Ultra Beam
Dynamic Antenna Systems

“LOOP ELEMENT” MANUAL

UB640-VL1.1 / UB640-VL1.3 / UB640-VL2.3 / UB640-VL3.4

Rev. 1.10
This manual refers exclusively to the element assembly procedures of vertical loop employed in models UB640-VL1.3 - UB640-VL2.3 - UB640-VL3.4. All other instructions for the mounting of the antenna is contained in the manual "Standard." The VL2.3 and VL3.4 models have dual driver, you will need to download the "Switch" manual for instructions on the connecting of the electronic switch and coaxial cables.

The manual contains the instructions for the complete assembly of a folded loop element, the procedures are the same for all loops regardless of whether it's drivers or passive element. It will be sufficient to perform the installation on the boom in the position indicated by the "antenna pattern" of your model.
The lower element of the loop is supported by an aluminum square section 60x60mm placed immediately below the motor unit.

It is fixed to the boom by means of two aluminum plates "A" (fig.1)
Assemble the plates to the sides of the boom with 6 M6 bolts
Insert the "B" square section to form a T, tighten the tube so that it remains in place.
Check with a set square to obtain a 90 ° angle (Figure 2) and tighten all bolts.
The plates will behave like a clamp and will maintain stable the mechanical splicing of the entire lower support.

The lower elements of the loop are installed on a plate similar to the motor supports (fig.3)
Install the aluminum support at the lower end of the section "B" (fig.2) check angle 90 ° before tightening the bolts.
Install the resin glass tube "C" with exactly the same procedure used in the motor units (See "Standard" manual).
C Support will keep the lower elements perfectly parallel to the upper ones, fixed to the motor unit.
2) INSTALLATION OF MOTOR UNITS AND SUPPORT GUYS

Install the motor unit on the support as per instructions manual "Standard"
Fix the aluminum U holder (fig.4) above the ABS collars by means of the two bolts M6 x 120mm included in the screws kit.
Install the vertical stick on the U support (Figure 5) and secure it using the two M6 bolts
Fig.A shows the sectional view of the correct alignment of the parts including the rope.

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**TIGHTENING BOLTS**

<table>
<thead>
<tr>
<th>Filetto</th>
<th>Descrizione</th>
<th>Serraggio Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6</td>
<td>Plates A (fig.1)</td>
<td>17 Nm</td>
</tr>
<tr>
<td>M6</td>
<td>Plates elements support lower (fig.2)</td>
<td>10 Nm</td>
</tr>
<tr>
<td>M6</td>
<td>ABS collars lower tube (fig.3)</td>
<td>8 Nm</td>
</tr>
<tr>
<td>M6</td>
<td>Support “U” bolts (fig.4)</td>
<td>8 Nm</td>
</tr>
<tr>
<td>M6</td>
<td>Stick ropes bolts (fig.5)</td>
<td>8 Nm</td>
</tr>
</tbody>
</table>
3) PREPARATION AND GUIDE TUBES

All motor units of the vertical loop elements expect the installation of internal guide tubes in the upper elements connected to the motor unit "A"

The guide tube on folded elements is essential so that the tape can slide within the curve and along the lower element
The guide element is composed of two sections of PVC pipe 2 x 1500mm total length 3 meters.
Join the two PVC sections and tape with common insulating tape
Insert another junction at one end, this will be helpful to connect the guide tube to the motor unit (Fig.1-2)

**tubo guida PVC interno**

1,5 m. 1,5 m.

Insert the guide tube into the previously assembled element (Figure 3)
4) ELEMENTS INSTALLATION ON MOTOR UNIT

Before inserting the elements in the motor unit it is necessary to fix the PVC guide tube. During this operation it is necessary that the element remains aligned to the motor, if your mounting set-up does not allow this, it is absolutely needed the help of a second person to hold the support element during the insertion of the guide tube. Inside the PVC pipe into the engine, has been applied a double-sided adhesive that will keep the junction steady and avoid its detachment (Figure 4) Place the PVC pipe until it reaches its maximum insertion (Figure 1) Place the telescopic element in the motor unit until it stops and tighten the clamp of rubber sleeve.

Important note:
You need to carefully and correctly install the guide tubes. In case of possible detachment of even a single tube, the copper tape will bend inevitably damaging the motor drive functionality.
5) LOWER ELEMENTS ASSEMBLY

Install the lower elements on the lower support just like on a motor unit. In Fig.1 the scheme of the position and placement of the elements into fiberglass tube mounted on the support.
Insert the element 10 cm and lock it with the outer bands of rubber sleeves.

6) SUPPORT ROPES INSTALLATION

The strings are attached to the elements by means of two special ABS collars (fig.2) places in the central junction of the telescopic element, on this junction do not apply the thermo shrinking tubing.
Place two o ring element as shown in fig.3-4
Close the two ABS shells by means of M4 screws (Figure 5) even closed, the ABS holder will rotate on itself, this is normal, the internal notch placed between the two o ring will prevent it from slipping inward.

Fig.1

Fig.2

Fig.3

Fig.4

Fig.5
The two collars A and B are joined by an fiberglass rod (fig.6) that mechanically binds the upper to the lower element, this is necessary to maintain the uniform geometry of the loop and at the same time it distributes the string support to the lower element.

The fiberglass rod is fixed to the supports by means of one of the 4 locking bolts (pag 9 - fig.C)

**NOTE:** as mentioned in the "Standard" manual there may exist small differences in length between the elements and then between the junctions, for this reason it can happen that the bottom joint B is not perfectly aligned with the upper, even if this is not of great importance, you can correct the alignment of the lower coupling by adjusting the insertion of the lower element in the "C" support (pag 7-fig.1) the space of 10 cm inside the tube holding the elements is sufficient to compensate for any misalignment of the lower support B

The outer loops are fixed with high mechanical resistance with the internal adhesive heat shrink sleeve.

Insert the sheath into the element and then insert the same in the PVC 180 °curve, (normally enter 8-10 cm)

Slide the sheath over the joints, and heat with the heat gun

The procedure is the same one used for the telescopic elements.

**Note:** the surfaces must be cleaned before application

Before heating the sheaths check the alignment of the loop in order to avoid a candy shape (aesthetics factor)

After the application it is necessary to wait until the sheath is completely cold.

Twisting or movements of the joint when still warm and not completely cold can impair the mechanical seal and the waterproof of the joint.
A MastrAnt P kit of ropes of suitable length is provided for the construction of the tie rods. Tie the rope to the right and left C supports through the double junction eyelet (Figure 7). Then simply attach the rope (one section) to the aluminum stick placed on the motor unit (fig.8). Cut off the excess rope from one of the two C supports only when the correct length has been obtained.

The **elements must not** look up, the correct tension of the strings is given by the alignment of the C supports (fig.9) which must not be higher than the motor drive tube. **A possible downward trend is recommended**, ideal to align the loops with the same inclination of normal elements (no loops) of your antenna (Figure 10). Three holes in the stick will allow you a small final correction to the tension of the strings without removing the rope from the junction.
VL-SERIES ANTENNA DIAGRAM

**UB640-VL1.3 DIAGRAM**  
**POZIZIONAMENTO MOTOR UNIT SU BOOM**  
**POSITIONING MOTOR UNIT ON BOOM**

- **Attention:** The motor unit has to be positioned on the upper side of the boom!!!
- **Le unità motore devono essere montate sopra il boom!!!**

**UB640 VL 2-3**  
**POZIZIONAMENTO MOTOR UNIT SU BOOM**  
**POSITIONING MOTOR UNIT ON BOOM**

- **Attention:** It is possible to move (separate) the plate Mast/Boom from the center of boom.
- **Se necessario è possibile spostare (affrontare) la piastra mast/boom dal motore.**
UB640 VL 3.4
POSIZIONAMENTO MOTOR UNIT SU BOOM
POSITIONING MOTOR UNIT ON BOOM

244 cm                               235 cm

Boom: 4 x 225 cm
sezione 80 x 80 x 3 mm

DIAGRAMMA ANTENNA

UB640 - VL1.3

UB640 - VL2.3
ELEMENTS LENGTH / GUIDE PVC TUBES

<table>
<thead>
<tr>
<th>Modello</th>
<th>No loop</th>
<th>External loop / PVC tube</th>
<th>Central loop / PVC tube</th>
</tr>
</thead>
<tbody>
<tr>
<td>UB640-VL1.1</td>
<td>/</td>
<td>/</td>
<td>5,4 m. / 3 m.</td>
</tr>
<tr>
<td>UB640-VL1.3</td>
<td>5,4 m.</td>
<td>/</td>
<td>5,4</td>
</tr>
<tr>
<td>UB640-VL2.3</td>
<td>5,4 m.</td>
<td>5,4 m. / 3 m.</td>
<td>/</td>
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<tr>
<td>UB640-VL3.4</td>
<td>5,4 m.</td>
<td>5,4 m. / 3 m.</td>
<td>7,4 m. / 4,5 m</td>
</tr>
</tbody>
</table>
The VL1.1 dipole is provided with a specific aluminum square mast which simplifies the assembly of the dipole on your mast and provides better support for all parts compared with an installation on round Mast. The VL1.1 is the only antenna where the main hardware parts are pre-installed by UltraBeam, you only have to complete the installation of the elements and the tie rods.

The installation procedures of the elements are identical to those indicated for the VL-Series so refer to these manuals pages: 2-5-6-7-8-9 and "Standard Manual" (page 5) for elements assembling

**NOTE:**
All the bolts of the parts pre-installed by UltraBeam have been already tightened correctly, do not further tighten !!
As for all models it is recommended to correctly read the installation instructions. UltraBeam will not be liable for malfunctions or damage caused by your setup !!
Picture shows UB640-VL1.1 installed in mast by the customer.

UB640-VL1.1 assembled in the shipping box.