

VERSA Beam Antenna

* How To Check Your

Adjustable Element Unit (AEU)

Working Properly.

* Building Your AEU (For All Models)

- KA1-206/406 is used as example in this book.



We would like you to keep this instruction manual for your future reference after reading

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1. INTRODUCTION

Thank you for choosing KA1 as one of your antennas. We are sure KA1 will make your DXing more competitive as well as enjoyable.

You can adjust elements length by the controller in your shack which means you can adjust not only SWR but also F/B ratio and gain of the antenna.

Please read this manual carefully to understand how KA1 works and how to use it.

KA1 is much heavier than ordinary Yagi antenna that has the same number of elements. It also has some sharp parts which may hurt you if you touch them roughly. Please be careful when you construct it or do maintenance.

CAUTION

*Do not use AC adaptor or cable that doesn't come with KA1.

*Before installing KA1 on the tower, please make and confirm Adjustable Element Unit (AEU) working on the ground.

*Pull off the DC plug from the controller when you attach or remove the Amphenol connector.

*While in operation (elements are not fully out or home, in between), push HOME button to get all the elements home position if you pull off the DC plug. Otherwise KA1 may lose the accurate position. This should happen when you experience black out.

*Please use the only parts(bolt, nut, washer, etc.,) that are supplied with KA1 or the same ones as supplied to assemble KA1.

2. FOR YOUR SAFETY

- We would like you to follow instruction here in order not only for your safety but for people around.

DANGER

This sign means neglecting this caution may cause death or serious injury.

- Ⓞ Do not install in the place where flammable gas exists. That may cause fire or explosion,

WARNING

This sign means neglecting this caution may cause death or serious injury.

- Ⓞ When you install or use KA1, please follow the instructions below to avoid getting electric shock, fire, or short circuit.
 - Do not try to use unmatched AC plug with AC outlet.
 - Do not use if the AC cord has broken parts or AC plug is loose.
- Ⓞ For AC power cord and AC plug please follow the instructions below to avoid fire, unexpected heat, getting electric shock, or getting failure.
 - Do not make any modification on the AC cord and plug.
 - When you pull off from the outlet, grab the plug and pull nicely.
- Ⓞ Please remove AC plug from the outlet when you don't use KA1 for long.
- Ⓞ Use electric power between AC100 and AC200.
- Ⓞ We would like you not to use KA1 near sensitive electric equipments, especially medical equipments.
- Ⓞ We strongly suggest remove all the cable connections when you hear thunder, or see lightning.
- Ⓞ Please stop using and remove AC plug quickly when you see smoke or notice unusual smell, and then contact us.

CAUTION

This sign means neglecting this caution may cause injuries or physical damages.

ⓄWhere to use(not to use).

- Do not install in the dusty, less air movement, or high humidity place.
- Do not put too close to the wall.
- Do not cover the holes of casing of the controller.
- Do not expose under the sun light, or air conditioner air. Abrupt change of temperature isn't good for the controller.
- Put the controller on the stable place.
- Don't put anything on the controller.
- Don't touch controller or AC plug with wet hand.

ⓄPlease open the cover only when you change settings.

ⓄDon't transmit without antenna connection.

ⓄDon't use thinner or benzene for cleaning purposes.

3. How to Check AEU

■ 3-1 : Check Extension and Retraction

We strongly recommend you to pre-assemble AEU and check it working before installation of VERSA Beam.

You will use KA1 controller to confirm AEU's working properly to extend and retract elements.

We are very careful of handling and packing, however AEU may get damage during transportation. Be sure to confirm elements come out of and get in AEU. This procedure is a must if you don't want to do unnecessary hard work after installation on the tower.

■ 3-2 : What to Use to Test AEU

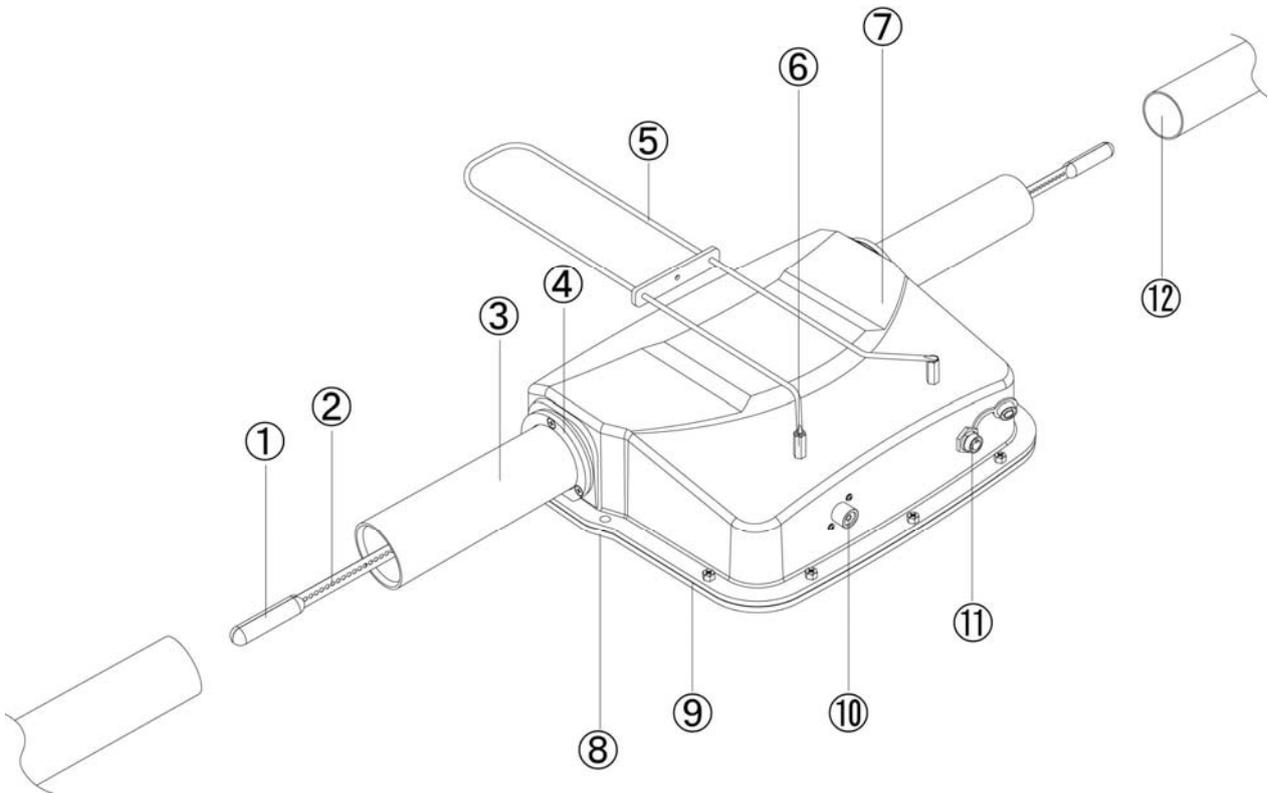
- All AEU's
- Controller
- AC Adaptor and cable to connect with controller
- Controller cable · junction cable
(Coaxial cable isn't used here.)
- Junction box · junction board

*Parts and units listed above are needed to check AEU's.

*Caution : Don't use AC adaptor supplied with VERSA antenna.

From Section 4 to Section 8 preparation for testing AEU is described. Section 9 explains how to test AEU.

4. Adjustable Element Unit (AEU)



- ① Element Tip
- ② Element
- ③ Supporting Rubber
- ④ Rubber Holder
- ⑤ Stub (For only 400Series AEU7m · with supporters)
- ⑥ Stub Joint (For only 400Series AEU7m)
- ⑦ Element Housing
- ⑧ Housing Cover
- ⑨ Housing Gasket
- ⑩ Coaxial Connector (only AEU for driven element)
- ⑪ Control Cable Connector
- ⑫ Glass Fiber Tubing

Note: We named the unit assembled with ① to ⑨ listed above AEU.

5. Disassemble and Reassemble AEU

■ Attaching Supporting Rubber

AEU is shipped from our factory without ②Supporting Rubber38 and ③Supporting Rubber45 as shown in Figure 1-1 and 1-2. AEU has only ④Rubber Holder. You need to remove ④Rubber Holder once, and to attach ② and ③Supporting Rubber38&45 before start testing.

Disassemble and reassemble AEU as shown in 「Diagram1、Figure1-1、Figure1-2」

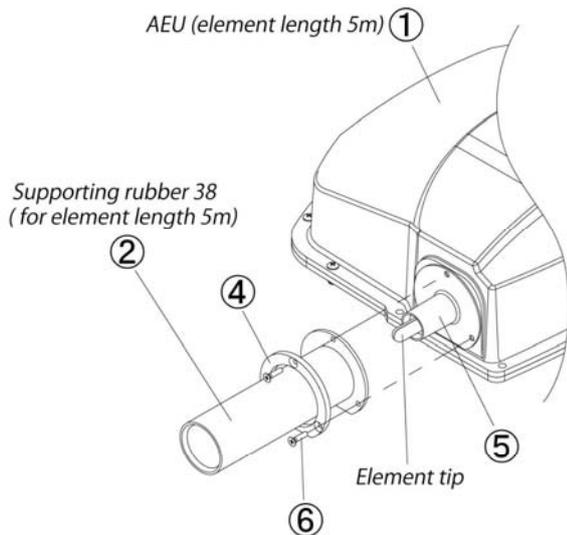


Figure 1-1

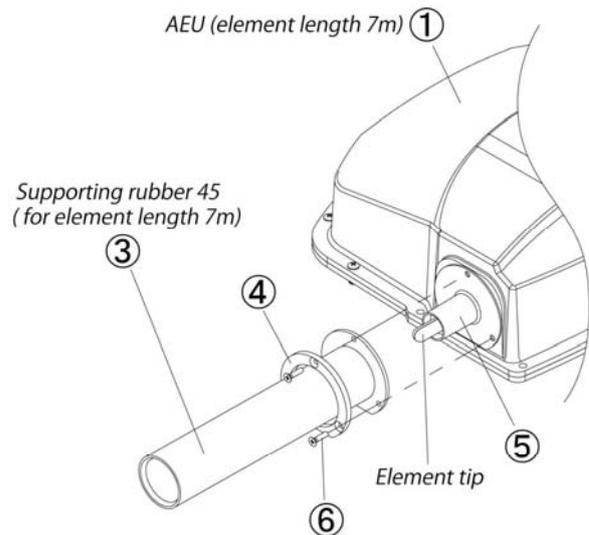


Figure 1-2

No.	Parts Number	Parts Name	Qty
①	—	AEU (element length 5m) or AEU (element length 7m)	1
②	AC05-R220	Supporting rubber 38 (for element length 5m)	2
③	AC05-R221	Supporting rubber 45 (for element length 7m)	2
④	AC05-M219	Rubber holder	2
⑤	AC05-R213	Element guide	2
⑥	—	Plastic screw flat head	6

Diagram 1

*NOTE

- [Diagram1、Figure1-1、Figure1-2] shows parts for an unit of AEU. Number of AEU is different depend on models.
Example: KA1-206 or 406 has 6 units of AEU.
- There are two different length Supporting Rubber. One is for 5m element AEU, and the other is for 7m element AEU.
- Shorter ②Supporting Rubber38」 is for 5mAEU.
- Longer 「③Supporting Rubber45」 is for 7mAEU

Please don't mix up two different lengths Supporting Rubbers. They are very look like.

6. Connecting Junction Cable (KA1-206)

■ 6-1 : Connecting AEU and Junction Box with Junction Cable

* See Figure 2 (Figure2 doesn't show details.)

* AEU and Controller are connected by way of Junction Box (Junction Board). Before connecting AEU with Controller, you need to connect AEU with Junction Box.

Please follow the above procedure, which should avoid damaging controller or AEU in case of something wrong happened. Again controller isn't connected at this moment.

*NOTE

- Please find out a sufficiently large room to place all the AEU's and Controller before connecting Junction Cable.
 - 50M BAND will be used for element extend and retract test.
Ref (Reflector) will extend to about 1.5m (5 feet) on one side. Because elements are quite flexible, you don't have to have element full extension wide area. However, if the place is too narrow, elements may get crooked.
 - Don't step on elements. If it gets folds, the antenna may not work with full performance.
 - For this test you don't have to install AEU's on the boom. Put them on the floor or a large table.
 - Please watch elements carefully in order for them not to get damages or dirty.
- * See Figure2 showing how to connect AEU • Junction Box • Junction Cable • Controller Cable • Controller.
Follow the COLOR LABEL stick on each cable to find which AEU to connect with.

Description about wirings in Junction Box is written in [6-2].

[See Figure2]

*KA1-206/Junction Cable and Corresponding AEU

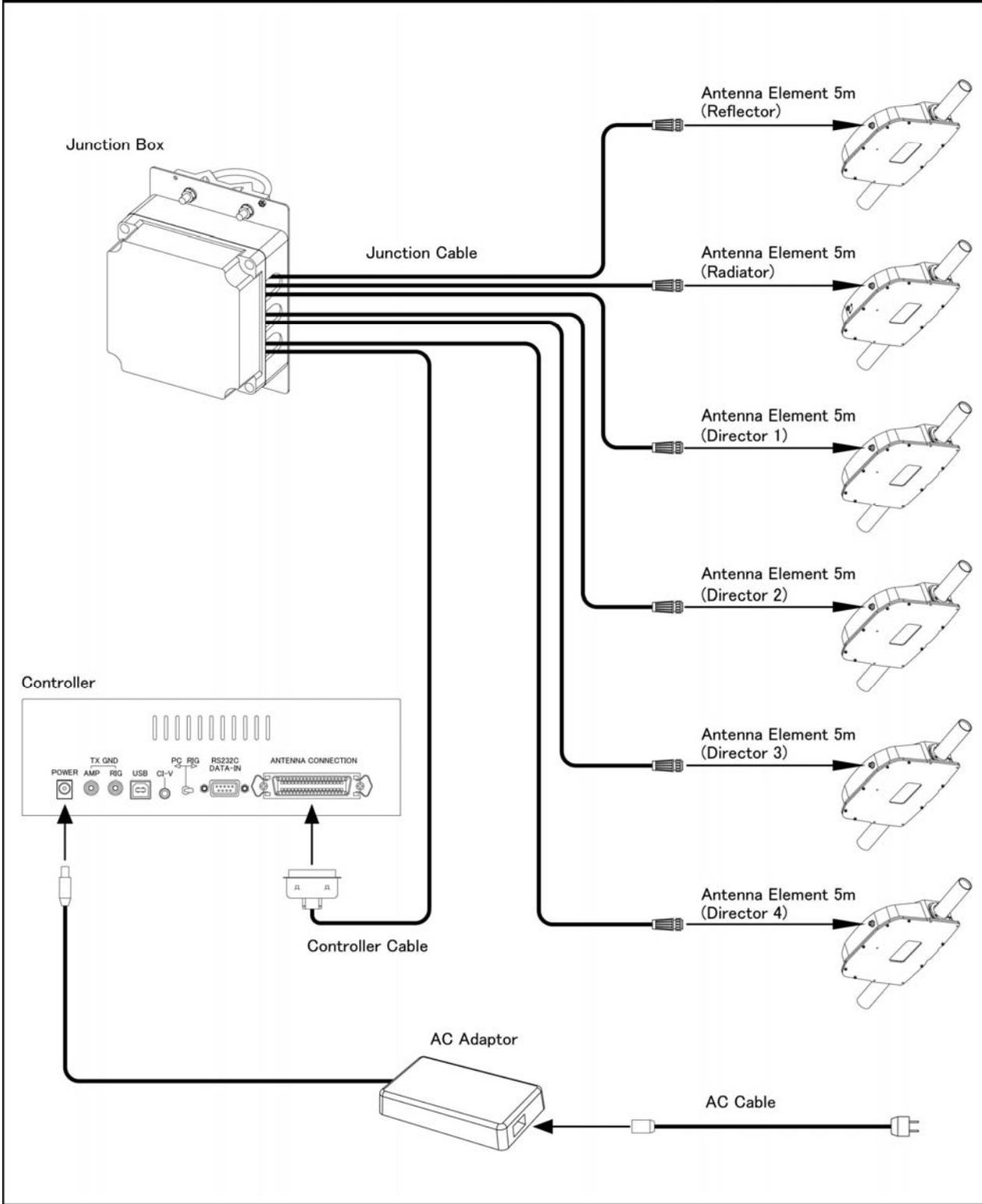


Figure 2

6-2 : Connector Numbers on Junction Board

Junction Board is installed in Junction Box.

* See 「8」 to see inside view of Junction Box.

Find out color labels on AEU, connectors, and cables. For the connection the color should be matching.

See [Diagram2, Figure3, Figure4, Figure5] .

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

Diagram 2

*NOTE

- A~F for Junction Cable
- G~H for Control Cable
- (Only G is used for 3 element model.)

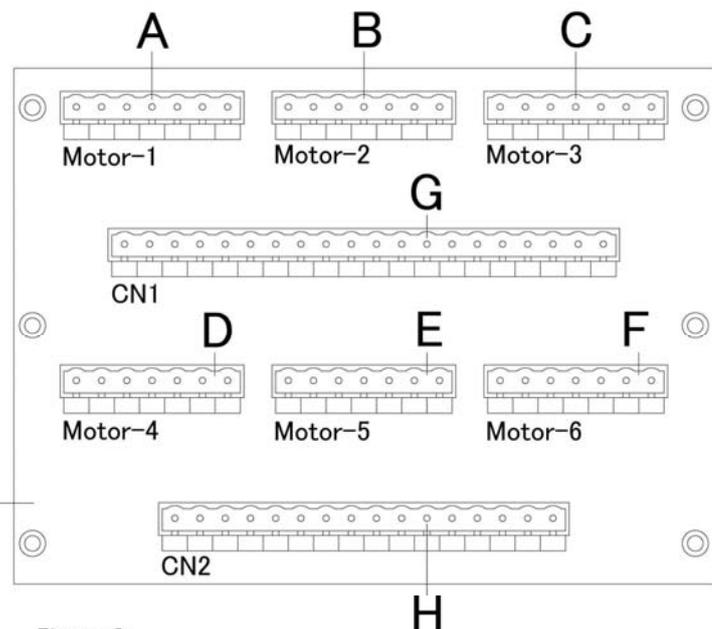


Figure 3

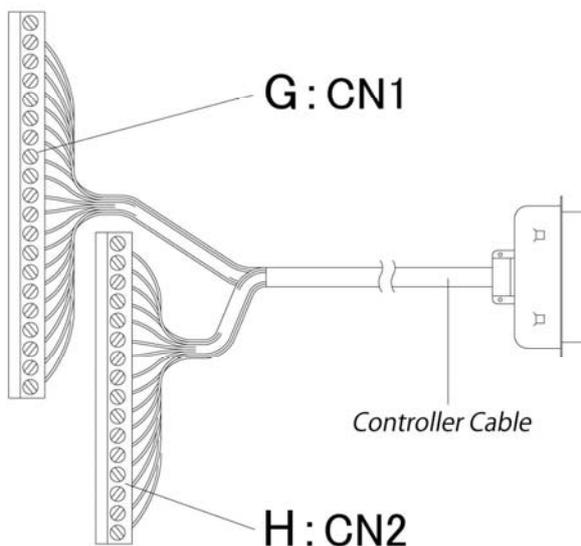


Figure 4

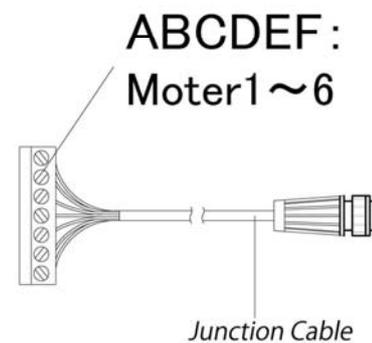


Figure 5

7. Connecting Junction Cable (KA1-406)

■ 7-1 : Connecting Each AEU with Junction Box

*See 「Figure6」 Figure6 doesn't show detail.

*AEU and Controller are connected by way of Junction Box(Junction Board). Before connecting AEU with Controller, you need to connect AEU with Junction Box.

Please follow the above procedure, which should avoid damaging controller or AEU in case of something wrong happened. Again controller isn't connected at this moment.

*NOTE

- Please find our a sufficiently large room to place all the AEU's and Controller before connecting Junction Cable.
 - 50M BAND will be used for element extend and retract test.
Ref (Reflector) will extend to about 1.5m (5 feet) on one side. Because elements are quit flexible, you don't have to have element full extension wide area. However, if the place is too narrow, elements may get crooked.
 - Don't step on elements. If it gets folds, the antenna may not work with full performance.
 - For this test you don't have to install AEU's on the boom. Put them on the floor or a large table.
 - Please watch elements carefully in order for them not to get damages or dirty.
- *See Figure6 showing how to connect AEU • Junction Box • Junction Cable • Controller Cable • Controller.
Follow the COLOR LABEL stick on each cable to find which AEU to connect with.

Description about wirings in Junction Box is written in [7-2].

See [Figure6]

*KA1-406/Junction Cable and Corresponding AEU

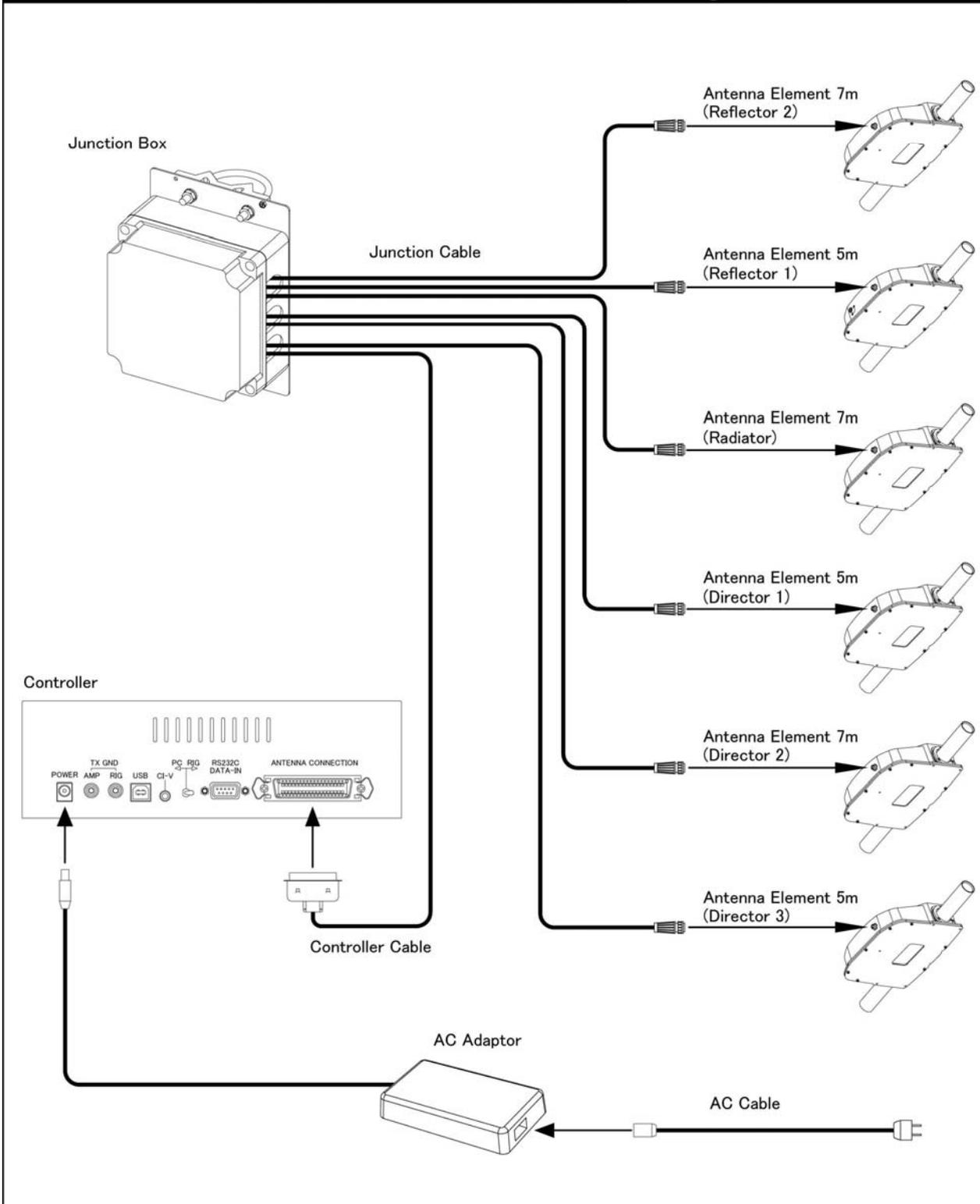


Figure 6

■ 7-2 : Connector Numbers on Junction Board

Junction Board is installed in the Junction Box

* *See 「8」 to see inside view of Junction Box.

Find out color labels on AEU, connectors, and cables. For the connection the color should be matching.

See [Diagram3, Figure7, Figure8, Figure9] .

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

Diagram 3

*NOTE

- A~F for Junction Cable
- G~H for Control Cable
- (Only G is used for 3 element model.)

Junction Board

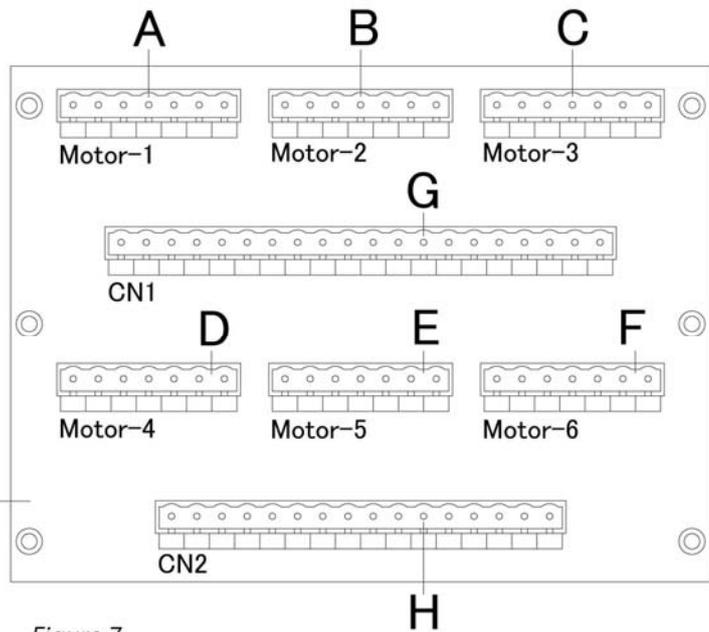


Figure 7

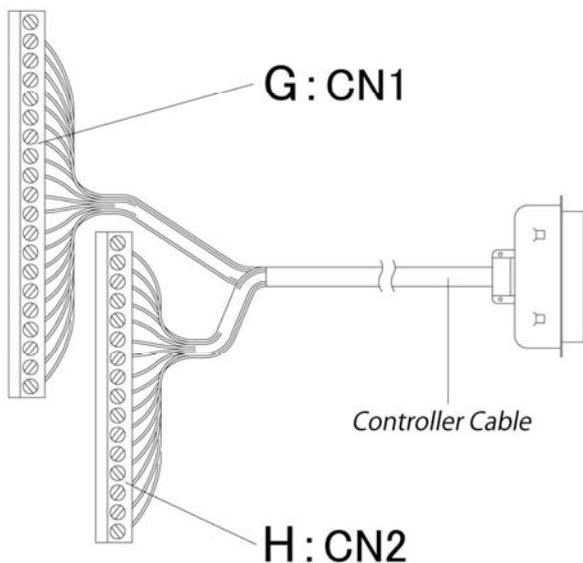


Figure 8

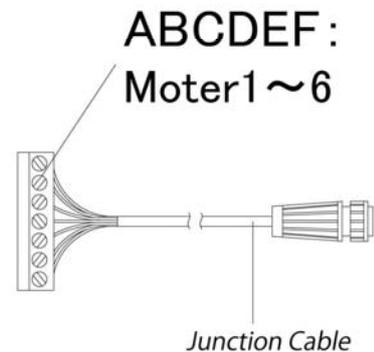


Figure 9

■ 7-3 : Connection Table for Each Model

Diagram4 shows Junction Board connection with Junction Cable for each model. Please check Diagram4 carefully to find the connections.

Junction Board Connector Number	Motor-1	Motor-2	Motor-3	Motor-4	Motor-5	Motor-6
KA1-203	Ra	Ref	D	-	-	-
KA1-204	Ra	Ref	D1	D2	-	-
KA1-205	Ra	Ref	D1	D2	D3	-
KA1-206	Ra	Ref	D1	D2	D3	D4
KA1-403	Ra	Ref	D	-	-	-
KA1-404	Ra	Ref	D1	D2	-	-
KA1-405	Ra	Ref	D1	D2	D3	-
KA1-405S	Ra	Ref2	Ref1	D1	D2	-
KA1-406	Ra	Ref2	Ref1	D1	D2	D3

Diagram 4

* Ra/Radiator, Ref/Reflector, D/Director

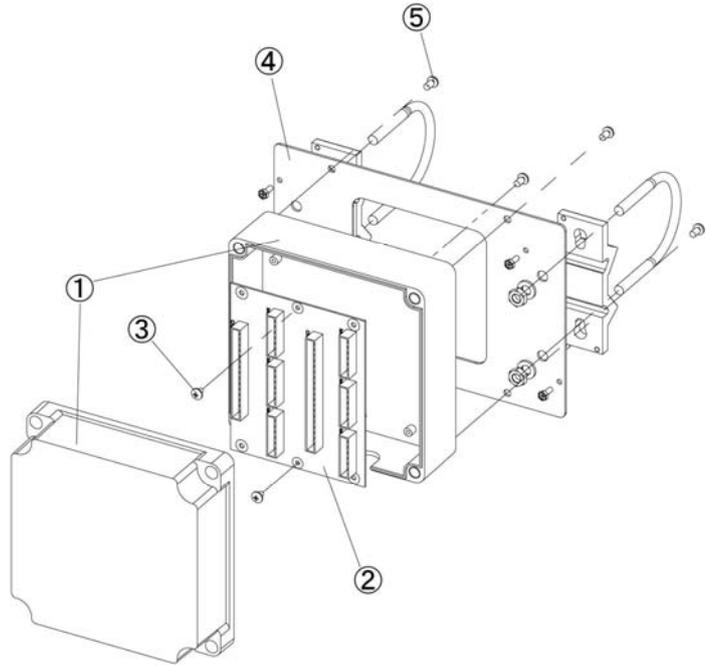
8. Assembling Junction Box

■ For testing purpose you don't have to assemble completely.

After connection make cables coming out of the box through holes.
See [Diagram5, Figure10, Figure11-1, 11-2]

*NOTE

- You don't have to assemble Junction Box completely for testing purpose. You may have it with no cover without any trouble.
- We recommend to build Junction Box in order not to hurt Junction Board with tools.
- Please place cables carefully in order not to pinch wires in between box parts.



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

Diagram 5

Figure 10

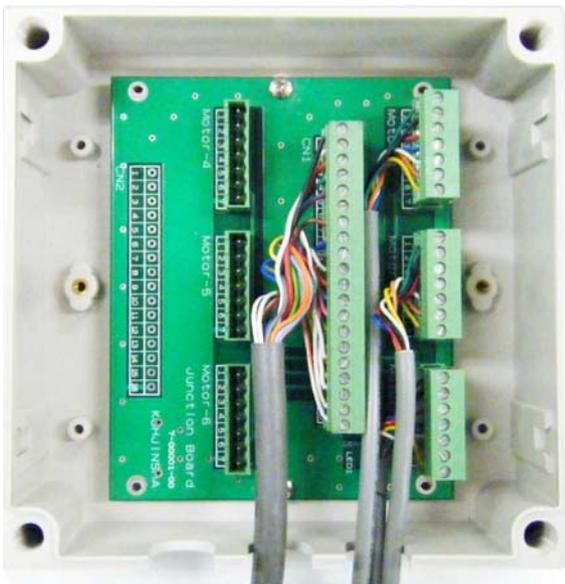


Figure11-1: The junction box inside of 3 elements model

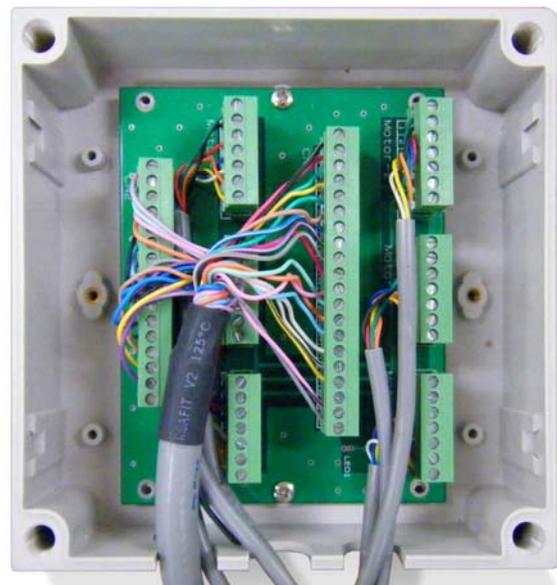


Figure11-2: The junction box inside of 6 elements model

9. How to Check AEU Working Properly

■ Please operate AEU using a controller

AFTER the connection is done, connect AC Adaptor with controller.

*Please follow the procedure#1 to #4 described here to check AEU.

See [Figure12]

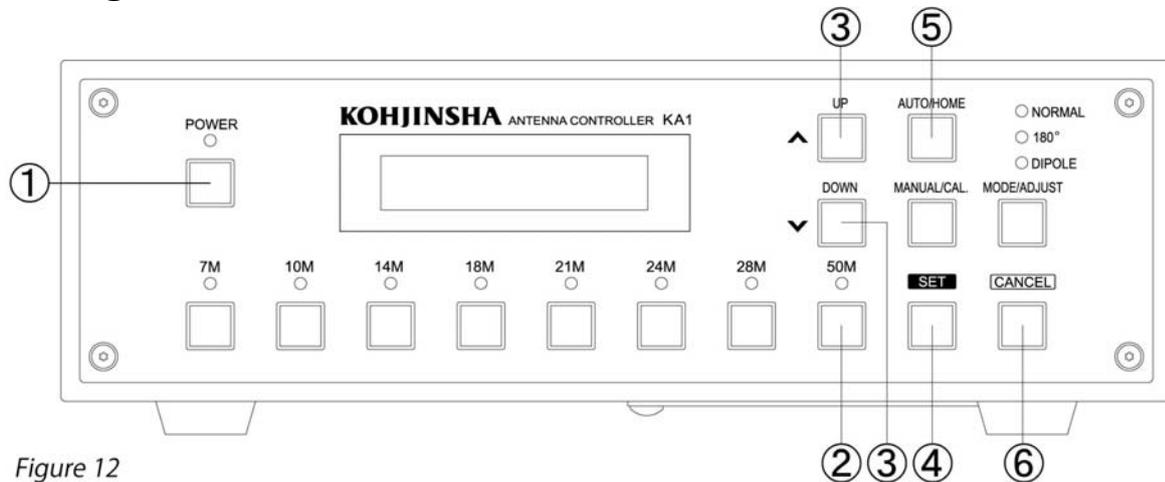


Figure 12

#1

Make all the connection like AC adaptor with outlet and KA1 controller. You will see controller POWER ON, and then [Model Number, Software Ver., ROM Ver. And available frequency range] in the LCD screen. And then HOME screen will be shown.

See [Figure13, Figure14]

Press and hold ①POWER button to turn OFF power.

→Go to #2

- * **NOTE** If you see a different indication in the LCD screen (for example: numbers like 12 456, without 3), an element that isn't shown (in this case: element 3) may not be retracted properly at HOME position. If you experience above, you need to extend elements once.

②Press 50M button to extend elements

Extending movement stops at about 1.5m (5feet) long on each side. (Please watch elements carefully in order for them not to get damages or dirty)

After above operation press and hold ⑤AUTO/HOME button to make "Push SET" blink, and then press ④SET button. You will see Figure14.

Next step : Press①POWER to power off

→Go to procedure #2

*Why this happens

During transportation antenna element might have come out a little because of vibration or shock. Unless all the elements are at HOME position, you cannot test VERSA antenna properly. Be sure to take a step described above to see as in Figure14.

*Numbers on the upper right corner of LCD

Each number corresponds with each element (motor) number in the LCD display as in 「Figure14」. 3 element model should have 「1 2 3」、4 element model 「1 2 3 4」、5 element model 「1 2 3 4 5」、and 6 element model 「1 2 3 4 5 6」.

See [Figure13、 Figure14]

*Figure13、 Figure14 shows KA1-406(6element model).

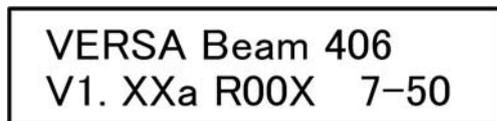


Figure13: When you turn on the controller, you will see above. Model number, software version, ROM version, and available bands appear. In some seconds information will switch



Figure14 : You see above information while elements are retracted in AEU completely. We call this status HOME position.

#2

While pressing ②50M button, press ①POWER button. You will see Figure15 first on LCD and then will see Figure16. Now your controller is in the Test mode. See [Figure15、 Figure16]

→Go to procedure #3

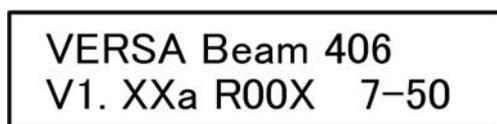


Figure15: When you turn on the controller, you will see above. Model number, software version, ROM version, and available bands appear. In some seconds information will switch to as Figure 16.

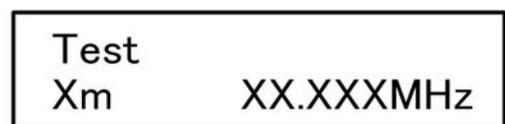


Figure16 : Shown on LCD is under Test mode. The frequency shown is the one used at our factory.

#3

Press ③DOWN button to extend elements.

You can get about 9mm extension by one press. Continue pressing ③DOWN several times. After confirming elements move, and then press ③UP button several times until elements are fully retracted.

When elements are fully retracted, they are stop retracting further. Now elements are at HOME position.

→Go to procedure #4

#4

Press and hold ①POWER button to turn off the power.

Press ①POWER button again to turn on power to see Figure 17. Some seconds later you will see Figure18.

Now you finished AEU element test.

VERSA Beam 406 V1. XXa R00X 7-50



Home	123456
Element	Home

Figure17 : When you turn on the controller, you will see above. Model number, software version, ROM version, and available bands appear. In some

Figure18 : You see above information while elements are retracted in AEU completely. We call this status HOME position.
*Figure 18 shows 6 element model.

*HOME operation and HOME sensor

After HOME operation, AEU numbers will be shown on LCD display. This means all the elements are at HOME position. A few seconds later power will be turned down automatically.

See the table below to make sure corresponding numbers with elements for each model.

Numbers on LCD	1	2	3	4	5	6
Junction Board Connector Number	Motor-1	Motor-2	Motor-3	Motor-4	Motor-5	Motor-6
KA1-203	Ra	Ref	D	-	-	-
KA1-204	Ra	Ref	D1	D2	-	-
KA1-205	Ra	Ref	D1	D2	D3	-
KA1-206	Ra	Ref	D1	D2	D3	D4
KA1-403	Ra	Ref	D	-	-	-
KA1-404	Ra	Ref	D1	D2	-	-
KA1-405	Ra	Ref	D1	D2	D3	-
KA1-405S	Ra	Ref2	Ref1	D1	D2	-
KA1-406	Ra	Ref2	Ref1	D1	D2	D3

** Ra/Radiator, Ref/Reflector, D/Director*

10.Connecting Cable with Connector

10-1 : Connection of Cable, PCB Terminal Block, Amphenol Connector

Controller cable is assembled in our factory. It is not recommended to disassemble and reassemble, however you may need to do so for some reason. Please see 「Diagram6 ~8、 Figure19, 20」 carefully, and reassemble them.
See [Diagram6、 7、 8、 Figure19、 20]

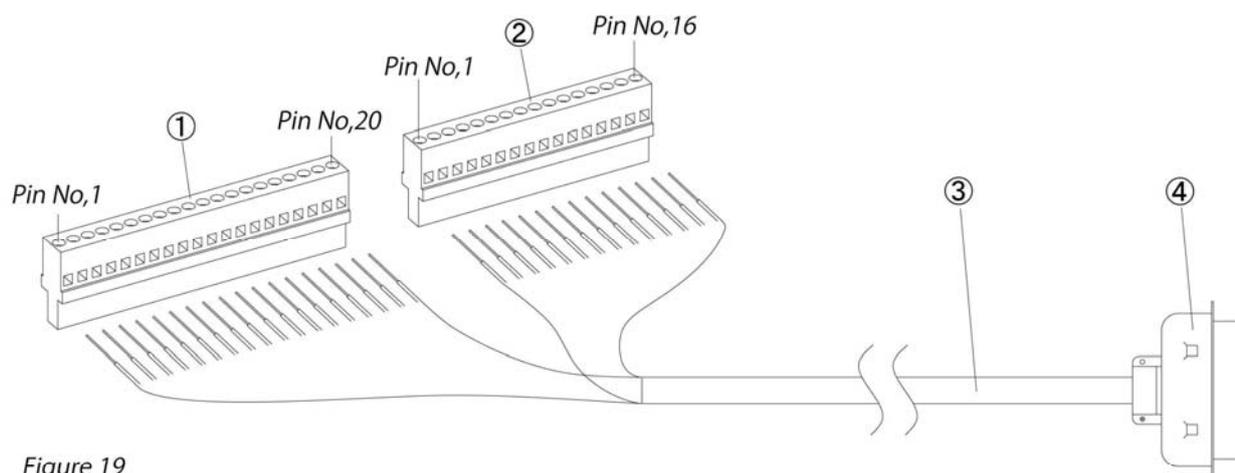


Figure 19

① CN1 Pin number	④ Amphenol 36pin Pin number
1	1
2	2
3	3
4	4
5	25
6	5
7	6
8	7
9	8
10	26
11	9
12	10
13	11
14	12
15	27
16	32
17	33
18	34 *2
19	35
20	36

Diagram 6

② CN2 Pin number	④ Amphenol 36pin Pin number
1	13
2	14
3	15
4	16
5	28
6	17
7	18
8	19
9	20
10	29
11	21
12	22
13	23
14	24
15	30
16	31 *2

Diagram 7

Note *1
 •3 elements model : CN2 is not used.
 •4 elements / 5 elements model : CN2 uses 1~10pin.
 •6 elements : CN2 uses 1~15pin.

*2 •Pin No,18 of ①CN1 and Pin No,16 of ②CN2 are not used.

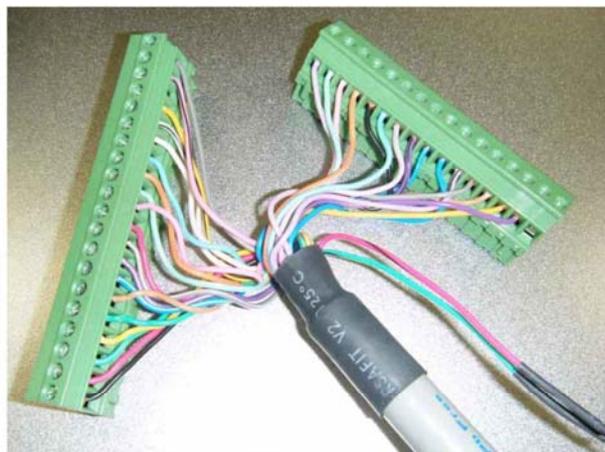


Figure 20

The state that attached a terminal block to a controller cable.

No.	Parts Number	Parts Name	個数
①	KP03-500-20P	PCB Terminal Block:CN1	1
②	KP03-500-16P	PCB Terminal Block:CN2	1
③	AC05-C056-0300	Controller Cable (36 wire cable)	1
④	-	Amphenol 36pin Connector	1

Diagram 8

■ 10-2 : Connection of Junction Cable and PCB Terminal Block

Junction cable is assembled in our factory. It is not recommended to disassemble and reassemble, however you may need to do so for some reason. Please see 「Diagram, 10, Figure21, 22」 carefully, and reassemble them.

There are four different length Junction cable. Their approximate length are 「1m(3feet)・3m(10feet)・5m(17feet)・7m(22feet)」.

You can find 「COLOR LABEL」 which helps you to connect the right AEU matching with Junction Cable. Be sure to connect the same color.

See [Diagram9、 10、 Figure21、 22]

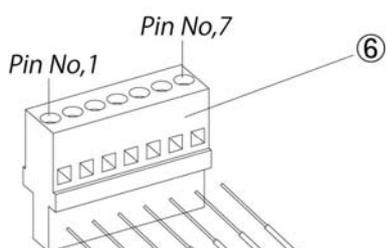


Figure 21

The state that attached a terminal block to a junction cable.

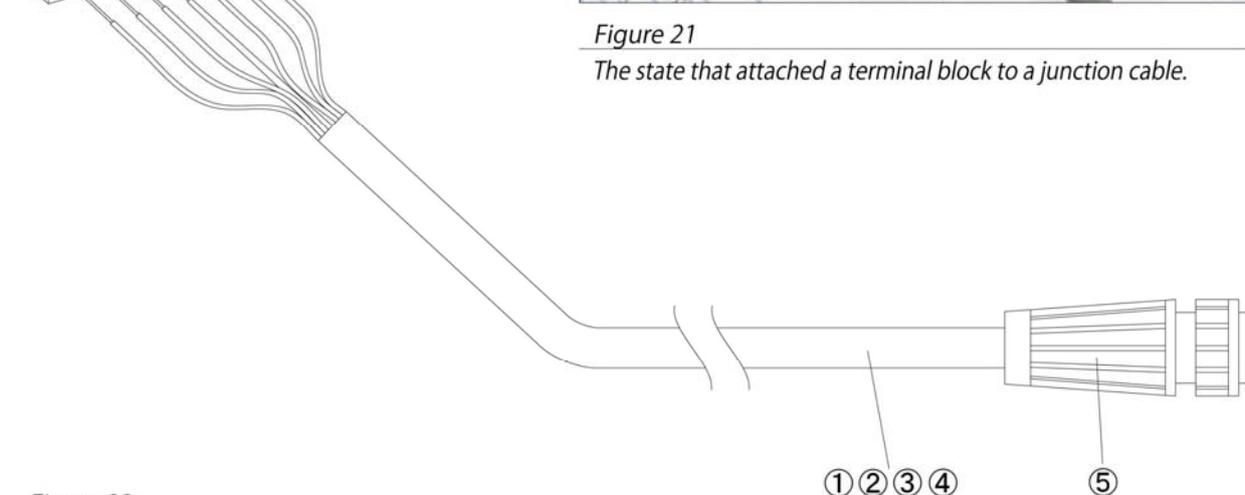


Figure 22

⑥ PCB Terminal block Pin number	⑤ Waterproof connector Pin number
1	2
2	1
3	3
4	4
5	5
6	6
7	7

Diagram 9

No.	Parts Number	Parts Name	Qty
①	AC05-C053-0300	Junction Cable (1m)	—
②	AC05-C053-0100	Junction Cable (3m)	—
③	AC05-C053-0400	Junction Cable (5m)	—
④	AC05-C053-0200	Junction Cable (7m)	—
⑤	—	Waterproof Connector	—
⑥	KB03-500-7P	PCB Terminal Block	—

Diagram 10

11. Assembling AEU (For All Models)

11-1 : Attaching AEU to Plate5m · Plate7m

First you need to assemble plates to attach AEU to the boom.

Assemble shown as Diagram11、Figure23-1、 and Figure23-2」

- *NOTE
- There are two different shape plates.
「Plate5m」 is for the AEU to be attached 5m element.
 - 「Plate7m」 is for the AEU to be attached 7m element.
 - There are color name stickers on which element length is also written on each AEU.

* 「Figure23-1」 shows the side on which AEU should be attached.

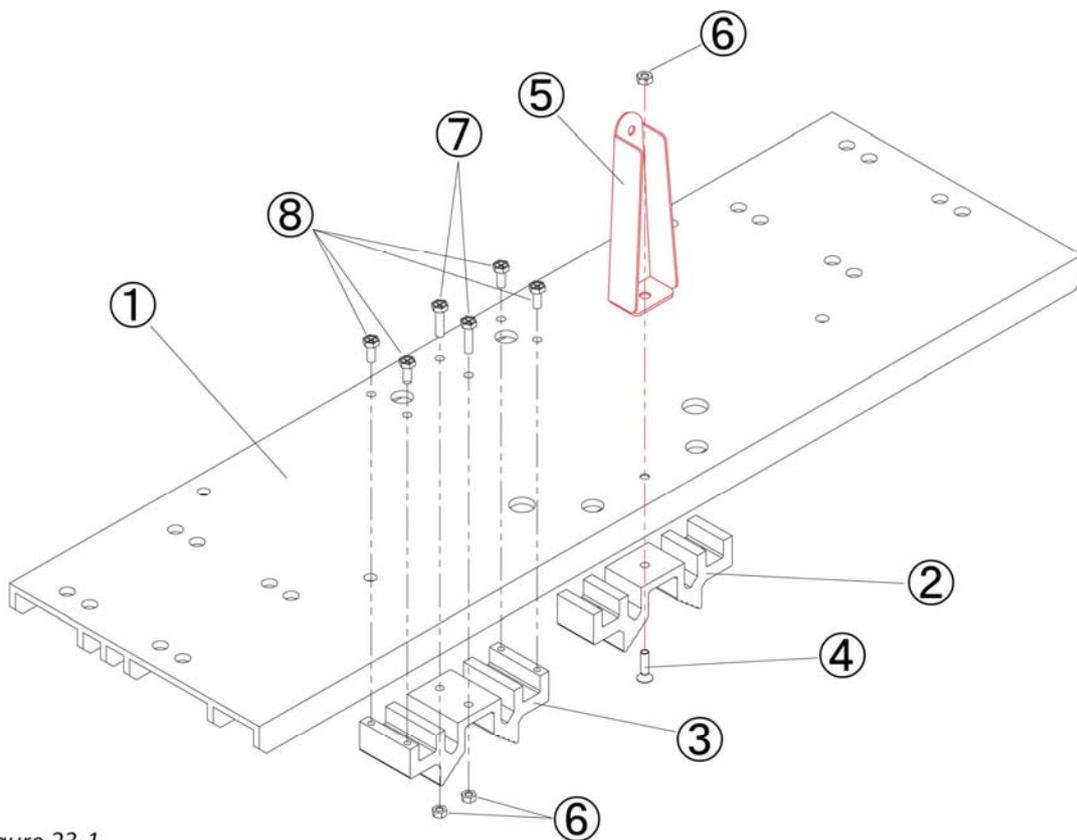


Figure 23-1

No.	Parts Number	Parts Name	Qty
①	AC05-S240-0100	Plate(5m)	1
	AC05-S226-0100	Plate (7m)	1
②	AC05-S069-0100	Boom Support MS	1
③	AC05-S079-0100	Boom Support MM	1
④	-	Flat head screw M4×16	1
⑤	AC05-S088-0100	Stub Spport	1
⑥	-	Lock Nut M4	3
⑦	-	Hexagon Upset bolt M4×16	2
⑧	-	Hexagon Upset bolt M4×10	4

Diagram11

* ⑨ Stub support is the post to hold a stub.
Only for KA1 400 series AEU
7m radiator.

* The numbers of parts are for one set of the plate.

*Figure23-2 shows the bottom side of the plate.

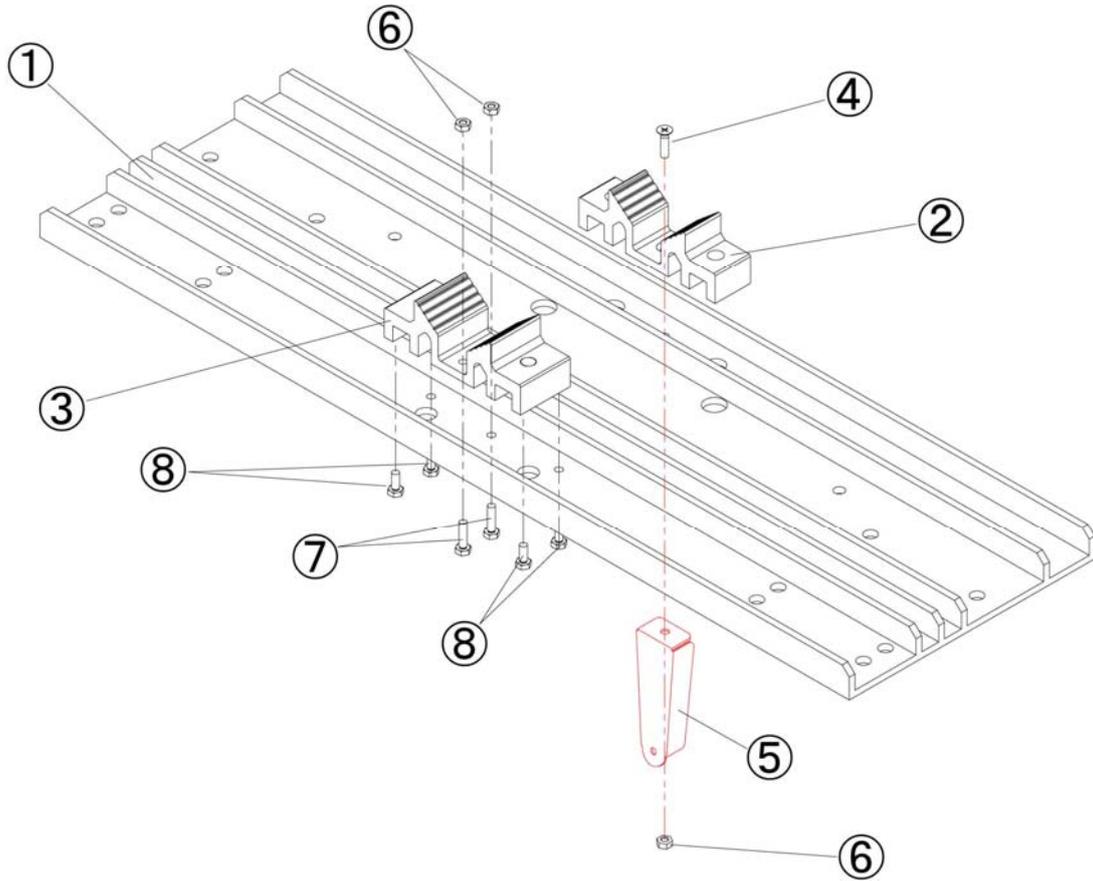


Figure 23-2

No.	Parts Number	Parts Name	Qty
①	AC05-S240-0100	Plate(5m)	1
	AC05-S226-0100	Plate (7m)	1
②	AC05-S069-0100	Boom Support MS	1
③	AC05-S079-0100	Boom Support MM	1
④	-	Flat head screw M4×16	1
⑤	AC05-S088-0100	Stub Spport	1
⑥	-	Lock Nut M4	3
⑦	-	Hexagon Upset bolt M4×16	2
⑧	-	Hexagon Upset bolt M4×10	4

Diagram11

*⑤Stub support is the post to hold a stub.
Only for KA1 400 series AEU 7m radiator.

*The numbers of parts are for one set of the plate.

■ 11-2 : Attaching Pole Support(bottom) to plate

First you need to attach pole support(C,D) to the plate that you assembled as shown 「Figure11-1」 . Then you put AEU that you reassembled rubber tubes on the plate with pole supports. See 「Figure 24」 .

There are four different sizes of pole supports. 「38H/L」 are for 5m element , and 「45H/L」 are for 7m element. Ls are placed at inner positions. Hs are at outer positions.

See 「Diagram12、 Figure24」 very carefully in order to use the right part for the right place.

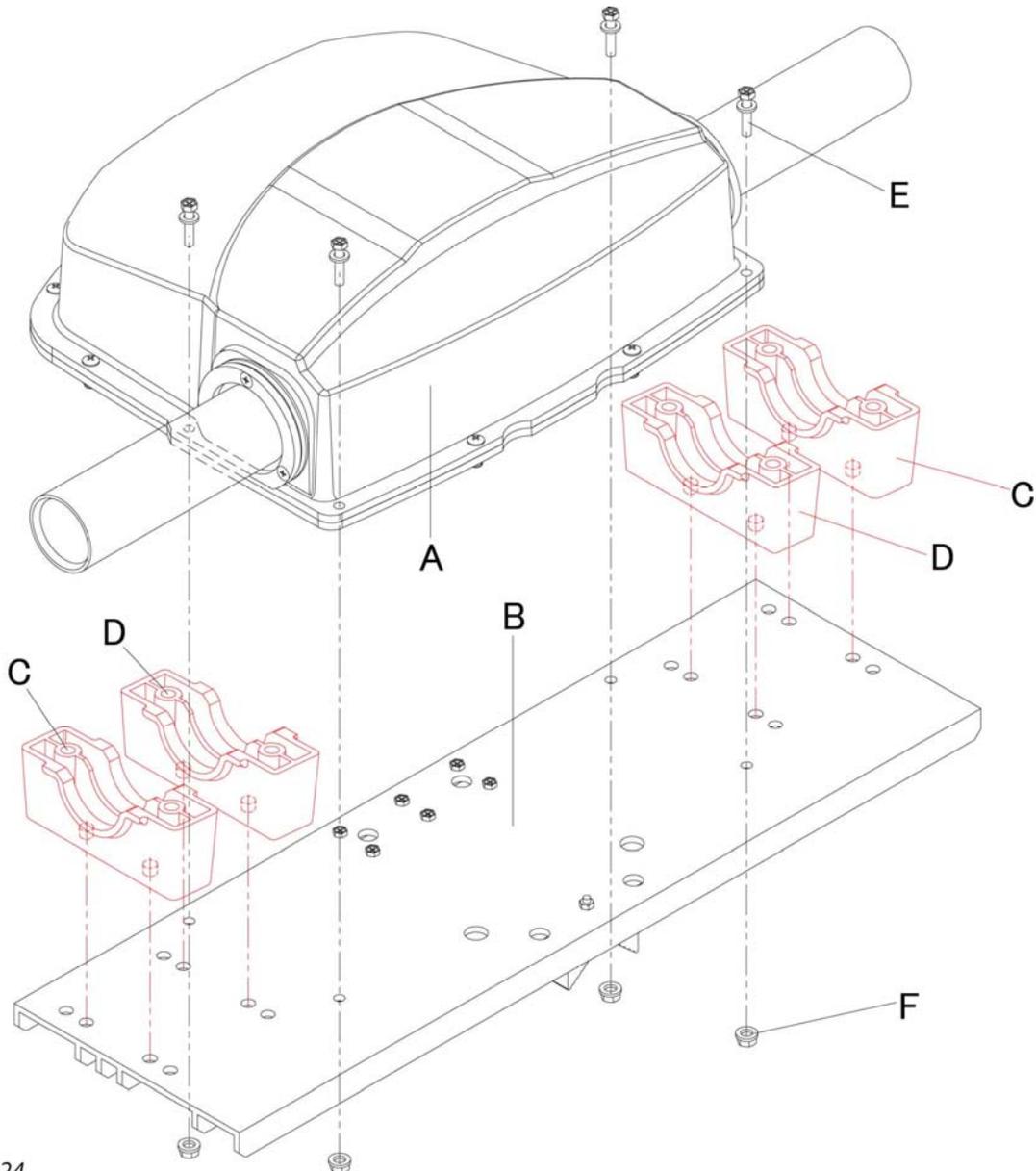


Figure 24

	Parts Name	Qty	Parts for AEU(5m)	Parts for AEU(7m)
A	AEU	1	Element length 5m	Element length 7m
B	Plate	1	Plate (5m)	Plate (7m)
C	Pole Support H	2	38H (The parts have a carved of 8H)	45H (The parts have a carved of 5H)
D	Pole Support L	2	38L (The parts have a carved of 8L)	45L (The parts have a carved of 5L)
E	Hexagon Upset bolt	4	M5×25	M5×25
F	Flange Nut	4	M5	M5

Diagram12

■ 11-3 : Attaching the Tube Holder(upper) to Plate

Attach the upper tube holders to hold AEU shown like Figure 25. You must not tighten the bolts too much. Leave them loose.

See [Diagram13、 Figure25]

*NOTE Bolts should be tightened after glass fiber poles are inserted.

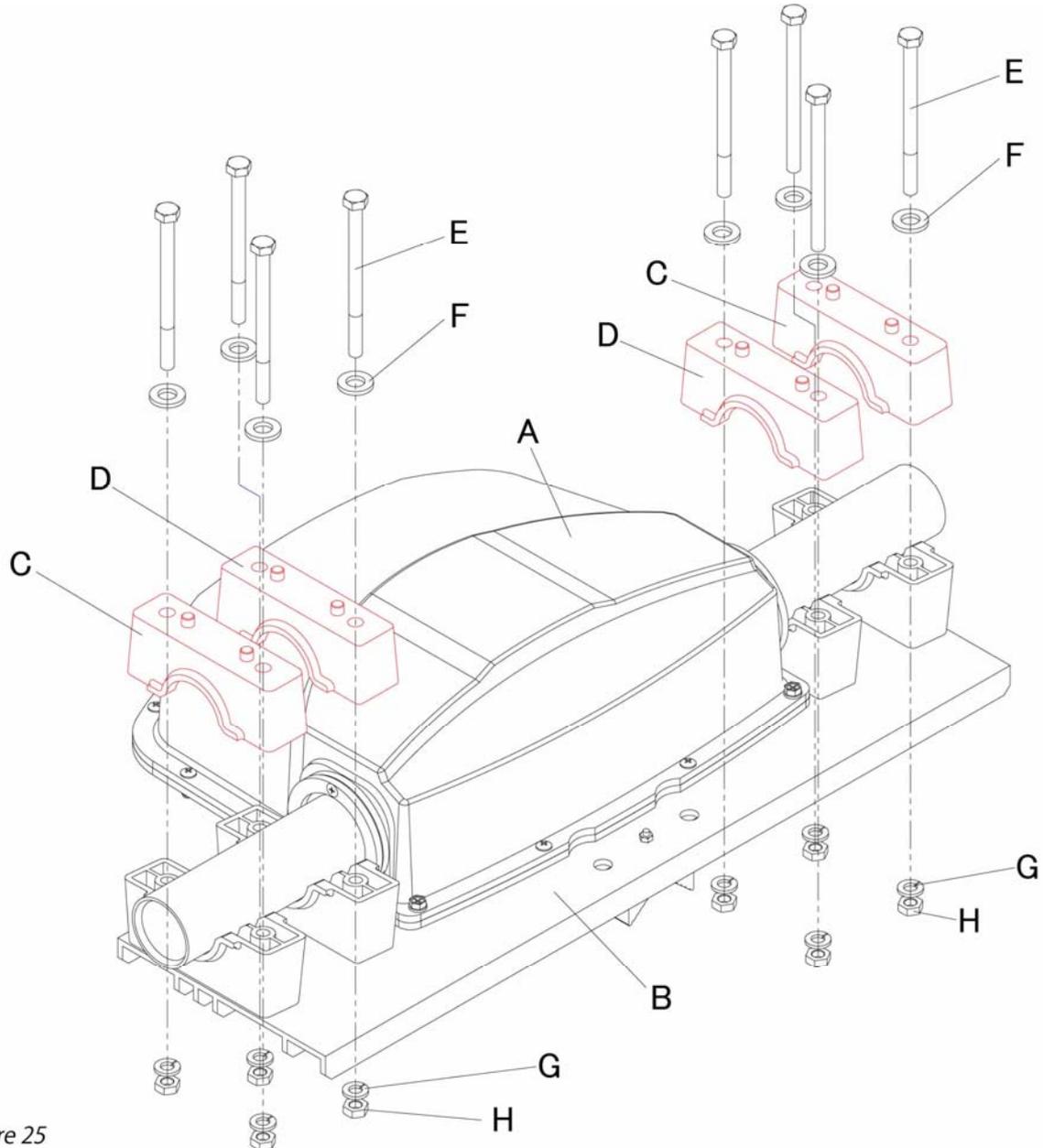


Figure 25

	Parts Name	Qty	Parts for AEU(5m)	Parts for AEU(7m)
A	AEU (Assembled)	1	Element length 5m	Element length 7m
B	Plate (Assembled)	1	Plate (5m)	Plate (7m)
C	Pole Support H	2	38H (The parts have a carved of 8H)	45H (The parts have a carved of 5H)
D	Pole Support L	2	38L (The parts have a carved of 8L)	45L (The parts have a carved of 5L)
E	Hexagon head bolt	8	M8×110	M8×110
F	Washer	8	M8	M8
G	Spring washer	8	M8	M8
H	Nut	8	M8	M8

Diagram 13

■ 11-4 : Installing Stub (Only for KA1-400Series)

Install a stub on 7m radiator AEU of KA1-400Series.
Assemble shown as 「Diagram14、 Figure26」 .

*NOTE Use the right screws and nuts to install stub and stub support.

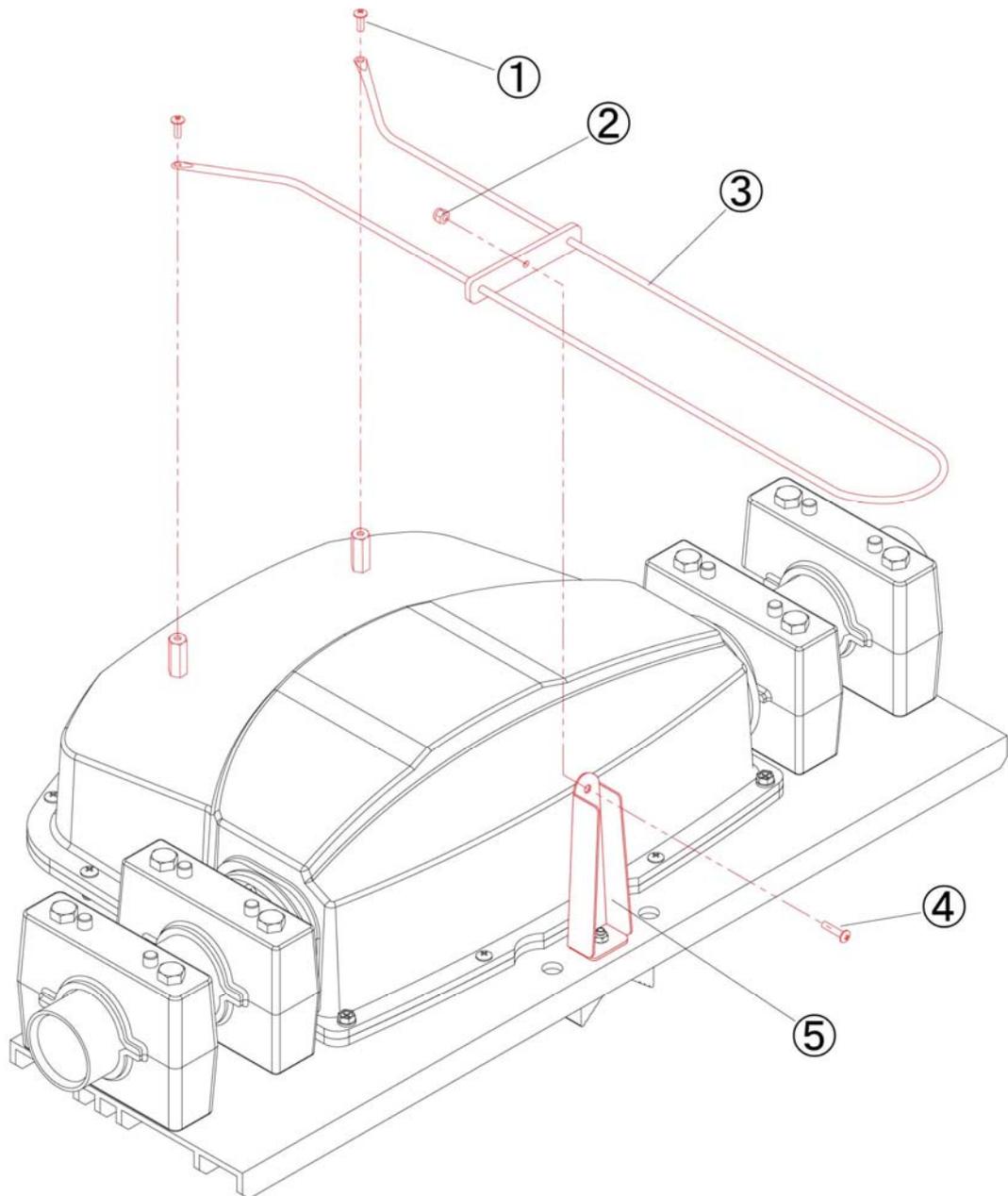


Figure 26

No.	Parts Number	Parts Name	Qty
①	-	Pan head screw M4×6	2
②	-	Lock Nut M3	1
③	AC05-S248 / AC05-S249	Stub M/L	1
④	-	Pan head screw M3×18	1
⑤	AC05-S088-0100	Stub Spport	1

Diagram 14

*⑤Stub support is the post to hold a stub.
Only for KA1 400 series AEU
7m radiator.

*The numbers of parts are for one set of the plate

■ 11-5 : Attaching Boom Clamps and U-bolts

Now you are going to attach boom clamps and U-bolts to AEU's that you have assembled.

Please keep the notice below in mind.

Because the boom for KA1 Series consists of different sizes of aluminum pipes, each AEU may be attached to the different diameter of aluminum pipe.

Proper sizes of hexagon head bolts are prepared. Please see diagrams and figures carefully in order not to use the wrong size of bolts.

See 「Diagram15、Figure27-1、Figure27-2」 carefully while assembling boom support, U-bolts, bolts, and nuts.

You need to adjust the AEU position on the boom to fix at the right place. Please don't tighten nuts until you determine the final AEU position. Otherwise it would be hard to move AEU's to adjust positions.

You must use the right parts as written in this instruction manual, otherwise you might have troubles like elements position change by strong wind, then antenna would not work 100% of its performance. The worst case might be elements fallen down.

See[Diagram15、Figure27-1、Figure27-2]

*NOTE

- There are three different boom diameters. They are $\Phi 49/\Phi 55/\text{and}\Phi 62$. Please use the appropriate size of 「hexagon head bolts」
- Use 90mm black bolts to fix AEU on the $\Phi 62$ boom.
取付け箇所 Use 80mm silver bolts to fix AEU on the $\Phi 49/\Phi 55$ boom.
- To confirm AEU position」 and 「Boom diameter」 please read 「AEU position on the boom」 in separate booklet.
- The positions of each AEU (Radiator/Reflector/Director) are shown by color labels.
- Color labels also show the center of tube holder. (Element position)

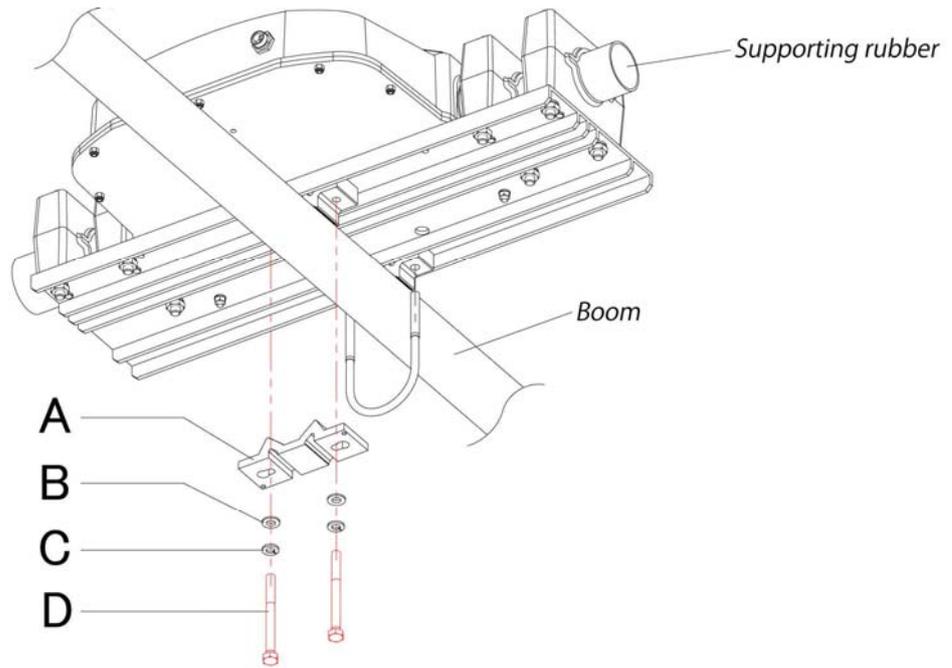


Figure 27-1 (The figure seen from the bottom of AEU)

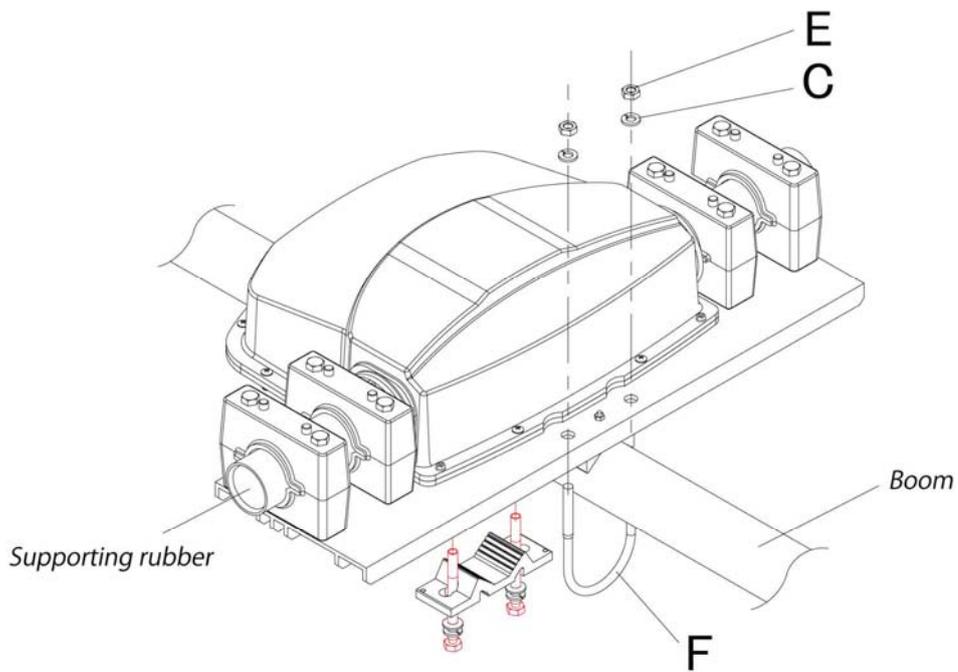


Figure 27-2 (The figure seen from the top of AEU)

	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 15

12. Attaching Glass Fiber Pole to AEU

■ 12-1 : Fully Extend Glass Fiber Tubing

See 「Diagram28、 Diagram29」

Please extend glass fiber poles to the length that directed in the manual. If the length is a little longer than the number in the manual, it should be all right. There may be different lengths even for the same position. If the total length is more than the one in the manual, you have no problem.

Even if you pull poles with really strong power, poles will never slip out. Please extend to the maximum. If you twist poles, you may get more length.

- * There are two different length of poles that are 7.4m and 5.2m. Please make sure what type of AEU you have in your model.

各There are caps attached to the glass fiber poles. The caps have sponge to get air in in order not to get dew in the glass fiber pole.

Please don't remove 「Cap and Sponge」

See [Figure28-1~Figure31]

*NOTE

- Remove the pipe base rubber which protect glass fiber pole from the shock that might happen during the transportation.
Unless you remove this parts, the AEU would be broken.
- Please make sure if there is nothing in the glass fiberpoles.
- If you install shorter glass fiber pole than the attached AEU element, you should get AEU trouble.
- Teflon tube is only used for KA1-400 Series AEU7m (Radiator) glass fiber pole. See 「Figure28-2」 to confirm
Stick double sided tape at the outer end of the glass fiber pole, and then insert the glass fiber. Make sure sticking fimly.

When you insert glass fiber pole into the AEU, this teflon tube is tightened together. Please double check if Teflon tube is at the end part of the pole.

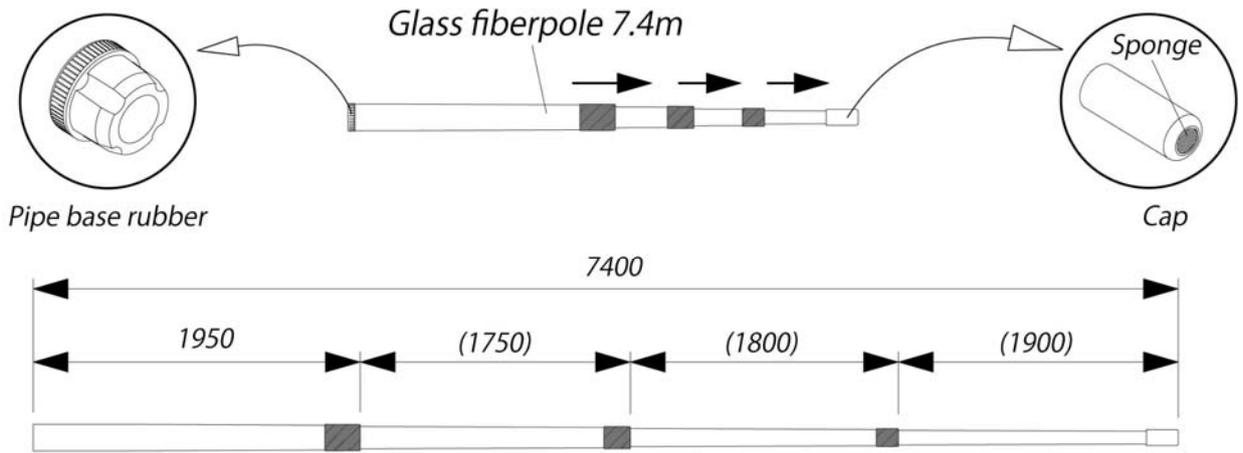


Figure 28-1

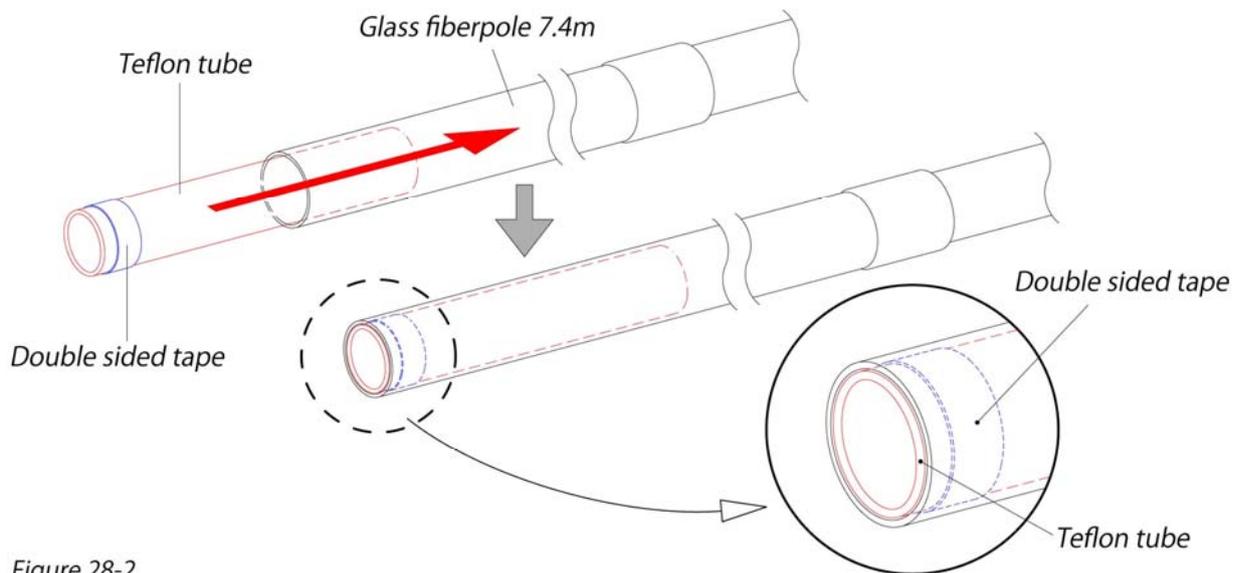


Figure 28-2

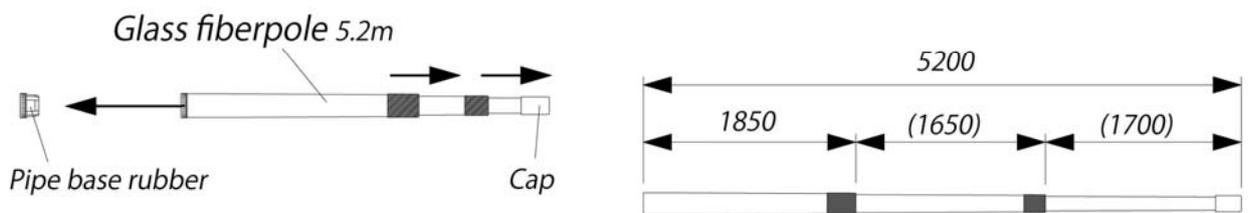


Figure 29



Figure 30



Figure 31

Pipe base rubber is the parts to prevent the poles from broken by shock during transportation. Please don't forget to remove it.

Please leave the caps at the tip of glass fiber poles.

■ 12-2 : Taping the Joint of Each Section

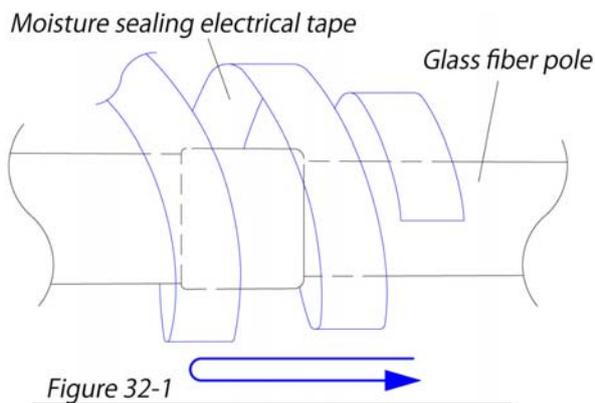
After you fully extended glass fiber poles, you need to tape joints in order not only to fix each pole section but to prevent from getting water or dusts in the poles.

See 「Figure32-1~4」 to make sure the process of taping.

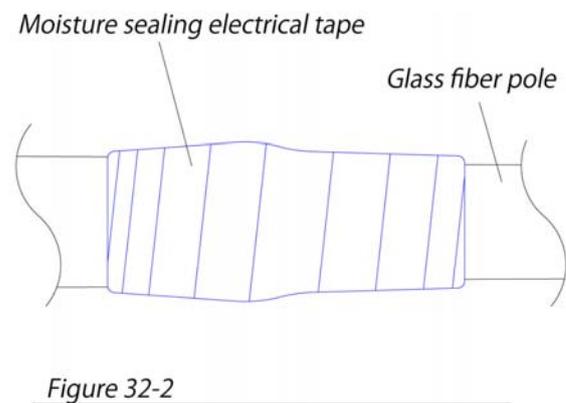
*NOTE

- We strongly recommend to use both 「Moisture sealing electrical tape」 and regular 「Electrical tape」 .
First apply the moisture sealing electrical tape, and then cover the part with regular electrical tape.
- We recommend to start taping from the thinner pole part and going to the thicker part. And then you keep on taping back to the starting position. You have double taping now.

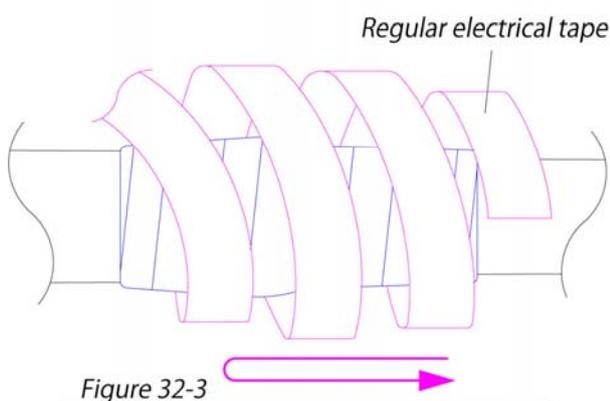
[図32-1~4参照]



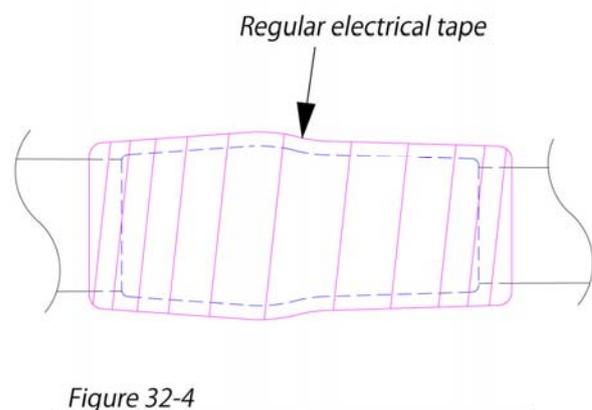
Make sure sealing the joint part of poles with moisture sealing electrical tape.



Use moisture sealing electrical tape to level the joint part.



Cover the moisture sealing electrical tape with regular electrical tape. Tape forward and back ward.



Cover up completely the moisture sealing tape with regular electrical tape.

***The pictures show how to use tapes.**

See 「Figure32-5~8」 . Taping is important but not very critical.
Just be careful not to have wrinkles.



Figure 32-5

This picture shows taping with moisture sealing electrical tape.



Figure 32-6

Above picture shows the part after taped with regular electrical tape.

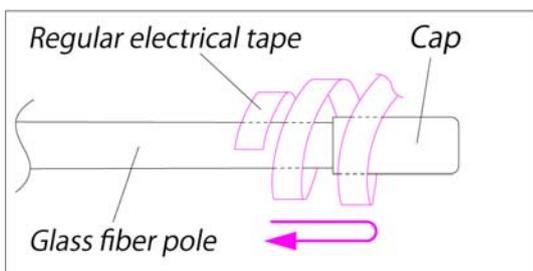


Figure 32-7

We recommend to tape the tip of glass fiber pole in order not to cap removed by accident.

You may not need to use moisture sealing electrical tape here. Use just regular electrical tape.



Figure 32-8

Above picture shows the tip with taping.

■ 12-3 : Attaching Glass Fiber Pole to AEU

Inserting glass fiber pole into supporting rubber.

Please make sure that the element tip is inside the element guide when you insert glass fiber pole.

If the element tip is pushed by the glass fiber pole, element would be bent and got crooked.

See [Figure33]

After confirming the position of element tip, insert the glass fiber pole to the end until it hit the element guide.

It may be a little hard to insert because of friction.
You can apply a bit of silicon grease to the surface of glass fiber pole.

You can turn the glass fiber pole Back and forth, which may help to Insert fully to the end.

See [Figure33, Figure34]

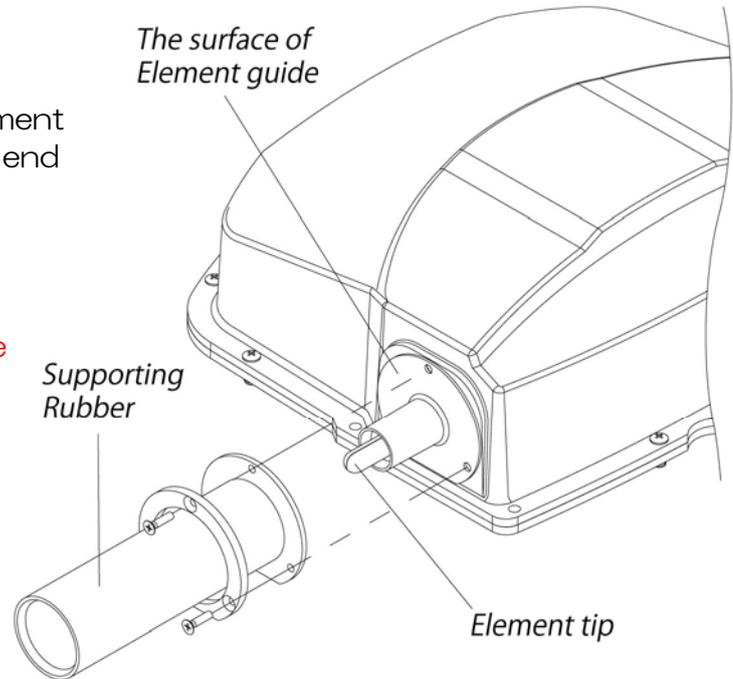


Figure 33

*NOTE

- When you insert the glass fiber pole, you need to insert until hitting the element guide. However, you may break the guide if you push the pole too much.

The broken element guide may cause the trouble.

- If the bolts(M8×110) are tightened you should not to be able to insert the glass fiber pole. These hexagon head bolts should be tightened after poles are fully inserted.

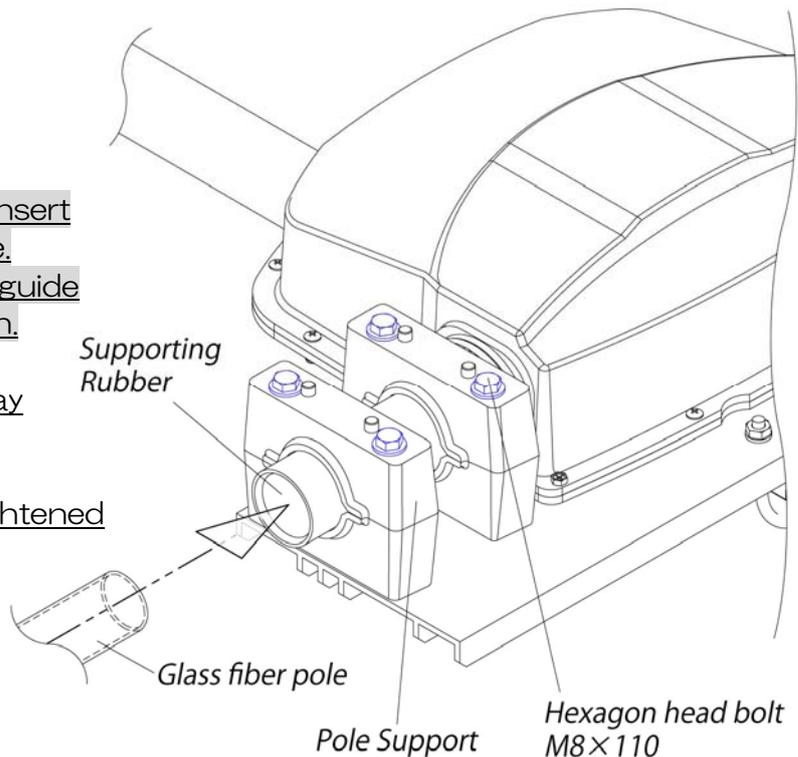


Figure 34

■ 12-4 : Taping the Joint of Glass Fiber Pole and Supporting Rubber

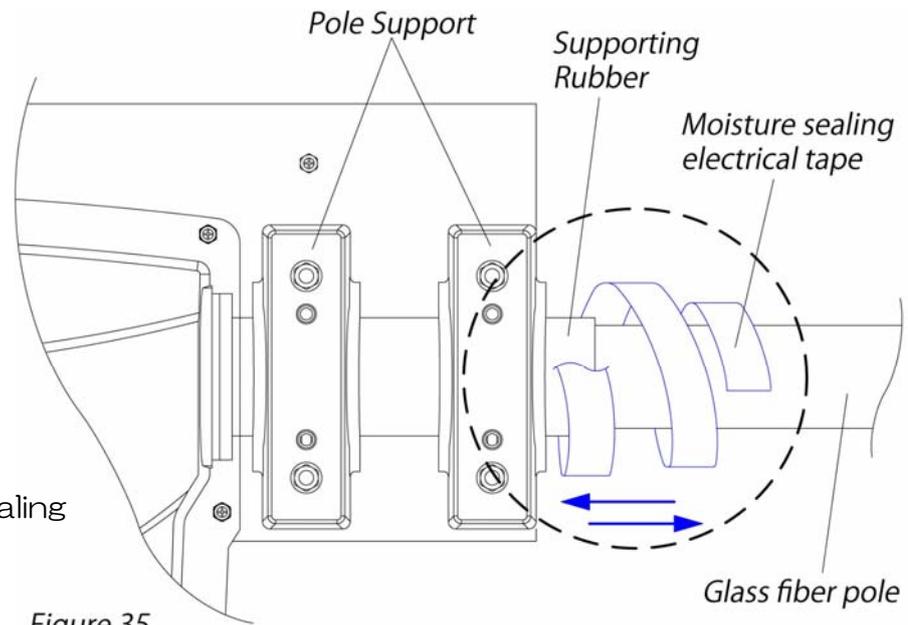
We recommend to have taping the joint part of glass fiber pole and supporting rubber.

This taping should prevent water or dust from getting in AEU and glass fiber pole. As same as we describe in the previous section about taping the joint, use 「Moisture sealing electrical tape」 first and then use regular electrical tape.

Start taping the glass fiber pole side.

Please make sure if there is no gap seen between glass fiber pole and supporting rubber.

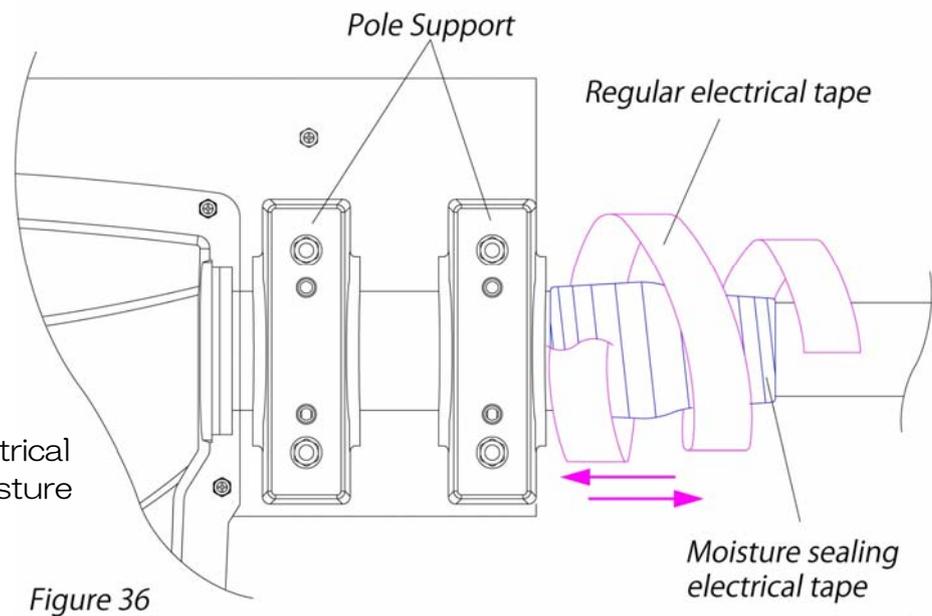
See [Figure35、 Figure36]



Tape with moisture sealing Electrical tape first.

See [Figure35]

Figure 35



Tape with regular electrical Tape to cover the moisture sealing electrical tape.

See [Figure36]

Figure 36

* Pictures below show how to tape the joint of glass fiber pole and supporting rubber.

See [Figure37-1~3]

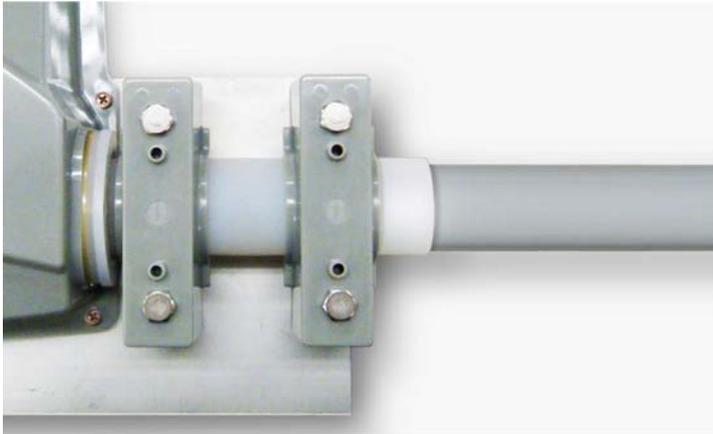


Figure 37-1

Please make sure if the glass fiber pole is fully inserted.

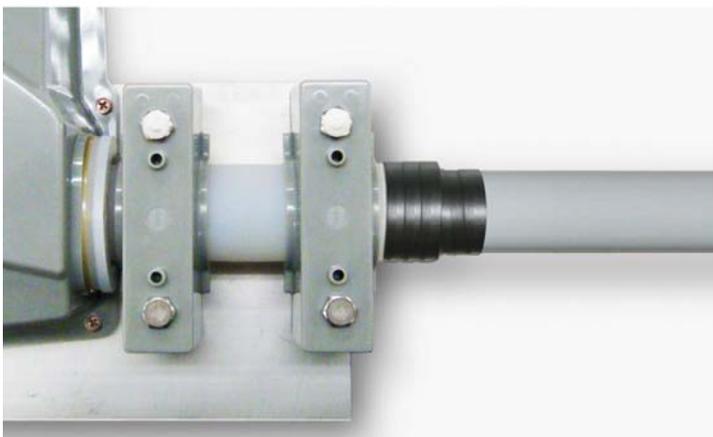


Figure 37-2

This shows moisture sealing electrical tape is used. Don't bite the tape with pole support.

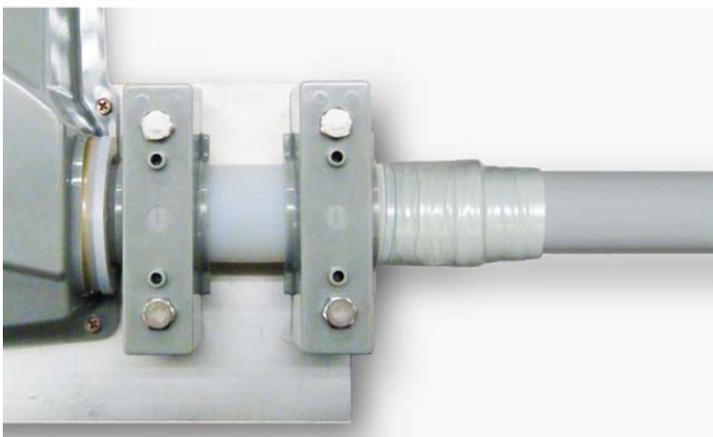


Figure 37-3

Moisture sealing electrical tape is covered with regular electrical tape.

Don't bite the tape with pole support.

13. 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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■ Note :
