

VERSA Beam Antenna

10mBoom Assembling Manual

- This manual is written for KA1-205 • 405 • 406S.
- Installing Adjustable Element Unit (AEU)
- Assembling and Attaching Mast Clamp



Please keep this manual after you read for maintenance purpose.

Rev3 Nov. 2022

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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 KA1-205 • 405 • 405S.

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

■ WHAT (NOT) TO DO

- *Please don't use AC adaptors and cables other than the one supplied as accessory of KA-1.
- *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 use the parts supplied by us to assemble KA-1.

2. Assembling 10mBoom

■2-1 : Assembling 10mBoom Using Boom Parts

10mBoom is used for KA1-205 • 405 • 405S.

10mBoom consists of seven aluminum pipes and two boom tops.

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]

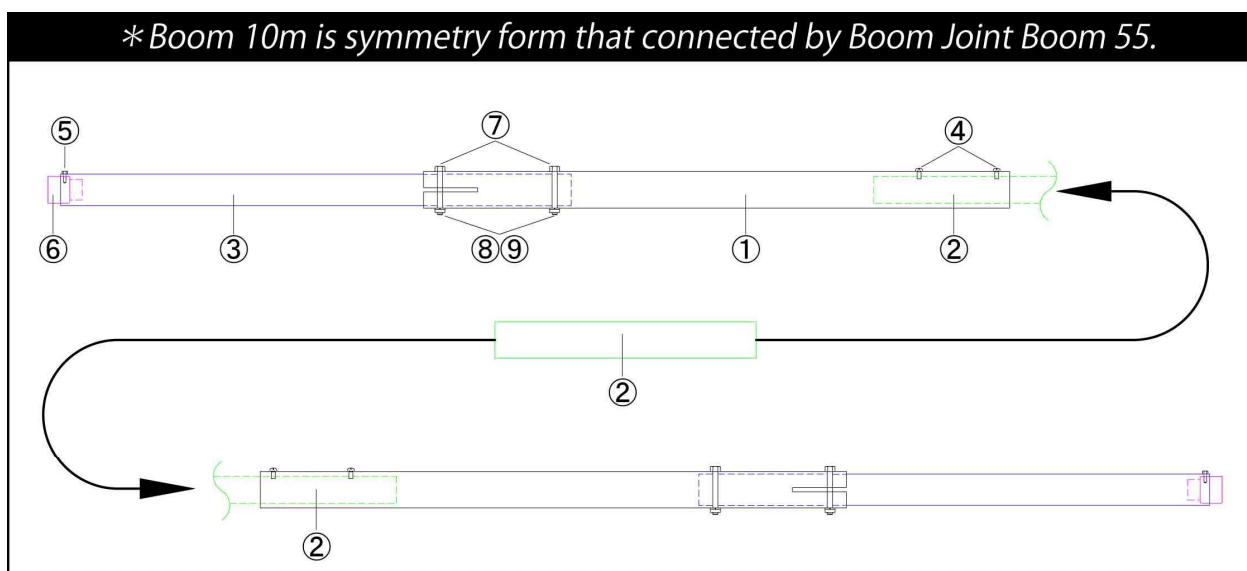


Figure1

No,	Parts Number	Parts Name	Qty
①	AC05-S238	Boom 62x2700	2
②	AC05-S234	Boom Joint Boom 55	1
③	AC05-S237	Boom 55x2700	2
④	-	Pan head tapping screw P4x8	4
⑤	-	Hexagon upset bolt M4x10	2
⑥	AC05-S239	Boom Top	2

No,	Parts Number	Parts Name	Qty
⑦	-	Hexagon head bolt M8x75	4
⑧	-	Spring washer M8	4
⑨	-	Nut M8	4

Diagram1

■2-2 : Assembling Both Ends of 10mBoom (Assembling Pipe③)

⑤⑥)

How to assemble end sections of 7mBoom.

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]

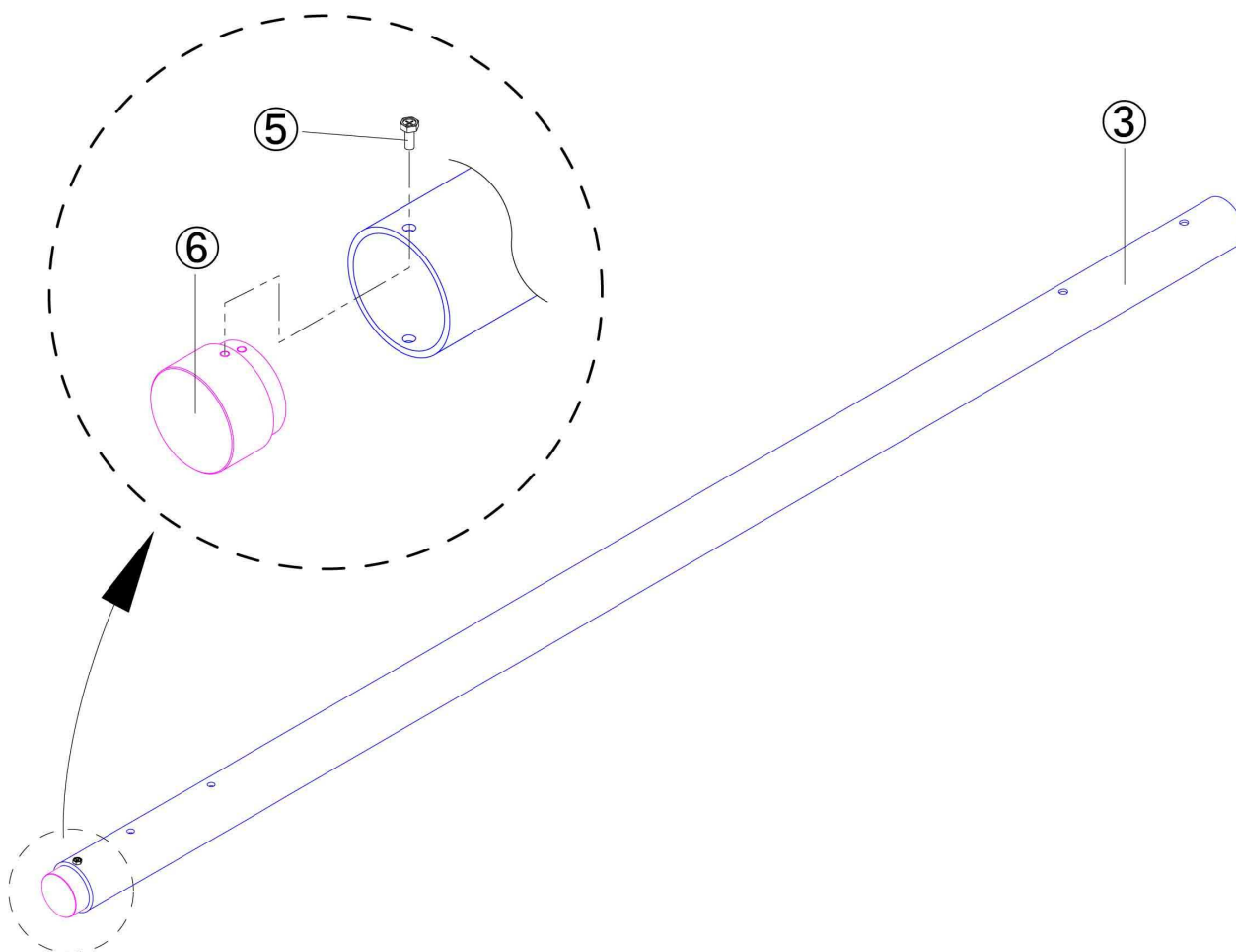


Figure2

No,	Parts Number	Parts Name	Qty
①	AC05-S238	Boom 62x2700	2
②	AC05-S234	Boom Joint Boom 55	1
③	AC05-S237	Boom 55x2700	2
④	-	Pan head tapping screw P4x8	4
⑤	-	Hexagon upset bolt M4x10	2
⑥	AC05-S239	Boom Top	2

Diagram1

No,	Parts Number	Parts Name	Qty
⑦	-	Hexagon head bolt M8x75	4
⑧	-	Spring washer M8	4
⑨	-	Nut M8	4

■2-3 : Finish Assembling 10mBoom (Assembling Pipe①②)

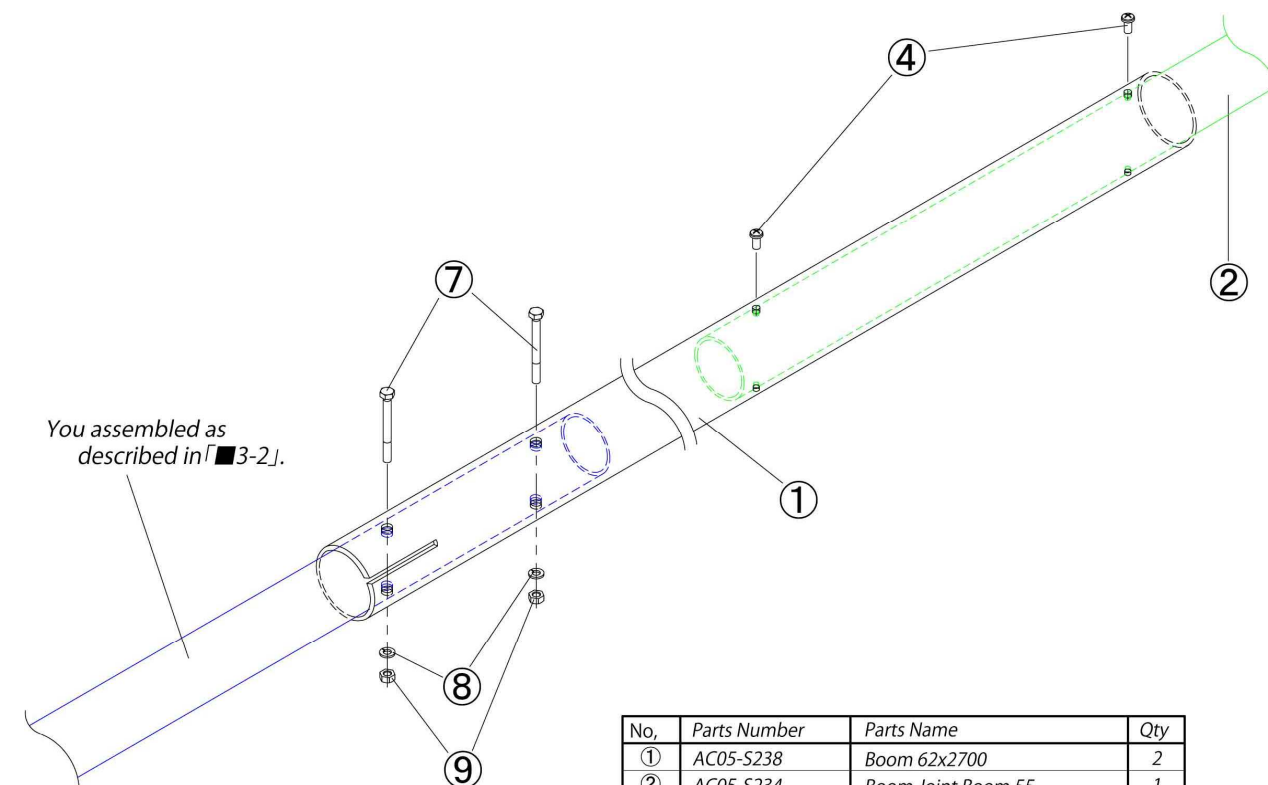
Connect pipes with the boom that you assembled as described in 「■3-2」.

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

See [Figure3]

After finishing assembling two parts of boom as in 「Figure3」, use 「②boom joint boom49」 to connect those two parts. Now you have completed making 10mBoom.

See [Diagram 1、Figure3]



* Find out the matching hole
Fig Positions.

When you insert a pipe into another, please find the matching holes..

No.	Parts Number	Parts Name	Qty
①	AC05-S238	Boom 62x2700	2
②	AC05-S234	Boom Joint Boom 55	1
③	AC05-S237	Boom 55x2700	2
④	-	Pan head tapping screw P4x8	4
⑤	-	Hexagon upset bolt M4x10	2
⑥	AC05-S239	Boom Top	2
⑦	-	Hexagon head bolt M8x75	4
⑧	-	Spring washer M8	4
⑨	-	Nut M8	4

Diagram1

Tighten the bolts and nuts after making sure the correct parts are used.

See [Figure4]

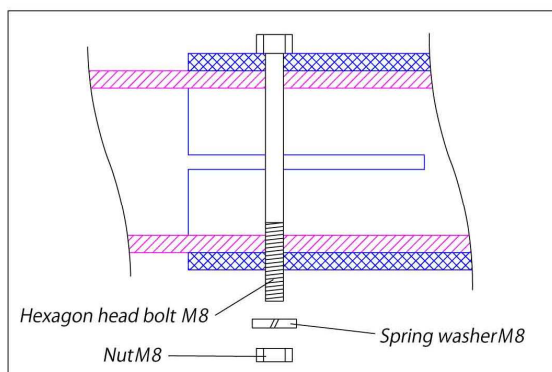


Figure4

*You should insert the pipe straight forward into another.

See [Figure5、 6、 7]



Figure5



Figure6



Figure7

3. Adjustable Element Unit (AEU) Position

■3-1 : Confirm Each AEU's Position

Where to install AEUs of KA1-205 • 405 • 405S 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 [Figure8-1,8-2]

- *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.

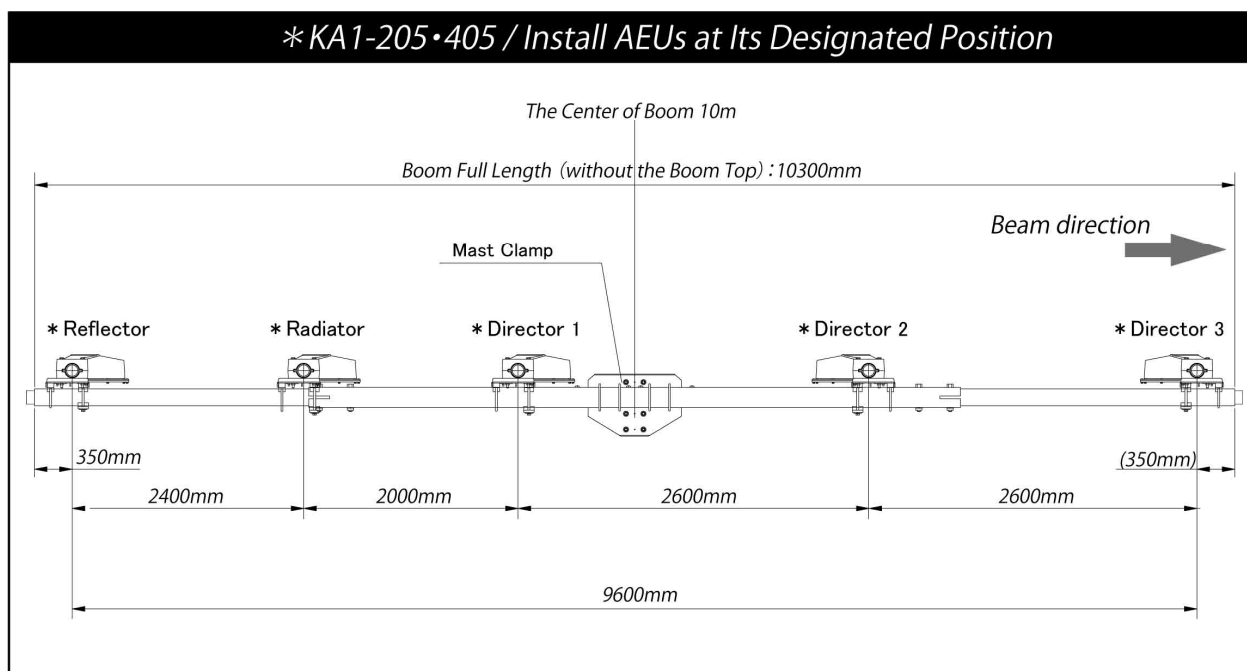


Figure8-1

**KA1-405S / Install AEUs at Its Designated Position*

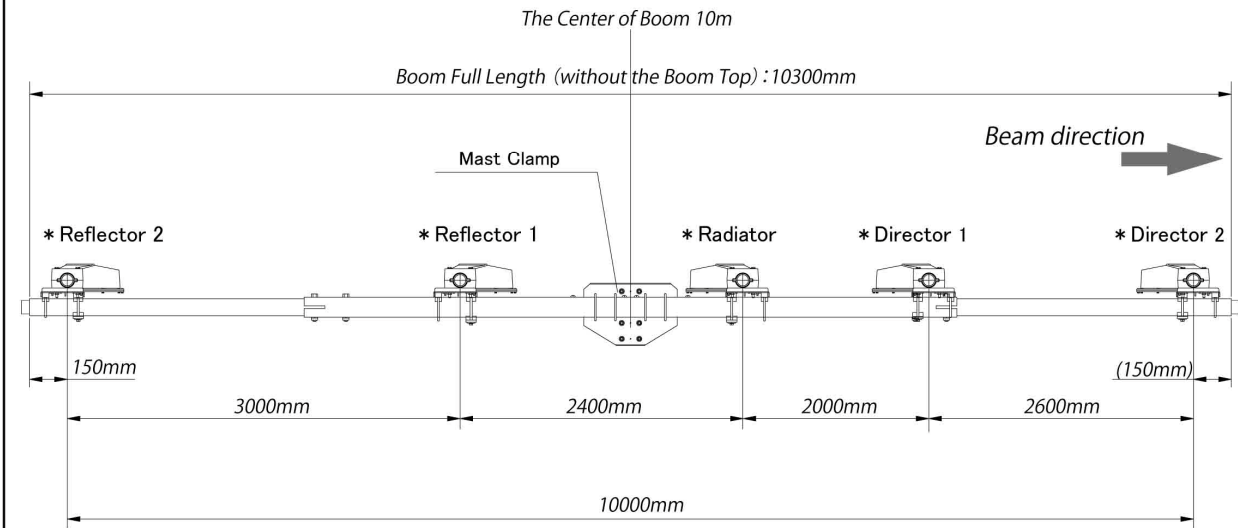


Figure8-2

■3-2 : Install AEU at Its Designated Position

Installing AEU on the 10mBoom.

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

Please see 「Diagram2, Figure9, Figure10」 very carefully when you install AEU 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, Figure9, Figure10]

*NOTE

- There are three different size of pipes that are $\Phi 49/\Phi 55/\Phi 62$ for the VERSA Beam boom. Please use bolts for each size of pipes.

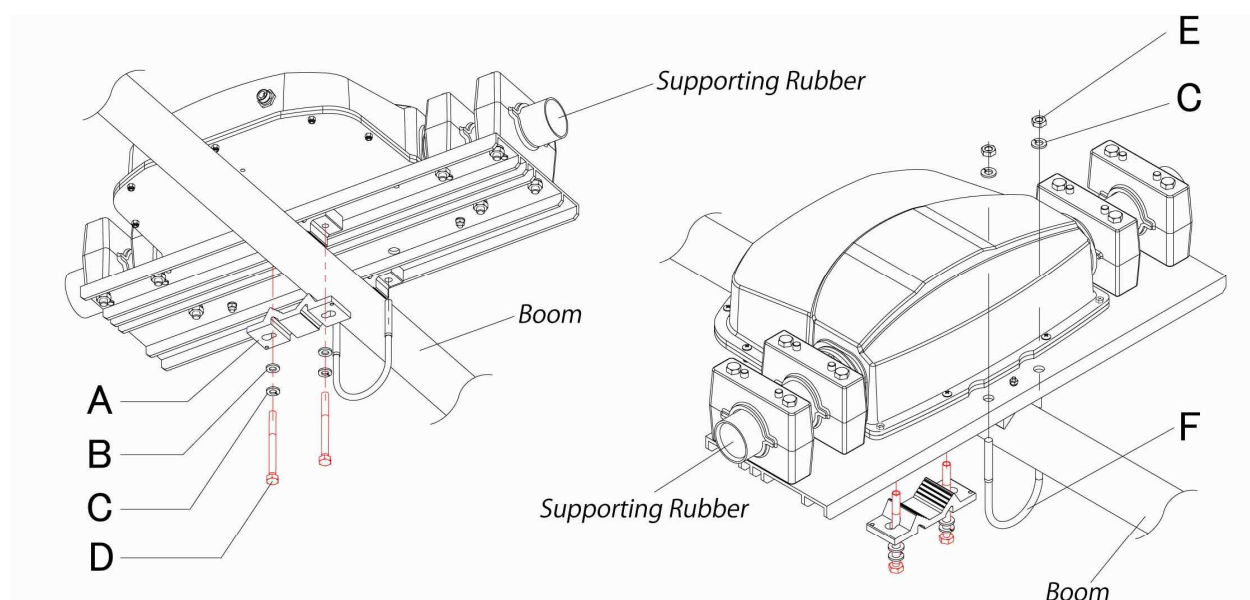


Figure9 (The figure seen from the bottom of AEU)

Figure10 (The figure seen from the top of AEU)

	Parts Name	Qty	Mounting position $\Phi 49$ Boom	Mounting position $\Phi 55$ Boom	Mounting position $\Phi 62$ Boom
A	Boom Support	1	Boom Support MW	Boom Support MW	Boom Support MW
B	Washer	2	M8	M8	M8
C	Spring washer	4	M8	M8	M8
D	Hexagon head bolt	2	M8×80 (Hexagon head bolt:Silver)	M8×80 (Hexagon head bolt:Silver)	M8×90 (Hexagon head bolt:Black)
E	Nut	2	M8	M8	M8
F	U bolt	1	M8-50A+30mm	M8-50A+30mm	M8-50A+30mm

Diagram 2

4.Connecting Junction Cable with Junction Board

■4-1 : How to Connect the Cable for KA1-205・405

*KA1-405S 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 [Figure11、Figure12]

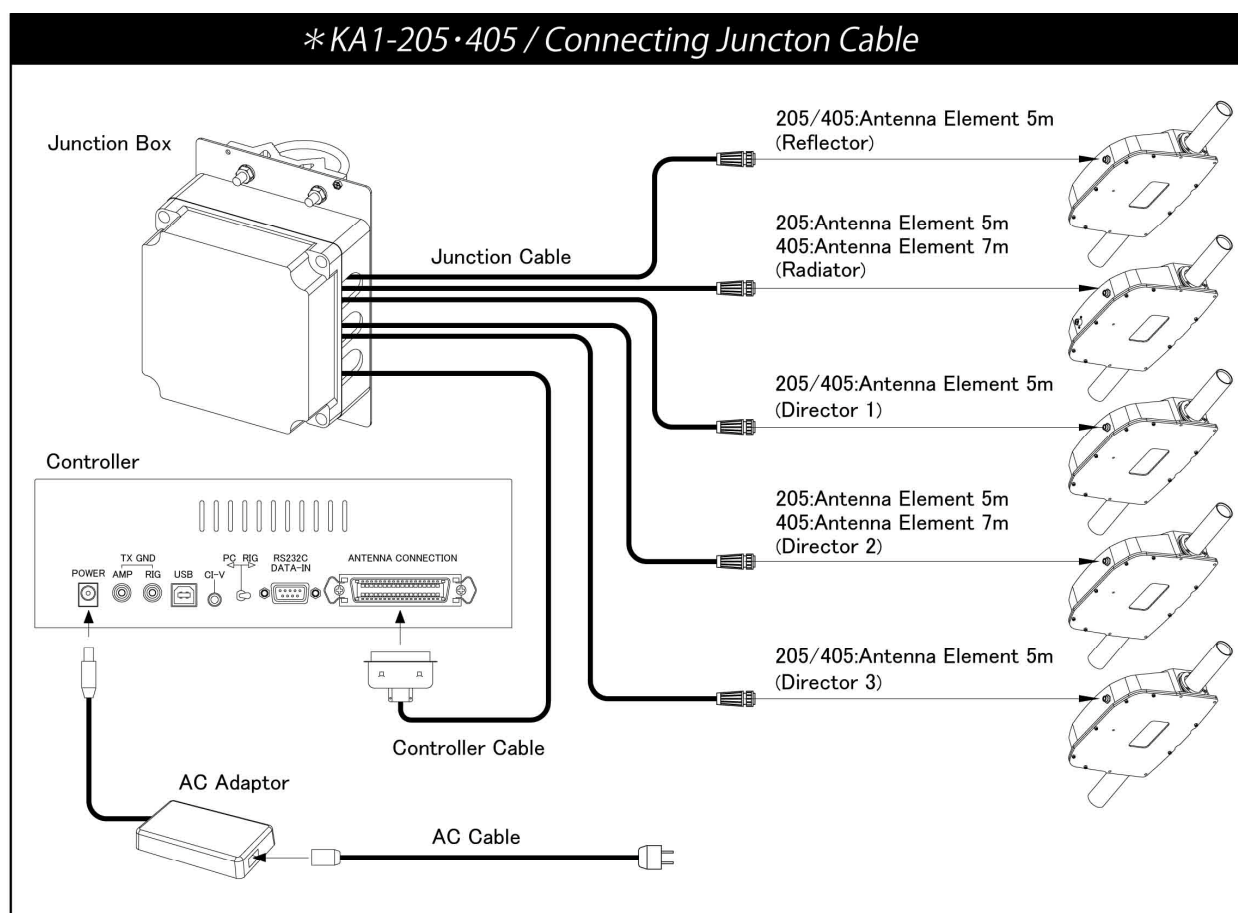


Figure11

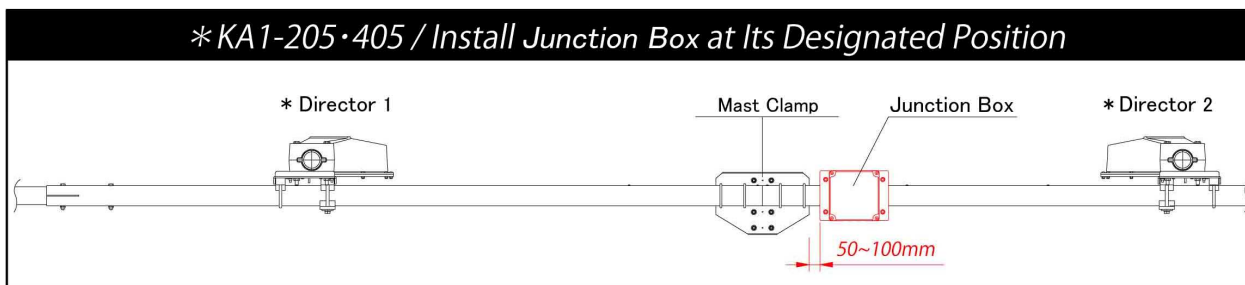


Figure12

■4-2 : Junction Board Wiring for KA1-205・405

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、 Figure13、 Figure14、 Figure15」 .

Connector	Corresponding AEU
A: Motor-1:	205:Radiator (5m) / 405:Radiator (7m)
B: Motor-2:	205・405: Reflector (5m)
C: Motor-3:	205・405: Director1 (5m)
D: Motor-4:	205:Director2 (5m) / 405:Director2 (7m)
E: Motor-5:	205・405: Director3 (5m)
F: Motor-6:	Do not use
G: CN1:	For 20 wire cable
H: CN2:	For 36 wire cable

Diagram3

*NOTE

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

See [Diagram3、 Figure13、 Figure14、 Figure15]

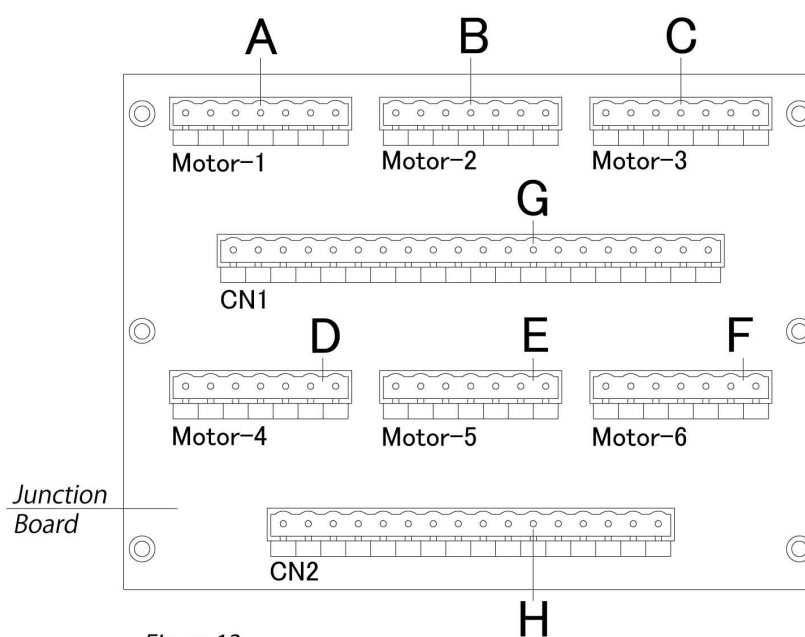


Figure13

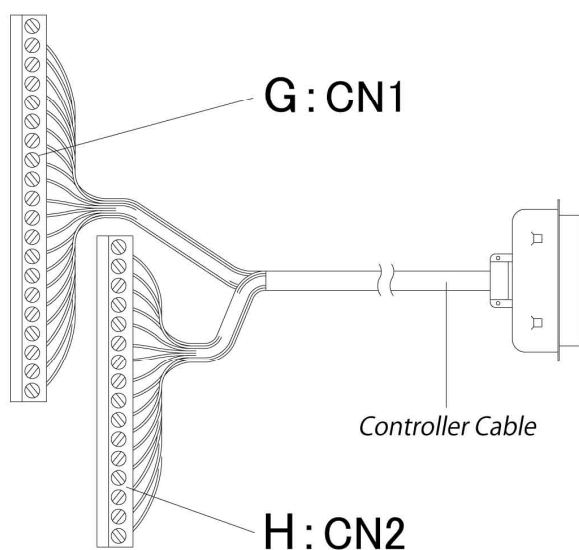


Figure14

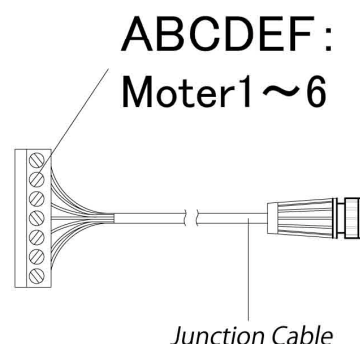


Figure15

5. Connecting Junction Cable with Junction Board

■5-1 : How to Connect the Cable for KA1-406S

「Figure16」 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 thistime. If you made a wrong connection, not only elements but controller would get severe damage.

「Figure16」 shows connections between AEU and junction box which is fixed on the boom. Wiring in the junction box is shown in the next section 「5-2」.

See [Figure16、 Figure17]

*KA1-406S/Connecting Junction Cable

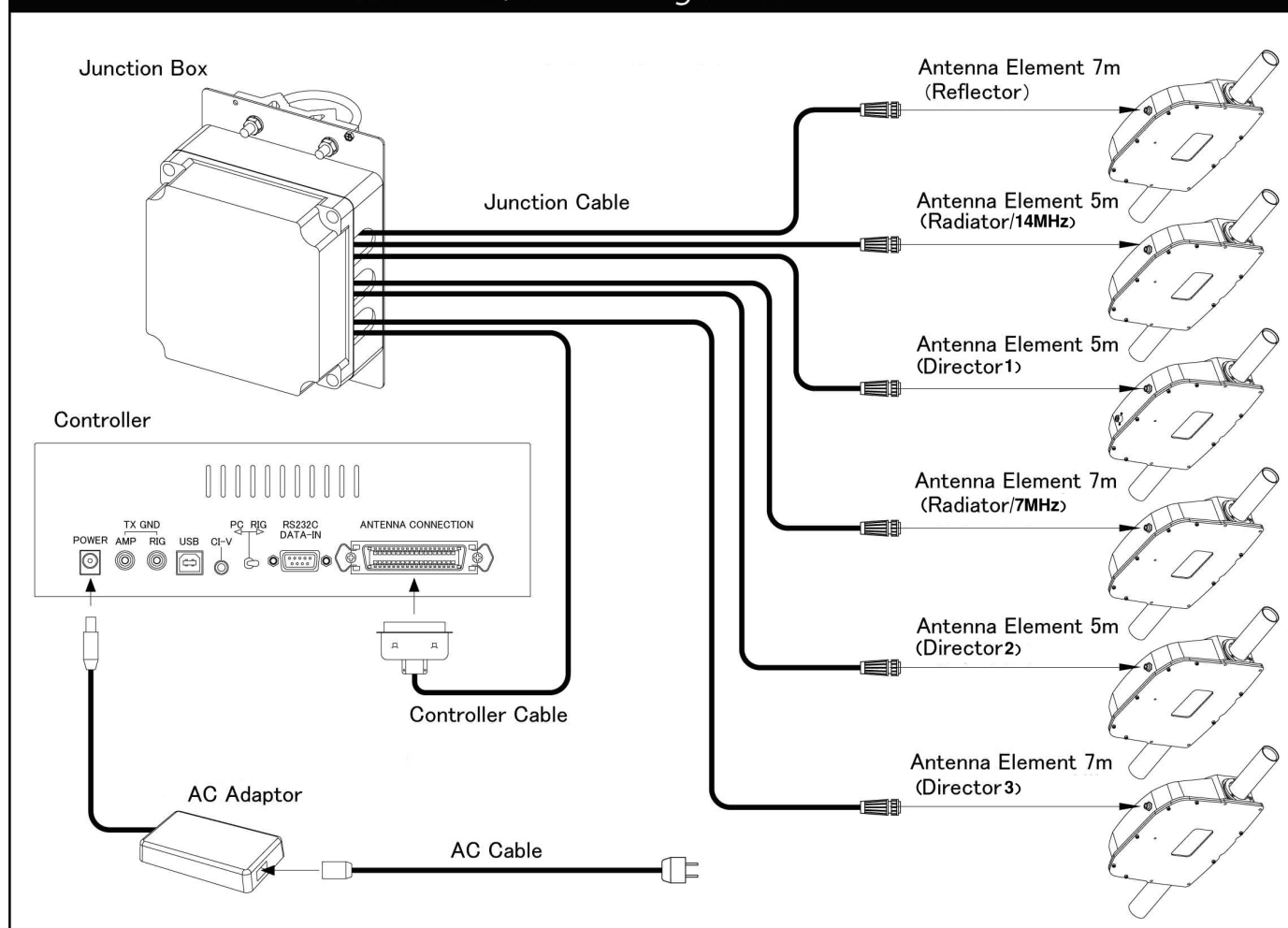


Figure16

*KA1-406S /Install Junction Box at Its Designated Position

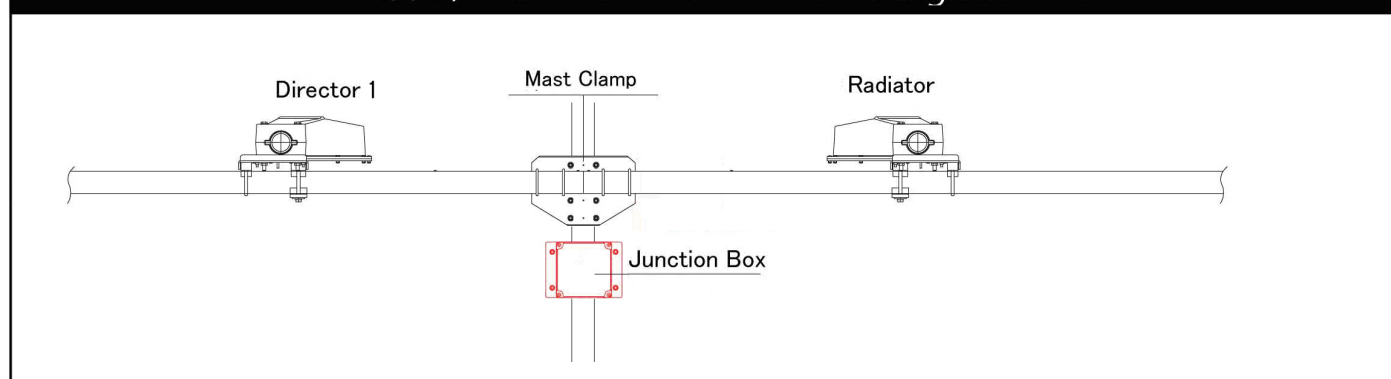


Figure17

■5-2 : Junction Board Wiring for KA1-406S

There is a junction board in the junction box.

* Details about junction box are described in Section 9.

Each connector has assigned cable and AEU to connect.
Follow 「Diagram4、 Figure18、 Figure19、 Figure20」 .

Connector	Corresponding AEU
A: Motor-1:	Radiator (5m)
B: Motor-2:	Reflector 2 (7m)
C: Motor-3:	Reflector 1 (5m)
D: Motor-4:	Radiator (7m)
E: Motor-5:	Director 2 (5m)
F: Motor-6:	Director 3 (7m)
G: CN1:	For 20 wire cable
H: CN2:	For 36 wire cable

Diagram4

*NOTE

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

See [Diagram4、 Figure18、 Figure19、 Figure20]

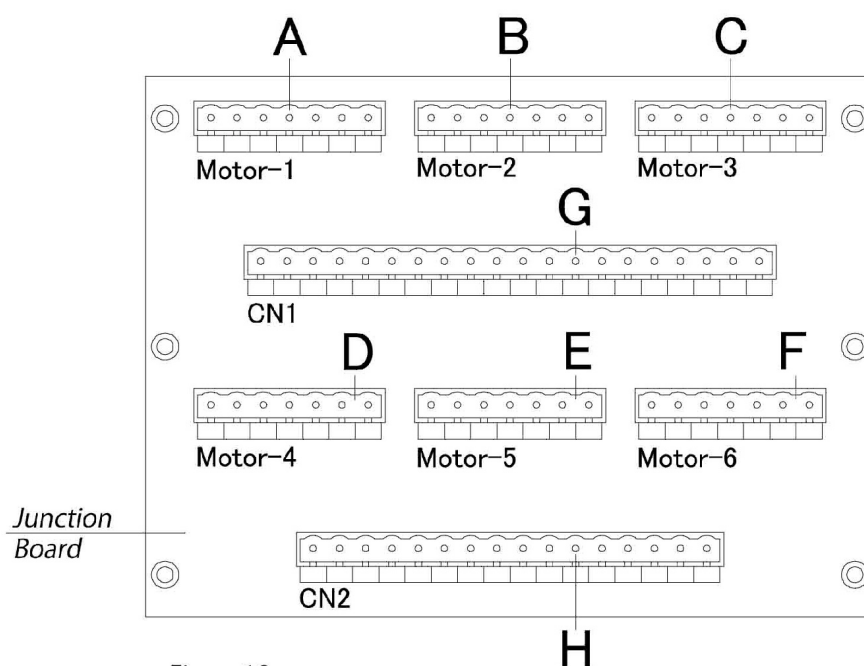


Figure18

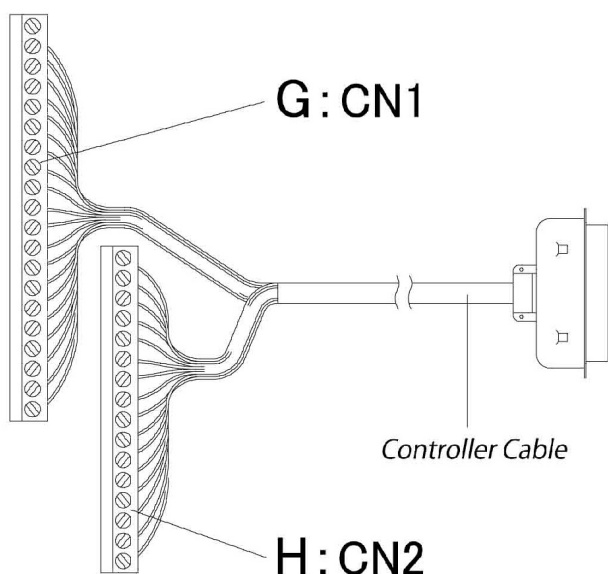


Figure19

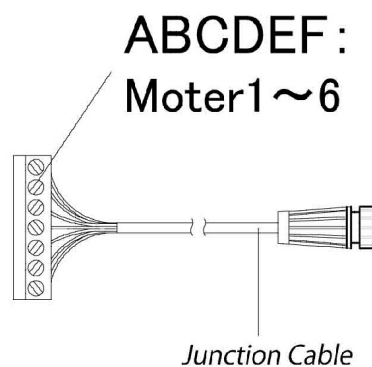


Figure20

6. Connection Junction Cable and Coaxial Cable with AEU

■6-1 : 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 [Figure21]

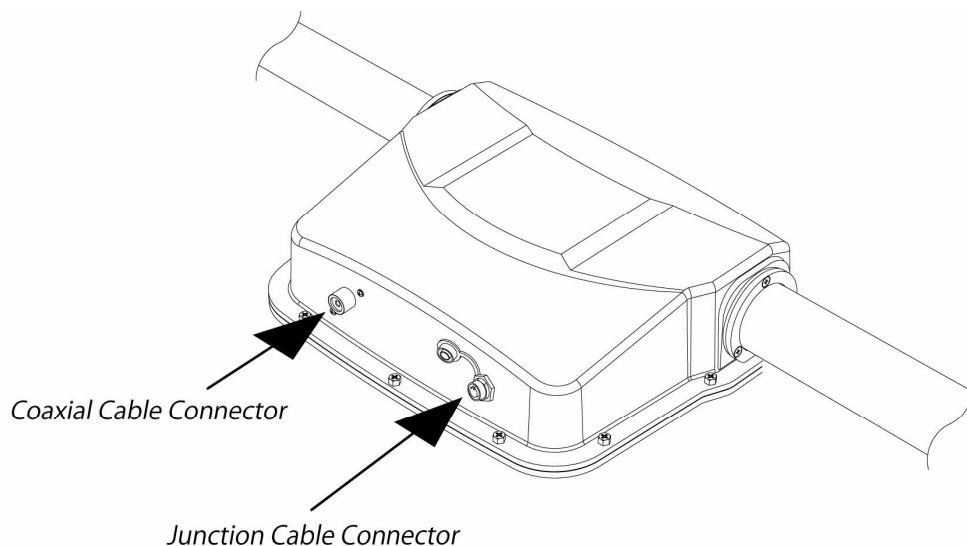


Figure21

■6-2 : 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 [Figure22-1、 Figure22-2]

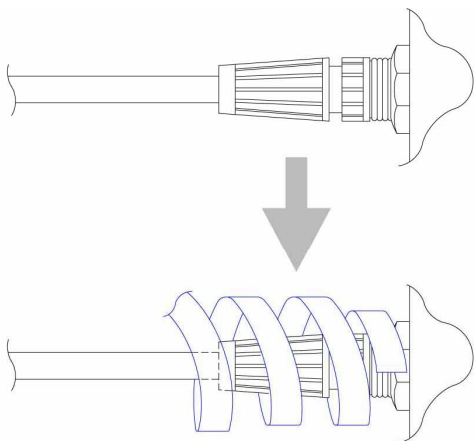


Figure22-1

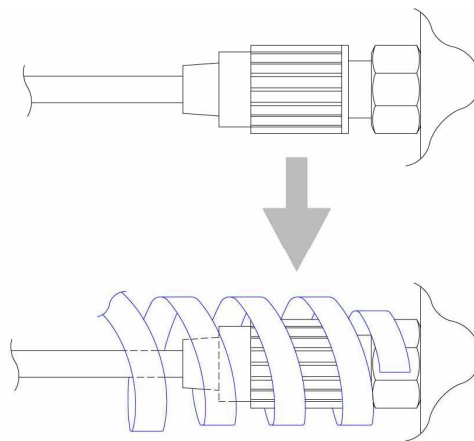


Figure22-2

7. Assembling Junction Box and Its Installation on the Boom

■ Assembling Junction Box

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 [Diagram5, Figure23]

No.	Parts Number	Parts Name	Qty
①	DS-AG-1717-1	Junction Box	1
②	AC05-K064-0400	Junction Board	1
③	-	Truss head screw M4×6	2
④	AC05-S065-0100	Plate	1
⑤	-	Pan head screw P5×14	4
⑥	AC05-S094-0100	Boom Support MW	2
⑦	-	Hexagon upset bolt M4x10	4
⑧	-	U bolt M8-50A+30	2
⑨	-	Spring washer M8	4
⑩	-	Nut M8	4

Diagram5

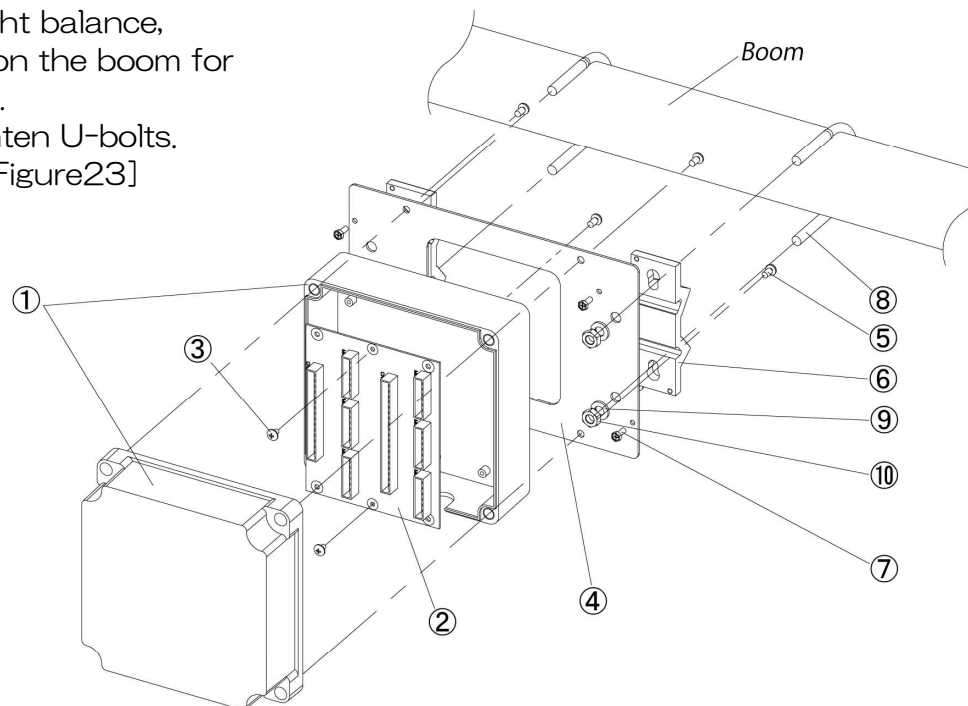


Figure23

*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 [Figure24]

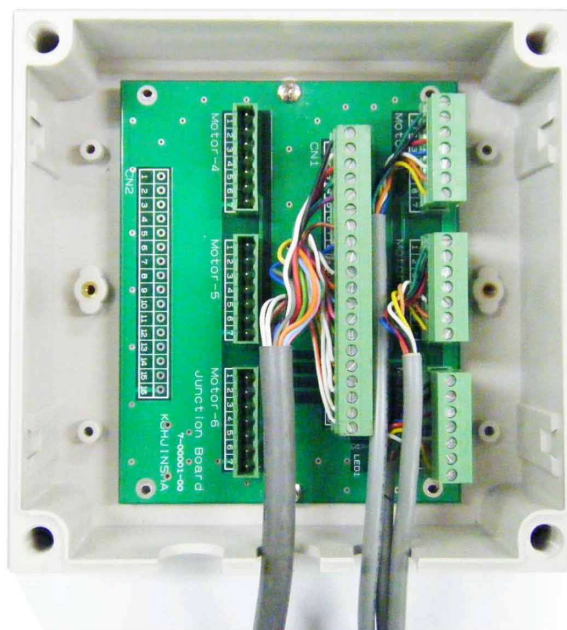


Figure24: The inside photograph of Junction Box (3 elements model).

8. Mast Clamp

■8-1 : 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 close the better.

See 「Diagram6、 Figure25」 .

Use U-bolt M8-50A+30/nutM8/spring washerM8 to attach the mast plate to the 10mBoom.

*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 [Diagram6、 Figure25]

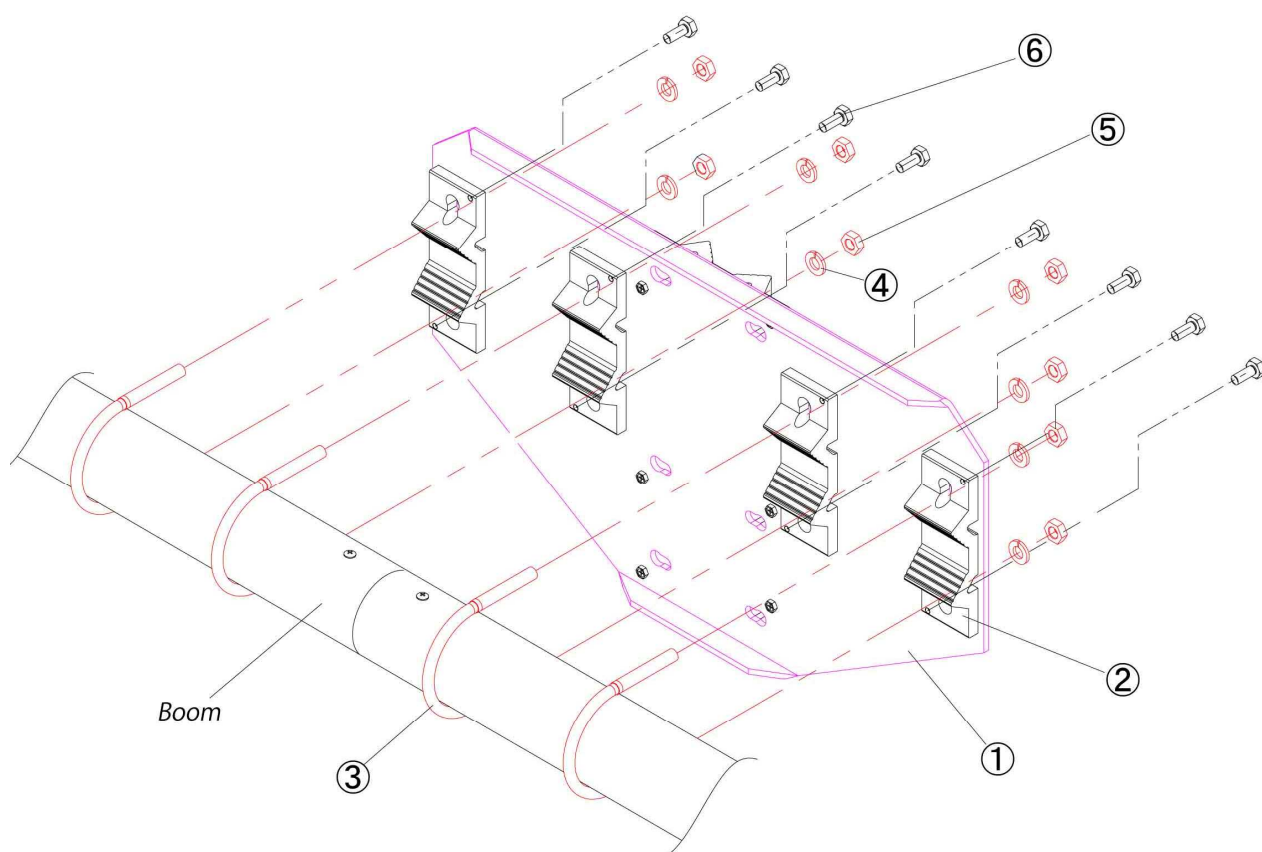


Figure25: Assembling and Attaching Mast Clamp to the Boom.

No,	Parts Number	Parts Name	Qty
①	AC05-S076	Mast Plate L	1
②	AC05-S094	Boom Support MW	4
③	-	U bolt M8-50A+30	4
④	-	Spring washer M8	8
⑤	-	Nut M8	8
⑥	-	Hexagon upset bolt M4×10	8

Diagram6

■8-2 : 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

- If you want to support the 10m Boom with boom stay and boom bracket, you can order [the Boom stay kit]. Please contact to KOHJINSHA with E-mail. [www.kojinsha.jp/ka1/]

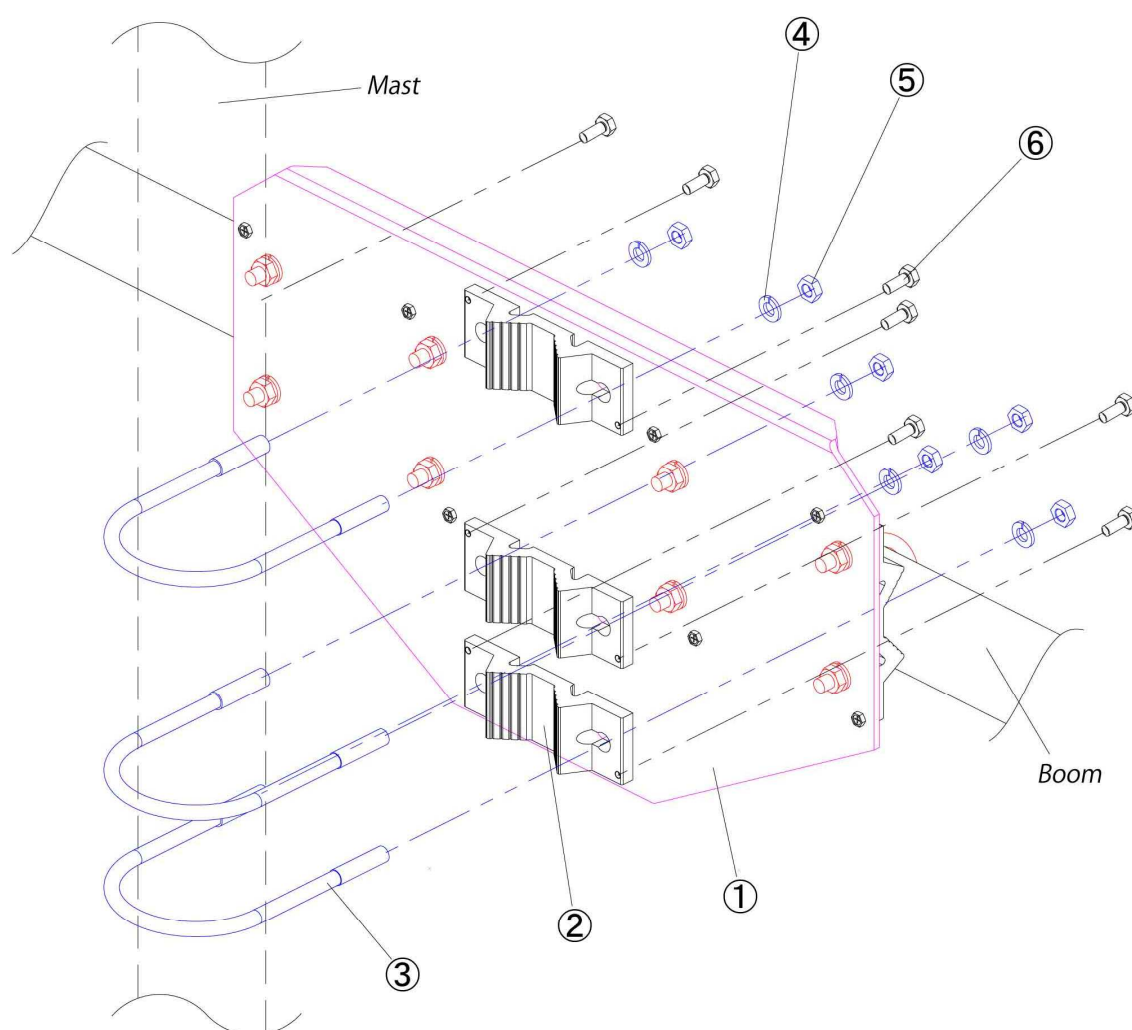


Figure26: Installing the Boom to the Mast.

No.	Parts Number	Parts Name	Qty
①	AC05-S076	Mast Plate L	1
②	AC05-S094	Boom Support MW	3
③	-	U bolt M8-50A+30	3
④	-	Spring washer M8	6
⑤	-	Nut M8	6
⑥	-	Hexagon upset bolt M4×10	6

Diagram7

9. 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 [Figure27]

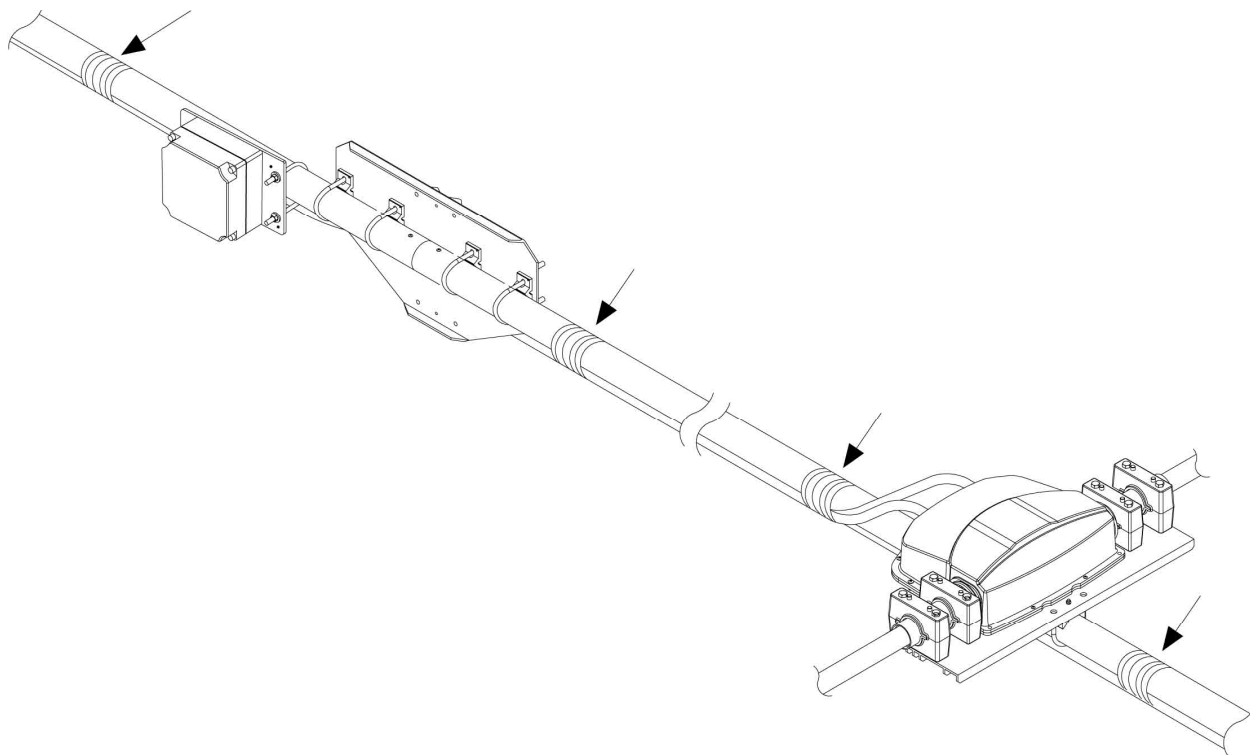


Figure27

10. 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.

Contacts

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