Windsock tutorial

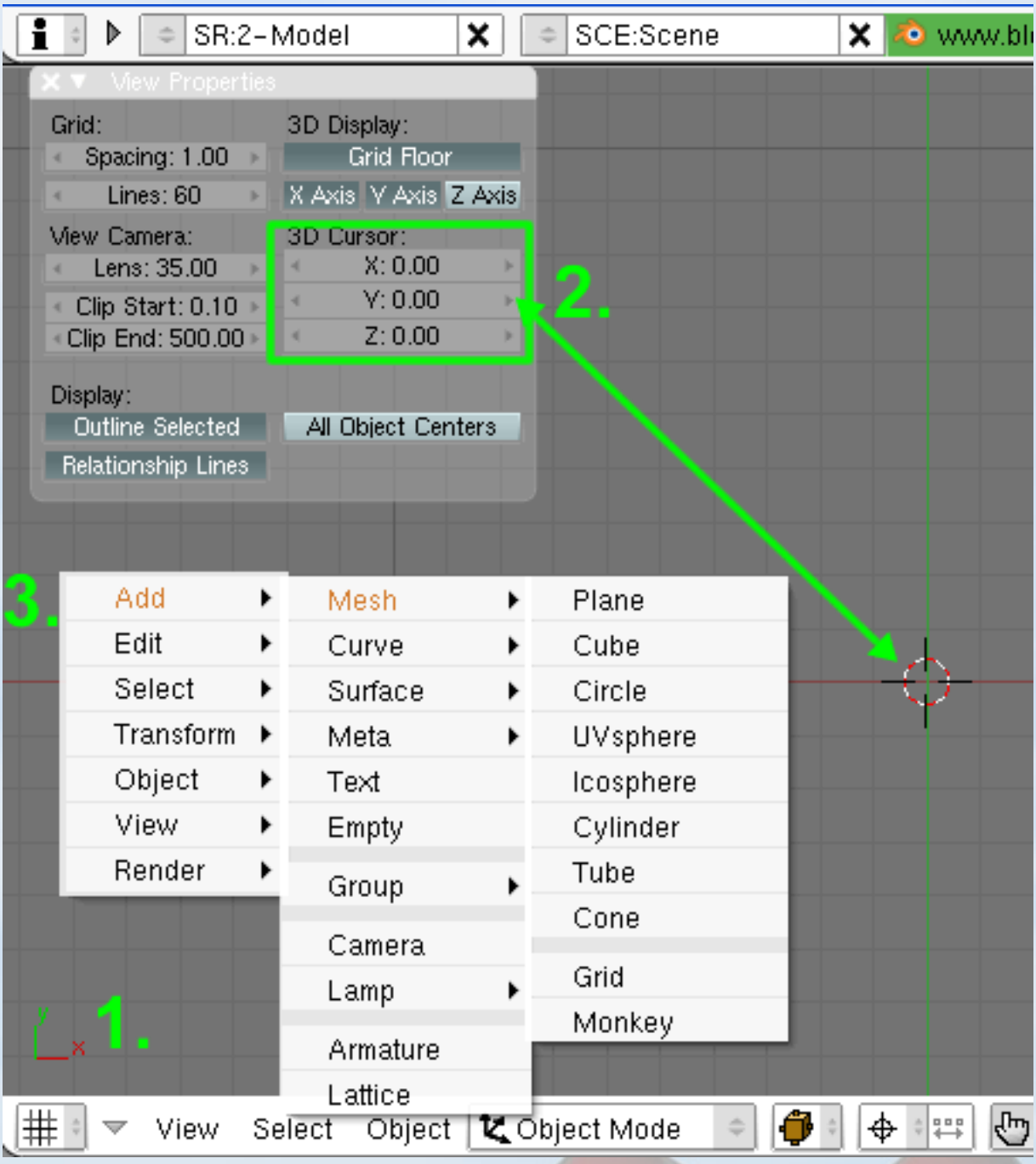
For blender

Level : Easy

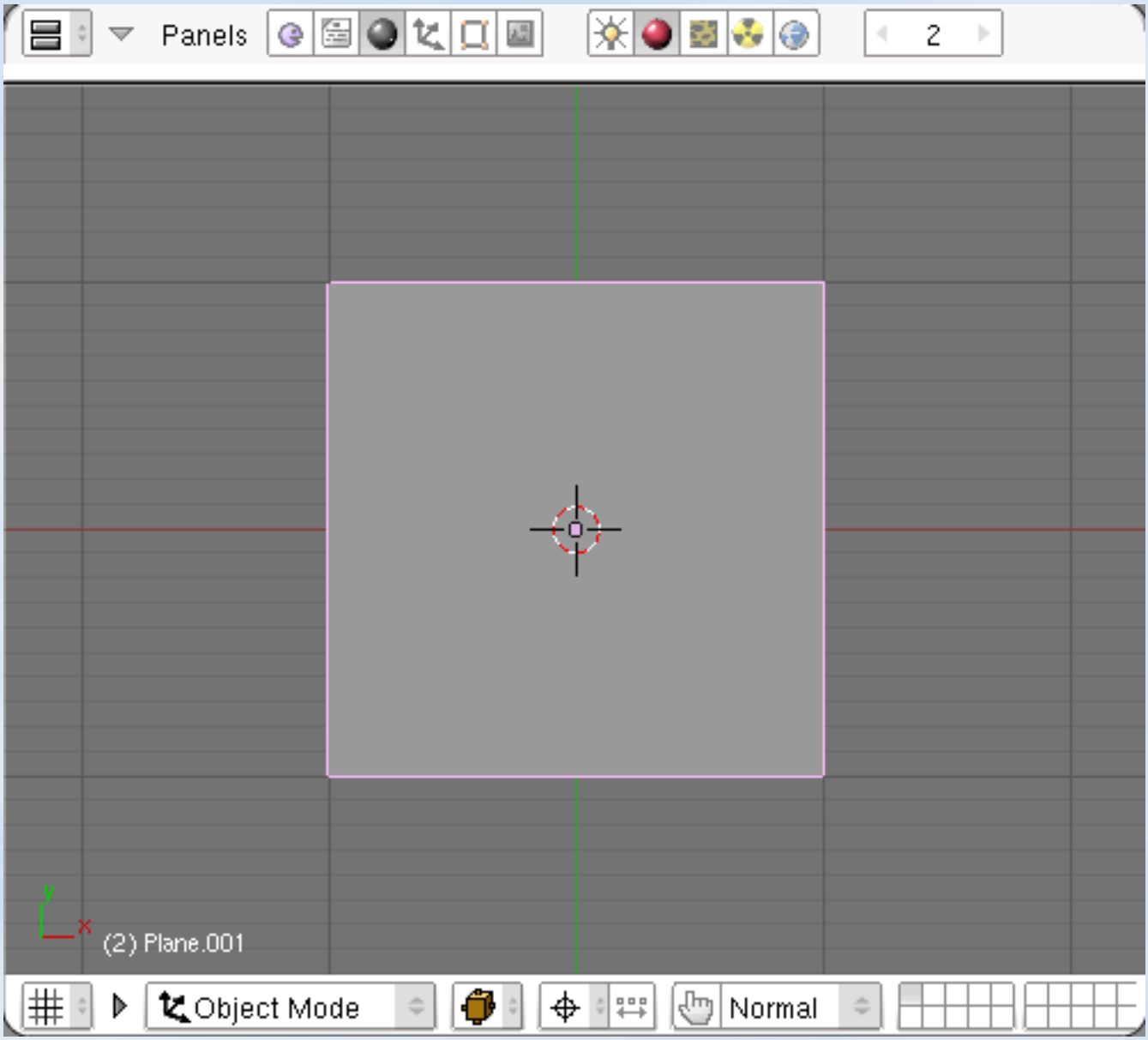
Tools Blender software

Windsock tutorial for Blender

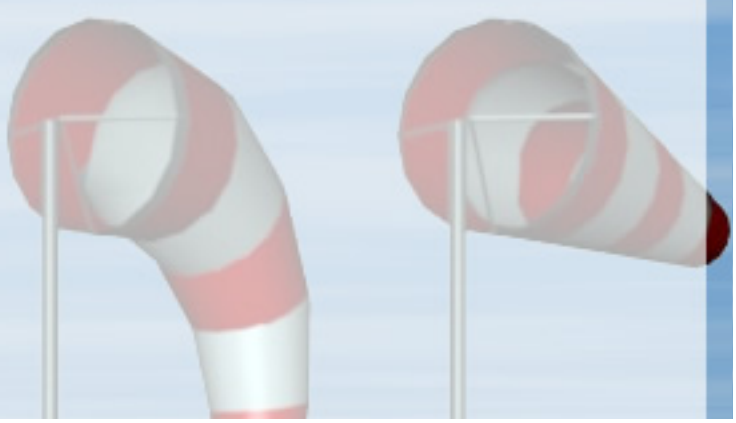
* We will start really simply
open a new blender scene, and save it somewhere with a name you will found easily

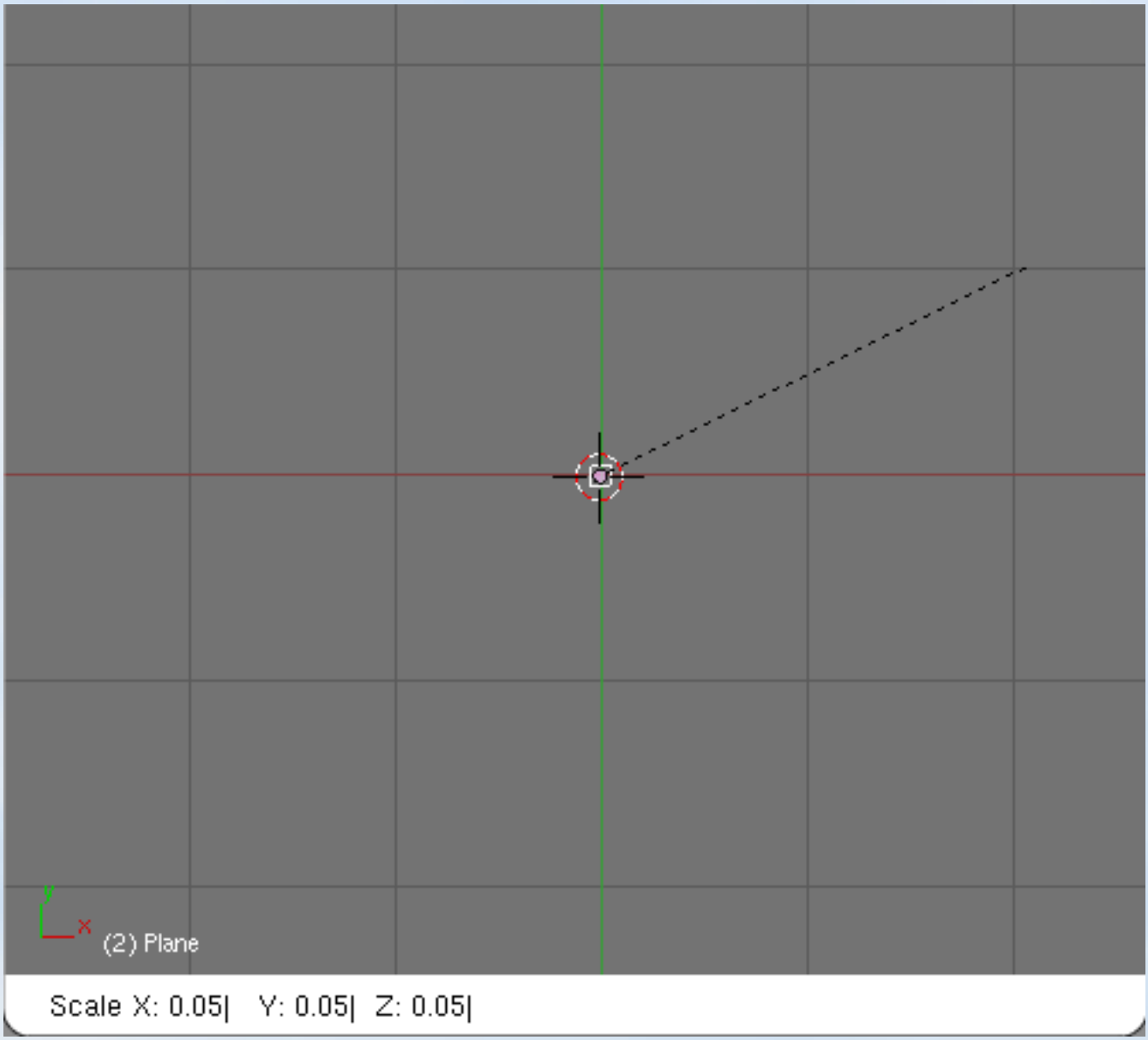


1. Be sure that your are in the **TOP** views on the first layers, tape on the keypad number **7**
2. If you don't have move your cursor it must be at the **scene origine**, if not use the **view>view property panel** to give the 3D cursor X,Y,Z field the valor **0**
3. Now add a simple Face, tape the **SPACE** bar to bring the dialog box, choose Mesh > plane

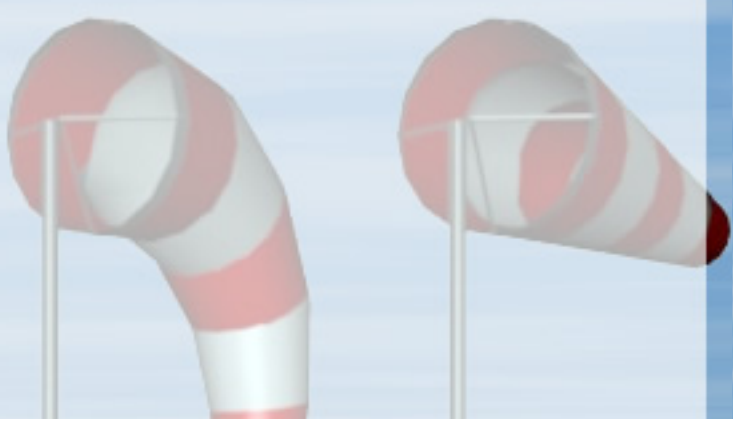


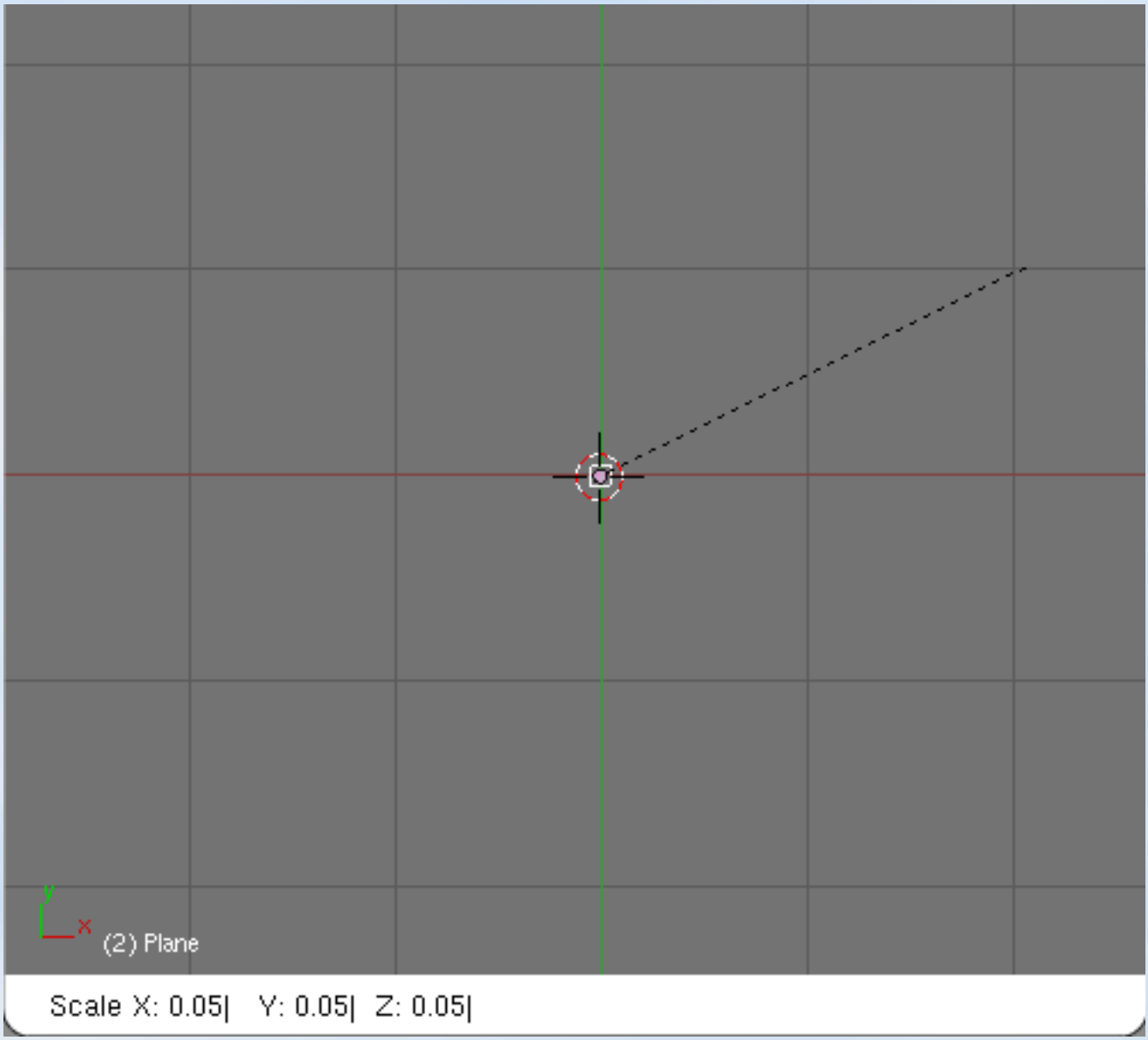
This plane have 1 meter edge, so we need to scale it, go in **Edit mode**, tape **Tab**, or use the pop panel to change the editing mode.



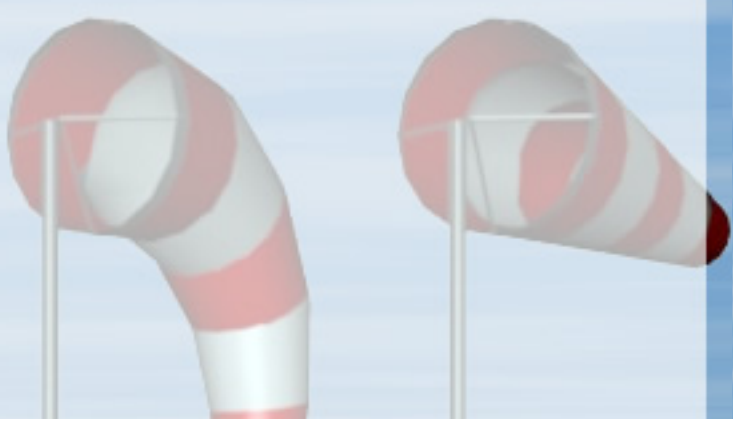


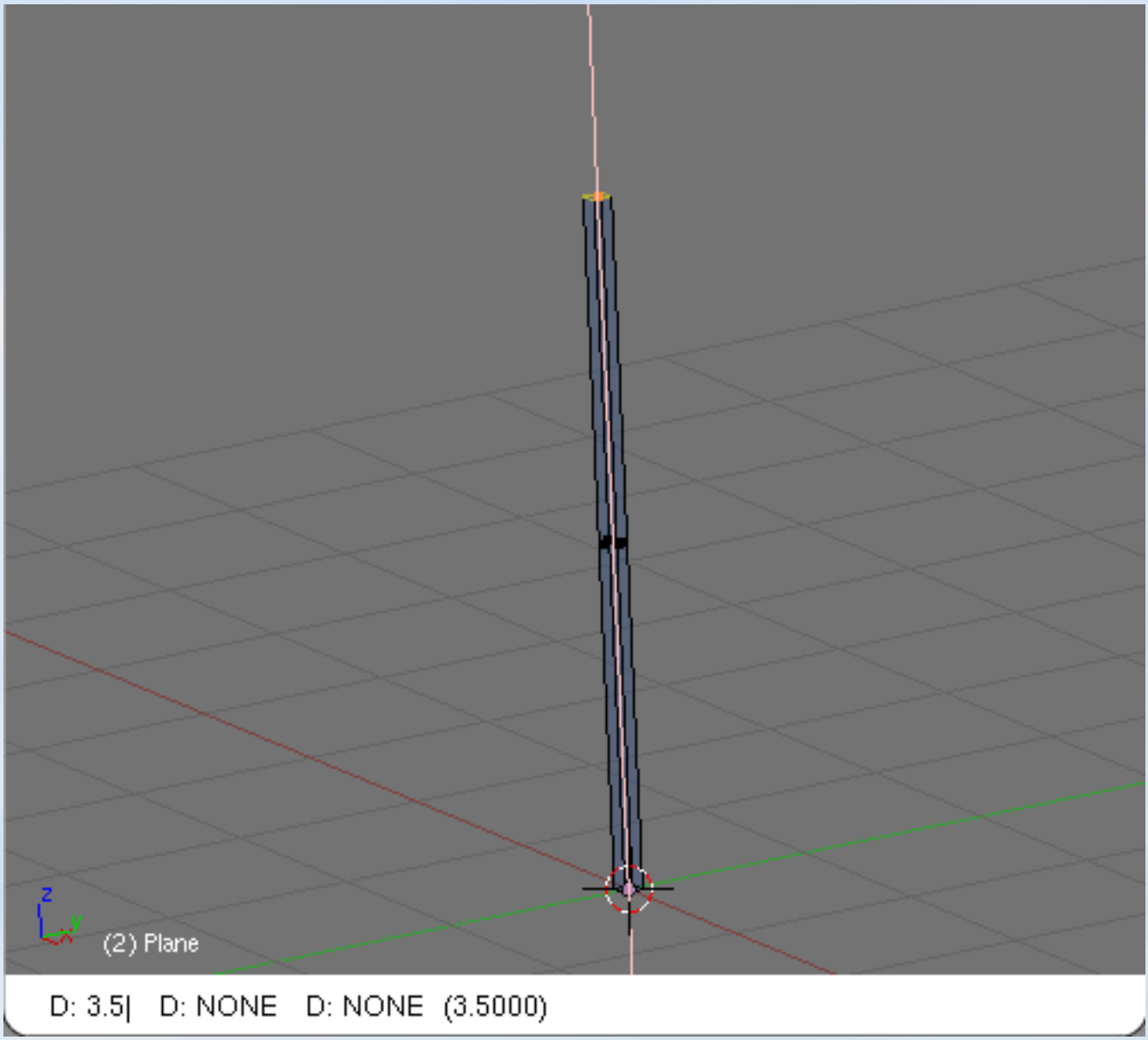
Tape **S to scale**, don' touch the mouse, tape on the **keypad number : 0.05 with ENTER**



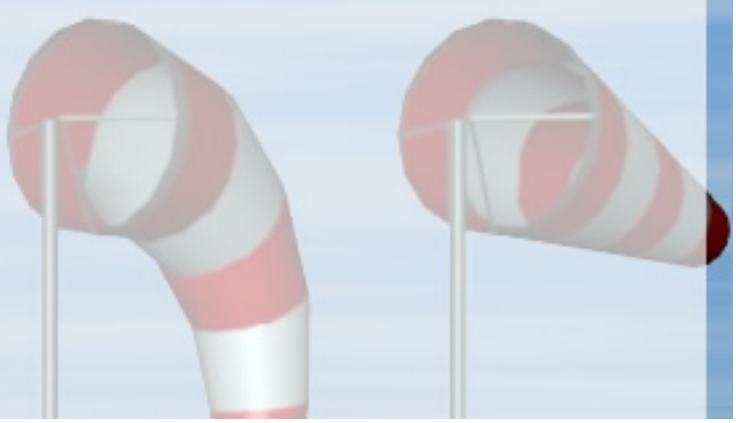


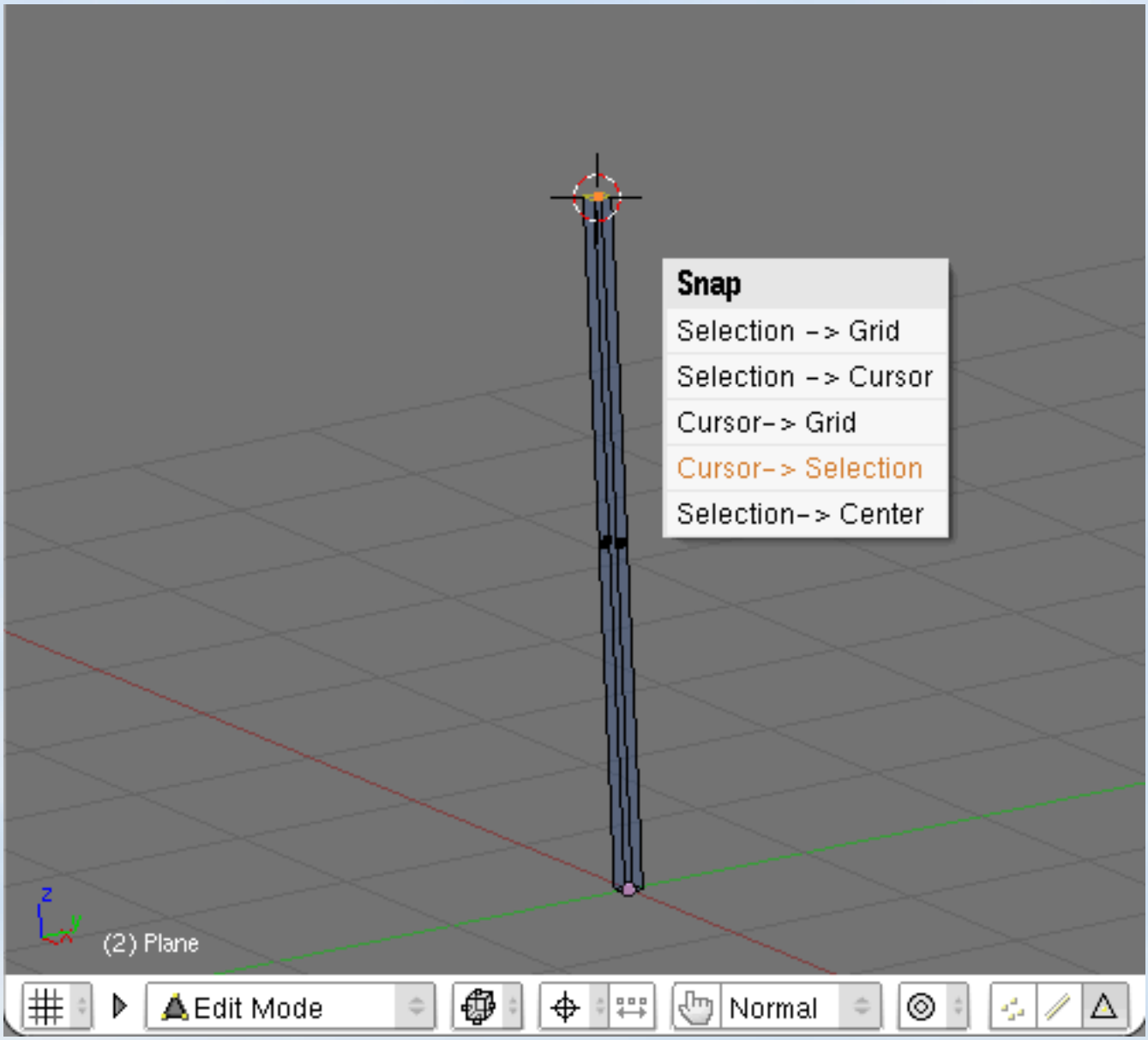
Tape **S to scale**, don' touch the mouse, tape on the **keypad number : 0.05 with ENTER**



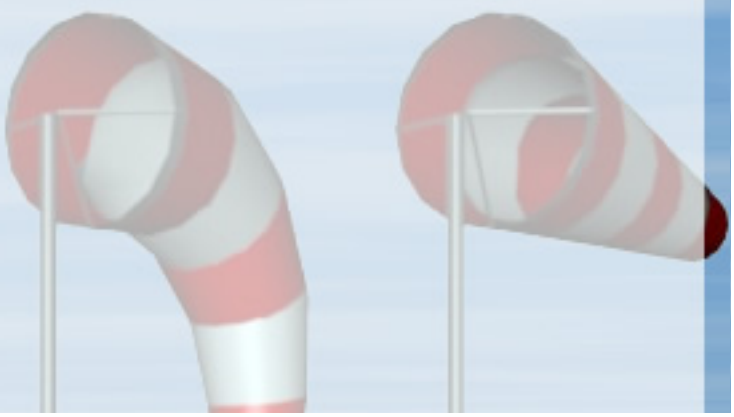


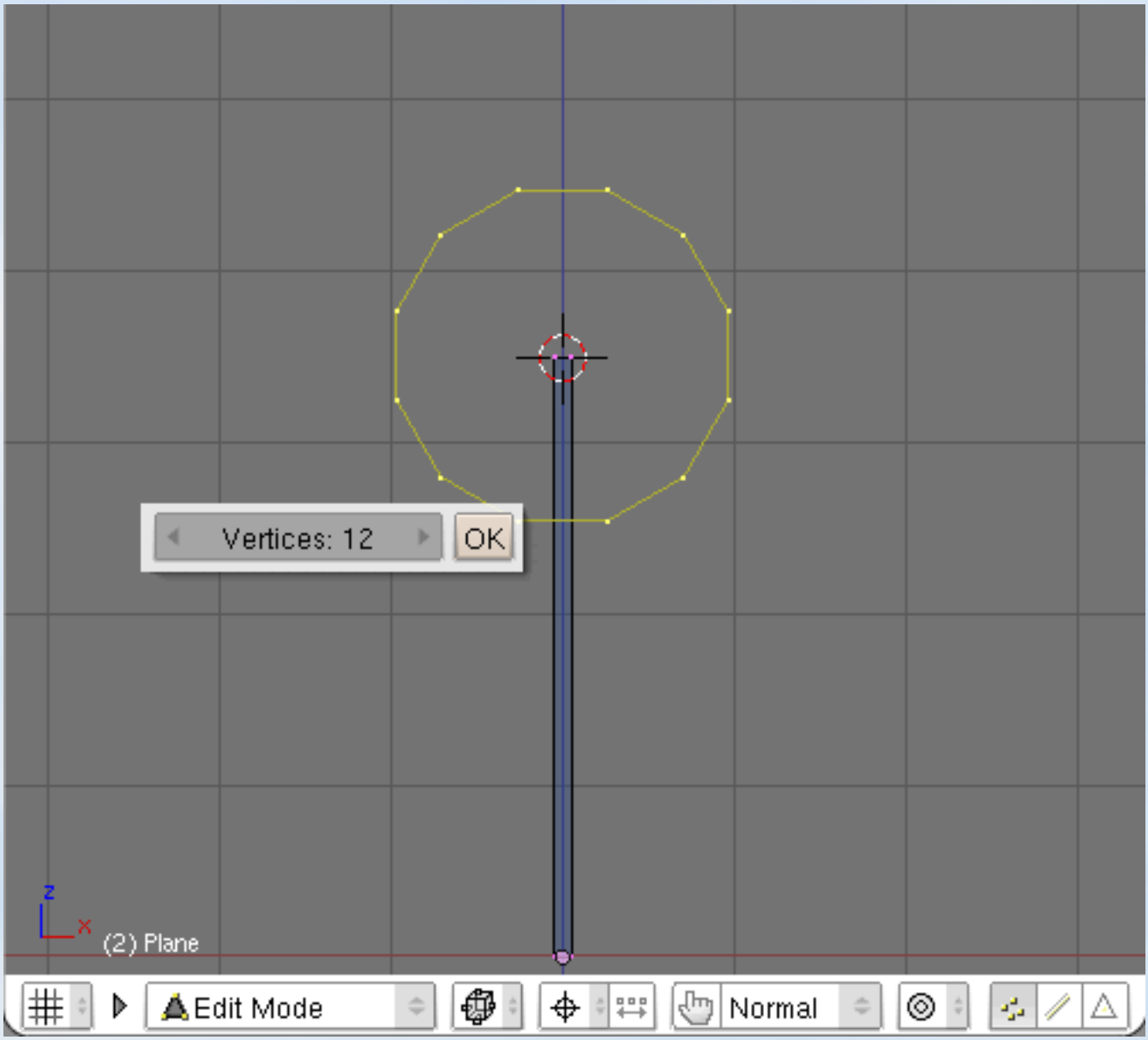
Move the view for you able to see the three axis in the same time, click with the mouse middle button and move the mouse over the 3D view
Extrude the face by taping **E** (to bring the dialox box with edge or vertice selection mode choose **REGION**), dont move the mouse, tape **Z** to restrici the move on the **Z axis only**, and tape on the **keypad number 3.5 and ENTER**.



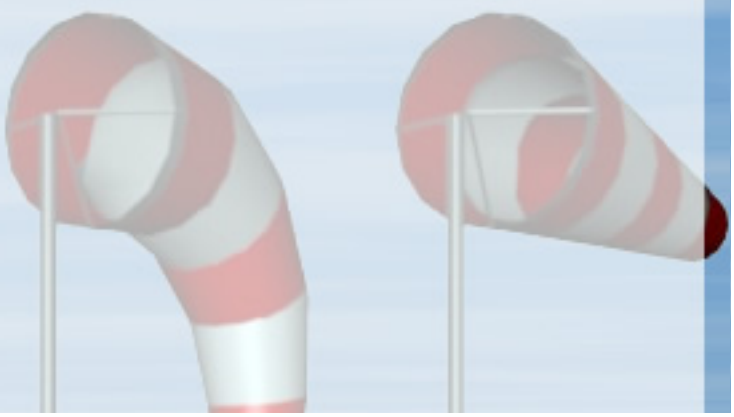


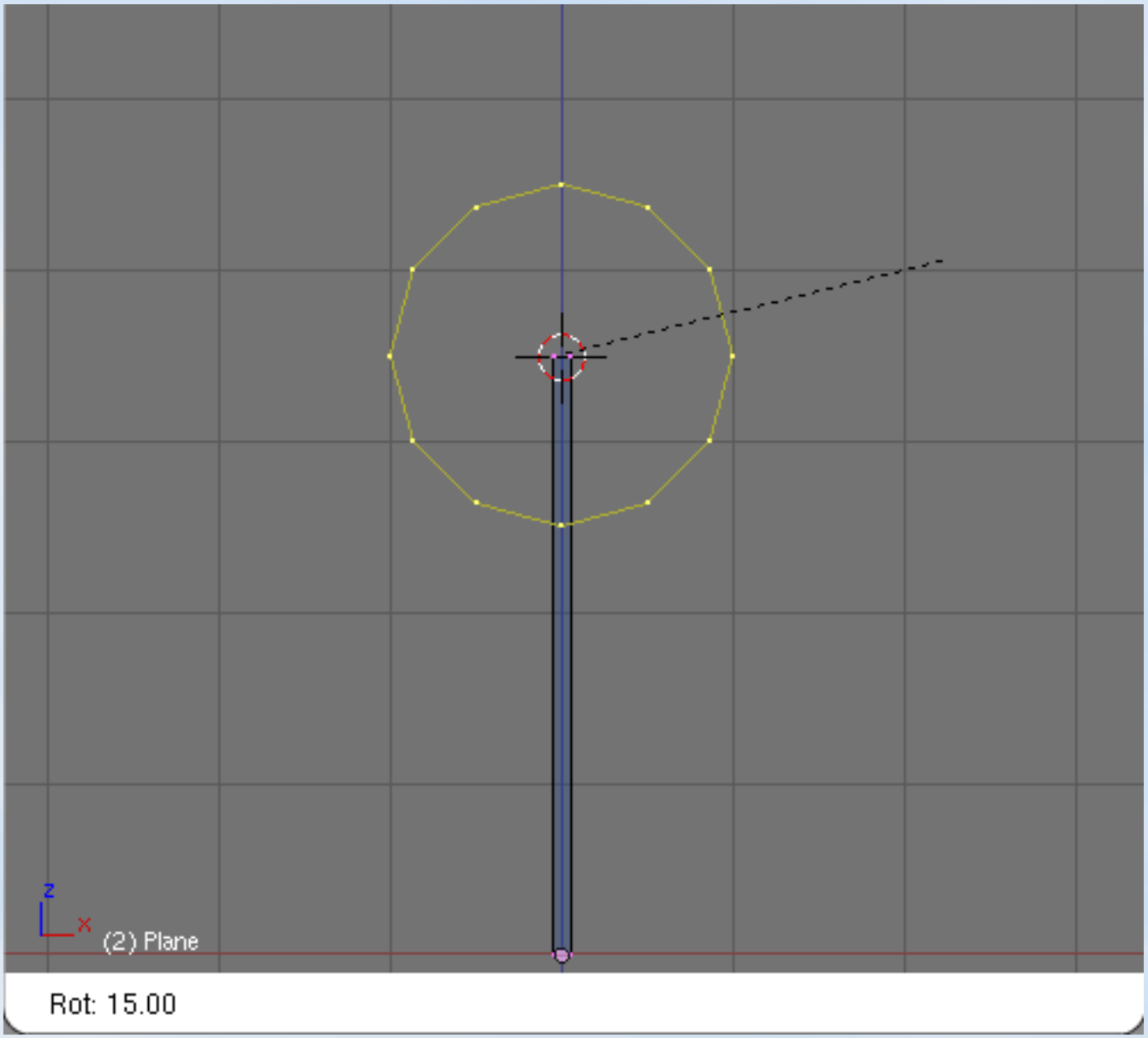
Snap the cursor at the top off the mast, **select the face or vertices at the top** and click **SHIFT + S** to bring the snap dialog box, choose **cursor > selection**



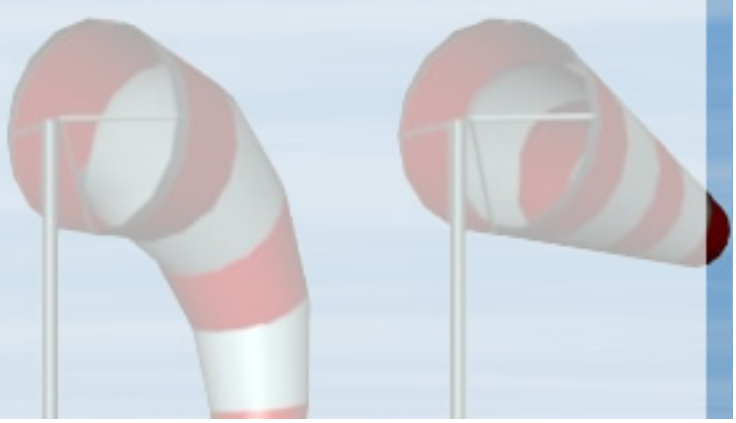


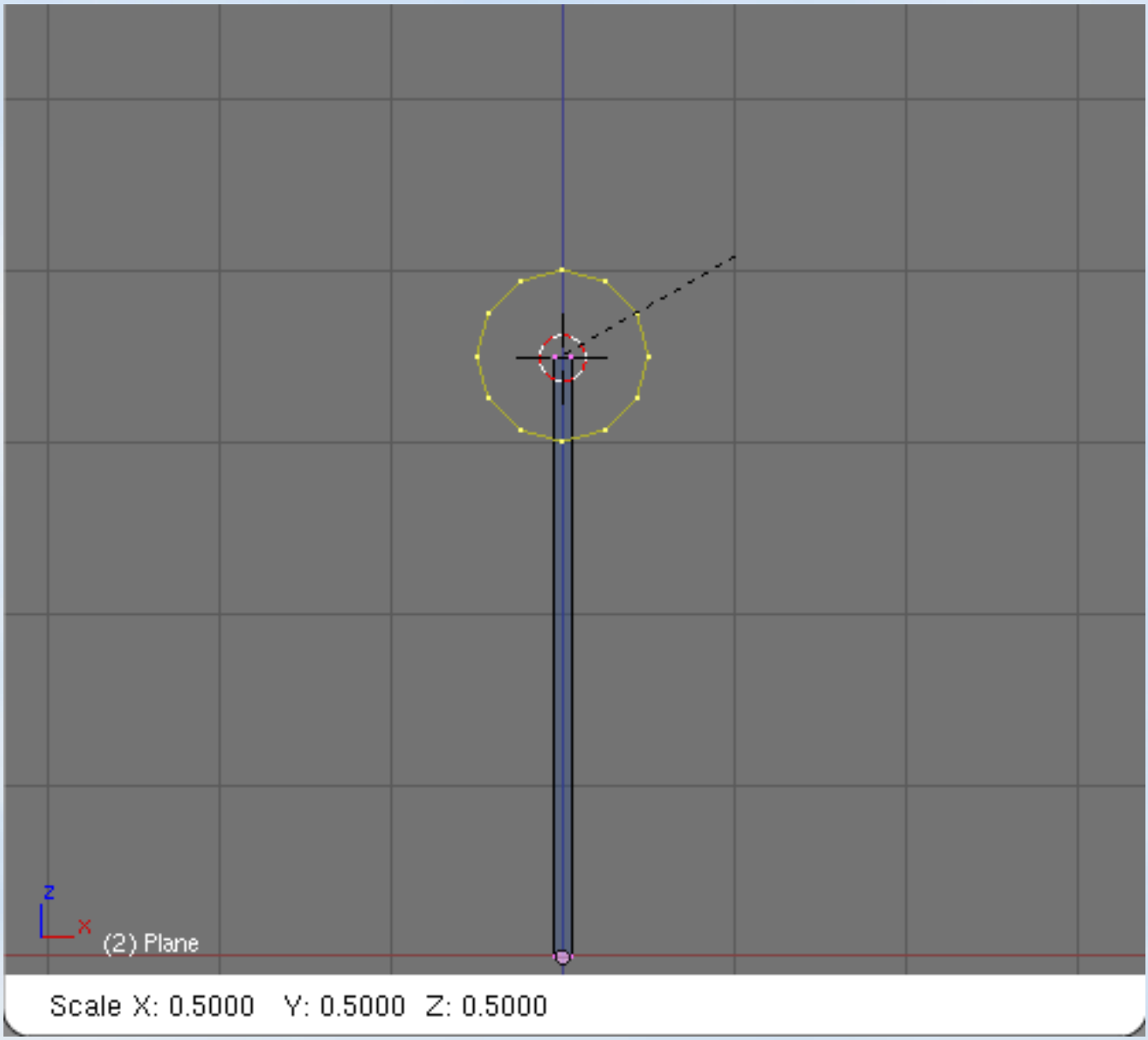
Go in **front view**, **1** on the keypad number, and tape **spacebar** to **Add** in the object a **new MESH**, choose **circle**, change the **32** valor for **12**, en click **OK**



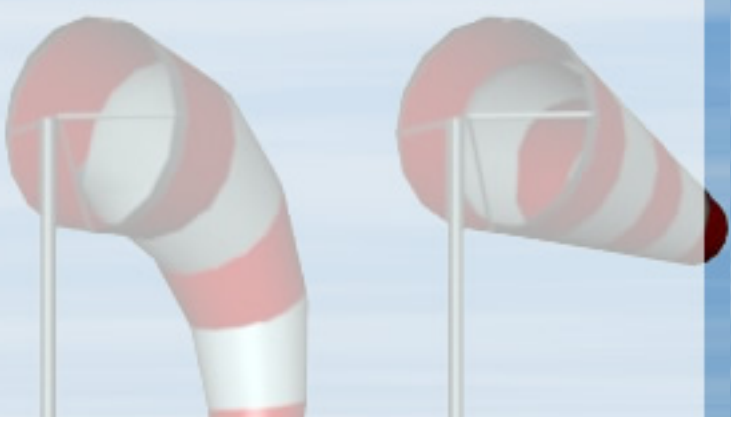


Tape **R** to rotate **15.0** on the keypad and **ENTER**

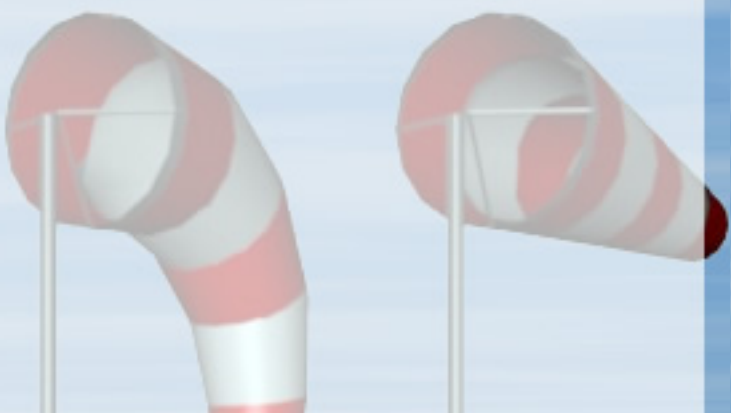


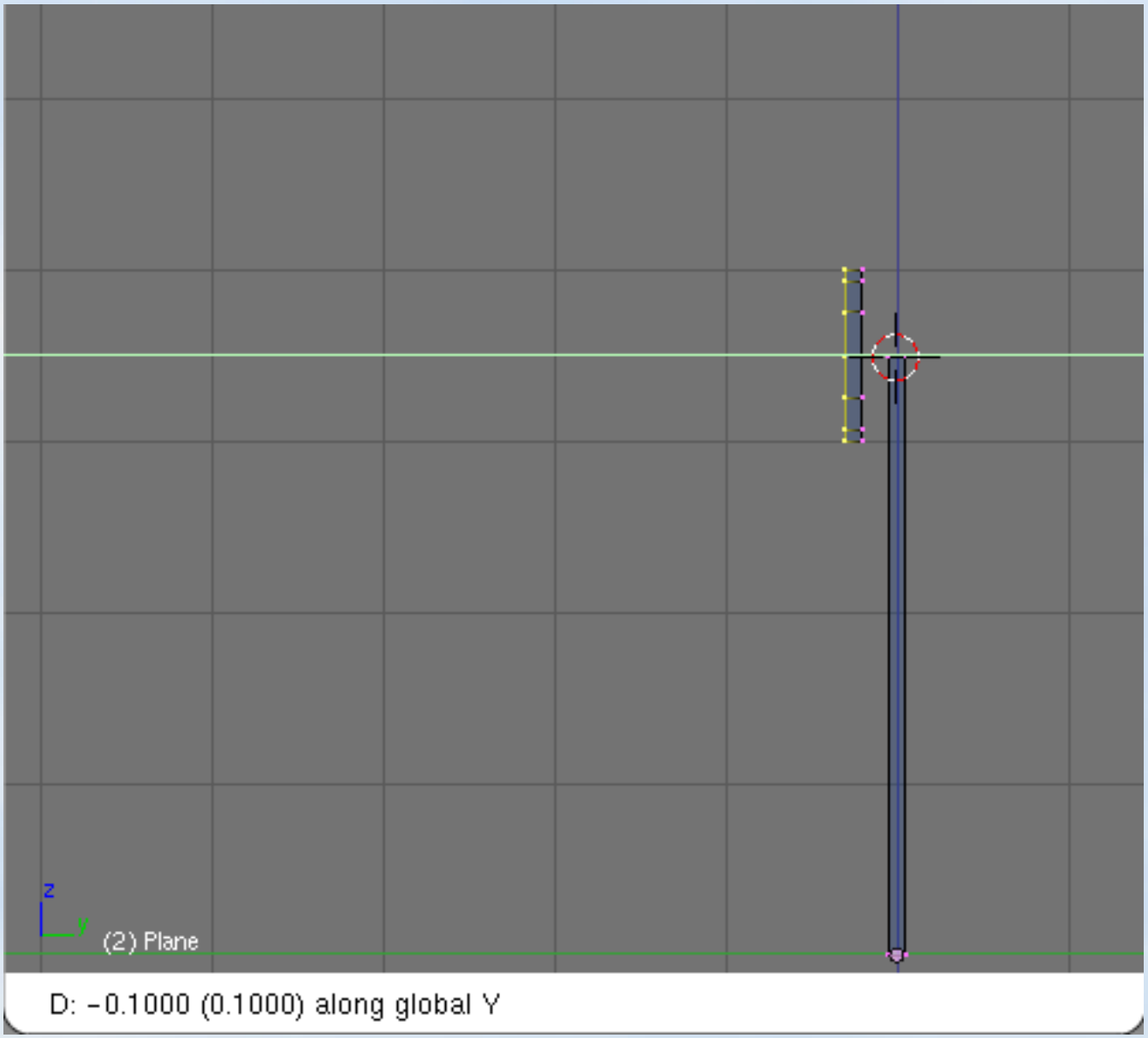


Tape **S** to scale, **0.5** on the keypad number and **ENTER**

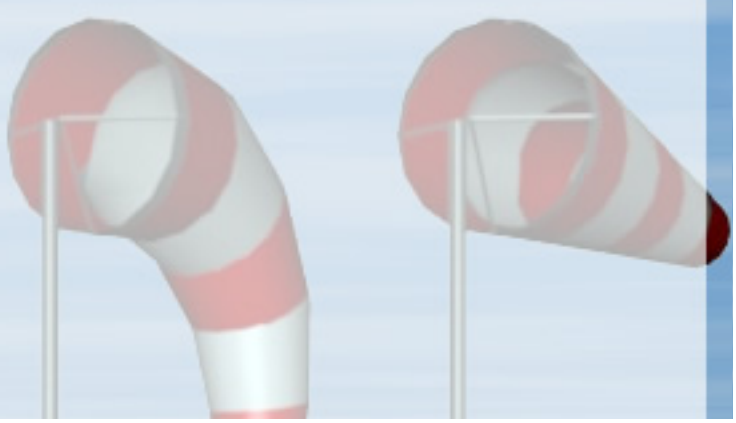


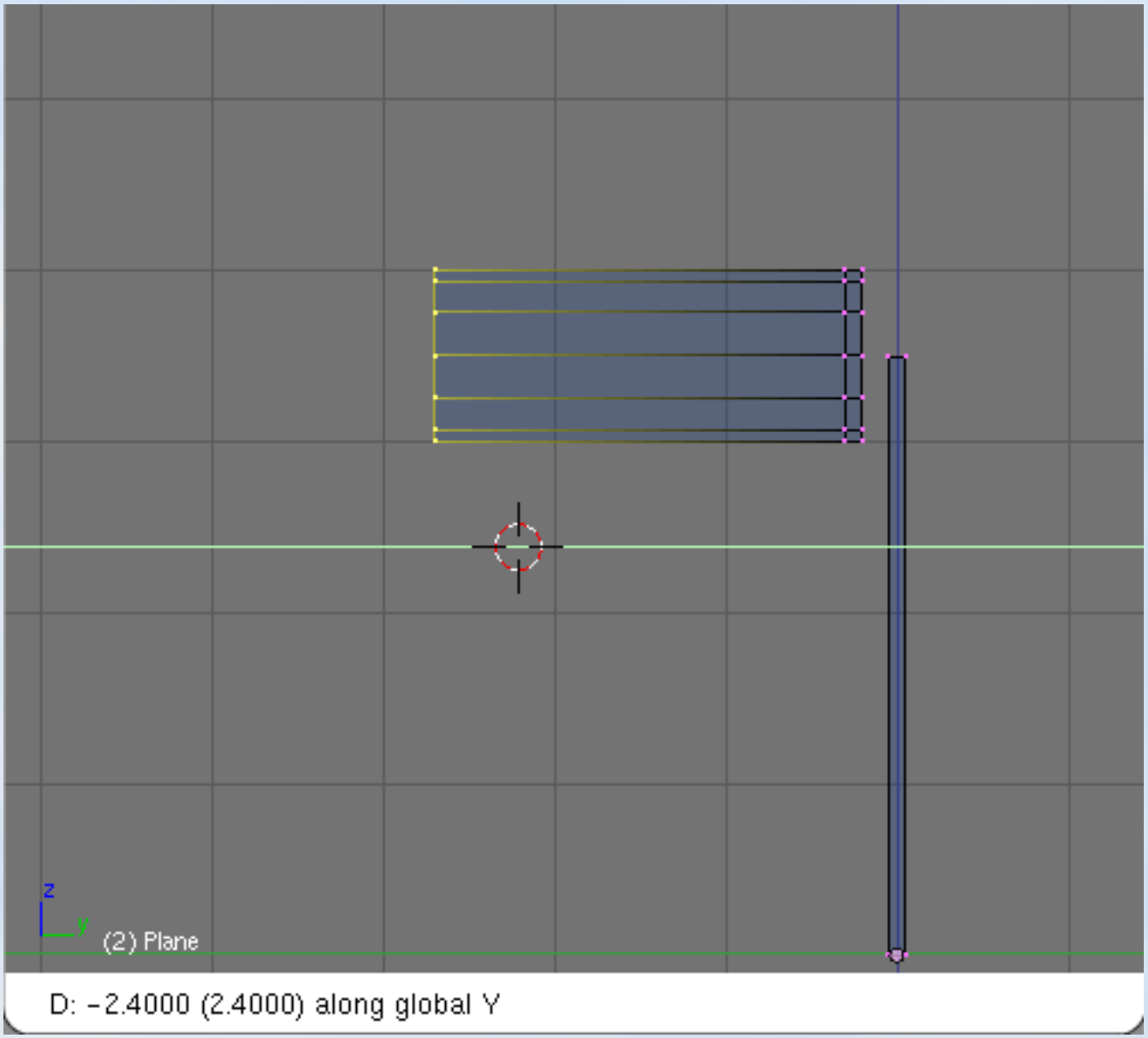
Go in **side view**, **3** on the keypad, tape **G** to grab the circle vertice, **Y** to make sure it move only on the Y axis, **-0.2 and ENTER**



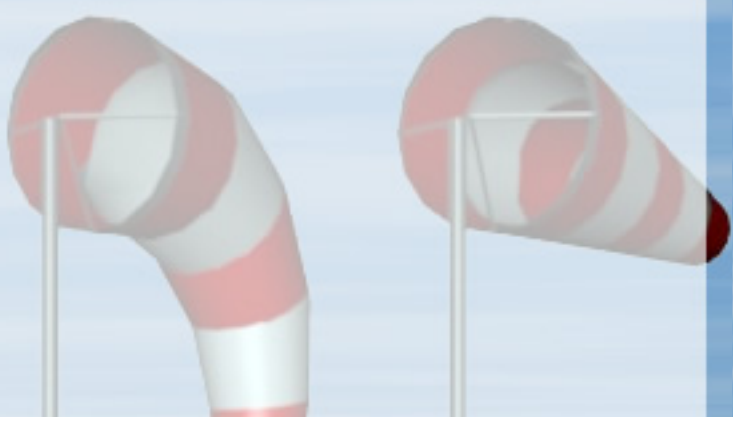


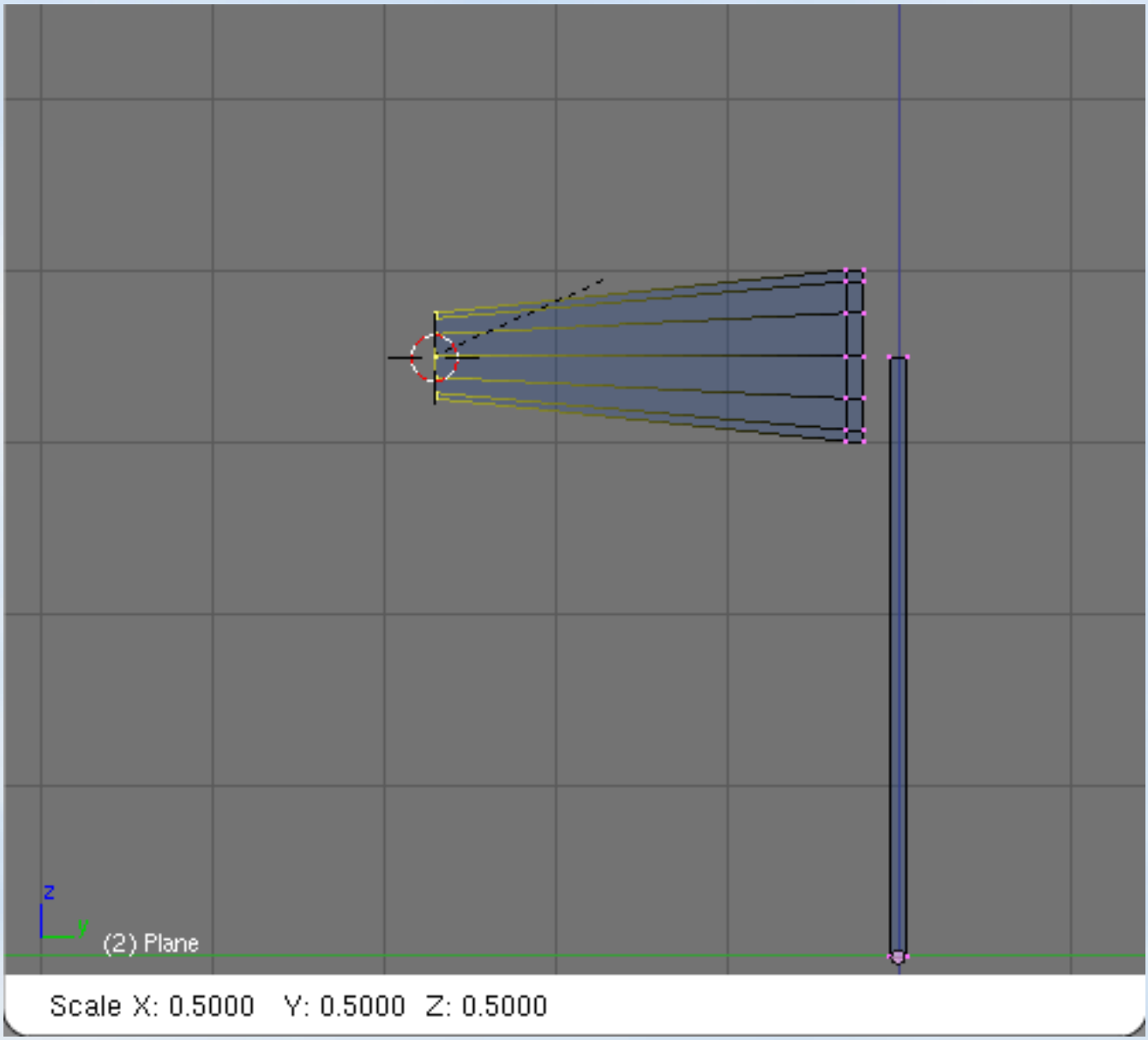
Tape **E** to extrude, **Y** for the axis, **-0.1 and ENTER**



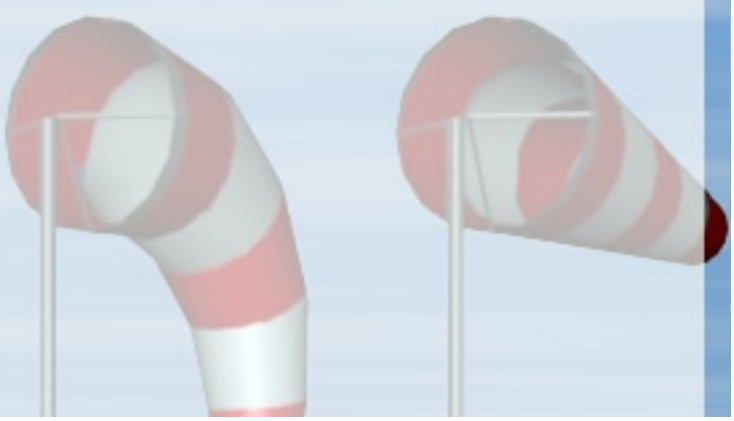


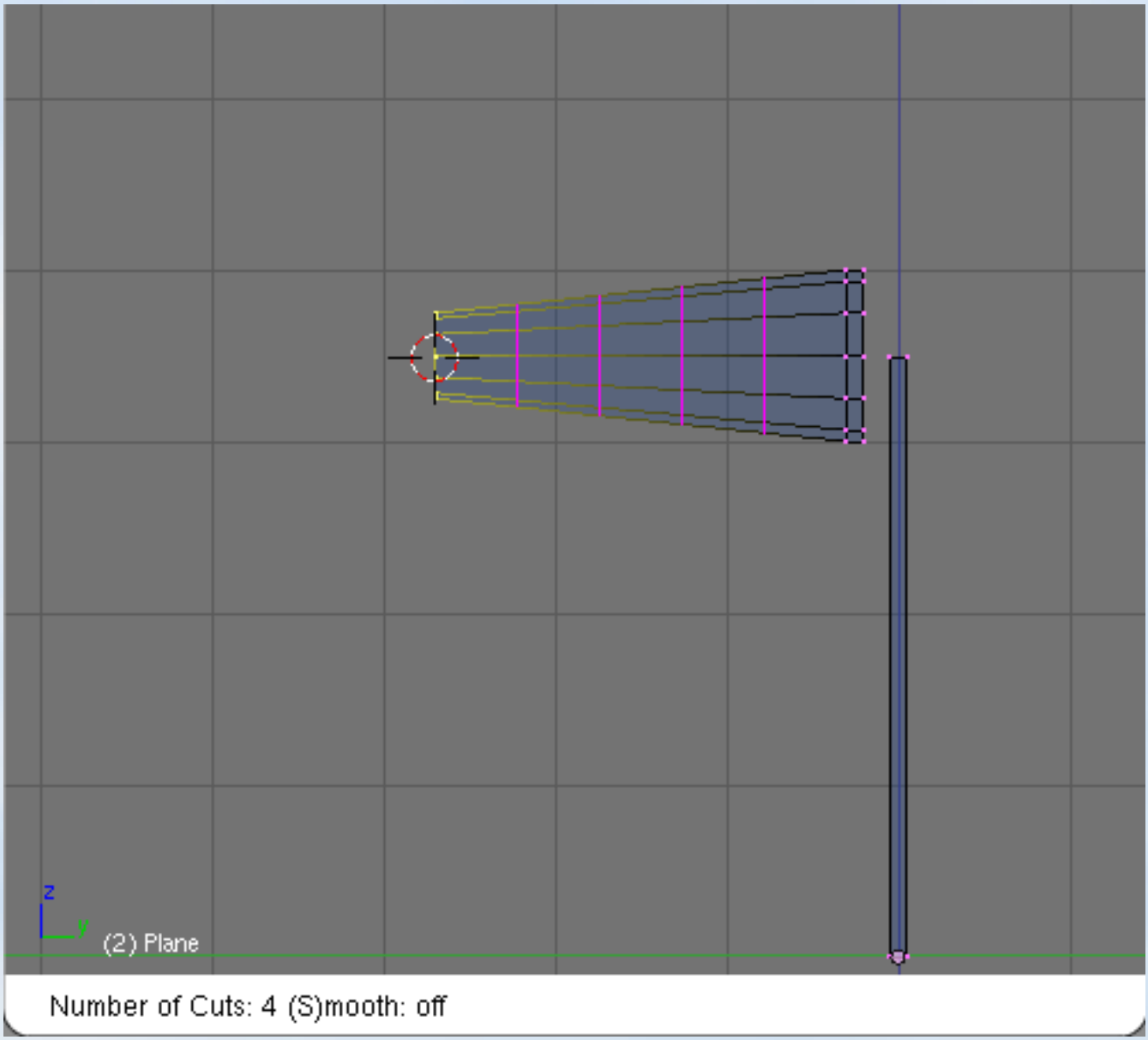
tape again **E**, **Y**, **-2.4 ENTER**



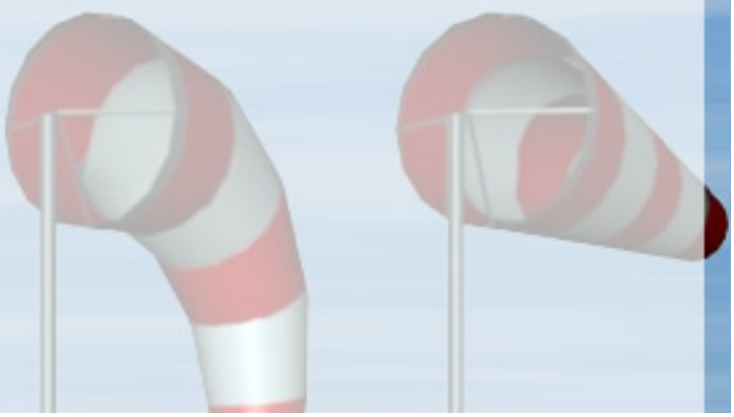


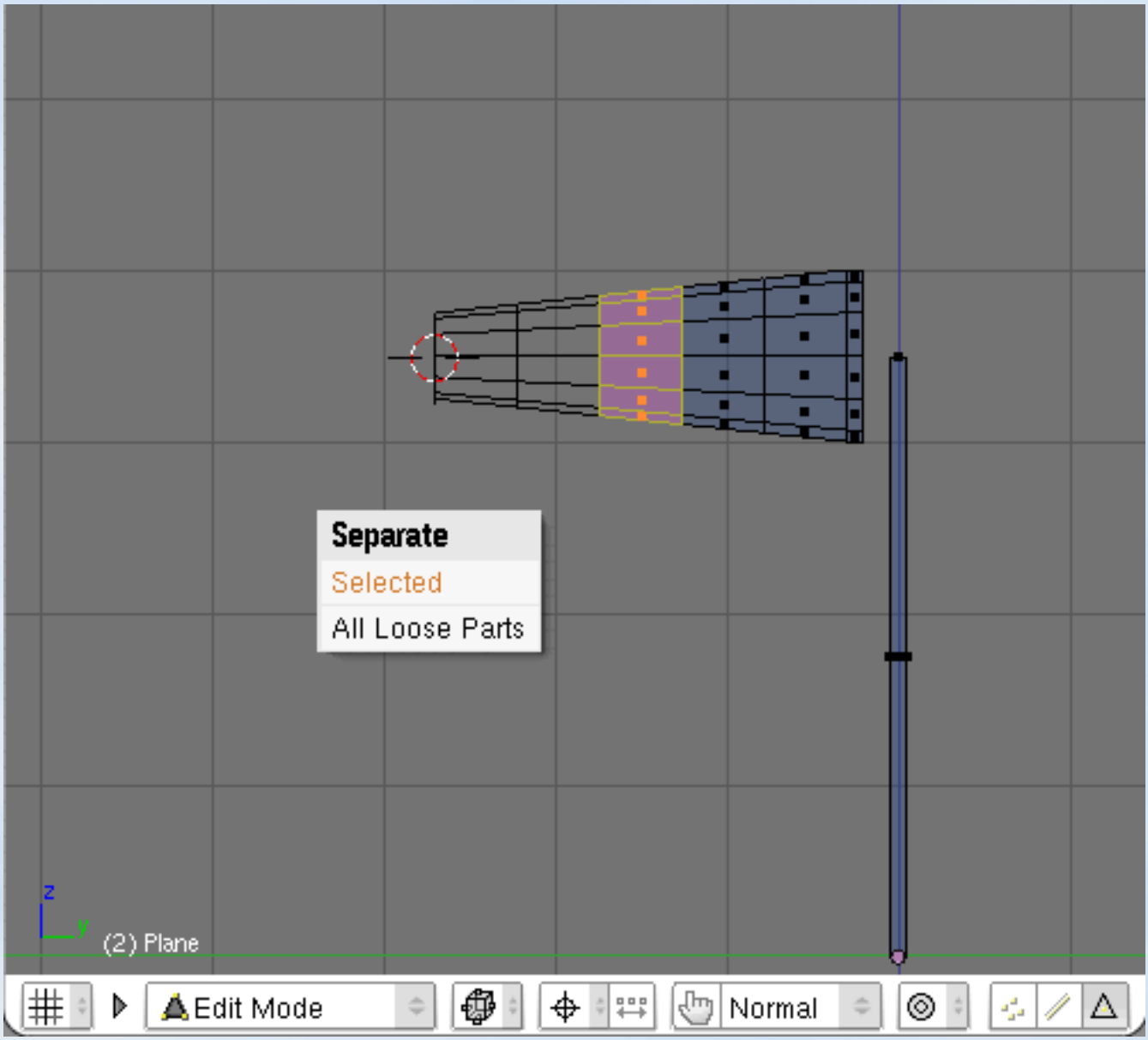
Snap the **cursor** at the selected circle after the extrude, **SHIFT + S**, **cursor > selection**
Tape **S** to scale the circle, **0.5 and ENTER**



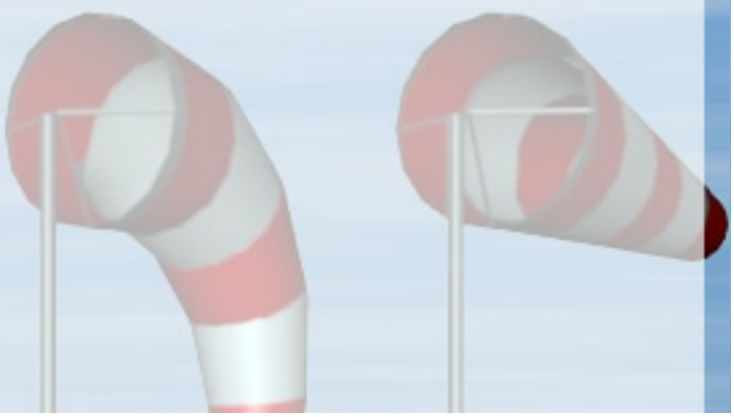


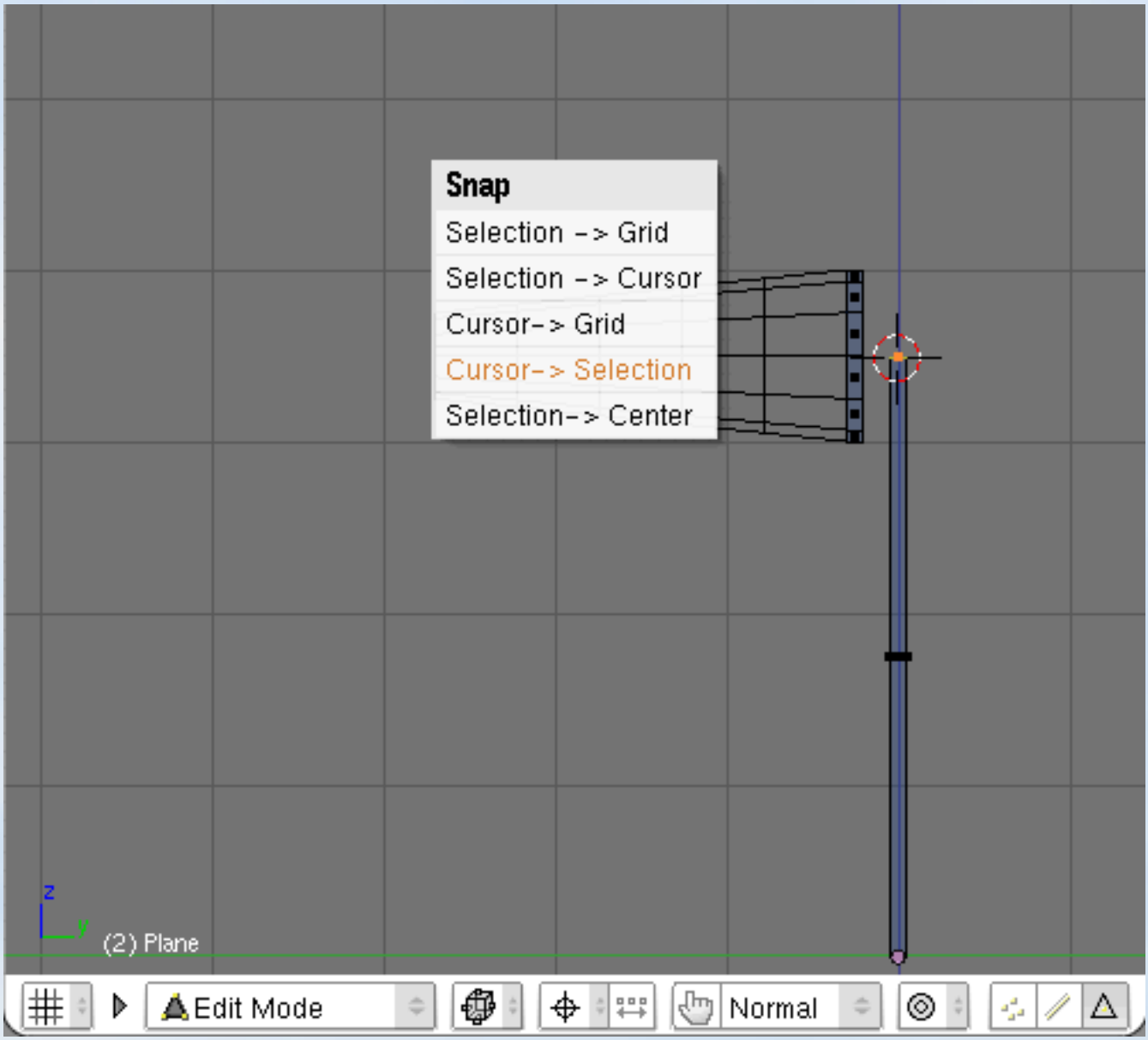
Now we need to have **five** cylinder, so tape **CTRL + R** and **move the mouse scroll boutton** to change the number off cut to **4** and click **ENTER**



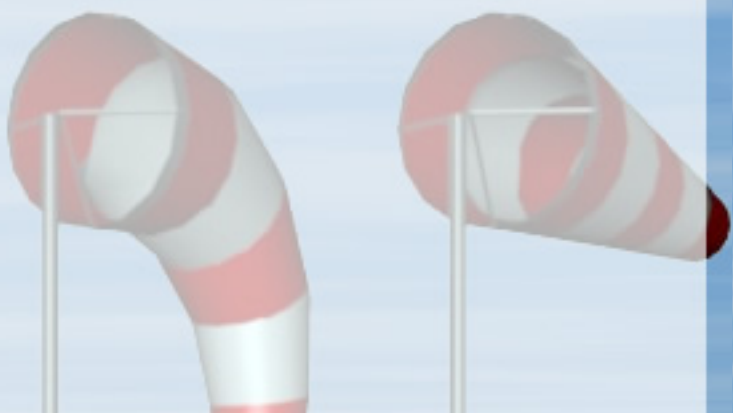


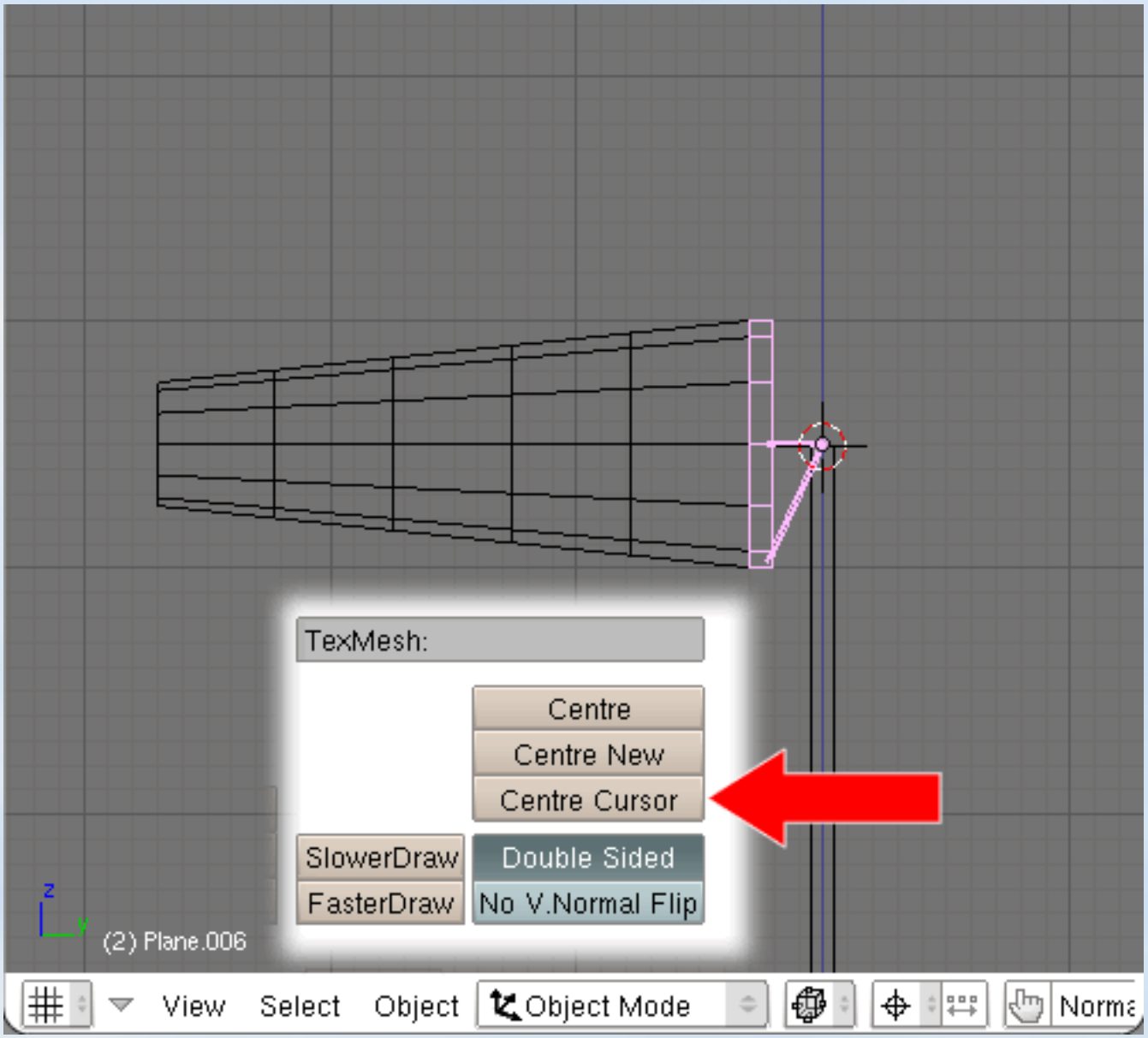
Now **separate** all the cylinder that will be animated, select all the face and tape **P** to separate them, do that for all the cylinder one after the other



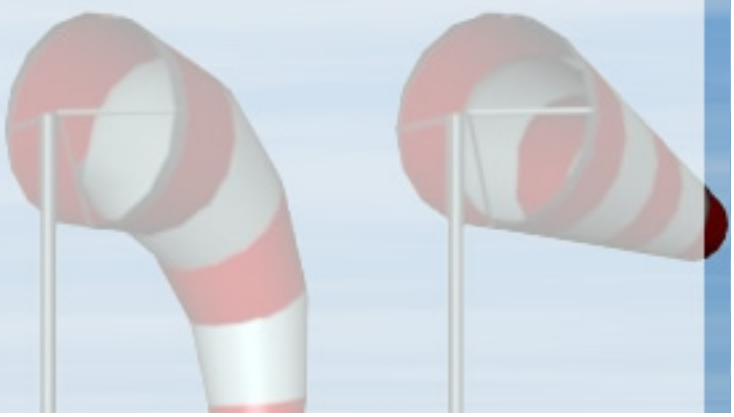


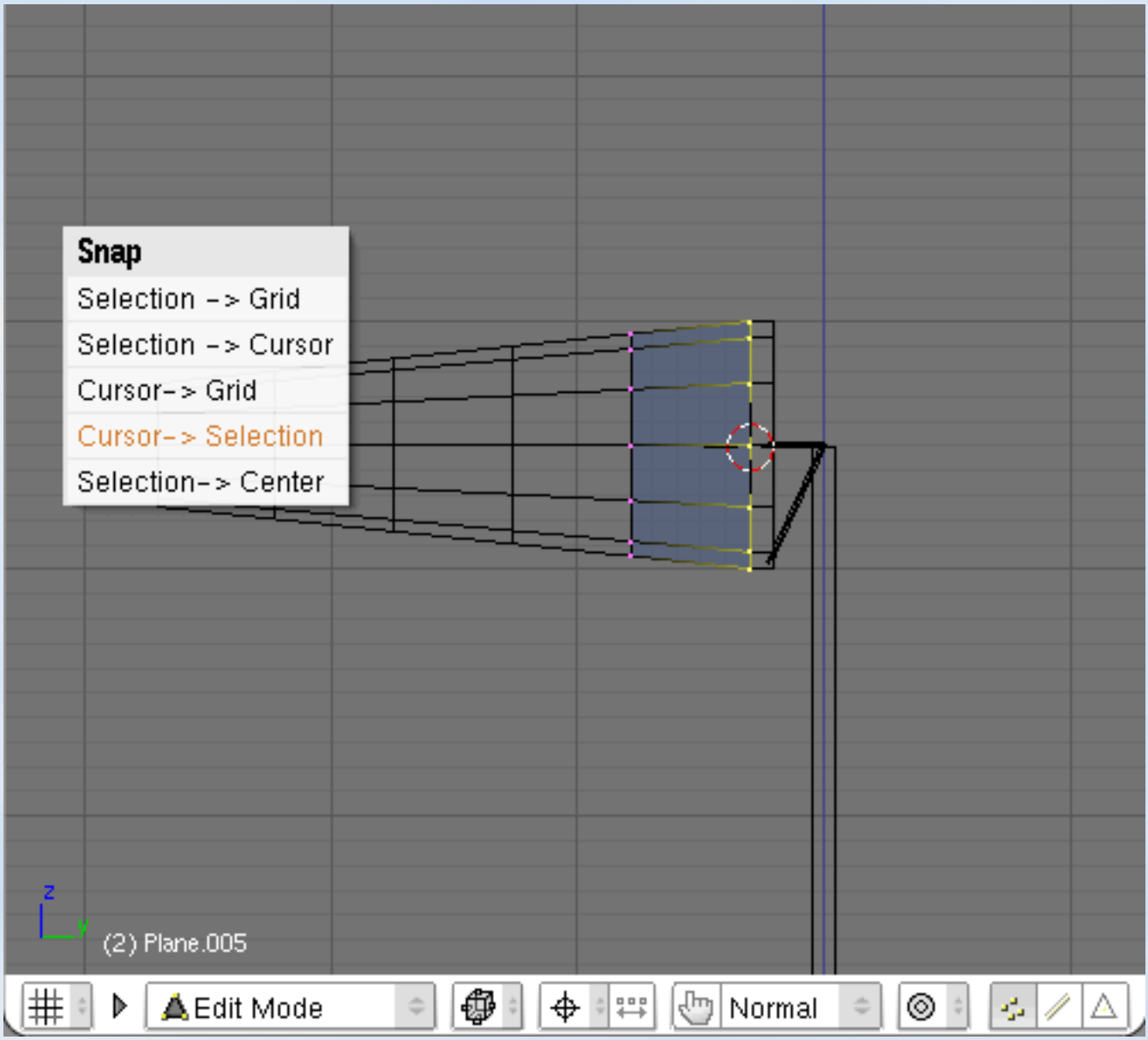
just before the last one that act like the rigid one, **click on the mast top face**, to **snap** te cursor at it location
click on the face, tape **SHIFT + S**, **choose cursor > selection**



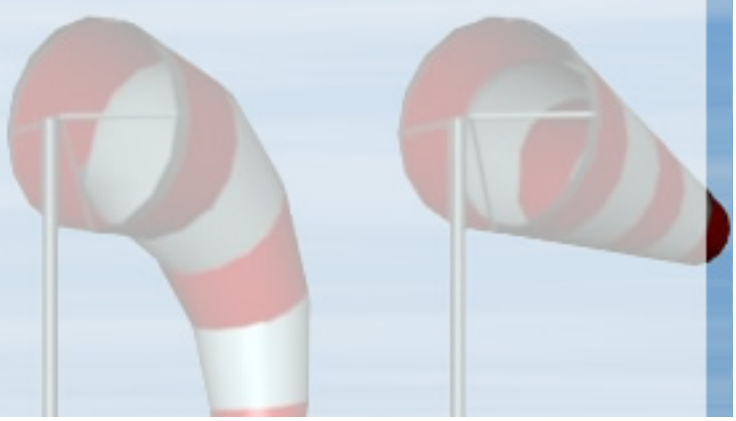


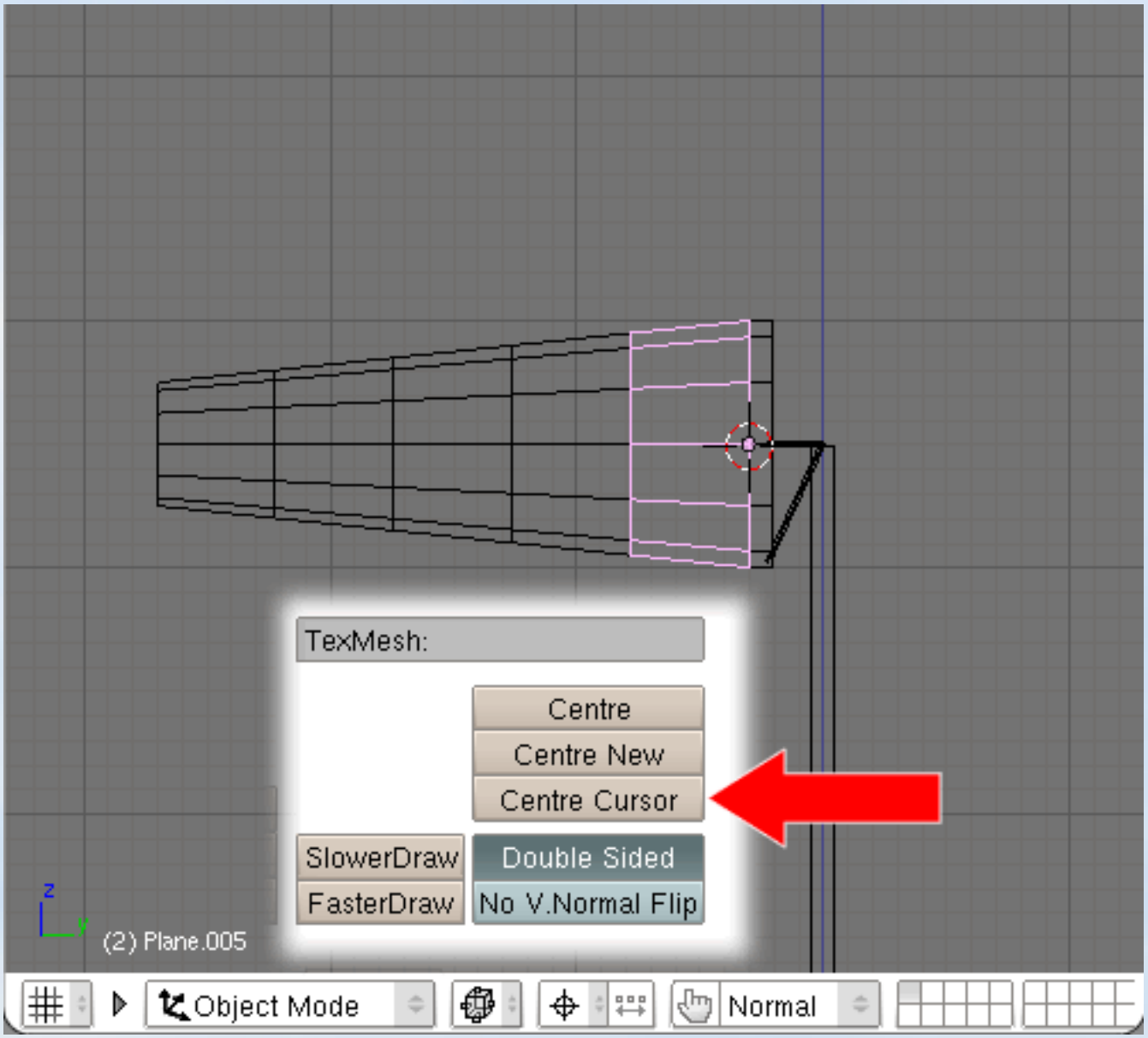
separate the cylinder off the mast, and give to the rigid circle the **new origine** off the cursor location, you can give it somes structure with simple quad too, to link it to the mast



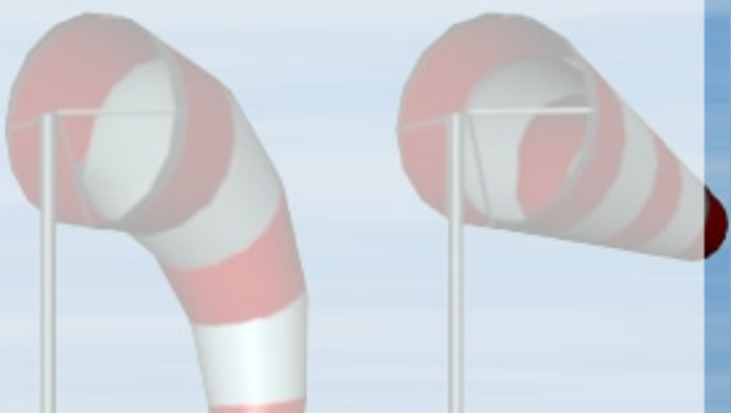


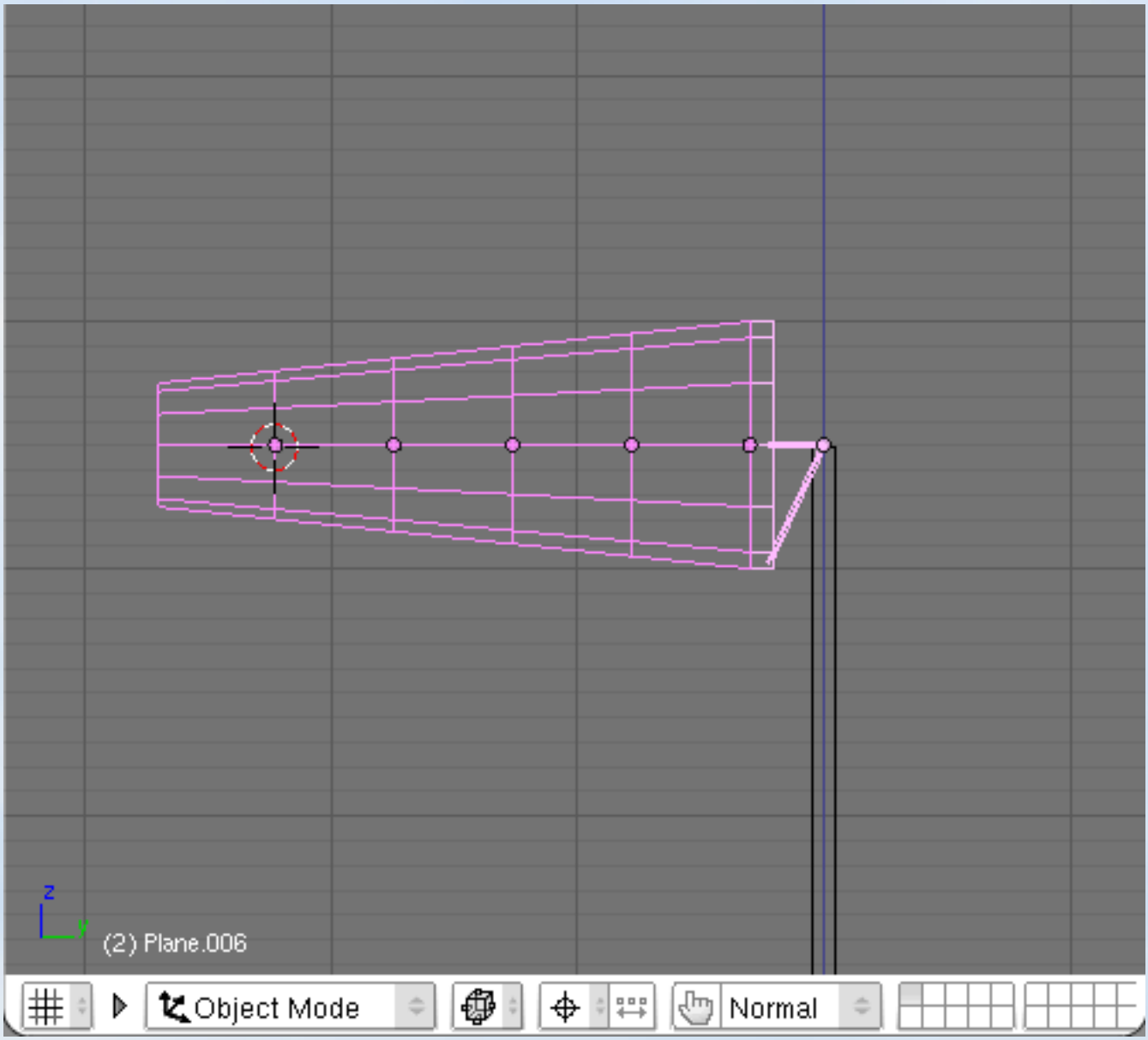
Select the next ring and in **edit mode** select all the first circle, snap **CTRL + S**, **cursor > selection**



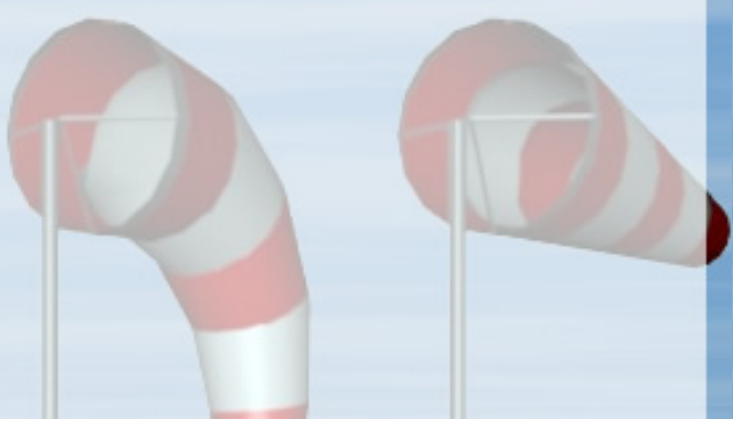


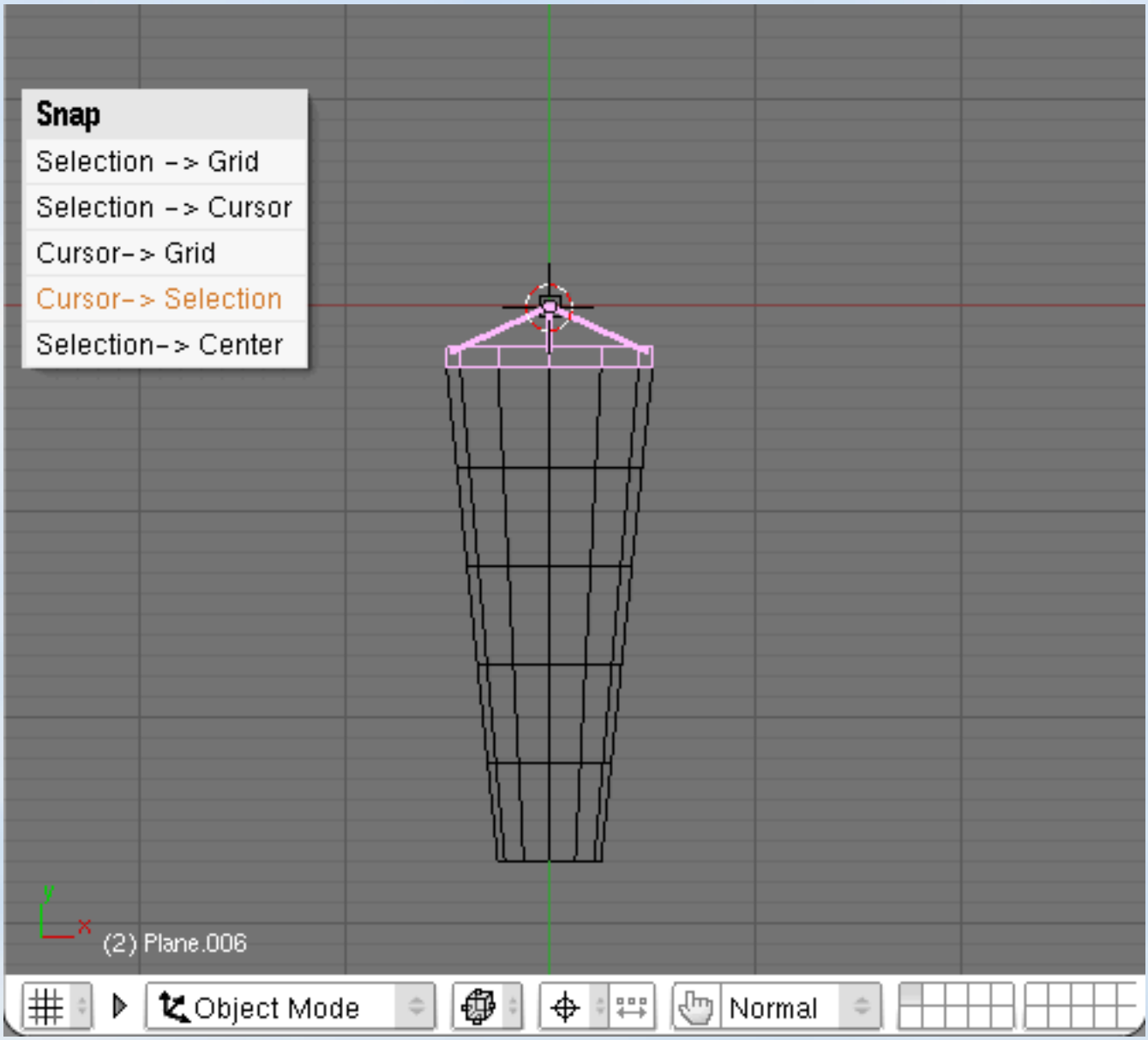
go in back in **OBJECT mode** and give it is **new center location**



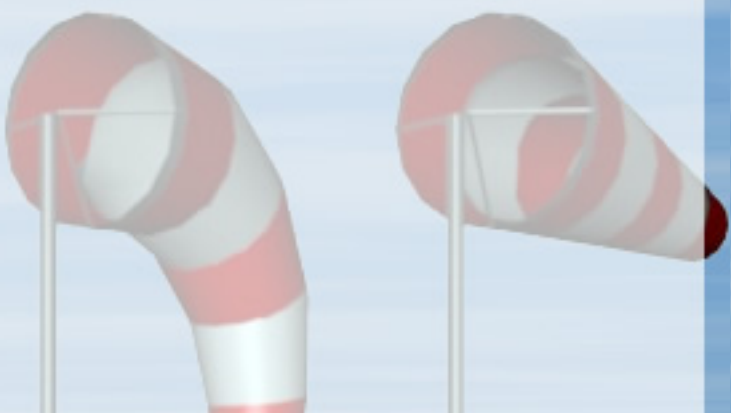


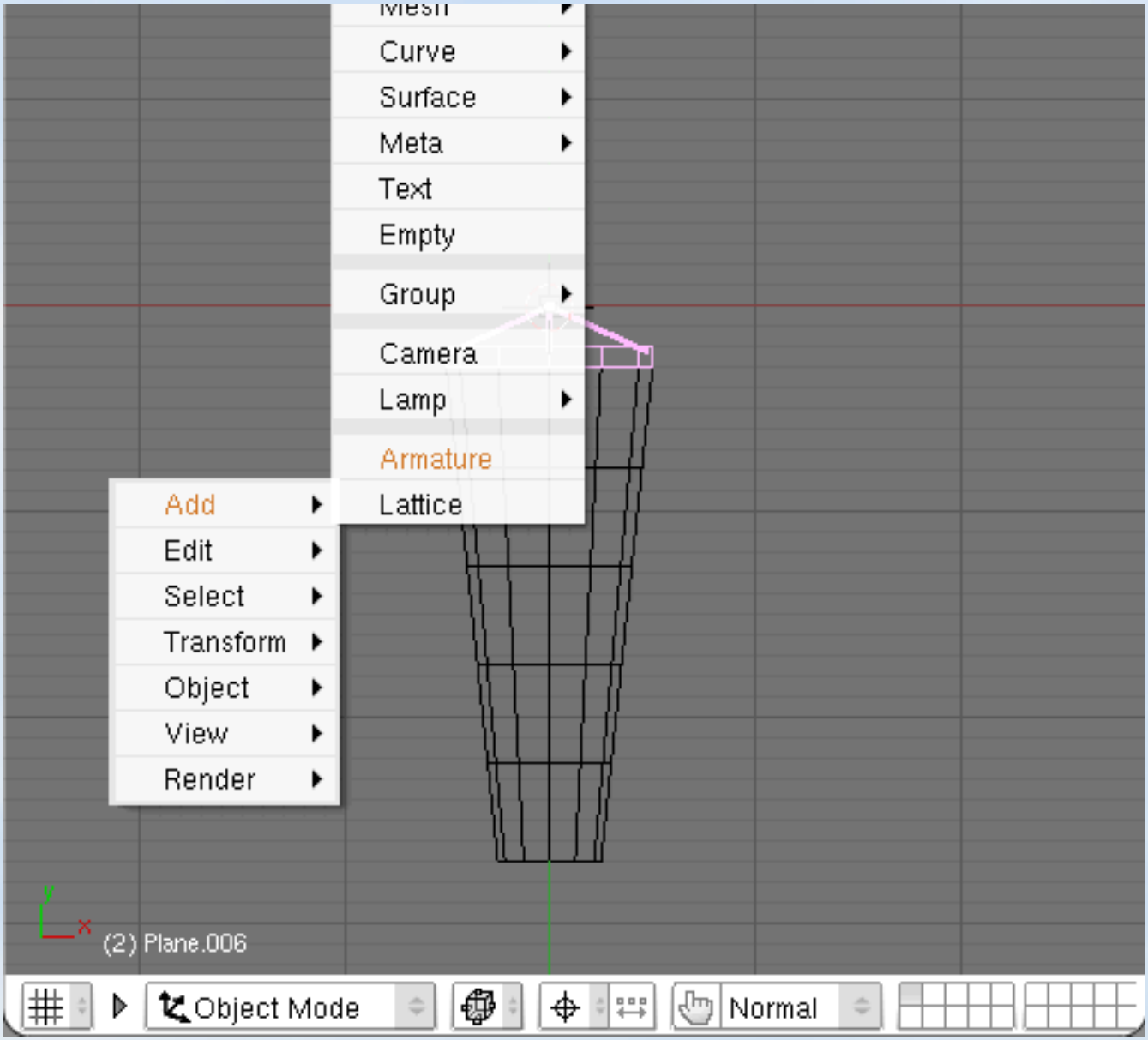
So do that for all the ring



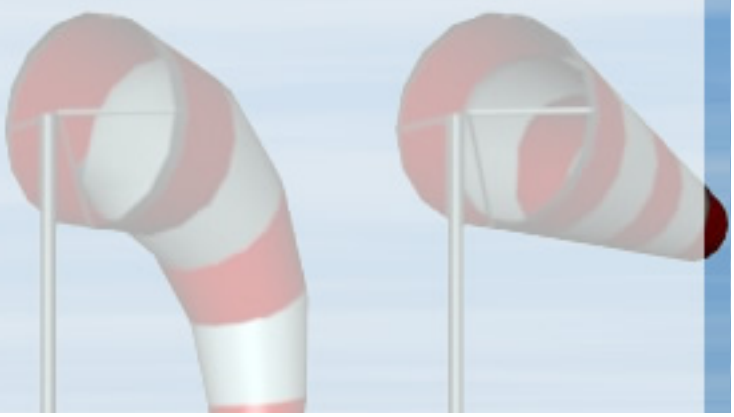


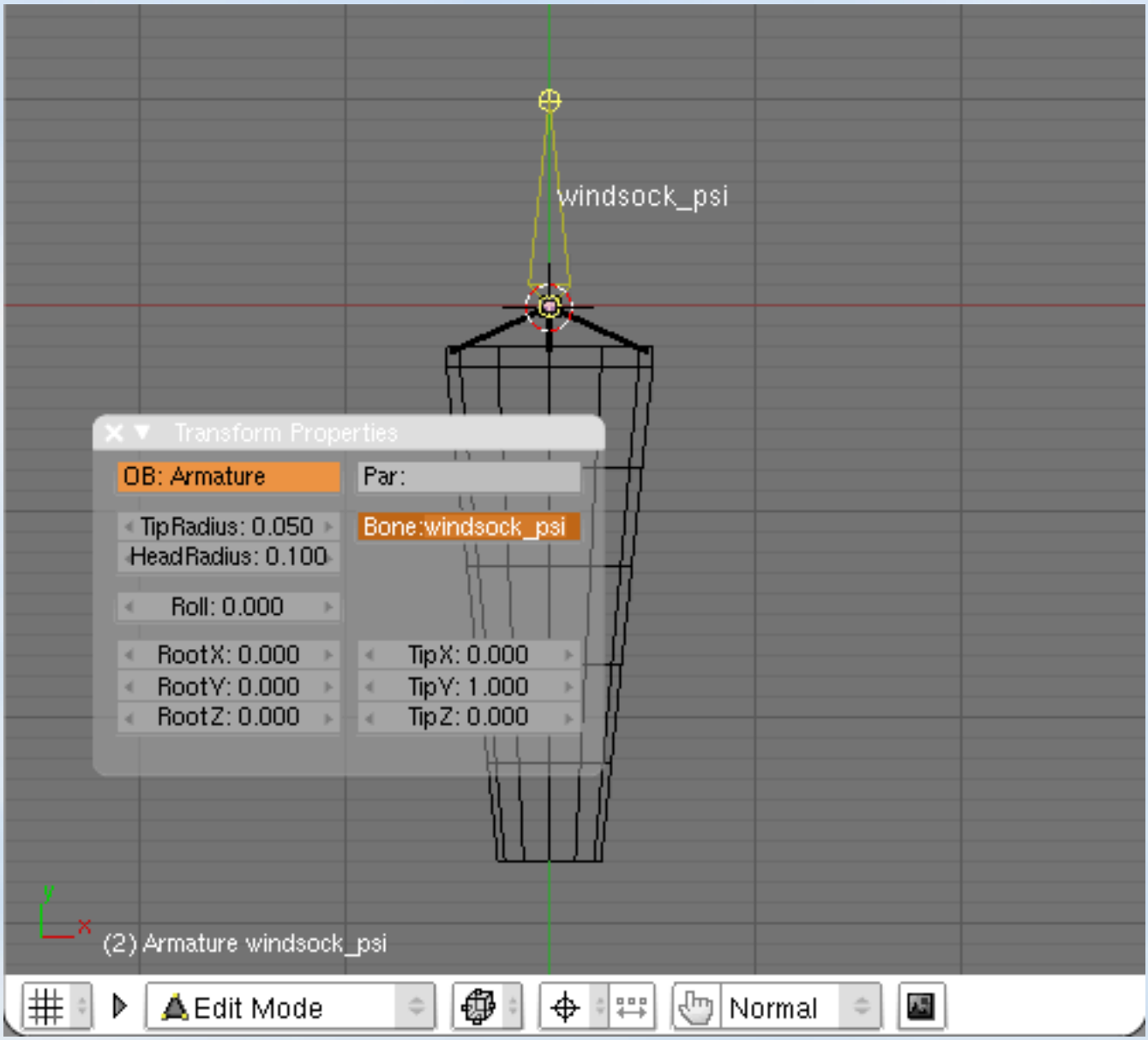
now go in front views **7** on the keypad number
Snap the cursor to the rigid ring location, select the **rigid ring** and tape **SHIFT+S**, **cursor>selection**



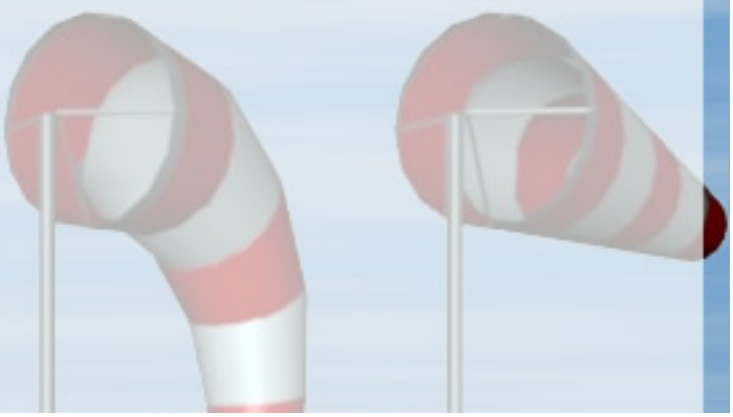


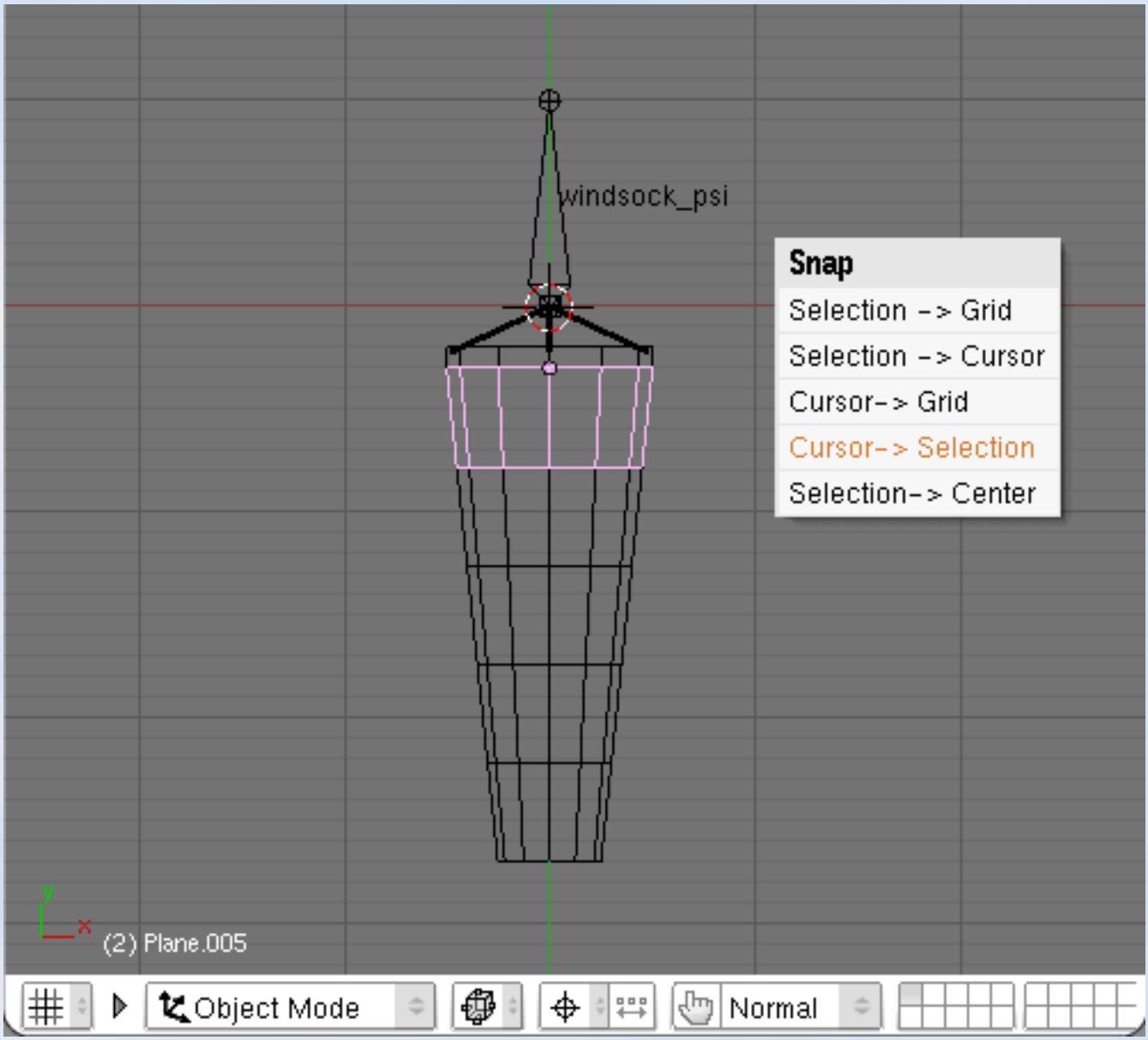
Tape **Spacebar** to add a **Armature** at this **position** (cursor)



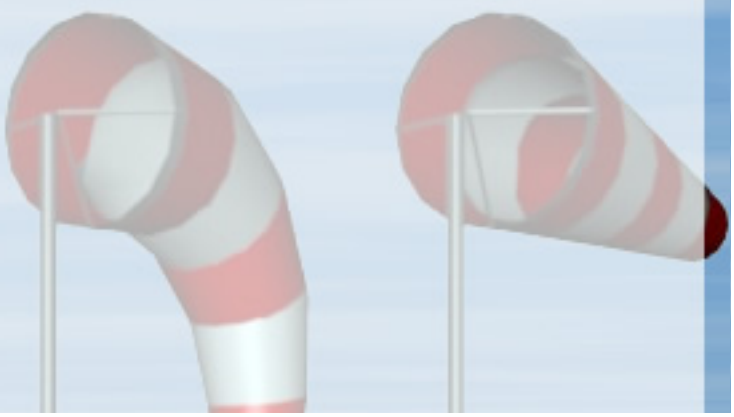


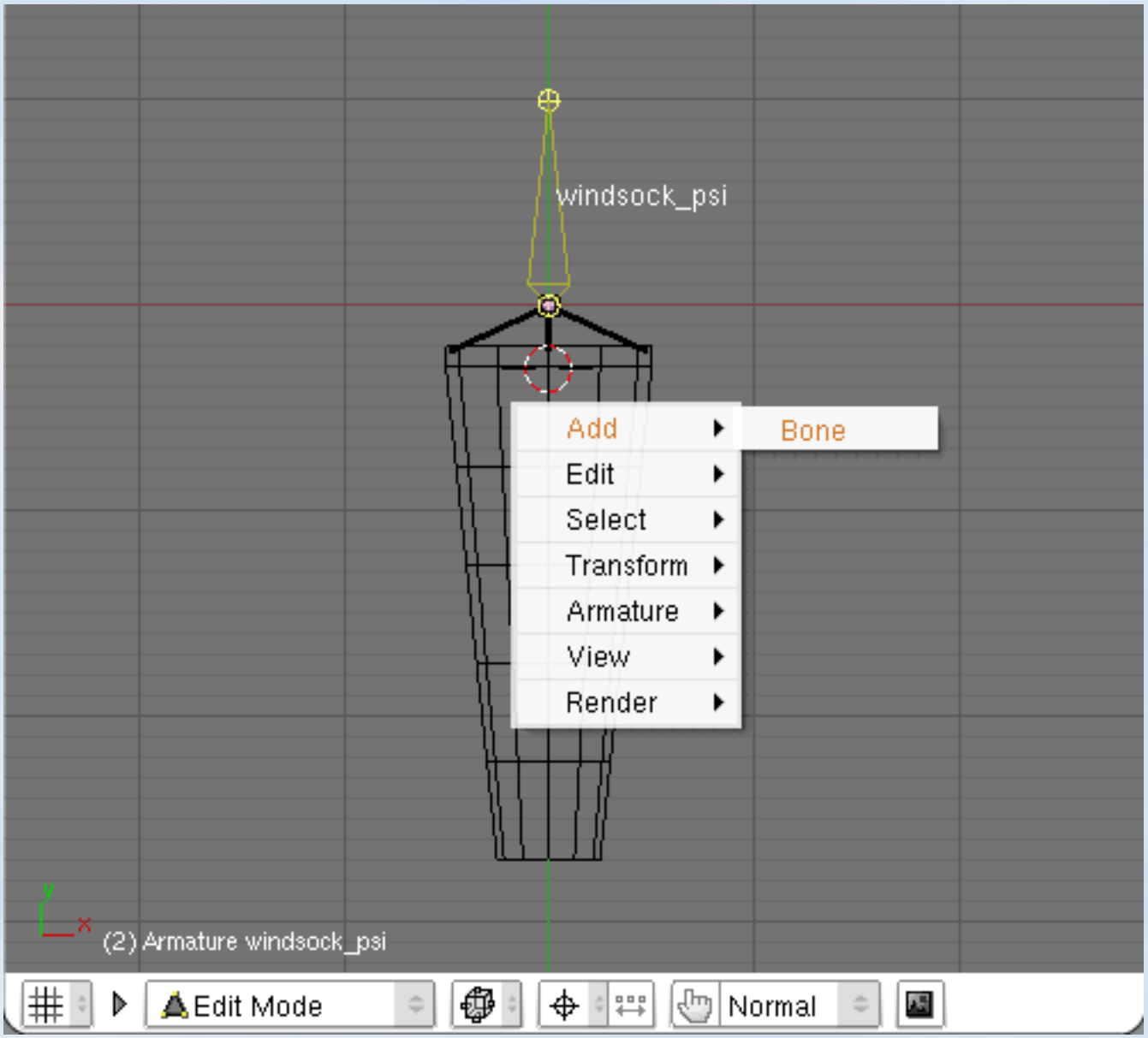
Give it the Dataref name **windsock_ps**i, that will act to make the windsock go into the wind direction, so the rigid ring that just show the direction to the other one, that will show the wind intensity, tape **N** to bring the property panel



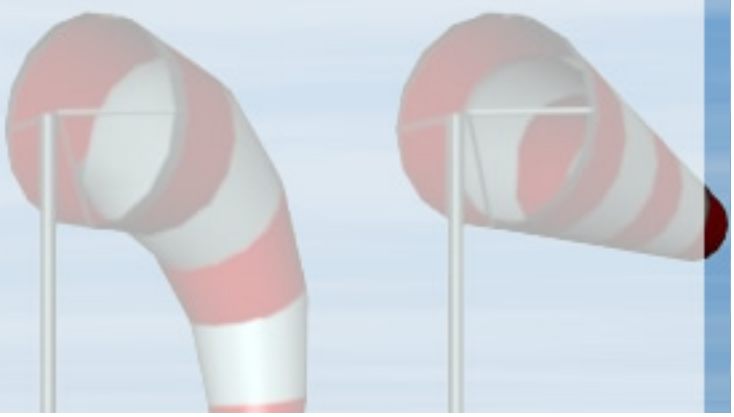


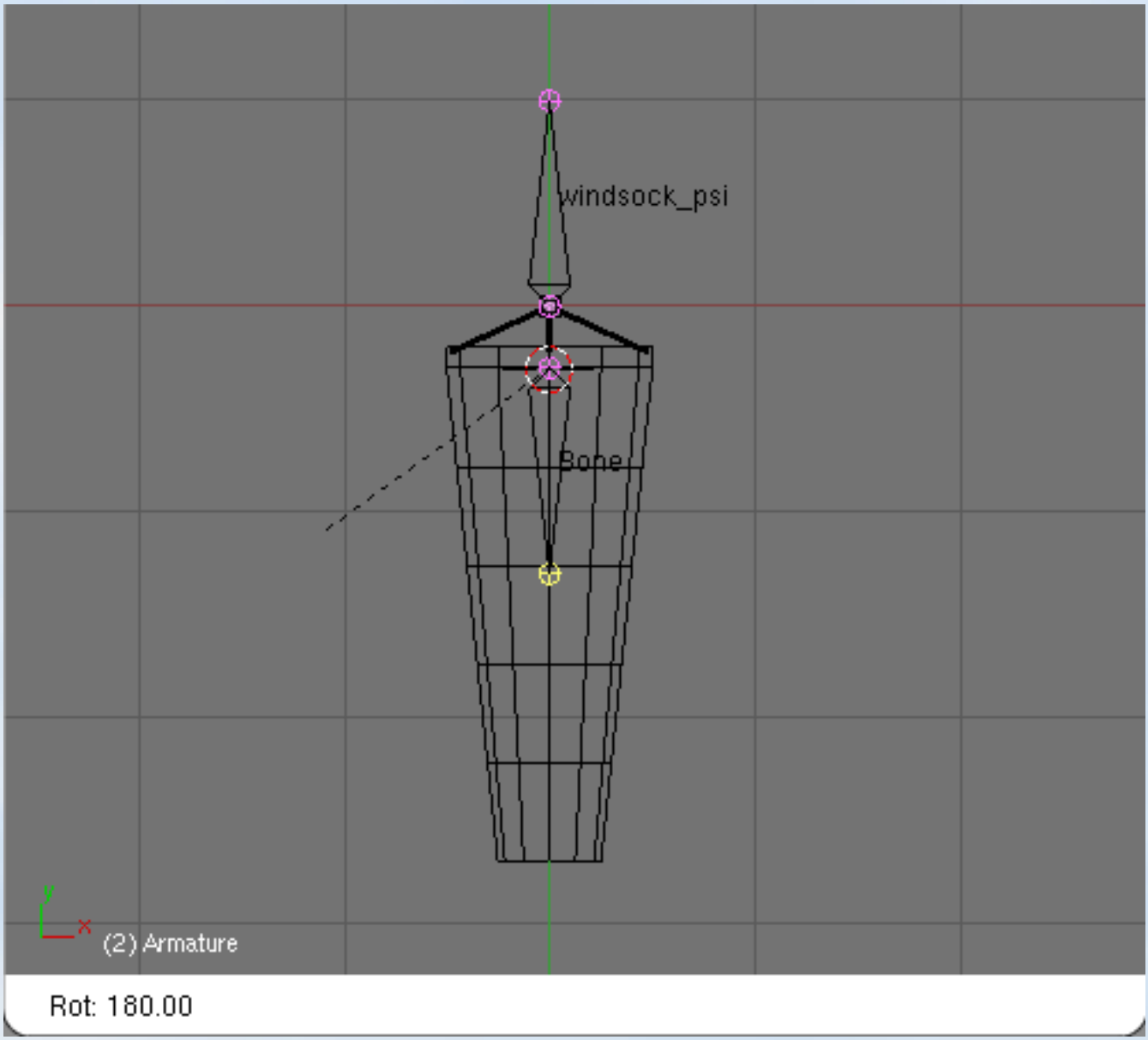
now select the **next ring**, and **snap the cursor at is center**, **SHIFT+S**



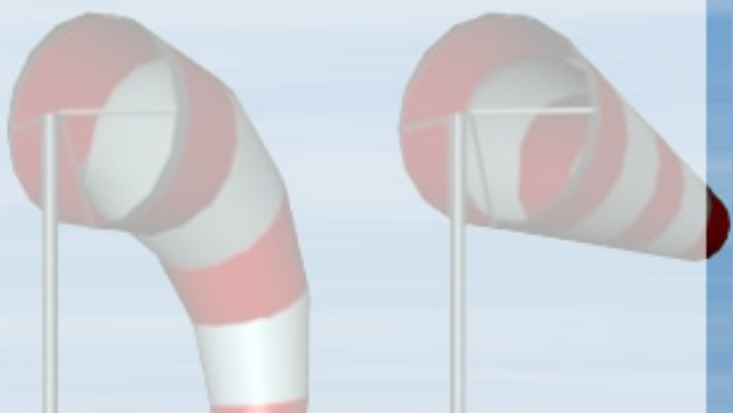


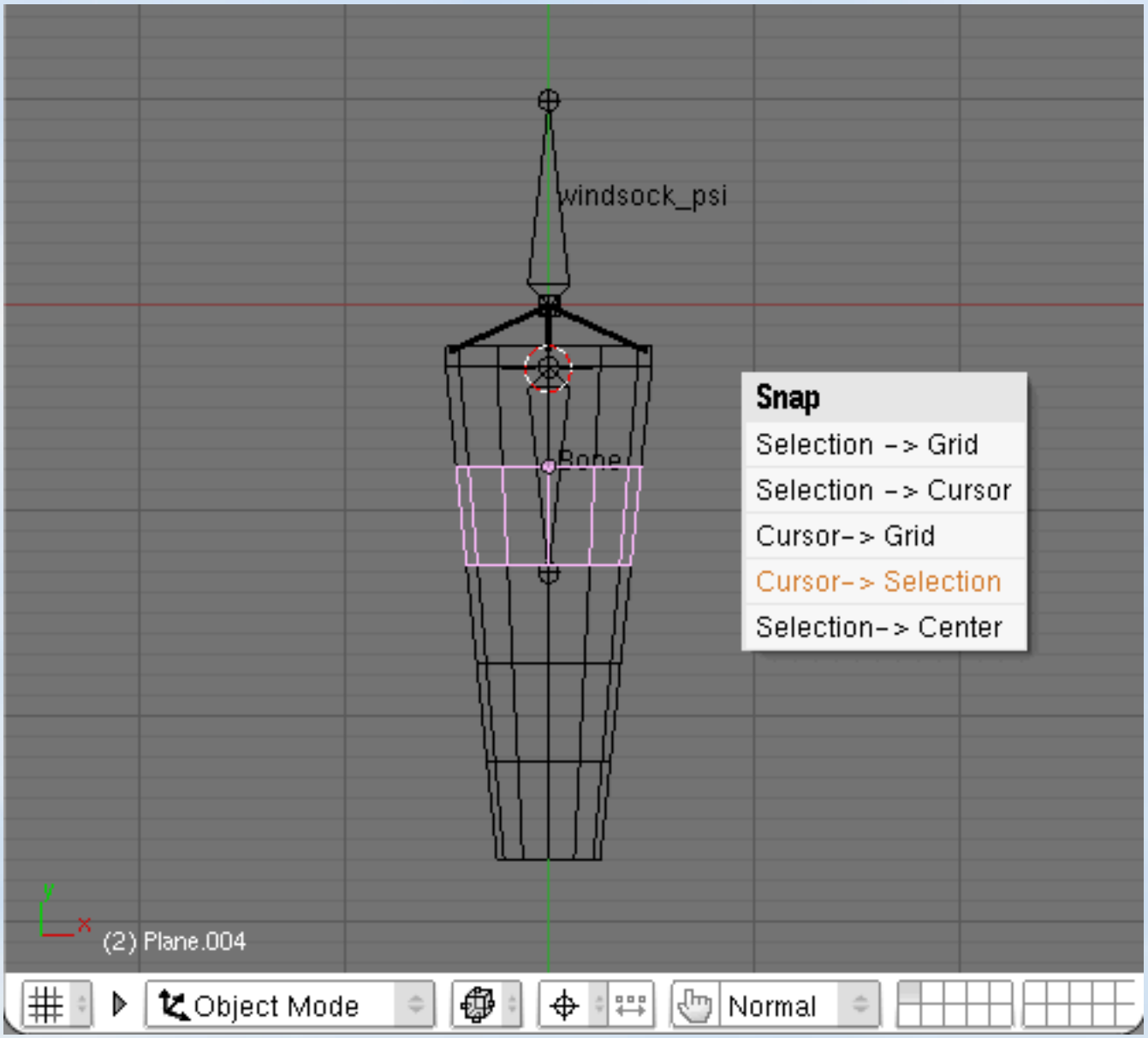
click on the **armature**, and in **edit mode add a new BONE**



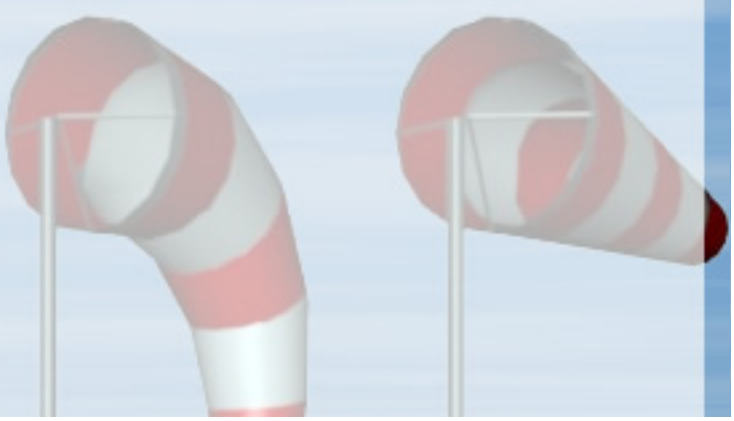


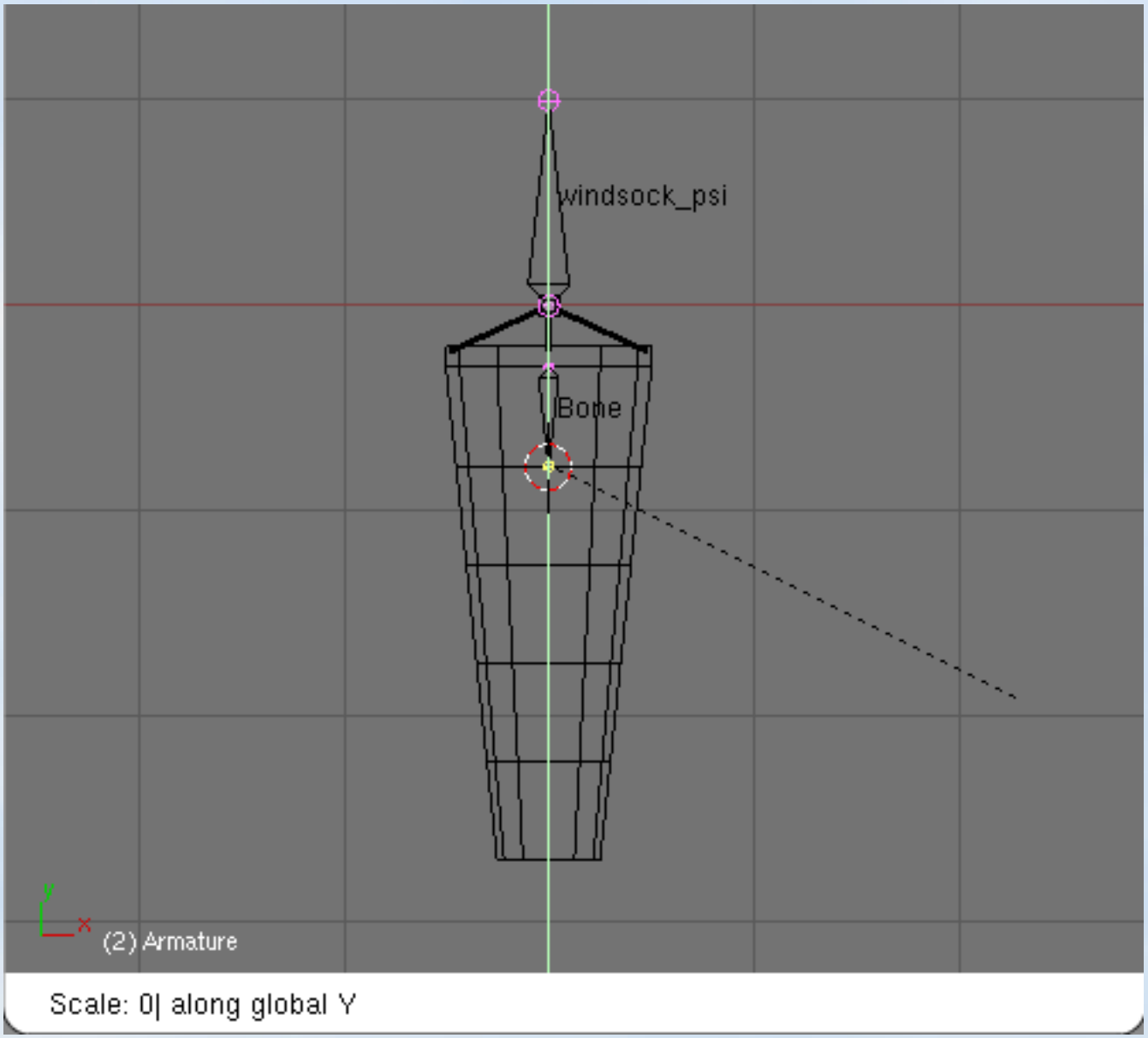
rotate it 180 degre for the tip go to the windsock end, **tape R +180 +ENTER**



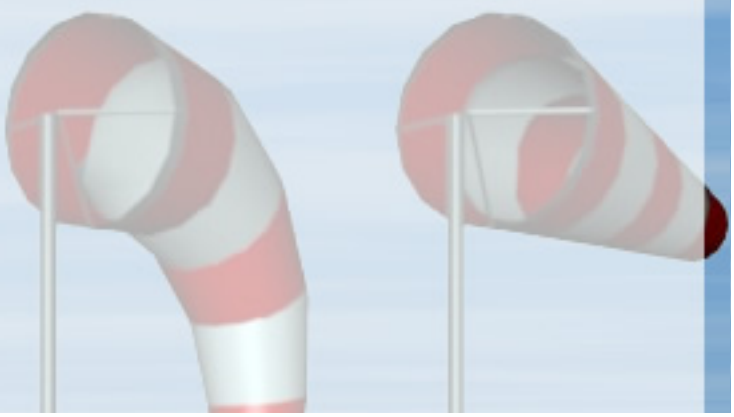


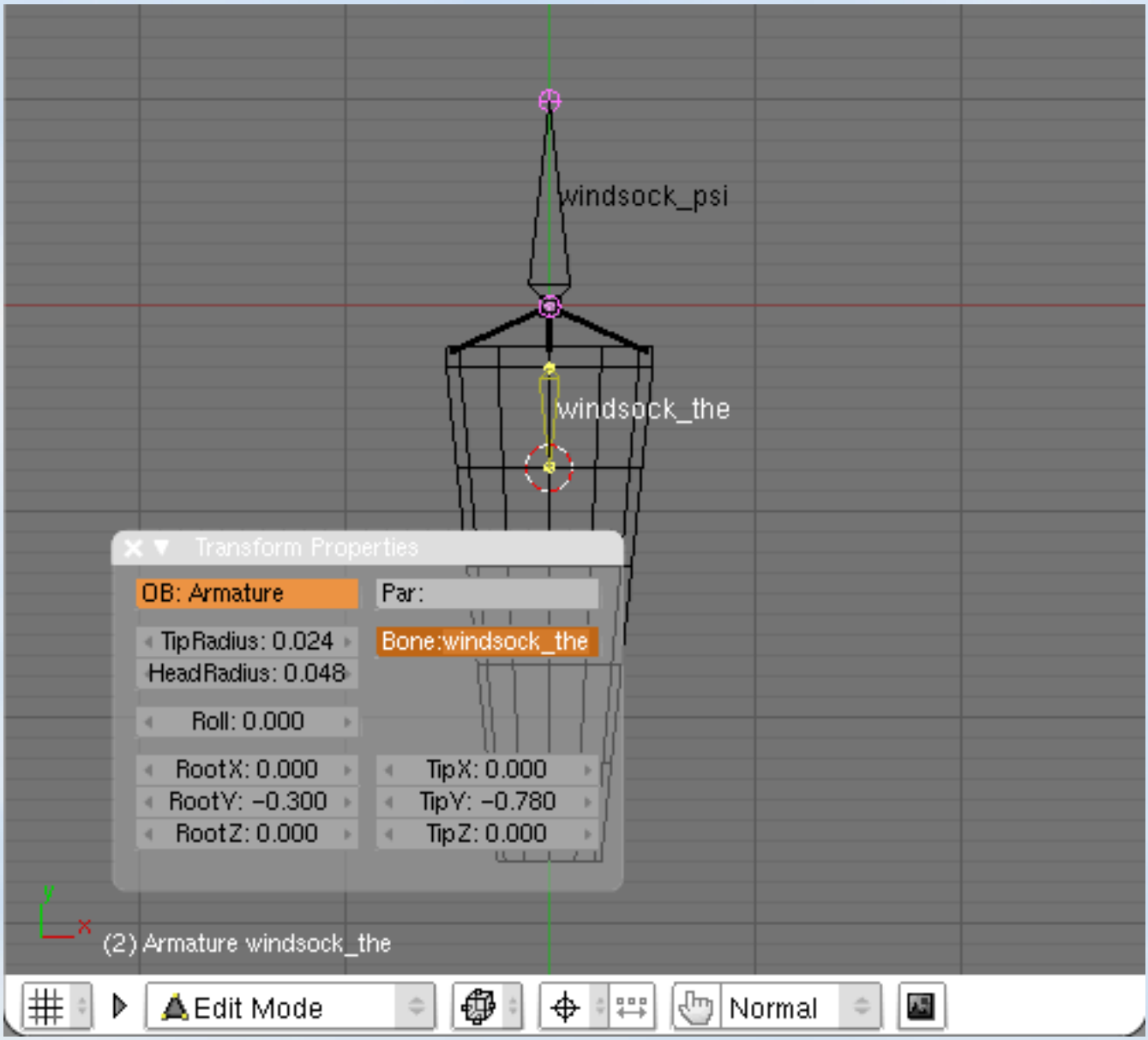
click on the **next ring** and **snap the cursor at is origine, SHIFT+S**



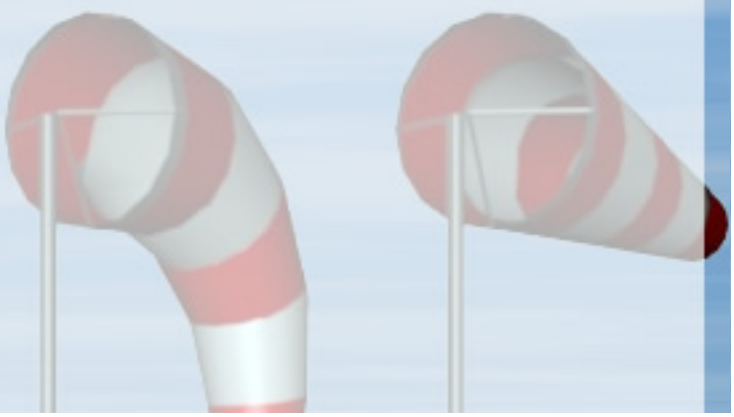


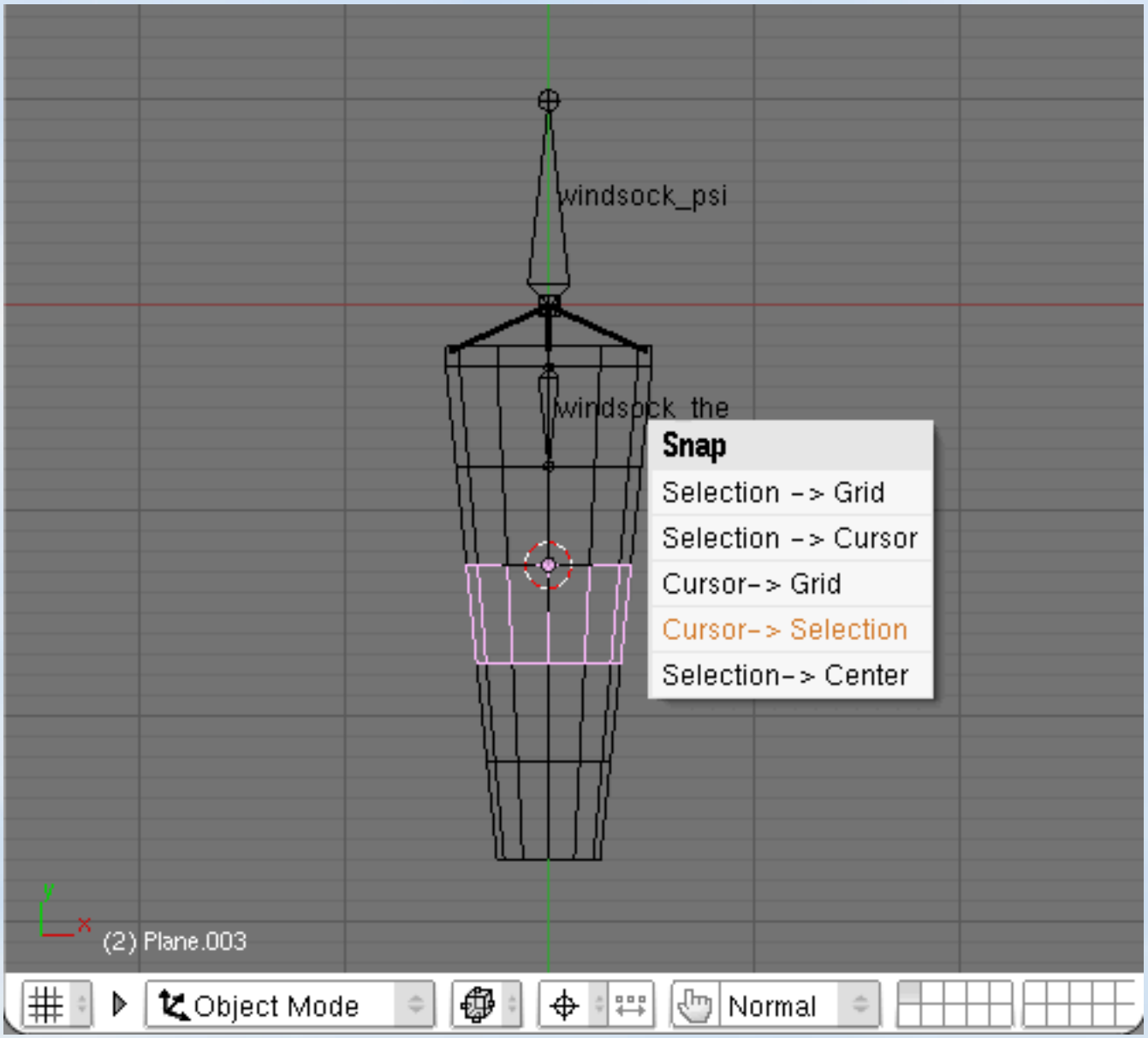
select only the **bone tip**, that the little one, it must be **yellow**, and scale it to the cursor location, tape **S** to scale **Y** for the axis, **0** on the keypad, and tape **ENTER**



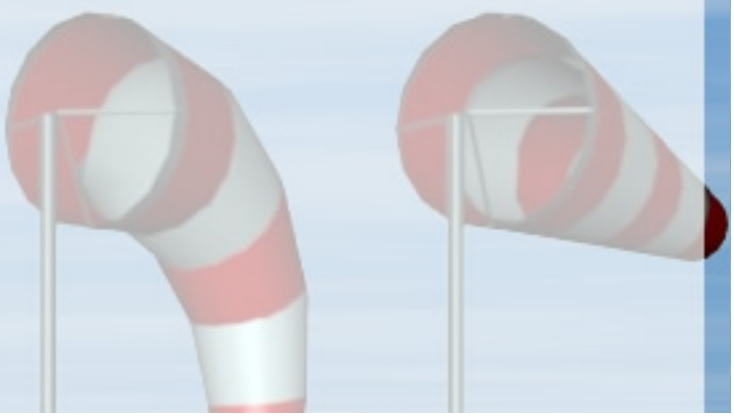


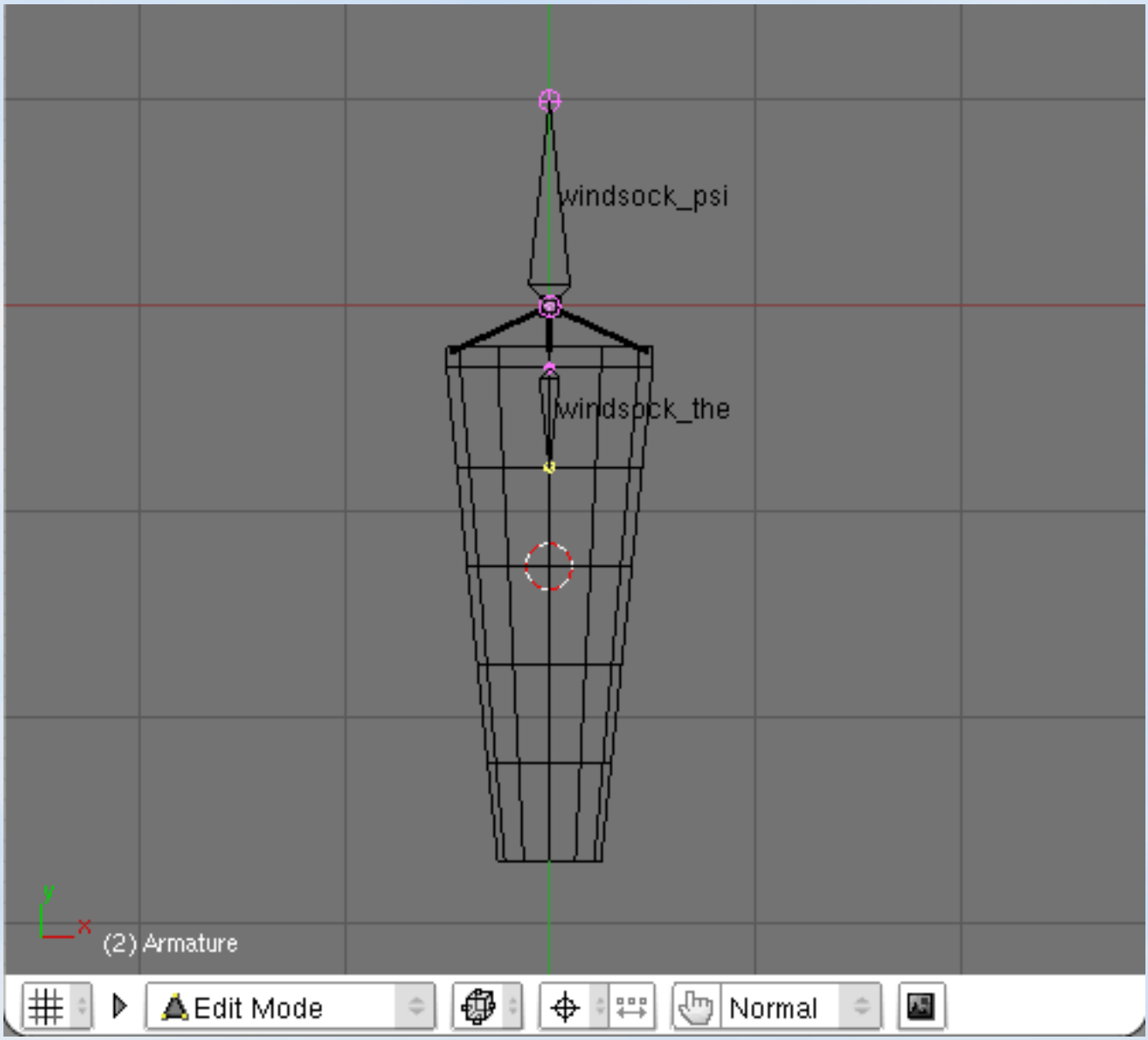
give it is Dataref name **windsock_the**, that can be enter in the panel property tape **N** to bring it



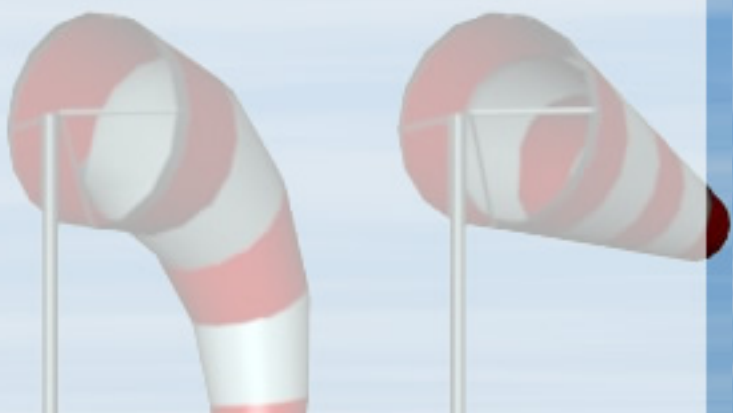


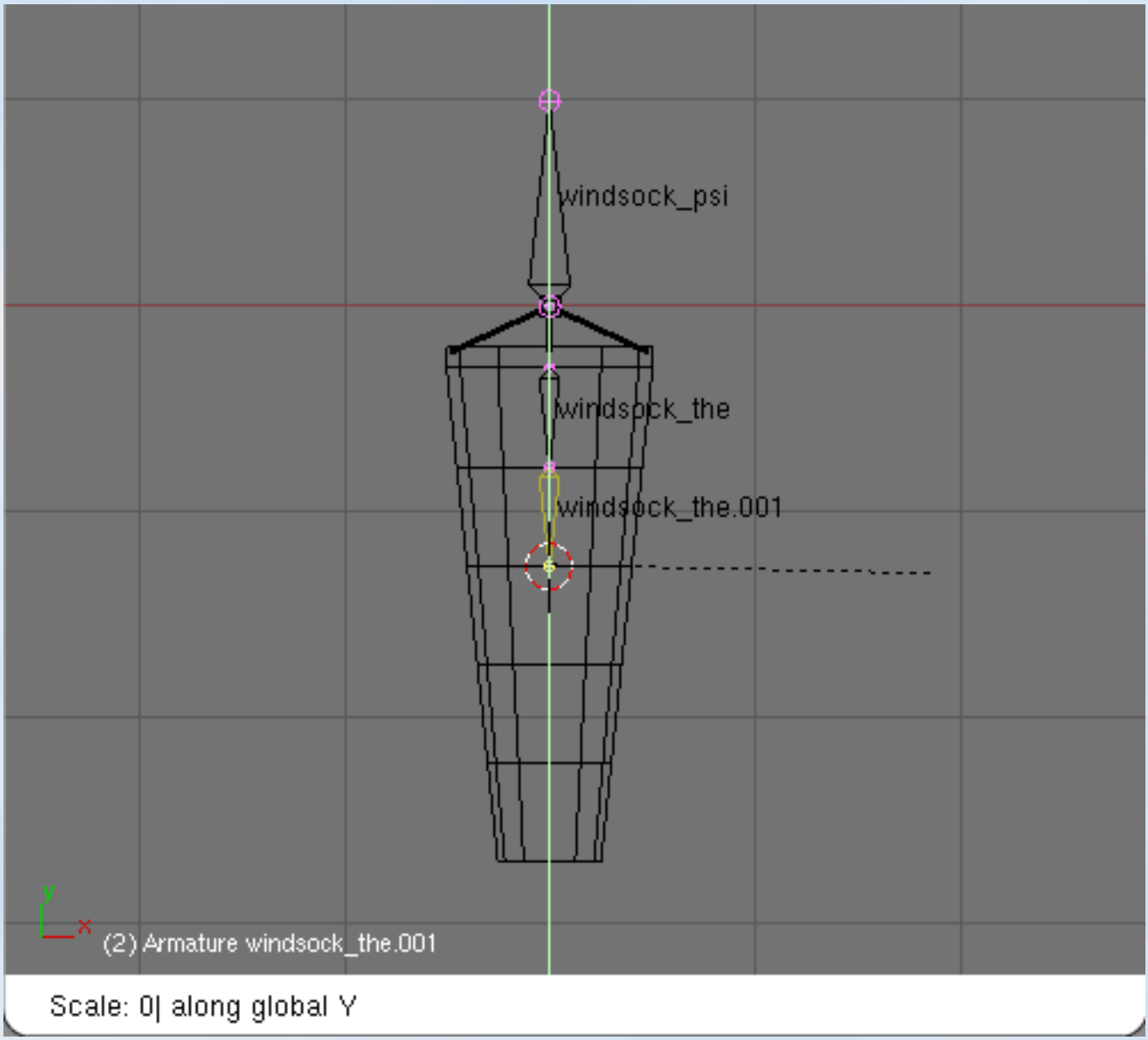
select the **next ring** again, **snap the cursor at is location SHIFT+S**



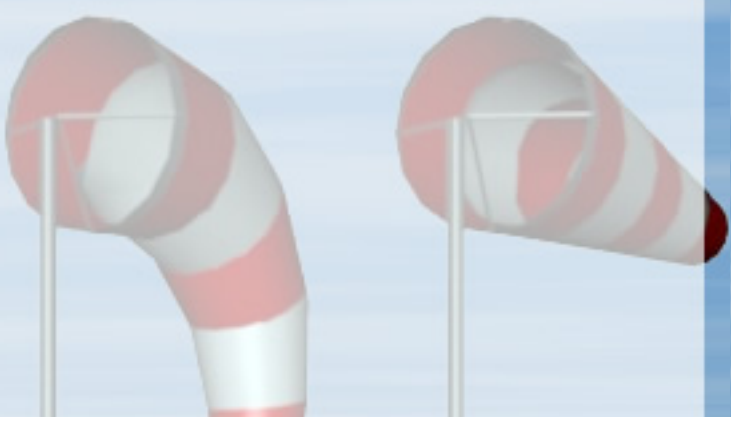


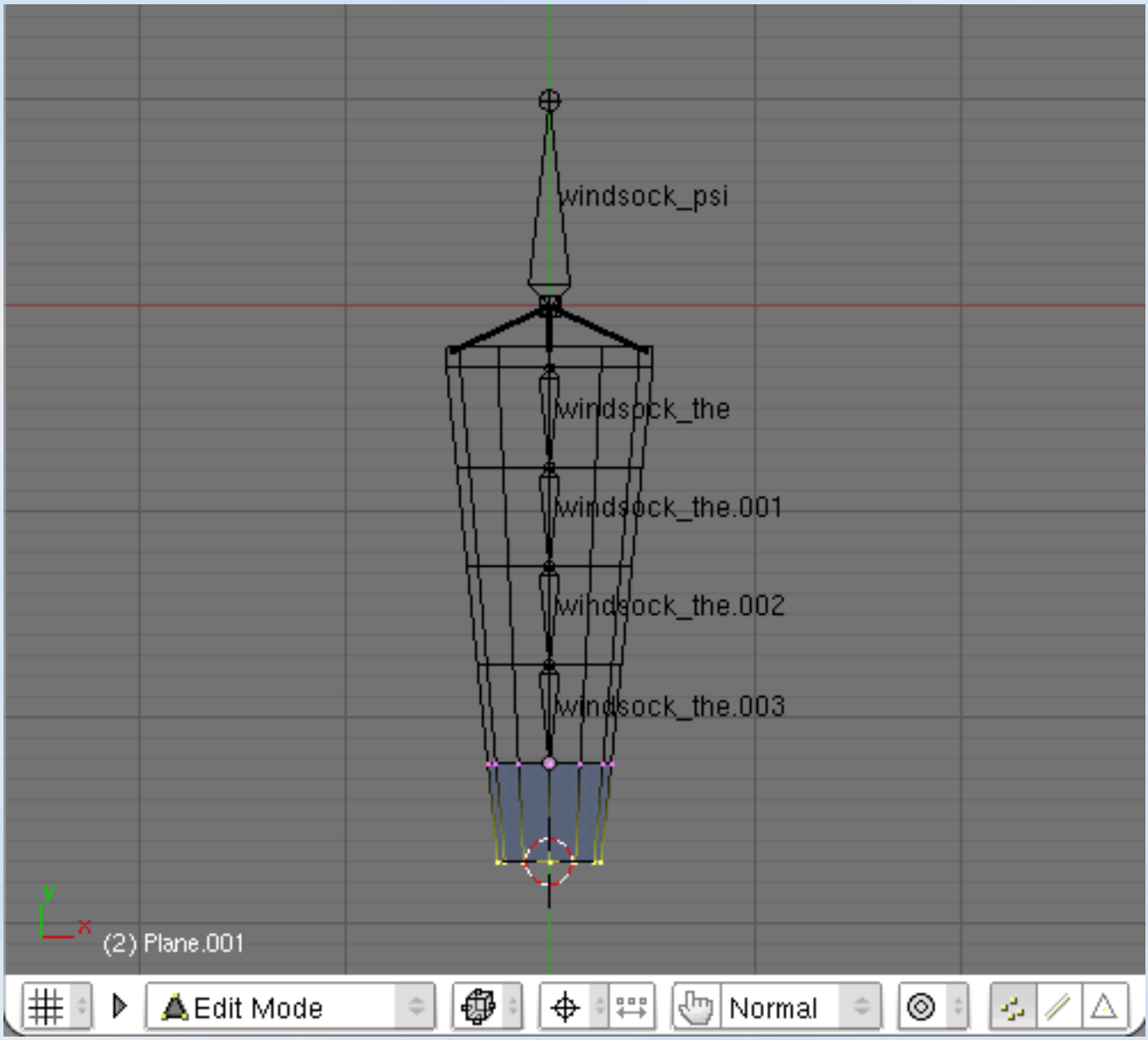
select the **armature**, in **edit mode** select the **tip** off the recently added bone



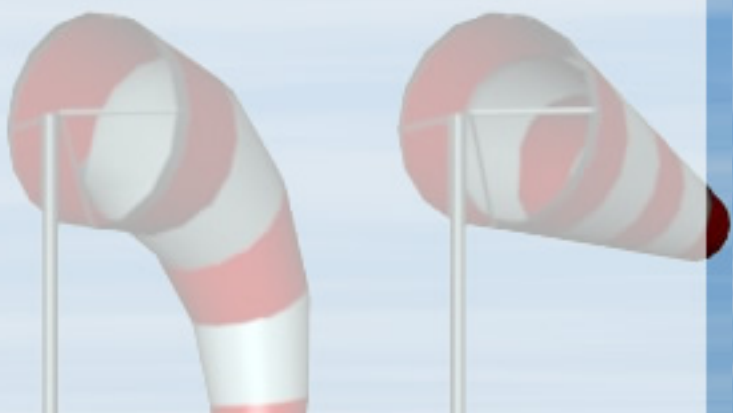


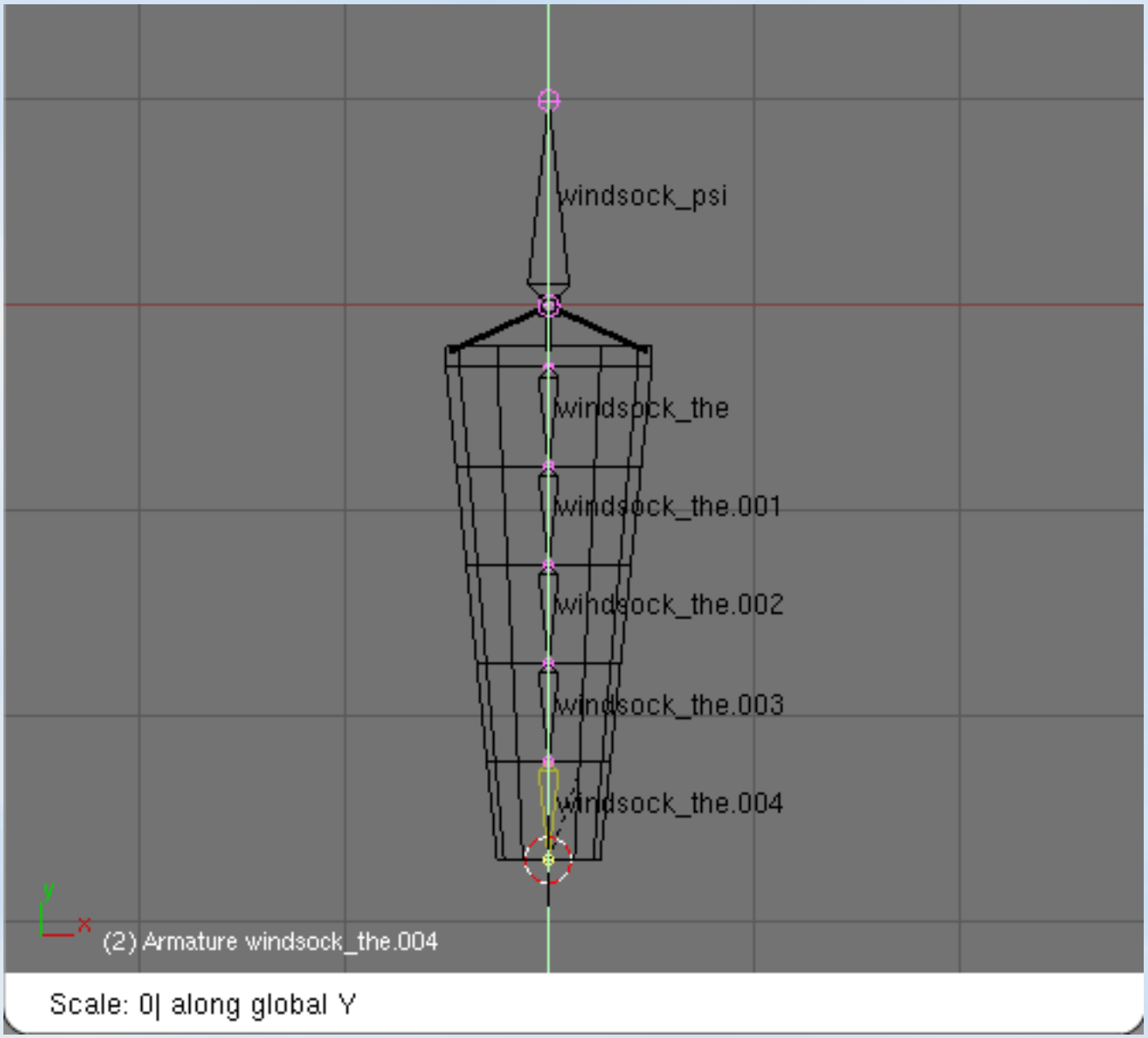
Tape **E** to extrude the bone, **S** to scale it and **Y** for the axis, tape **0** on the keypad, and **ENTER**



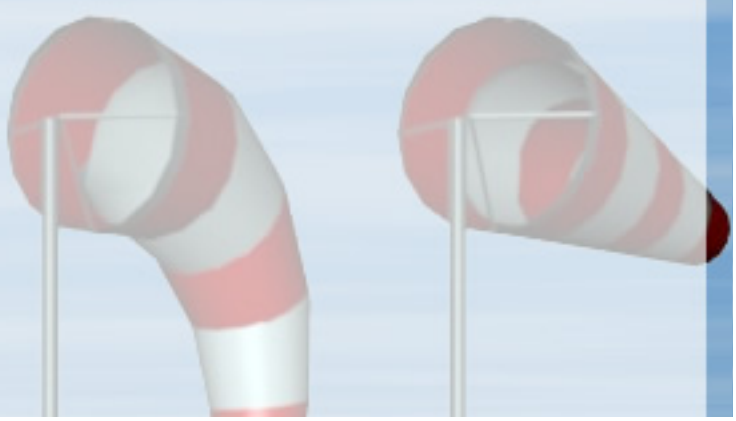


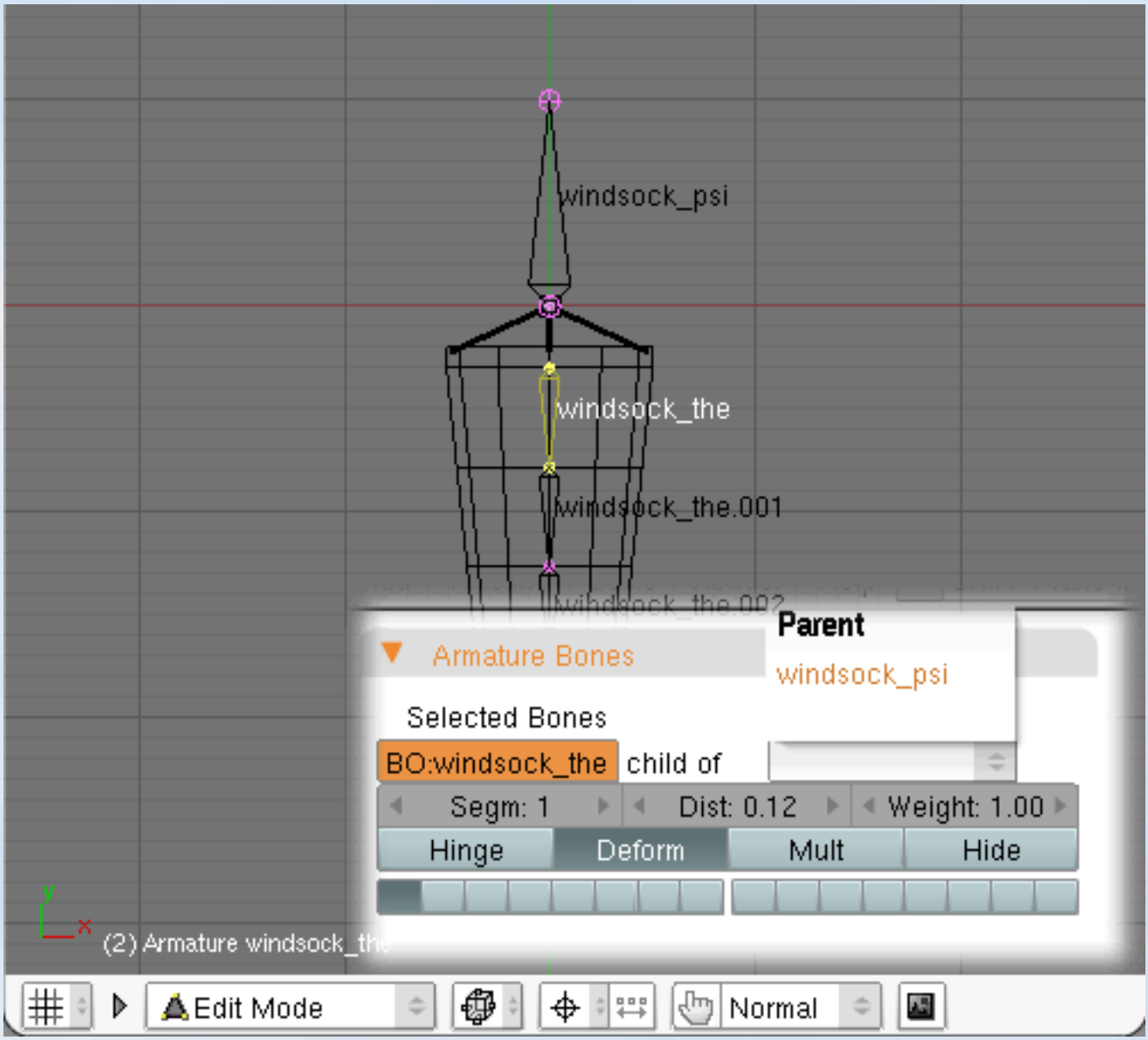
for the **last ring** go in **edit mode**, and select the **end circle vertices to snap the cursor at the position, SHIFT + S**



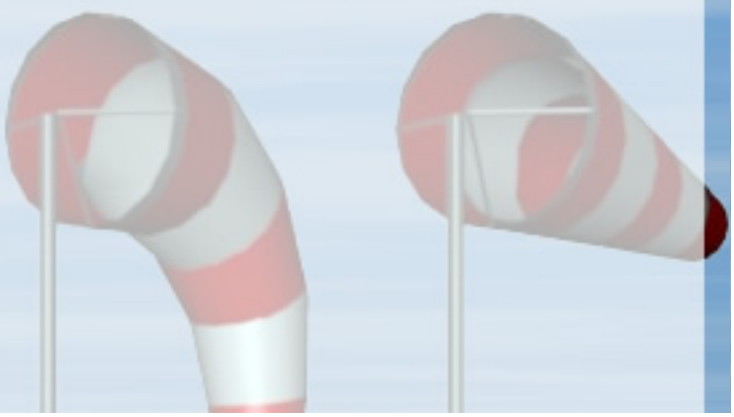


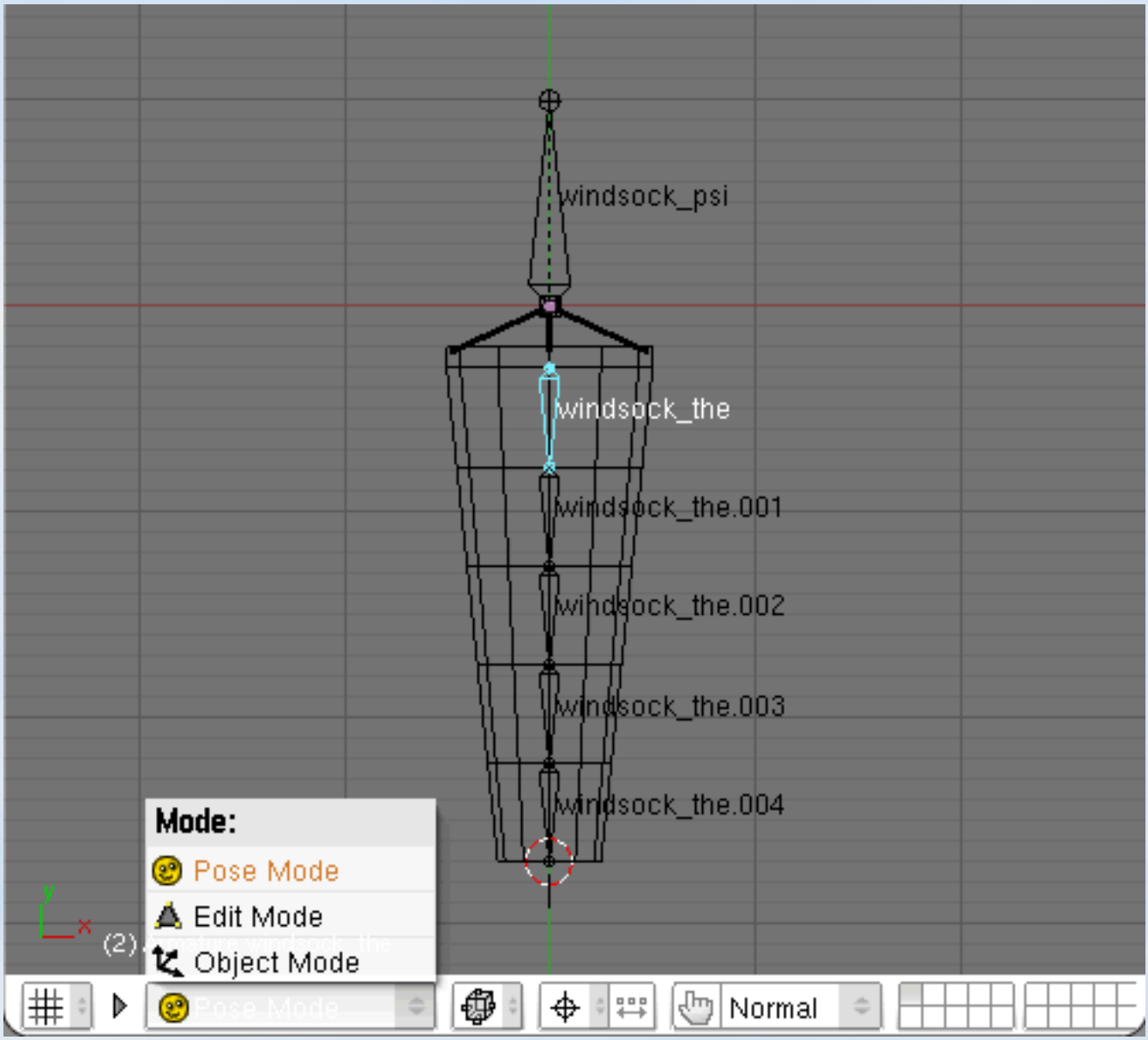
Extrude **E + S + Y + 0 + Enter**



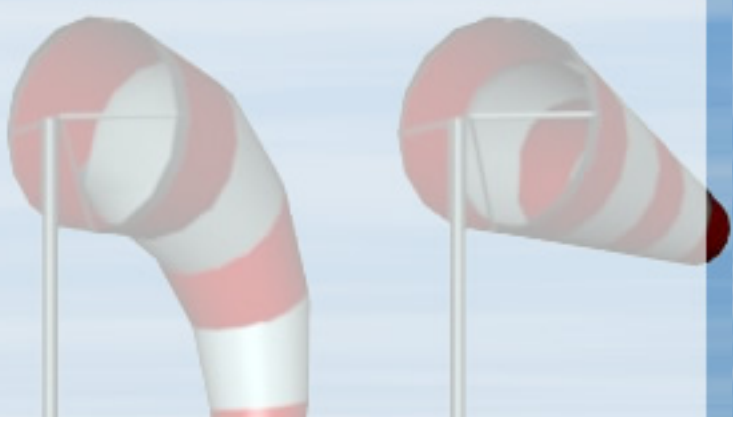


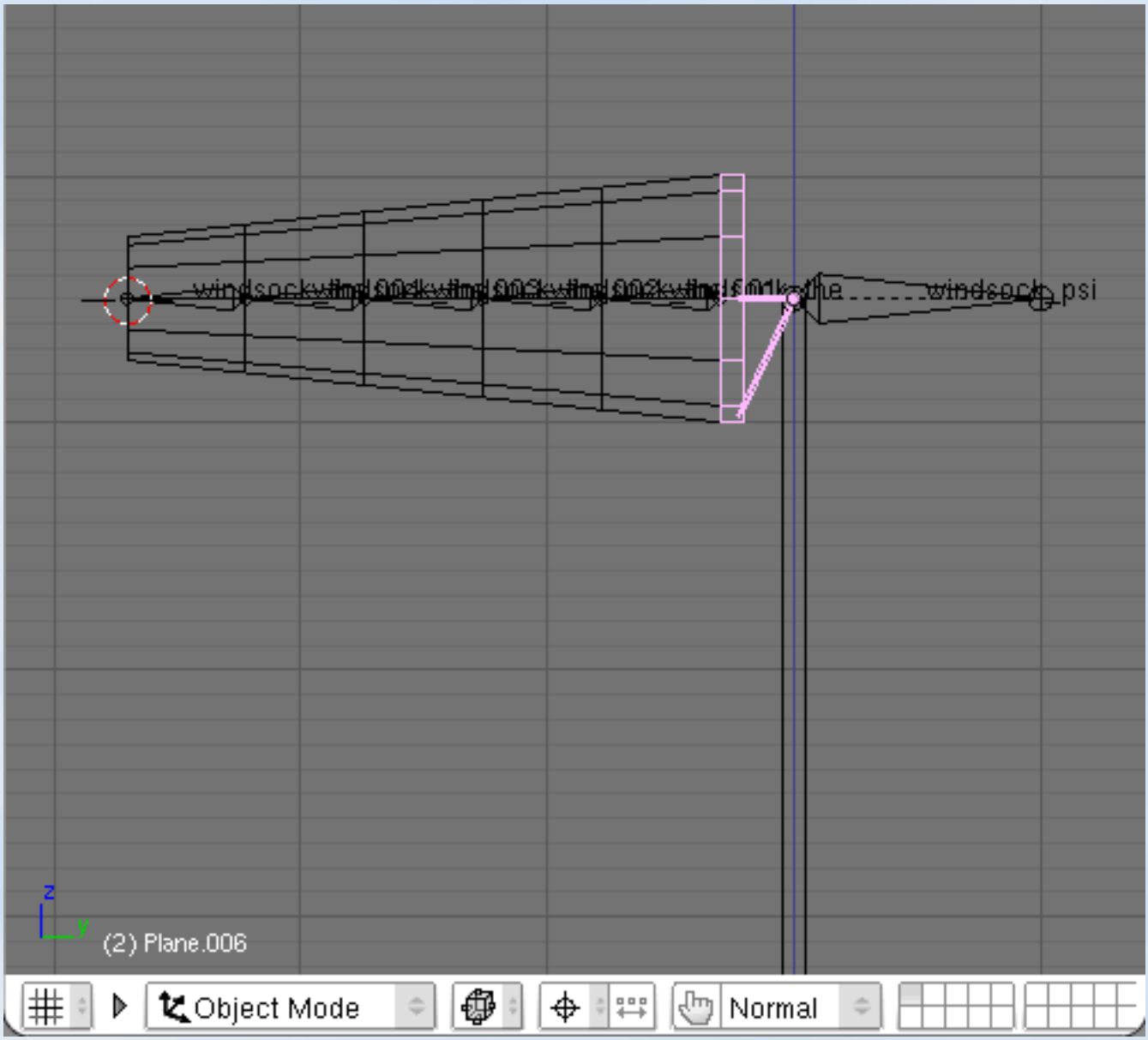
now we need to link the bone that show the **wind speed** to the one that show the **wind direction**, so we need to make the wind chain the **children** off the wind direction one, use the pop menu in **EDIT** mode only to make them child/parent, you don't have to do that for the other because you have **extrude** them so they already linked



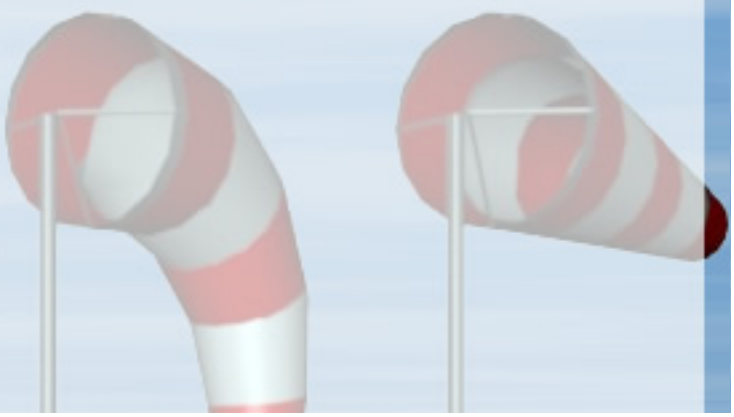


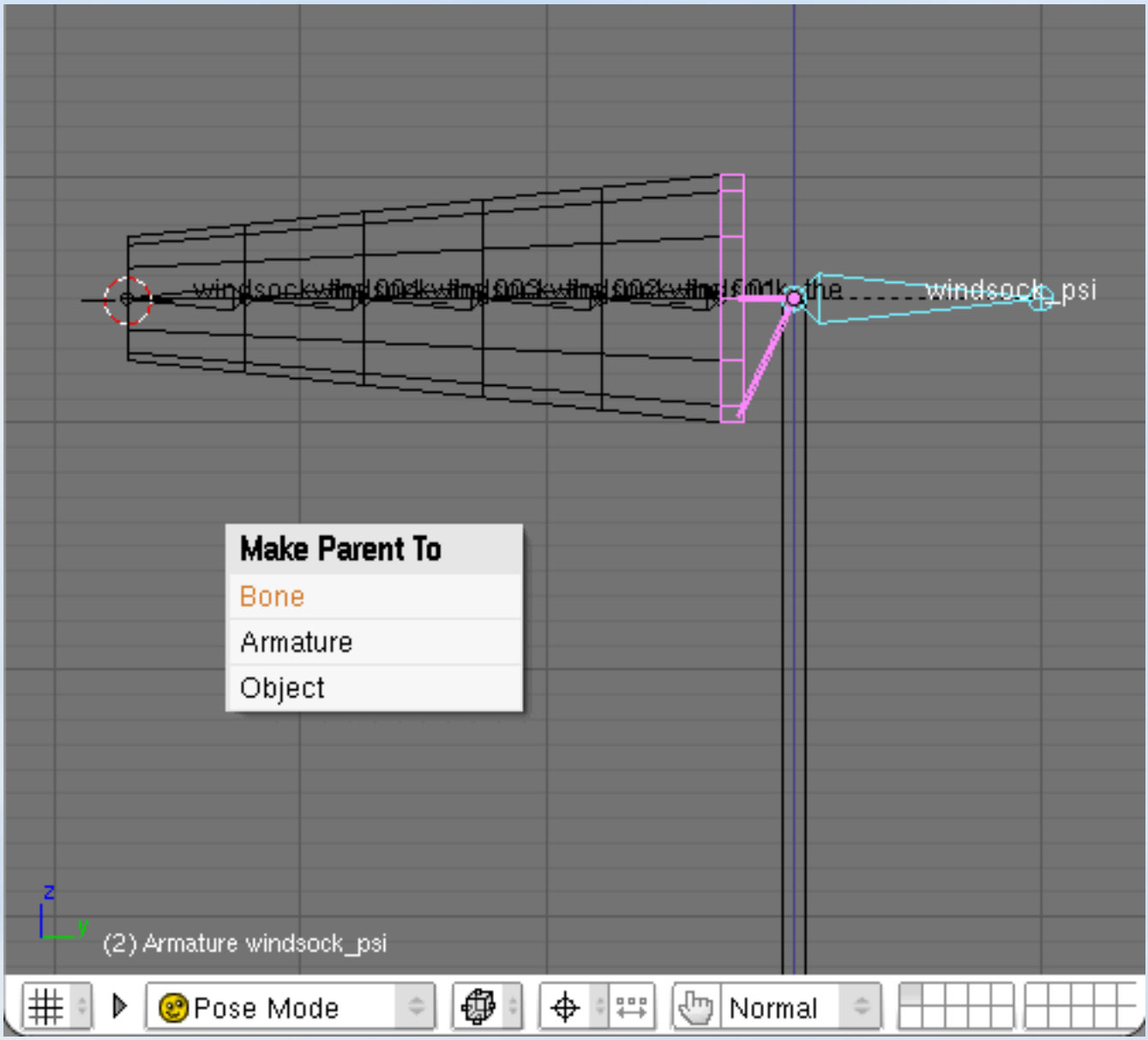
now click on a **bone** and go in **POSE MODE**



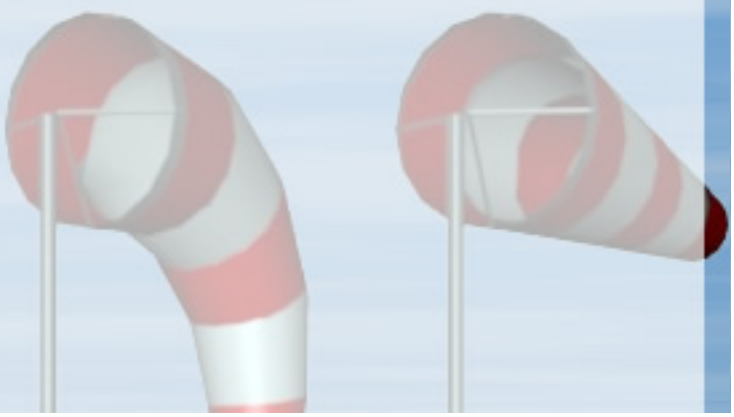


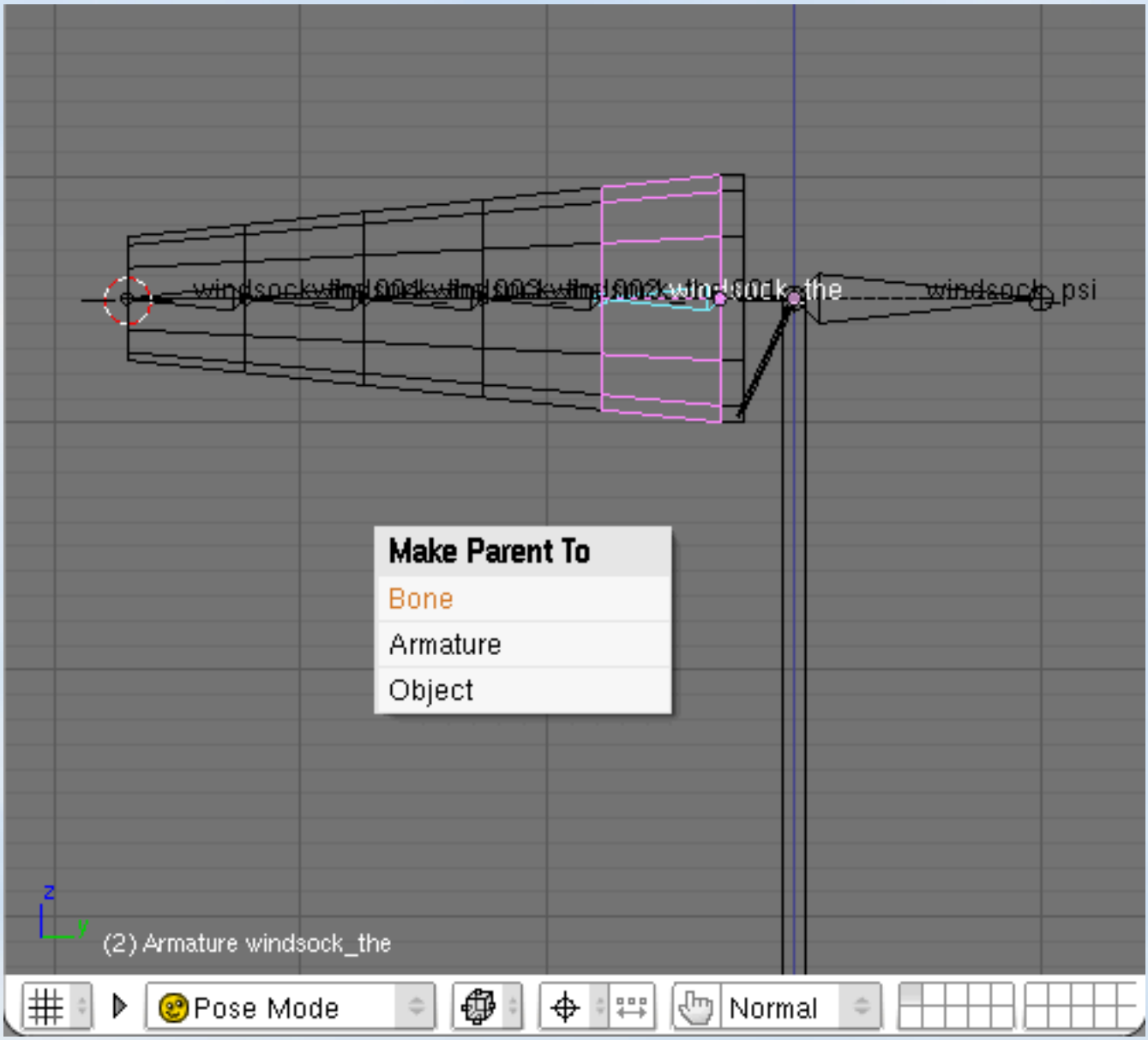
go in **side view**, tape **3** on the keypad, and click on the **rigid ring**



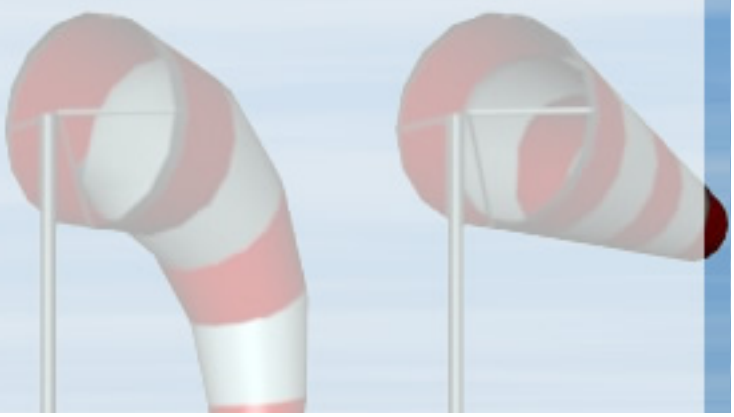


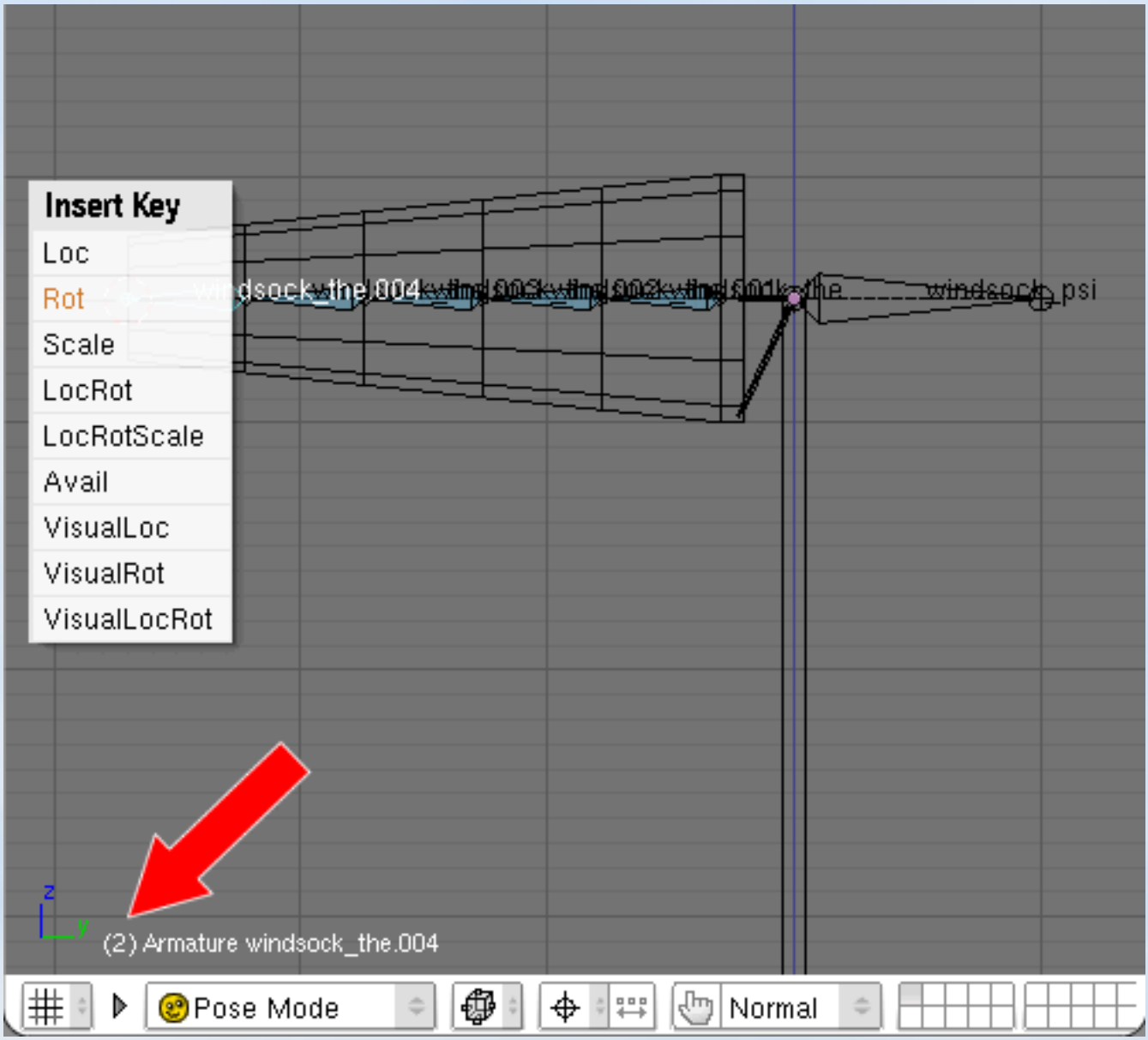
parent it to the bone, so **click on the mesh first** maintain **SHIFT**, and **click on the BONE** you want to give it the mesh, and tape **CTRL + P** to bring the parent panel, choose **BONE**



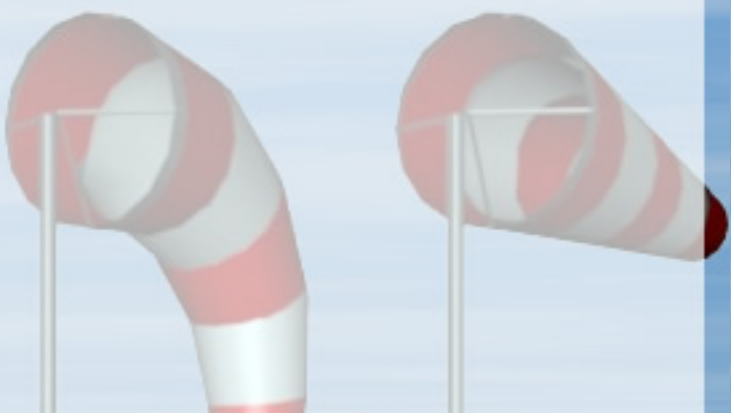


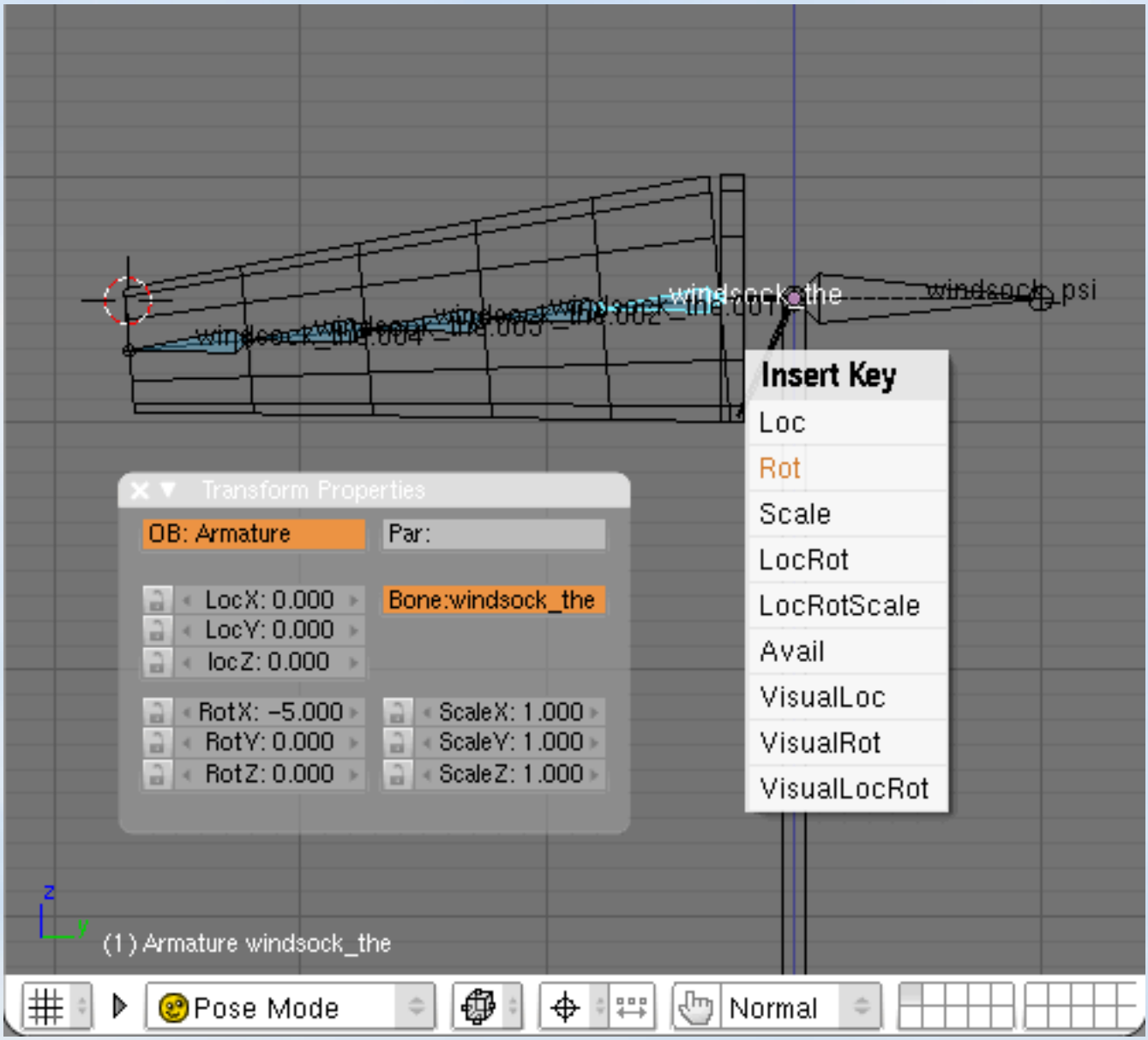
Do that for each mesh and bone that share origine



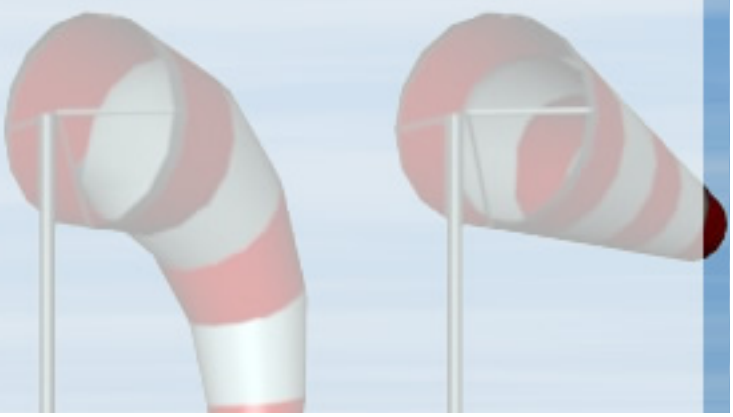


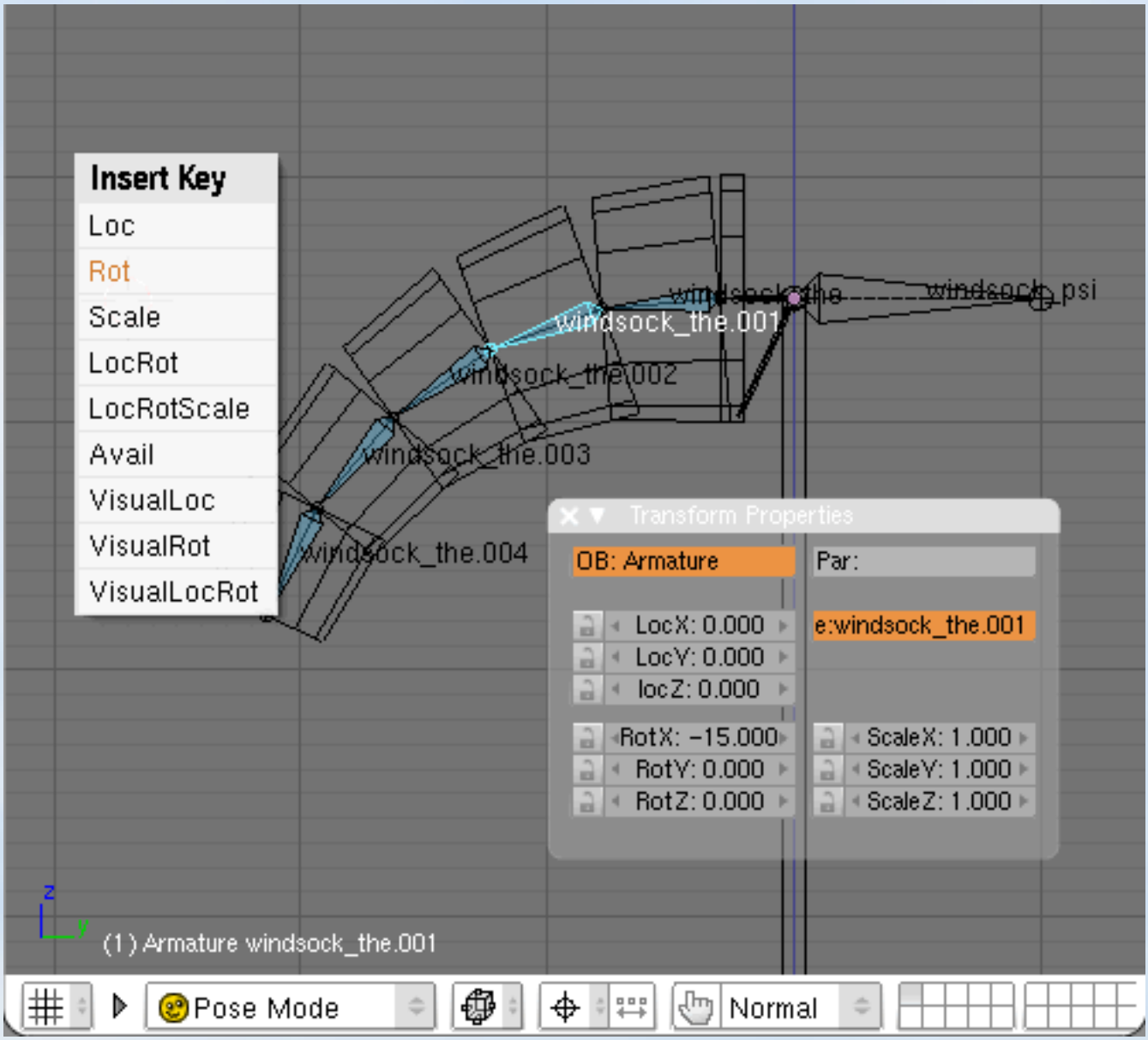
now all the mesh is parented, go on the **second frame**, use your **keyboard arrow** to navigate
select all the **windsock_the** one by one, and give them a **Rotation Ikeys**, tape **I** when the bone is selected and choose **Rot** each time



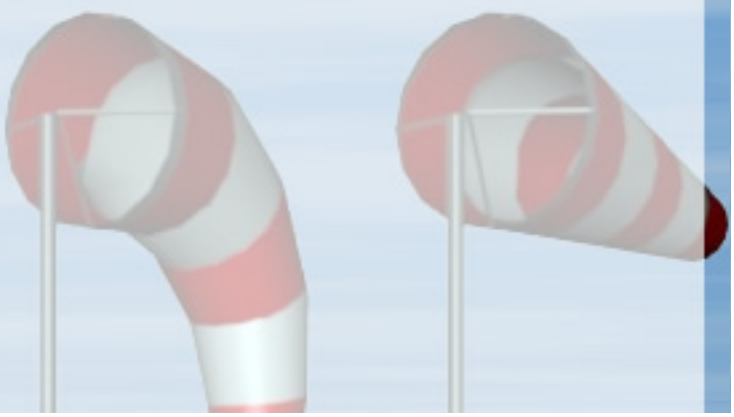


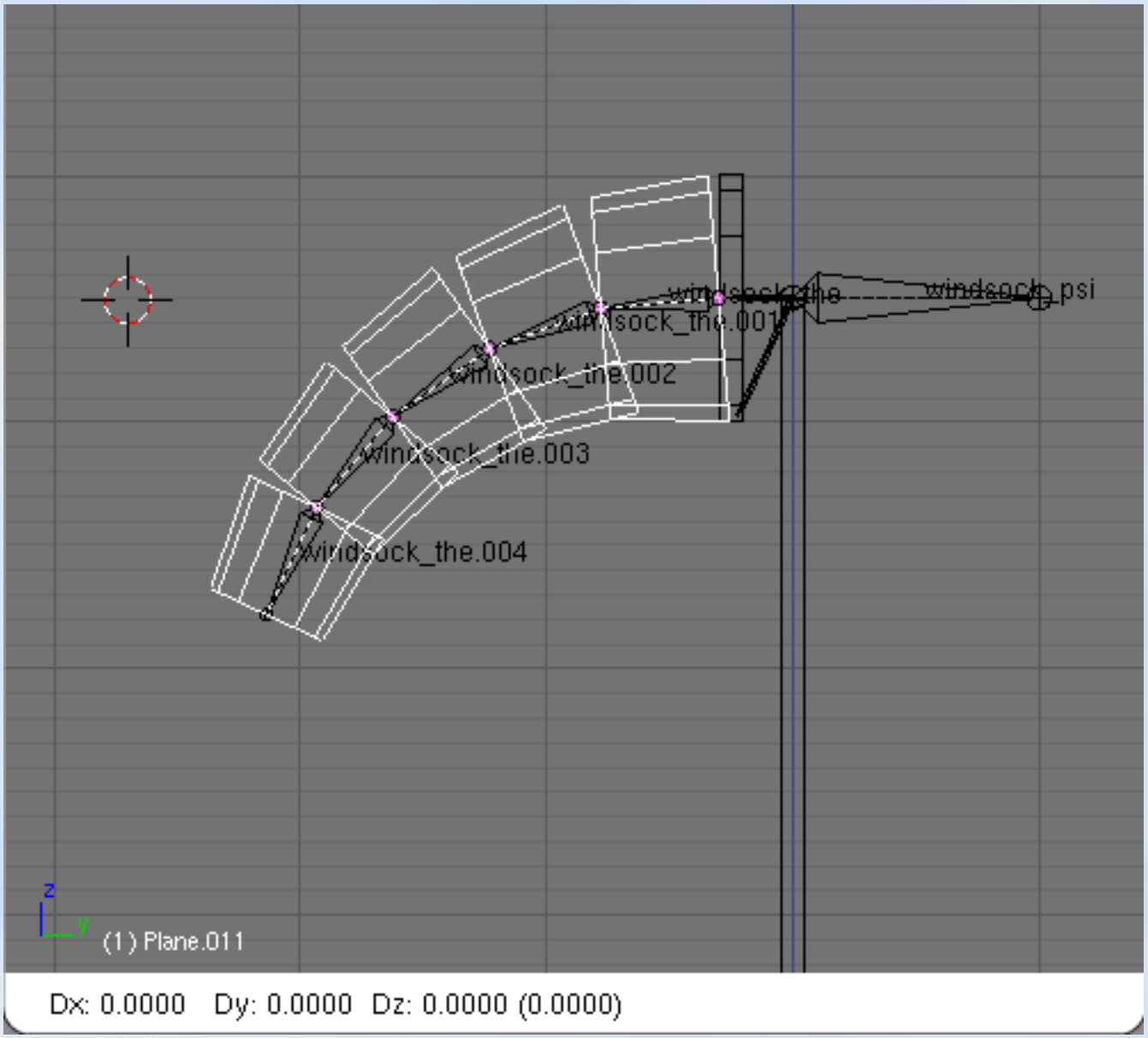
Now go on the **first frame**, and now will showing the 0 wind position to the bone
Bring the **property panel N**, click on a **windsock_the** to change it **RotX** to a new valor, and tape **I** to enter a new *Ikeys*, don't give it more than 5 degres



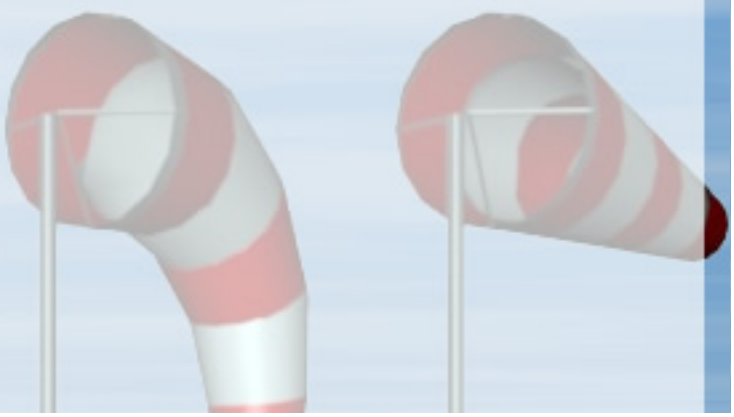


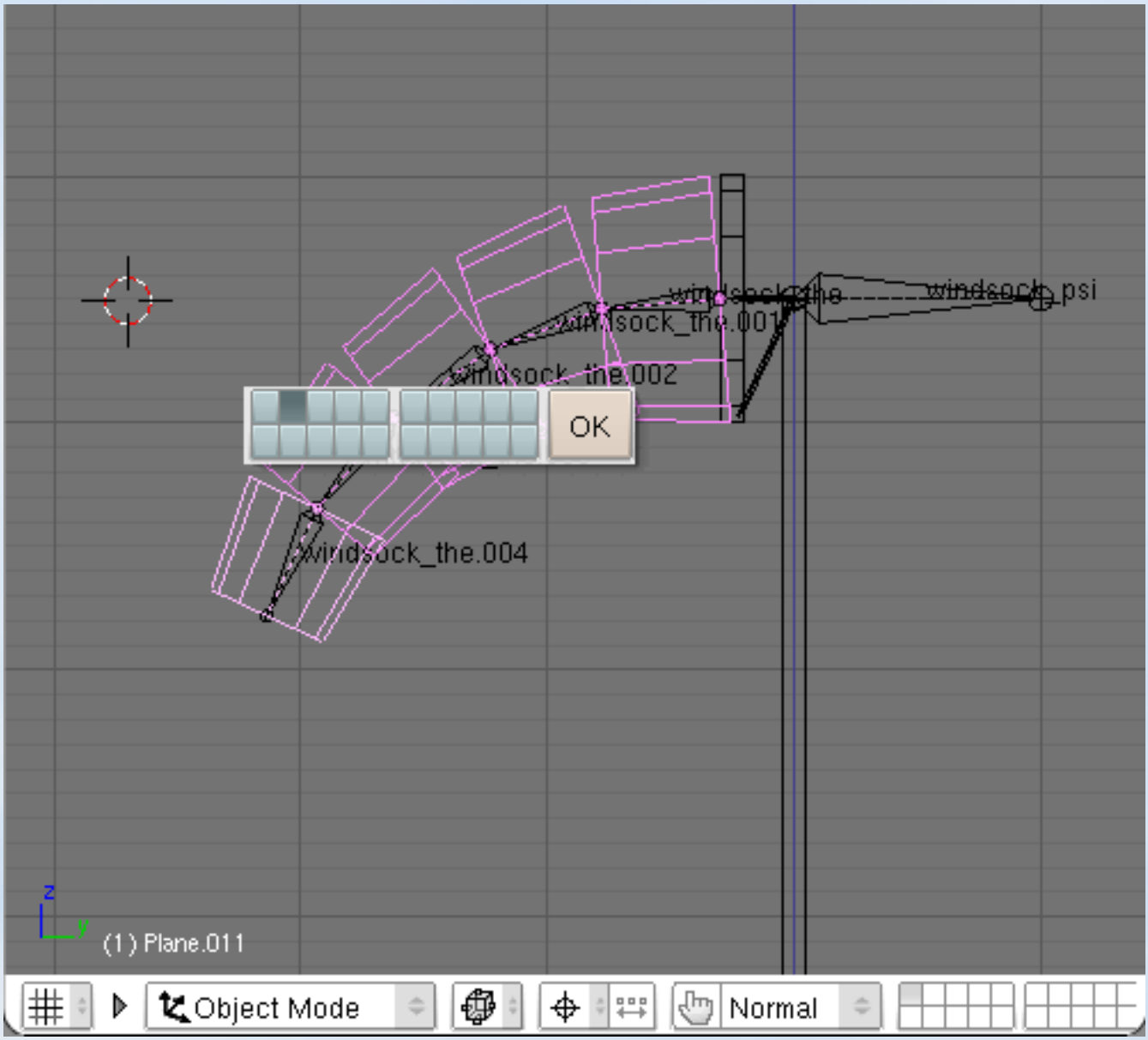
do the same for each bone for the wind speed, but you can give them more than 5 degres, they don't have to share the same valor that can be up to you, now in fact we need to do something for the ring space.



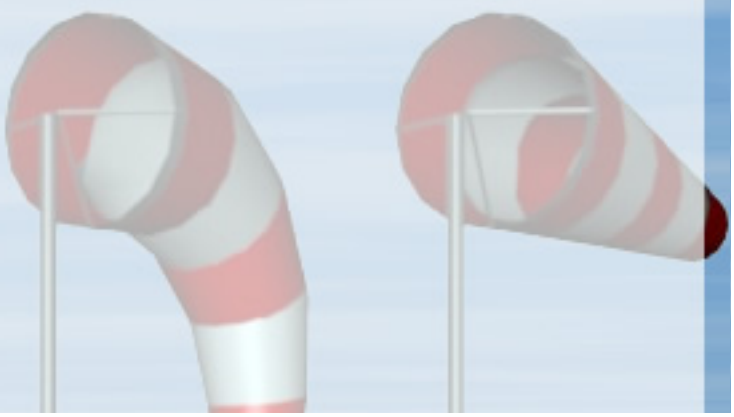


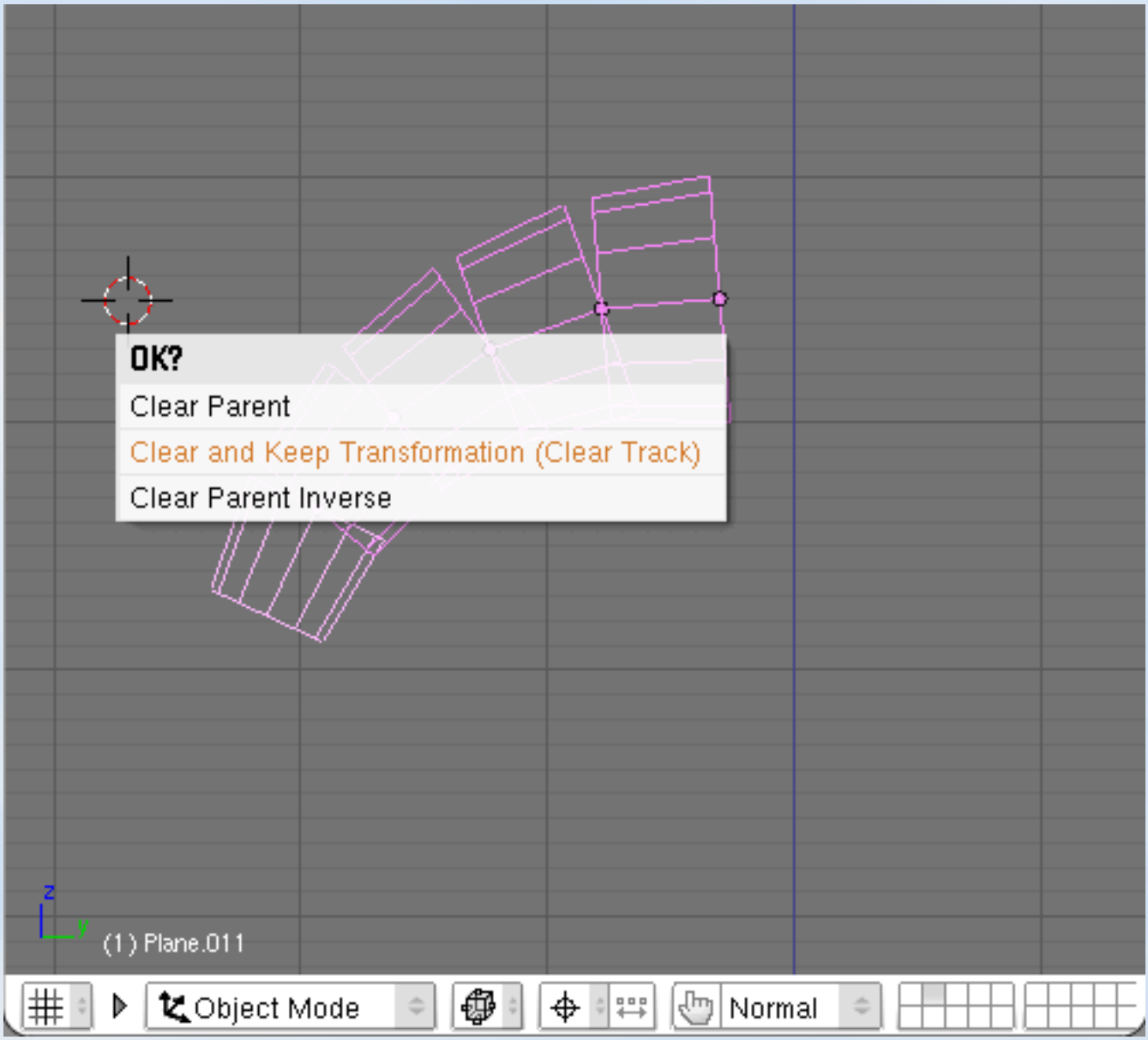
so **duplicate** them all in the **no wind position**, **SHIFT + D, ENTER**



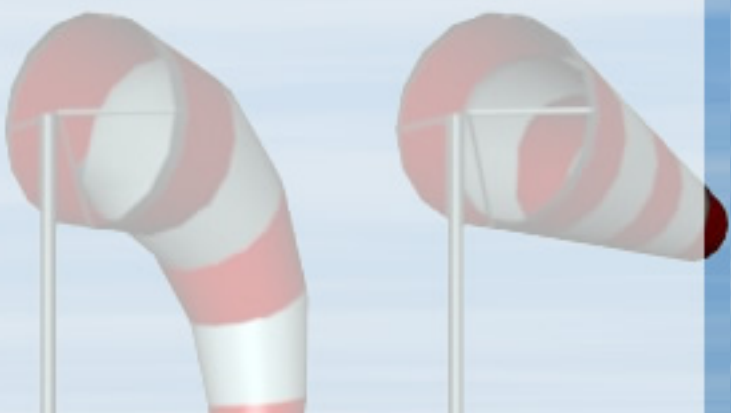


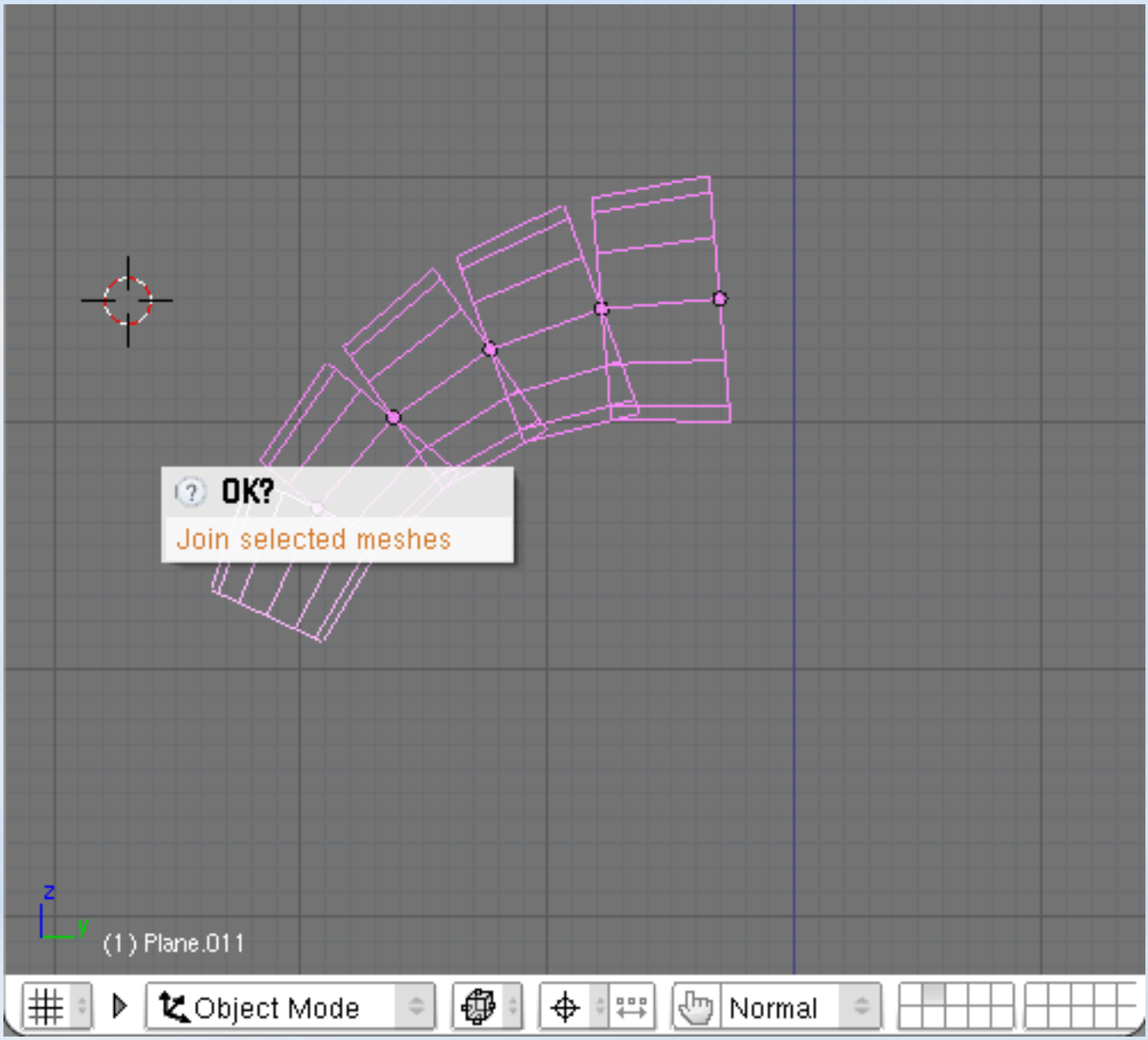
move them on a empty layer, to help working, tape **M** to bring the move layer panel, and click on the second layer and OK



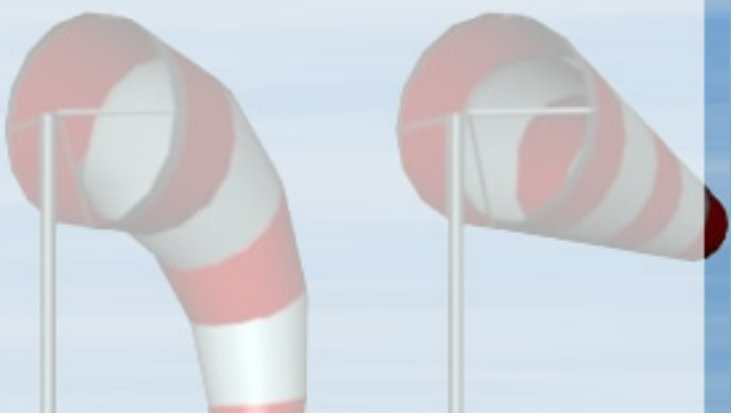


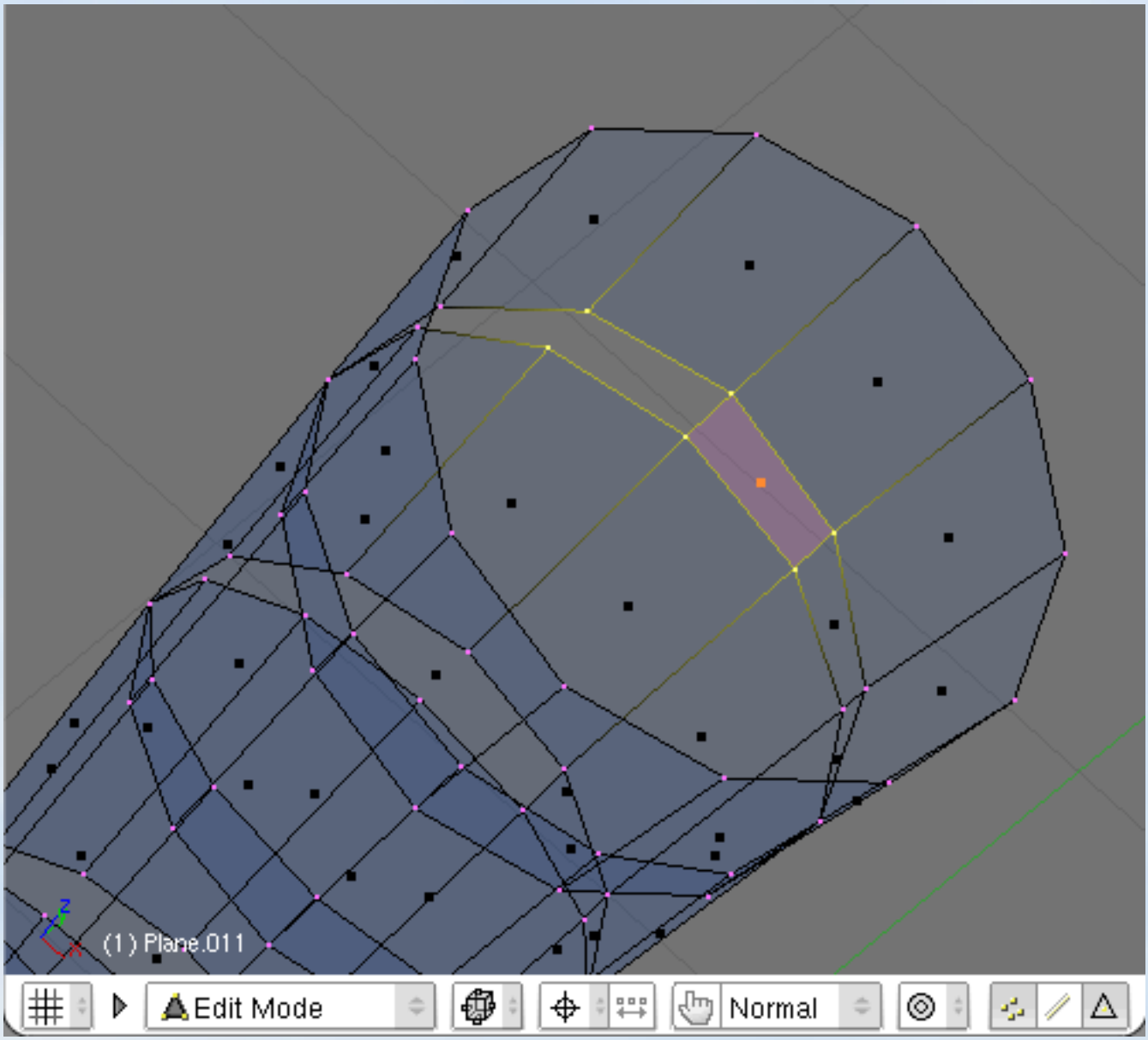
now we need to make them all a object, for that we need to delete the parent relation, but we need to keep the rotation we give them, so tape **ALT+P**, **keep transformation**



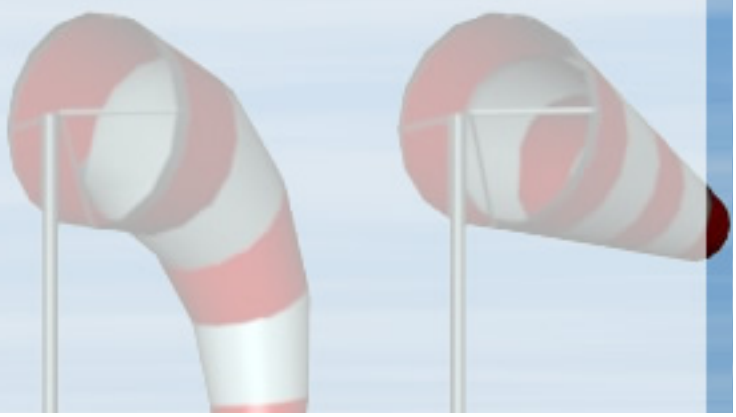


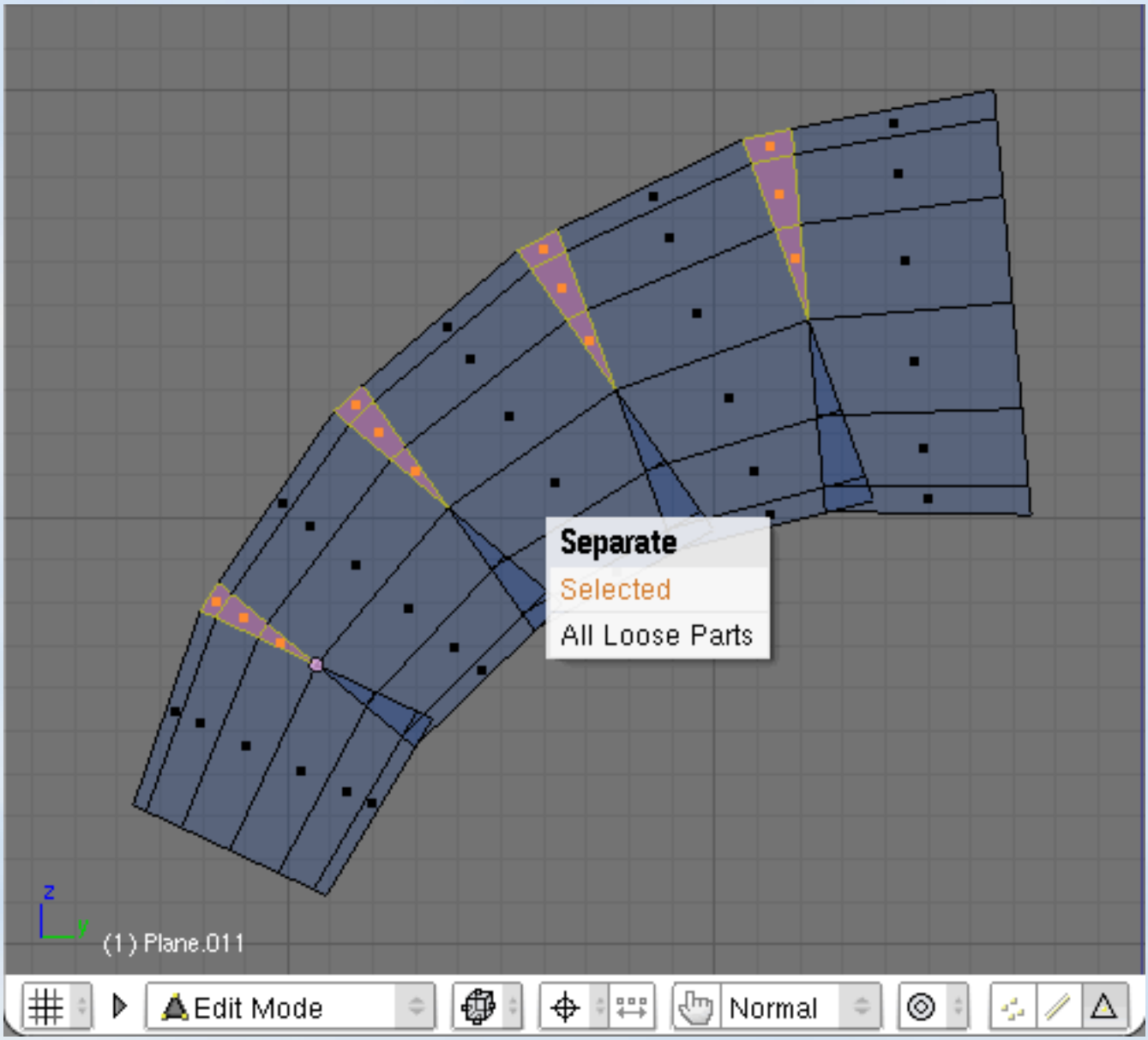
join them all for making a object, **select them all** and tape **CTRL + J**



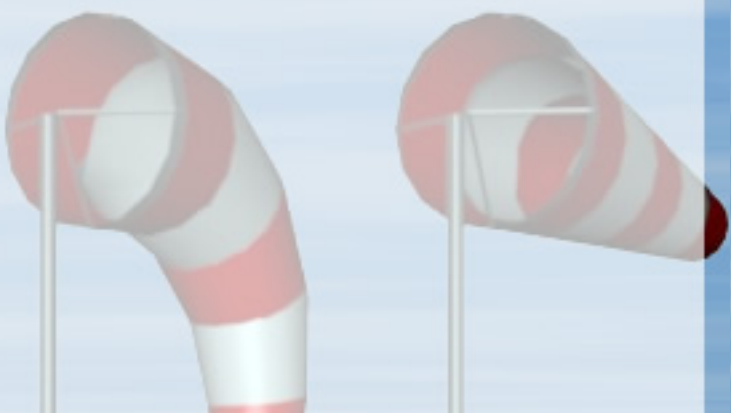


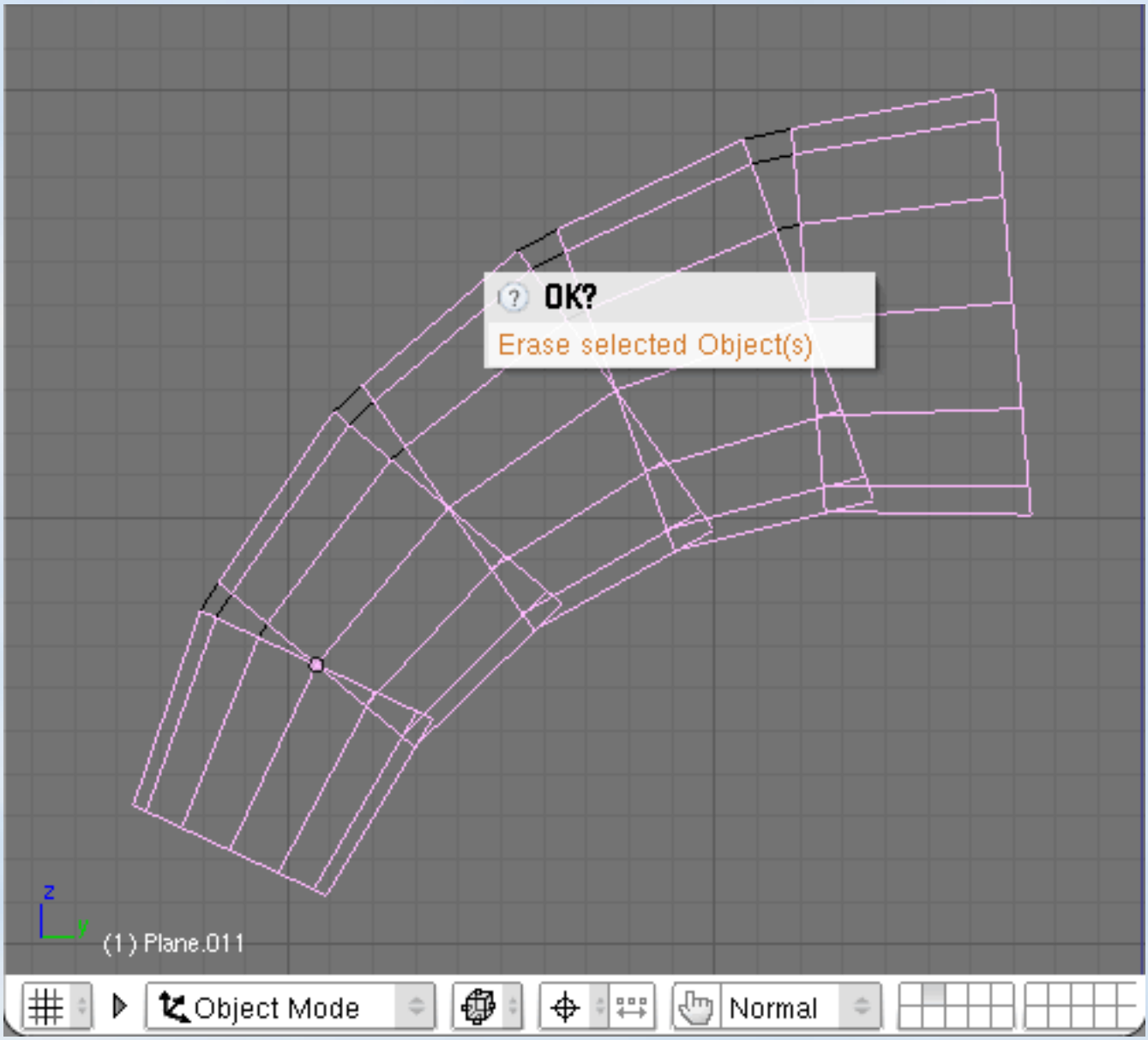
now **edit** the object and fill the hole, make new face to make the ring complete



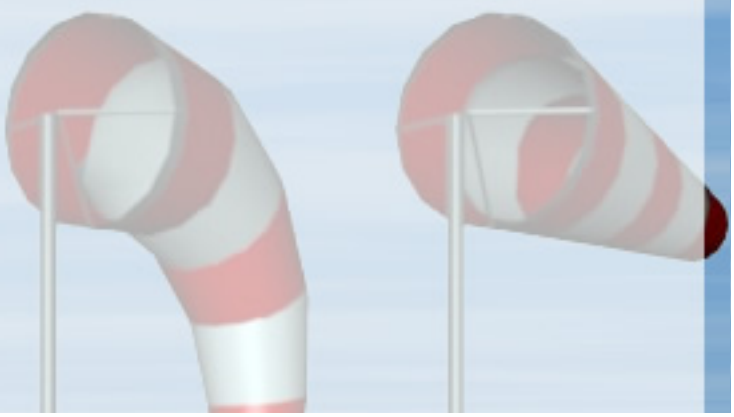


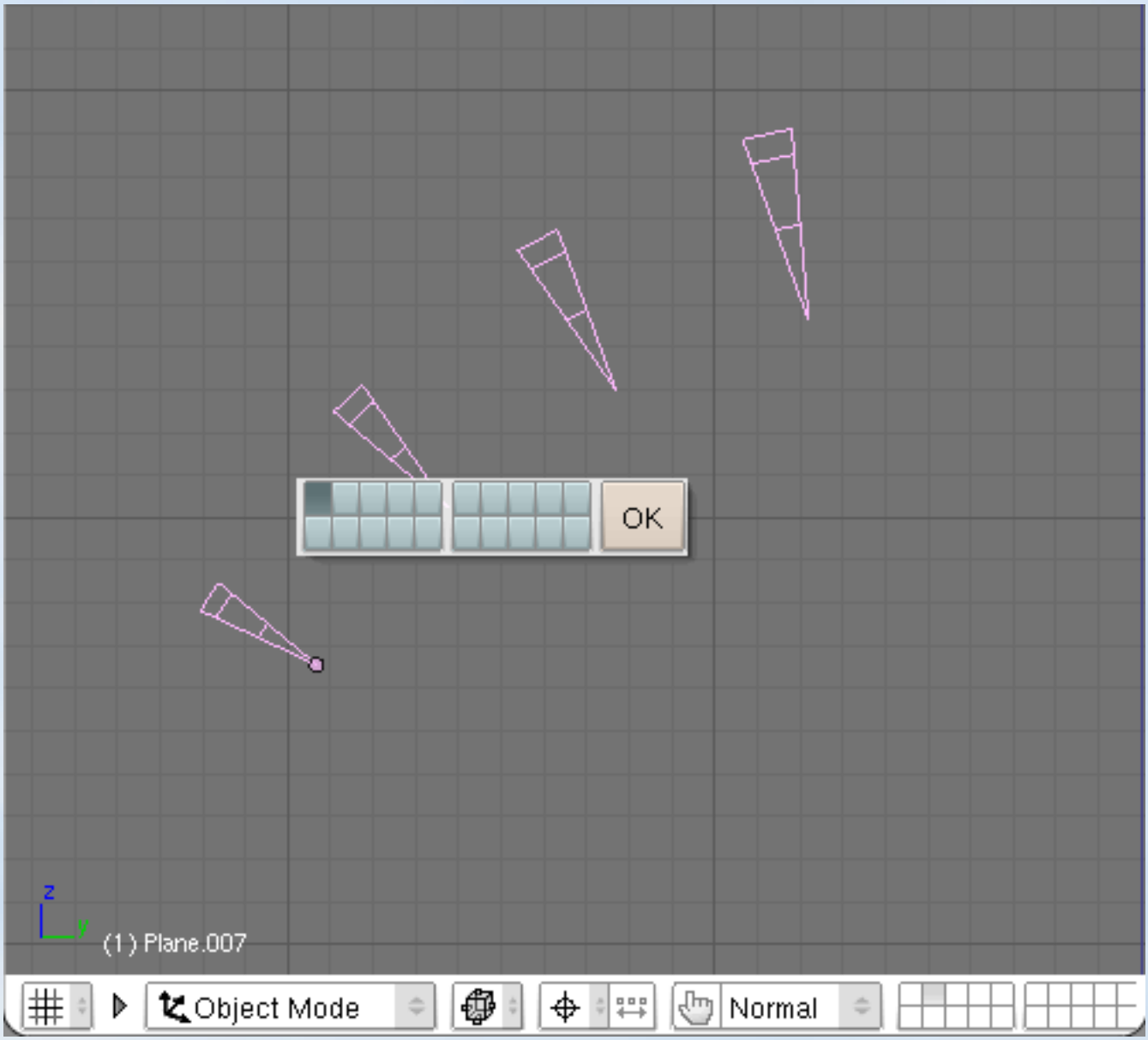
one that make, select **only the news faces**, and tape **P** to separate them



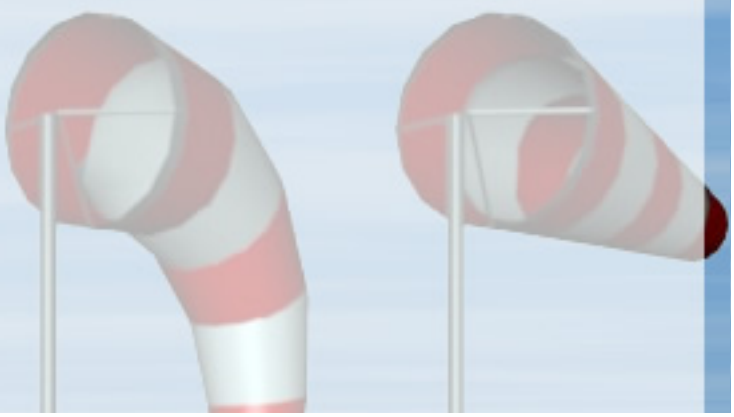


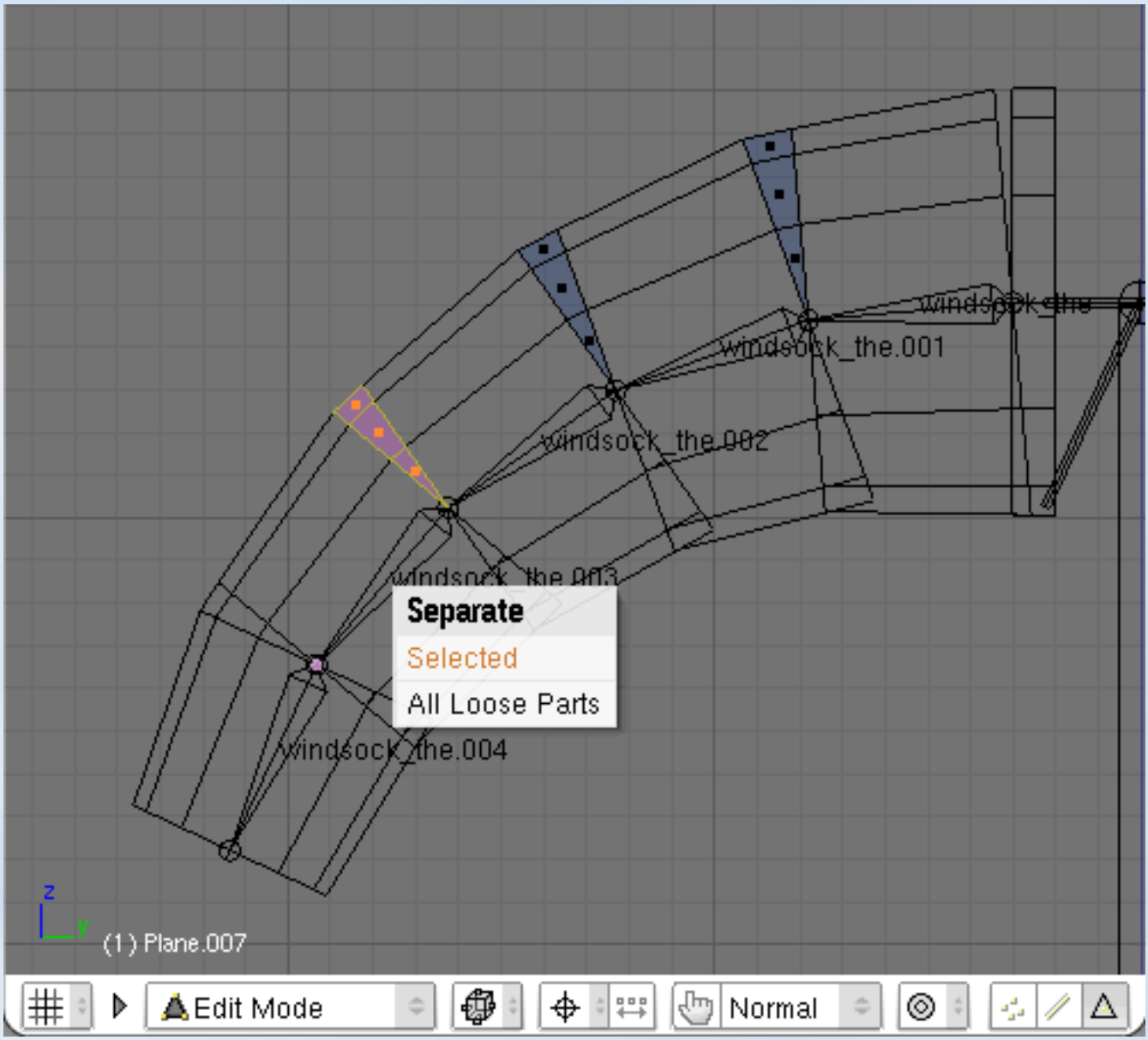
delete the object we don't need it anymore, tape **X** to delete it



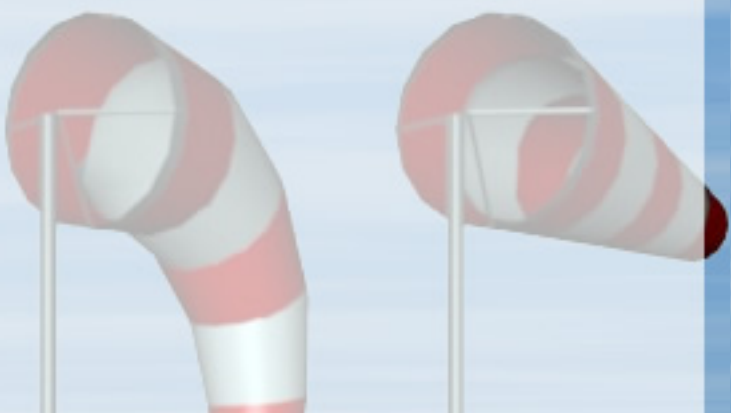


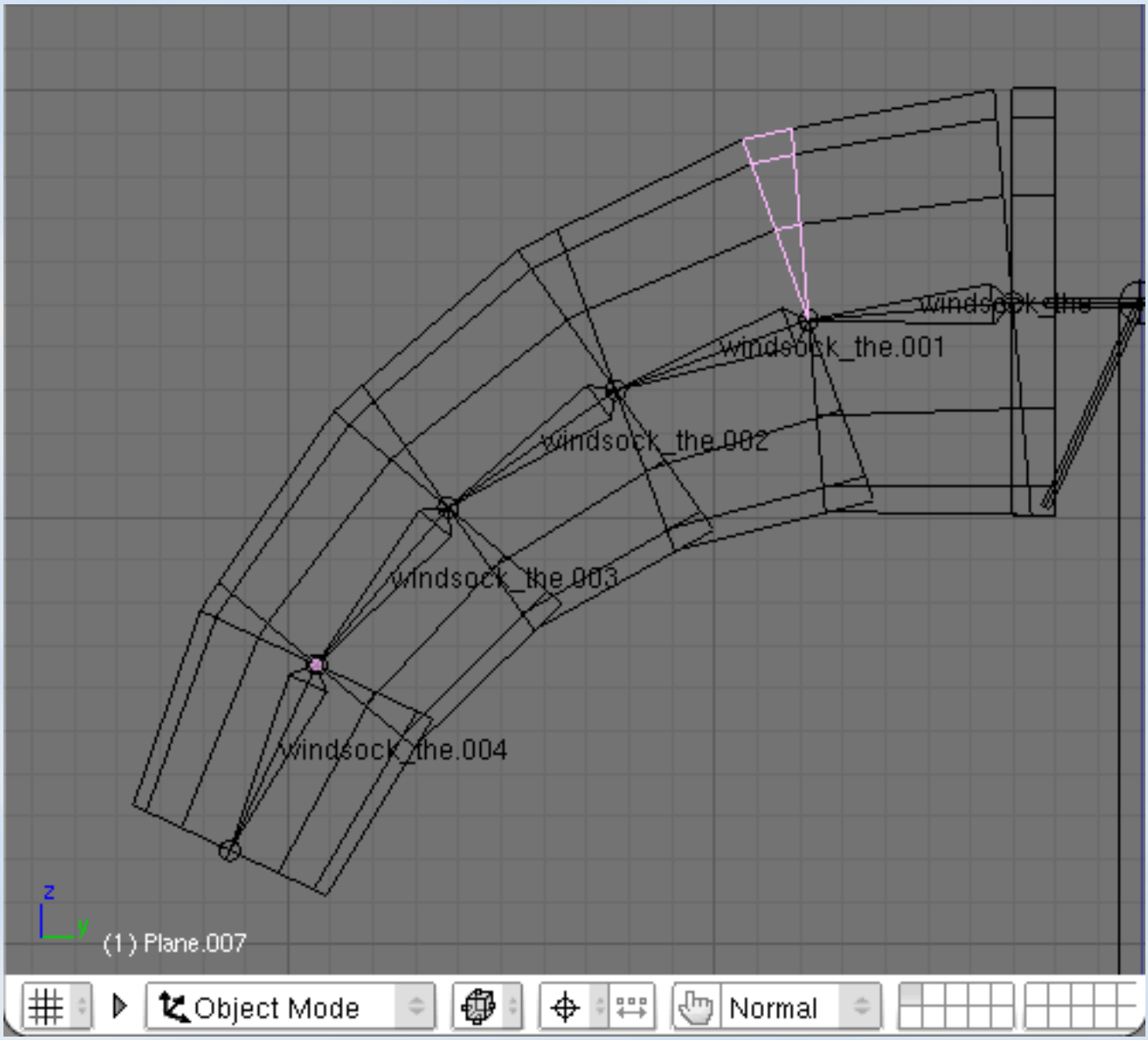
move this object on the first layer, tape **M** to bring thee menu and choose the first one and **OK**



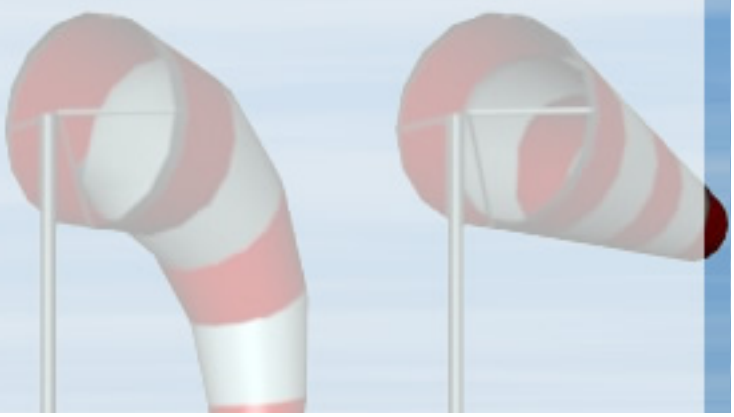


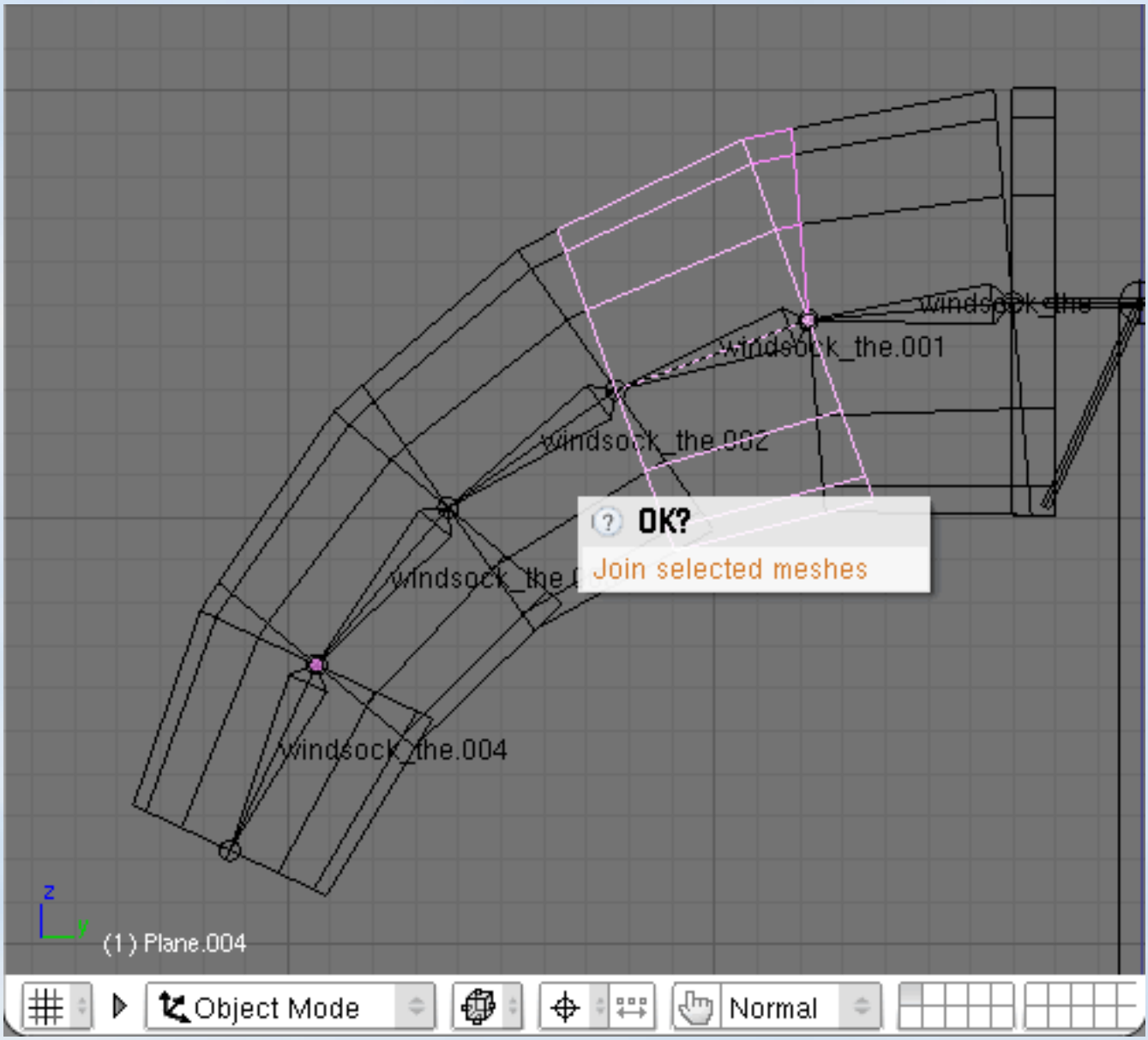
now we need to separate each part to join the to the other mesh, one after one tape **P** to separate them



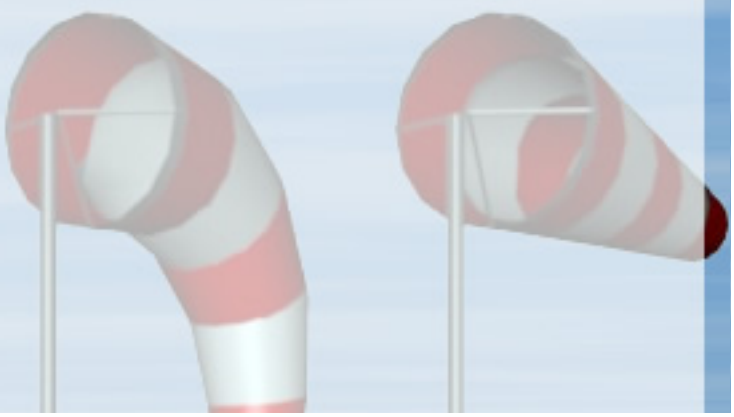


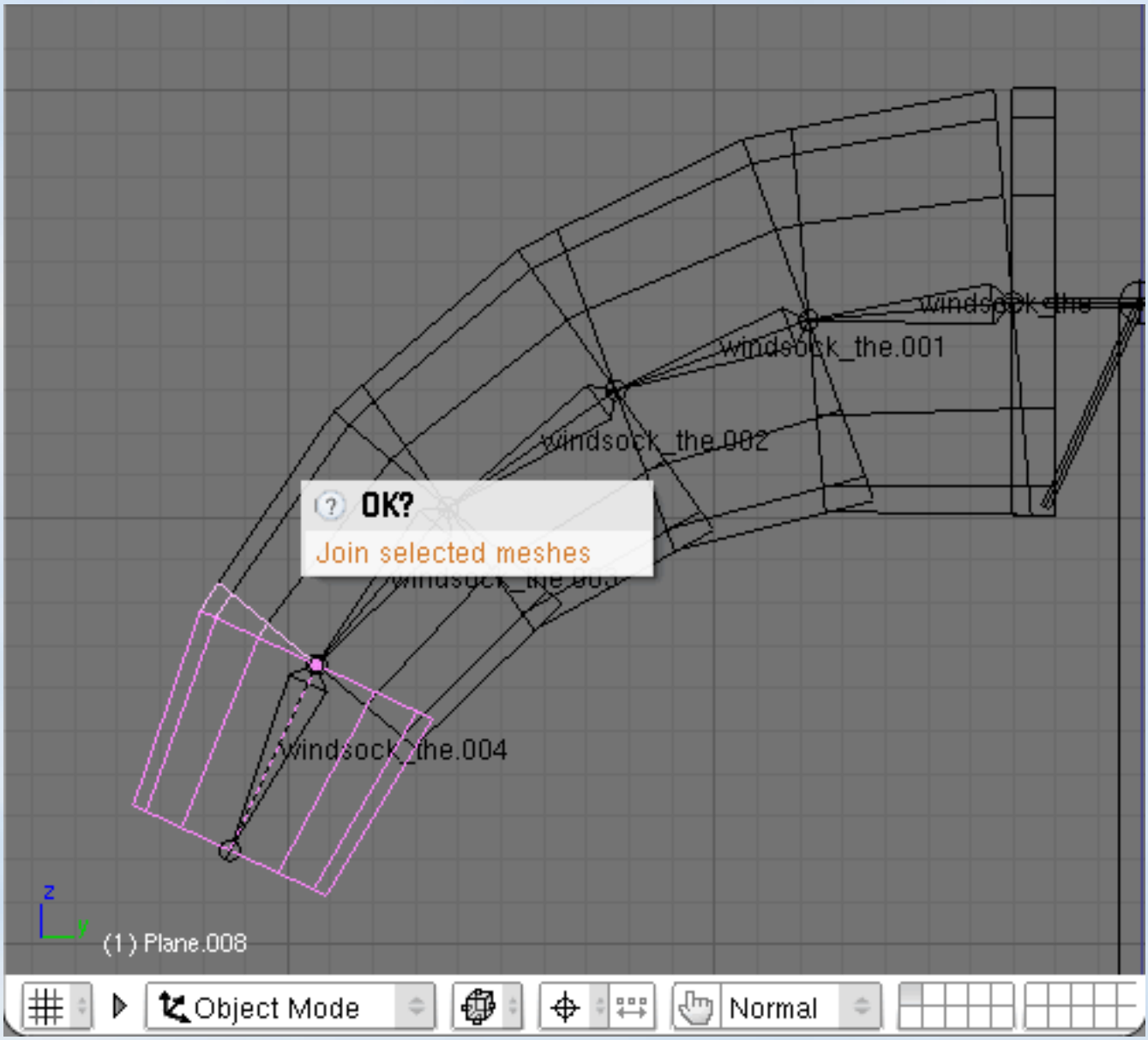
Select at **first** the **new mesh** that we must join to the ring, that important



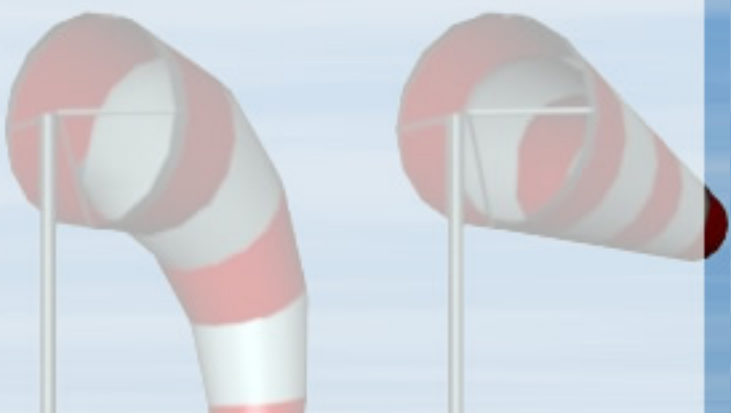


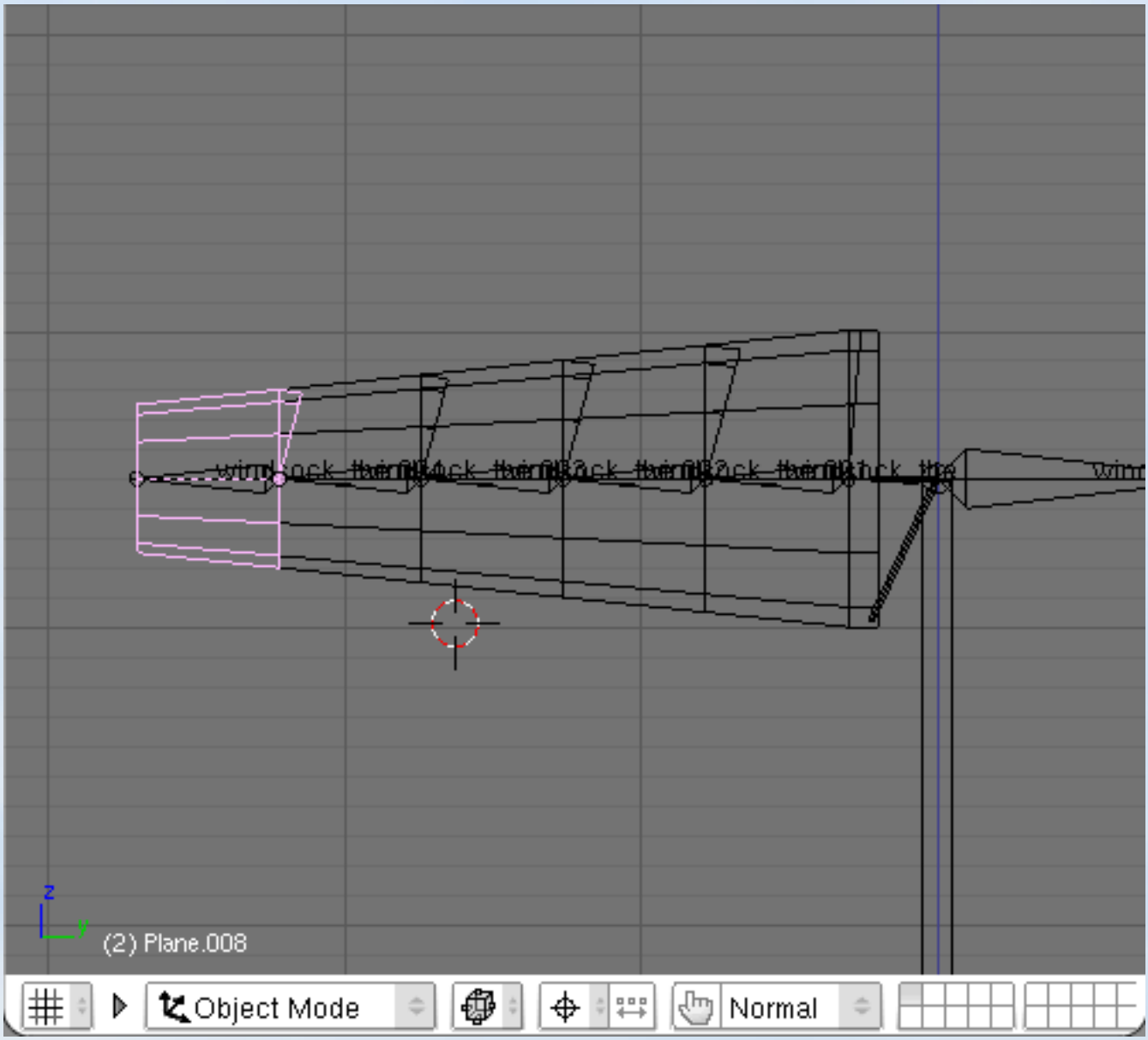
So select the **mesh first,** with **SHIFT click on the ring after** it, and tape **CTRL + J** to join them,
We have to select the mesh first and the final object in last, because the object origine that Blender will use is the last one we selected.





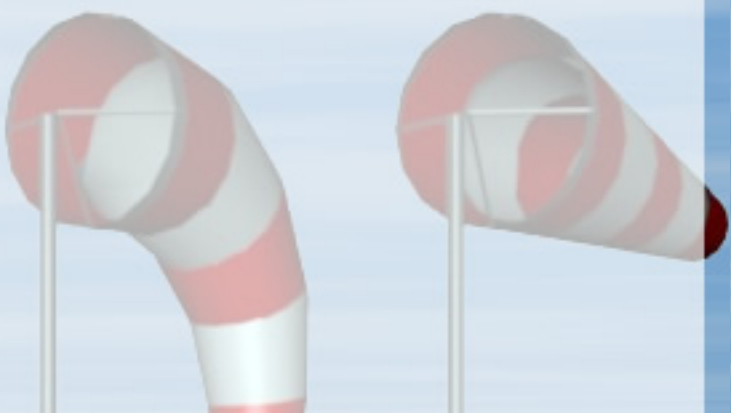
Do the same operations for the other part

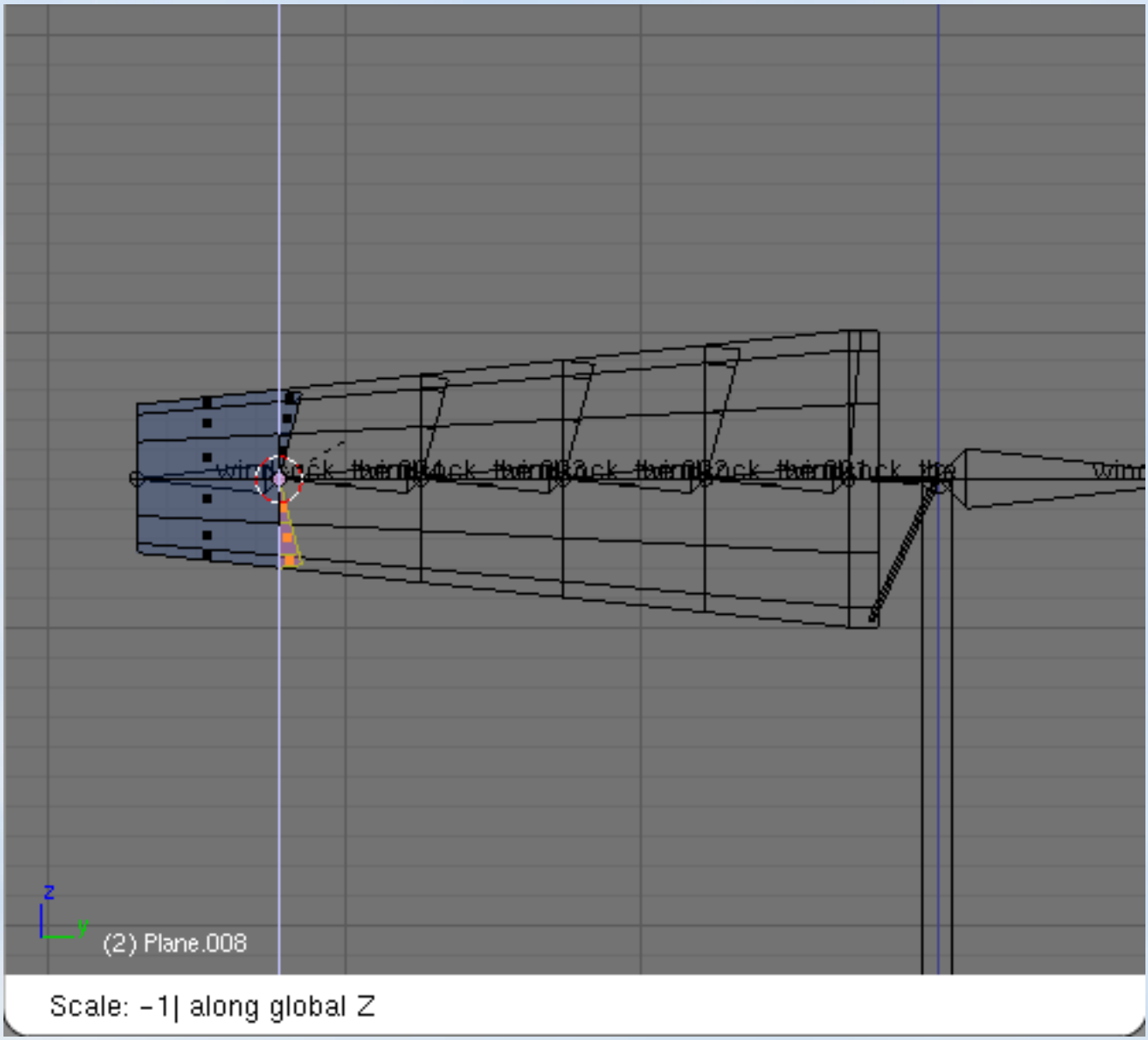




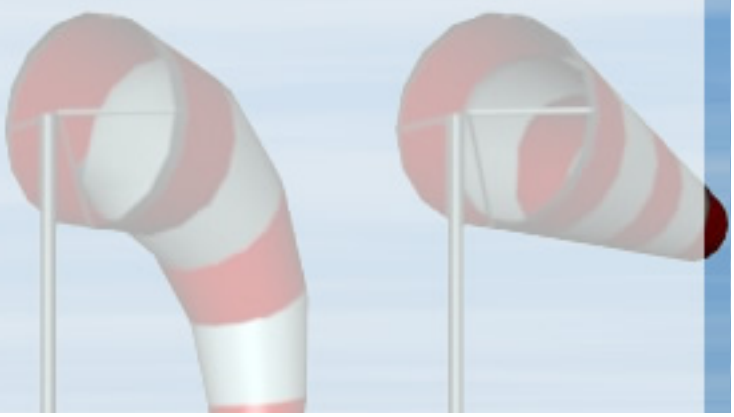
Now go on the **second frame (2)** , tape the **right keyboard arrow** one time, we have make the down modification, but the windsock will go up sometime, so we need to make the holes disapear in the top position too, that we can not see in blender, but that will be the same movement that the down one.

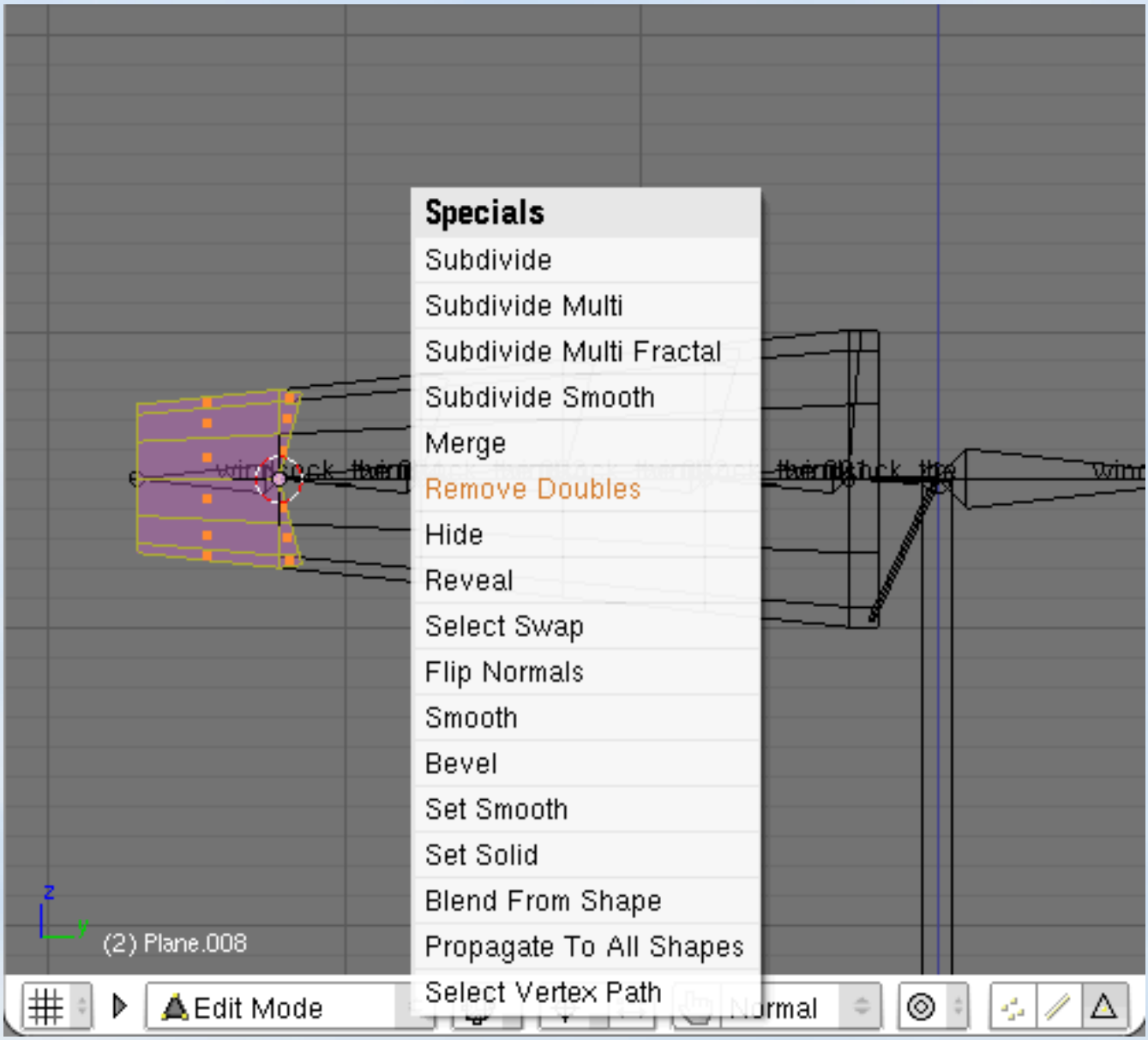
So select the **last ring**, and snap the cursor to it, **SHIFT + S > Snap cursor > Location**
select all the new faces we added soon in **EDIT mode**, without moving the cursor, we gonna duplicate them and flipe them around the cursor location



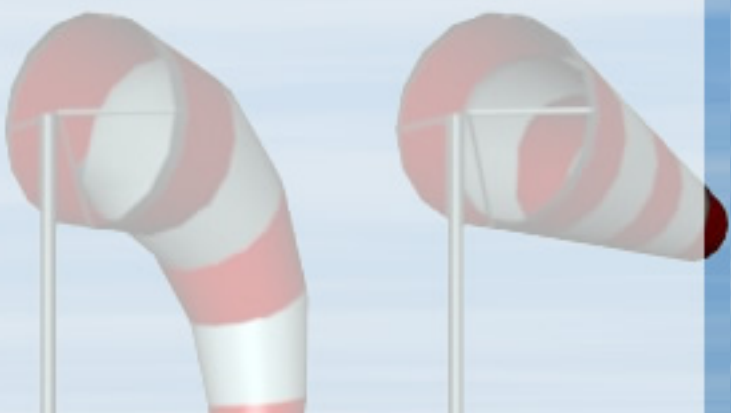


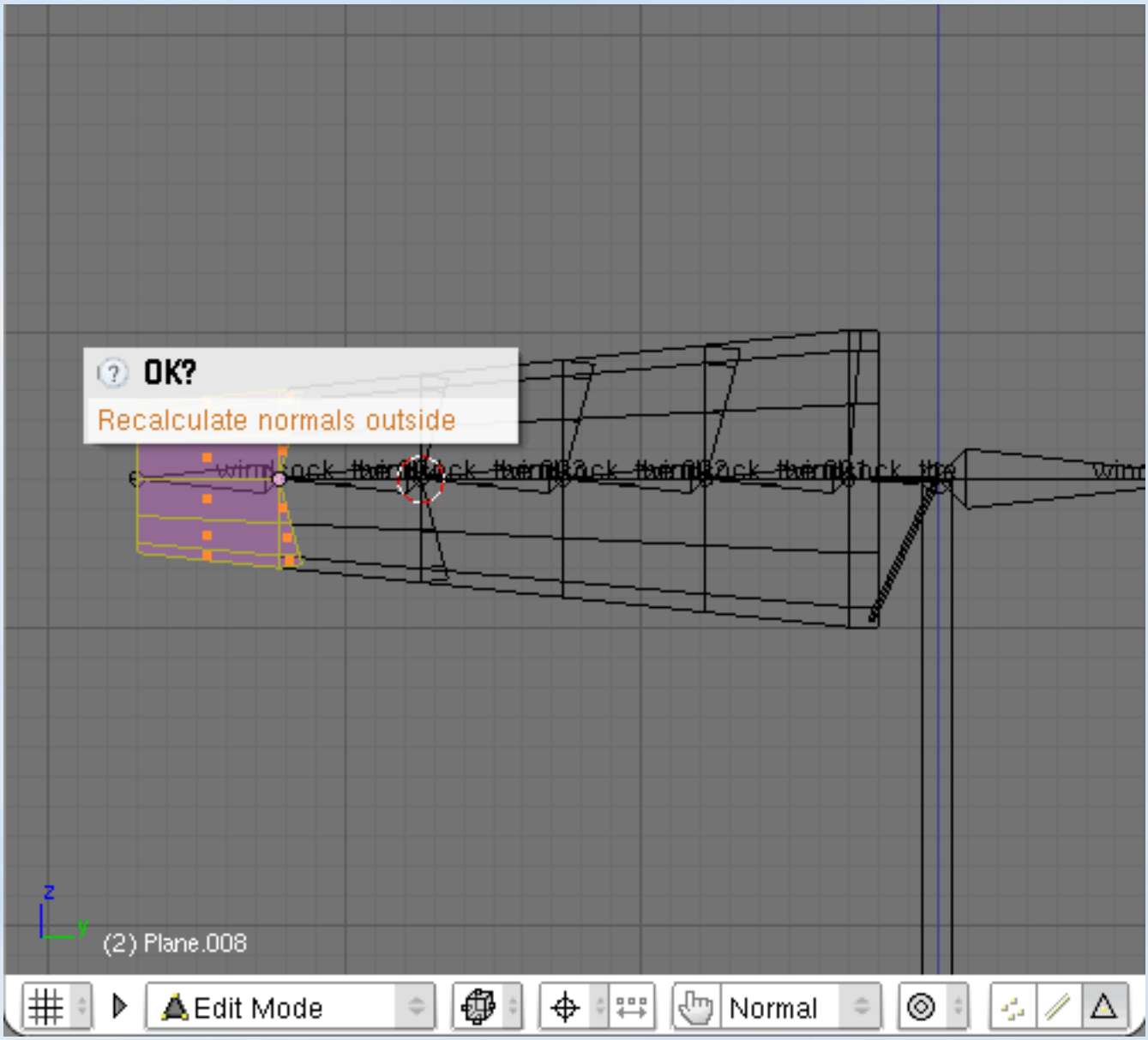
To **mirror** this **FACES**, we using the **scale** option, tape **S** to scale, **Z** to use the vertical axis, **-1** to tell him to mirror it, and **ENTER** to validate the modification



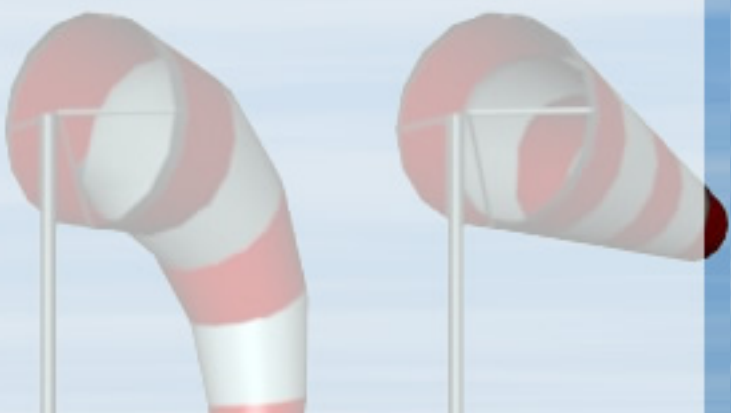


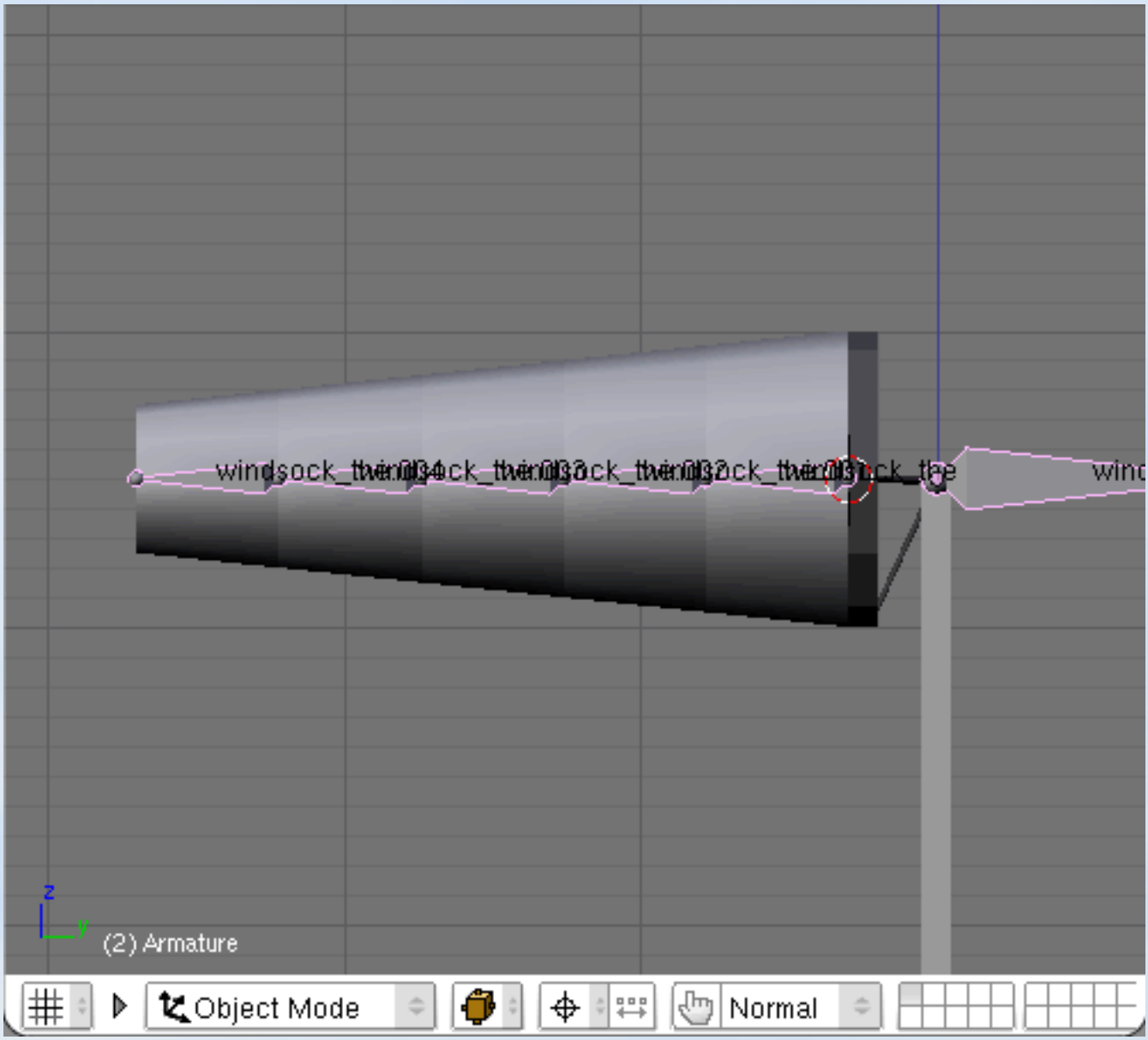
Now **select all the face**, click **A two time** or use the select tool **B** to select them manually, and tape **W > REMOVE DOUBLE**, to join the mesh vertices



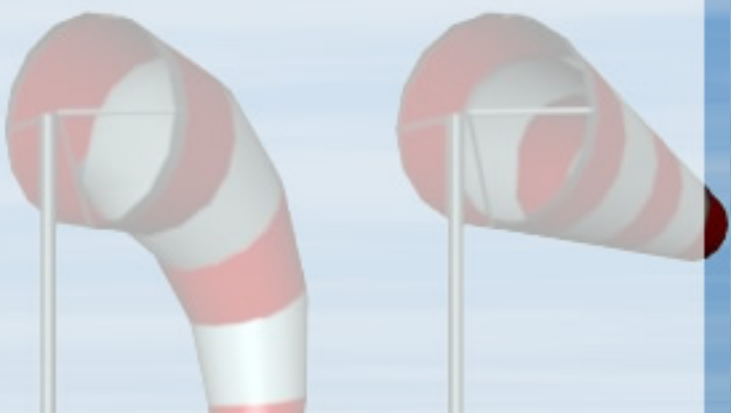


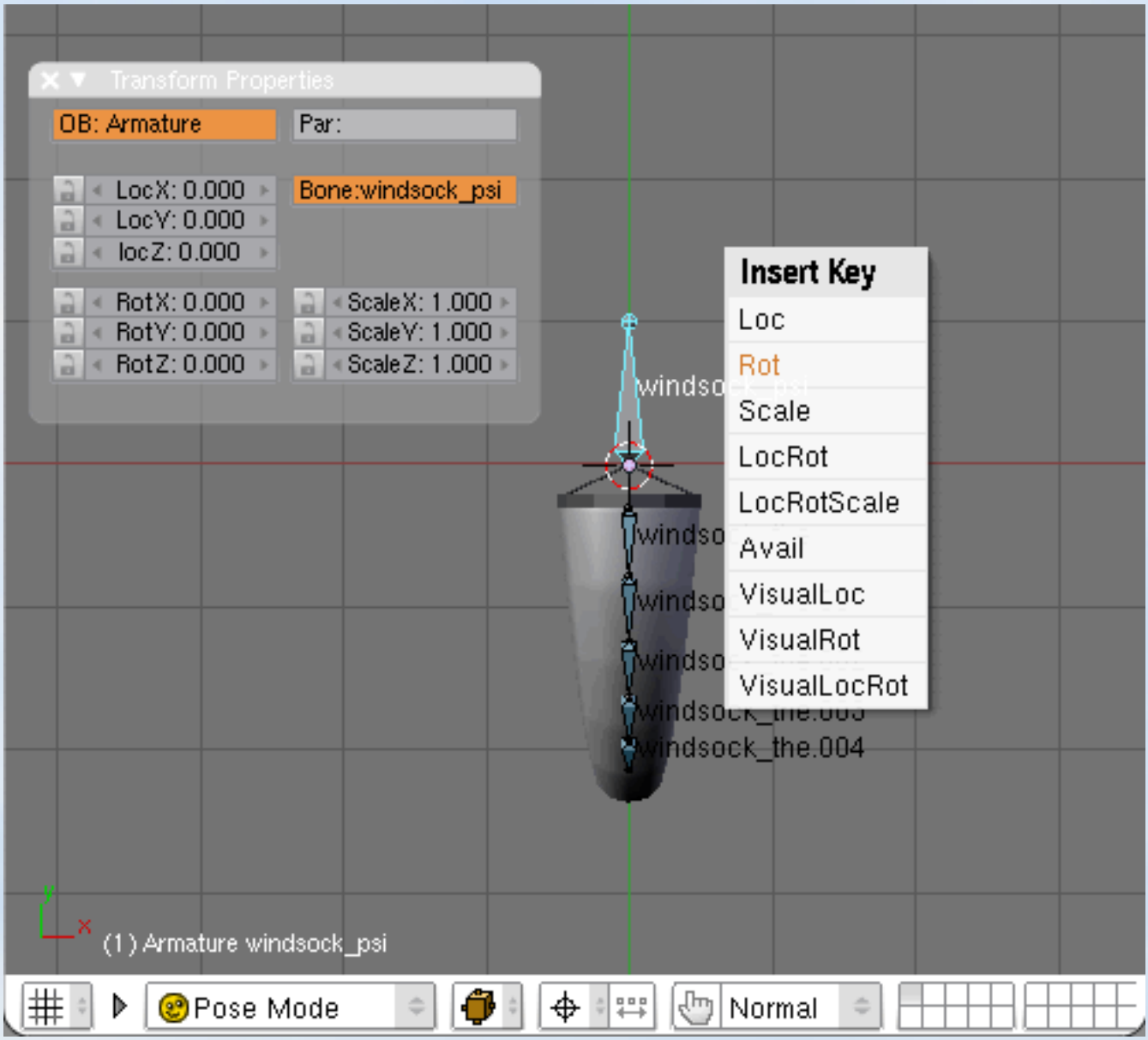
Now **select again all the face** (when you remove double, some face will not be selected again be sure you have them all), and tape **CTRL + N** to recalculate the normal outside, to make sure all the normals is at the same side



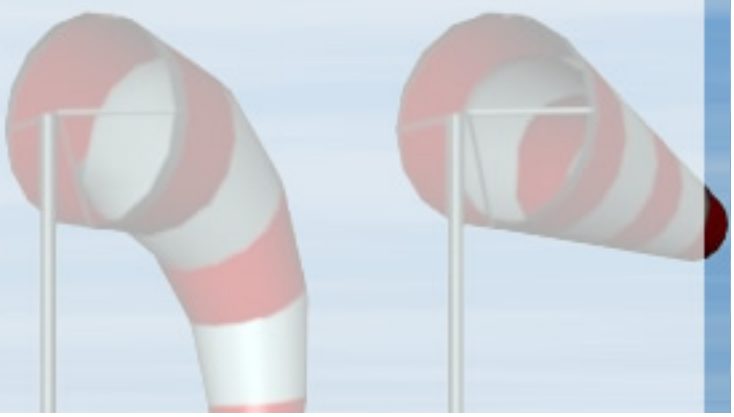


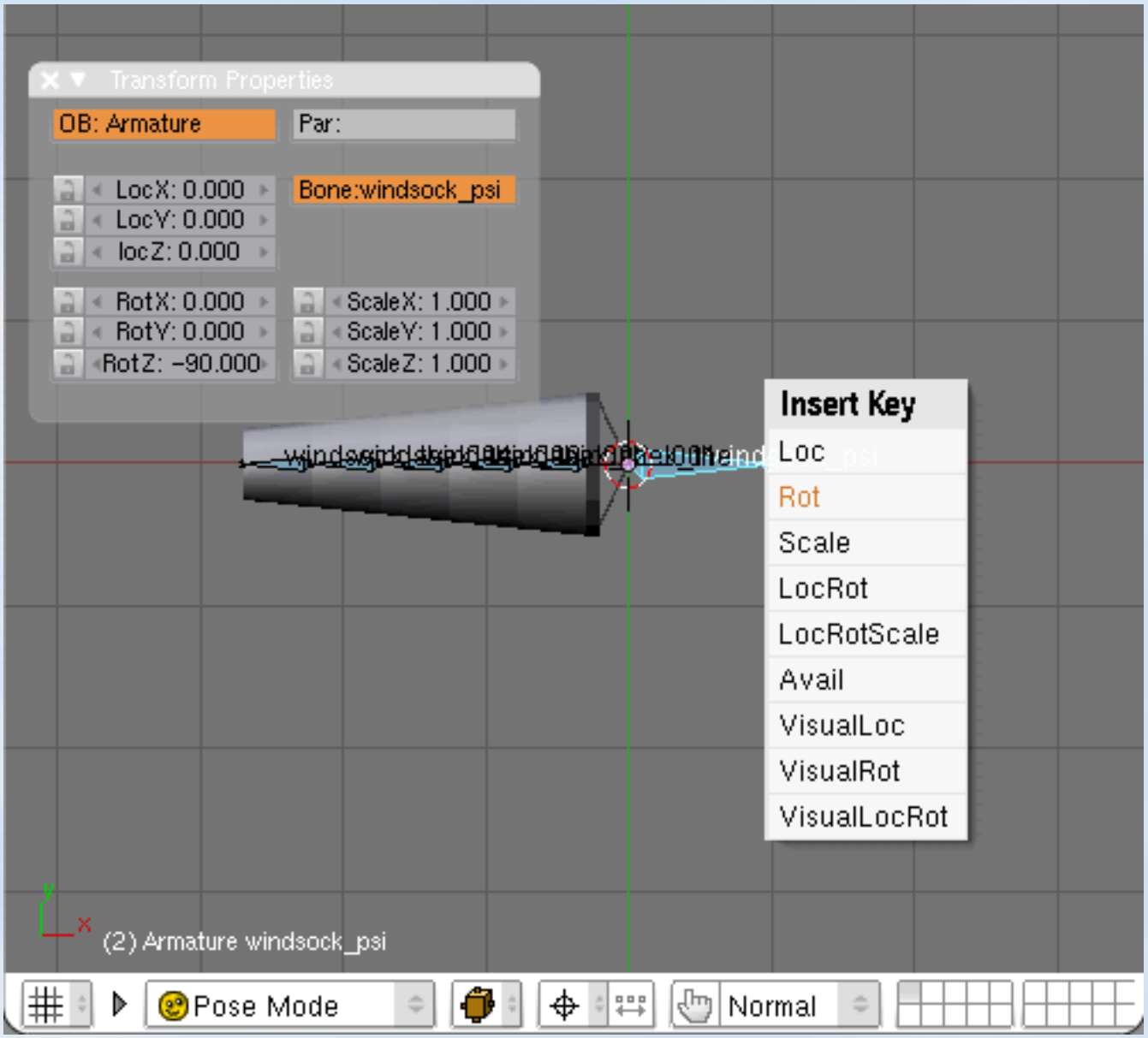
You have to do that for all the other ring objects, using the same manipulation,
But we finish the rings animation and shape now, you can take time to put texture if you want still in the second frame to have it verticaly



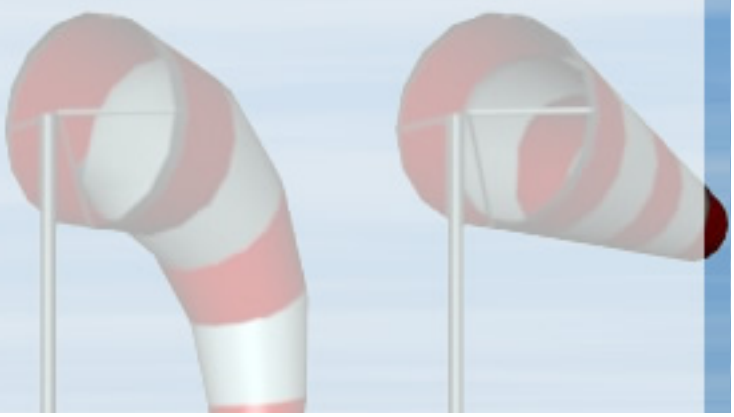


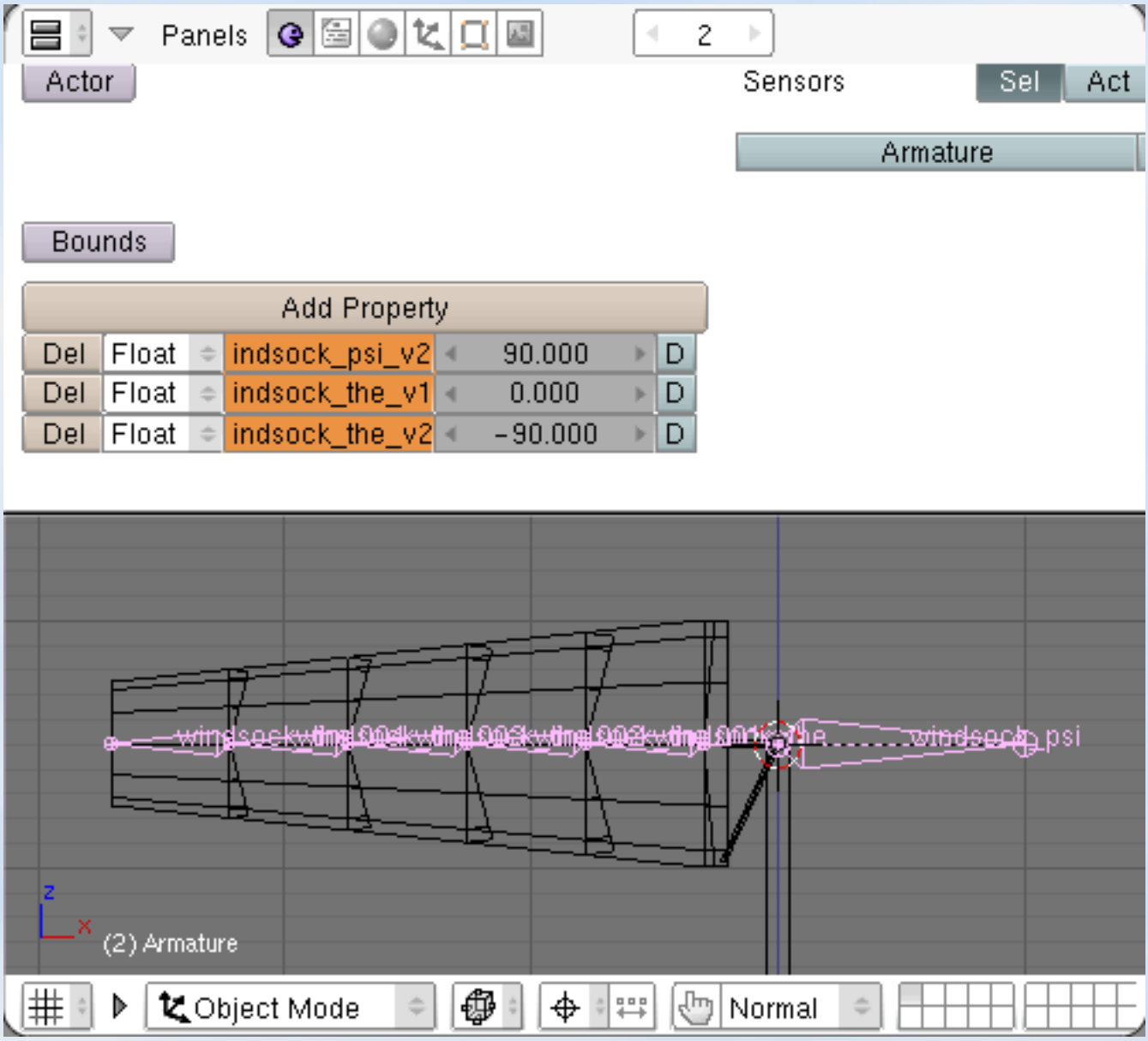
Now we need to put the animation for the wind direction, go in front view **7**, select the **armature**, tape **CTRL + Tab** to go in **POSE** mode, the object is already parented to the one, we do that at the begin off this tutorial, so don't care about the objects and just use the bone with him property panel **N**, to enter the Ikey, for the first frame **(1)**, we don't need to change nothing, just enter a Ikeys for rotation, tape **I > Rot**



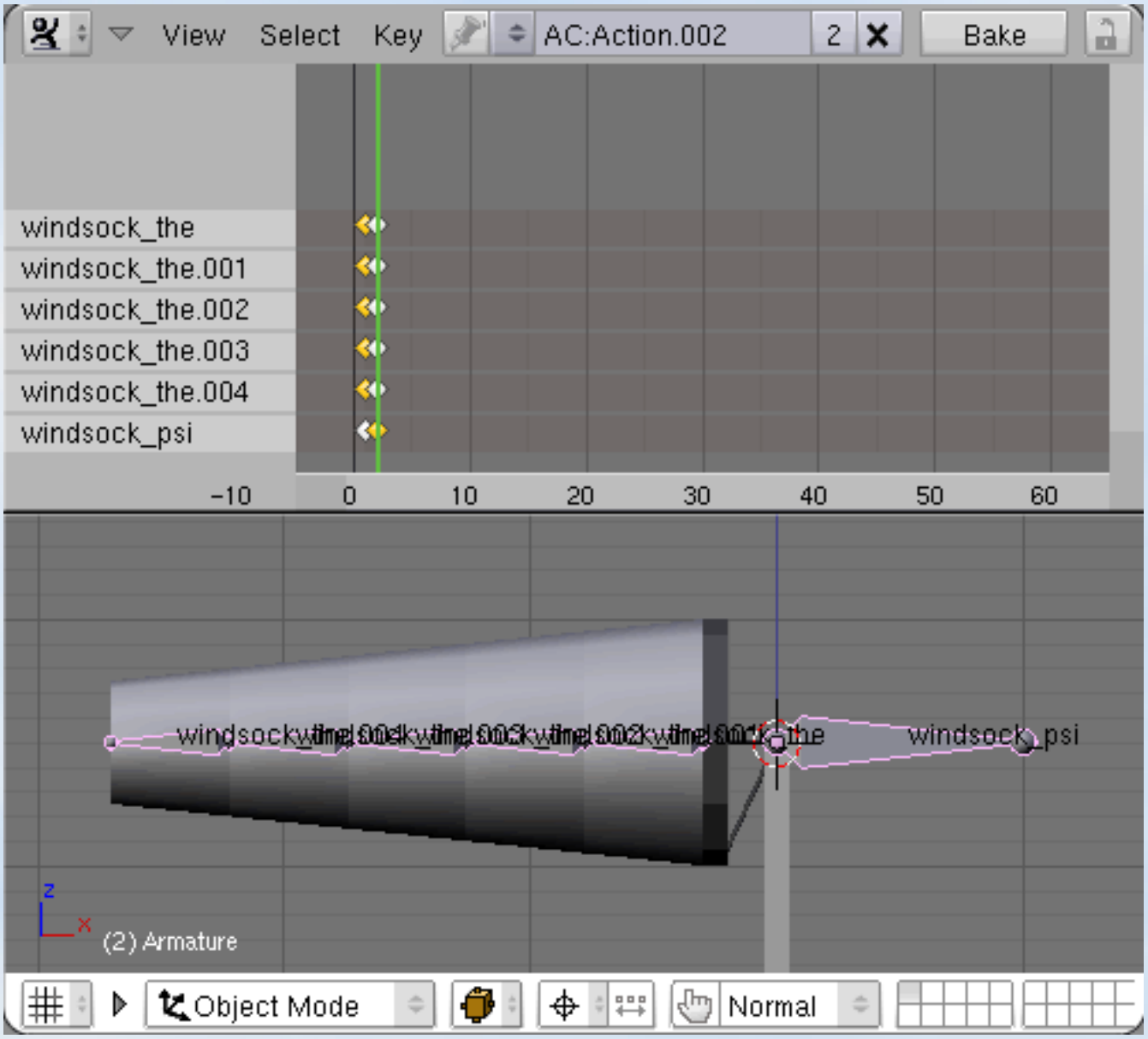


Go on the **second frame (2)** and give the bone a new **RotZ** valor in the **property panel** for : **-90.0**, and tape **I > Rot**

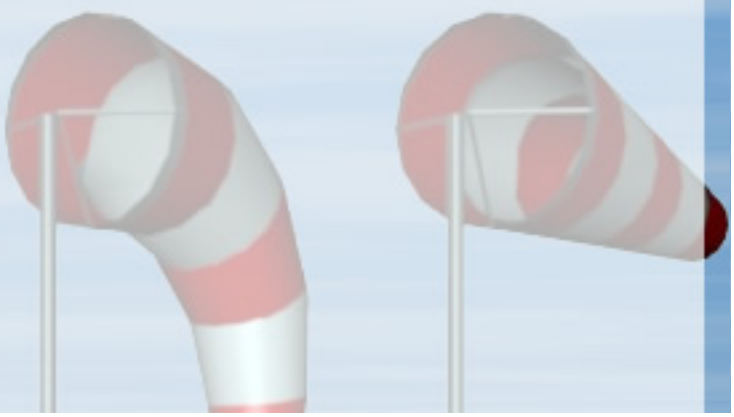


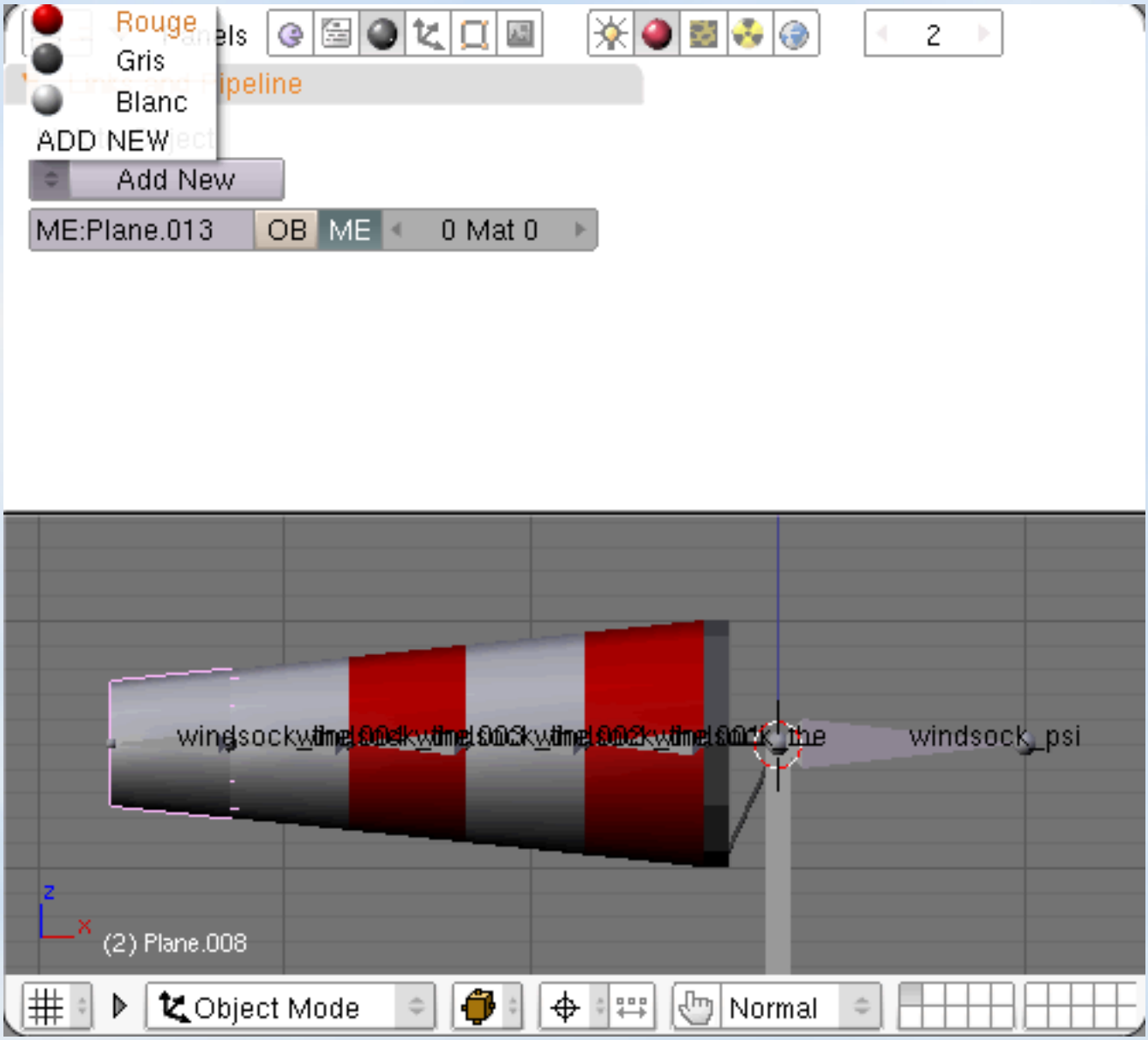


Now the animation set up with bone is finish, but we need to add some control on the Frame (1) & (2) valor for the dataref we use
go in the **Logic** panel, tape **F4** to bring it, click on the button **Add property**
Enter in the name field : the dataref name + _vn, so :
windsock_psi_v2 = 90.0 degres
windsock_the_v2 = -90.0 degres
(I make something special, you see for the _psi I don't have v1, and I put _v1=0 for the _the, when the V1=0 we don't need to put that line because the script will make it automaticaly, so **you don't have to put this property windsock_the_v1 or windsock_psi_v1 = 0.0**)

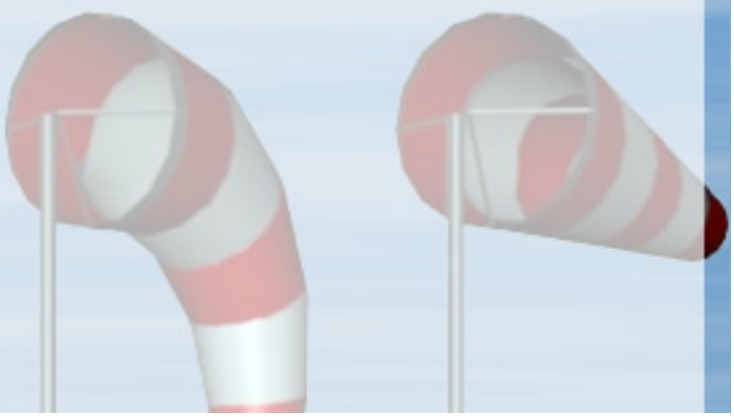


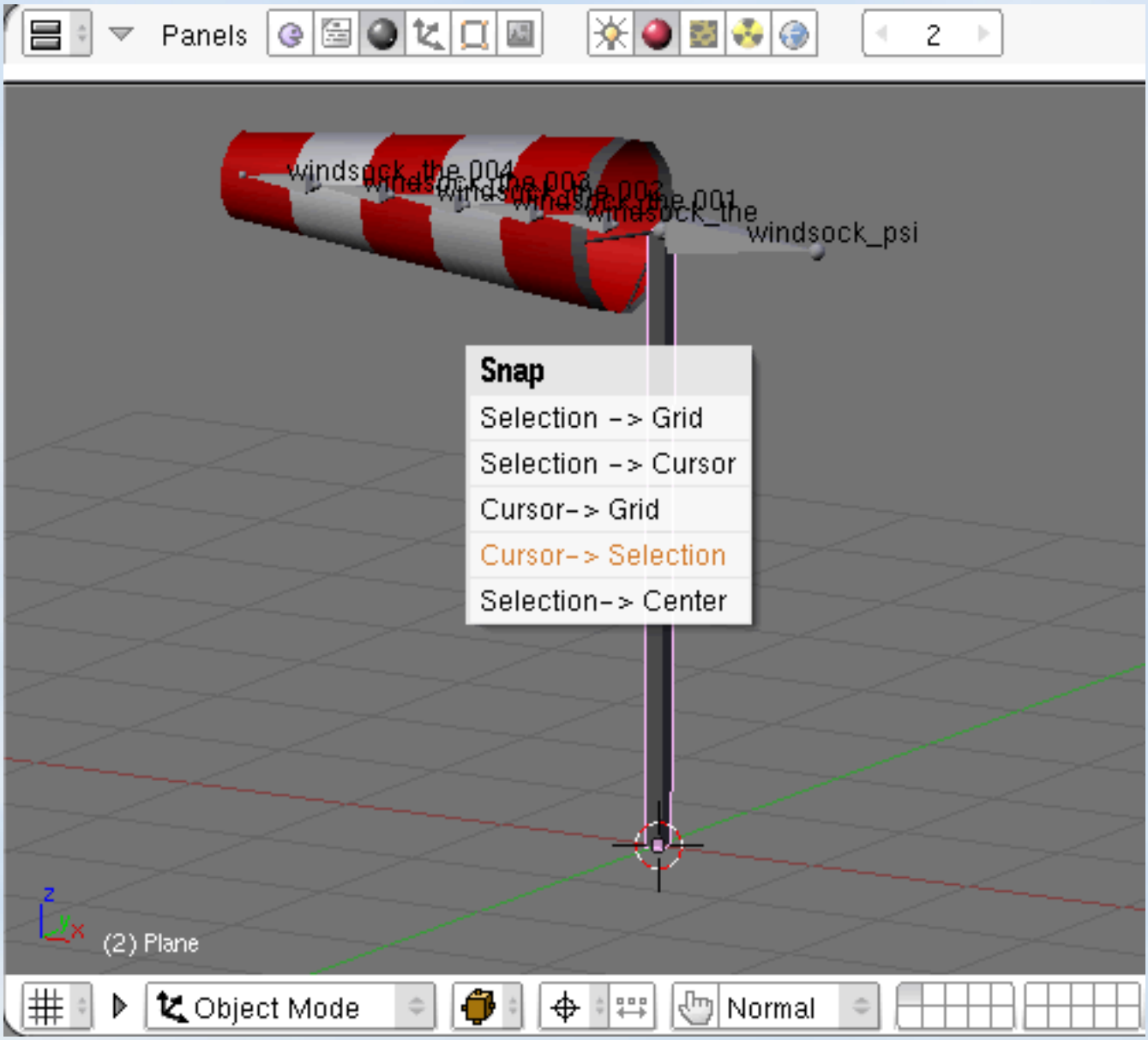
you can bring the **action editor** to see the Ikeys, if you need to delete one or move it, that the right place to do it.



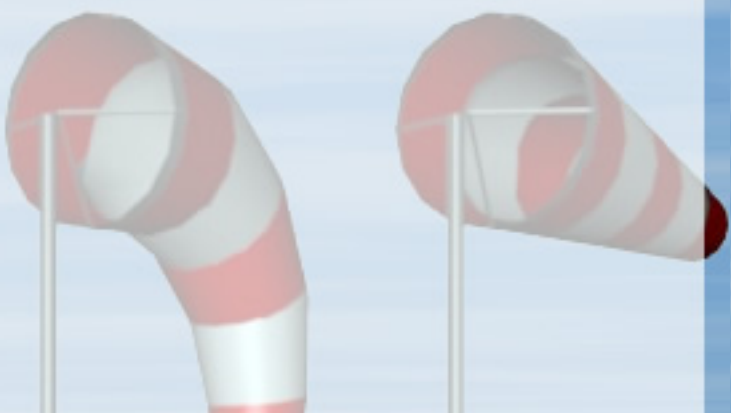


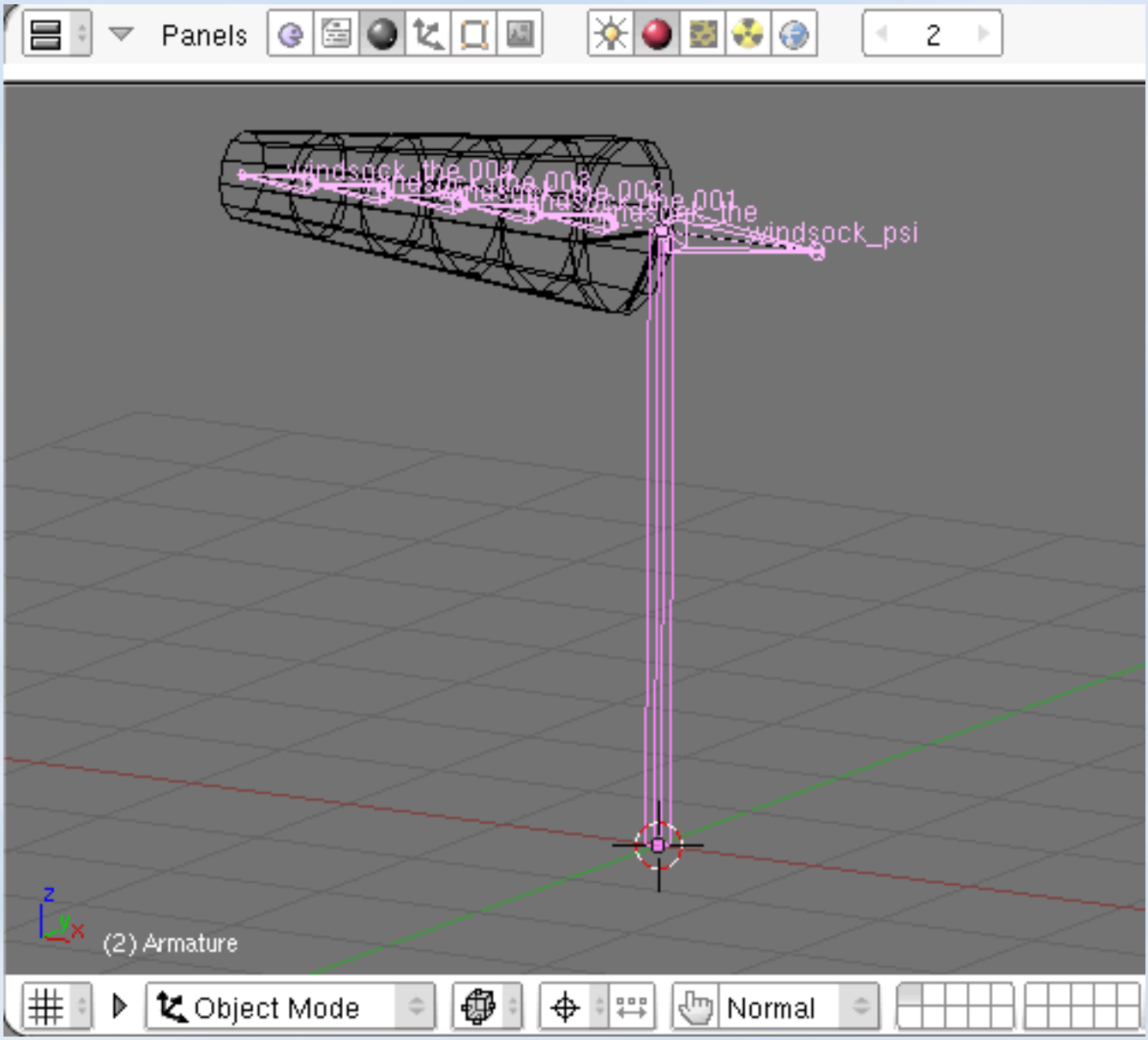
Now give the ring some color if you don't planned to texture it, remenber that will give you a windsock that **only work at day** for the moment.



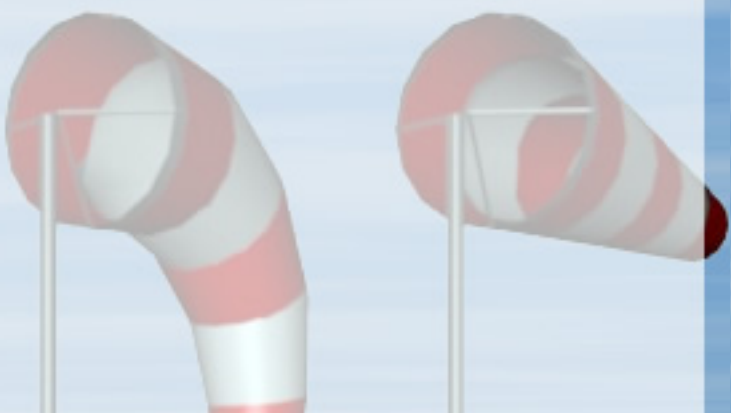


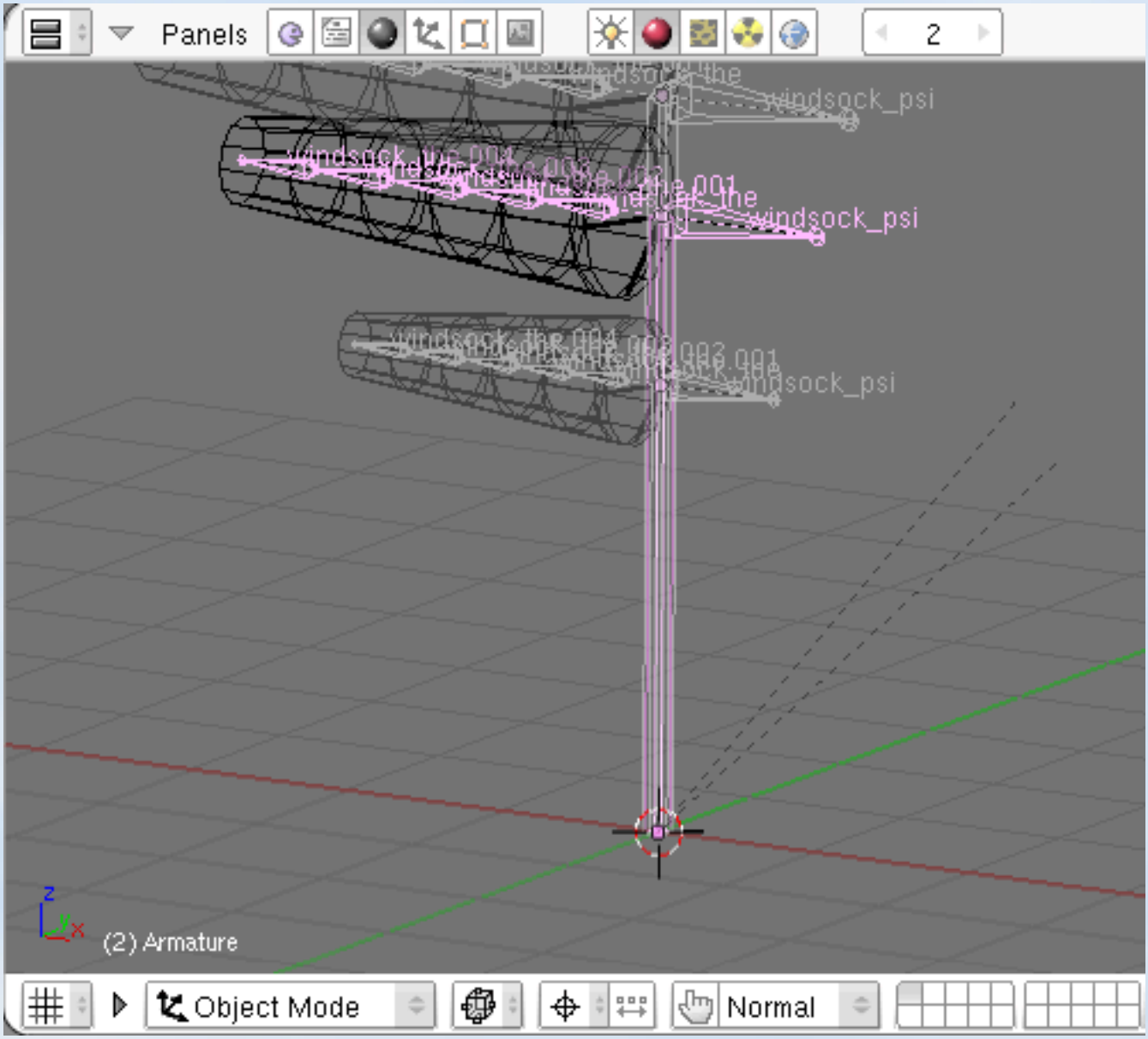
Now perhaps you will want to **change** is size or move it somewhere on the scene,
for that you need to know how move them, select the **mast**, and snap the cursor to is origine, **click on the object mast, tape SHIFT + S, cursor > selection**





Now **SHIFT + click on the armature** (be sure that the armature are not in pose or edit mode, you must select it in object mode) , to select the mast that is not parented to any bone, and the armature that control to other mesh on the scene





Tape **S** to scale and move your mouse to found the setting you want, and tape **enter** to validate, you can also grab it **G** or rotate it **R**

And that finish, you can now export the object, go in file menu select export and choose obj8, the .obj will be save in the same directory that the .blend we using.