AARHUS GEOINSTRUMENTS

Assembly guide for tTEM 3x3 frame

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Introduction

This manual will detail the complete mechanical setup of the tTEM 3x3 system. After completion, please refer to the *2. Field setup and use of the tTEM 2x4 and 3x3 systems* for further information about the field setup, field use, software setup etc.

Frame assembly

This section is a guide for assembling the frame for the tTEM 3x3 system.

Parts list tTEM frame

- Front Tx platform with runners and tow ropes
- Rx platform with runners
- RC20 receiver coil
- 4 wings; fiberglass profiles 50x50x2000mm. Wings have cable guides mounted at the ends. Rear wings have rope attached

1.1 Mount the Rx coil

The Rx coil is easily mounted on the Rx platform using the four white M12 nylon bolts. Between the platform and the Rx coil, place the four rubber washers and insert the bolts through both platform, rubber washer and Rx coil. On top of the Rx coil, each bolt should have a rubber washer and two nylon nuts. An 18 mm wrench is needed for the nuts and 19 mm wrench for the bolts.

Figure 1: Wrenches – 18 mm for nuts and 19 for bolts

1.2 Lay out and connect Rx and Tx platforms to ATV

Lay out the two platforms with approximately 8 m distance. Cables and towropes between the two platforms are already attached. Roll out the towropes between the ATV and the Tx platform as seen in Figure 2. Attach the two towropes coming from the front of the Tx platform to the hitch on the ATV. The Rx-cable has a small loop made

from elastic rope. This loop should be attached to the luggage rack on the ATV. The first time you setup the system, you will need to attach zipties to the Tx coil, so any pull in the cable will not affect the connector. An example of this can be seen in Figure 10. Please allow a small amount of slack between the mounting point on the ATV and the Tx unit.

Figure 2: Towropes and cables are rolled out from the Tx platform. Pay special attention to not let the connectors touch the ground and get dirty or damaged.

1.3 Mount wings

Next up, the wings are mounted to the Tx platform. The wings are marked on the wingtips with a "This side up" text. There are two wings, which have a rope attached to them. They are for the rear of the Tx platform. The wings should be inserted all the way, until the grey part of the wing is no longer visible.

Be weary of the angle of the wings when mounting them, as seen on figures below:

Figure 3: Left: Angle of the wing is too low, Middle: Angle of the wing is too high, Right: Angle of the wing is OK.

After mounting the four wings, the system should look as Figure 4 below.

Figure 4: All four wings are attached. Notice the two rear wings have rope attached.

1.4 Mounting the Tx coil

The Tx coil is easily mounted on the wings. It is preferable if you are two people helping each other. Start by rolling out the coil. The end of the coil, which has a connector, should be placed towards the ATV. The Tx coil has a white piece of tape marking the halfway point between the two rear wing, as seen in Figure 5. This should be your starting point. The coil has a set of double zip ties on either side of each wing. Once mounted, the system should resemble the one shown

Figure 5: The Tx coil being mounted on the wings. Notice the white piece of tape, marking the halfway point between the two rear wings.

After mounting the coil on the system, the ropes from the rear wings can be attached to the small white nylon loops on the front of the coil using soft shackles – see Figure 6.

Figure 6: The ropes from the two rear wings have been attached to the nylon loops on the Tx coil.

Finally, the coil is tightened using the black cleat on the front (towards the ATV) of the coil – see Figure 7.

Figure 7: The coil has been tightened by pulling the open end of rope coming from the black cleat.

1.5 Mounting the receiver cable to Rx sled

Attaching the receiver cable to the Rx sled should be done as shown below – see Figure 7. Unscrew the bolts and wrap the rubber strap around the cable and screw the bolt back in. Notice how the water hose is connected to the sled with a elastic band.

Figure 8: Receiver cable attached to Rx sled.

Looking from the ATV, the system should look as in Figure 9.

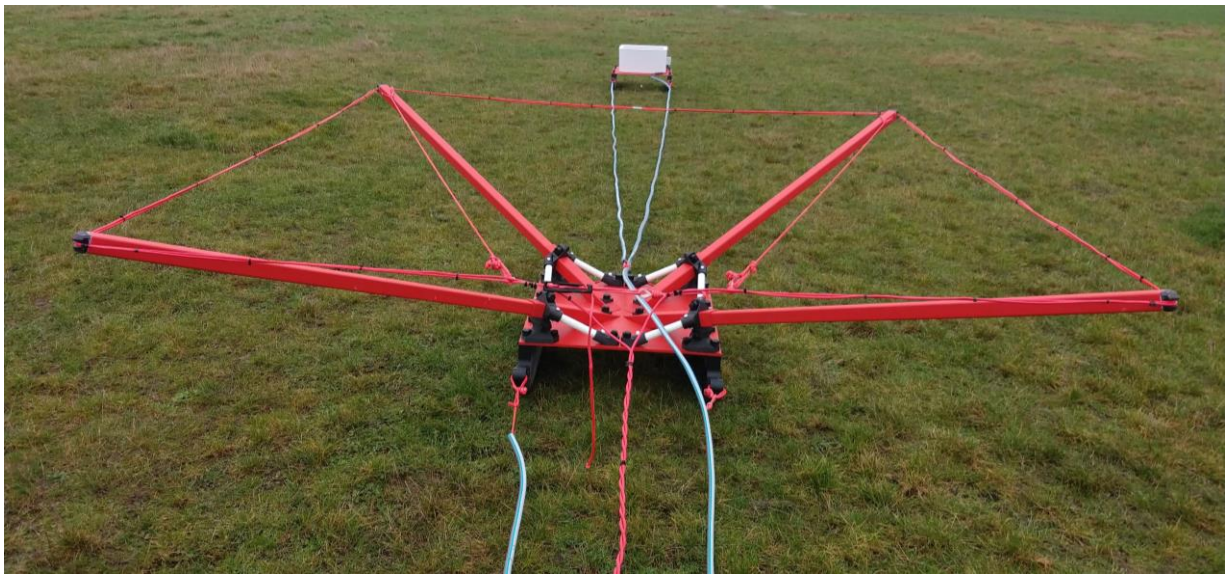

Figure 9: A fully set up tTEM 3x3 system.

1.6 Instruments and cables

The instruments are now ready to be placed on the ATV and powered on. As a reference of how the completed setup should look on the ATV, please see Figure 10.

Figure 10: The placement of different instruments on the back of the ATV. Note that Rx cable as well as Tx coil are secured to the ATV. All instruments should be securely fastened to the ATV.

When attaching the Tx coil leadin to the ATV, please refer to Figure 10, where it is shown that it is necessary to have some slack/extra cable between the mounting point of the ATV and the Tx unit. The Tx coil leadin should hang loose between the Tx platform and the ATV, as seen in Figure 11. This is done to ensure no strain is put on the cable during turning.

Figure 11: The system fully set up with ATV and instruments. Notice the red Tx coil leadin hanging loose between the Tx platform and ATV.