

AM 913-3010-027



組立説明書
ASSEMBLY MANUAL

ログ・ペリオディック アンテナ
LOG PERIODIC ANTENNA

CLP3100

Change 3 1998-10
1st Edition 1991- 3

クリエート・デザイン(株)
Creative Design Corp.

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WARNING

Installing and rigging masts and antennas require highly specialized skills and experience. This drawing and the instructions within assume that personnel involved have these skills and have installed similar products before. No one should attempt to install this antenna without these skills and experience. CD can assume no liability if faulty or dangerous installation practices are used. CD has factory trained personnel to assist in installation. Please contact your CD representative if consultation or assistance is required.

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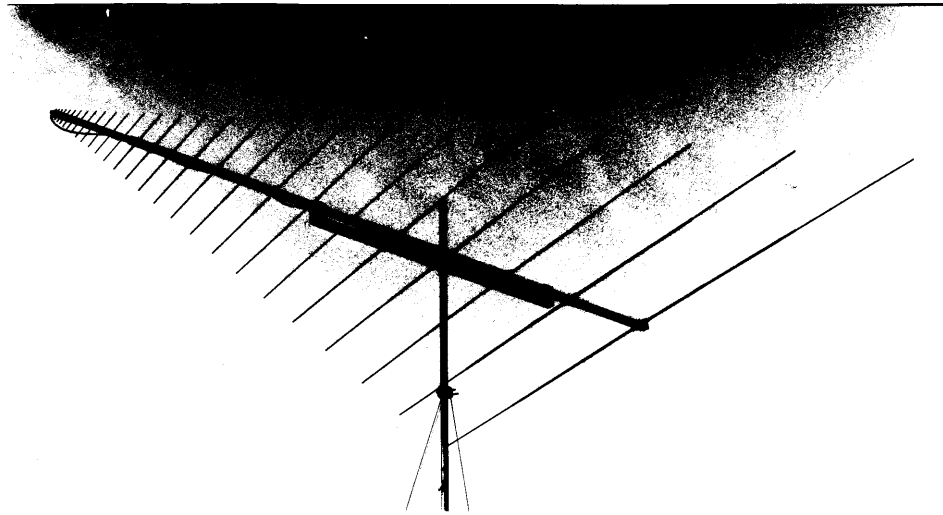


Figure 0. CLP3100. Illustration

SECTION 1 GENERAL · SPECIFICATION

INTRODUCTION

This publication contains instruction for the assembly, installation and operation for log periodic antenna model CLP3100.

1.1 GENERAL

This model CLP3100 is a log-periodic type, wide band, high gain beam antenna for VHF and UHF band. This model, as a standard type, is designed to mount horizontally polarized for a base station, but is allowed vertical polarization also. The antenna is suitably meet with a variety of applications such as broadcasting, air-band communication and government and municipal offices and public agencies and many other requirements ranging from 30~1300MHz.

Forward gain within the applicable range of this antenna is 6~7dBi in free space but is further 3~5dB of gain increase is expected due to a ground reflection (4~6 times greater gain in comparison with that of a omni-directional antennas such as discone type etc can offer.). It presents a high performance assuring less than 2.0:1 VSWR and with a stable radiation pattern across the entire band. Mechanically, being constructed of parallel aligned channelled tubing are used for its boom which also works as a phase-line electrically. Rugged structure of each section and use of high quality materials contributes to be a light weight and to proceed an easy assembly assuring a minimum distortion for the antenna structure in both horizontal and vertical plane. Since the beam antenna performs its full ability with use of rotator, using this antenna with rotator set RC5-x is recommended.

1.2 SPECIFICATION

	CLP3100
Frequency	30~1000 MHz
Number of Element	24
Polarization	Horizontal or Vertical
Forward Gain, Average	10~12 dBi/Average Ground
F/B Ratio, Average	15 dB
Power Half Width	70~60°
Impedance	50Ω
Input Connector	- NJ -
VSWR	Less Than 2.0:1
Power Capability	500W PEP
Boom Length	4.7 m
Element Length	Max. 5.3 m
Mast Diameter	φ48~61 mm
Weight	13 kg
Wind Load Capability	40 m/sec.

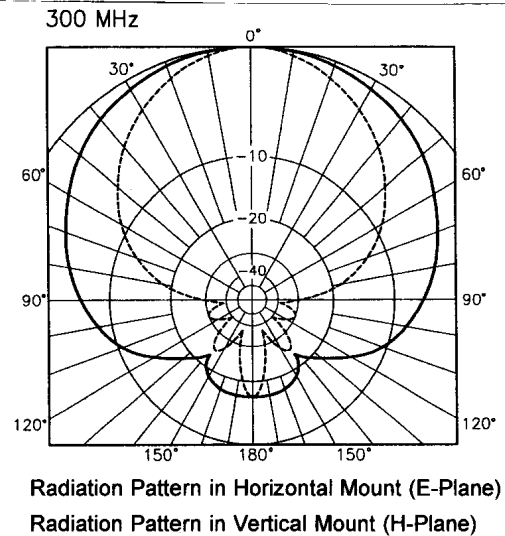


Figure 1A. Radiation Pattern. Average

1.3 EQUIPMENTS SUPPLIED, EQUIPMENTS REQUIRED BUT NOT SUPPLIED

All the parts corresponding to each drawing shown in this manual of this CLP3100 are supplied standard. Those which are supplied as the standard accessories are shown in the Parts List in SECTION 3. See the SECTION 4 for the treatment for any change or modification may take place. It is required to priorly prepare those tools and measurement equipment for the assembly and installation of this antenna. Listed below are standard equipments may need for the assembly and installation of this antenna.

- | | |
|--|---|
| 1) Mast Tube for Antenna Installation | High-Tension O.D. φ48.6~60.5mm, 3.2mm Thick. Refer to ※ |
| 2) 50Ω Coaxial Cable | Type -N- Connector attached Applicable To Coaxial Cable
Appropriate Thickness Considering Cable Length |
| 3) VSWR Meter or Impedance Meter | 50Ω Type, Reliable One |
| 4) Spanner Wrench, Cross-Head Screw Driver | for M4~M8 |
| 5) Measuring Tool | 0~3000mm Scale |
| 6) Water Protective Tapes | Both Self-Adhesive and Finishing, Black Color is Better. |

※ For vertical mount, an extra mast tube and mast bracket are additionally required in order to keep antenna from way from the main mast.

Extension Tube: Approx. φ61×1200mm (Optional)

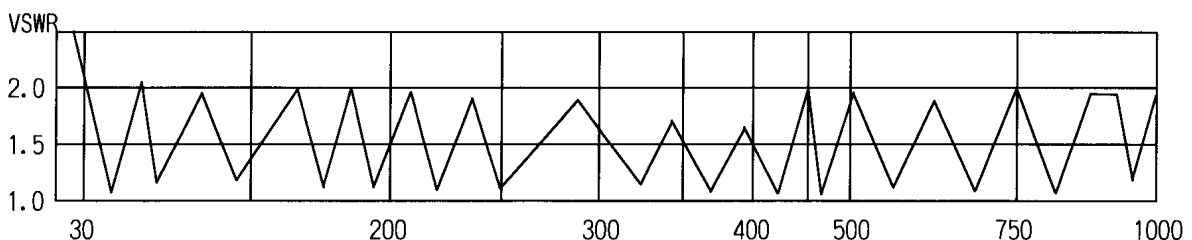


Figure 1B. VSWR Characteristic CLP3100

SECTION 2 GENERAL • ASSEMBLY

2.1 UNPACKING AND PARTS SORTING

Before start assembling, inspect the contents of the parts supplied by referring to Parts List in the Section 3, inspect whether or not if there is any missing or damaged parts. It is recommended to tentatively sort parts by dividing small parts into an empty box and apart from large parts. If there is any damaged parts found, follow instruction in the warranty stipulated in the warranty page in this instruction manual. Be sure to proceed the assembly after fully digested the procedure of the assembly as improper assembly will waste a time and energy.

2.2 GENERAL ON STRUCTURE, PROCEDURE PARTICULARLY NEED

This CLP3100 is supplied complete in the kit form, hence it needs to assemble as overall structure view shown in Fig. 2. As an explanatory, the illustration in the Fig. 2 is drawn out on the assumption that the antenna is set to mount in the horizontal polarization (parallel even with the ground), and the half of opposite side of elements are abbreviated. The boom tubes in order to support each element of this antenna consists of 3 tubes from B1 front tube to B3 rear tube of this antenna. An element rod is pre-assembled in the B1 tube, and an insulators for the use to assemble each element is factory attached on the both B2 and B3 boom tubes. Apply an anticorrosive grease on these tubing insertions to protect contact points from electrolytic corrosion due to different kind of metallic objects. See Fig. 2A for those points where different type of metallic are used.

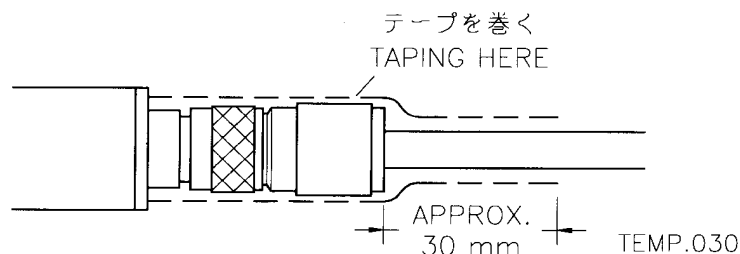
2.3 ASSEMBLY

Assembling of this CLP3100 is to be proceed upon the basis of assembly procedure instructed below as well as the stipulation shown in the Fig 2A~Fig 3. Since an extra cable for the extension (approx. 3m long) is required to connect from feed point to the place around the mast bracket, be sure priorly to prepare the extension cable before starting assembling as it needs during the antenna installation.

- 1) Front Element Assembly:
Fig 2. As each element rod is fixed with single rivet in B1 front boom. Open each element in right angle against the boom, then fix it with S1(M3x8) screw. See DETAIL-A. After two B1 booms are completed, join the two B1 boom into B6, B7 as shown in DETAIL-B and fix them with S4(M4x35) screw.
- 2) Boom Joint (B1, B2):
Fig 2. Joint the B1 front boom and B2 middle boom together as shown in DETAIL-D and fasten them with S2(M4x10). Neither the direction toward up and down has in this boom.
- 3) Boom Joint(B2, B3):
Fig 2. Joint B2 middle boom and B3 rear boom together and fix them with S5 screw, be sure to insert S5A sleeve together. See DETAIL-F.
- 4) Middle Element Assembly:
Fig 2. As shown in DETAIL-G, assemble B2 middle boom by inserting each element tube E12~E18 into element insulator, and securely fix them with S3(ϕ 4x14) screw. In these screw points, apply some grease (A) shown in Fig 2A.
- 5) Rear Element Assembly:
Fig 2. As the same way as above for the middle elements, insert each element tube E19~E23 into each element insulator on the B3 rear boom, and securely fix them with S4(ϕ 4x35) screw. See DETAIL-H.
- 6) Boom Support Assembly:
Fig 3. Mount B4 the boom support to the appropriate two points of both the B2 middle boom and B3 rear boom and fix them securely with S6(M6x30) screw. Then attach the C1 mast clamp in the center of the boom support and fasten securely with U bolt. (See Fig. 3. for details.)
- 7) Arrestor Coil Assembly:
Fig 3. Attach the B5 arrester coil to the rear end of the rear boom, like a shortening the both upper and lower boom with the coil and fix it with S2(M4x10) screw. (See Fig. 3.) Mounting method of this arrester coil depends on which polarization is selected. The way of mounting arrester coil is different and the drain hole must be facing downward if vertical polarization installation is selected accordingly.
- 8) Connector Installation:
Fig 3. Assemble the plate of F1 connector to the front end of B1 front boom together with F2 element rod, and securely fasten them with S1(M3x8) screw. In this F2 rod, S1 bow screw is attached. The F2 rod has a proper directivity to mount, be sure to assemble in the opposite direction of the E1. See DETAIL A, C.
- 9) Element Cap:
Fig 3. The element cap (1) is only used when the antenna is set in the vertical polarization. Set the cap to the upper side of elements.

2.4 INSTALLATION

When antenna assembly is completed, for the operation in the horizontal polarization, lift the antenna up as far to the height of the antenna supporting mast using a rope. As it is a kind of work in high place, proceed the work in 2 work men, is ideal number to perform with. Connect a coaxial cable between antenna and radio equipment and check the VSWR. If there is any significant malfunction in VSWR value maintaining above 3:1 over the entire band, inspect these principal parts of assembling section and contact point of coaxial cabling. For the operation in vertical polarization, prepare the supporting tube described in the Section 1.4 and priorly mount on the mast sticking it sideward in order mount the antenna vertically.



WATER PROTECTION IN CONNECTOR

2.5 OPERATION

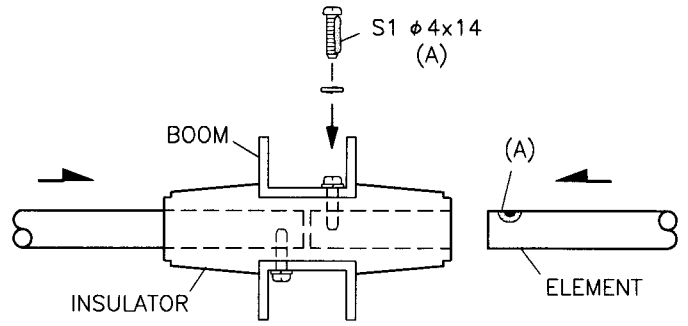
After the installation of the antenna is completed and when there is not any irregularity in VSWR, the antenna set is now be able to make an operation within the specification stipulated in the Chapter 1.3.

SECTION 3 PARTS LIST

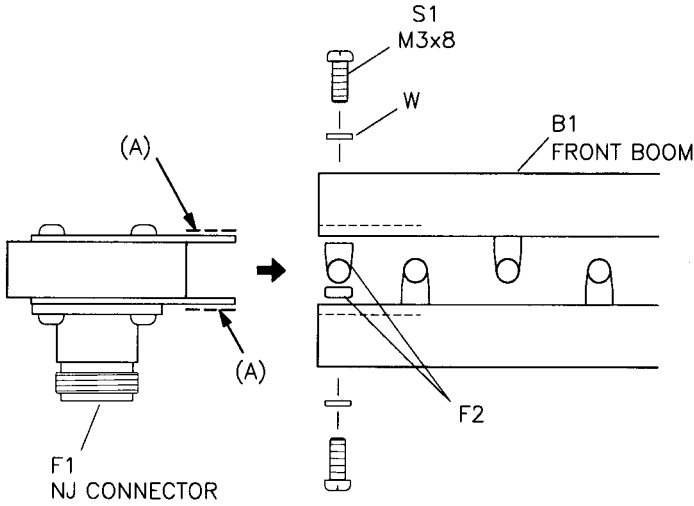
LP-Antenna Model CLP-3100. 24-Element

CMN 0804

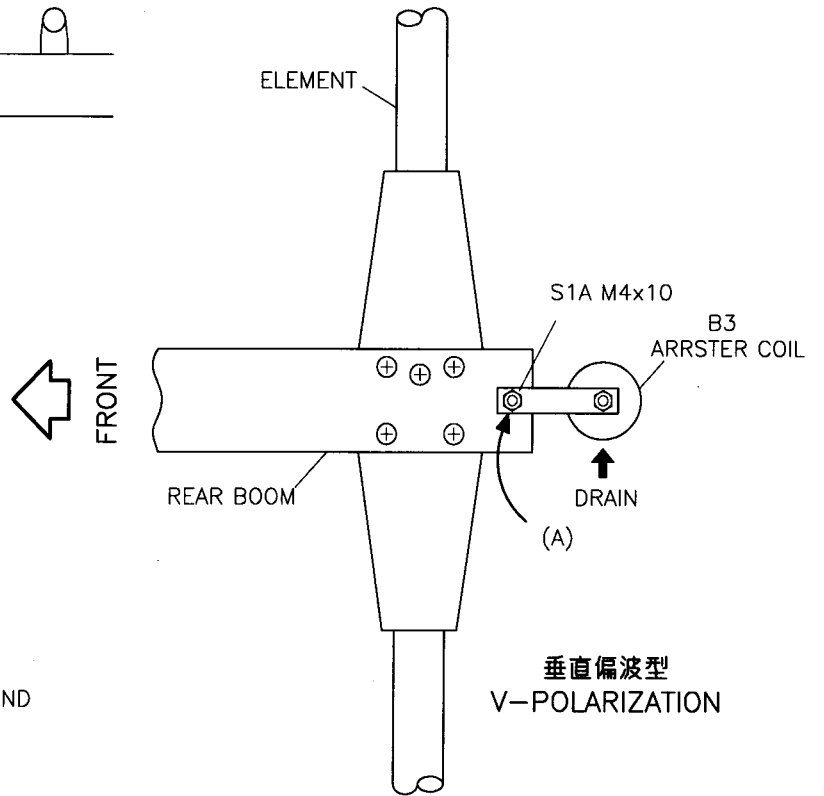
ITEM	DESCRIPTION		Q'ty
B1	FRONT BOOM ASSY.	CH12x27x646 with Rods E1~E11	Alum. 2
B2	CENTER BOOM ASSY.	CH16x27x1550 with Insulator	Alum. 1
B3	REAR BOOM ASSY.	CH20x40x2500 with Insulator	Alum. 1
B4	SUPPORT BOOM ASSY.	φ 50x2000 with Boom Clamp	1
B5	ARRESTER COIL ASSY.	φ 30x43	P. C. 1
B6	BUSH	φ 12x11	P. C. 1
B7	SLEEVE	φ 13x13	P. C. 1
C1	MAST CLAMP	MC-240 120x200	Alum. 1
F1	INPUT CONNECTOR	35x40 -NJ-	1
F2	FRONT ELEMENT	φ 4x45	Nic. 2
F3	SADDLE	φ 14x26 KT-4	N6. 2
F4	BIND WIRE	φ 1. 2x1000	IV. 1
E12	ELEMENT	φ 7-10x350	Alum. 2
E13	ELEMENT	φ 7-10x420	Alum. 2
E14	ELEMENT	φ 7-10x505	Alum. 2
E15	ELEMENT	φ 7-10x605	Alum. 2
E16	ELEMENT	φ 7-10x725	Alum. 2
E17	ELEMENT	φ 7-10x870	Alum. 2
E18	ELEMENT	φ 7-10x1040	Alum. 2
E19	ELEMENT	φ 10-17x1250	Alum. 2
E20	ELEMENT	φ 10-17x1500	Alum. 2
E21	ELEMENT	φ 10-17x1810	Alum. 2
E22	ELEMENT	φ 10-20x2175	Alum. 2
E23	ELEMENT	φ 17-20x1545	Alum. 2
E23A	ELEMENT	φ 10-20x1200	Alum. 2
EC1	TUBE CLAMP	φ 16x15 with Screw	Alum. 2
S1	SCREW	F1, E1~E11 M3x8 W, N.	SUS 26
S2	SCREW	B5 M4x10 W.	SUS 4
S3	SCREW	E12~E18 φ 4x14 W.	SUS 18
S3A	SCREW	F3 M4x16 W, N.	SUS 2
S4	SCREW	E19~E23 M4x35 W, N.	SUS 11
S5	SCREW	Boom Joint M5x30 W, N.	SUS 4
S5A	SLEEVE	Boom Joint φ 15x16	Alum. 4
S6	SCREW	Boom Support M6x30 W, N.	SUS 8
S7	BOLT	Boom Support M6x70 W, N.	SUS 4
U1	U-BOLT	Mast Clamp M8x40A W, N.	Galv. 2
U2	U-BOLT	Mast Clamp M8x50A W, N.	Galv. 2
A	ANTICORROSIVE GREASE	10g	1
(1)	CAP For Vertical Polarization	φ 7x10	PP. 7
(2)	CAP For Vertical Polarization	φ 11x20	PVC. 5



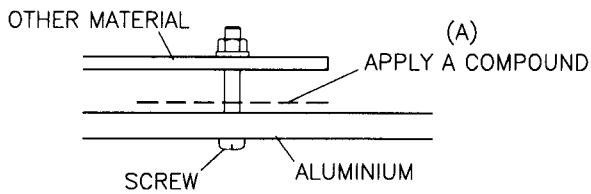
BOOM-ELEMENT SECTION



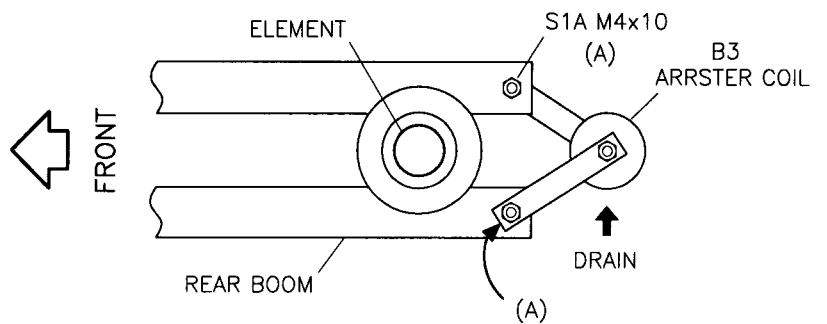
CONNECTOR SECTION



垂直偏波型
V-POLARIZATION



COMPOUND: ANTI-CORROSIVE



水平偏波型
H-POLARIZATION

ARRESTER COIL

Figure 2A. Connecting and Compound

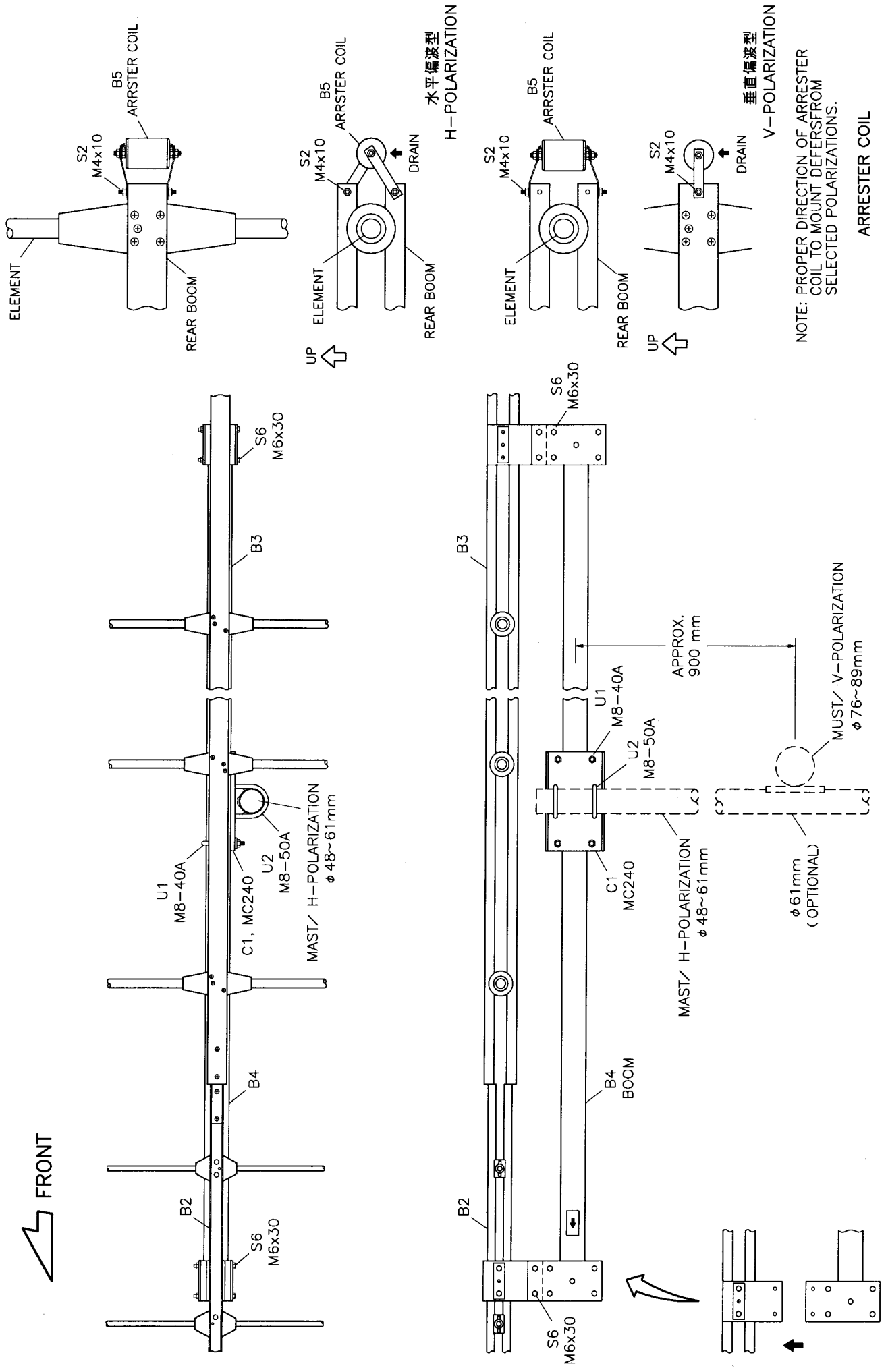
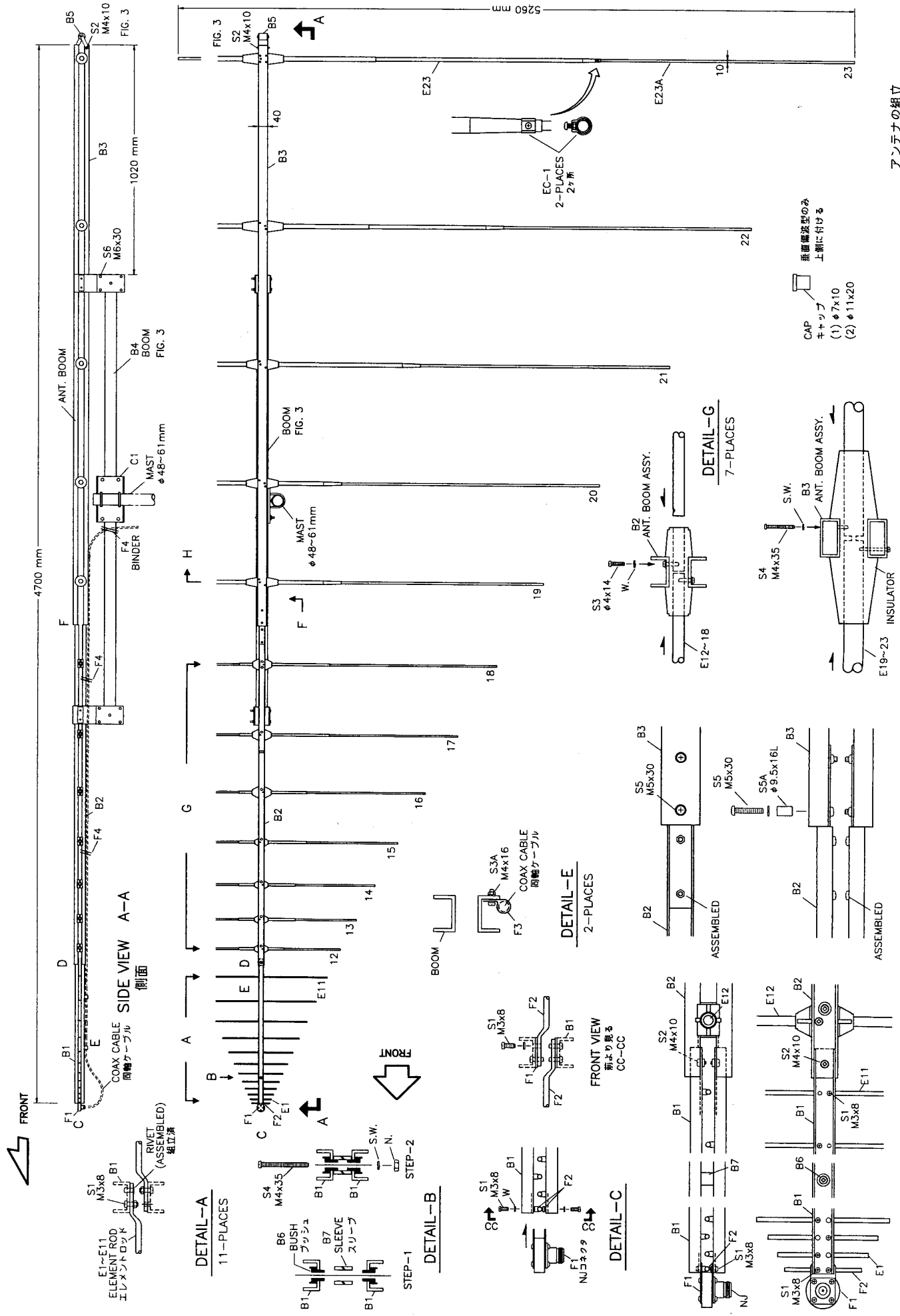


Figure 3. CLP3100, Antenna Assembly.
 CMN-0503 DWGA.035Q



アンテナの組立
Figure 2. CLP3100, Antenna Assembly.
CMN-0804 DWGA-035F