

VERSA Beam

Antenna

4mBoom Assembling Manual

- This manual is written for KA1-403S Lite .
- Installing Adjustable Element Unit (AEU)
- Assembling and Attaching Mast Clamp



Please keep this manual after you read for maintenance purpose.

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1. INTRODUCTION

Thank you for purchasing KA-1. We are sure you will enjoy DXing with our state of the art product.

You will love the features of which you can adjust SWR, the length of each element, and switching the beam direction without rotation while you are sitting in your shack.

Please read this manual carefully before assembling and using KA-1. We hope you will use KA-1 as your partner for long.

This manual is written for KA1-403S Lite.

This product is heavy and has some sharp parts. Please be careful during carrying, assembling, or installing.

■ WHAT (NOT) TO DO

- *Please CONFIRM Adjustable Element Unit(AEU) working properly before assembling and installing. We will not be responsible for any troubles you have without above procedure.
- *Be sure to remove DC plug from the controller when you pull off Amphenol connector.
- *Be sure to remove DC plug from the controller when you open the bottom cover and set dip-switches
- *If you pull out and plug in the DC plug while in operation, you need to press HOME button and then SET button to get the elements HOME so that the antenna element length is correct for the frequency.
- *Be sure to use the parts supplied by us to assemble KA-1.

2. Assembling 4mBoom

■2-1 : Assembling 4mBoom Using Boom Parts

4mBoom is used for KA1-403S Lite.

4mBoom consists of three aluminum pipes.

Bolt holes are already made in our factory to connect pipes with bolts, nuts, and washers.

See 「Diagram 1 • Figure 1」 to make sure how the parts should be connected.

***NOTE** If you find too loose connection, you might have connected wrong pipes. Please check there are different size bolts. You need to use the right parts for the right place.

There may be holes that are not used to assemble. Please refer to this manual to find the answer when you have questions.

See [Diagram 1、Figure 1]

* The boom is composed of three pipes

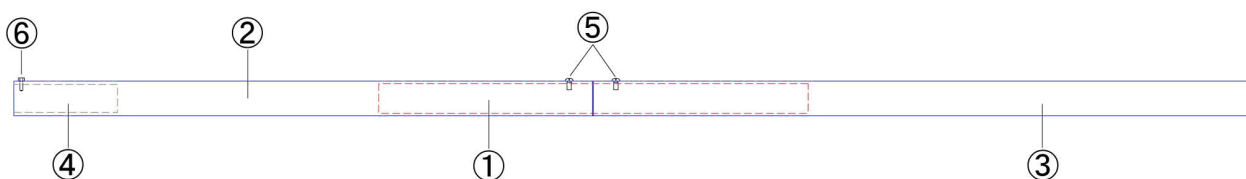


Figure1

No.	Parts Number	Parts Name	個数
①	AC05-S268	Boom Joint Boom 44.5x800	1
②	AC05-S276	Boom 53.5x2400	1
③	AC05-S275	Boom 49x2198	2
④	-	Counter weight	1
⑤	-	Pan head tapping screw P4x8	2
⑥	-	Hexagon upset bolt M4x10	1

Diagram1

■2-2 : Assembling of 4mBoom (Assembling Pipe①②⑩)

How to assemble end sections of 4mBoom.

Please make sure there is only a small gap between pipes.

See [Figure2]

***NOTE** We recommend you wear gloves when you assemble this product.
There are some sharp edges on the pipe.

See [Figure2]

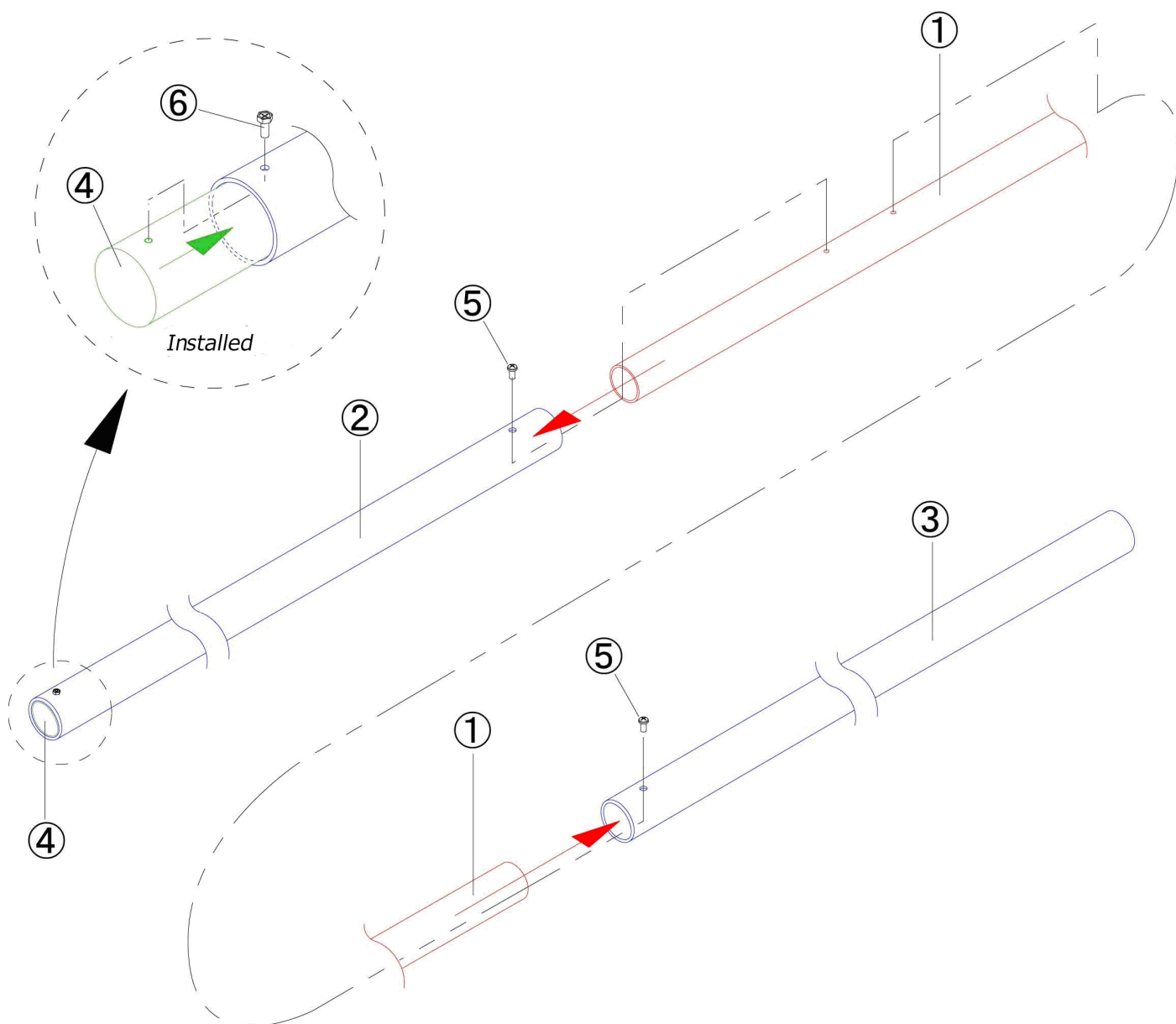


Figure 2

No,	Parts Number	Parts Name	個数
①	AC05-S268	Boom Joint Boom 44.5x800	1
②	AC05-S276	Boom 53.5x2400	1
③	AC05-S275	Boom 49x2198	2
④	-	Counter weight	1
⑤	-	Pan head tapping screw P4x8	2
⑥	-	Hexagon upset bolt M4x10	1

Diagram1

3. Adjustable Element Unit (AEU) Position

■3-1 : Confirm Each AEU's Position

Where to install AEUs of KA1-403SLite on the boom.

The center of 「Supporting Rubber」 is used as the measuring position. The end of the boom doesn't include boom top in other words boom top isn't there for measurement..

See [Figure3]

- *NOTE**
- Please make sure the beam direction when you install each AEU(Radiator, Reflector, Director).
 - It may make the rest of the work easier to attach mast clamp at this time.
 - The mast clamp position is not always at the center of the boom. Attach all the stuffs on the boom, and then find the weight center. The mast clamp position shouldn't be far away from the weight center, however doesn't have to be at the center.

Refer to another manual 「Versa Beam Antenna All Models」 for AEU assembling.

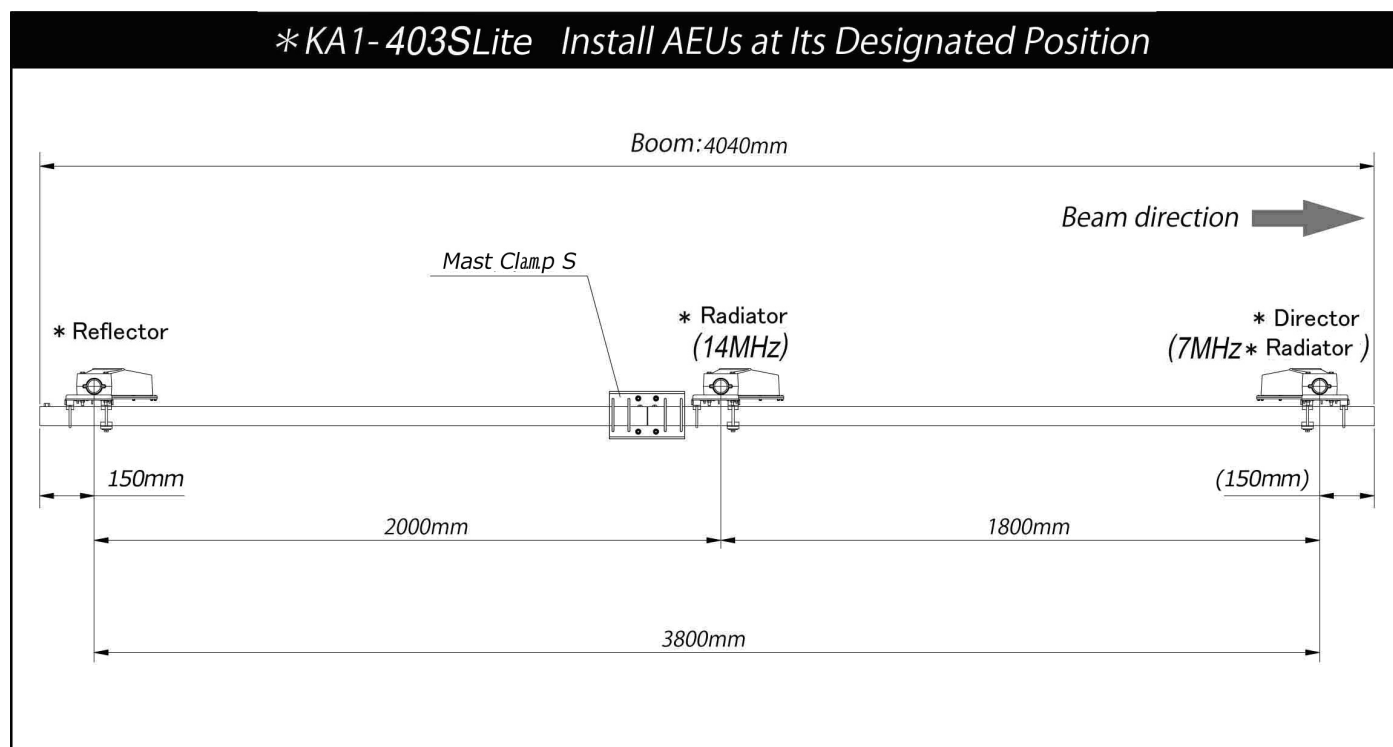


Figure3

■3-2 : Install AEUs at Its Designated Position

Installing AEUs on the 4mBoom.

Refer to 「VERSA Beam Antenna All Models」 for how to assemble AEU.

Please see 「Diagram2, Figure9, Figure10」 very carefully when you install AEUs on the boom. Because the boom consists of different size of aluminum pipes, different length bolts are prepared for AEU installation. Double check all the bolts, and select the right ones for the right place.

If you use wrong bolts to install AEU, the element may be moved by wind or small mechanical shock at the time of stopping rotation. Then the KA-1 may not perform its best. AEU may fall to the ground from the boom in the worst case.

See[Diagram2、Figure4、Figure5]

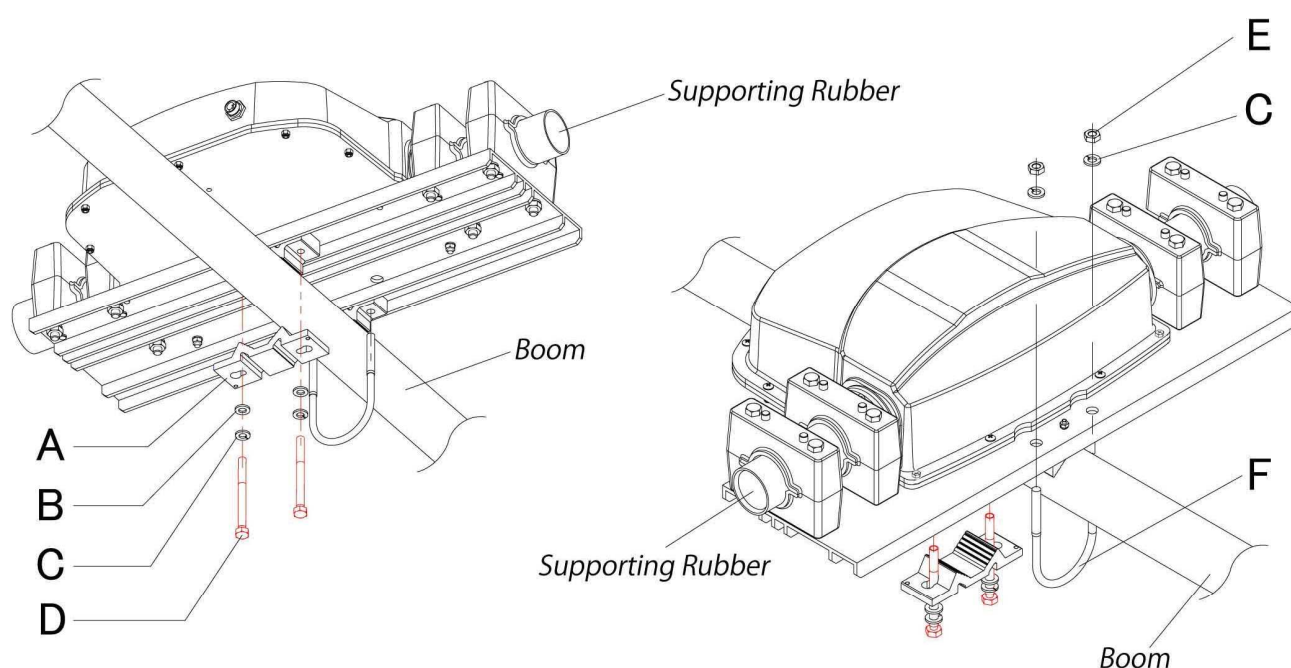


Figure4 (The figure seen from the bottom of AEU)

Figure5 (The figure seen from the top of AEU)

	Parts Name	Qty	Mounting position $\Phi 49$ Boom
A	Boom Support	1	Boom Support MW
B	Washer	2	M8
C	Spring washer	4	M8
D	Hexagon head bolt	2	M8×80 (Hexagon head bolt:Silver)
E	Nut	2	M8
F	U bolt	1	M8-50A+30mm

Diagram 2

4.Connecting Junction Cable with Junction Board

■4-1 : How to Connect the Cable for KA1-403SLite

*KA1-403SLite cable connection will be explained in the next section.

「Figure11」 shows connections.

*AEUs are connected with controller by way of junction box. You need to set wire between each AEU and junction box first.

Don't connect controller with the cable at this time. If you made a wrong connection, not only elements but controller would get severe damage.

「Figure11」 shows connections between AEU and junction box which is fixed on the boom. Wiring in the junction box is shown in the next section 「4-2」.

See [Figure 6、Figure 7]

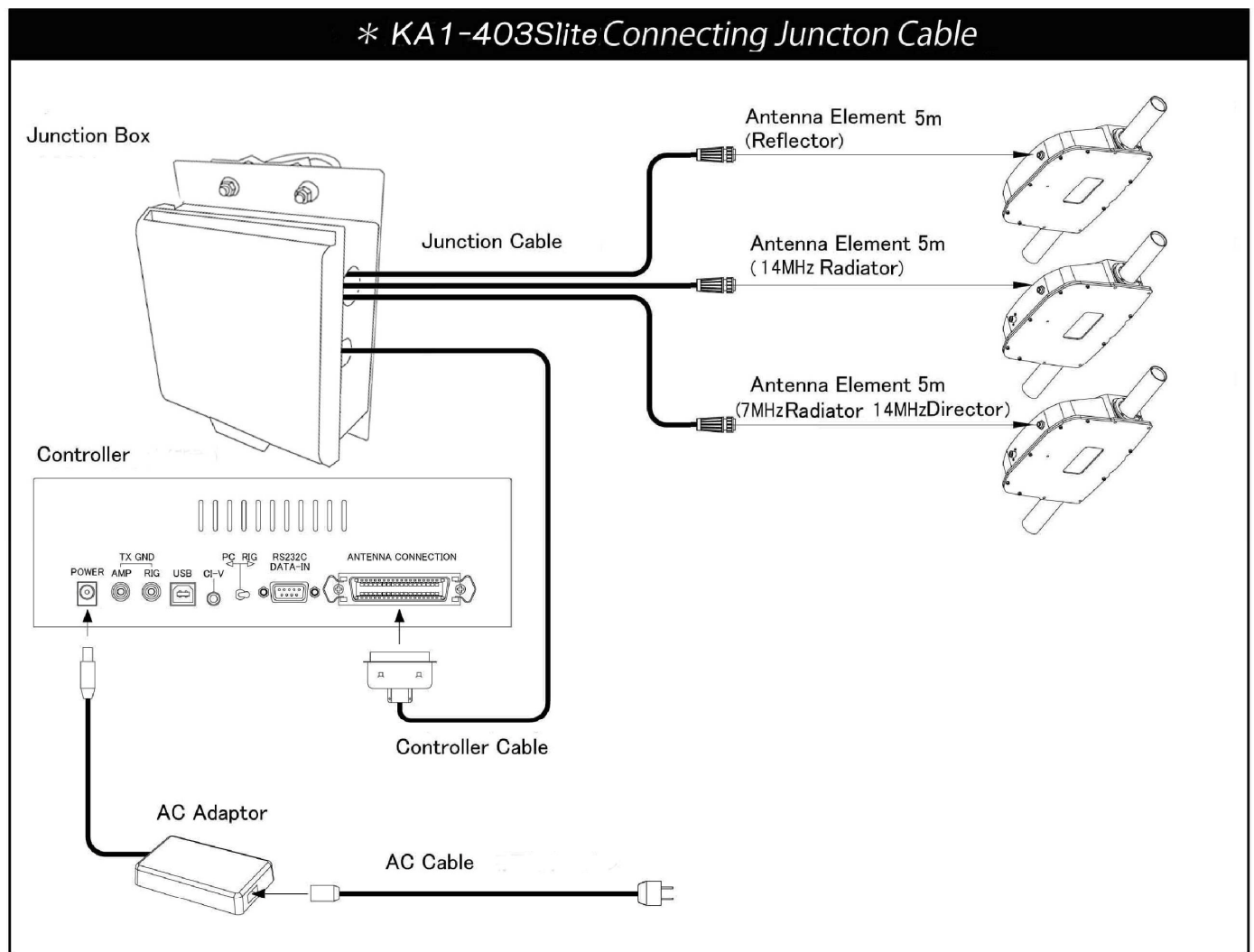


Figure6

* KA1-403SLite Install Junction Box at Its Designated Position

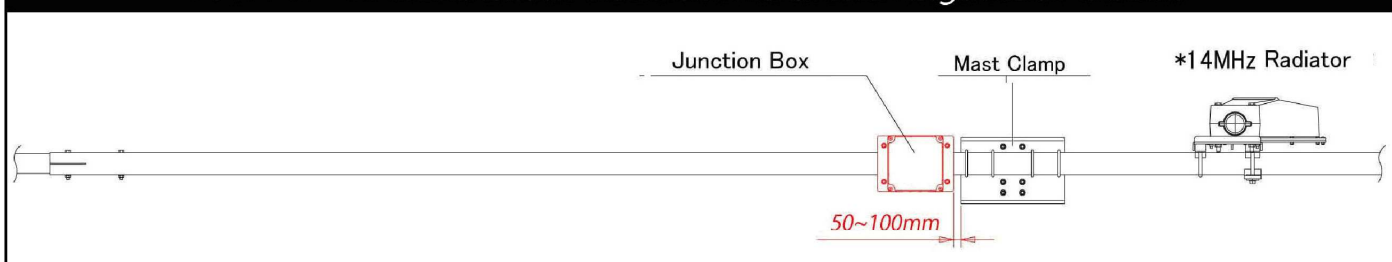


Figure7

■4-2 : Junction Board Wiring for KA1-403SLite

There is a junction board in the junction box.

*Details about junction box are written in Section 9.

Each connector has assigned cable and AEU to connect.
Follow 「Diagram3、Figure8、Figure9、Figure10」.

Connector	Corresponding AEU
A: Motor-1:	Radiator (5m)
B: Motor-2:	Reflector(5m)
C: Motor-3:	Radiator (5m)
D: Motor-4:	Do not use
E: Motor-5:	Do not use
F: Motor-6:	Do not use
G: CN1:	For 20 wire cable
H: CN2:	Do not use

Diagram3

*NOTE

- A~F for junction cable.
- G~H for controller cable.

See [Diagram3、Figure8、Figure9、Figure10]

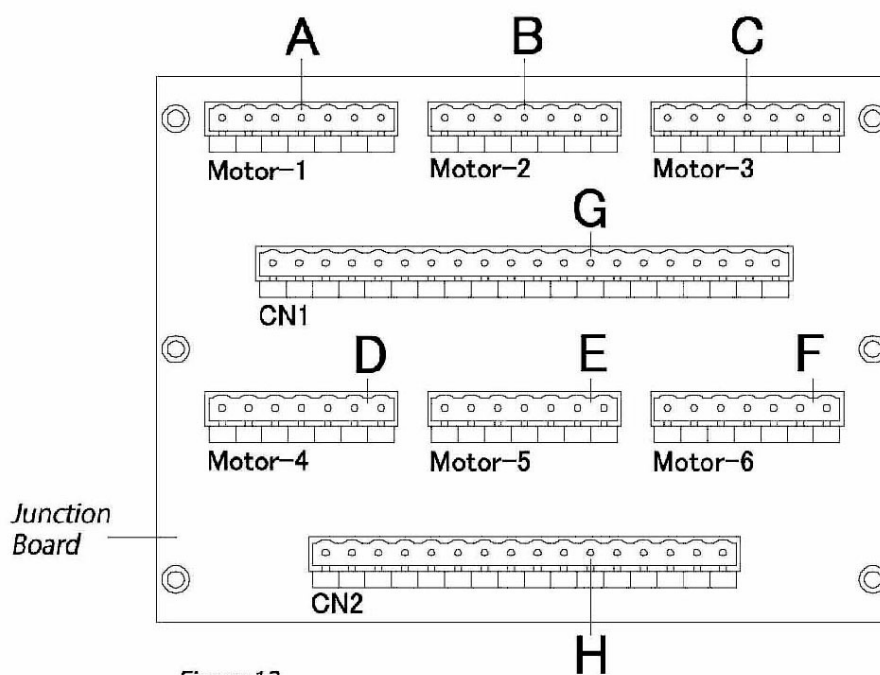


Figure13

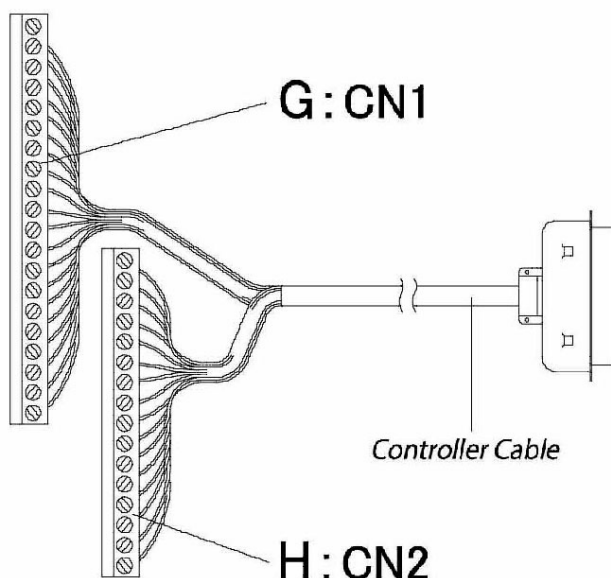


Figure9

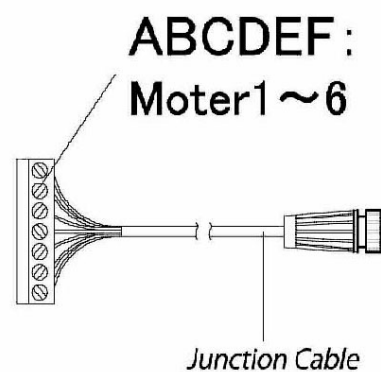


Figure10

5. Connection Junction Cable and Coaxial Cable with AEU

■5-1 : Connectors on your AEU

Connect designated junction cable with each AEU.

Connect coaxial cable with Radiator. Coaxial cable doesn't feed through junction board. In other words coaxial cable connection should be done directly from your TX to Radiator AEU.

After all the wirings are finished, you set up your VERSA Beam with controller.

See [Figure11]

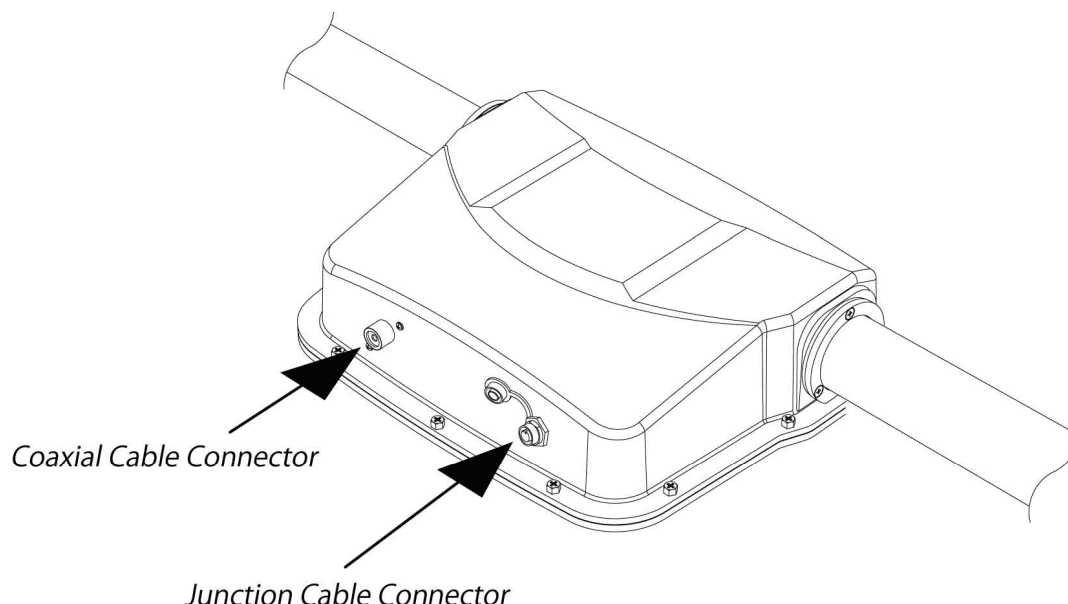


Figure11

■5-2 : How to Attach Connectors to AEU

It is easy to connect junction cable with AEU. The connection should be made one touch and half rotation. The connector will be locked.

We recommend taping with moisture sealing electrical tape to prevent water from getting in the cable, however the connector is designed water proofing.

See [Figure12-1、 Figure12-2]

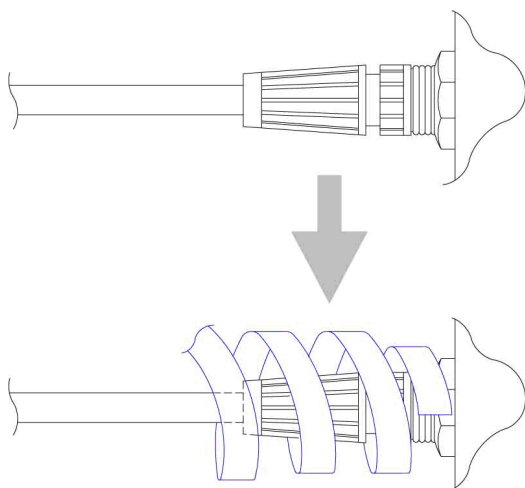


Figure12-1

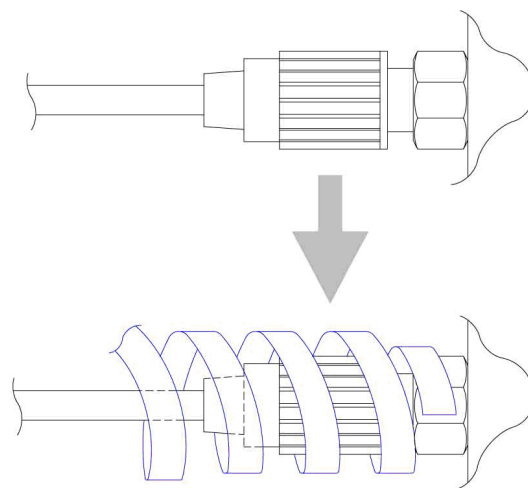


Figure12-2

6. Assembling Junction Box and Its Installation on the Boom

■Assembling Junction Box

No.	Parts Number	Parts Name	
①	DS-AG-1717-1	Junction box	1
②	AC05-K064-0400	Junction board	1
③	-	Trust head screw M4×6	2
④	AC05-S065-0100	Plate	1
⑤	-	Pub head screw PS×14	4
⑥	AC05-S094-0100	Boom Support MW	2
⑦	-	Hexagon upset bolt M4×10	4
⑧	-	U bolt M8×50A	2
⑨	-	Spring washer M8	4
⑩	-	Nut M8	4

Diagram 4

First you need to make all the connections. Then make junction box, and install it on the boom. Please don't tighten U-bolts at this point.

After attaching mast clamp and checking the weight balance, determine where on the boom for junction box to fix. Then you can tighten U-bolts. See [Diagram4、Figure13]

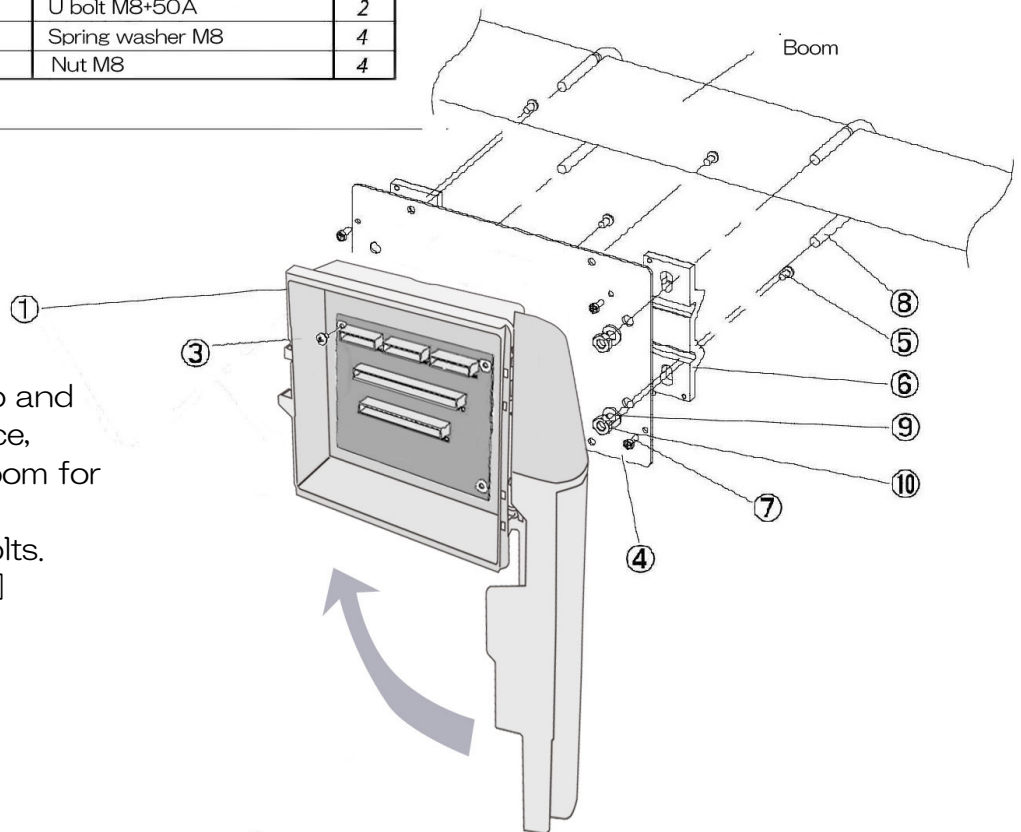


Figure 13

*NOTE

- To prevent water or snow from going in the box attach the box as the cables coming out to the ground side.

These holes also work as drainage.
Please don't cover holes.

- You can use any hole to get wires out.
Don't pinch cables with the box.

See [Figure14]

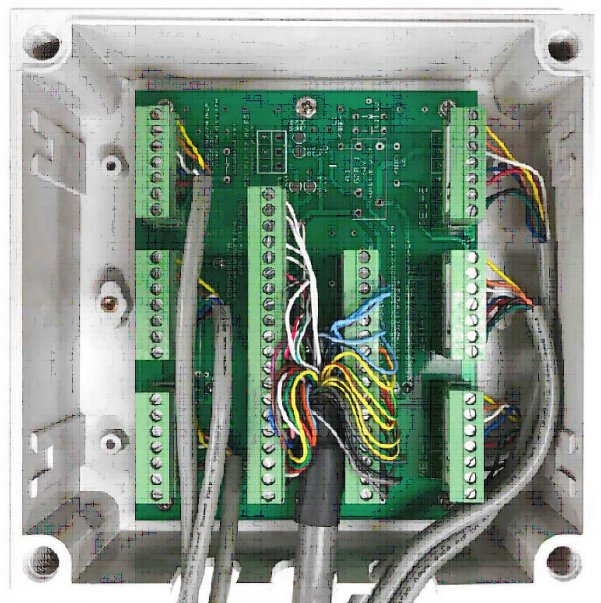


Figure 14 : The inside photograph of Junction Box (3elemerntoS modele)

7. Mast Clamp

■ 7-1 : Assembling and Attaching Mast Clamp to the Boom

After finishing installation of AEU's, cables, and junction box, you need to attach mast clamp to the boom. Before attaching mast clamp measure and mark the approximate position of weight center. It is not necessary to put mast clamp exactly at the weight center but the closer the better.

See 「Diagram6、 Figure15a」 .

Use U-bolt M8-50A/nutM8/spring washerM8 to attach the mast plate to the 4mBoom.

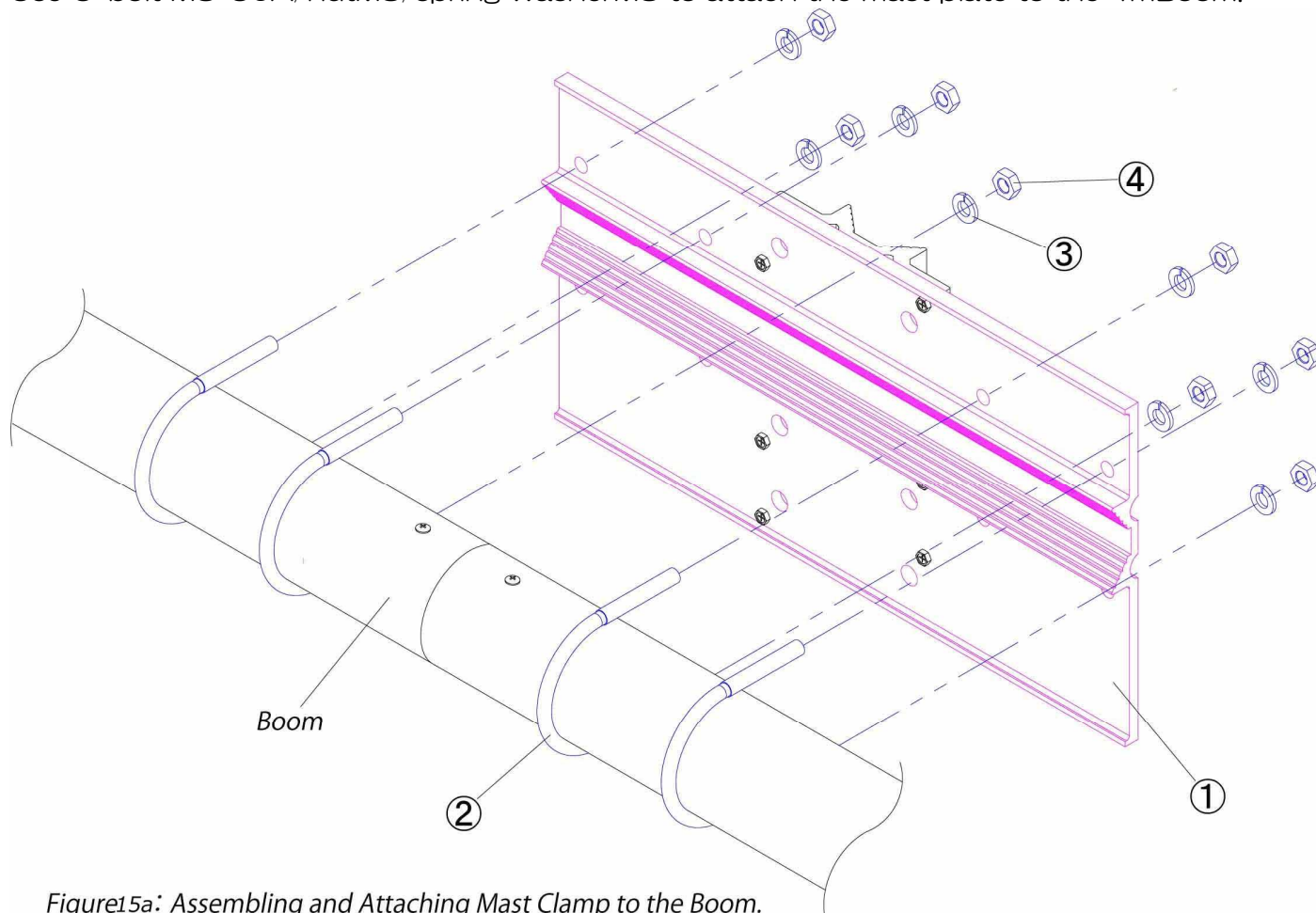


Figure15a: Assembling and Attaching Mast Clamp to the Boom.

No.	Parts Number	Parts Name	Qty
①	AC05-S020	Mast Plate M	1
②	-	U bolt 50A×M8	7
③	-	Spring washer M8	14
④	-	Nut M8	14
⑤	-	Boom Support MW	3
⑥	-	Hexagon upset bolt M4×10	6

Diagram6

■7-2 : Attaching Mast Clamp to the Mast

Now the time you install the boom to the mast. Please look at 「Figure26」 carefully to get to know how to do this procedure. First you need to attach 「Boom support MW」 to 「Mast plate L」 with 「Hexagon upset screw M4X10」.

Use 「U-bolt M8-50A+30」 to attach to the mast.

See [Diagram7、Figure26]

*NOTE

- Weight center shouldn't be at the same position as the center of the physical length. We recommend lifting the antenna with rope hooked on both ends to measure the weight center.
- Mast plate has the right side and the wrong side.

See [Diagram5、Figure15]

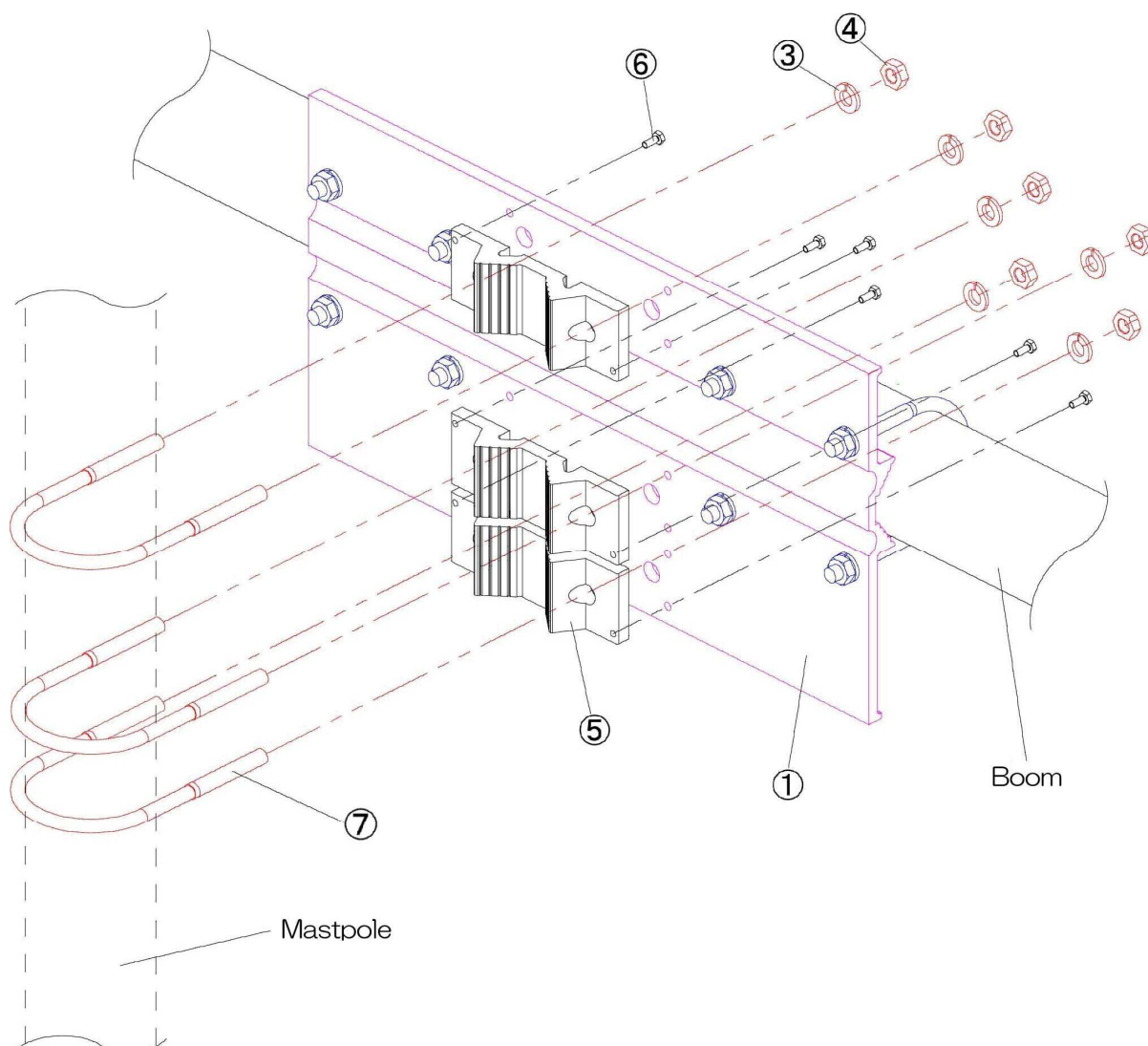


Figure15: Assembling and Attaching Mast Clamp to the Boom.

No.	部品番号	Parts Name	Qty
①	Parts Number	Mast Plate M	1
②	-	U bolt 50A×M8	4
③	-	Spring washer M8	14
④	-	Nut M8	14
⑤	-	Boom Support MW	3
⑥	-	Hexagon upset bolt M4×10	6
⑦	-	U bolt M8×50+30	3

Diagram5

■8 : Binding Cables

Before installing VERSA Beam Antenna on the mast you need to bind cables and to tie them to the boom. It should be hard to tie to the boom after installing the antenna to the mast.

See [Figure16]

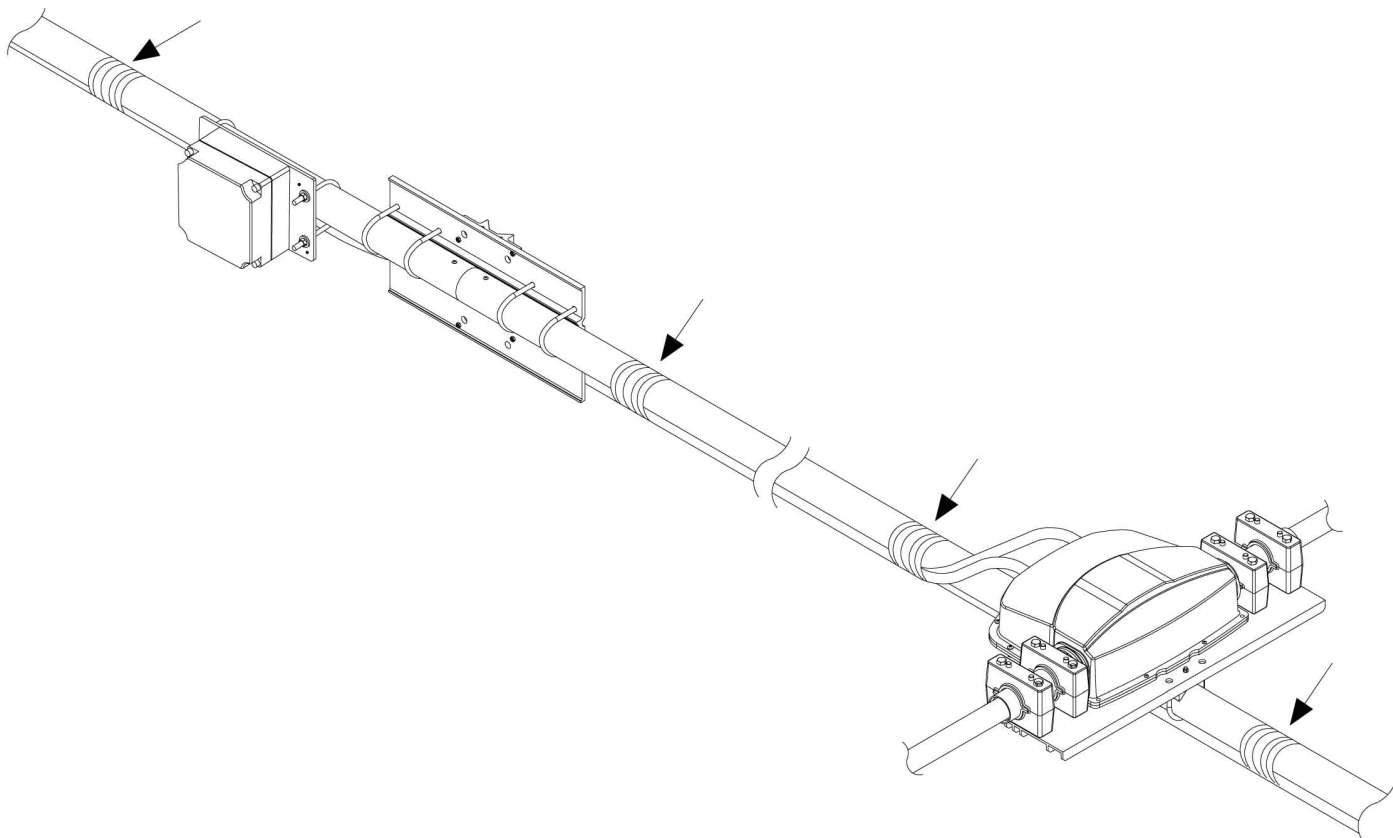


Figure 16

8. Maintenance

Cleaning

The controller case and buttons are likely to become soiled after extended use. Use a neutral detergent and warm water along with a damp cloth to clean the case and front panel.

General Information

VERSA Beam antenna has been factory aligned and tested to satisfy the specification before shipping out. Under normal circumstances, the VERSA Beam antenna should work in accordance with the operation described in this instructions manual.

Service

If it is ever necessary to return VERSA Beam antenna, double check by yourself or consult a Kohjinsha specialist to make sure what part of VERSA Beam antenna is wrong specifically? Then you can avoid shipping whole stuff to our factory.

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