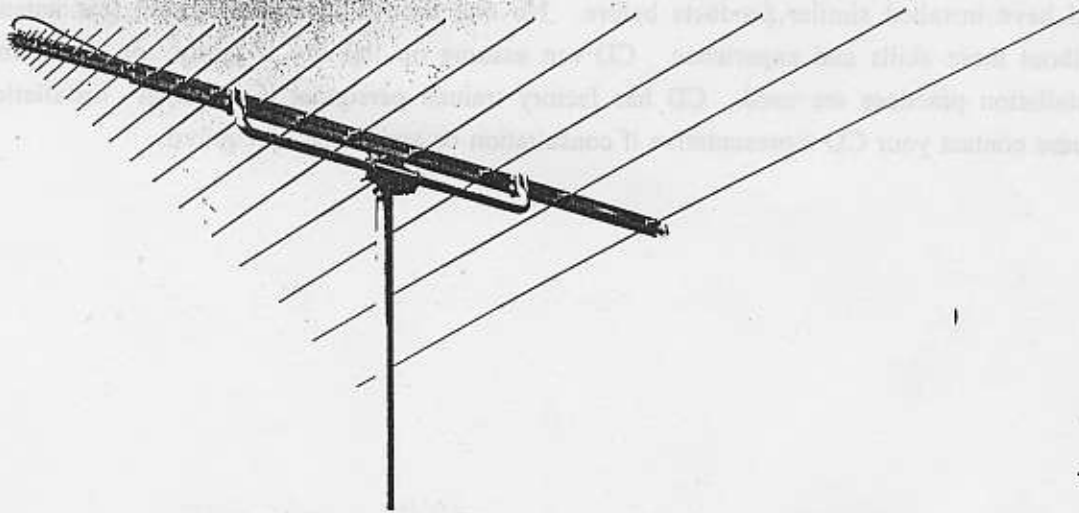


# LOG PERIODIC ANTENNA ARRAY

## ASSEMBLY MANUAL

### CLP5130-1



CLP5130-1

0287

Revision: 5/25/94  
Creative Design Co., Ltd.  
Kawasaki, Japan

## SECTION 1

# GENERAL AND ASSEMBLY

### 1. INTRODUCTION

This manual describes assembly procedures and operation of the CD Model CLP5130-1.

### 2. UNPACKING AND INSPECTION

After unpacking, check all parts, against the parts list in Section 3, to make sure no parts are missing. Also check that there are no damaged parts. If any parts are missing or damaged please follow the instructions contained in the warranty which is on the back side of the front cover of this instruction manual. Separate large parts (preassembled one) and small parts (bolts and nuts) and place them in a small box so that they will not be lost. Read the manual instructions carefully in order to fully understand how to assemble this antenna.

### 3. CONSTRUCTION

Create Model CLP5130-1 is a long periodic type antenna that is capable of operating continuously on the bands from 50-1300MHz. Figure 1 is an illustration of the CLP5130 and Figure 2 is a construction illustration. In this manual, the illustrations are for horizontal construction. Booms for supporting the elements consist of two L channels named B1 (front side) and B2 (back side). Each element in the B1 channel is preassembled in our factory. Insulators on B2 for mounting elements are also preassembled. The elements mounted on B2 are symmetrically pretuned and cut.

### 4. ASSEMBLY

Assembly of the CLP5130-1 is illustrated in Fig.2 and 3 (DETAIL-). The following is the step by step instructions for assembling the antenna.

#### 1) FRONT ELEMENT ASSEMBLY (See DETAIL-A and B)

Element in B1 are preassembled (riveted). Rotate the elements so they are  $90^\circ$  from the boom. Using S1(M3x8) screws, secure the elements in place. Attach the two boom halves (B1) together as shown in DETAIL-B using B8 and B9

#### 2) REAR ELEMENT ASSEMBLY (See DETAIL-D)

On Boom B2, element insulators are preassembled except those in the middle section and at the ends. Insulators that are not preassembled should be assembled using S4(M4x35) screws. Assemble elements E11-20 as shown in DETAIL-D using S3(D4x14) screws.

#### 3) BOOM ASSEMBLY (See DETAIL-C)

Join Boom B1 to B2 as shown in DETAIL-C using S2(M4x10) screws. Please note that it does not matter which side of the boom is facing up or down.

#### 4) FEEDING (See Fig.3)

On the front side of B1, attach the F1 Feeder plate to the F2 element rod using S1(M3x8) screws. F2 has a coupler to allow for S1 screws. The top and bottom should be symmetrically mounted with the feeder secured to the boom by the B10.

#### 5) ASSEMBLY OF BOOM CLAMP (See Fig.3)

Mount U-shaped tube B3 to places of the boom B2 using block spacers B5 and B6 with S5(M5x55) screws (It should be mounted at the front side of E14 element and rear side of E18 element). Then fix the mast bracket B4 at the position slightly front side of center of this tube (At this stage, decide polarization of the antenna).

## 6) ASSEMBLY OF ARRESTOR COIL (See Fig.3)

At the back of boom B2, attach the coil B7 using S2(M4x10) screws. Please note that by adding this coil, both the top and bottom is shorted electrically. Please take care in not bending the arrestor coil as it is fragile.

## 7) ELEMENT CAP (See Fig.3)

Element caps 1 should only be used to the upper side tip element when the antenna is mounted vertically.

## SECTION 2

### GENERAL AND SPECIFICATIONS

## 2.1 GENERAL

CD Model CLP5130-1 is a high gain, wide band VHF and UHF log periodic type beam antenna. As a standard, the antenna is designed for horizontally polarized base station used but by means of an adaptor, vertical polarization is also possible. The antenna is usable in the amateur band from 50-1300MHz and is also suitable for FM broadcasting, scanning, V-UHF television air bands communication, government applications, and business band use.

Forward gain of the CLP5130-1 from 50-1300MHz is 10-12dBi (This is 10-16 times the gain compared to a nondirectional discone type antenna). The VSWR of the antenna is less than 2.0 : 1 across the band. Mechanically, the log periodic uses a specially shaped high quality aluminum boom that allows for working as a phasing line. In addition, distortions in the vertical and horizontal planes have been minimized, and adjustment of the element alignment is not necessary. The assembly of the antenna is easy. The boom to mast brackets made of a lightweight and rugged magnesium alloy.

## 2.2 SPECIFICATIONS

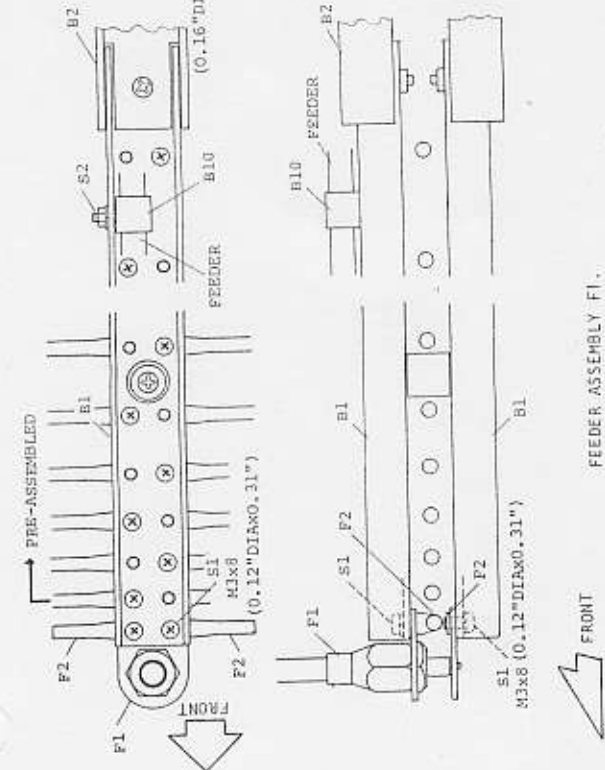
Frequency	50-1300 MHz
Number of Elements	21 ele.
Polarization	Horizontal (Vertical possible)
Forward Gain	10-12 dBi
Front to Back Ratio	15 dB
Half Power Point	70-60 °
Impedance	50 Ohms
VSWR	2.0 : 1 or less
Power Rating	500W PEP
Boom Length	2.0m (6' 8")
Element Length	Max. 3m (9' 10")
Mast Size	48-61 mm (1' 1/2")
Weight	5 kgs (11 Lbs)
Wind Survival Rating	40 m/sec. (90 mph)

## PARTS LIST

### LP-Antenna Model CLP5130-1

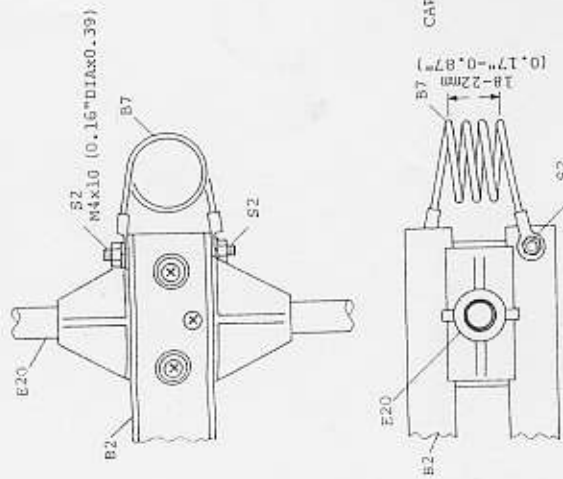
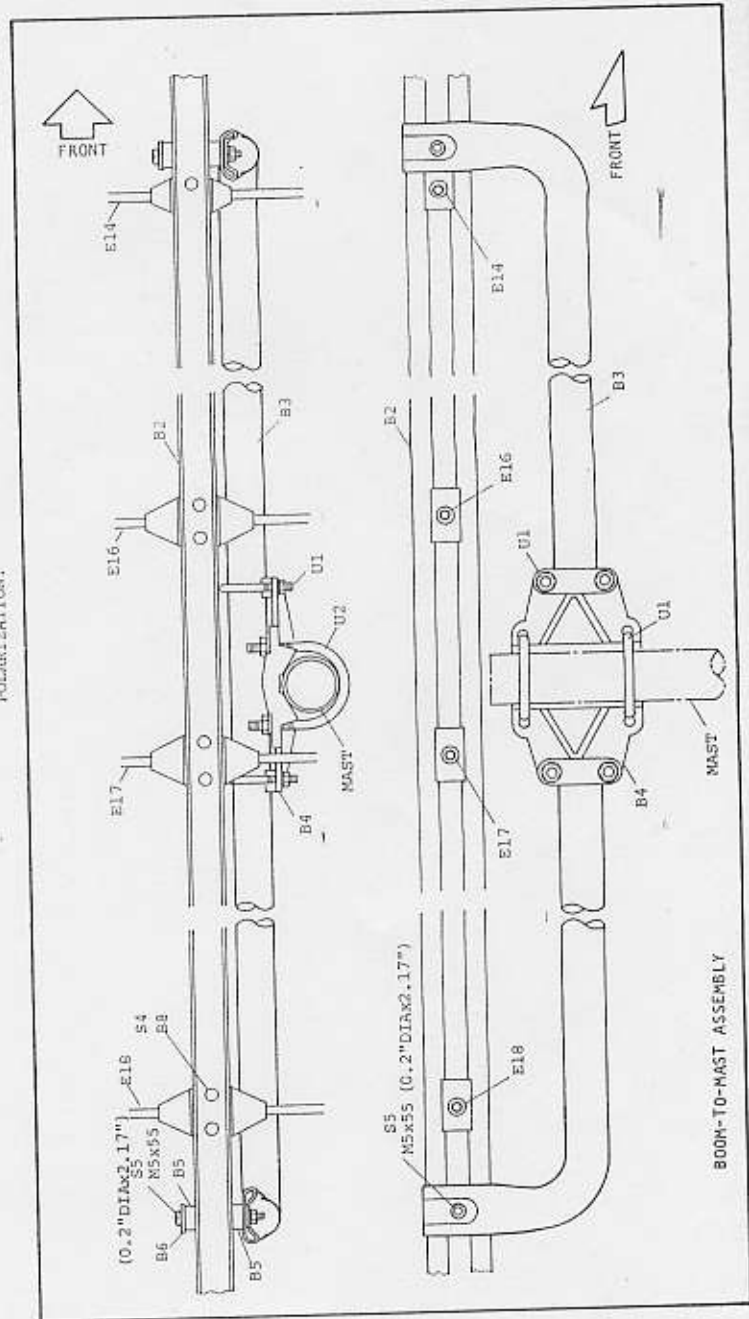
ITEM	DESCRIPTION	Q'TY
B 1	FRONT ELEMENT ASSY. CH12×22×325 (CH0.47"×0.87"×12.8") w/Rods	Alum. 2
B 2	BOOM ASSY. 2-CH16×27×1710 (2-CH0.63"×1.06"×67.33") w/Insulator	Alum. 1
B 3	BOOM SUPPORT U-30×1000 (U-1.18"×39.37")	Alum. 1
B 4	MAST CLAMP MC-90	Alum. 1
B 5	BLOCK 7×18×52 (0.28"×0.71"×2.05")	P.V. 4
B 6	STRAP 20×45 (0.79"×1.77")	Alum. 2
B 7	COIL D27-4t (1.06 D-0.16t)	Nick. 1
B 8	BUSH D12×11 (0.47" D-0.43"t)	P.V. 26
B 9	SLEEVE D13×13 (0.51" D-0.51")	P.C. 1
B10	SADDLE SL-6N	P.N. 3
E11	TUBE D7-10× 293 (0.28" D-0.39"×11.22")	Alum. 2
E12	TUBE D7-10× 351 (0.28" D-0.39"×12.99")	Alum. 2
E13	TUBE D7-10× 421 (0.28" D-0.39"×15.16")	Alum. 2
E14	TUBE D7-10× 505 (0.28" D-0.39"×17.22")	Alum. 2
E15	TUBE D7-10× 605 (0.28" D-0.39"×11.22")	Alum. 2
E16	TUBE D7-10× 726 (0.28" D-0.39"×23.82")	Alum. 2
E17	TUBE D7-10× 870 (0.28" D-0.39"×27.76")	Alum. 2
E18	TUBE D7-10×1043 (0.28" D-0.39"×32.28")	Alum. 2
E19	TUBE D7-10×1251 (0.28" D-0.39"×37.60")	Alum. 2
E20	TUBE D7-10×1500 (0.28" D-0.39"×43.70")	Alum. 2
F 1	FEEDER 5D2V 1m (39.37") w/Connector	1
F 2	STUB ROD D4×45 (0.16" D×1.77")	Nick. 2
S 1	SCREW M3×8 W, N. (0.12" D×0.31")	Nick. 24
S 2	SCREW M4×10 W, N. (0.16" D×0.29")	Nick. 7
S 3	SCREW D4×14 W, N. (0.16" D×0.55")	Sus. 20
S 4	SCREW M4×35 W, N. (0.16" D×1.38")	Nick. 13
S 5	SCREW M5×55 W, N. (0.2" D×2.17")	Nick. 2
U 1	U-BOLT M6-25A W, N. (0.24" D-25A)	Galv. 2
U 2	U-BOLT M6-50A W, N. (0.31" D-40A)	Galv. 2
①	CAP D7×8 (0.28" D×0.31") (Vertical Inst.)	P.V. 10





NOTE  
 THESE CAPS ARE USED ON TOP SIDE OF EACH  
 ELEMENT ONLY FOR THE OPERATION OF VERTICAL  
 POLARIZATION.

FEEDER ASSEMBLY FI.



"VERTICAL INSTALLATION"

"HORIZONTAL INSTALLATION"

Figure 3. CLP5130-1, Antenna Assembly.