Making a windsock animated

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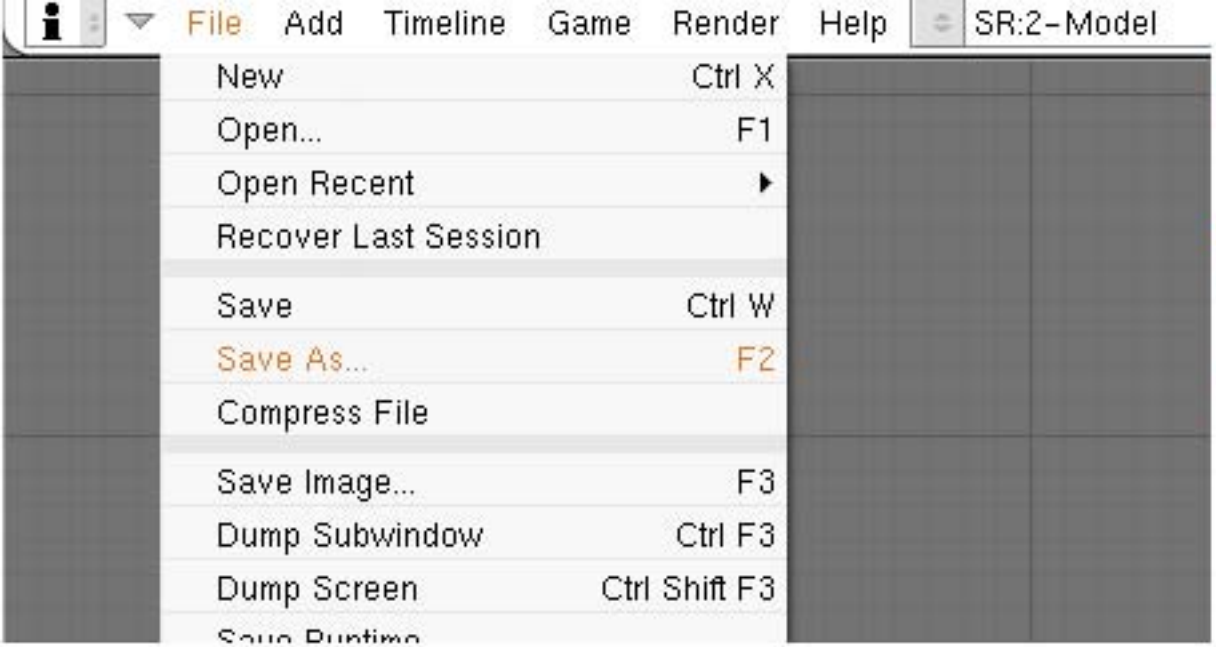
Download needed :

- Blender software
- Marginal's last script
- The gimp editor

Level : Easy

Tools Blender software

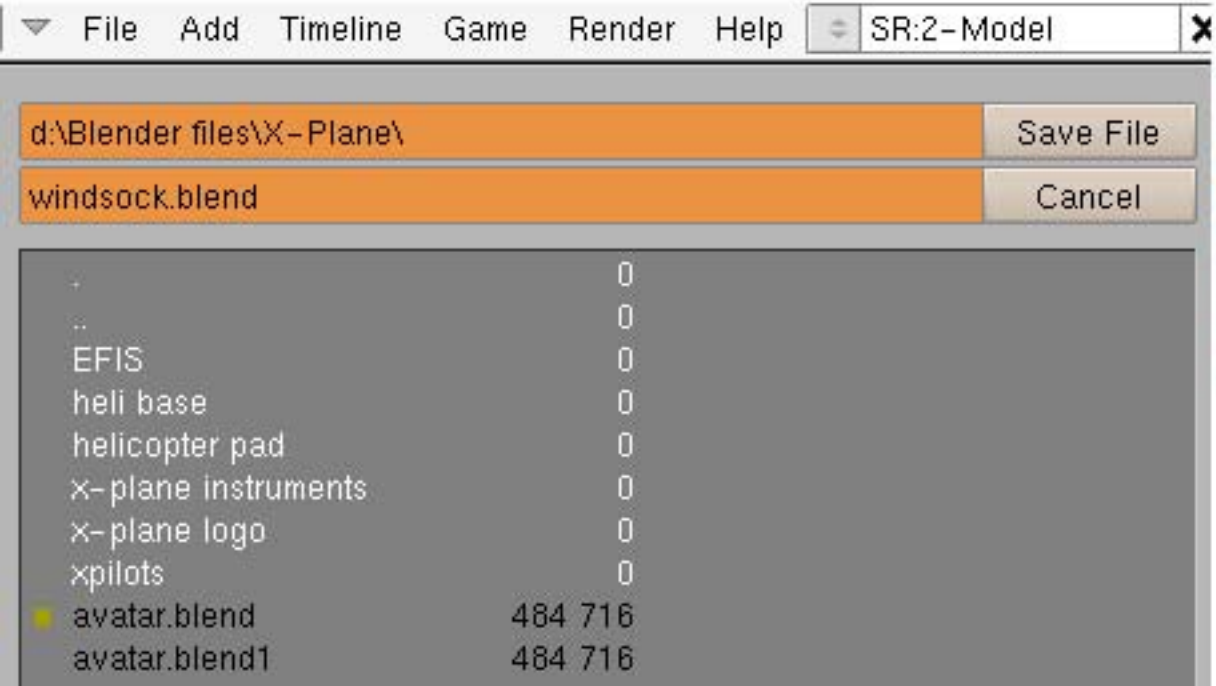
Contact for question or support
irie_inc@hotmail.com



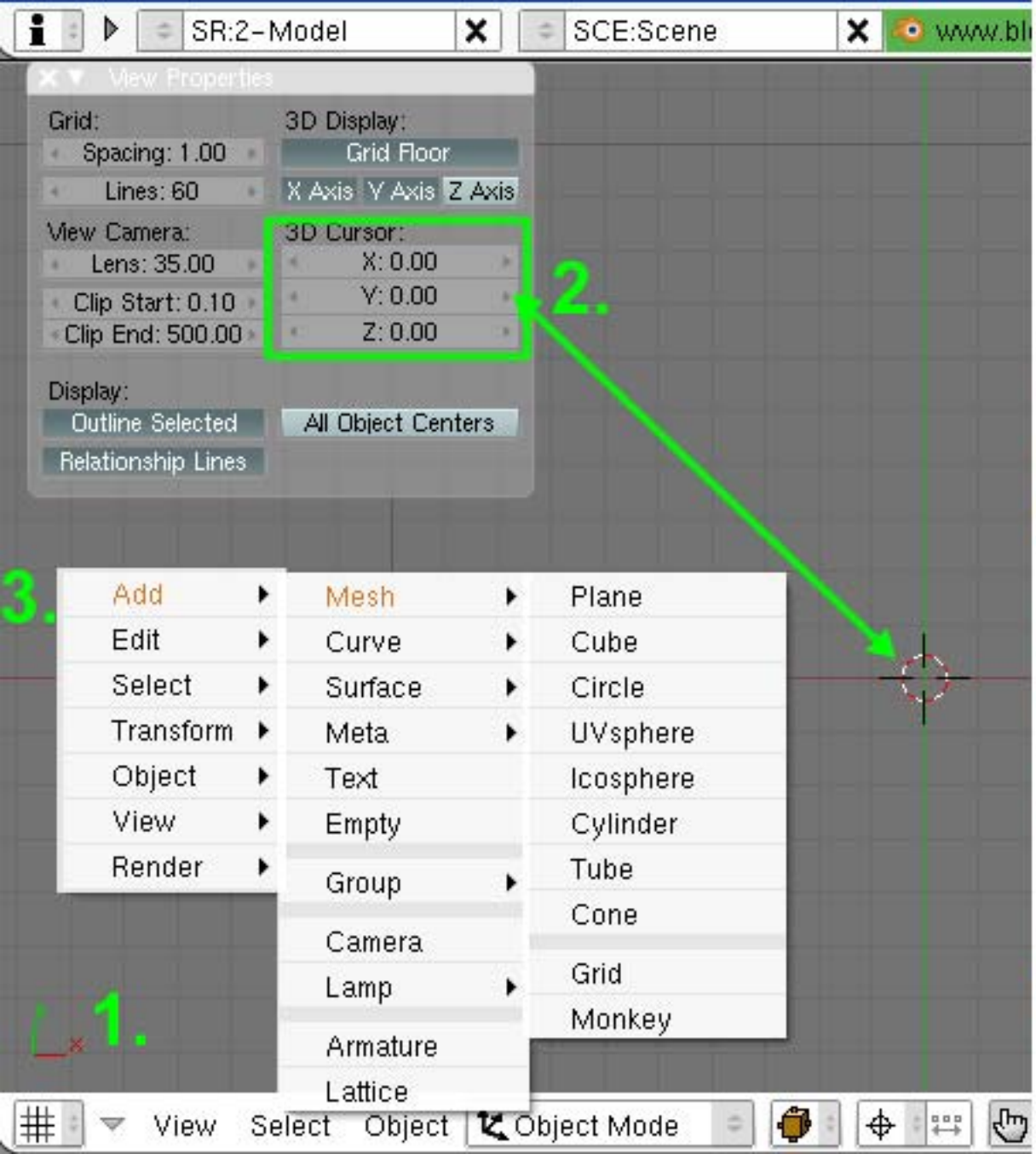
First thing to do all the time

Save your project at first like you will do in Planemaker for a .acf project

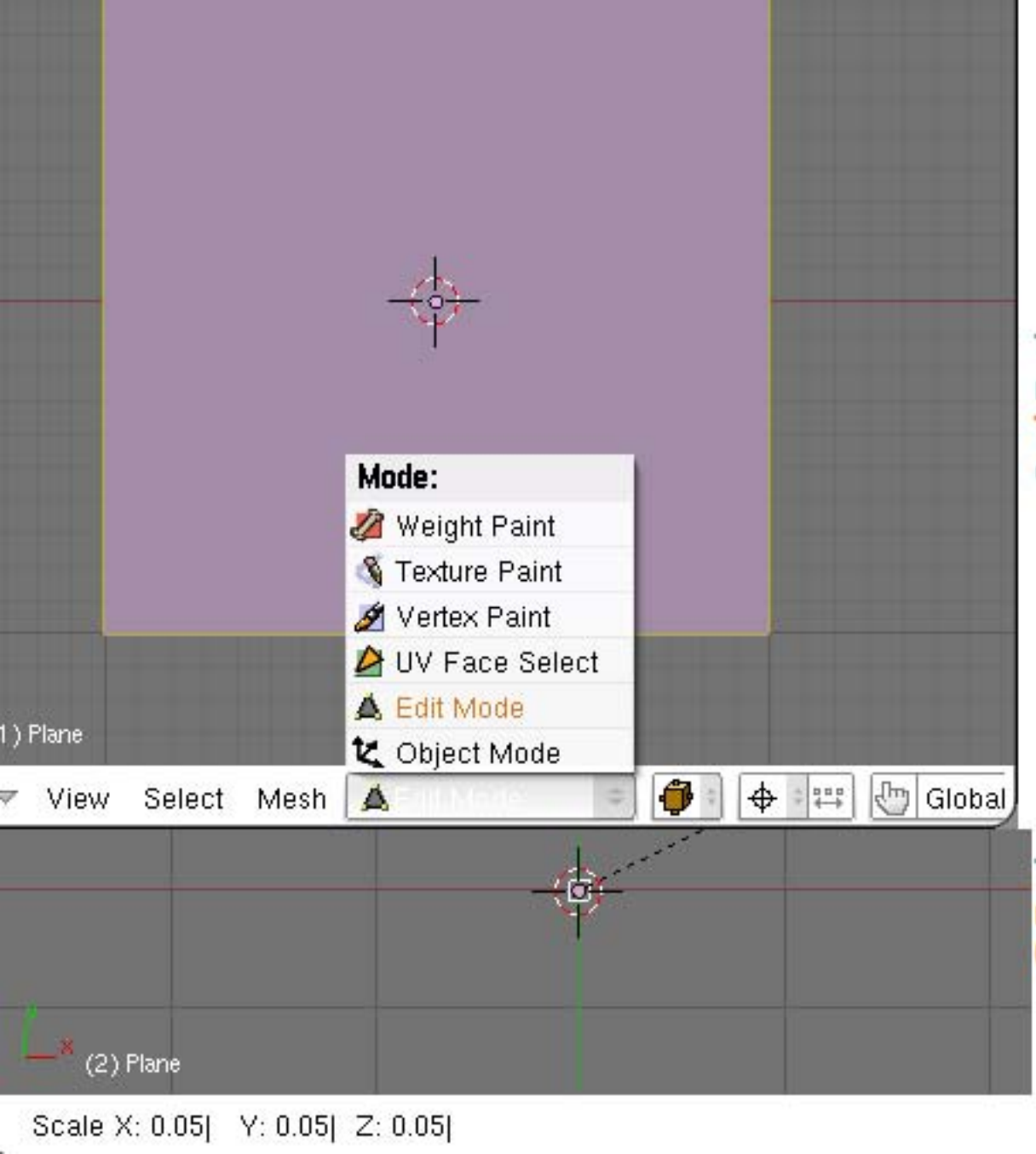
Tape F2 or bronswe the FILE menu



That will bring the save menu,
~Use the bronswer to navigate to the destination folder
~Give it is name in the field under the folder path
Ex: windsock.blend (dont forget the .blend)
~click Save File

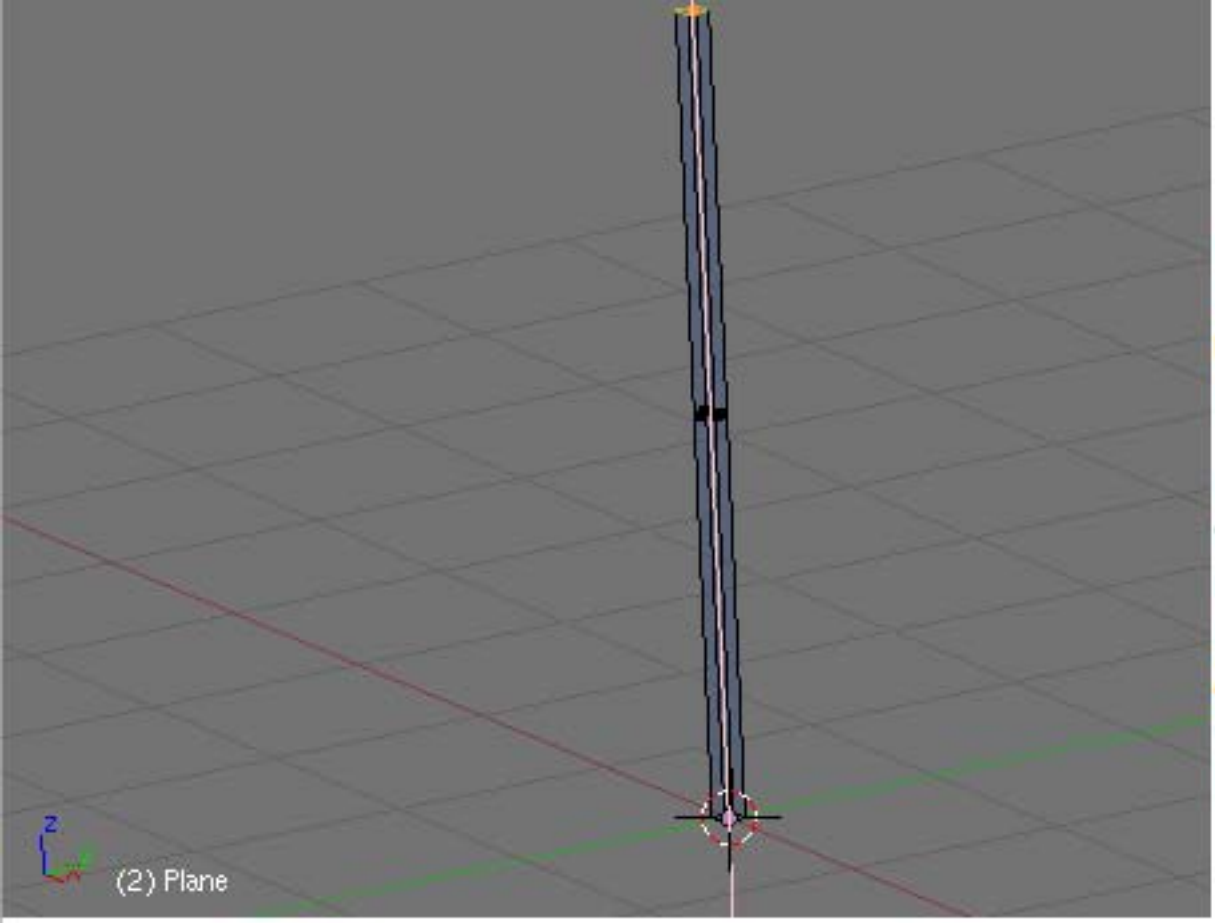


1. Be sure that your are in the **TOP** views on the **first layers**, tape on the keypad number **7**, and **Shift + left arrow** keyboard
That you use the cursor like pivot point 
2. If you don't have move your **cursor** it must be at the scene **origine**, if not use the
view>**view property** panel 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**



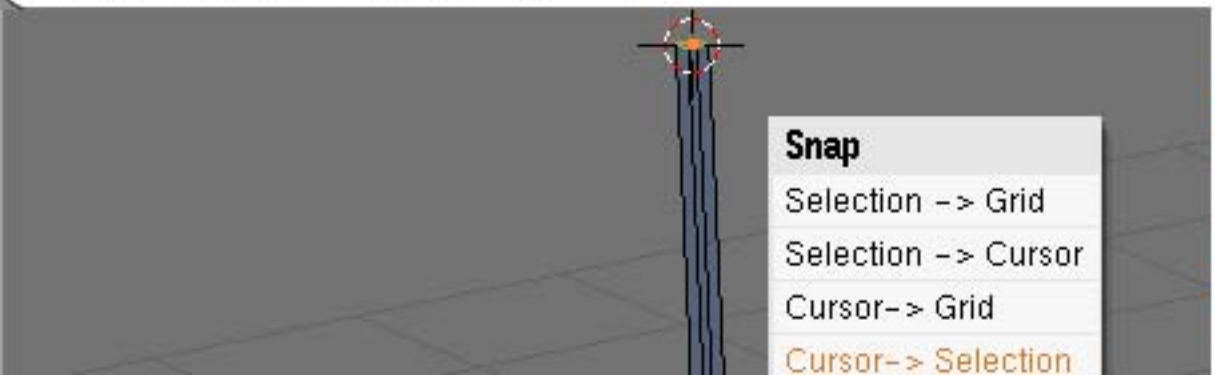
This plane have **1 meter edge**, so we need to scale it, go in **Edit MODE**, tape **Tab**, or use the pop panel to change the editing mode.

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

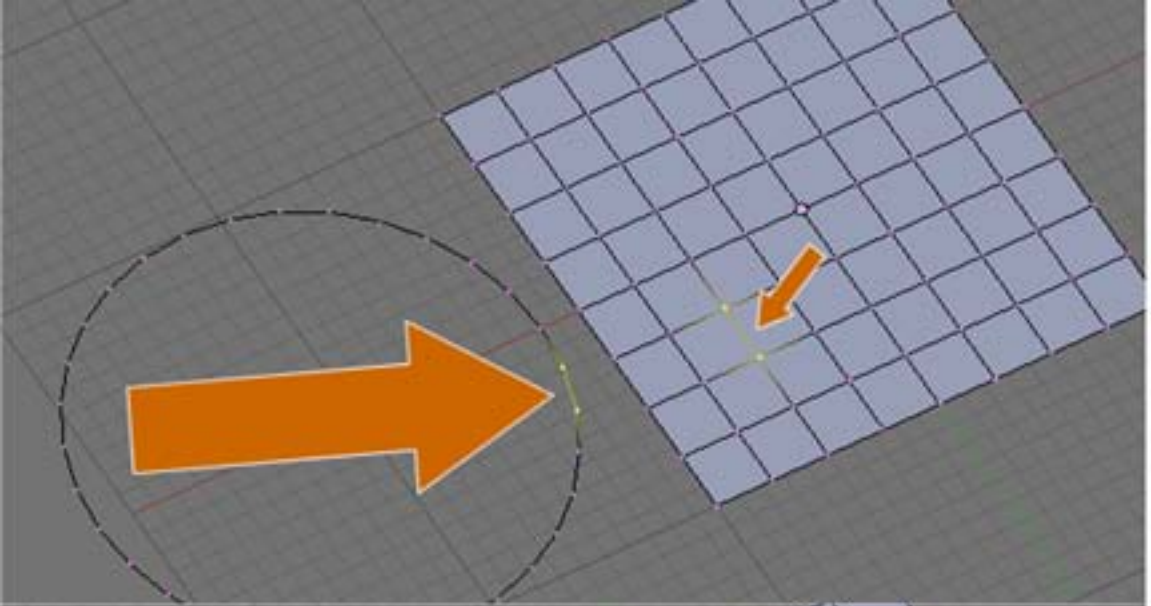


Move the view for you able to see the 3 axis in the same time, click with the **mouse middle button** and move the mouse over the **3D view**

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 make 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**

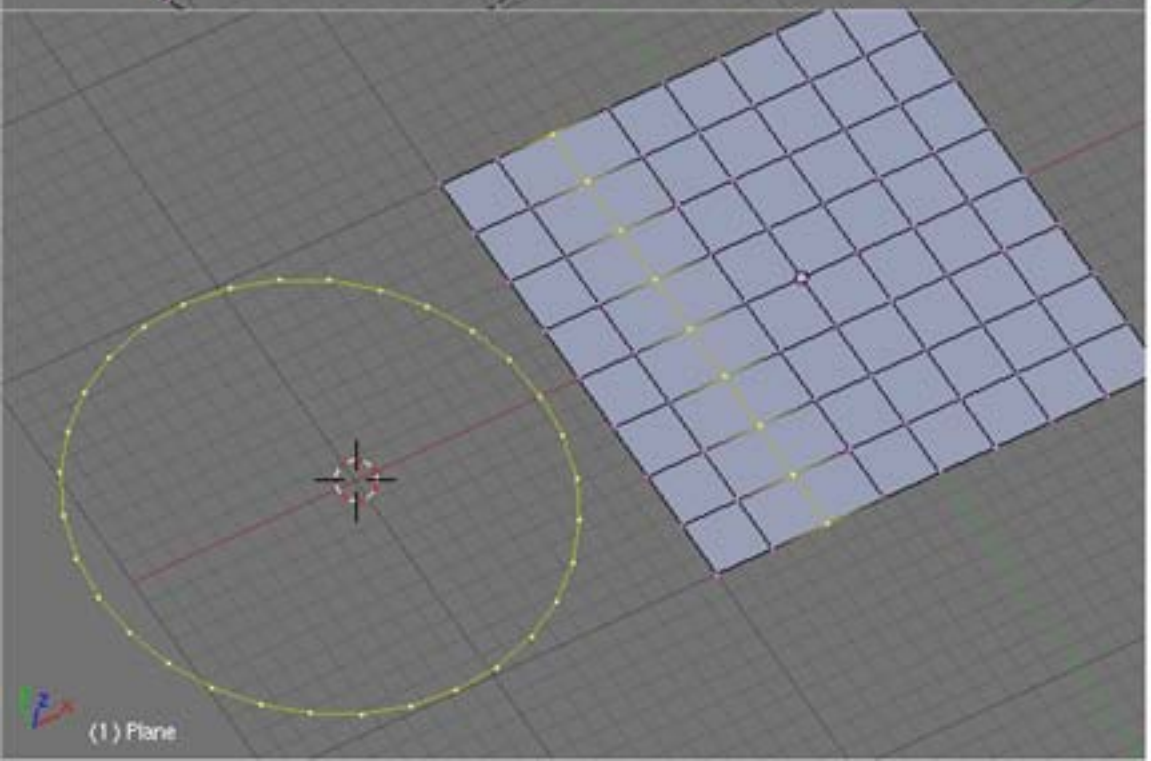


A little introduction to help you select ring and other edge loop easily

The method is really simple and can be apply with Edge-Vertice-Face

You have to click on the middle off two Vertice or one Edge with ALT

the orange arrow show where you have to click in Vertice mode for this picture

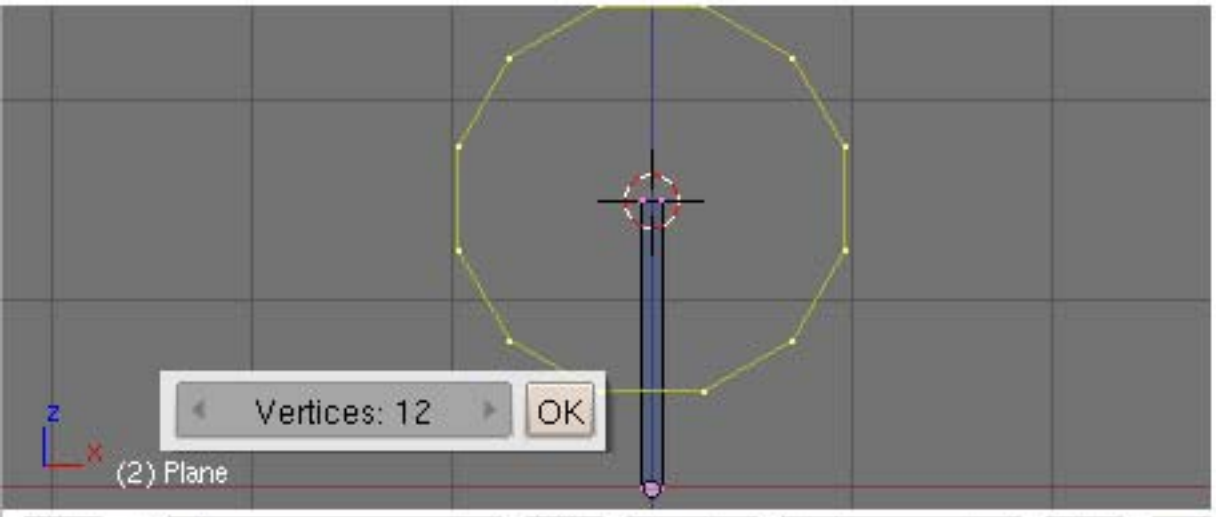


You will select all the ring for our windsock tutorial easily like that

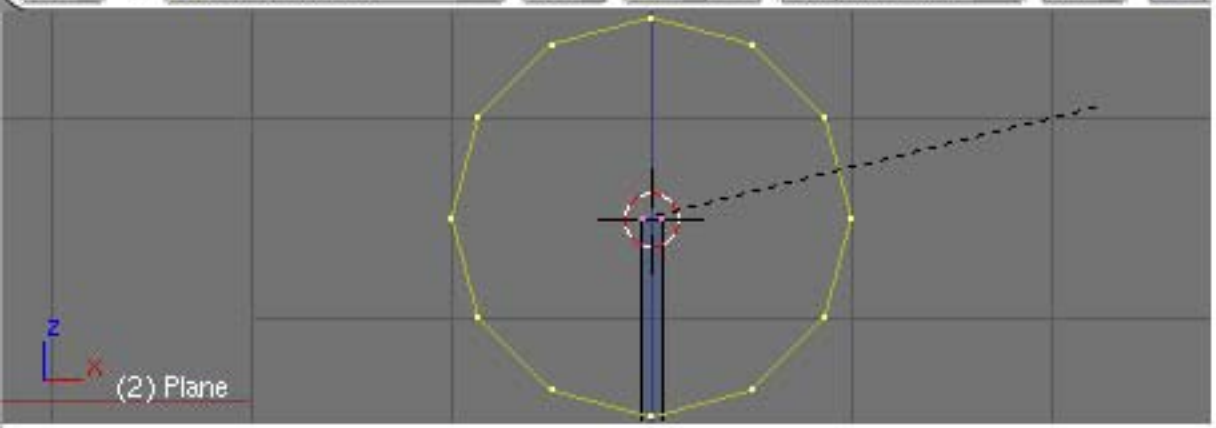
In face mode you will have to click on a face edge to select the loop

That a easy way to select somes faces that is not show, when you know they join to one you see and click on it.

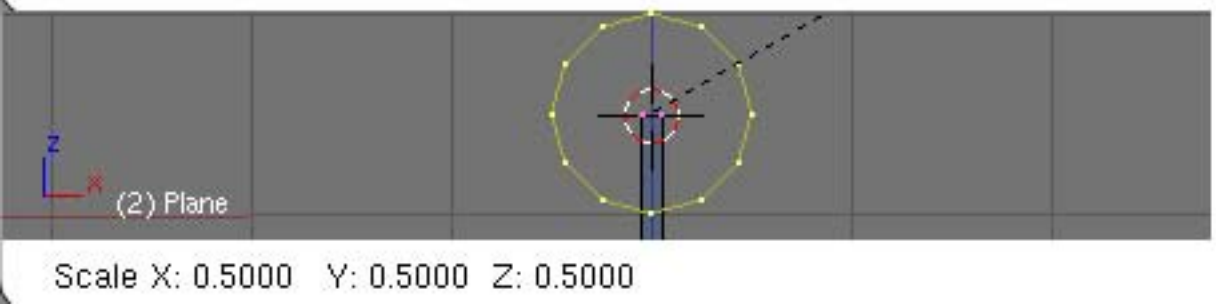
This selection will not work if you have TRI, so that a way to cut the edge loop somewhere, by converting a QUAD to two TRI (CTRL + T)



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**

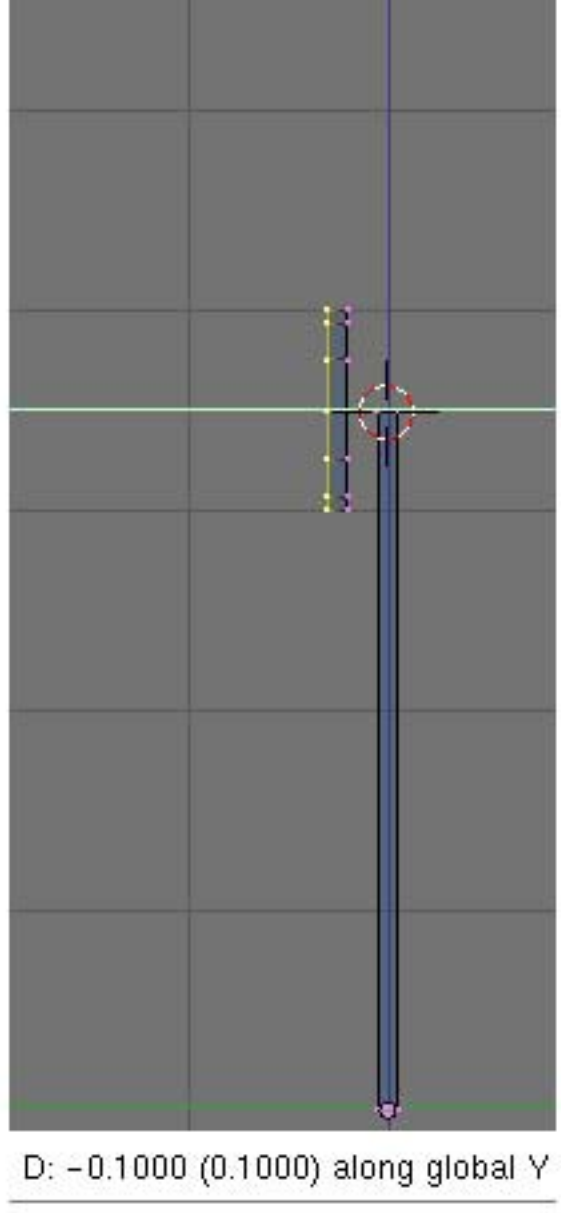


Tape **R** to rotate **15.0** on the keypad and **ENTER**



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

#1

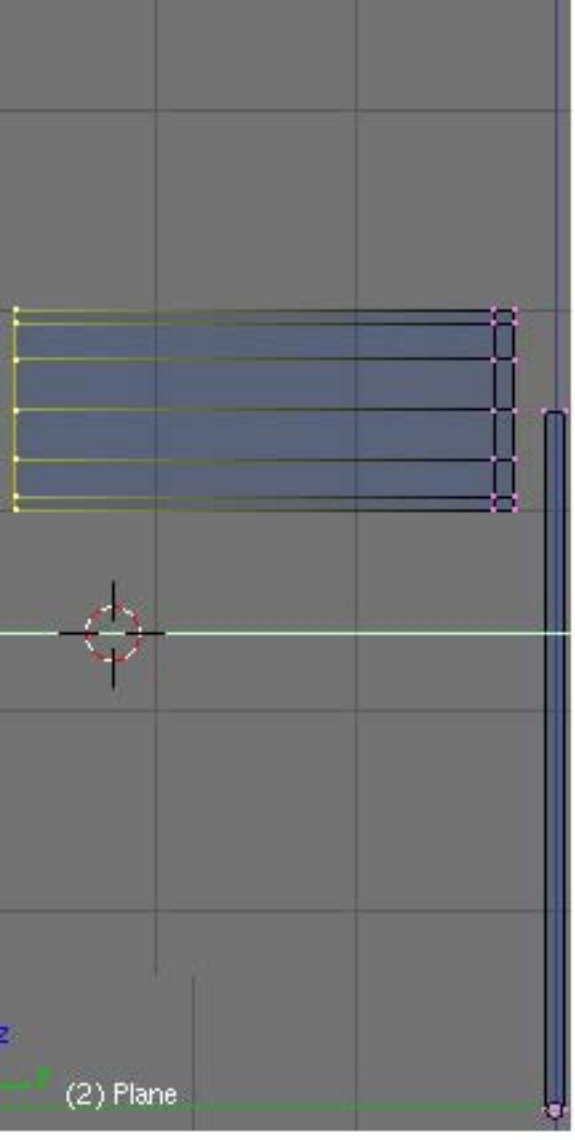


#2

Go in side view, 3 on the keypad

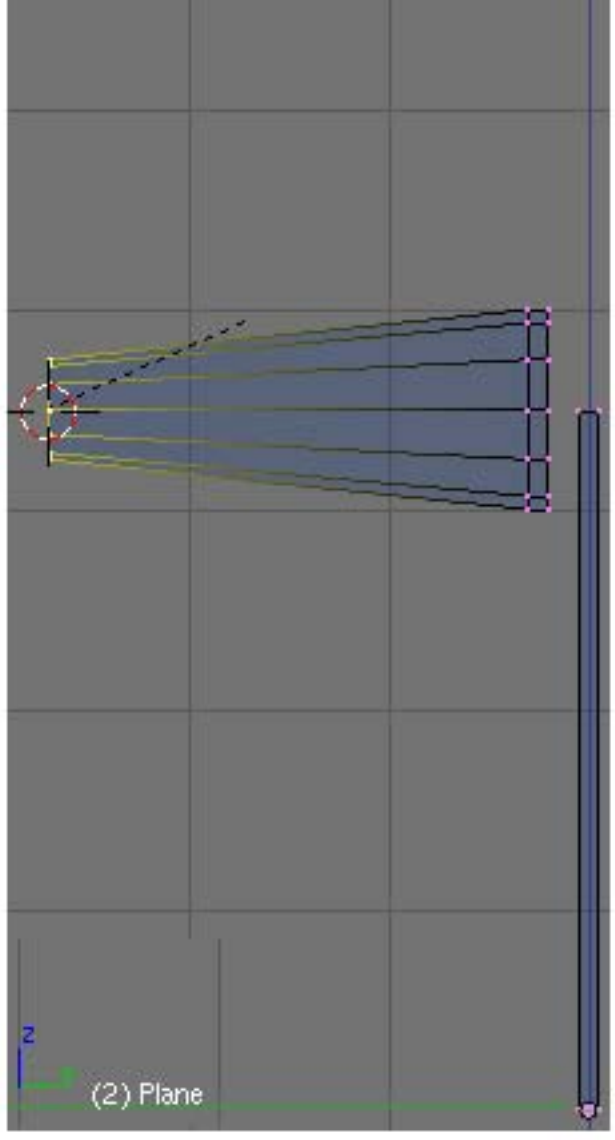
#1 Tape G to grab the circle vertice, Y to make sure it move only on the Y axis,
-0.2 and ENTER

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



D: -2.4000 (2.4000) along global Y

#1



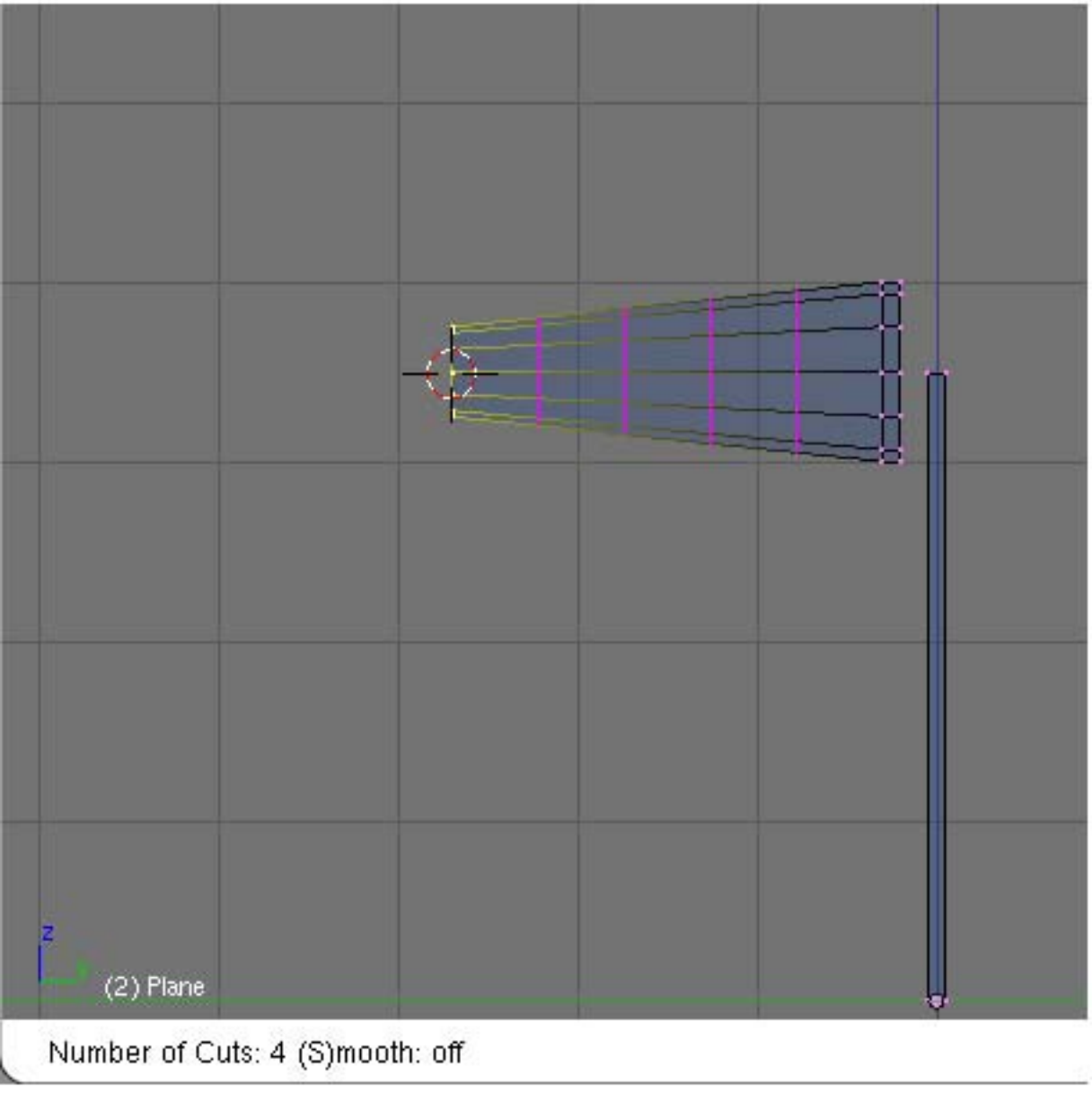
Scale X: 0.5000 Y: 0.5000 Z: 0.5000

#2

Go in **side** view, **3** on the keypad

#1 Tape again **E**, **Y**, **-2.4 ENTER**

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

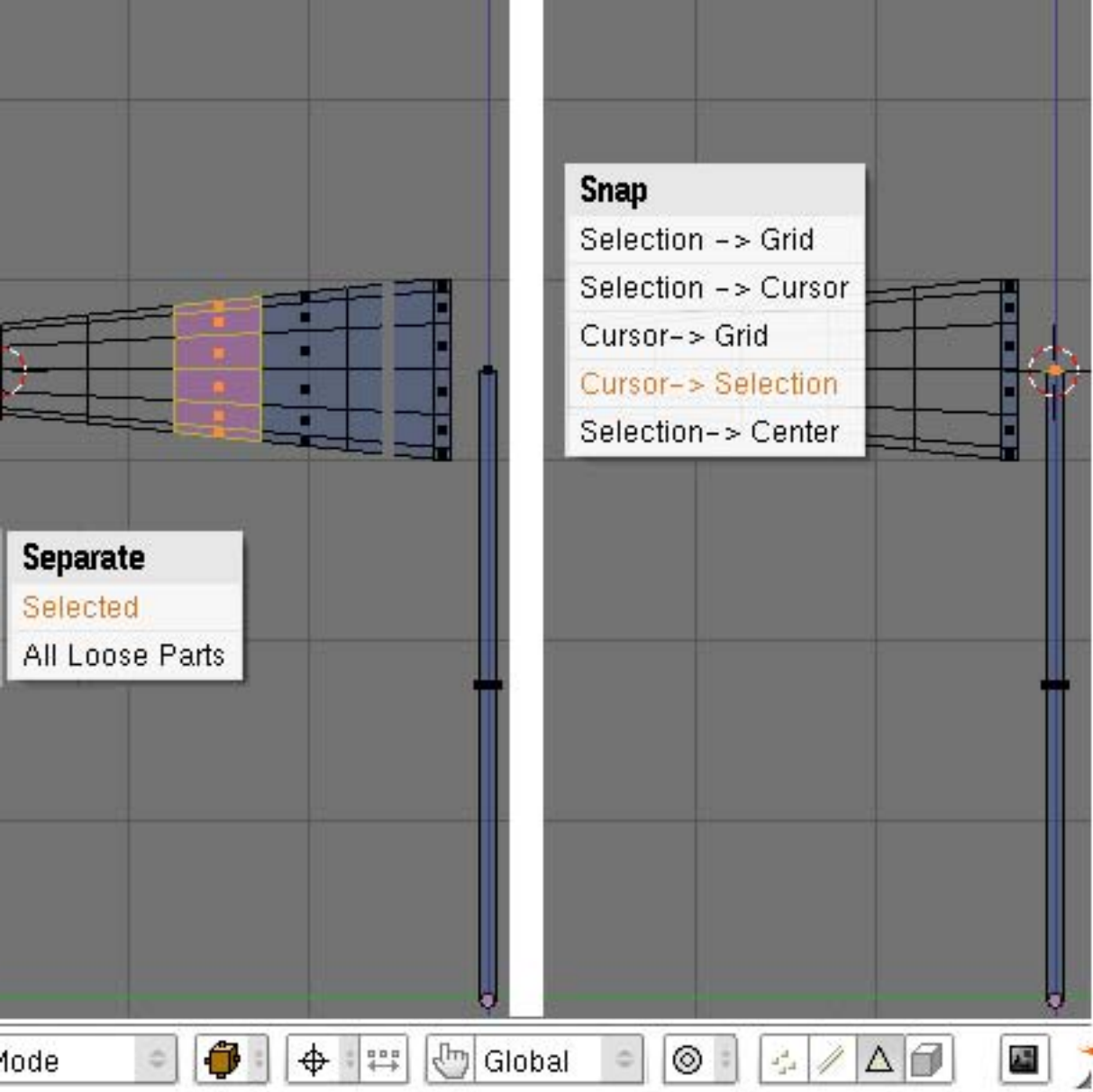


Now we need to have five cylinder

Put your mouse over the cyliender we want to cut, tape **CTRL + R** and move the **mousewheel** to change the number off cut to **4** and click **ENTER**

You will see the number at the D view footer change when you move the mousewheel

The pink visual marking show you what will look the transformration before apply it, so when moving the mousewheel you will see the pink marking change too
Tape Enter will apply the transformation



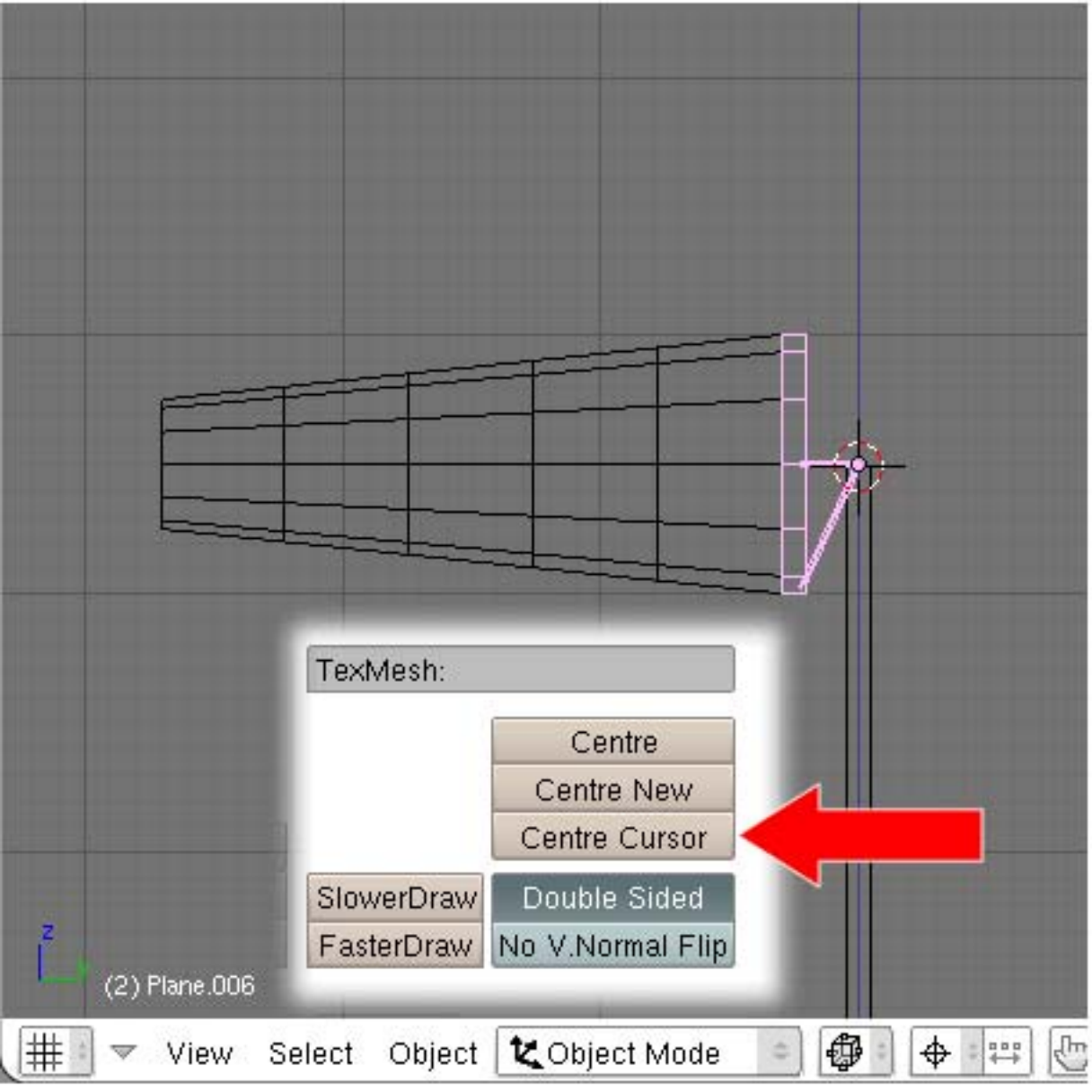
#1 Now separate all the cylinder that will be animated, select all the face and tape **P** to separate them, do that for all the cylinder one after the other, use the select rectangle to select ring face with **B**

→ Be sure that you use the FACE mode to separate, that will be more easy

To avoid non visible selection be sure this button is unselected

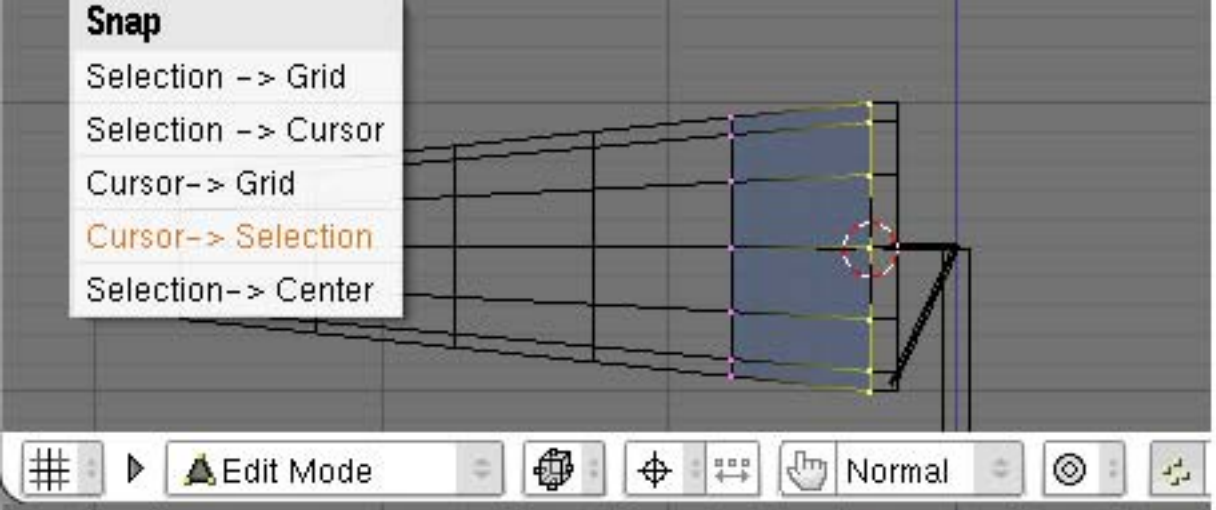
#2 just before the last one that act like the rigid one, click on the mast top face, to snap the cursor at it location

click on the face, tape SHIFT + S, choose cursor > selection

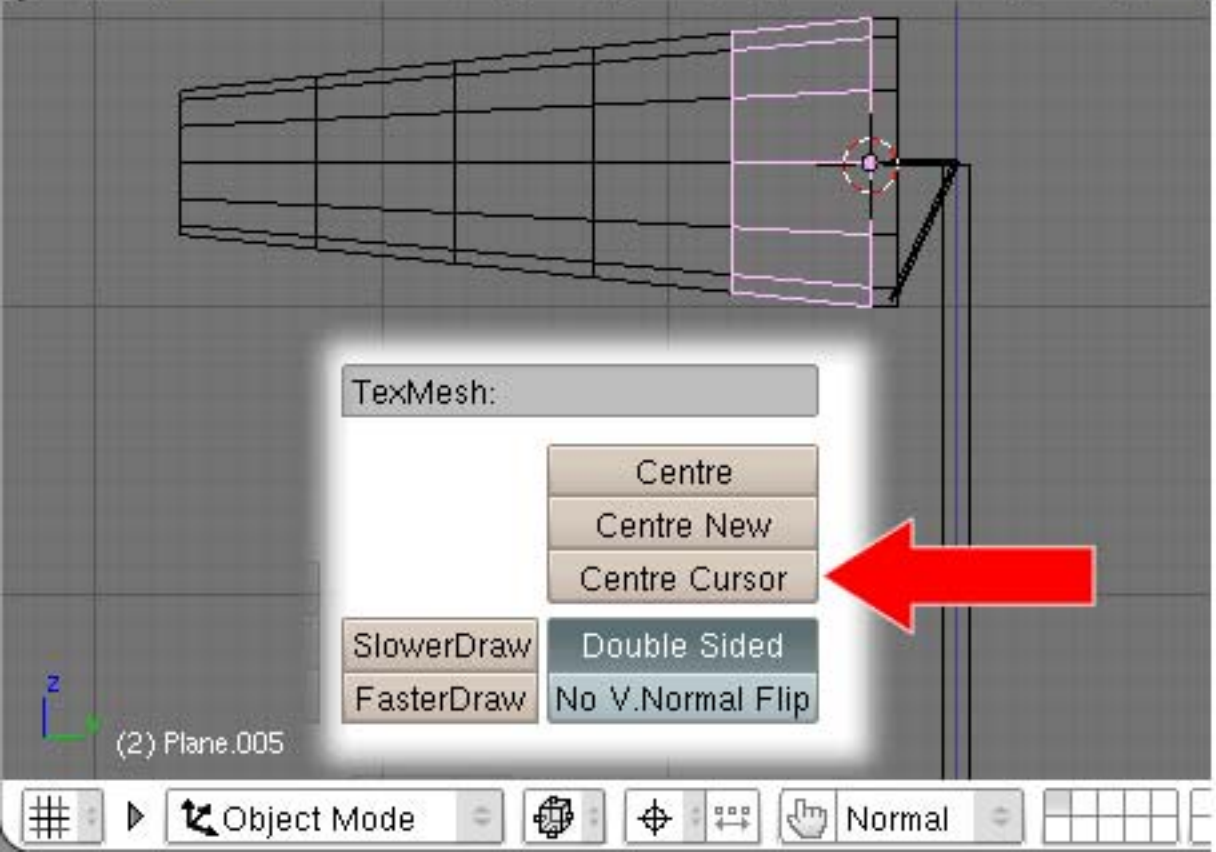


We have placed the cursor at the mast top center, because the ring that will show the wind direction will be better to have is origine center at this position, to make the futur work easier

Separate **P** the cylinder off the mast, now you have only the rigid ring selected like a **object**, the other is unselected
Give to the rigid circle a **new origine** based on the **cursor location**, you can give it somes structure with simple quad too, to link it to the mast
you will found this button in the Editing panel (**F9**)

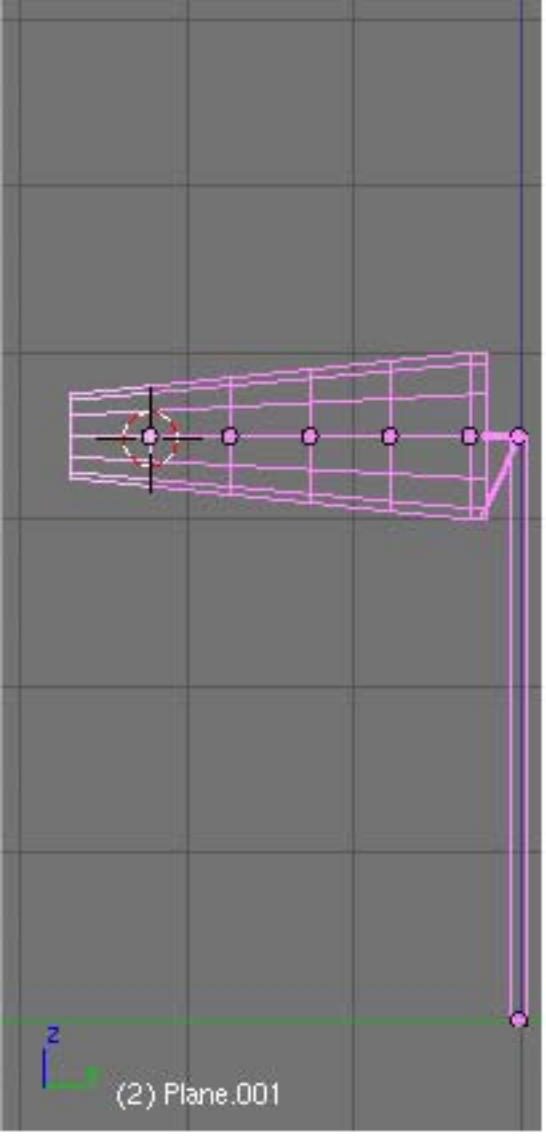


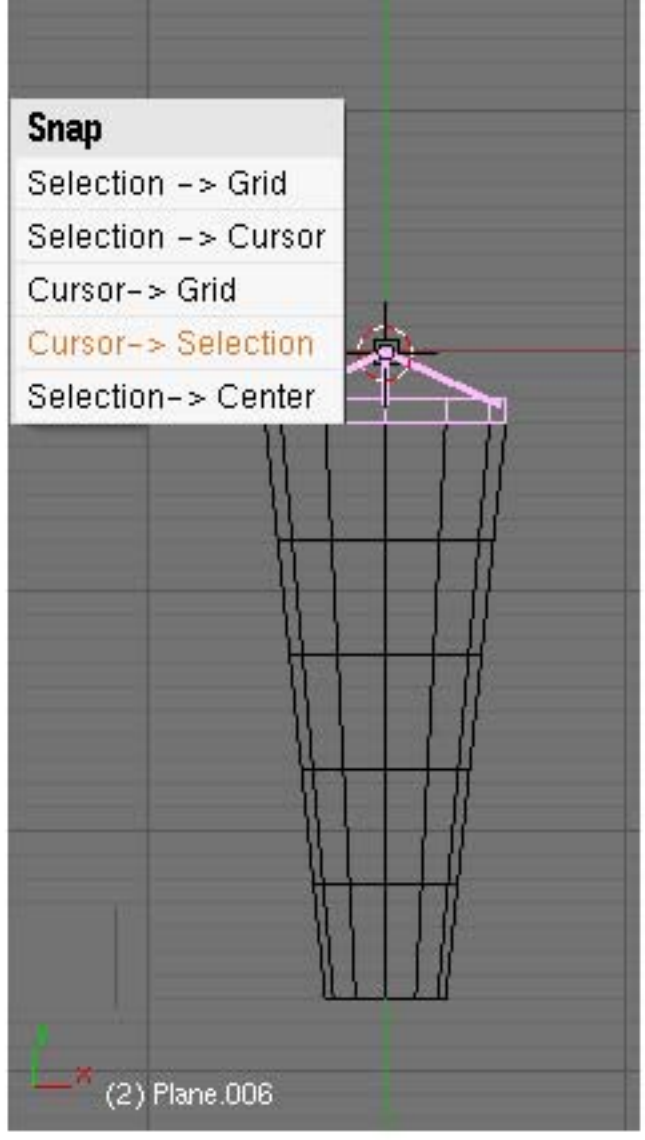
Select the next ring and in **edit** mode select all the first circle, snap **CTRL + S, cursor > selection**



Use vertice in wireframe view, that more easier and you sure you select all with the **B** selection rectangle

Go in back in **OBJECT** mode and give it is **new center location**
Like we make before
In fact that will be our pivot point to make the ring go up & down, that for that we place it each time wih the cursor





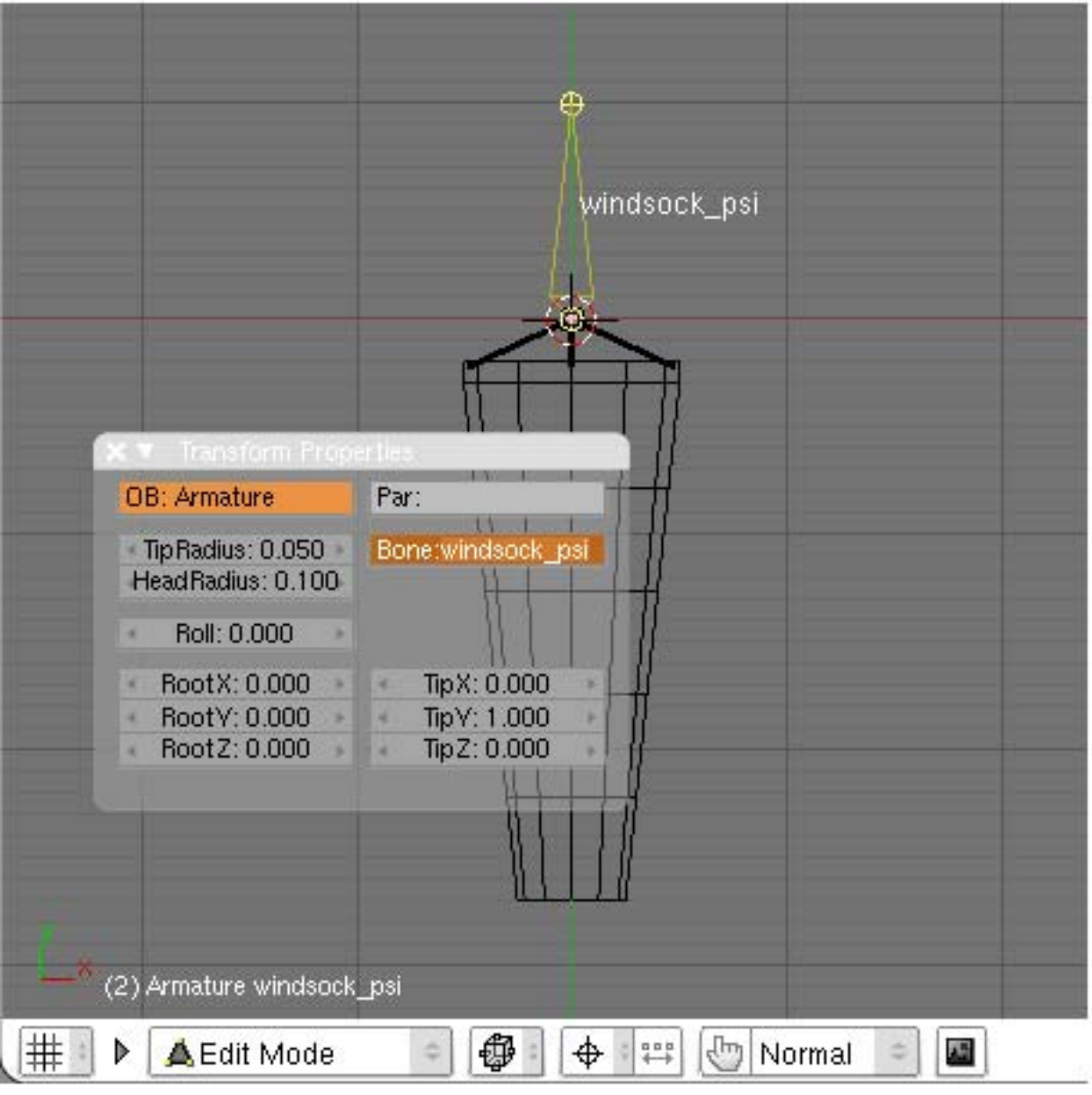
#1 So do that for all the ring

#2 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 Space bar to add a new armature

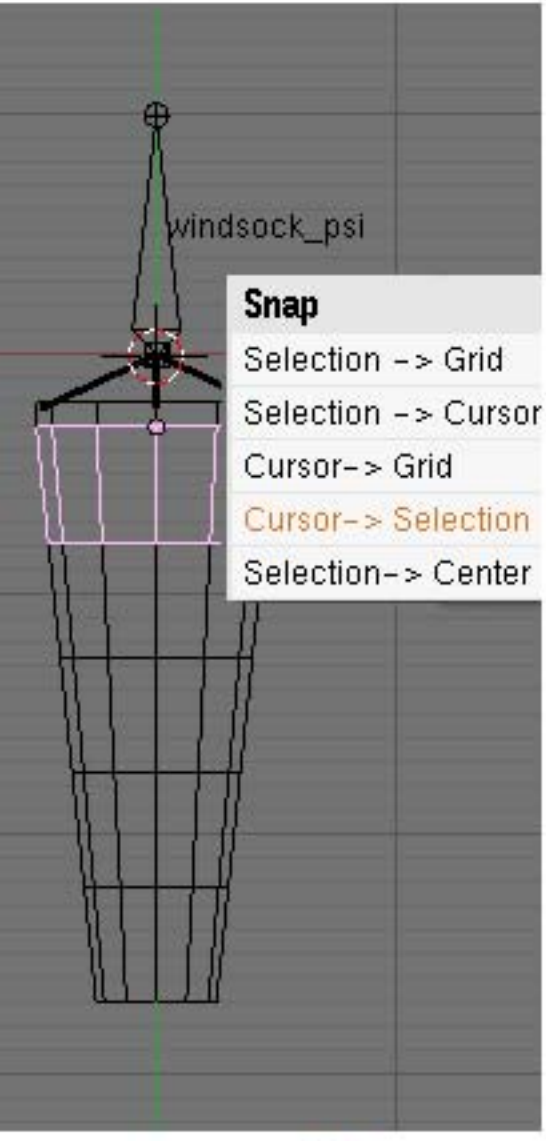
#1

#2

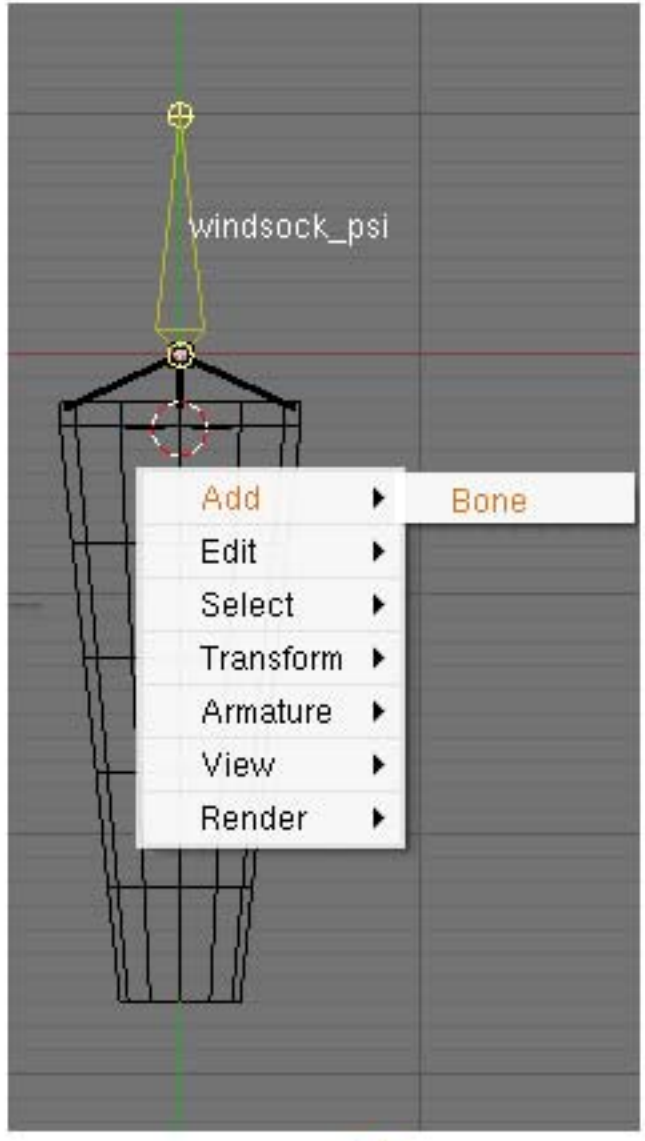


Give it the Dataref name windsock_psi, that will act to make the windsock go into the wind direction, so tape N to bring the property panel to change the Bone:Bone to Bone:windsock_psi

Click on the Draw Axes & Names to help manipulate and identify



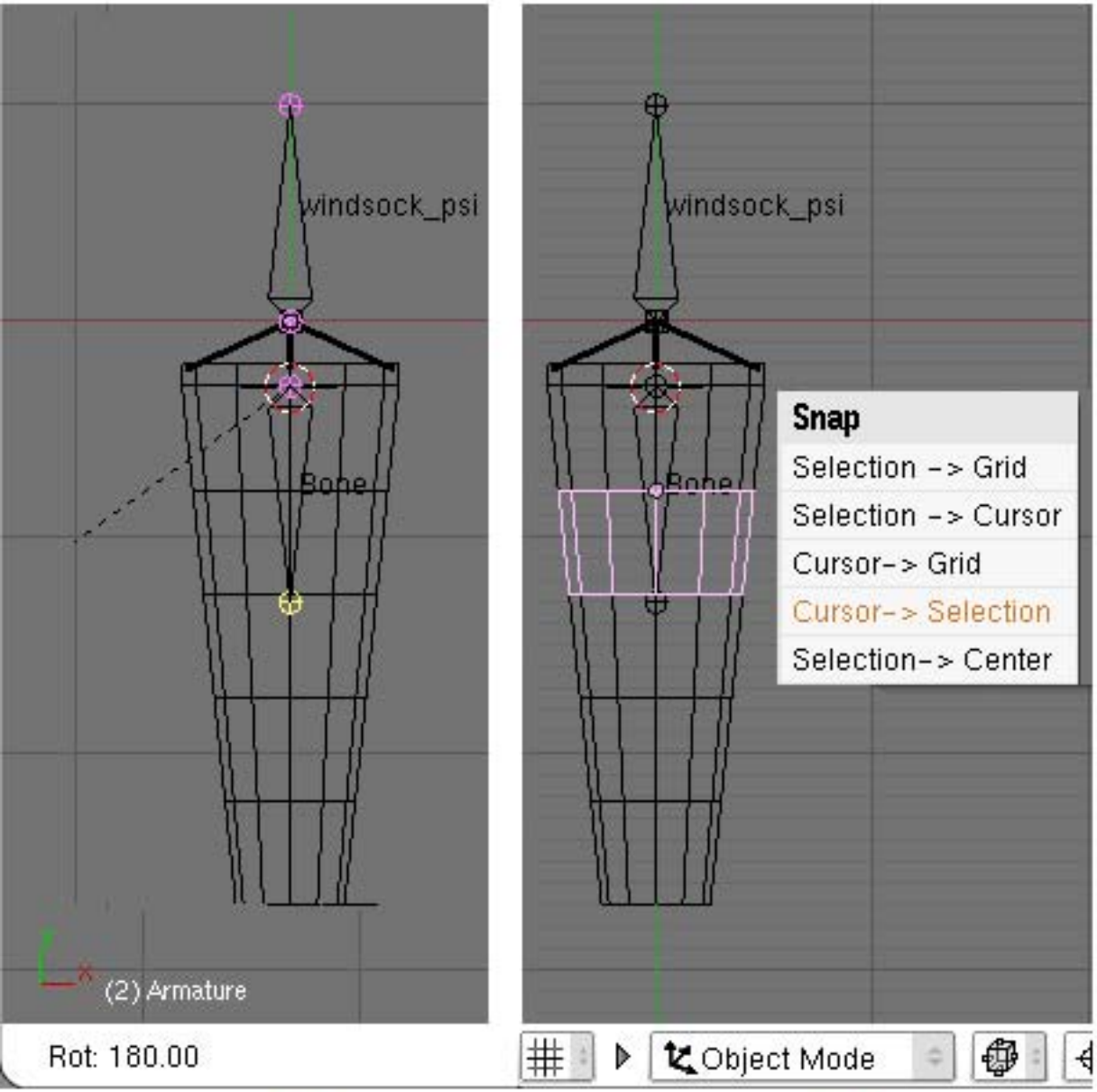
#1



#2

#1 Leave the armature Edit mode to Object mode
Now click on the next ring to select it and snap the cursor to is origine center
Shift + S - Cursor > Selection

#2 Select the armature, tape **Tab** to go in the armature **edit** mode
Tape the **Space** bar to **add** a new **BONE** at the cursor location

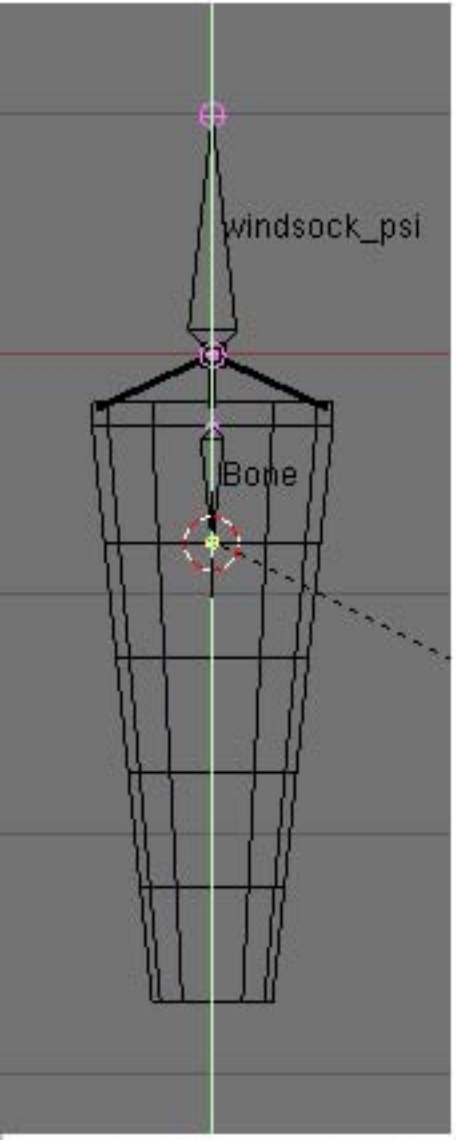


#1

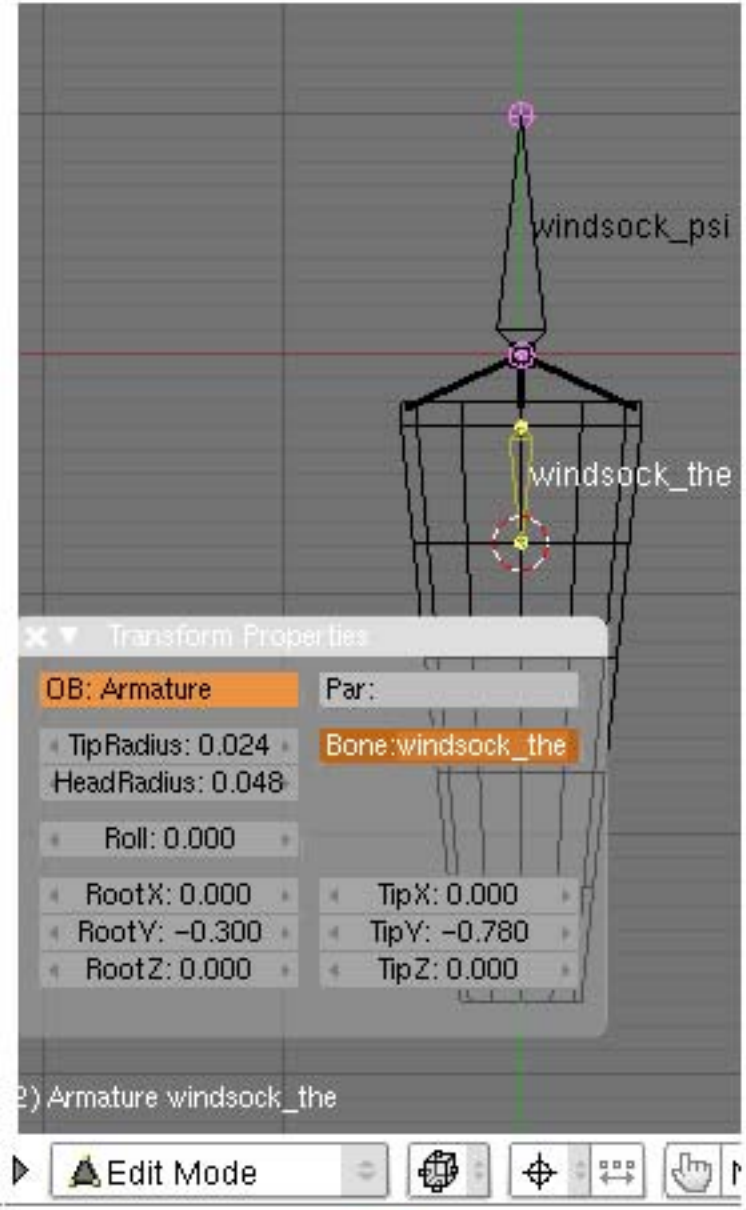
#2

#1 Rotate the new added bone
tape R +180 +ENTER

#2 Click on the next ring and snap the cursor at is origine, SHIFT+S



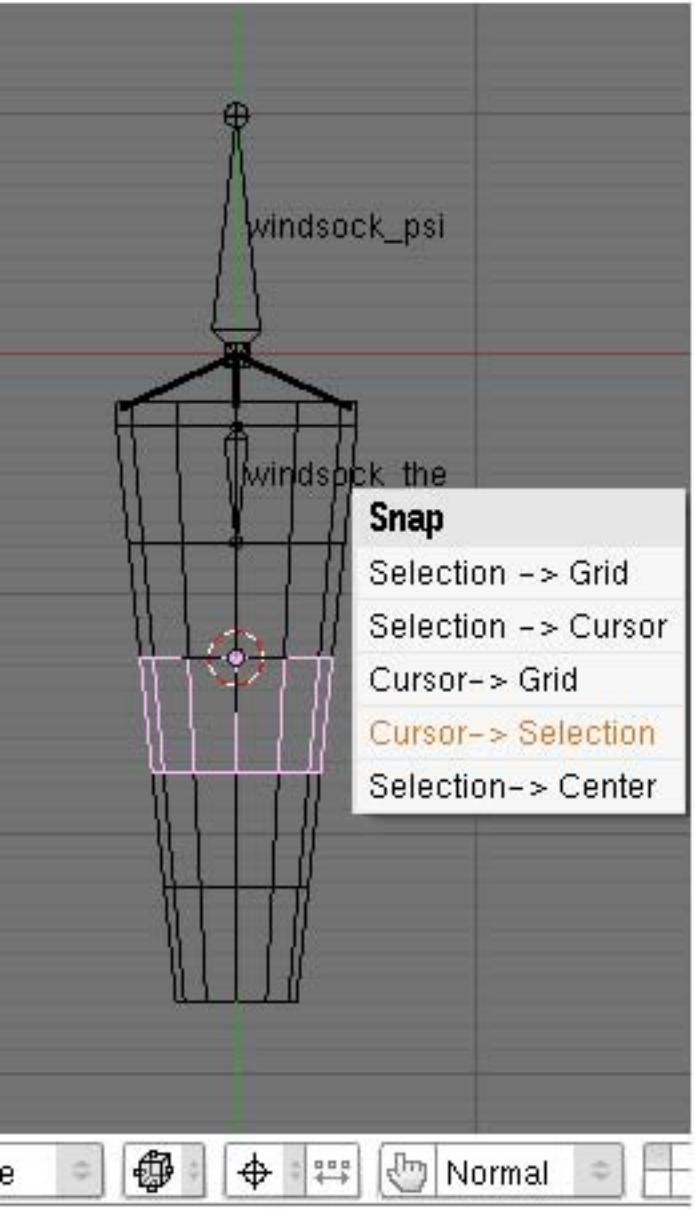
#1



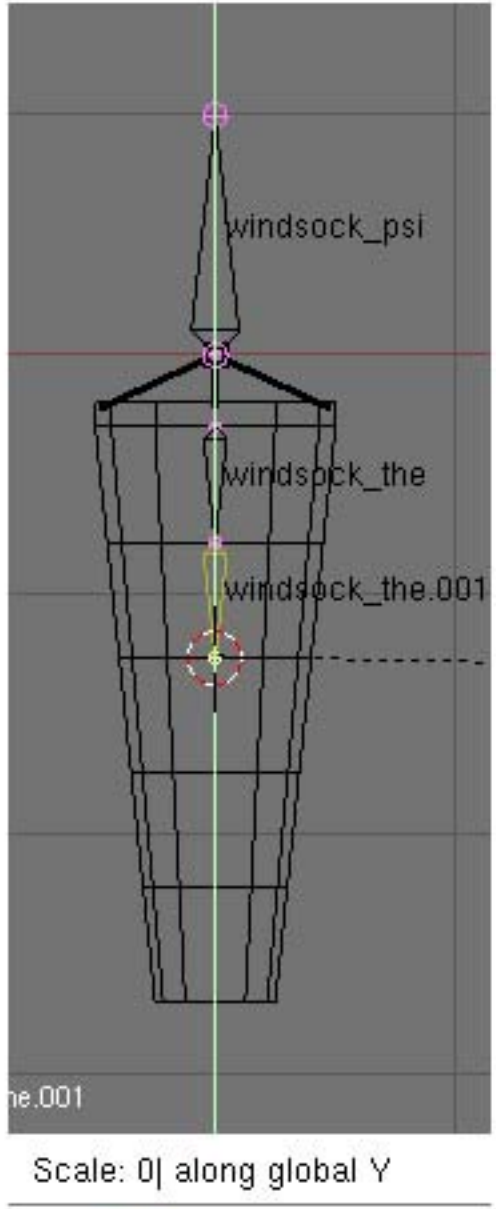
#2

#1 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**

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



#1

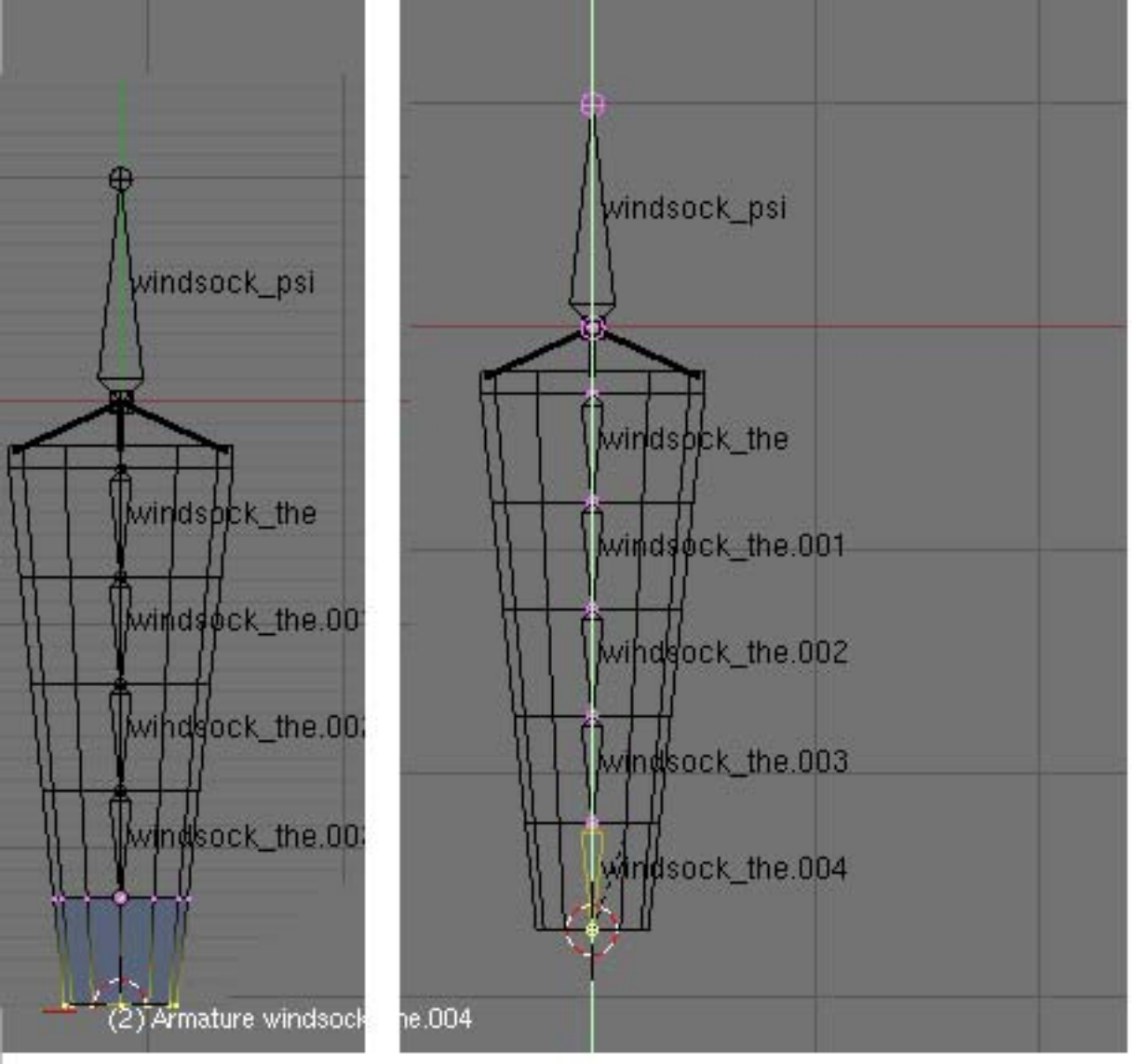


#2

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

#2 Select the armature, in **edit** mode select the **tip** off the recently added bone **windosck_the**
Tape **E** to extrude the bone, **S** to scale it and **Y** for the axis, tape **0** on the keypad, and **ENTER**

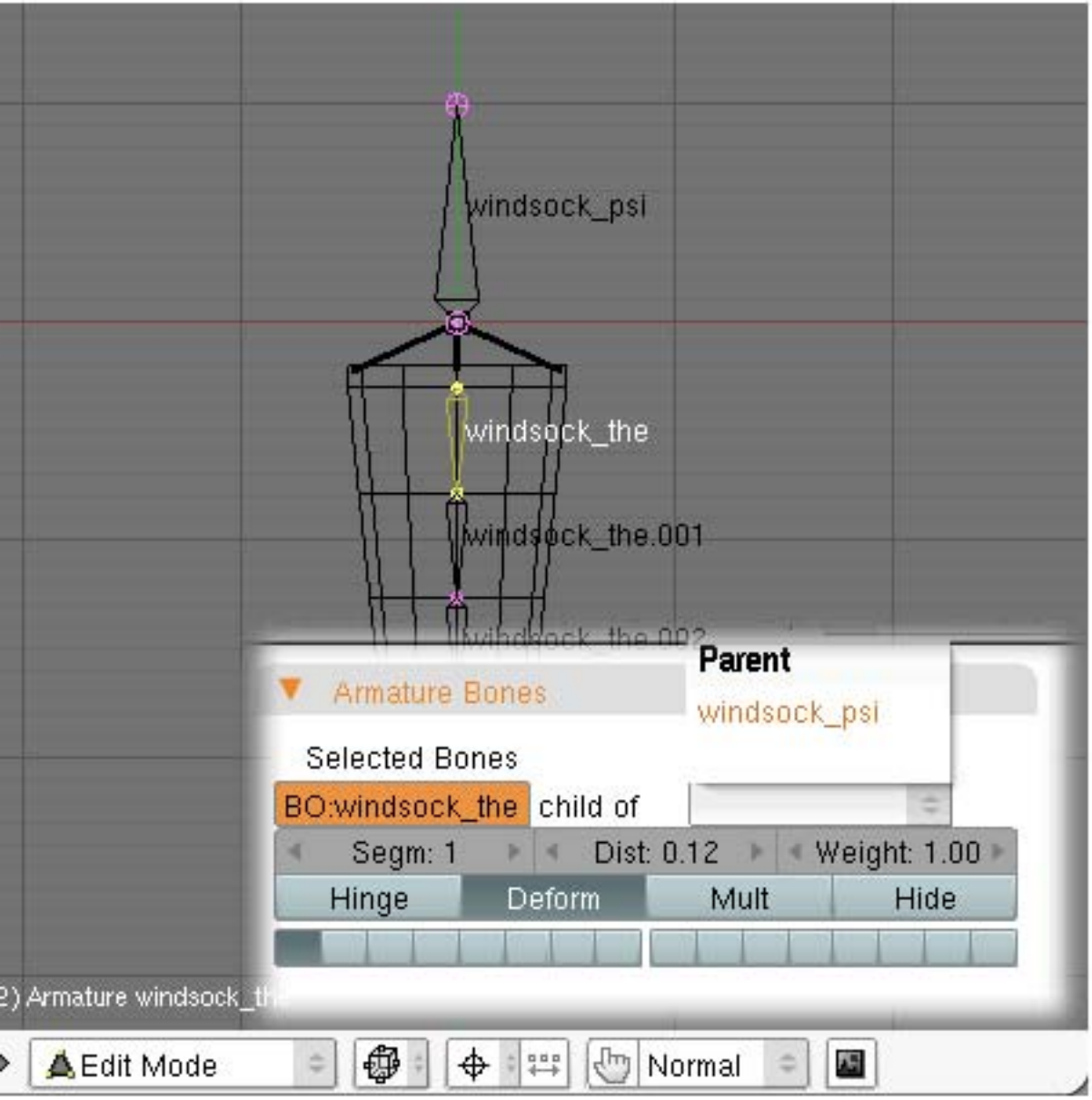
An do that for all the next ring until the last one where you will have no other ring origine to scale the bone with.



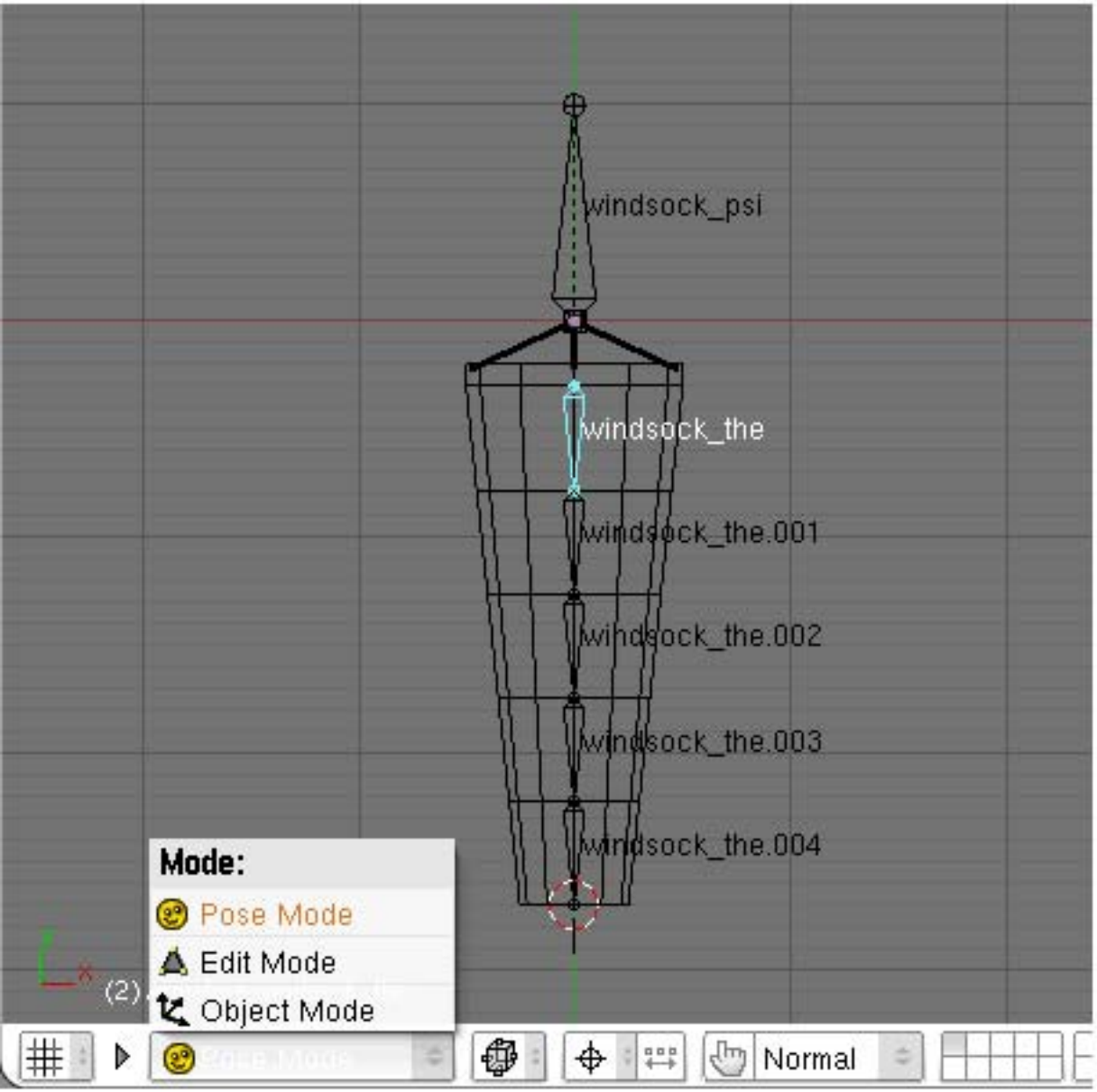
#1 for the last ring go in edit mode, and select the end circle vertice to snap the cursor at the position, **SHIFT + S**

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

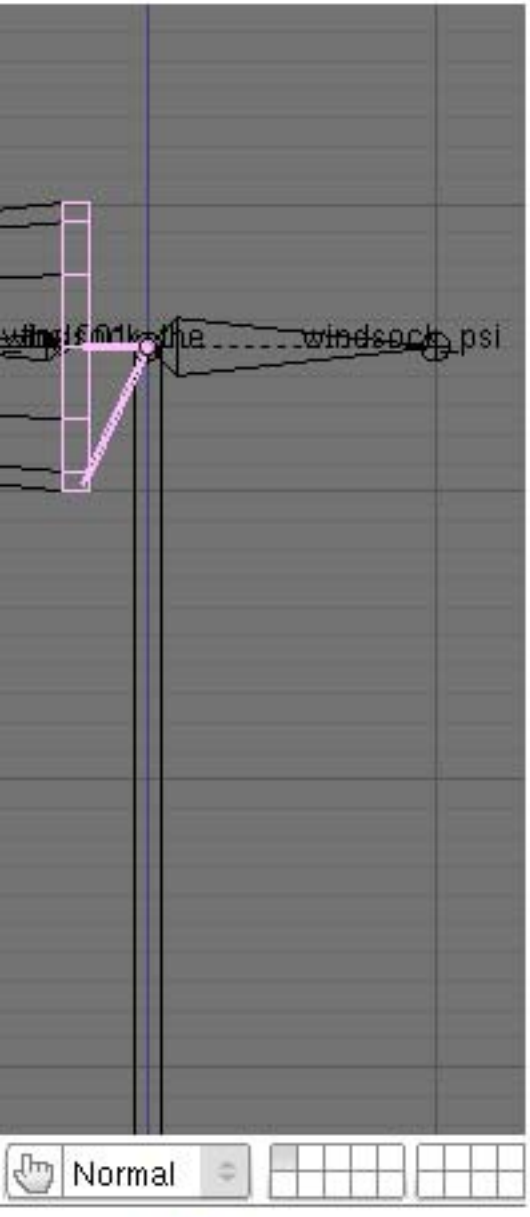
#1 **#2**



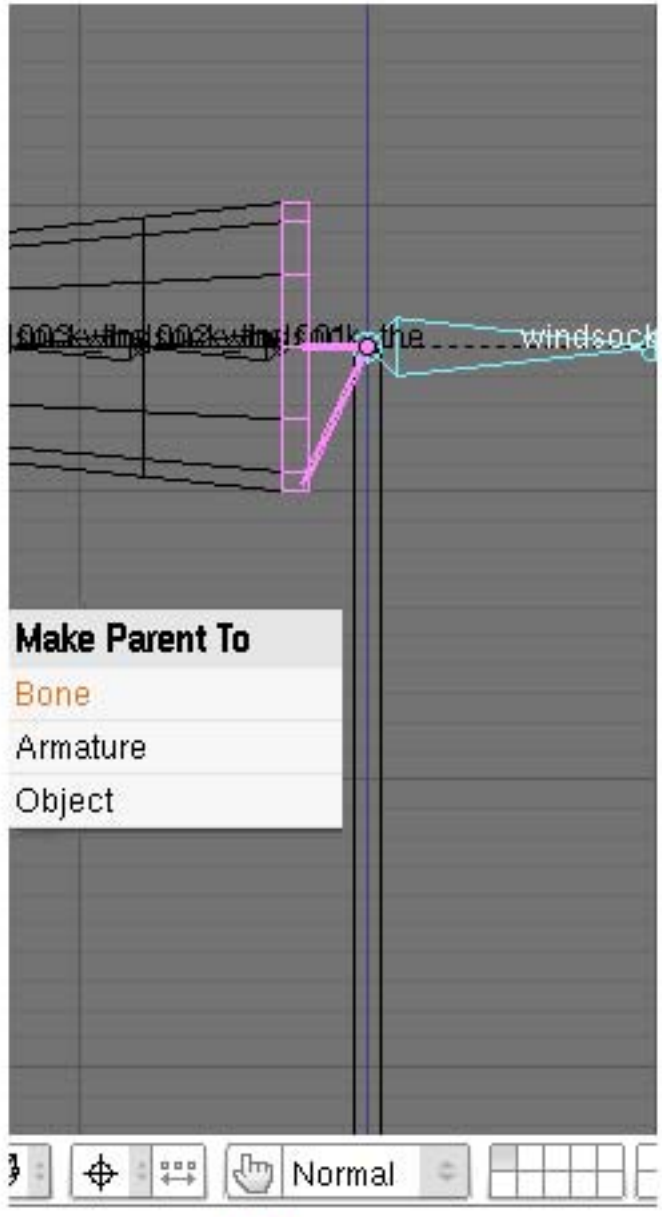
Now we need to link the bone that show the wind speed to the one that show the wind direction, so we need to make the wind chain the **children** off the wind direction one, use the pop menu in **EDIT** mode only to make them child/parent, you don't have to do that for the other because you have extruded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



now click on a bone and go in **POSE MODE**
The selected bone will be blue now, a good way to know in what mode we are



#1

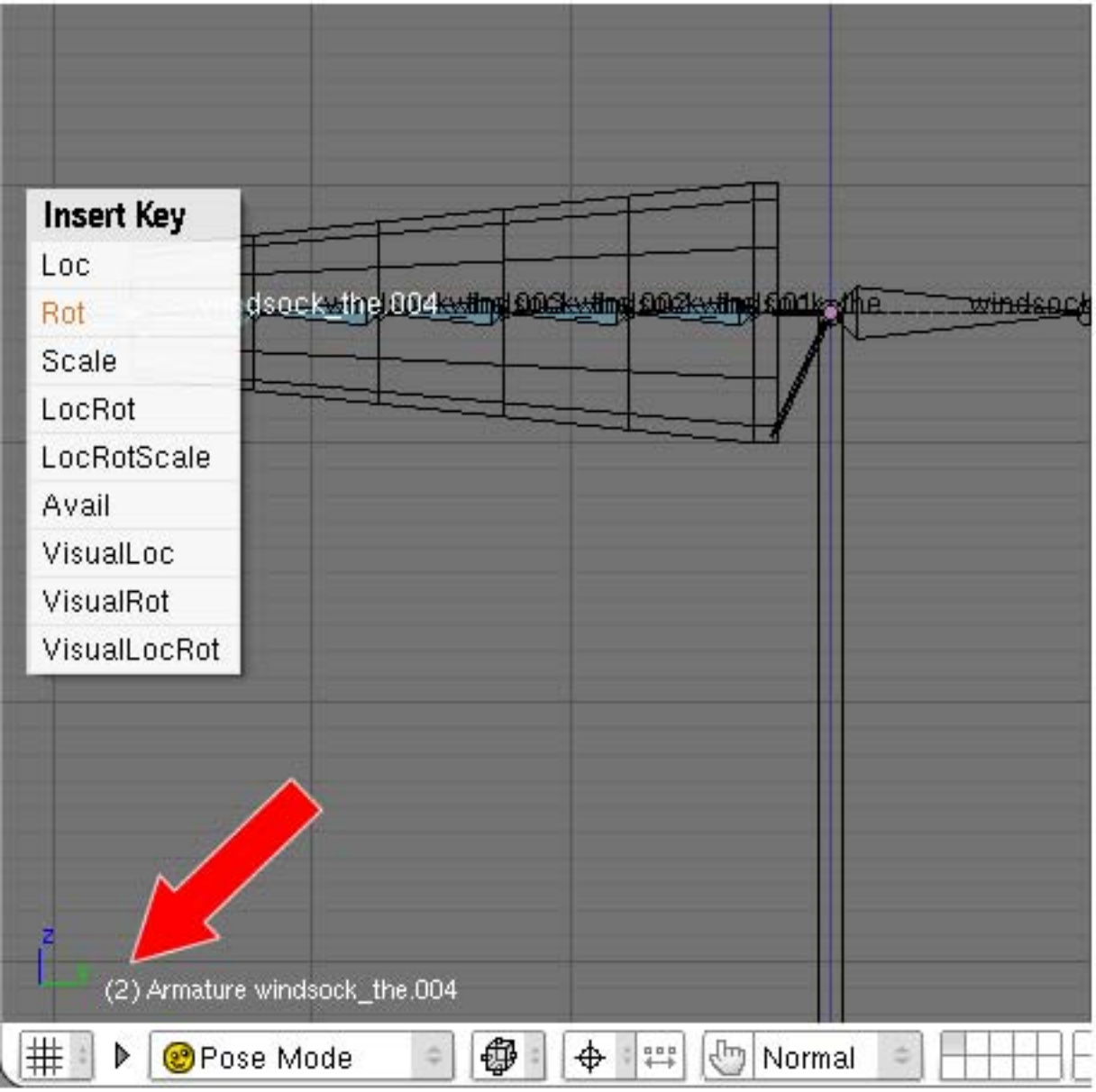


#2

#1 Go in **side** view, tape **3** on the keypad, and click on the rigid ring to select it, the armature is still in **POSE** mode, but not like in EDIT MODE, you can **select** a other object right now

#2 **Parent the mesh** 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**

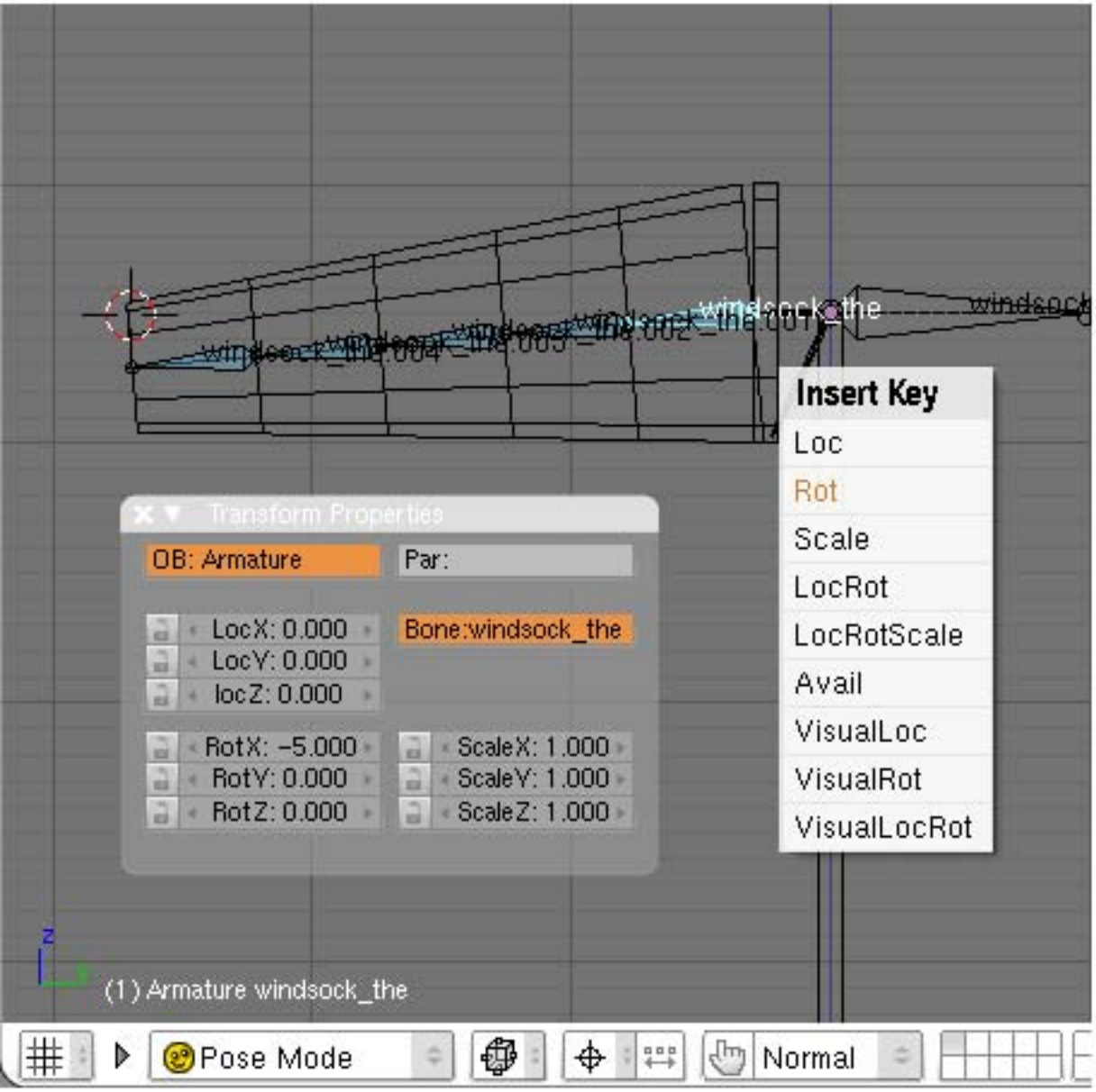
Do that for each mesh and bone that share their origine



Now all the mesh is parented to a bone

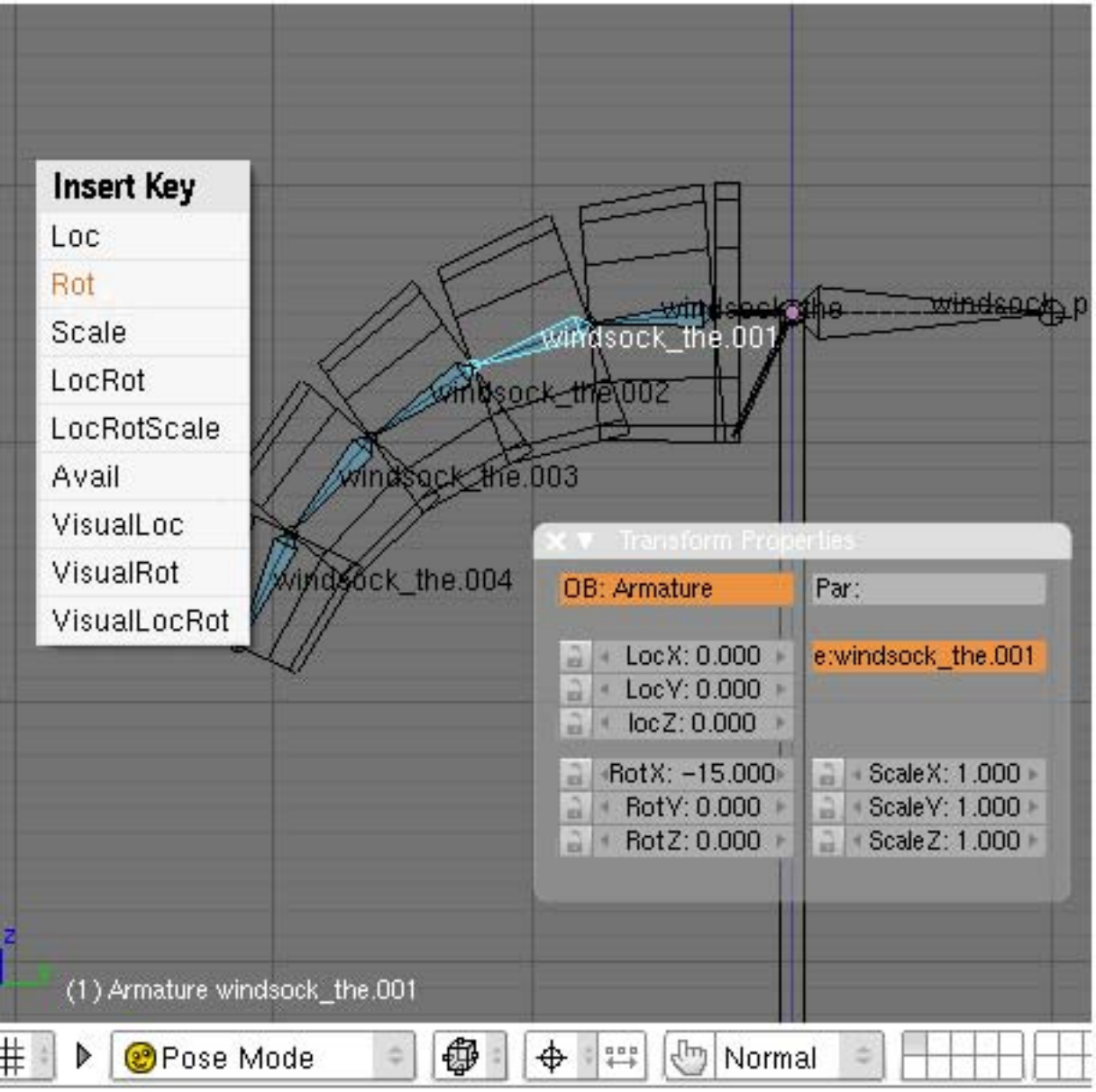
Go on the **second frame**, use your keyboard **right arrow** to navigate select a **windsock_the** bone and give it a **Rotation Ikeys**, tape **I** when the bone is selected and choose **Rot**

Do that for all the bone using windsock_the, that don't matter if you start at the first or the second for blender as long you don't roget to enter a Ikeys, if you change frame without giving a Ikeys the modification will be loose when you will go back



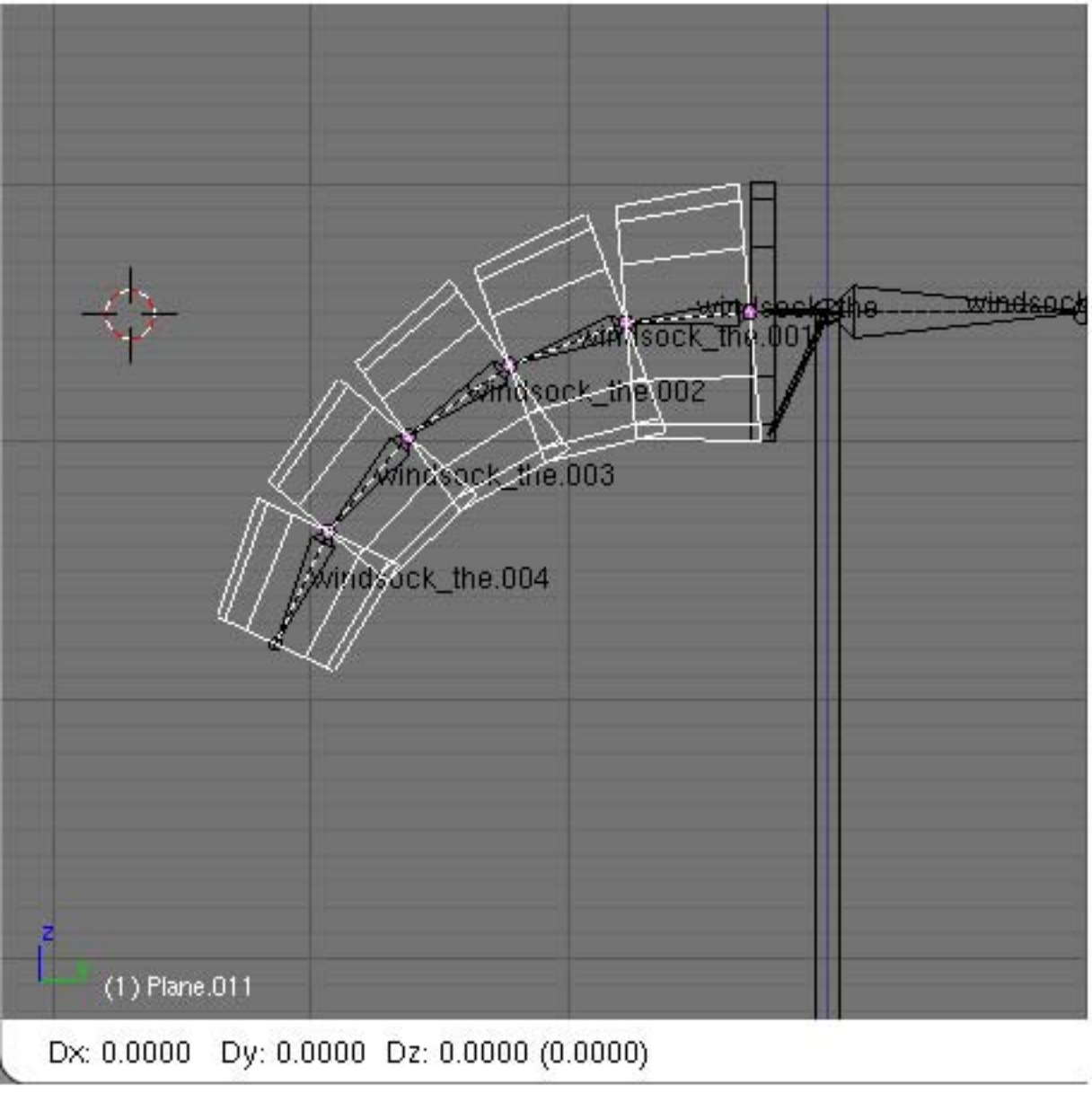
Now go on the first frame, to build the no wind position

Bring the property panel N, click on the first windsock_the to change it RotX to a new valor(-5.0), and tape I to enter a new Ikeys, don't give it more than 5 degres



Now go on the **first frame**, to build the no wind position

Bring the property panel **N**, click on the first **windsock_the** to change it **RotX** to a new valor**(-5.0)**, and tape **I** to enter a new **Ikeys**, don't give it more than 5 degres

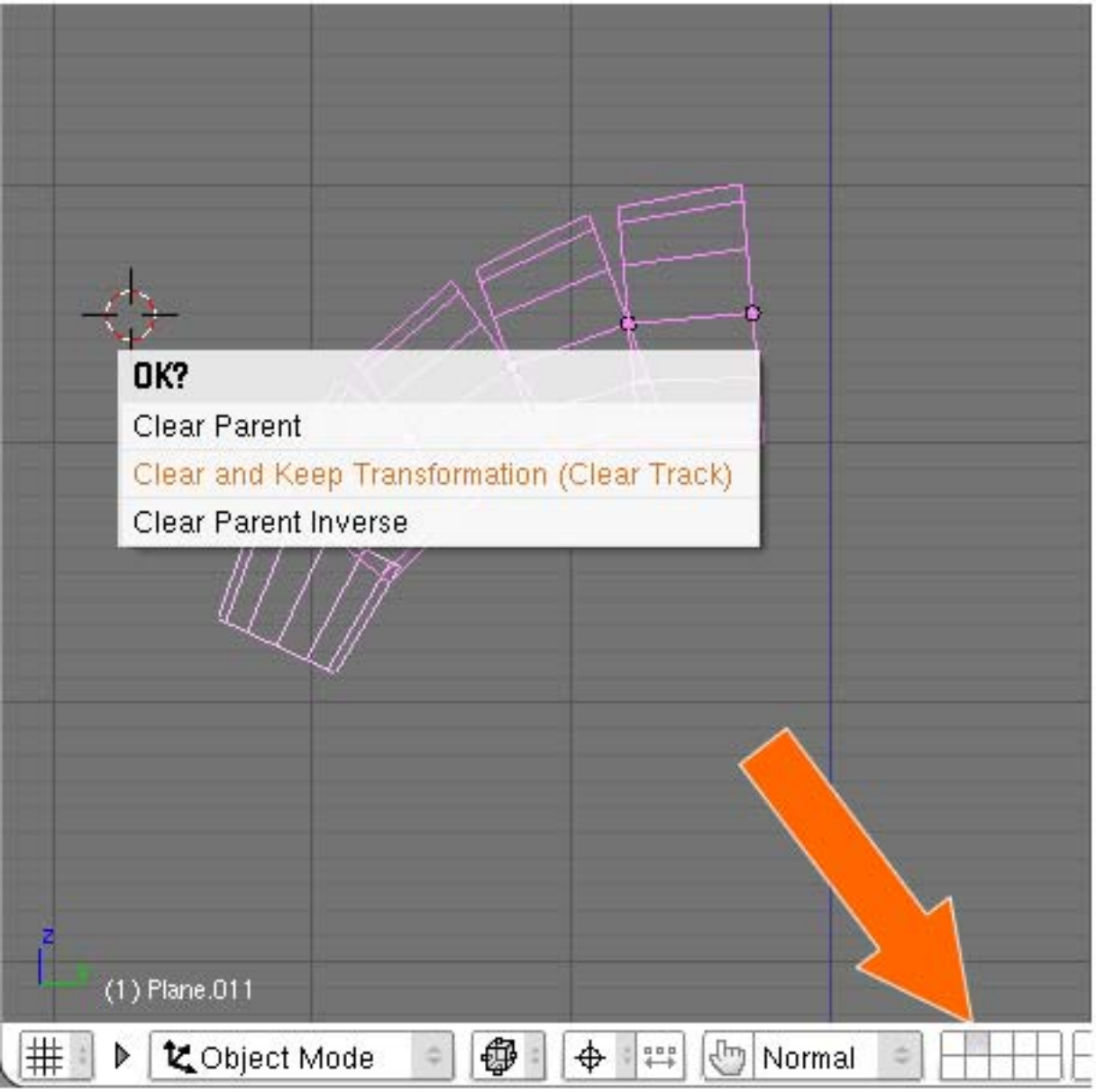


Now we making copy off the ring in the no wind position, to be sure that if we make a mystake that will not be on our final work

Select **all the rings** using the **windsock_the**, by using **shift** to have multiple selection
Tape **CTRL + D** to duplicate
Don't move the mouse that really important, as soon you tape **CTRL + D** tape the **SPACE** bar to confirm the transformation

Now tape **M** to bring the layer panel to put this new objects on a empty layer, that will be able to select with and without the one we working on

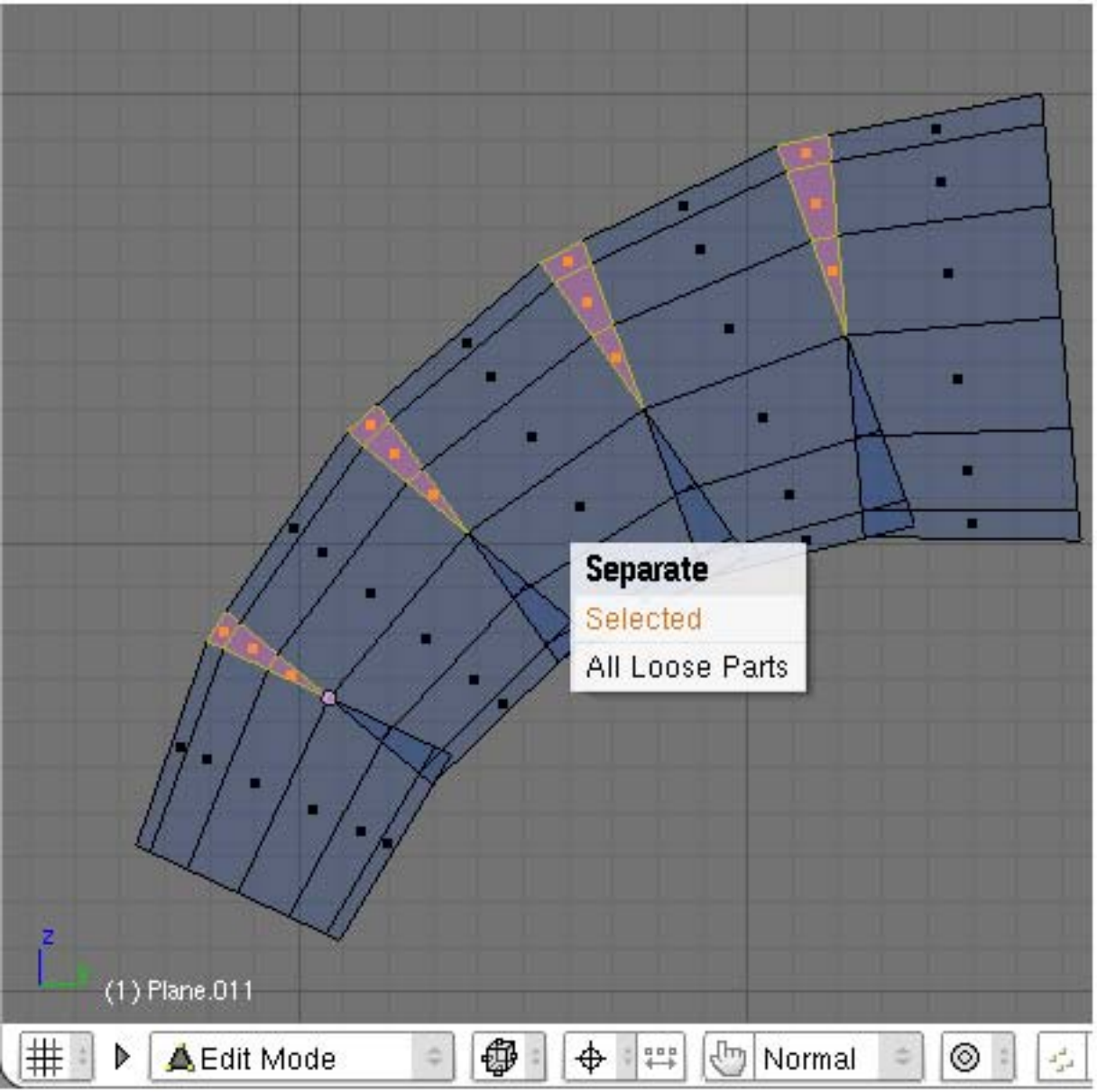
Click on the layer you want and confirm with **OK**



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

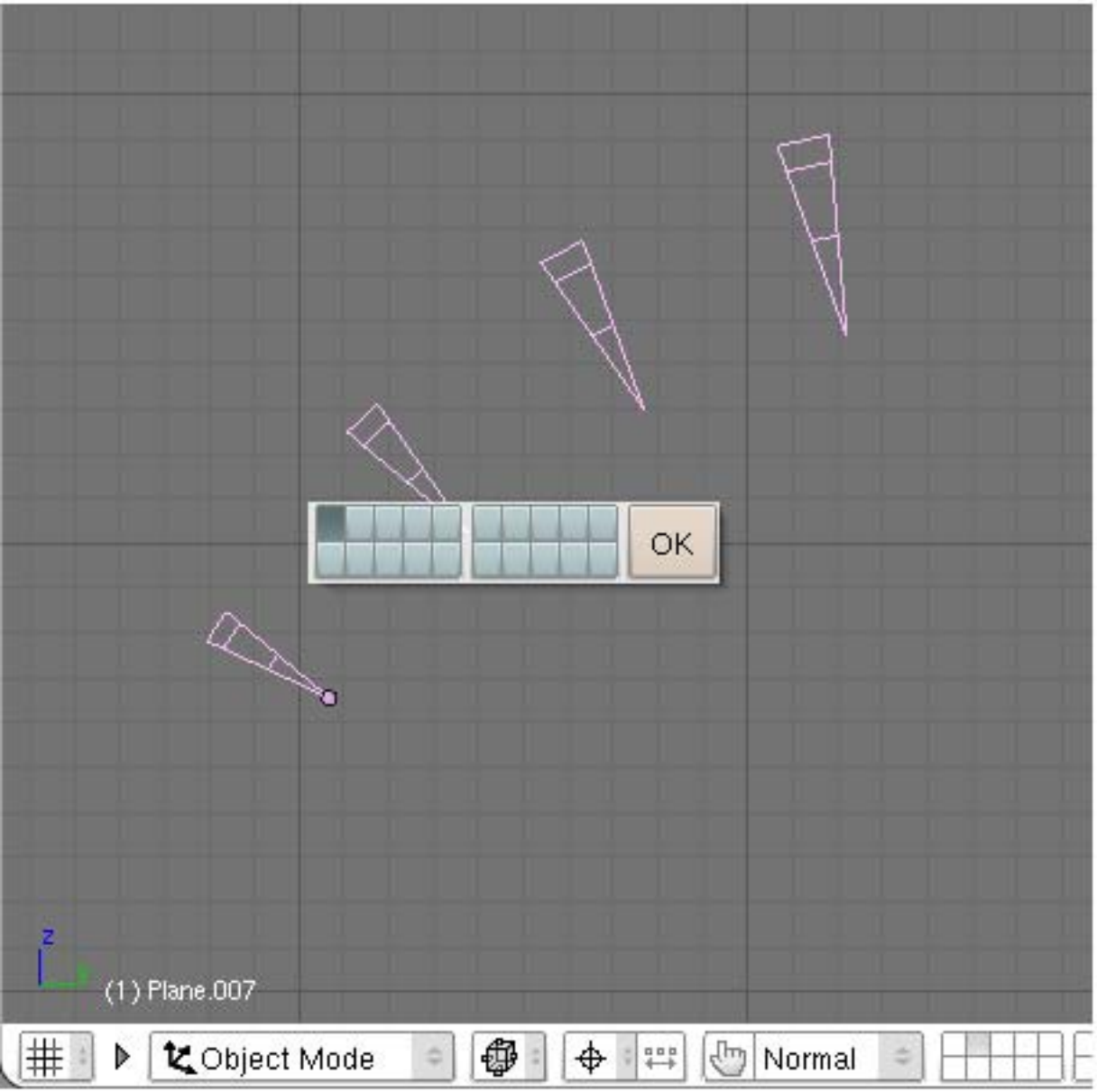
Now join all the mesh in one object while they all selected
Tape **CTRL + J**

Click on the confirmationn dialog to apply



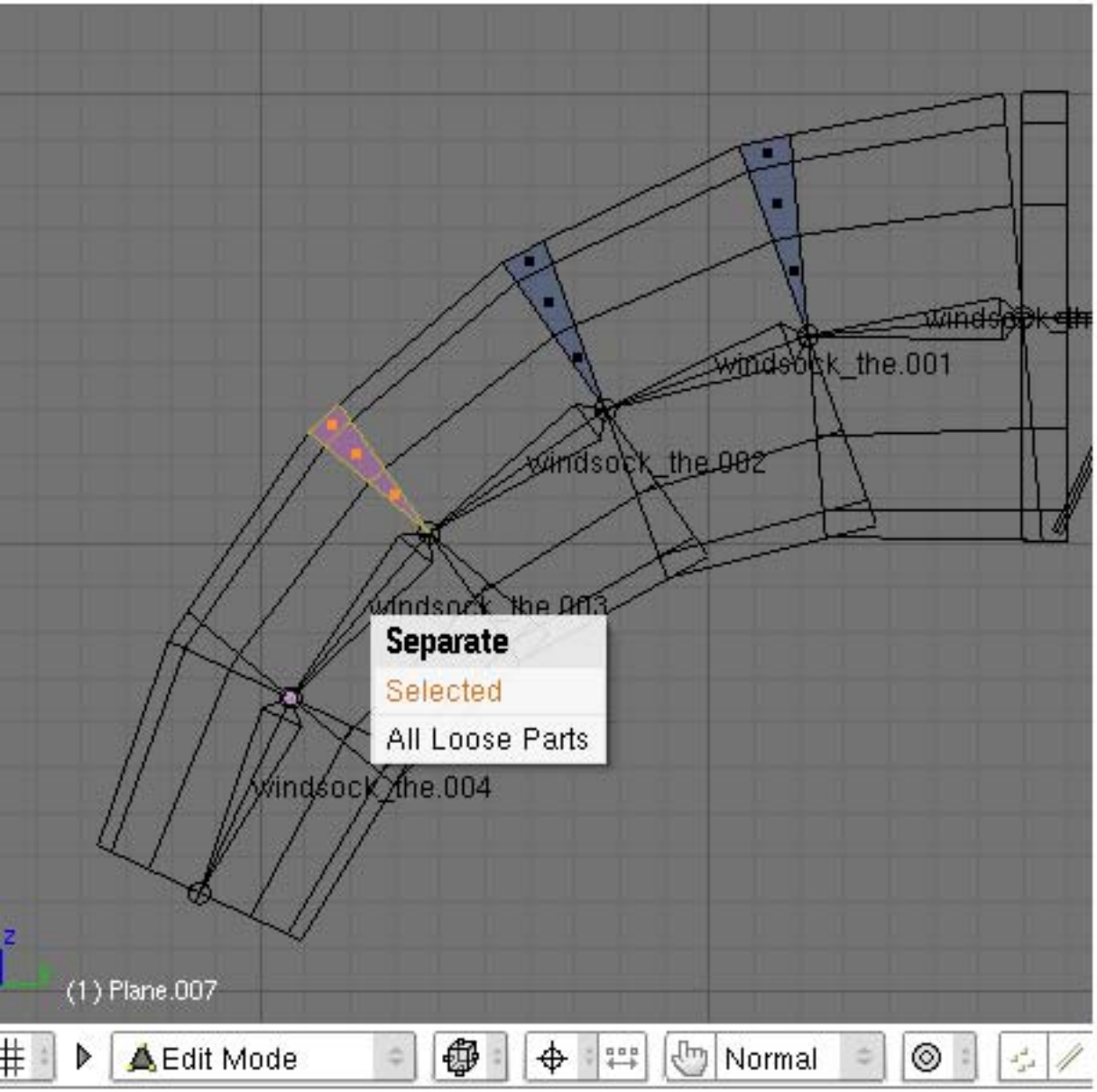
Now edit the object and fill the hole, make new face to make the ring closed

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



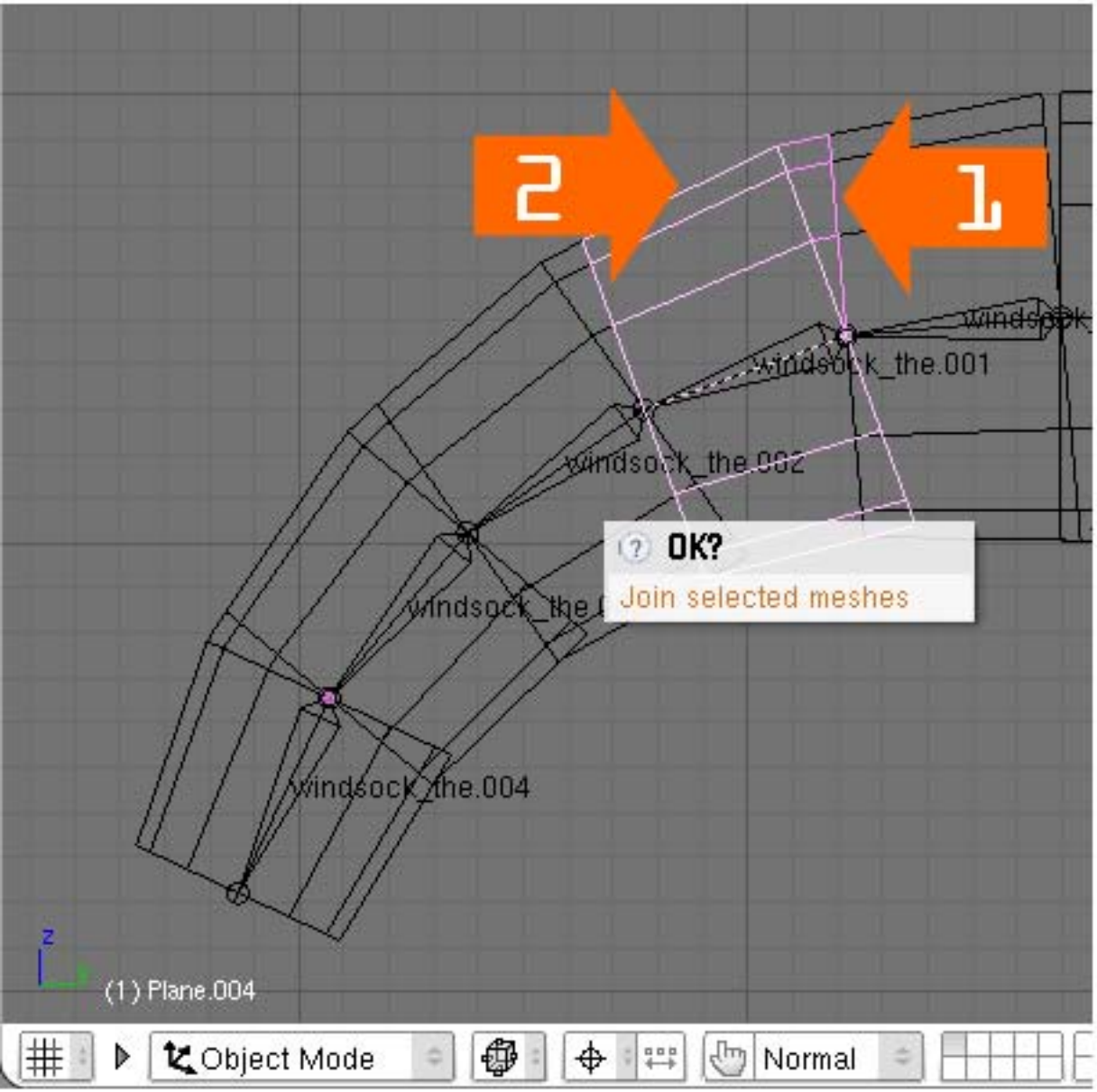
Delete the object we don't need it anymore, tape **X** to delete it

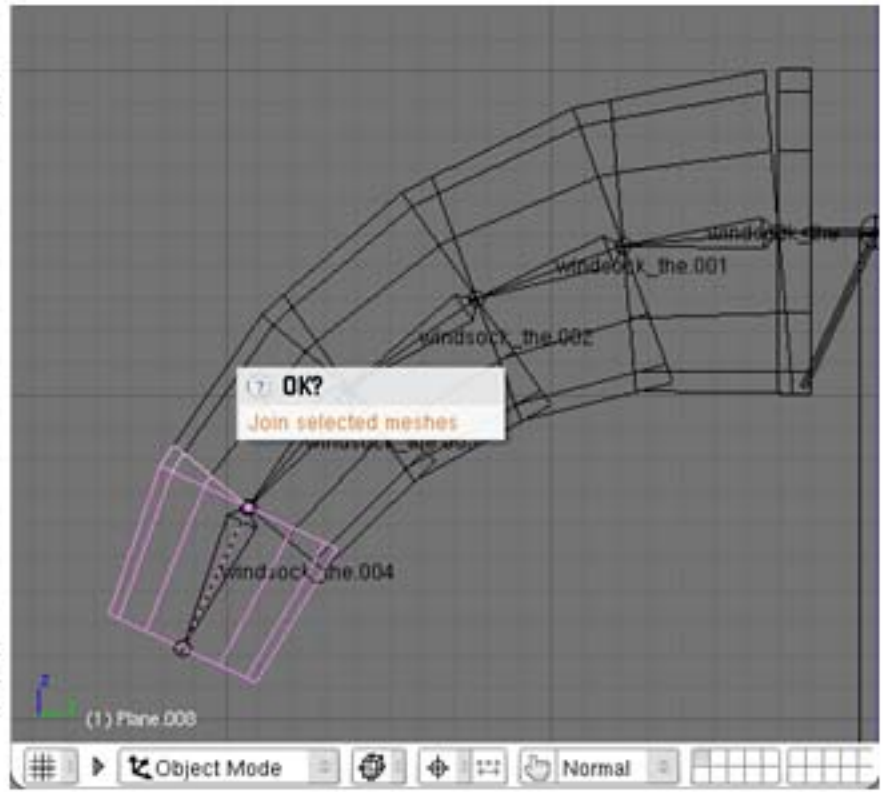
Move the good object on the **first layer**, tape **M** to bring the menu and choose the **first** one and **OK**

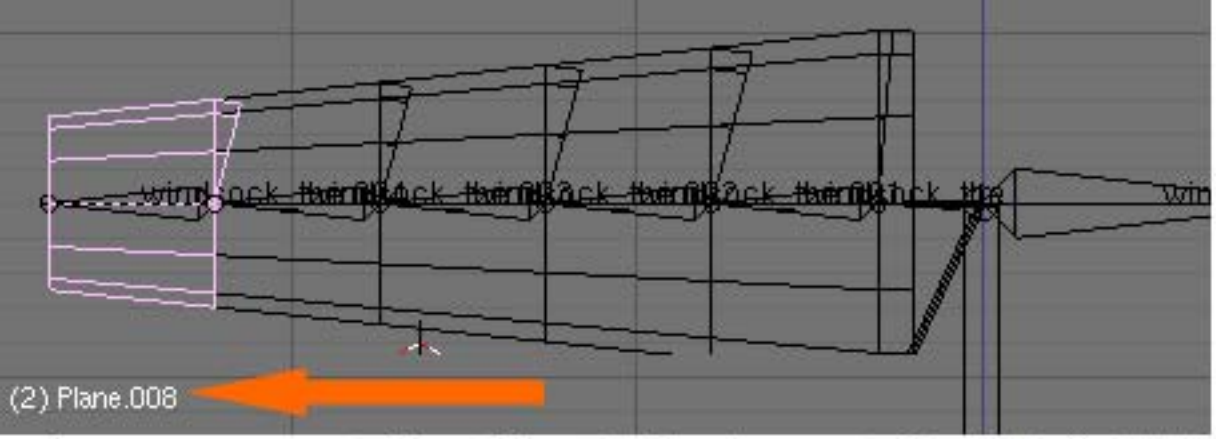


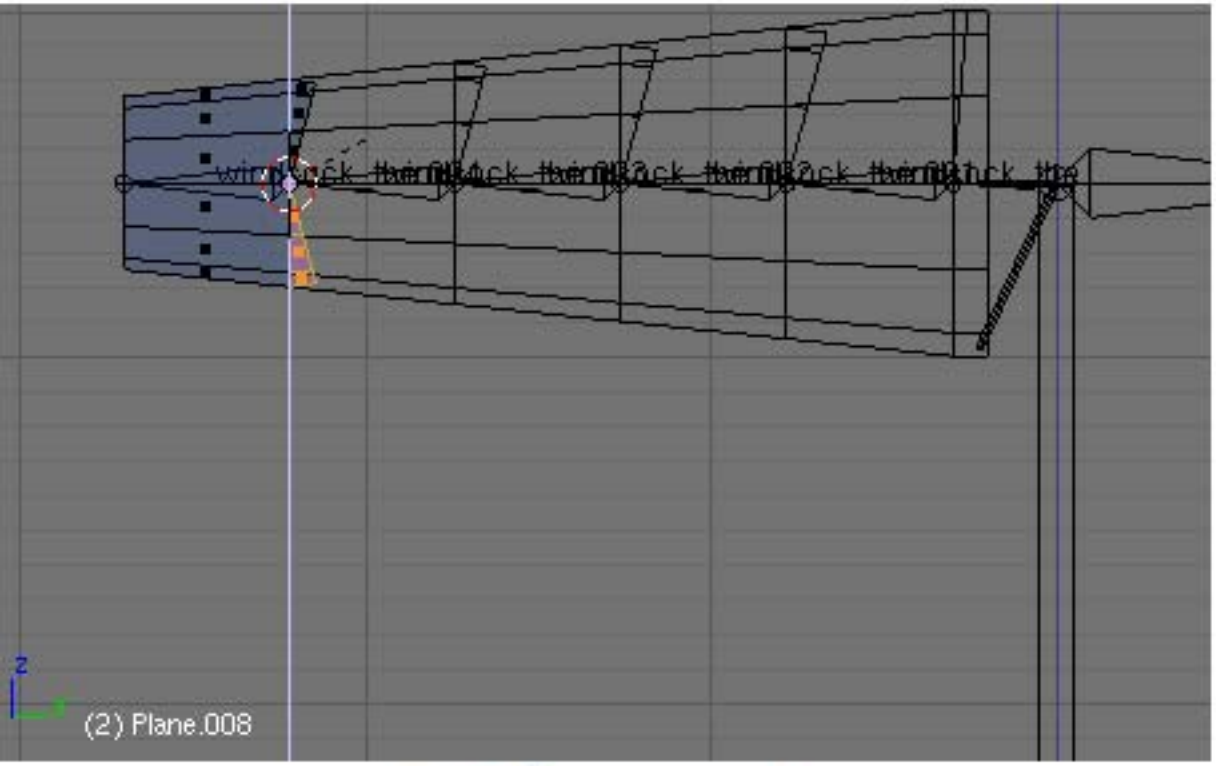
Now we need to separate each part to join the to the other mesh, one after one tape **P** to separate them

Select at **first** the new mesh that we must join to the ring, that important with **SHIFT click** on the windsock ring that we want to add the new mesh we create
And tape **CTRL + J** to join them in a solo object, but the object origine will still be the ring one, is for that we select it at last to Join them
Do that for each rings







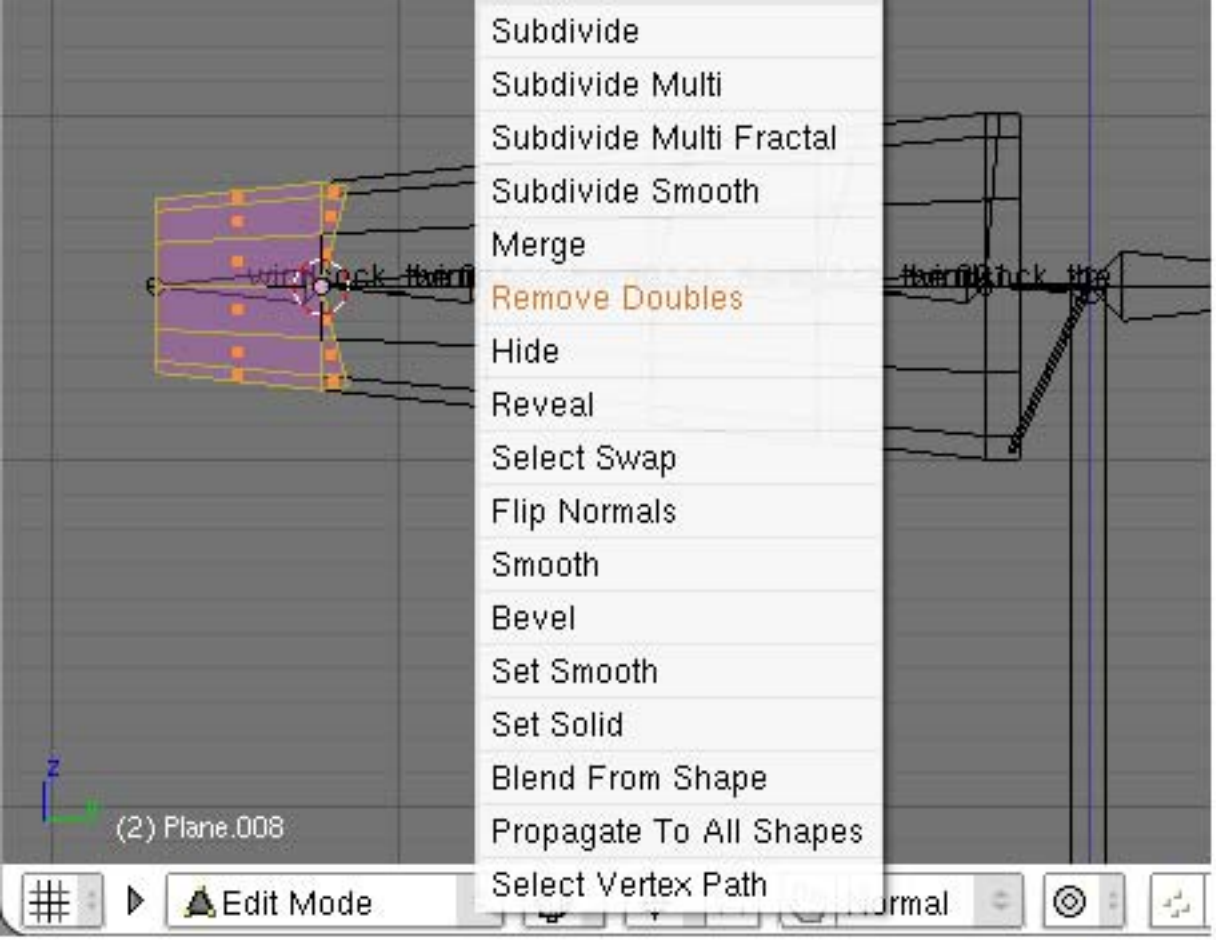


Now go on the **second frame (2)** , tape the **right keyboard arrow** one time, we have make the down modification, but the windsock will go up sometime, so we need to make the holes disapear in the top position too, that we can not see in blender, but that will be the same movement that the down one.

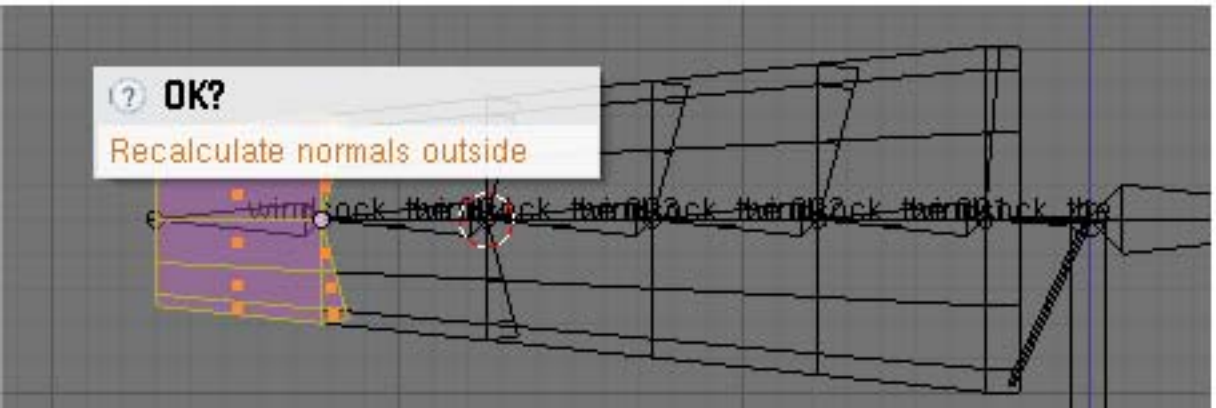
So select the **last ring**, and snap the cursor to it, **SHIFT + S > Snap cursor > Location**

select all the new faces we added soon in **EDIT mode**, without moving the cursor, we gonna duplicate them and flip them around the cursor location, tape **shift + D** to duplicate the selected faces

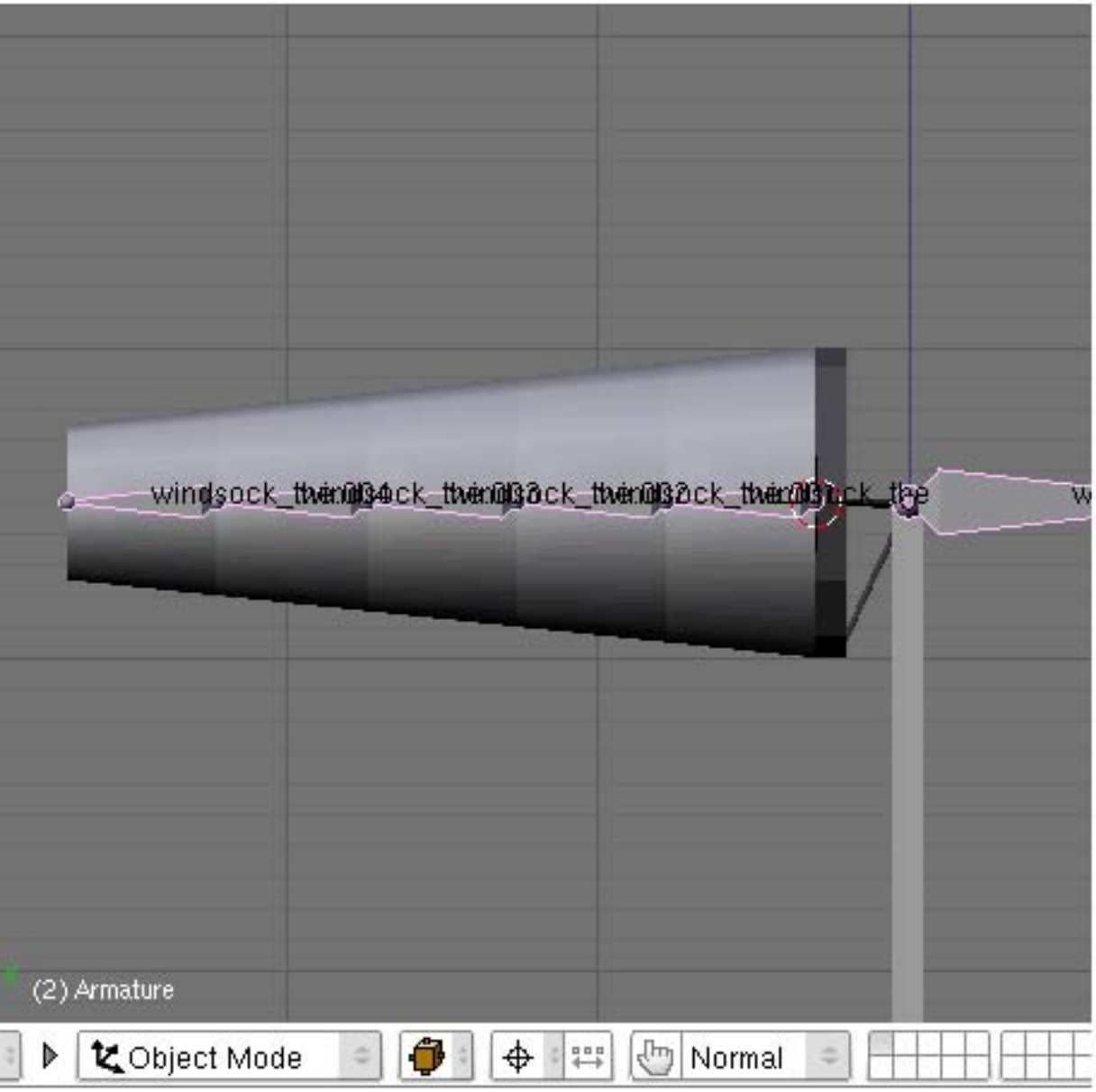
To **mirror** this FACES, we using the scale option, tape **S to scale**, **Z to use the vertical axis**, **-1 to tell him to mirror it**, and **ENTER** to validate the modification



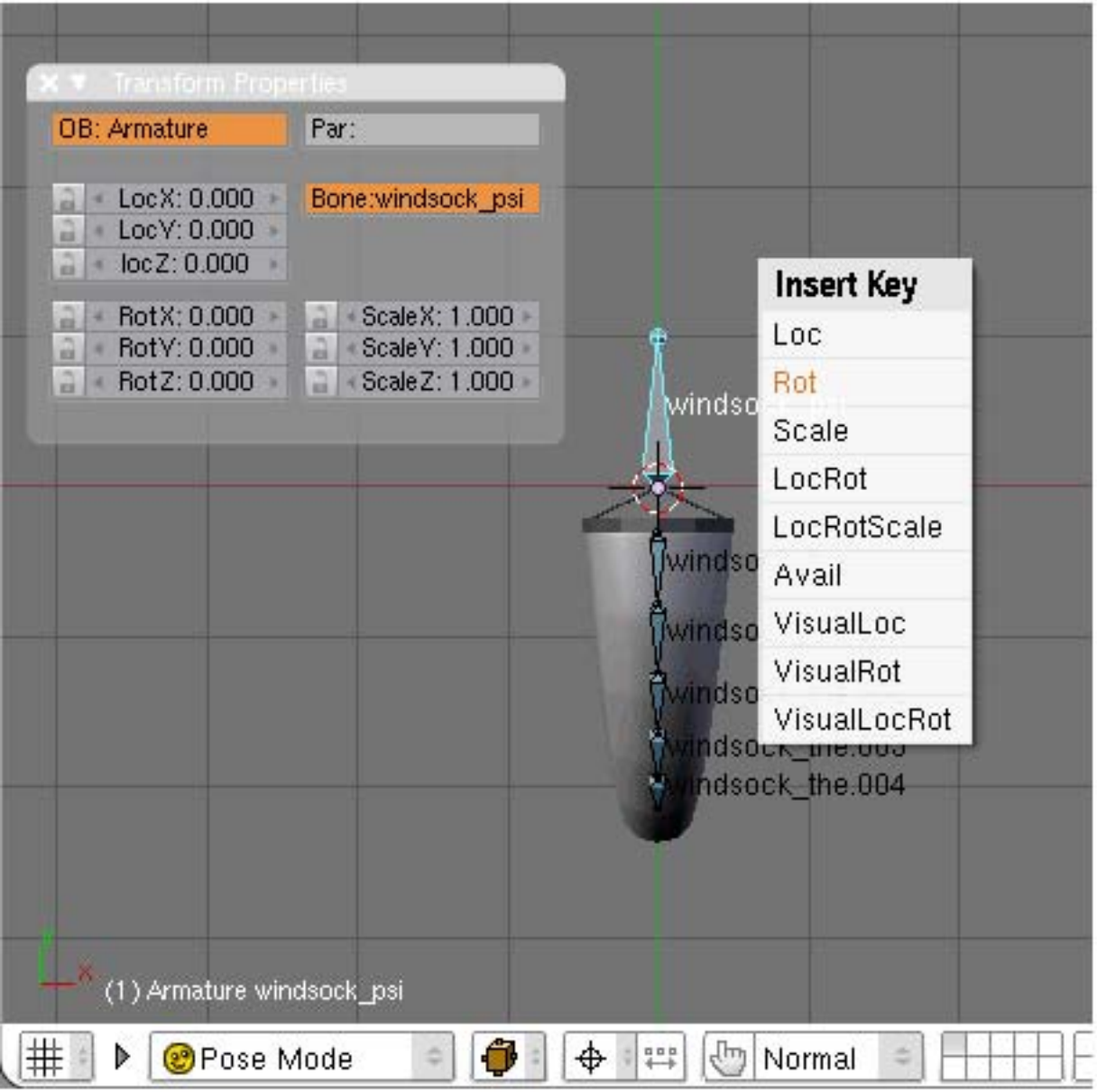
Now select all the face, click **A** two time or use the select tool **B** to select them manually, and tape **W > REMOVE DOUBLE**, to join the mesh vertices



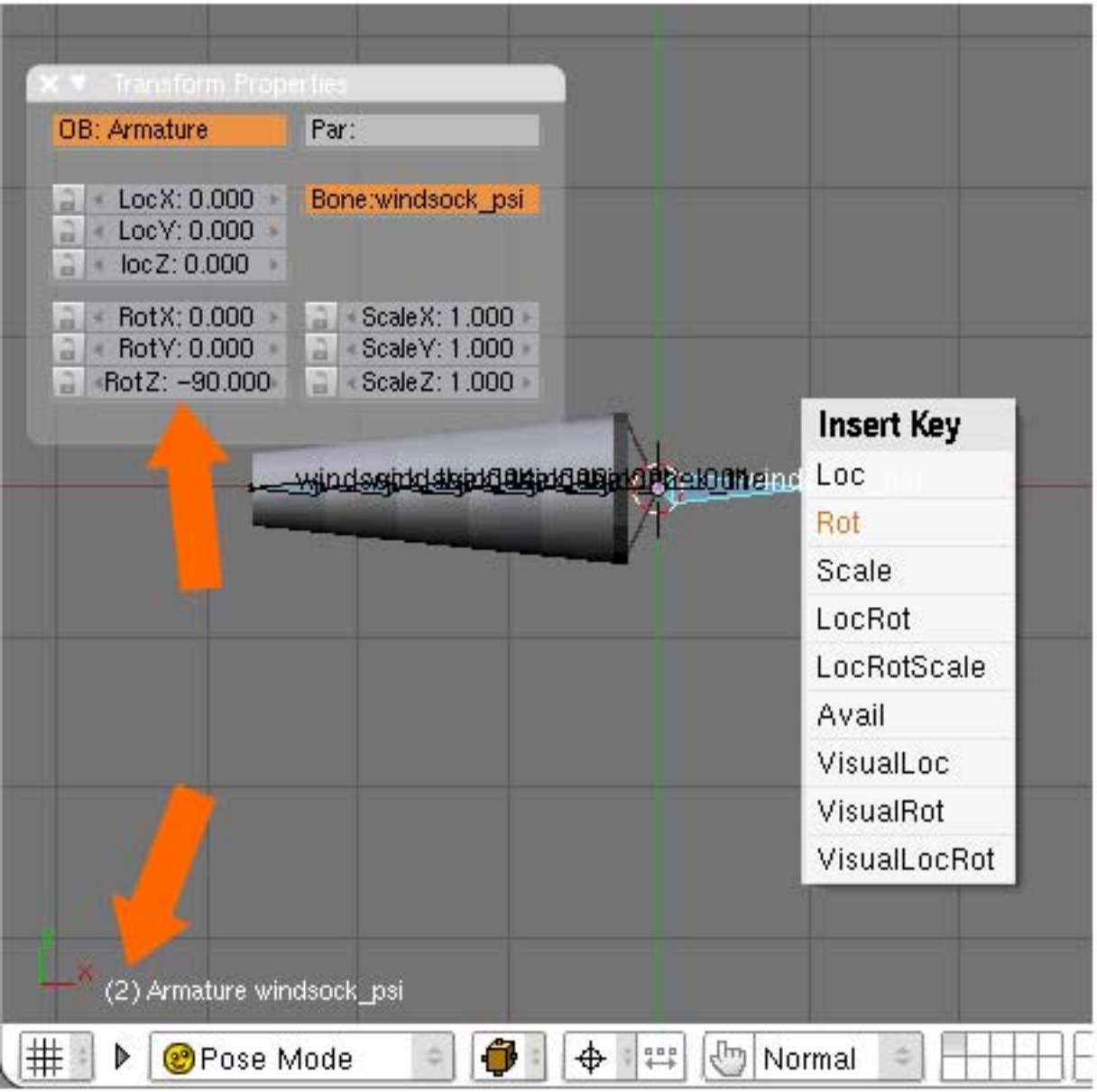
Now select again all the face (when you remove double, some face will not be selected again be sure you have them all), and tape **CTRL + N** to recalculate the normal outside, to make sure all the normals is at the same side



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 bone, 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**

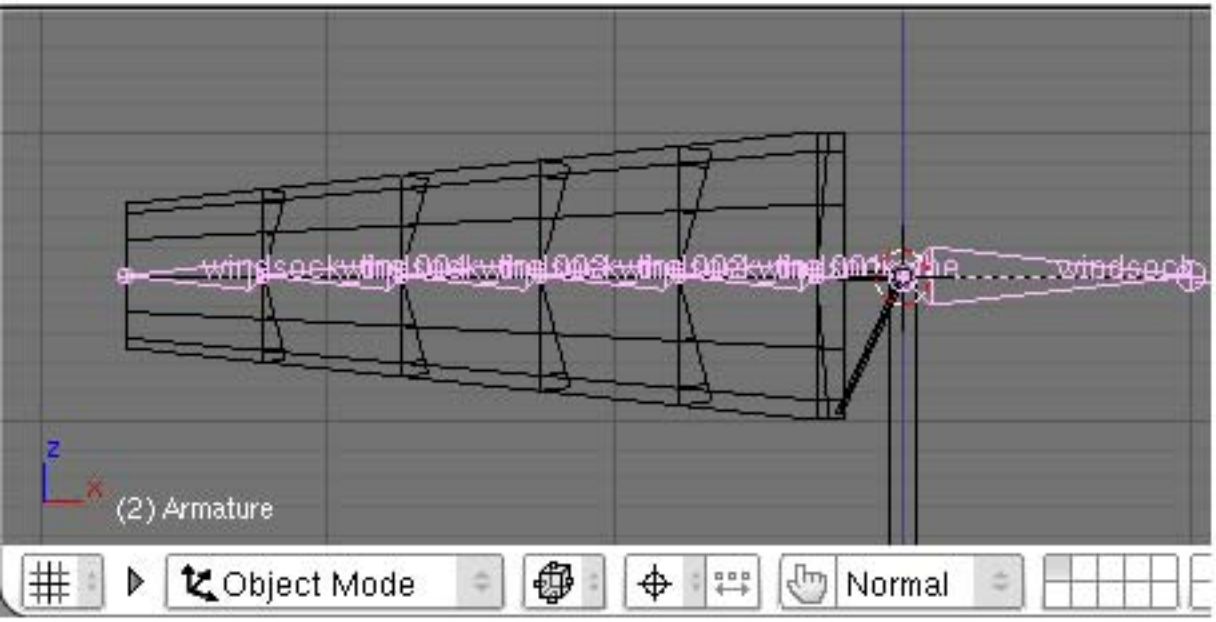


Go on the second frame (2) and give the bone a new RotZ valor in the property panel for : -90.0, and tape I > Rot

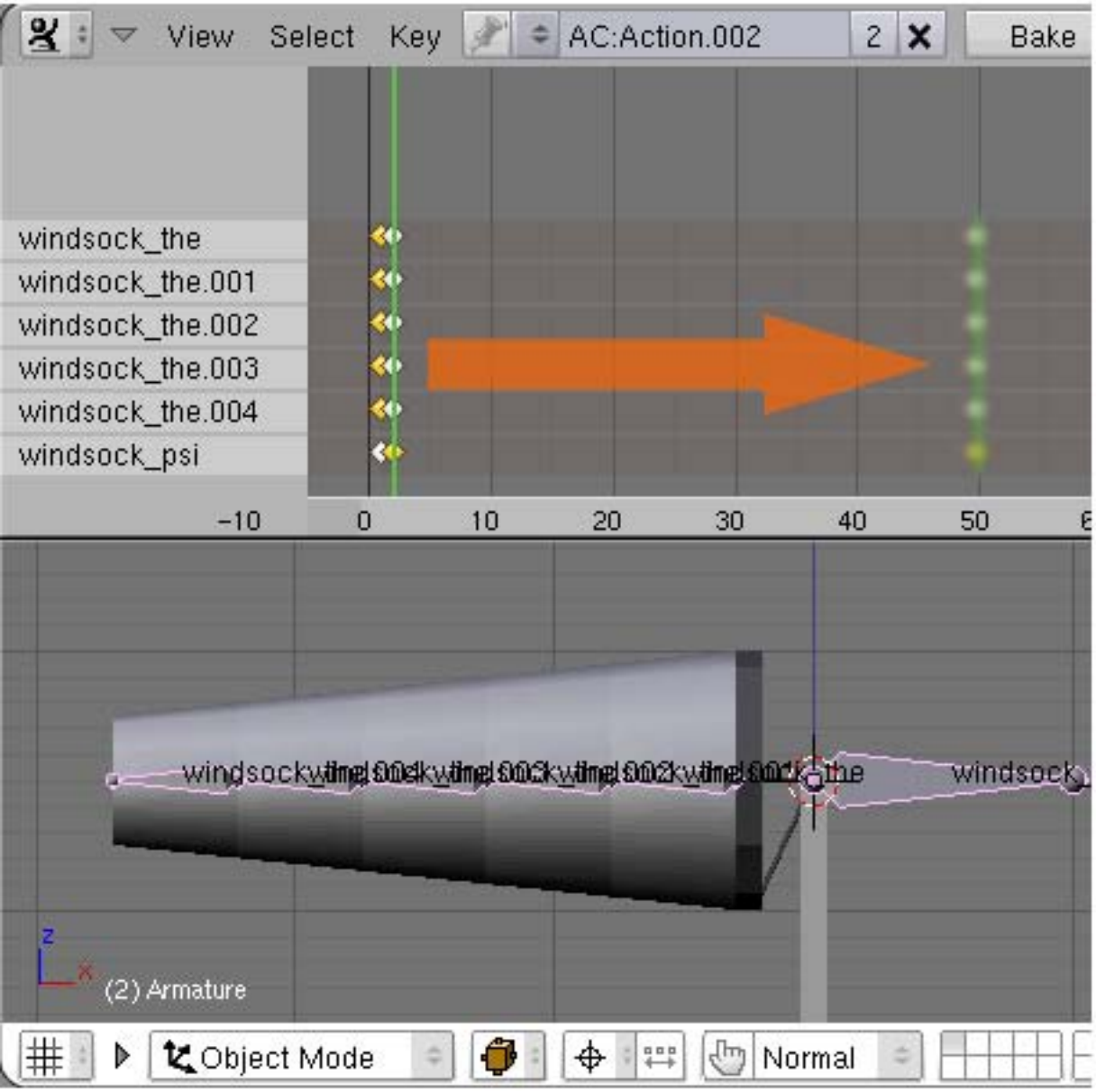
Bounds

Add Property

Del	Float	indsock_psi_v2	90.000	D
Del	Float	indsock_the_v1	0.000	D
Del	Float	indsock_the_v2	-90.000	D

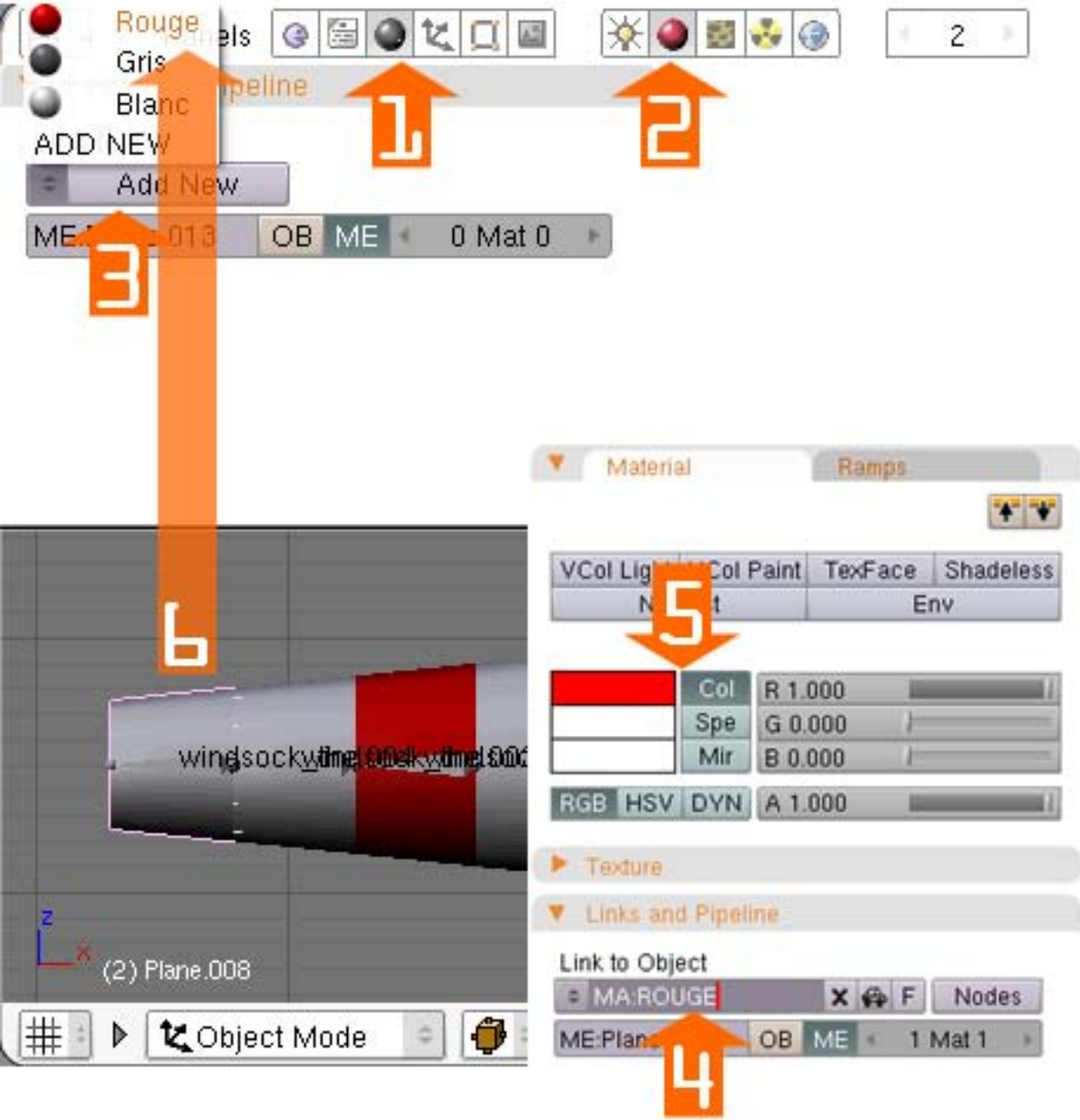


Now the animation set up with bone is finish, but we need to add some control on the Frame (1) & (2) valor for the dataref we use
go in the Logic panel, tape F4 to bring it, click on the button Add property
Enter in the name field : the dataref name + _vn, so :
windsock_psi_v2 = 90.0 degres
windsock_the_v2 = -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.

tips:
if you need to see your animation gradually, move the frame 2 Ikeys on a more far frame like 50, and use the keyborad arrow to look at your animation, you can use it to isolate somes parts, by moving the first frame one too and put them on a layer >50, remenber that you will have to bring them at their original position before exporting the obj, if not the animation will not work, only the frame 1 & 2 will be take by the script.

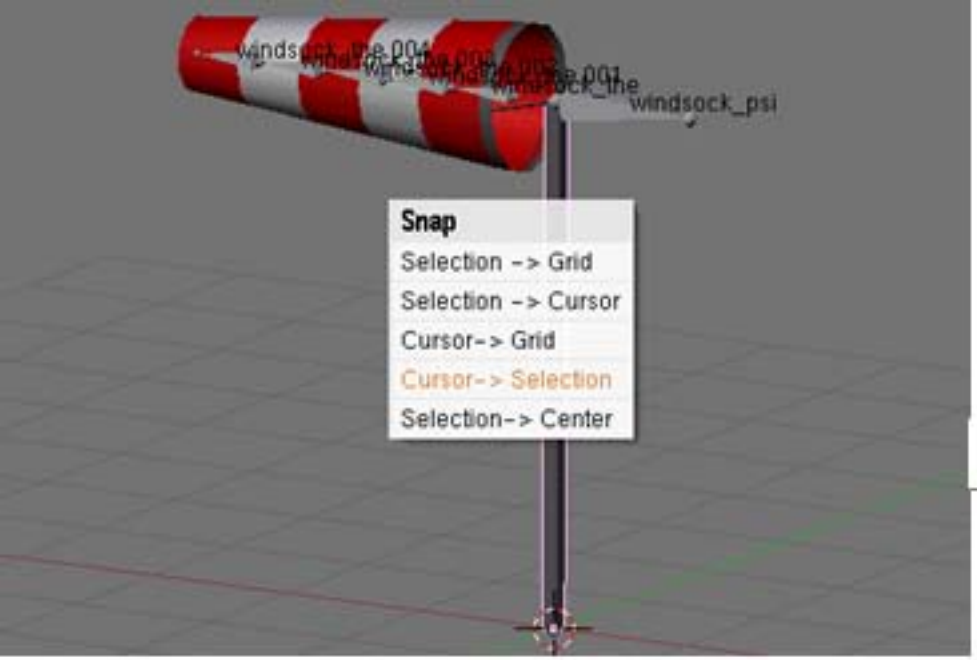


Now give the ring some color if you don't planned to texture it, remenber that will give you a windsock that only work at day for the moment.

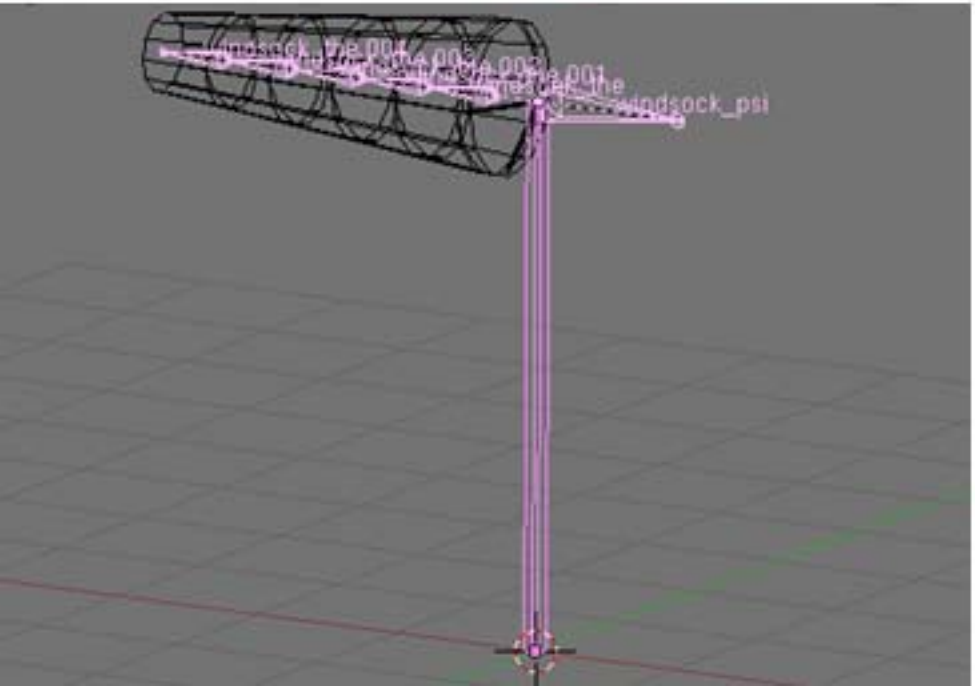
On the button panel, clik on the materials button **F5**
Click on the **ADD NEW** button to add a new materials, give it a name like **ROUGE**, change the **COL** color for a Red one, and do that for the other color too by adding a **new materials** each time

Select a ring, and click on the pop up menu add new, to give it the color you want.

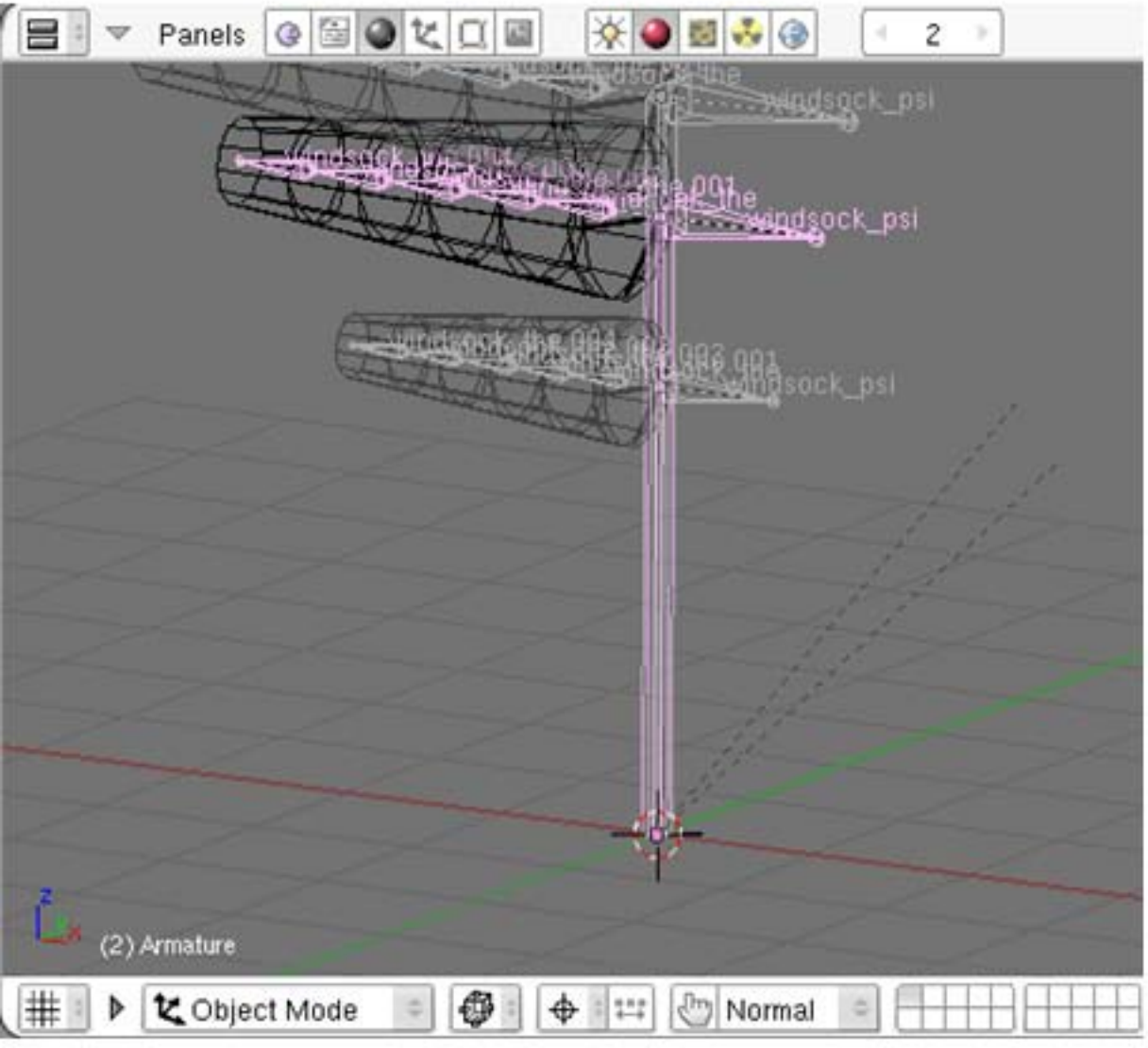
I will complete this tutorials next time with a texture introduction, for having the LIT texture at night.



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**
We need to scale or move the windsock, and be sure the feet will be on the ground
be sure to use the **cursor like pivot point**



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**)
The other rings is parented to the armature, so manipulate the armature will make the rings follow the bones, but the mast isn't parented to it, so you have to select them both : **Mast + Armature**



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.

I hope that will help you start with blender
And excuse me for my bad english