



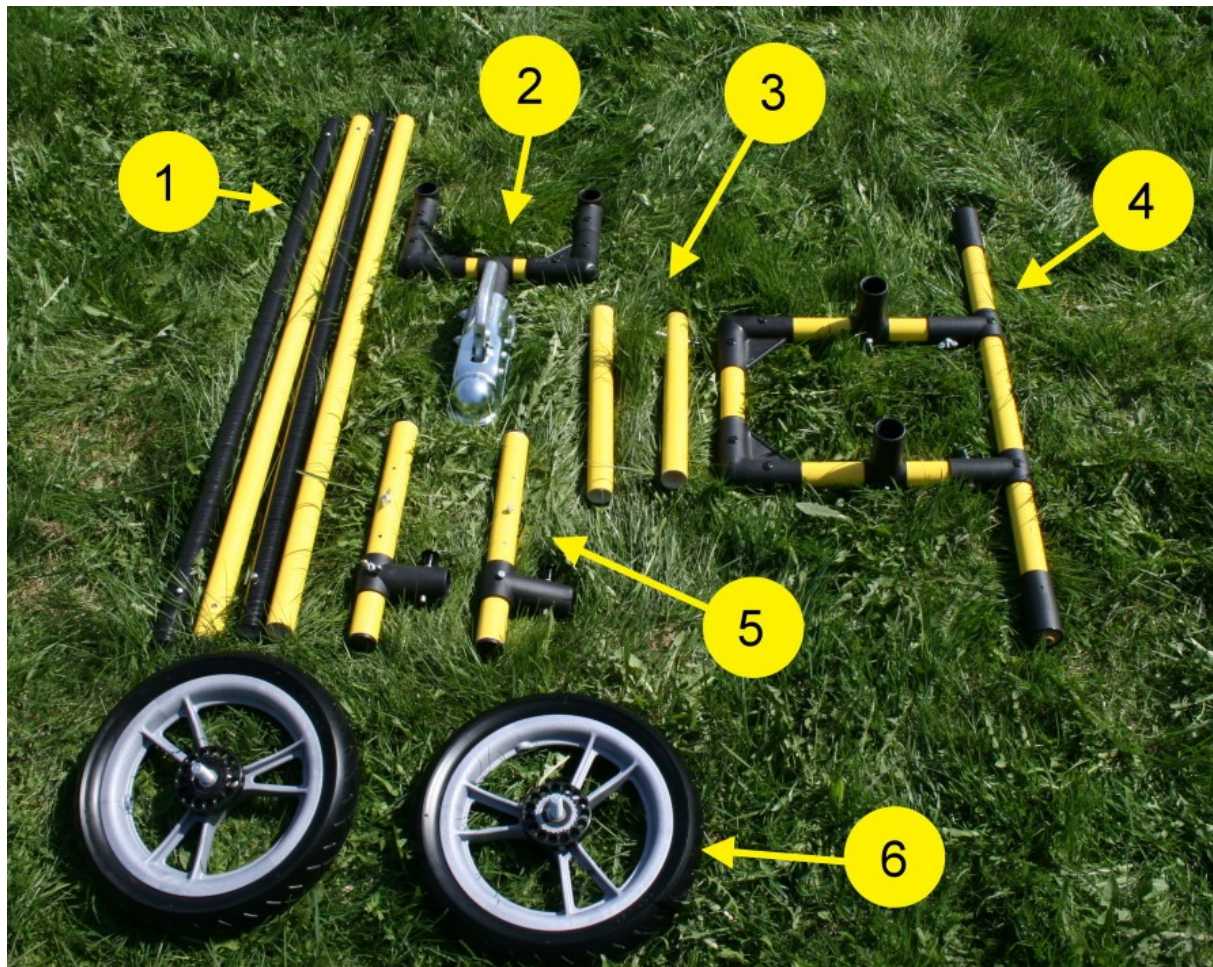
Geoscanners AB®



## GPR SURVEY TRAILER ASSEMBLY

Please follow the instructions below to assemble your GPR survey trailer for the first time.

Contents of the kit:



1. Antenna holders and front antenna holder connectors
2. Hitch ball connection assembly
3. Rear antenna holder connectors
4. Rear part with embedded survey wheel encoder
5. Front bars for parallel adjustment
6. Wheels

### Front part assembly

This operation has to be done only once. When the front part is assembled it doesn't required further disassembly.

The front bars for parallel adjustment are delivered with the "T" connectors attached to them. In order to assemble the front part it is necessary to first remove these connectors. (see fig. 1)



*Fig. 1 Remove "T" connector.*

The front bar has four holes that make possible the adjustment of the height of the hitch ball connection depending on the kind of vehicle used for the survey. More on this later in this instruction.



Insert the front bar for parallel adjustment into the "T" connector in the hitch ball connection assembly (see fig. 2). Pay attention to the fact that one end of the front bar is flat and another is rounded (see fig. 3). You should insert the flat end, the rounded end will not go into the "T" connector. Insert the front bar all the way up to the third hole in the bar making sure that the holes in the bar and the holes in the "T" connectors are aligned. Secure the two with the supplied bolt and wing nut. The position of the "T" connector can be changed later on if the parallel adjustment of the antenna requires to do so.



*Fig. 2 Insert front bar in hitch ball assembly.*

Once both front bars are inserted and secured in the hitch ball assembly, insert the "T" connectors for the antenna holders that were removed earlier (see fig. 4) . Insert them so the holes in the "T" connectors and the first holes in the front bars are aligned. Notice that those are looking in the opposite direction than the hitch ball. Secure the assembly with the supplied bolts and wing nuts.



*Fig. 3 Flat end of the front bar.*



*Fig. 4 Insert back the antenna holder connectors.*

The assembled front part should now look like in picture five.



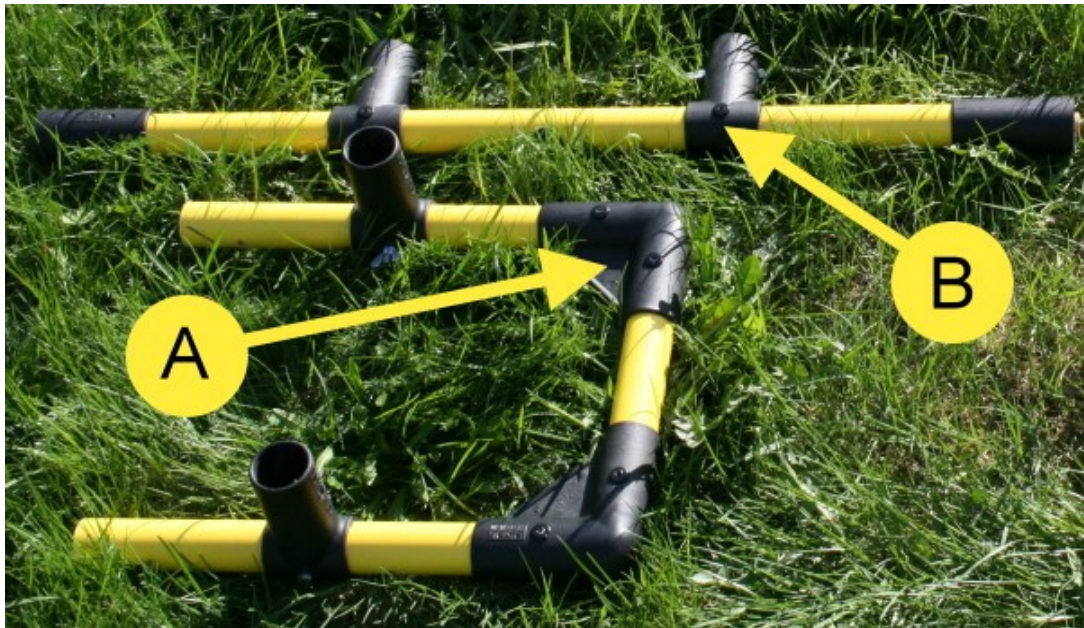
*Fig. 5 Assembled front part.*



## Assembly of the rear part

Like the assembly of the front part this operation has to be done only once. When the rear part is assembled it doesn't required further disassembly.

The rear part with the embedded survey wheel encoder is delivered in two parts. The antenna holder connection assembly and the axle, part A and B respectively in figure six.



*Fig. 6 Rear part consisting of antenna holder connectors assembly and axle.*

Remove the bolts from the "T" connectors in the axle, insert then the antenna holder connection assembly into the "T" connectors in the axle. Pay attention to the fact that the embedded encoder has to be on the right side while the "T" connectors on the assembly have to look forward. Check figure seven to find out on which side of the axle the embedded encoder is located. The electronic circuit sealed with epoxy is clearly visible, that's the side with the embedded encoder.

If the encoder is on the left side, then on most GSSI radar systems the direction of the movement will be negative. Most radars allow for specifying the sign of the direction but it is a good practice to have positive forward and negative backward.

Now we can mount the wheels on the axle of the rear part. Please pay attention to the fact that the antenna with the encoding wheel and the embedded encoder have to be mounted together. Refer to figure seven to see how to find out which wheel is the encoding wheel and which end of the rear axle is the one containing the encoder electronics.



*Fig. 7 Encoder wheel and encoder mounted in the rear axis.*

The encoding wheel has a magnetic ring attached to it. The side of the axle with the encoder contains an electronic board sealed with epoxy. These two parts have to be mounted facing each other. Failure to do so will render the embedded encoder useless.

Once the encoding wheel is mounted and secured with the supplied bolts, mount and secure the second wheel.

Install now the rear antenna holder connectors. Note that the rear antenna holder connectors are delivered with the pins inserted in the end that goes into the "T" connectors of the rear part. Remove one pin at the time and insert the rear antenna holder into the "T" connector of the rear part and secure it with the provided pin (see fig. 8).





*Fig. 8 Securing rear antenna holders with pins.*

If for some reasons the rear antenna holder connectors are mounted in the wrong way, then the securing pins will still go in, but the snap button of the antenna holders will not fit and the holder will not be secured.

The assembled rear part should now look like the one shown in picture nine.



*Fig. 9 Assembled rear part.*

### Antenna holder assembly

The assembly of the antenna holders and the front antenna holder connectors is a fairly easy operation because of the snap buttons. This operation is done every time the trailer kit needs to be disassembled in order to ease the transportation.

Insert the holder, black pipe, into the front antenna holder connector and align the

snap button with the hole in the front antenna holder connector. Press gently the snap button and insert the antenna holder in the connector until the snap button secure the connection of the two.



*Fig. 10 Insert the antenna holder into the front antenna holder connector.*

Now all the three parts forming the GPR trailer kit are ready to use. The front part, the antenna holders and the rear part (see fig. 11). Insert the front antenna holder connectors into the front part "T" connectors and secure them with the provided pins. At this point is useful to note that the snap buttons should be facing up, this will considerably ease the mounting and dismounting of antennas on the ready unit in the field.





*Fig. 11 GPR Trailer kit parts.*

Mount the antenna you are planning to use on the antenna holders (see fig 12). Secure the antenna with the bolts pressing against the antenna holder.

When using the embedded encoder wheel it is a good idea to place the antenna with the survey wheel input closer to the rear axis. The cable from the connector on the rear axle should be placed perpendicular to the E-field of the antenna. In the case of the antenna shown in figure twelve, that would be perpendicular to the long side of the antenna. If you have any doubts regarding the placement of the E-field of your antenna do not hesitate to contact us for assistance.

Please note that longer antenna holders are available with lengths up to 2.5 meters. There are also available adapters for antennas without holes for the antenna holders, like the GSSI line of antennas.

If the amount of ticks/meter of the embedded encoder doesn't fit your survey needs it is advisable to contact us for an alternative.





*Fig. 12 Mounting the antenna in the antenna holders.*

For the final assembly insert the antenna holders into the rear antenna holder connectors and secure them with the help of the snap button (see fig. 13)



*Fig. 13 Assemble the antenna holders into the rear connectors.*



Your GPR trailer kit completely assembled should look like the one in the pictures 14 and 15.



*Fig. 14 GPR Trailer kit with antenna attached , front view*



*Fig. 15 GPR Trailer kit with antenna attached, rear view*



## Parallel adjustment of the antenna holders

The height of the hitch ball from the surface is different depending on the type of vehicle used to tow the GPR trailer kit. We want the antenna to be as parallel to the surveyed surface as possible, that's the reason we have added a parallel adjustment to the GPR trailer kit.

The front bars and the bars of the rear part have drilled holes so different positions can be adjusted to obtain a position of the antenna holders parallel to the surface (see fig. 16).

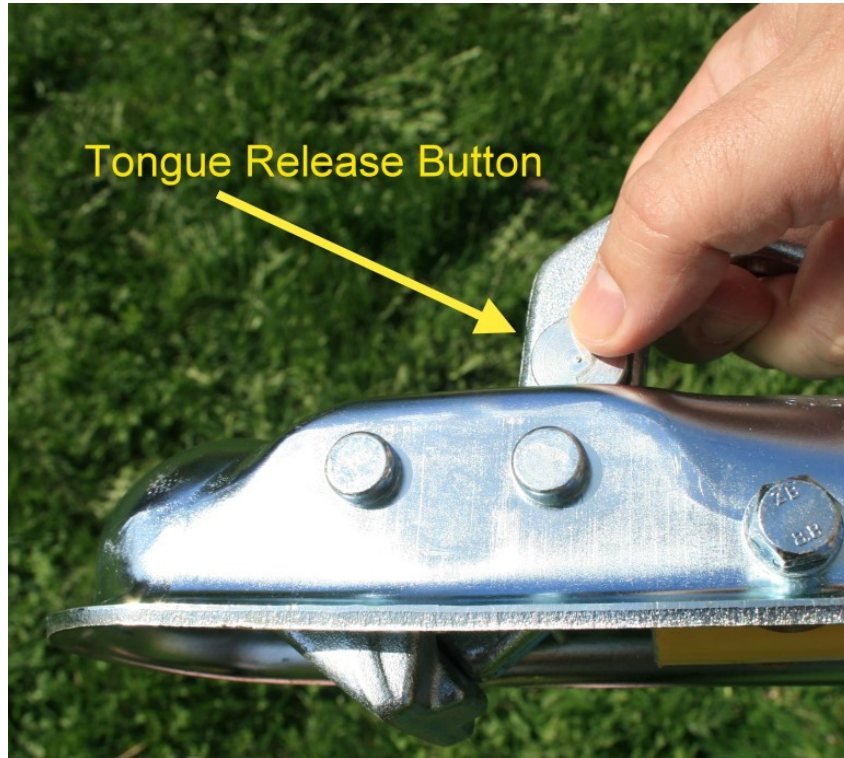


*Fig. 16 Holes for the adjustment of the parallel position*

By changing the position where the "T" connectors are attached it is possible to get a lower angle between the surface and the antenna holders. The ideal would be, of course, to have the antenna holders completely in parallel with the surface. With some very high vehicles that might be hard to achieve, however.

The trailer coupler is very easy to use, don't forget to press the button when attaching to the hitch ball though (see fig. 17)





*Fig. 17 Tongue Release button on trailer coupler*