Geodesic Deathtrap Assembly Instructions

Why bother with these instructions?

Because it makes the assembly a *lot* easier. Seriously, it takes about an hour and a half to assemble a deathtrap following the instructions, and about 3 hours to do the assembly when you don't follow them. Basically it saves you a lot of struggling with sliding struts on to bolts at awkward angles and having to re-bend the ends by tightening the nuts.

First, make sure you have all the parts (and tools)

- The struts (there are 30 of them)
- The nuts and bolts (there are 12 eye bolts, each of which has a nylon lock nut, 2 flat washers, a lock washer, and a regular nut on it *in that order*)
- Wrenches (a pair of 9/16" wrenches or a 9/16" wrench and a good lever)
- *Optional* 12 acorn/cap nuts for the eye bolts

Next, some general instructions

When you're assembling the deathtrap, first bolt all the corners together *loosely*, and then go back to tighten the whole lot of them (use the numbering below as an order for them, to make sure that you get them all). Also, the thing is meant to be rolled, so don't hesitate to roll the partial deathtrap around a little to put the corner that you're working on easier to reach.

The colour coding

Each strut-end is colour coded with 2 or 3 pieces of tape. The two closest to the end (one on top of the other) code what corner that strut end goes at. The remaining piece of tape (or its absence) codes what order the struts go on to the bolt at that corner.

The order the struts go on the bolt is (from inside--usually the eye--end to outside):

1. No 3rd piece of tape
2. Green 3rd piece of tape
3. Yellow 3rd piece of tape
4. Orange 3rd piece of tape
5. Pink 3rd piece of tape

(A quick mnemonic for this is rainbow order from outside to inside, with pink standing in for red, and blank standing in for blue, indigo, purple, or ultraviolet if you want an excuse for why you can't see it)

More colour coding and layout

If you're enough of a nerd, then this section will give you enough information to start the assembly (since it's the pattern I used to set the colour code in the

first place):

The corners of the deathtrap are numbered 1 to 12. Looking at corner 1 from the inside, the 5 corners that are connected to it by a strut are numbered 2 through 6, going clockwise. The next (parallel) plane of 5 corners is numbered 7 through 11, winding the same way around the deathtrap, with corner 7 being the one that's connected to 6 and 2. The remaining corner (the opposite corner 1) is corner 12. If you attach all the relevant struts to corner 1, then to corner 2, etc., then they'll all go on the bolts in the right order (EXCEPT corner 12 is funny, having its adjacent corners attached in a star pattern to reduce floppiness as it's finished; just follow the 3rd piece of tape for this). You'll also figure out that you want to complete triangles (and blocks of 5 triangles sharing a corner) before going on to complete stars, so that the structure is a little easier to manipulate. The order in which you do this will probably sort itself out to the same order that I use (listed below). Anyhow, the colour code for the corners is:

1. Thin orange tape on thick pink tape
2. Thin yellow tape on thick pink tape
3. Thin green tape on thick pink tape
4. Thin pink tape on thick orange tape
5. Thin yellow tape on thick orange tape
6. Thin green tape on thick orange tape
7. Thin pink tape on thick yellow tape
8. Thin orange tape on thick yellow tape
9. Thin green tape on thick yellow tape
10. Thin pink tape on thick green tape
11. Thin orange tape on thick green tape
12. Thin yellow tape on thick green tape

(The mnemonic for this is the same rainbow order as below on both pieces of tape with the thick/bottom tape changing slowly (most significant colour), the thin/top tape changing quickly (least significant colour), and identical colours (e.g. pink on pink) skipped.)

If you're a good deathtrap owner, and make sure to replace the same nuts/washers on each bolt as you install or remove it (the washers break in too!) then the bolts are also numbered by colouring in faces of the nuts with a black permanent marker (you may want to refresh this from time to time). The locknut has either all 6 faces coloured in, or none of them coloured in, and the remaining faces are coloured in on the regular nut. The coloured in faces *should* all be next to each other, but sometimes we get other ideas..

The order that things go on the bolt

1. Lock nut (actually, this should never come off)
2. Flat washer
3. The struts
4. Flat washer
5. Lock washer
6. Plain nut

For storage/transportation, I usually put all the bolts together without the struts so that I don't lose anything and can count the corner parts quickly if the bag

spills or something.

The order to attach struts

Corner 1:	Orange on	Pink	at one end, the other	Corner 2:	Yellow on	Pink
Corner 1:	Orange on	Pink	at one end, the other	Corner 3:	Green on	Pink
Corner 1:	Orange on	Pink	at one end, the other	Corner 4:	Pink on	Orange
Corner 1:	Orange on	Pink	at one end, the other	Corner 5:	Yellow on	Orange
Corner 1:	Orange on	Pink	at one end, the other	Corner 6:	Green on	Orange
Corner 2:	Yellow on	Pink	at one end, the other	Corner 3:	Green on	Pink
Corner 2:	Yellow on	Pink	at one end, the other	Corner 6:	Green on	Orange
Corner 3:	Green on	Pink	at one end, the other	Corner 4:	Pink on	Orange
Corner 4:	Pink on	Orange	at one end, the other	Corner 5:	Yellow on	Orange
Corner 5:	Yellow on	Orange	at one end, the other	Corner 6:	Green on	Orange
Corner 2:	Yellow on	Pink	at one end, the other	Corner 7:	Pink on	Yellow
Corner 6:	Green on	Orange	at one end, the other	Corner 7:	Pink on	Yellow
Corner 2:	Yellow on	Pink	at one end, the other	Corner 8:	Orange on	Yellow
Corner 3:	Green on	Pink	at one end, the other	Corner 8:	Orange on	Yellow
Corner 7:	Pink on	Yellow	at one end, the other	Corner 8:	Orange on	Yellow
Corner 3:	Green on	Pink	at one end, the other	Corner 9:	Green on	Yellow
Corner 4:	Pink on	Orange	at one end, the other	Corner 9:	Green on	Yellow
Corner 8:	Orange on	Yellow	at one end, the other	Corner 9:	Green on	Yellow
Corner 4:	Pink on	Orange	at one end, the other	Corner 10:	Pink on	Green
Corner 5:	Yellow on	Orange	at one end, the other	Corner 10:	Pink on	Green
Corner 9:	Green on	Yellow	at one end, the other	Corner 10:	Pink on	Green
Corner 5:	Yellow on	Orange	at one end, the other	Corner 11:	Orange on	Green
Corner 6:	Green on	Orange	at one end, the other	Corner 11:	Orange on	Green
Corner 7:	Pink on	Yellow	at one end, the other	Corner 11:	Orange on	Green
Corner 10:	Pink on	Green	at one end, the other	Corner 11:	Orange on	Green
Corner 7:	Pink on	Yellow	at one end, the other	Corner 12:	Yellow on	Green
Corner 9:	Green on	Yellow	at one end, the other	Corner 12:	Yellow on	Green
Corner 11:	Orange on	Green	at one end, the other	Corner 12:	Yellow on	Green
Corner 8:	Orange on	Yellow	at one end, the other	Corner 12:	Yellow on	Green
Corner 10:	Pink on	Green	at one end, the other	Corner 12:	Yellow on	Green

Tips and tricks

One of the most common problems that occurs when assembling a deathtrap is that the struts don't slide far enough on to the bolt to make room for the next strut, washers, and nut. To prevent this, just tighten the nut down on few enough pieces that there is room for it, take it back off, and add pieces until everything fits.

When struts get bent by heavy loads, it's much easier to bend them back when they're still in an assembled deathtrap (especially if you have a second person to hold the deathtrap while you push/pull on the strut to get the bend out.