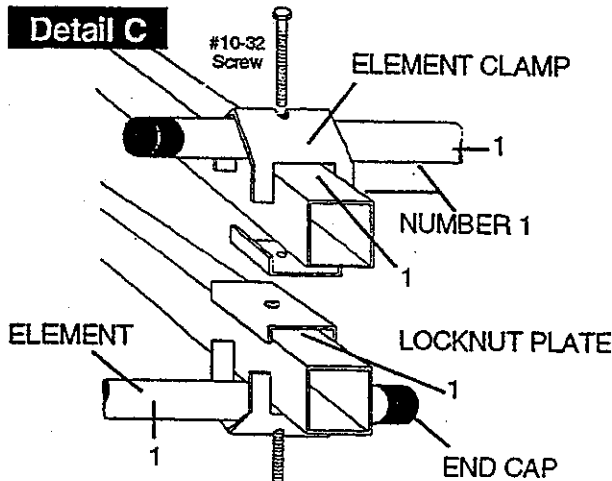
Center Mounting Bracket

Detail B



Top Element Mounting

Detail C



Bottom Element Mounting

Detail D

**Element Length**

Element No.	Quantity	Length
1	2	58-1/4"
2	2	49-7/16"
3	2	42-7/16"
4	2	36-1/4"
5	2	31"
6	2	26-9/16"
7	2	22-3/4"
8	2	19-17/32"
9	2	16-25/32"
10	2	14-15/32"
11	2	12-15/32"
12	2	10-25/32"

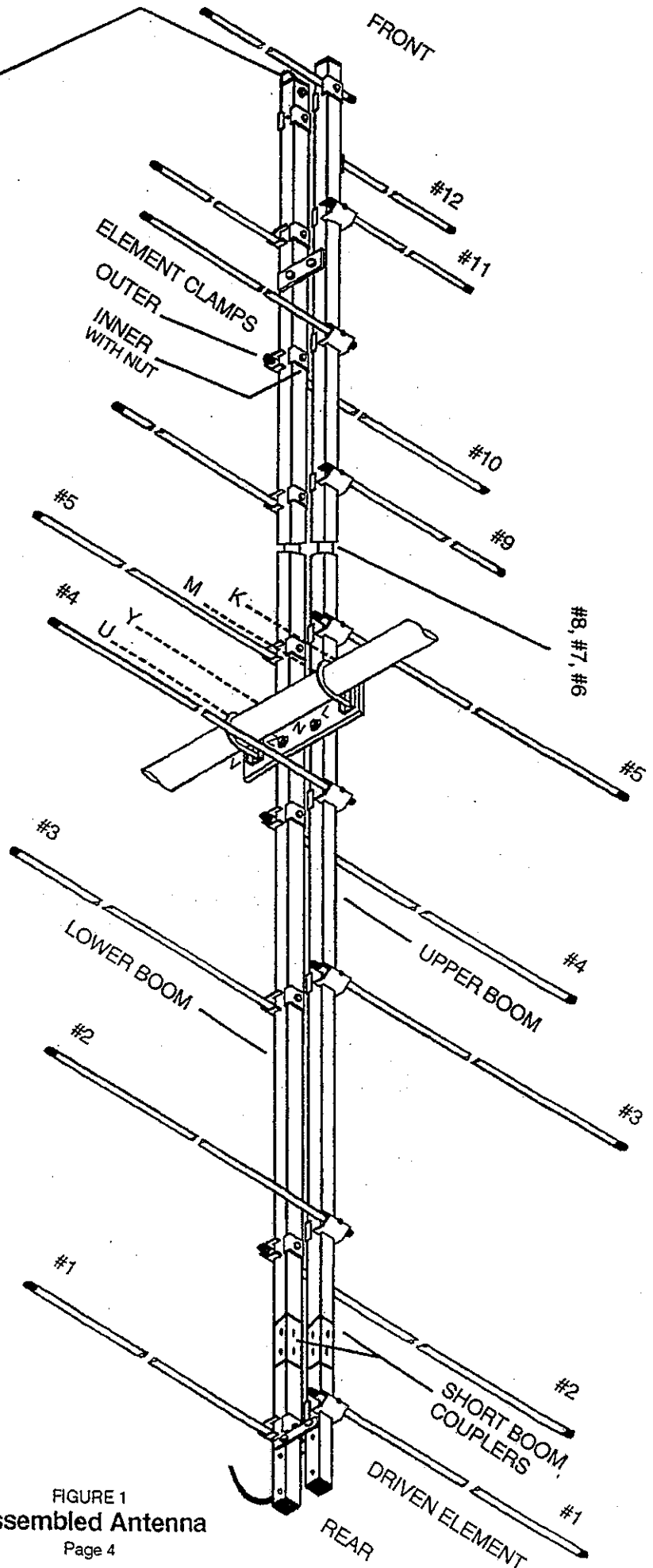


FIGURE 1  
Assembled Antenna