

Ford Escort - car modeling tutorial



Introduction

Hello :)

My name is Andrei CORNEA and first of all I would like to inform you that this tutorial was made a very long time ago, back in 2009-2010 when everything started as a hobby and it was a hobby for a couple of years. Since then, many things changed, such as workflow, pipelines, texturing processes and so on but back in those days, everything was kind a harder to achieve a good result without tweaking dozens of times. Today, everything is easier with the new softwares and "automatic" textures. So, if you are following these tutorials, which i recommend, you will learn the fundamentals of 3d modeling, texturing and rendering and once you acquire these basics you will be capable to create what you want from scratch.

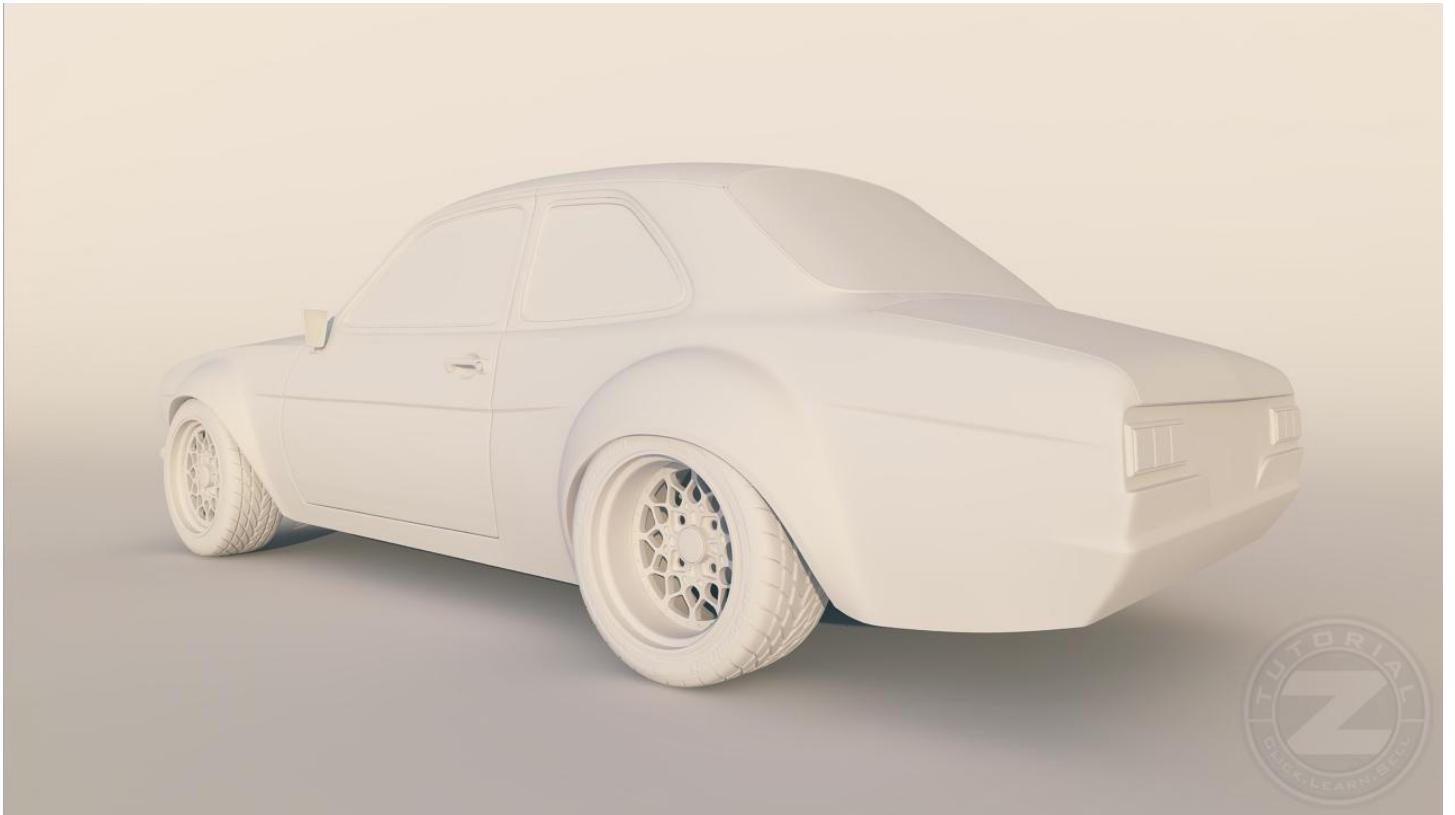
I also wanted to share and exchange knowledge because in this industry, everyone has its own workflow and every time you will learn something new from another person, doesn't matter if that person is experienced or not.

Notes :

- These tutorials were taken from tutorial-z.com which was my first website, registered in 2009. The domain is still active but it will redirect you to our small modeling studio website
- Some links from these tutorials may be broken or removed. Remember that these tutorials were created years ago and instead of just removing them, i decided to keep them on our new website (www.3dffs.com) so anyone can access them
- These tutorials were made for educational purpose and not for a financial income and it should stay like this. If you find these tutorials on another websites, please let us know
- You can find us and our work on our website : www.3dffs.com

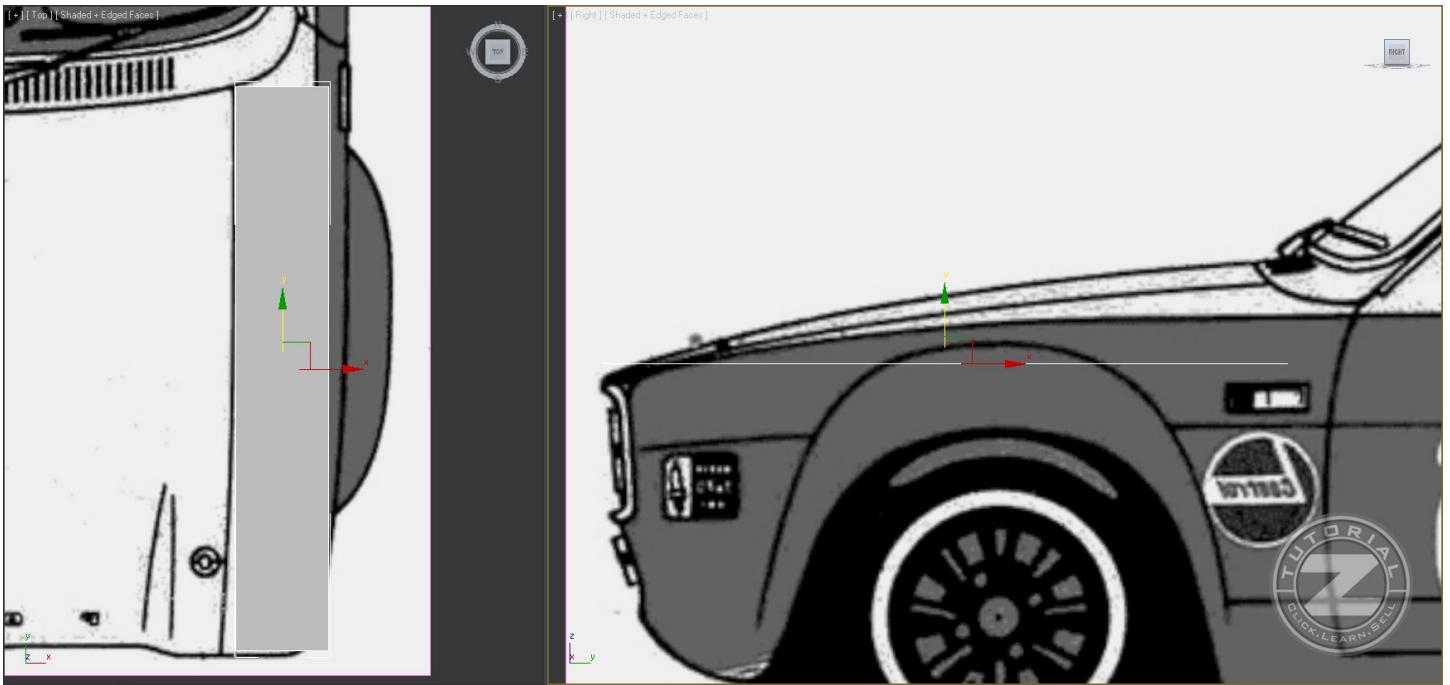
So, an user from our forum requested this tutorial and since there aren't such tutorials on our website, why not, I decided to make it.

Welcome to a new tutorial where I will explain and show you how to model a Ford Escort MK1 RS1600. Like other tutorials, this is also very detailed so any beginner can understand and learn something useful. This is the result of our tutorial :

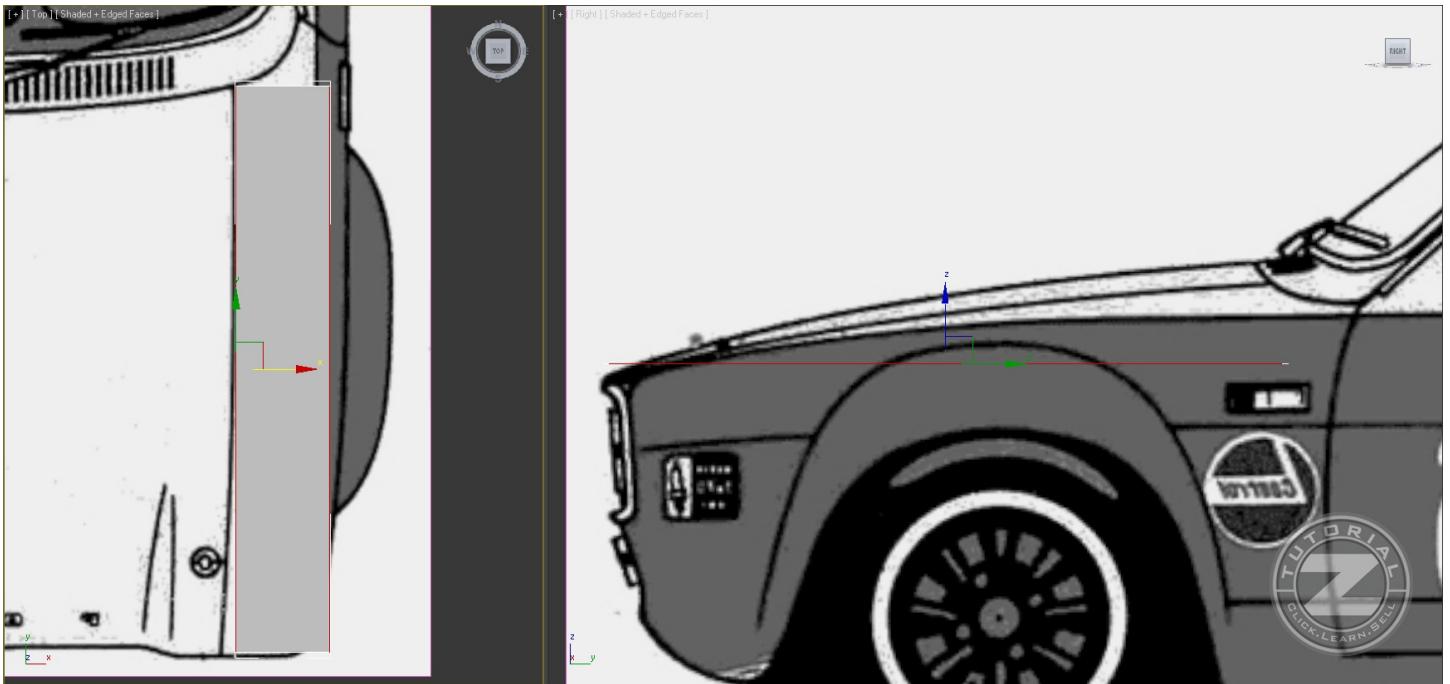


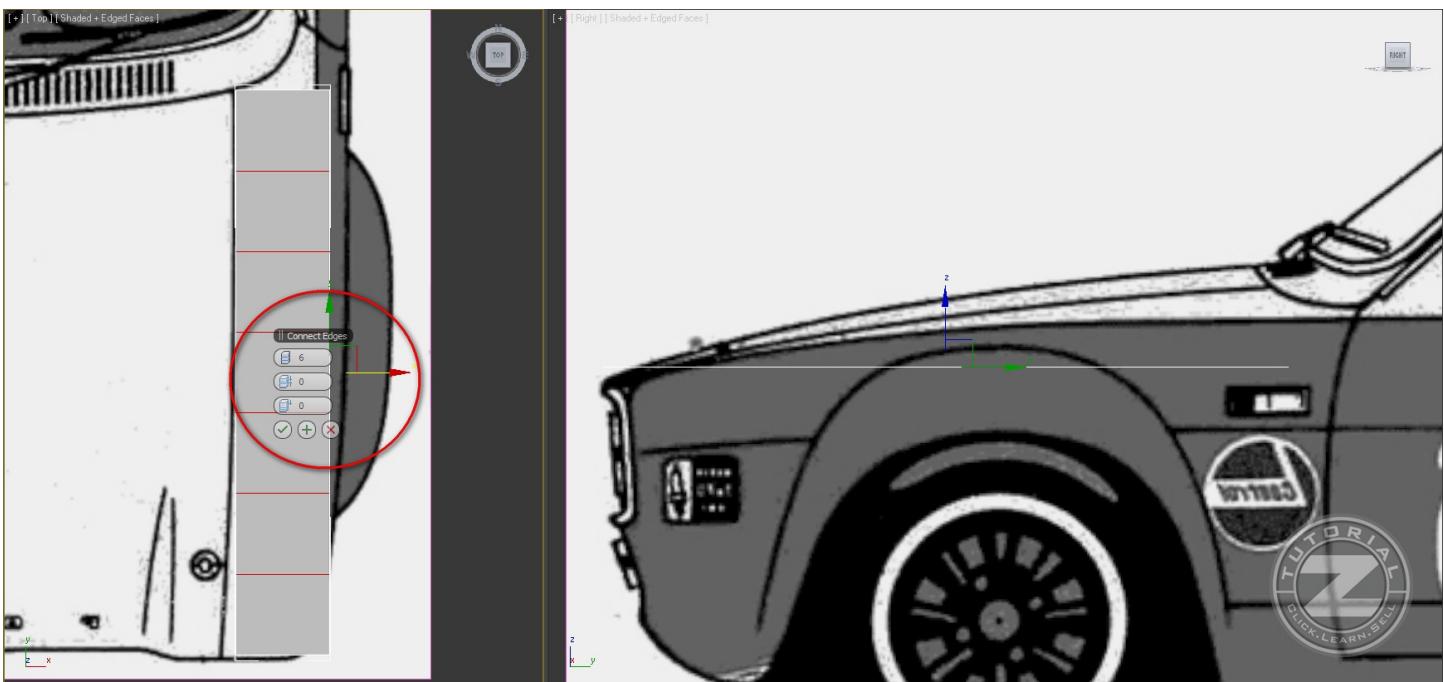
If you want to have the same mesh, without bumps and ugly shapes, try to make the same mesh/wireframe as I do in this tutorial :

1. Assuming that you know how to set up your blueprint, we will start by making a plane. If you don't know how to set up the blueprints, just search on tutorial-z.com and you will find the tutorial :). So, make the plane like me

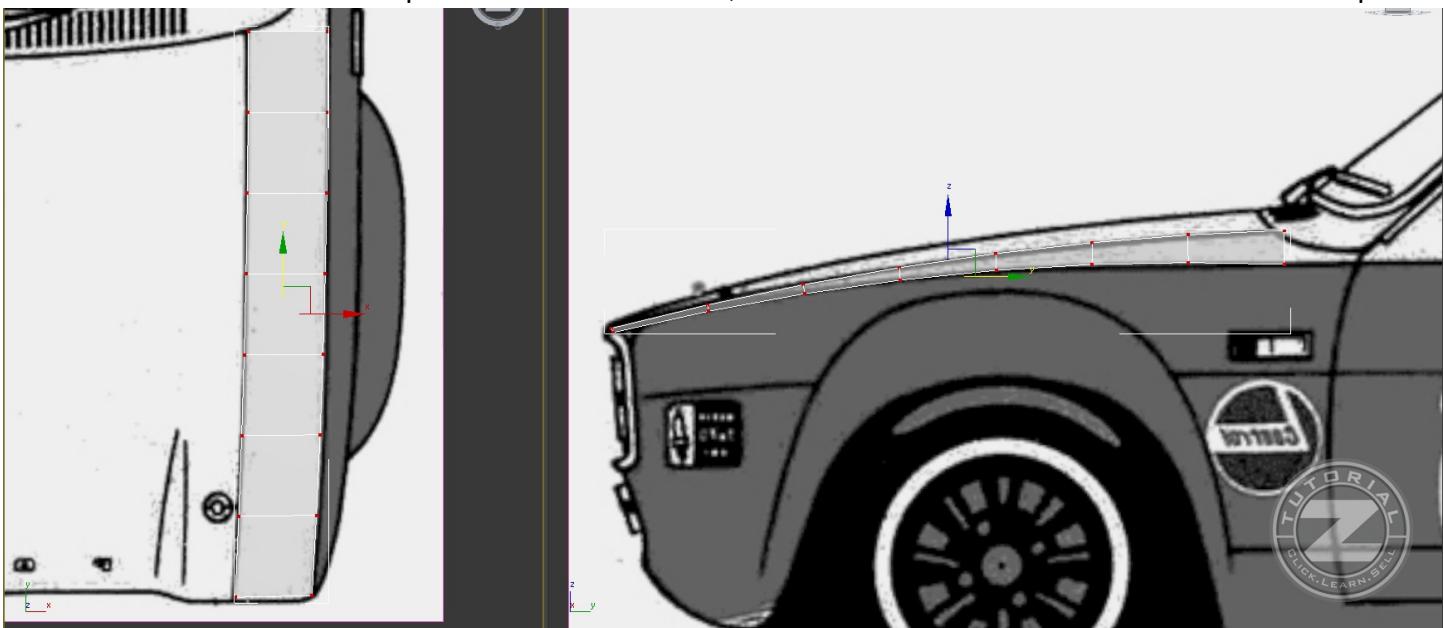


2. Now convert the polygon into an "Editable Poly". When the polygon is converted, select the same edges as me, then connect them using the same values as me. By connecting them, we will have more vertices so we will make a rounder shape:

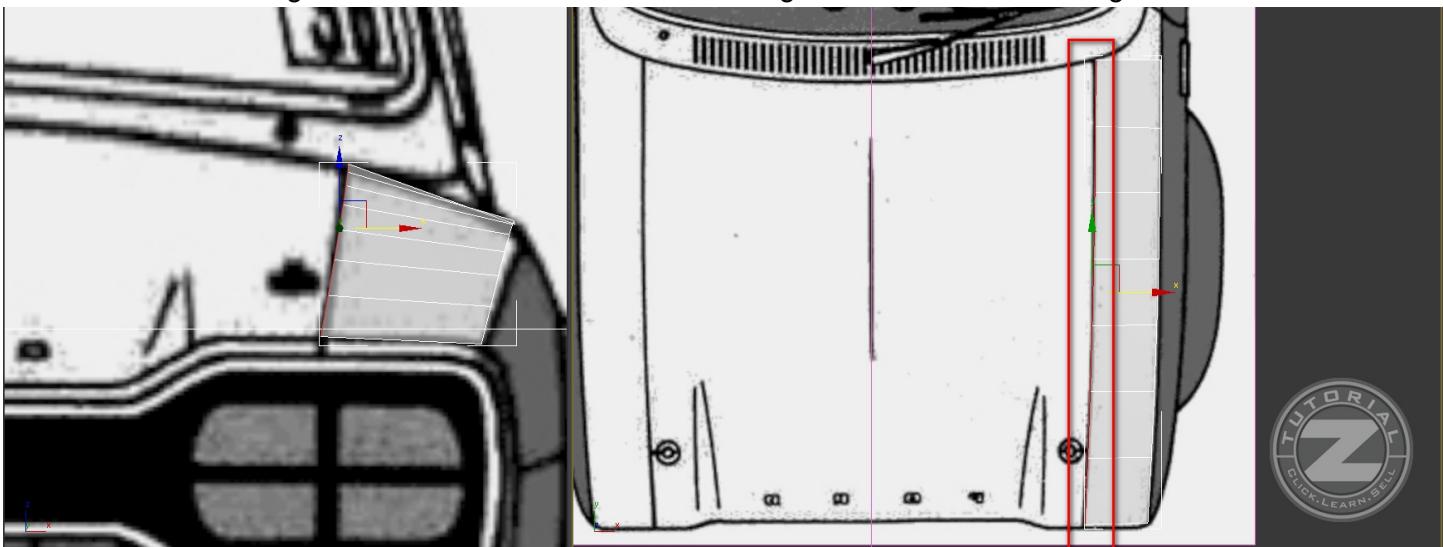


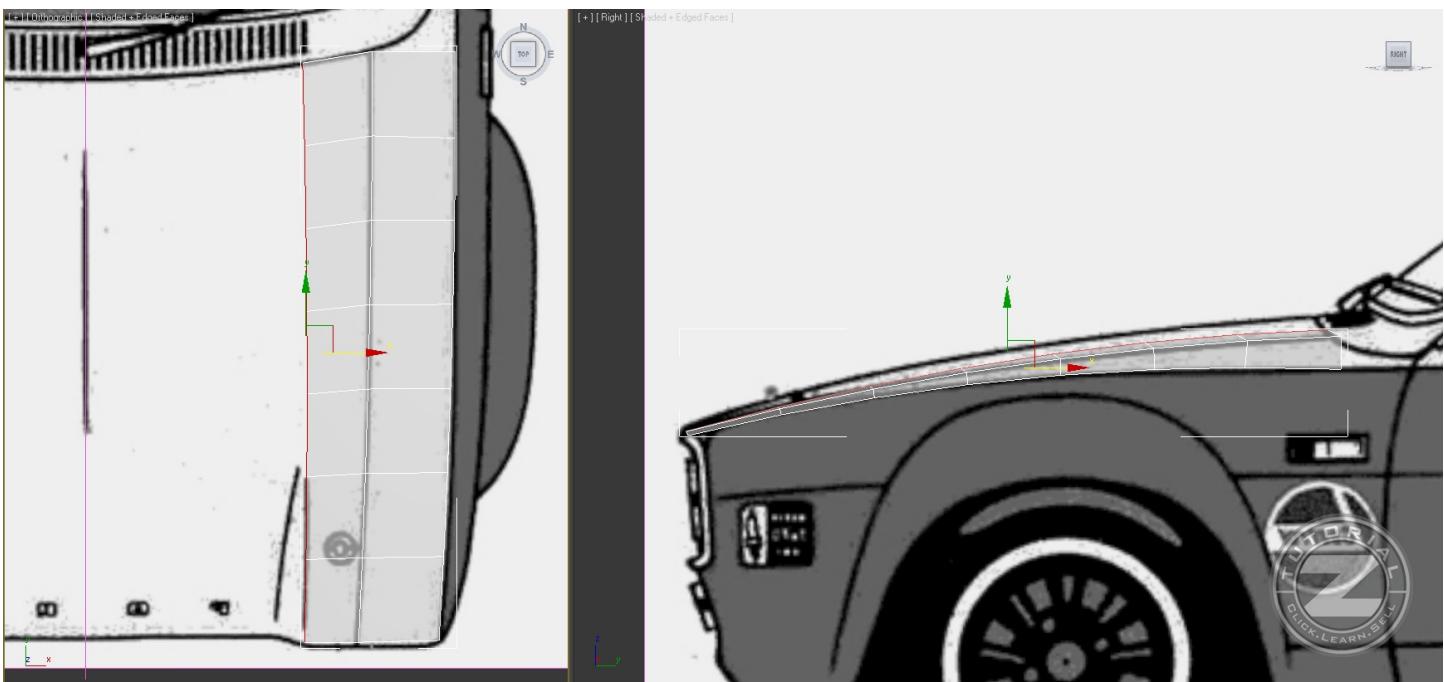


3. Put the vertices in the same place as I did. Don't rush, make them slower and try to make a round shape :

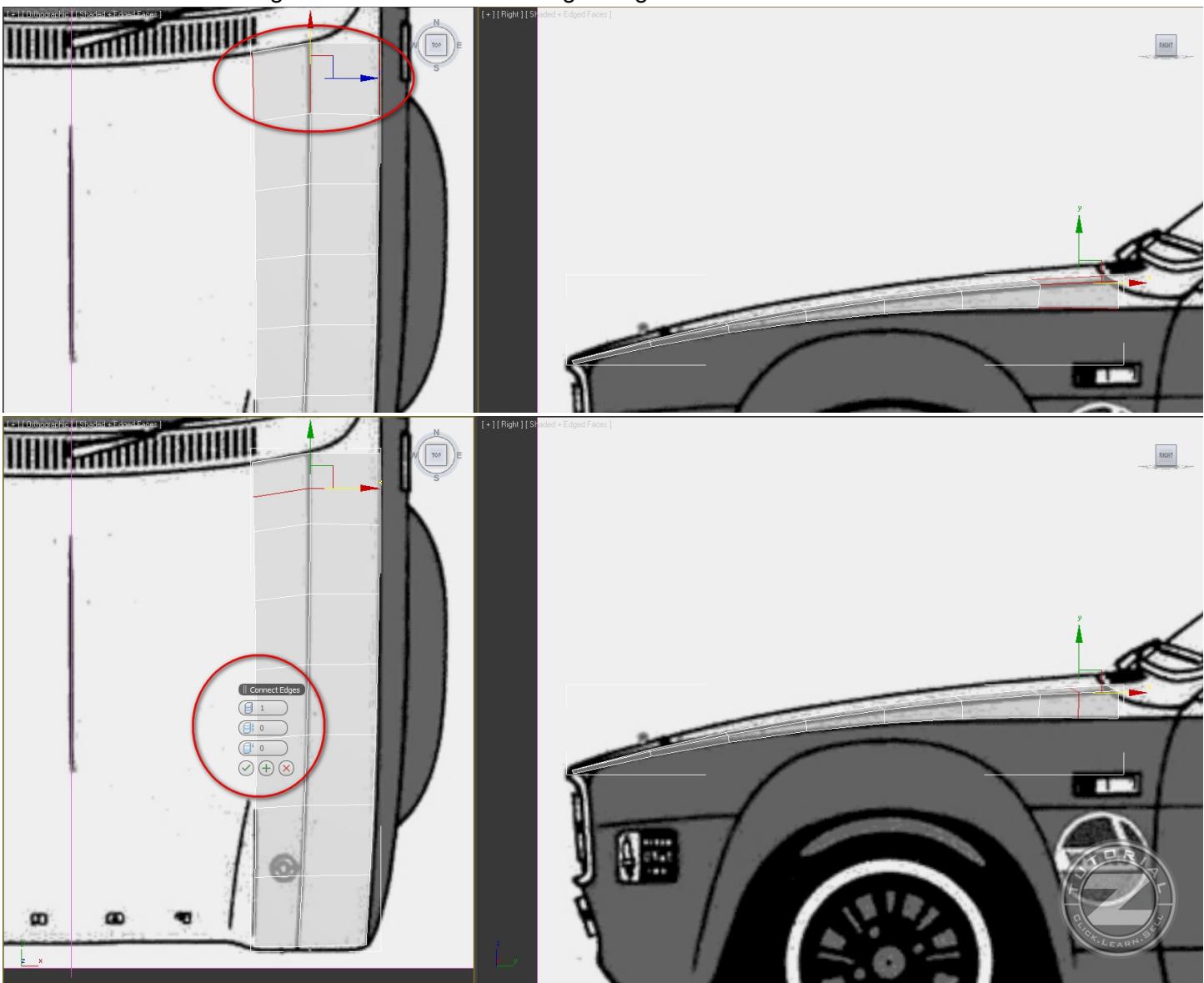


4. Select the same edges, then hold the shift button and drag to the left to start making the hood

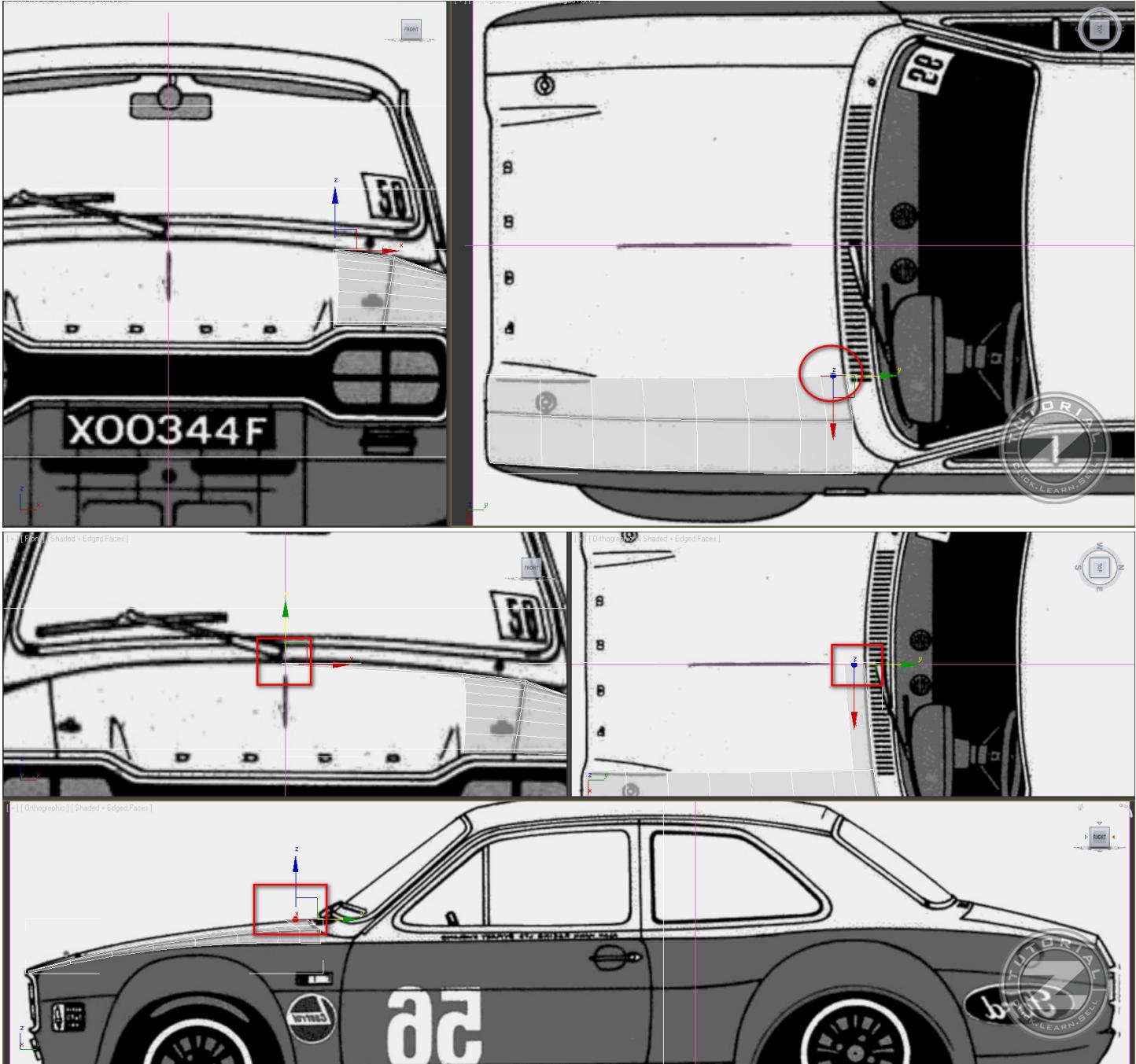




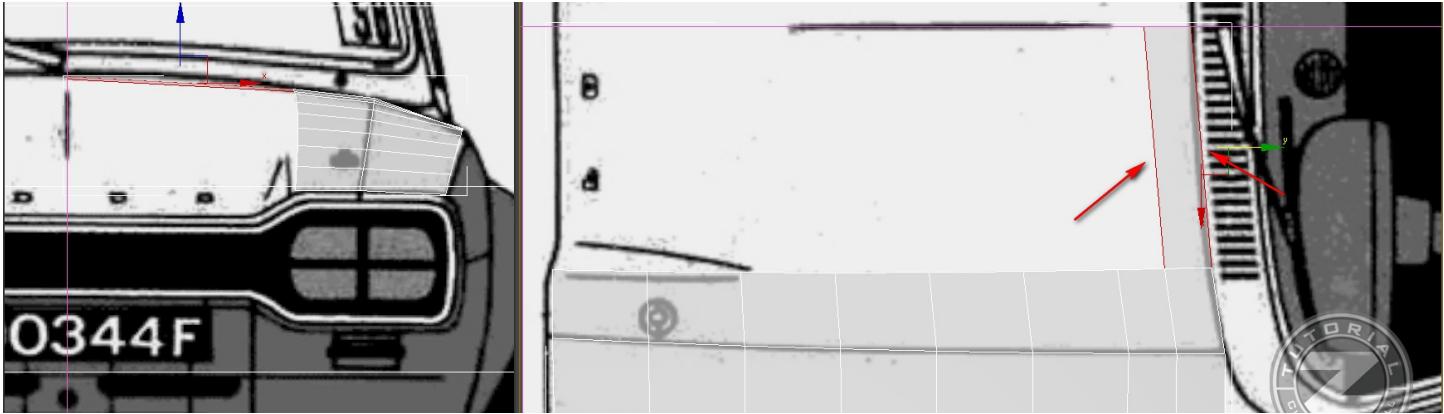
5. Now select these 3 edges and connect them using a single line :

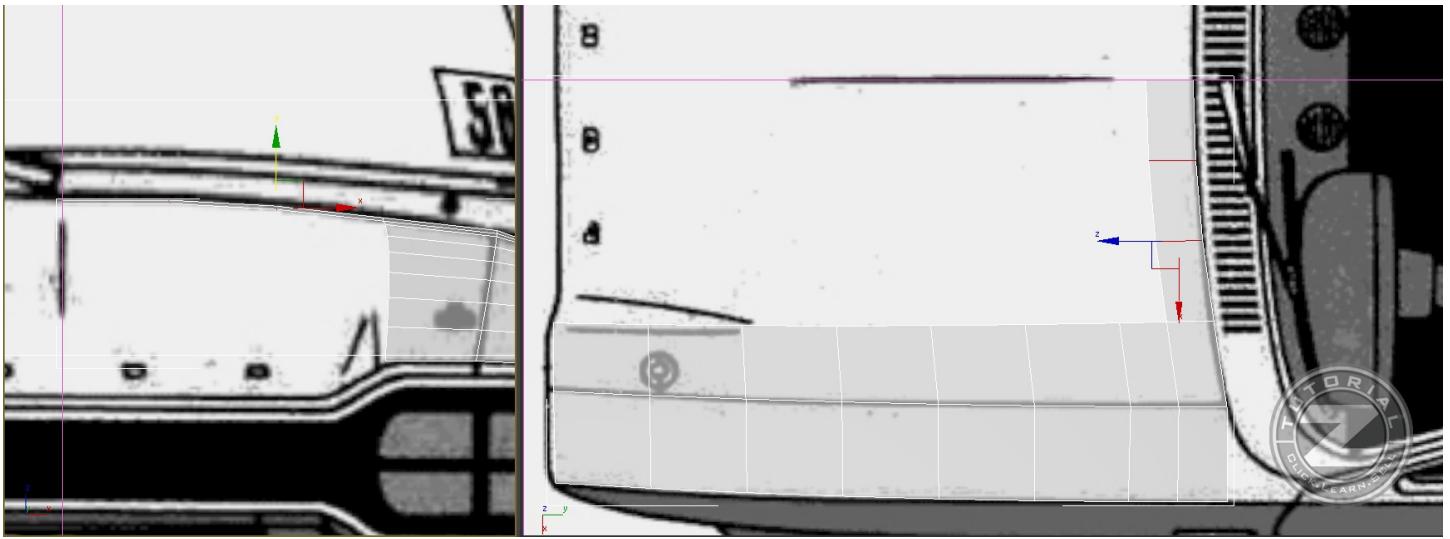


6. Select this edges (see image), hold the shift button and drag it until you will reach the middle of the hood. Check the 3 viewports and see if the edge reach the middle of the hood in all 3 viewports.

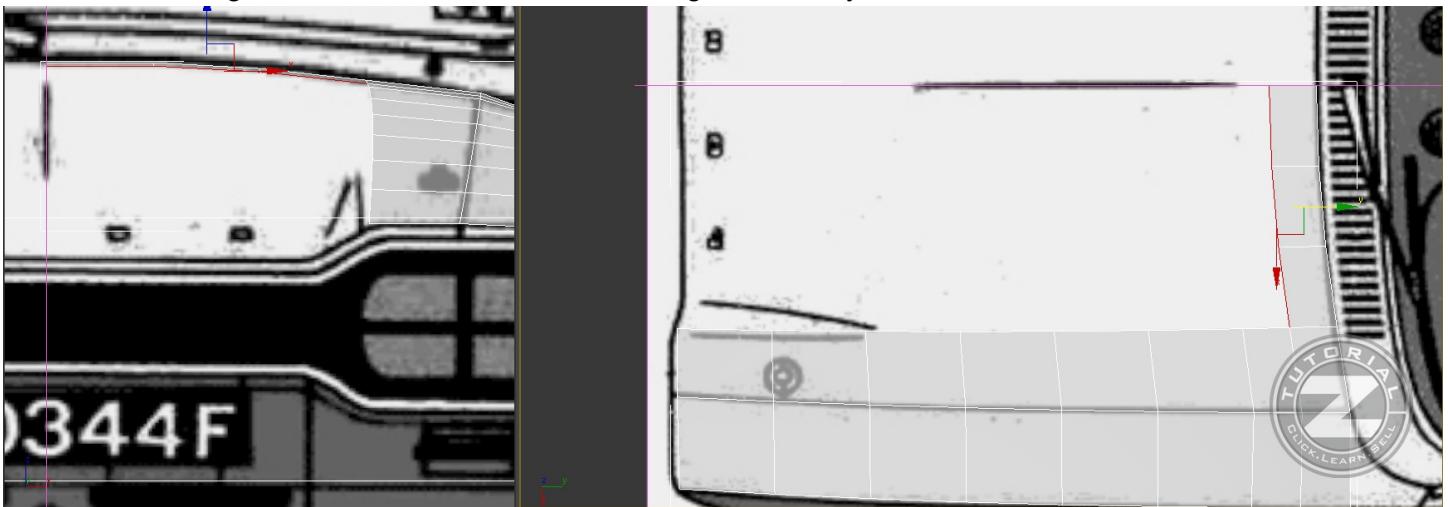


7. Connect the selected edges using 2 segments. Then make that part rounder, because now, by adding those 2 segments, you have more control on that part :

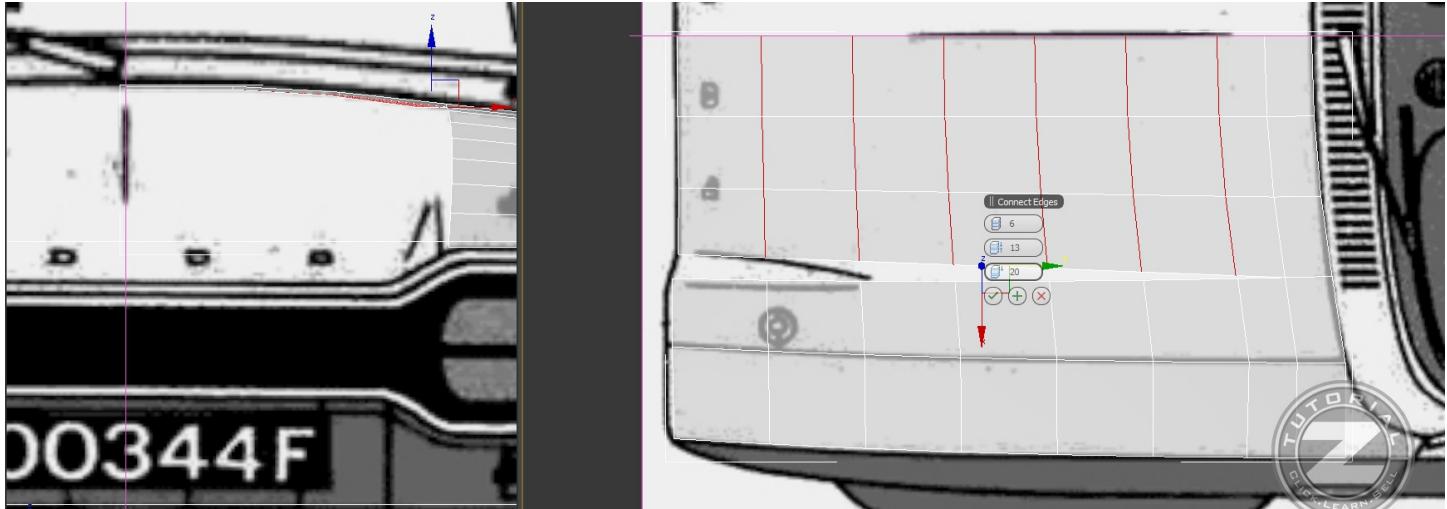




8. Create new edges from the selected ones and drag them until you will reach the front of the hood:



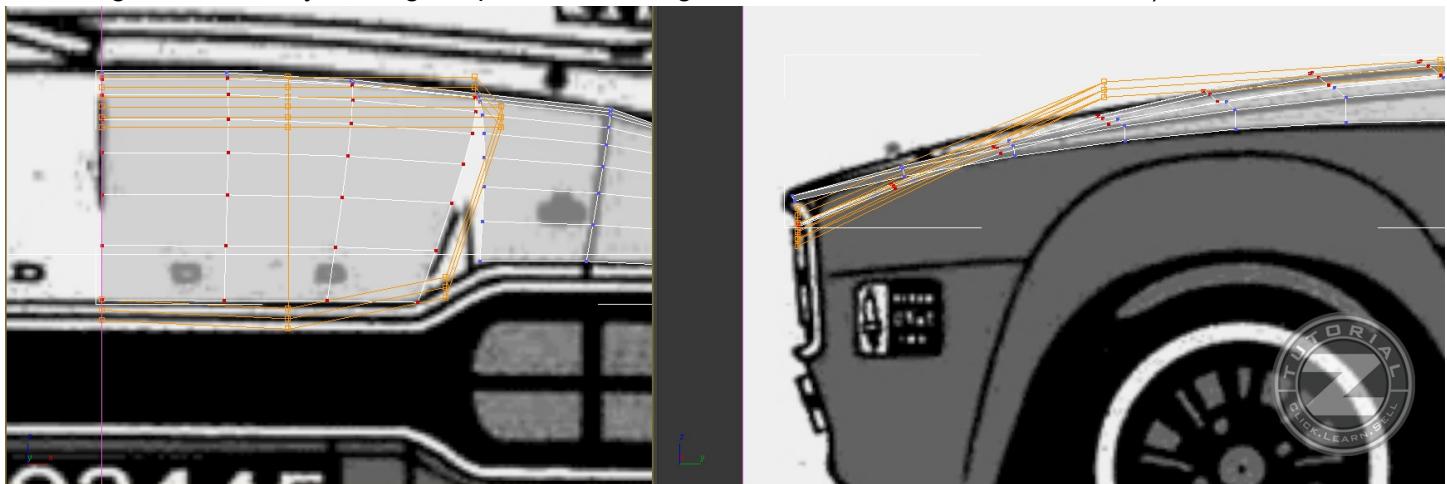
9. Add some segments. Add 6 edges, to match with the first part of the hood that we have made. Play a little bit with the values to fit the edges :

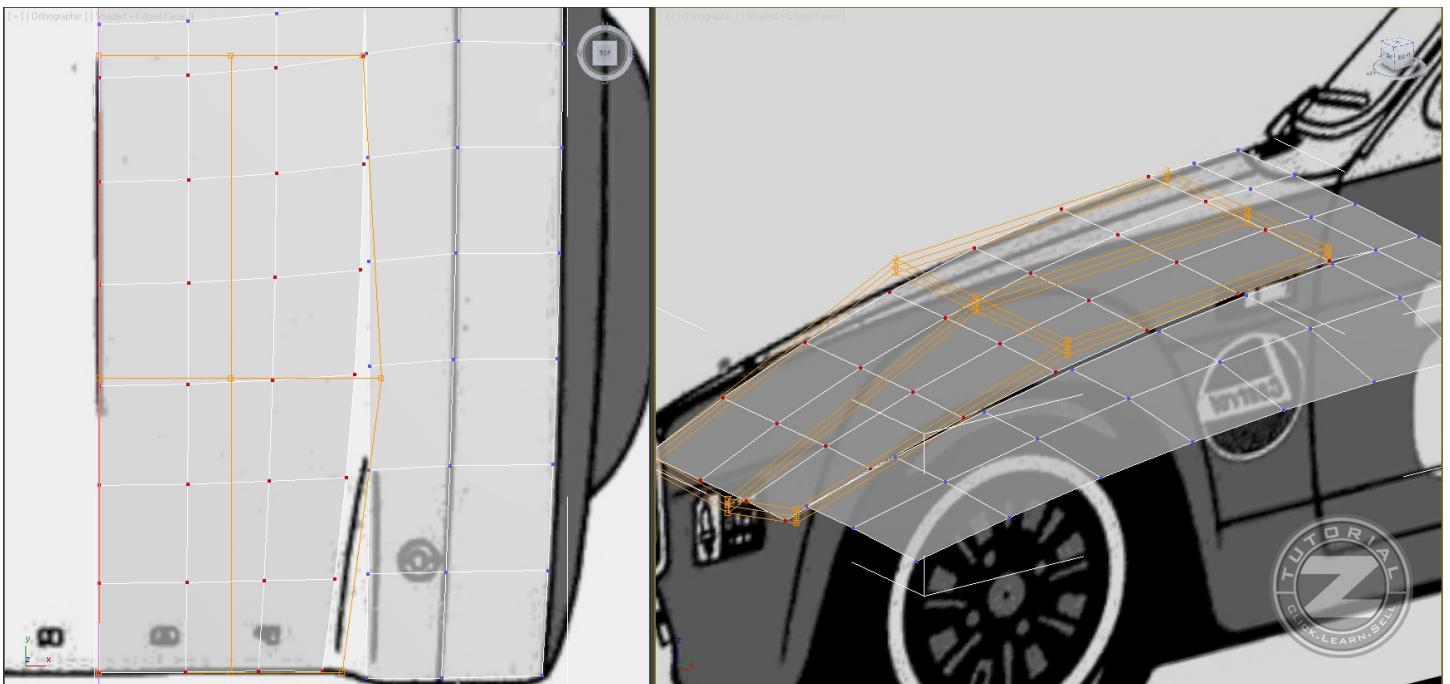


10. Select these vertices, then go to the modifier list and choose "FFD 3x3x3" and you will see an orange cage:

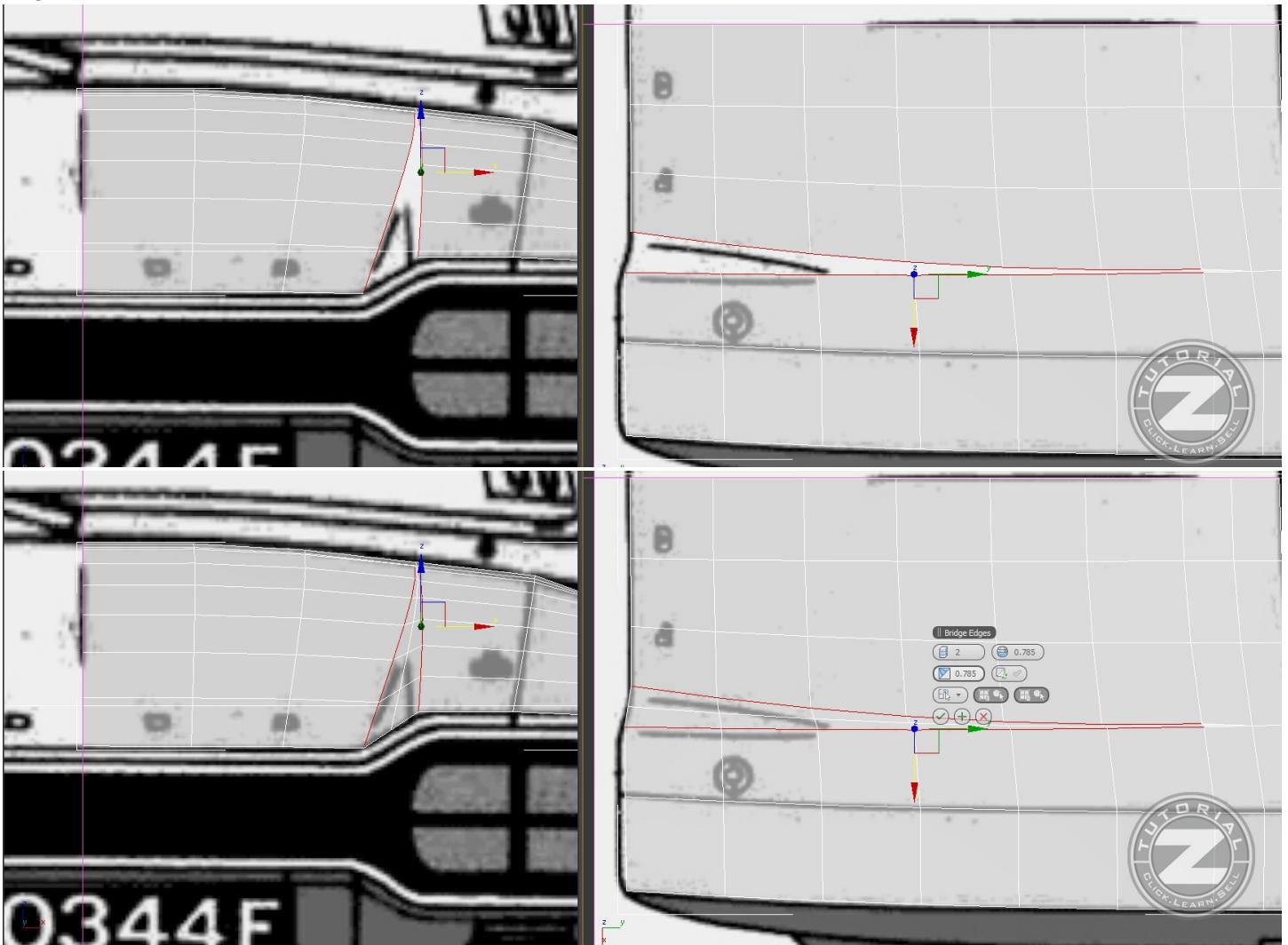


11. Open the "FFD 3x3x3" menu and choose "Control Points". To open the "FFD 3x3x3" menu, just click on that small +. After you have selected "control points" move those points of the orange cage like I did. Why we are doing this ? Well, by moving the points of the cage we will have a smoother surface :) :

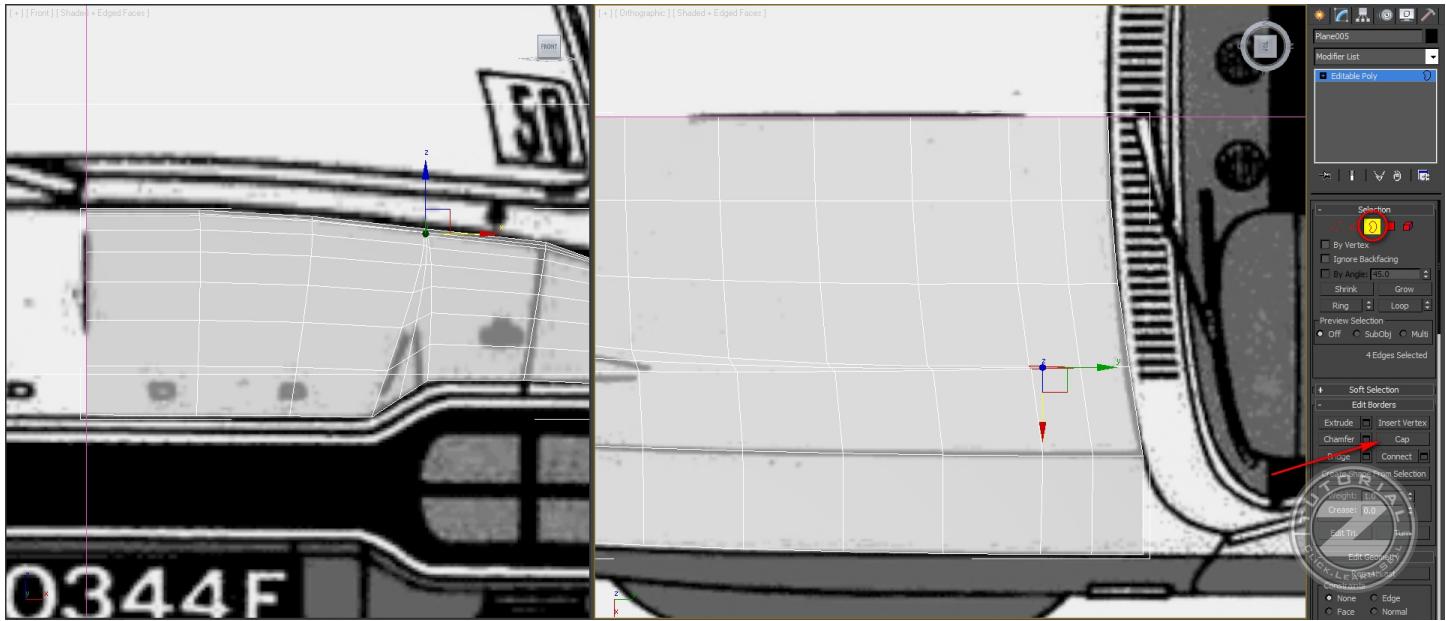




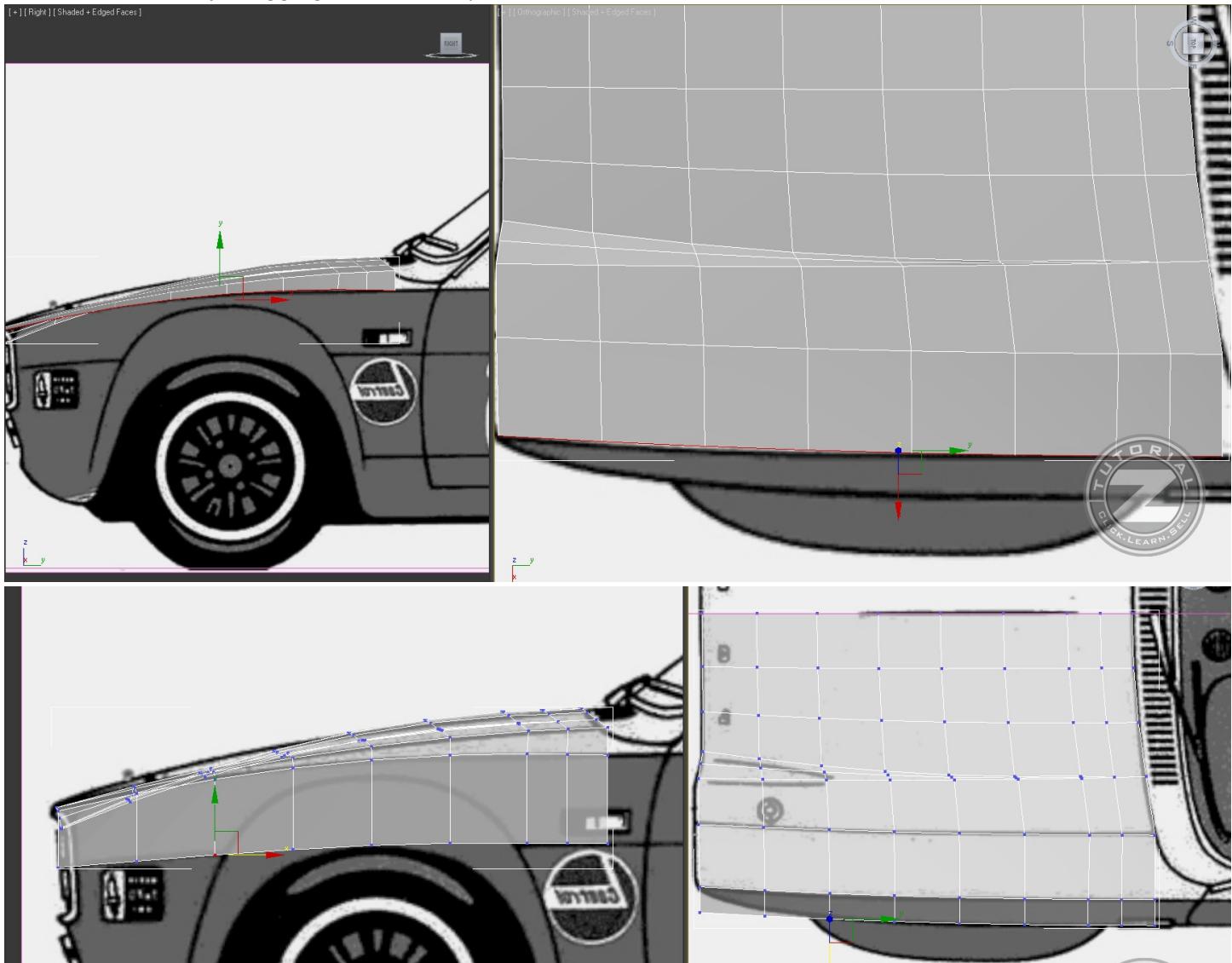
12. Now select these edges and use the “Bridge” tool to connect them. Also, add a segment between these edges :



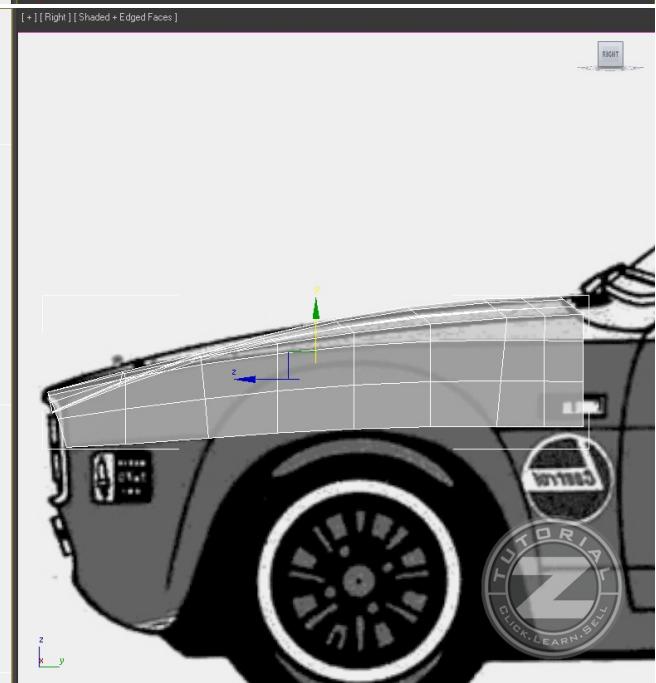
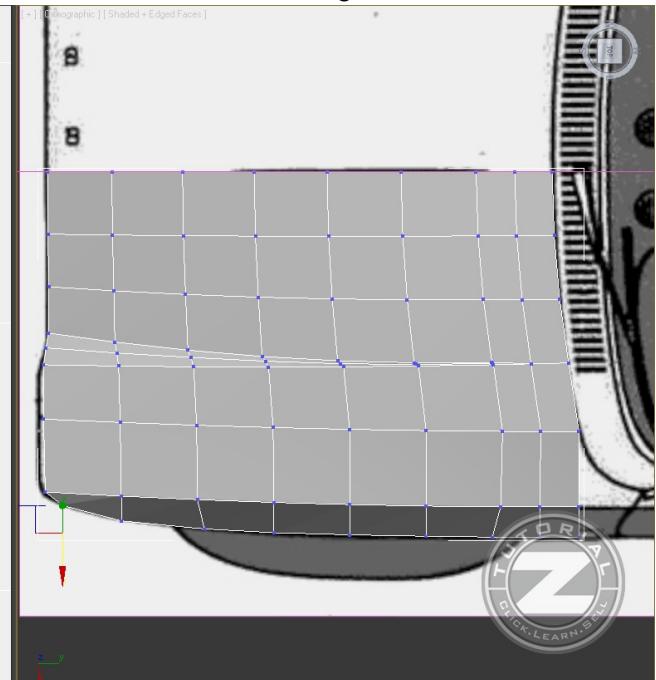
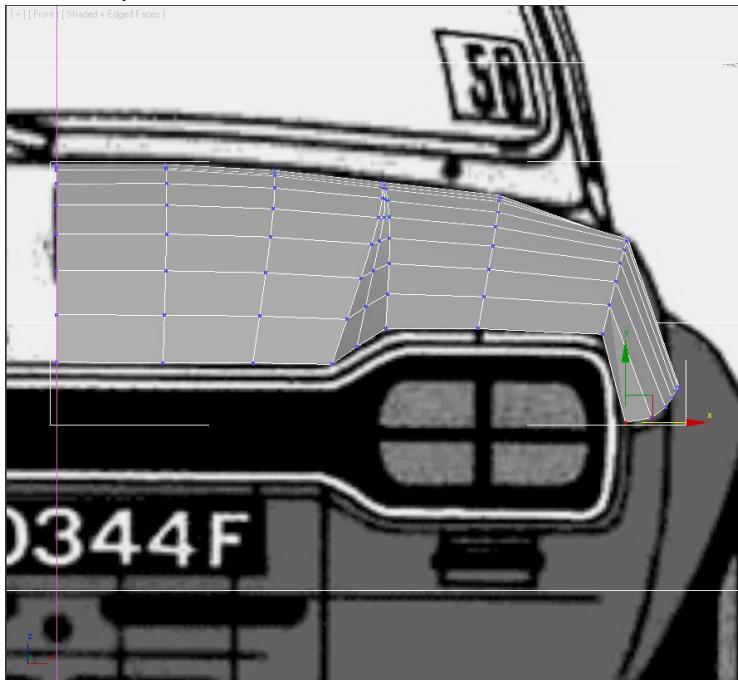
13. Click on the “broder” button, and then click on the “Cap” button to close the hole



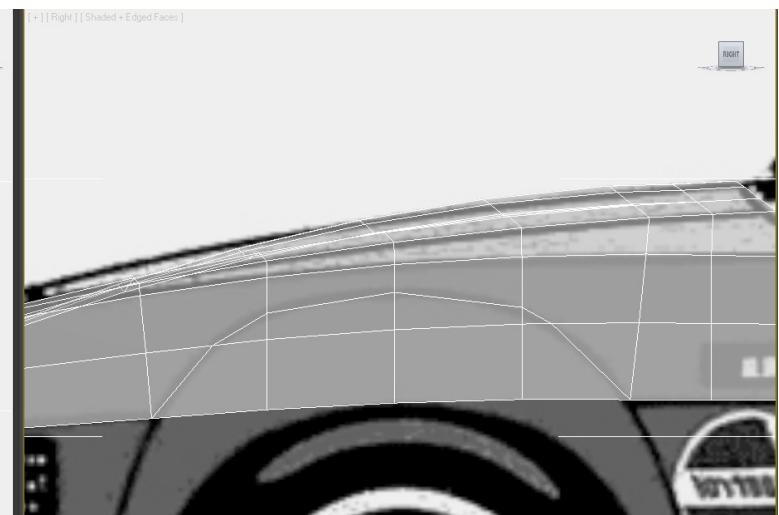
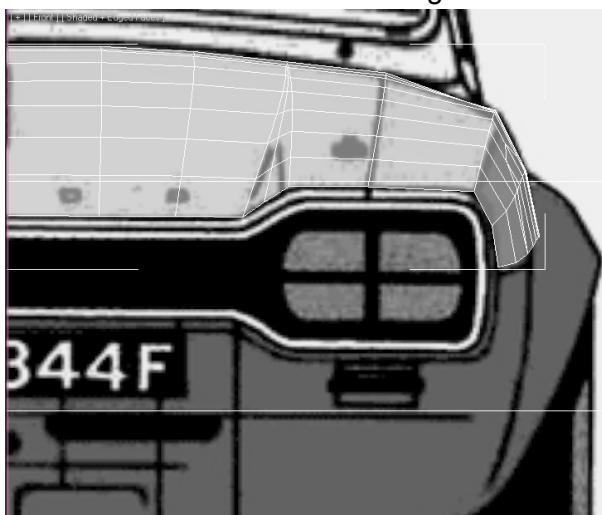
14. Let's move forward and create the fender. Select the same edges that I have selected in the image, and create new ones by dragging these ones :)



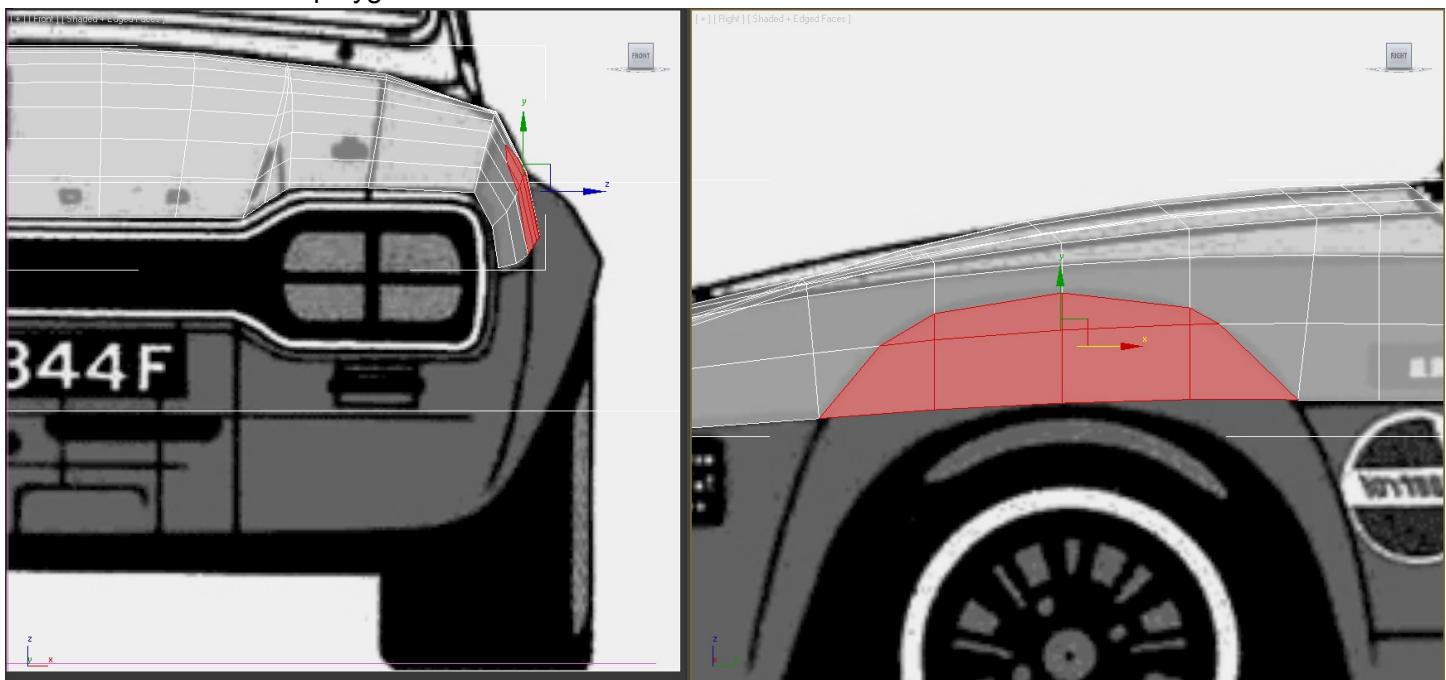
15. Now put the vertices as me and then use the connect tool to add another row of edges :



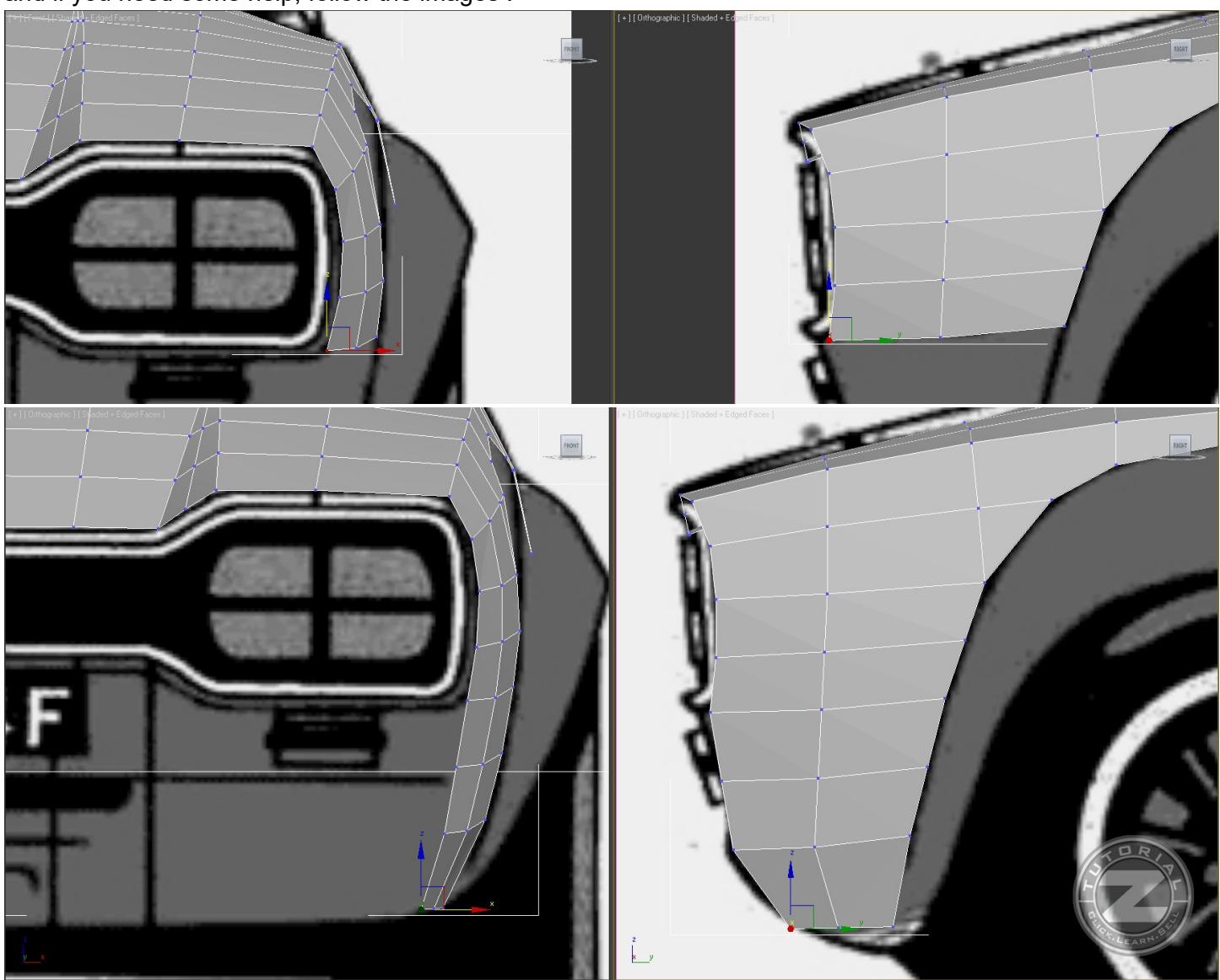
16. Use the "Cut" tool to cut along the fender's line :

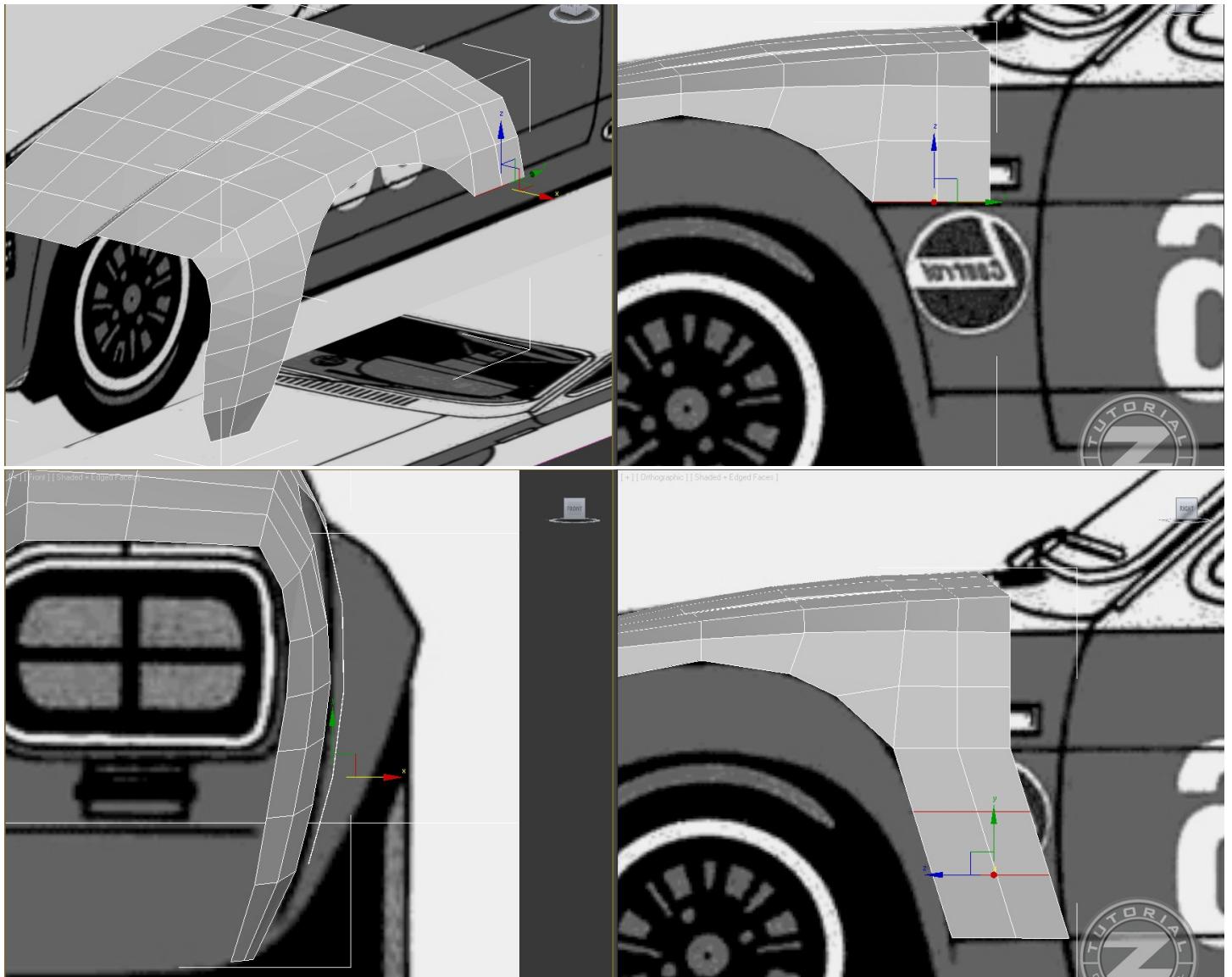


17. Delete the selected polygons :

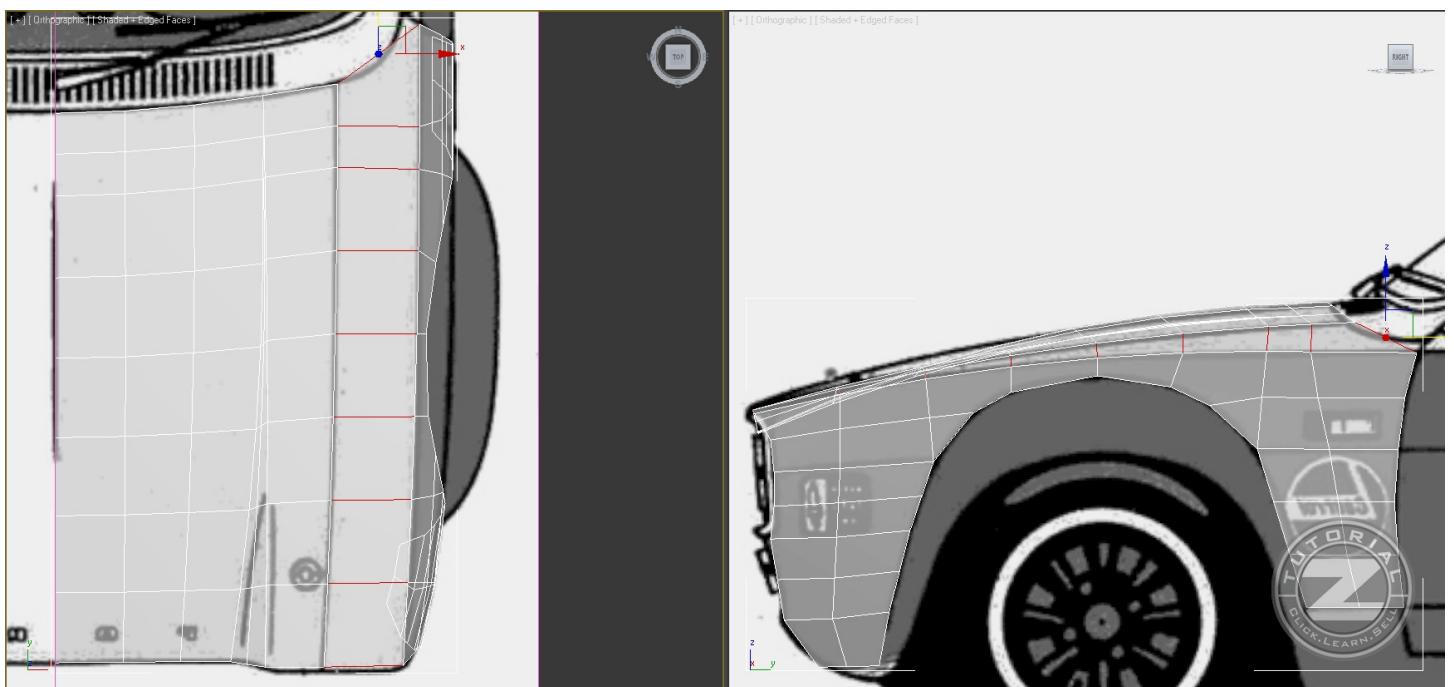


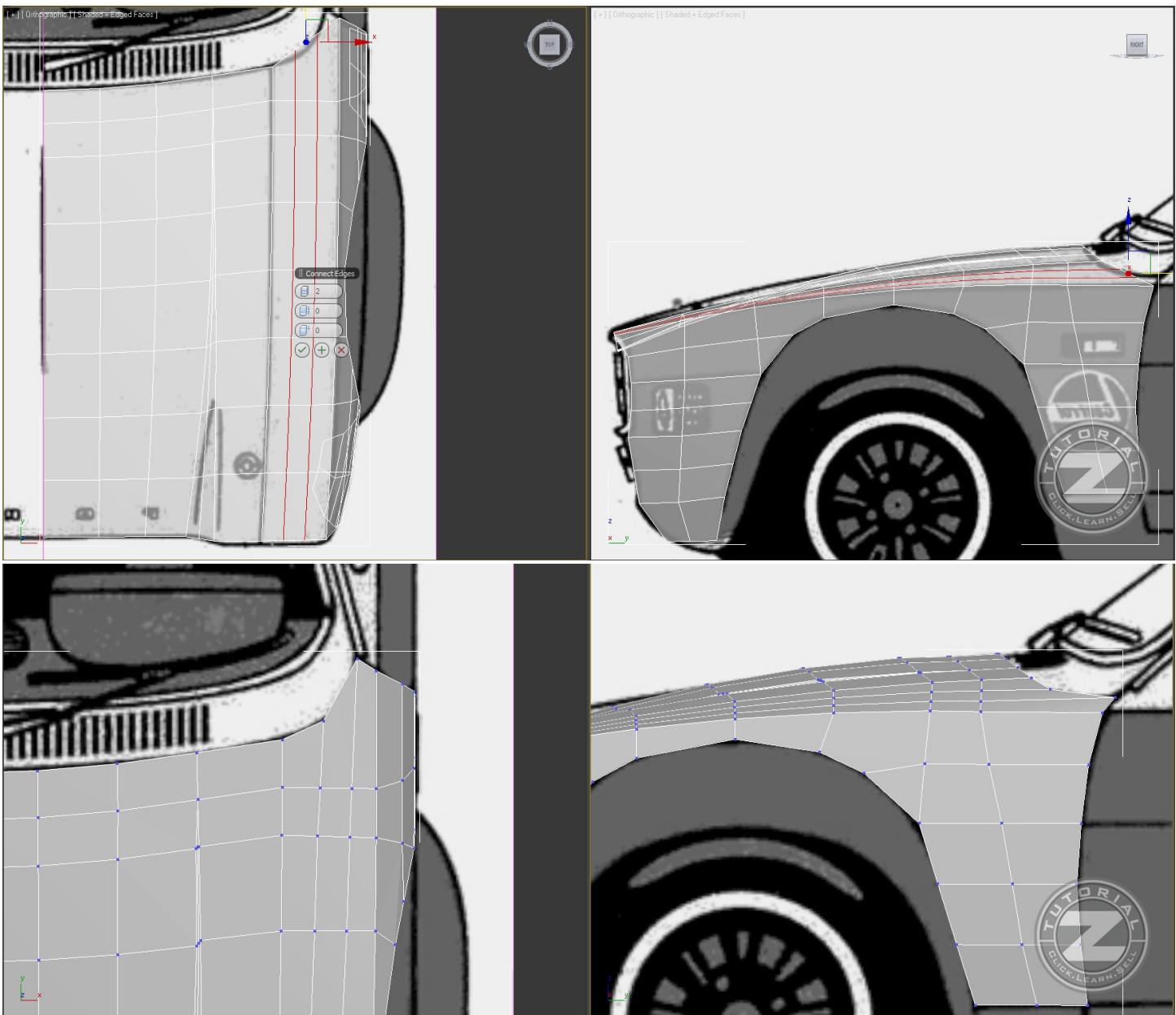
18. Select these edges and keep working on the front side of the fender. Just follow the lines of the blueprint and if you need some help, follow the images :



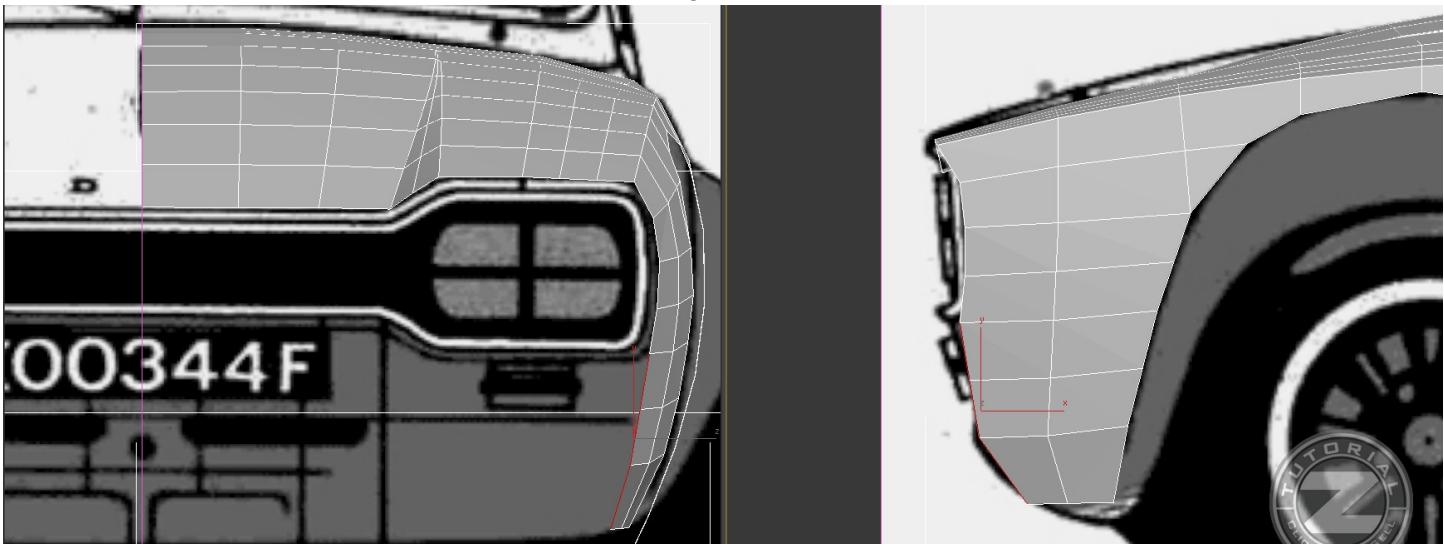


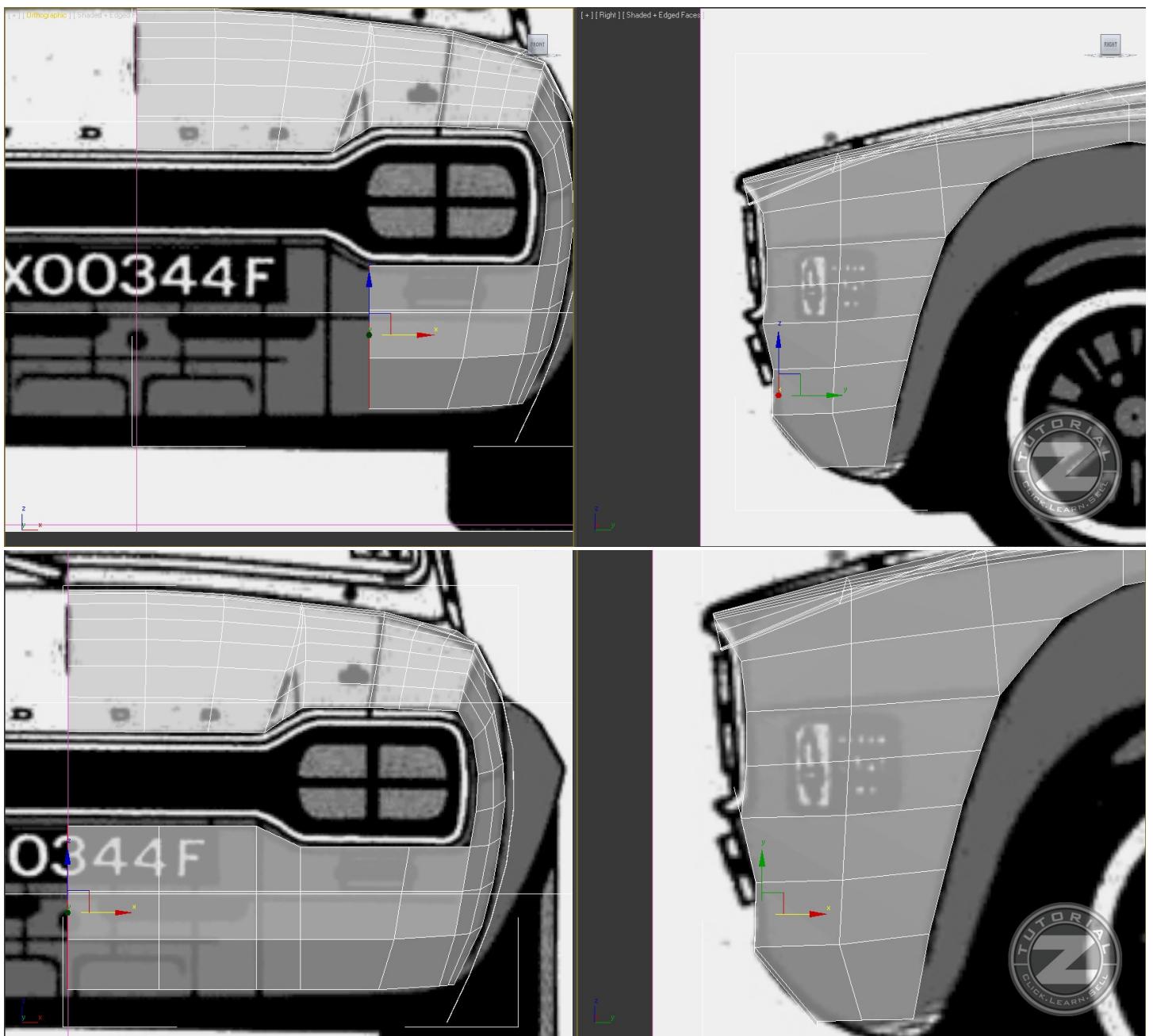
19. One of the blueprint is not very accurate but using some reference images we will get the same fender as it is on the real model. So, now select these edges and connect them using 2 segments and place the vertices like me :



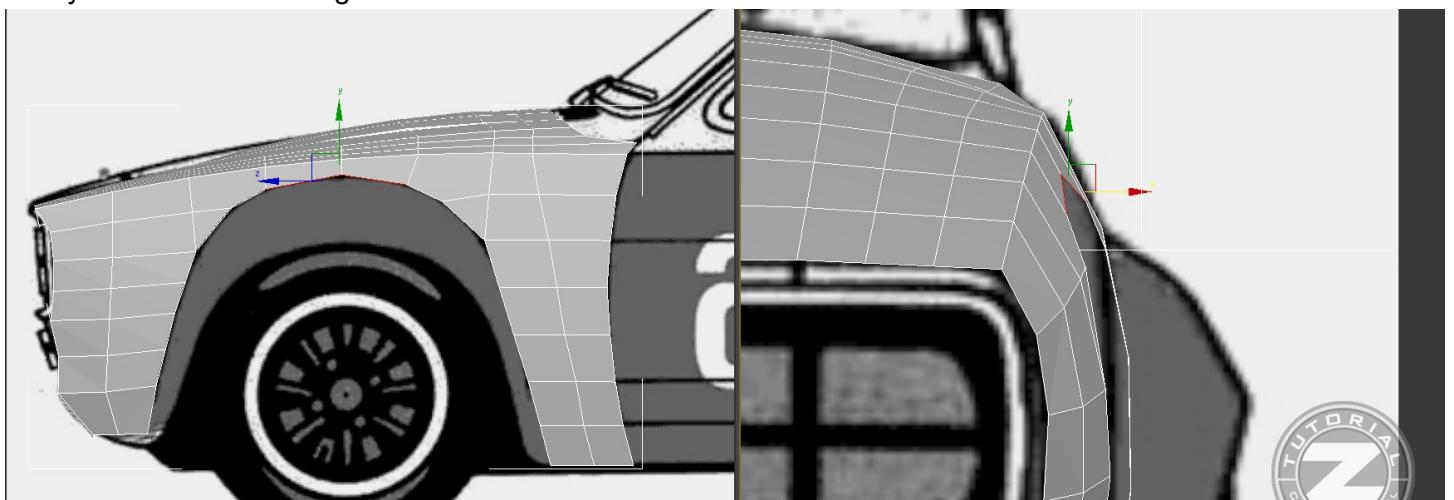


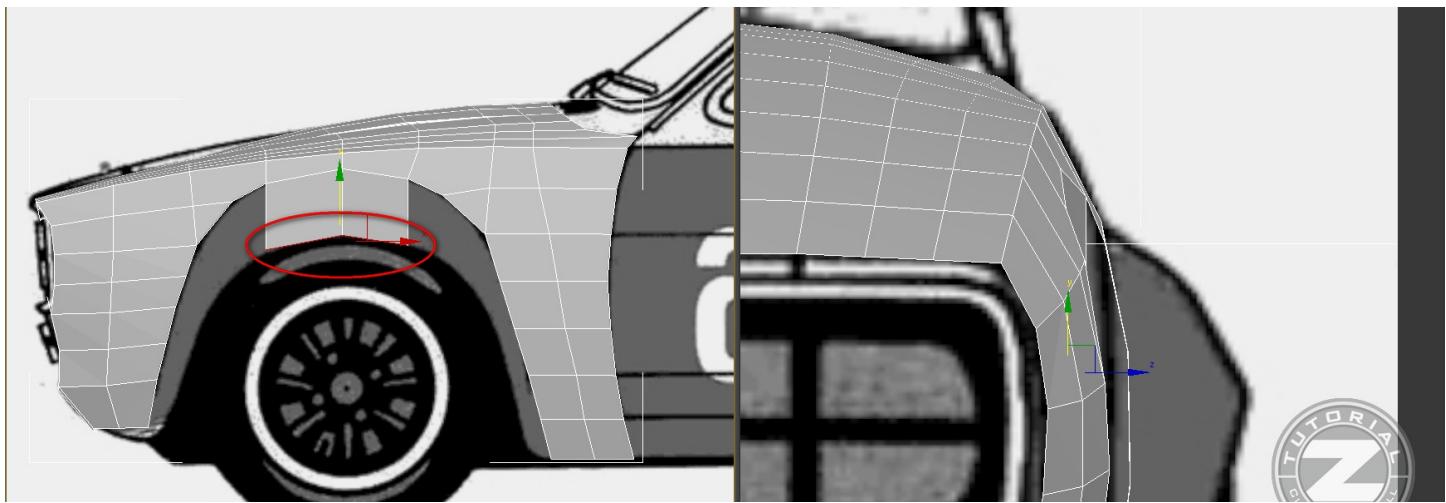
20. for the moment, we will remain on the front side of the car. So, grab these edges and keep dragging them in order to create new ones and place them according to our blueprint :



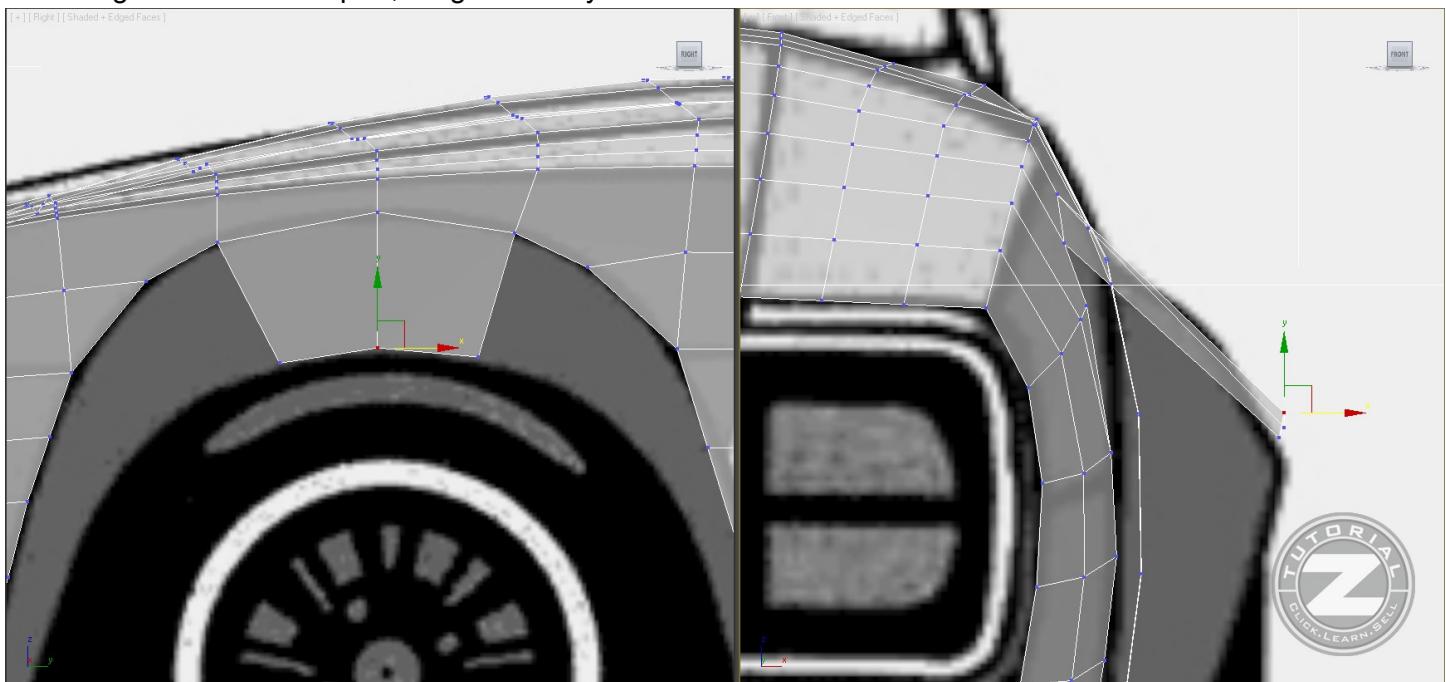


21. Now let's try to make those wide fenders. As I have said, the blueprint is not very accurate in each viewport, but we will try to fix this. So, grab these 2 vertices and using the "Right" viewport, drag them down until you will reach the edge of the fender :

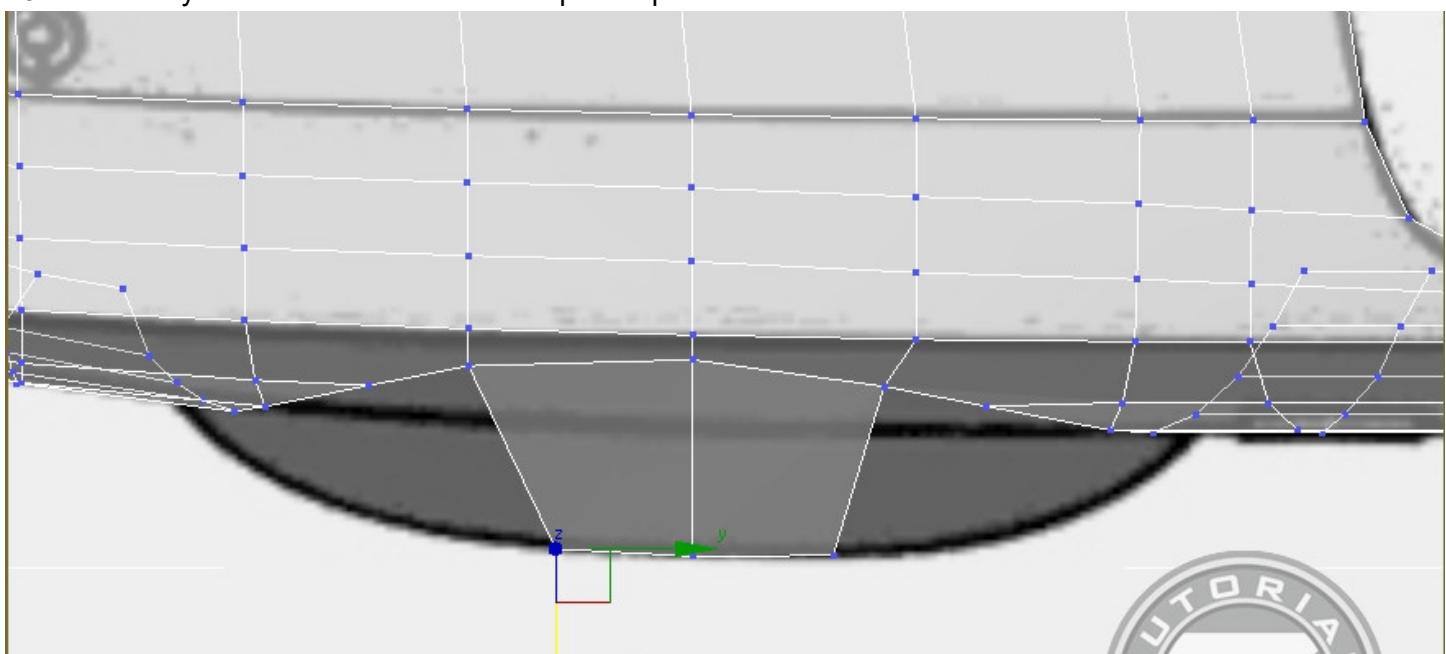




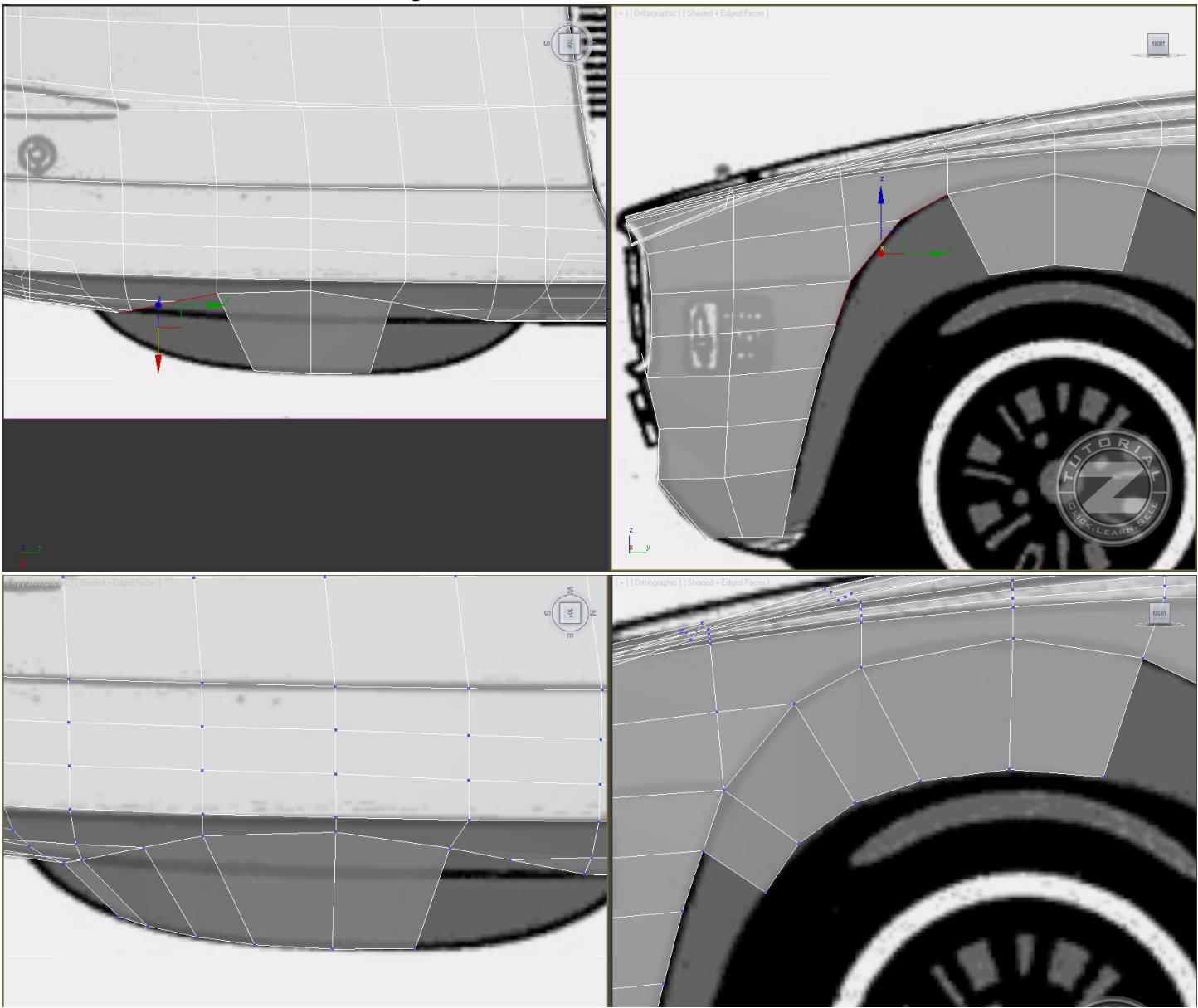
22. Using the "Front" viewport, drag the until you will reach the side limit of the fender :



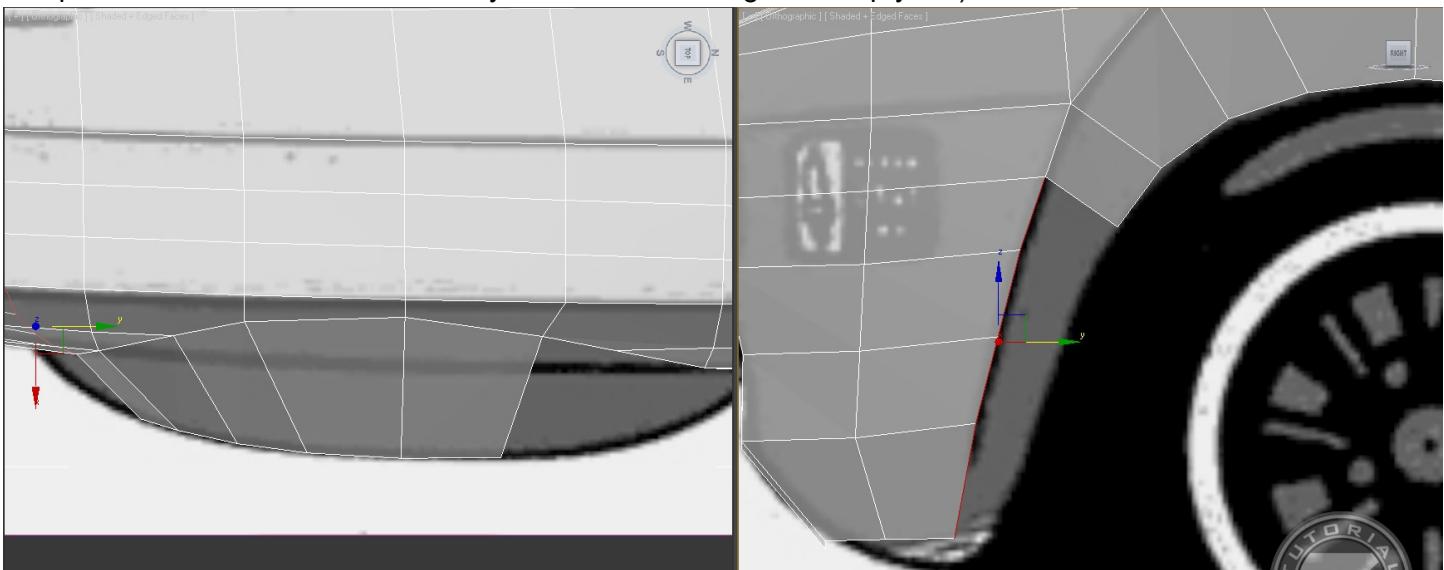
23. And here you have a view from the "Top" viewport :

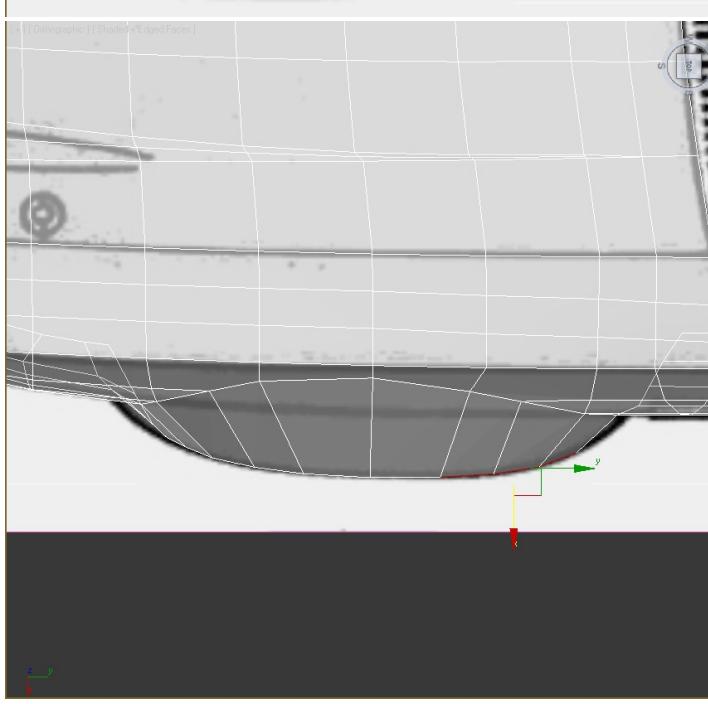
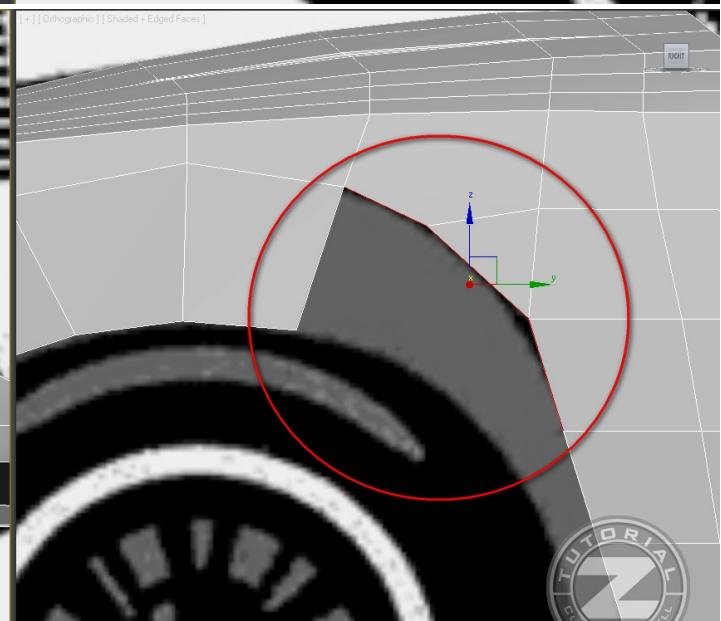
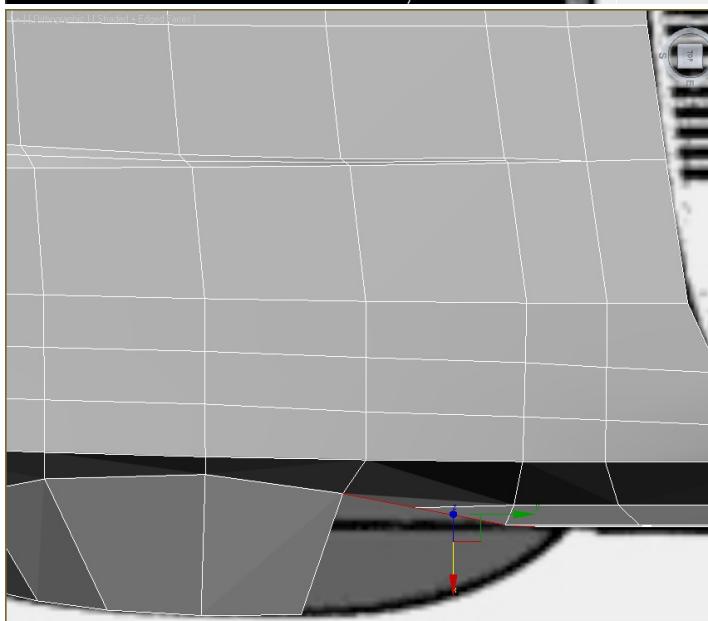
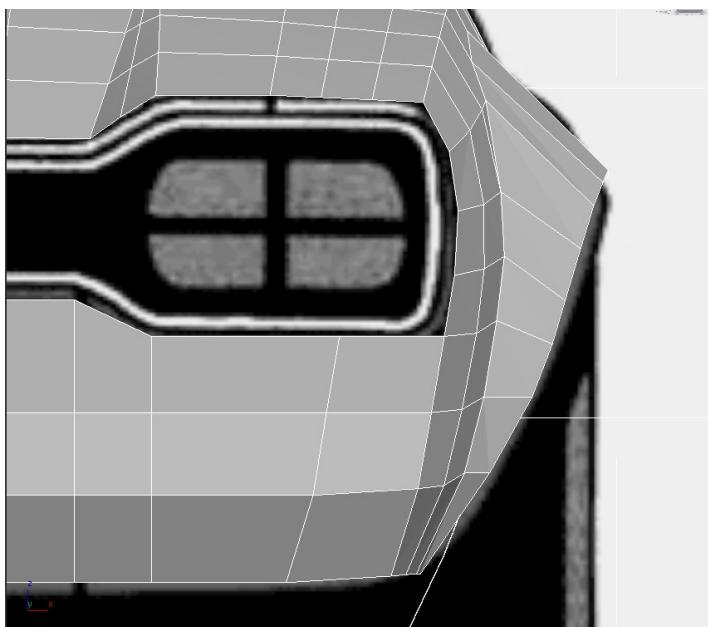


24. Do the same think with these 3 edges :

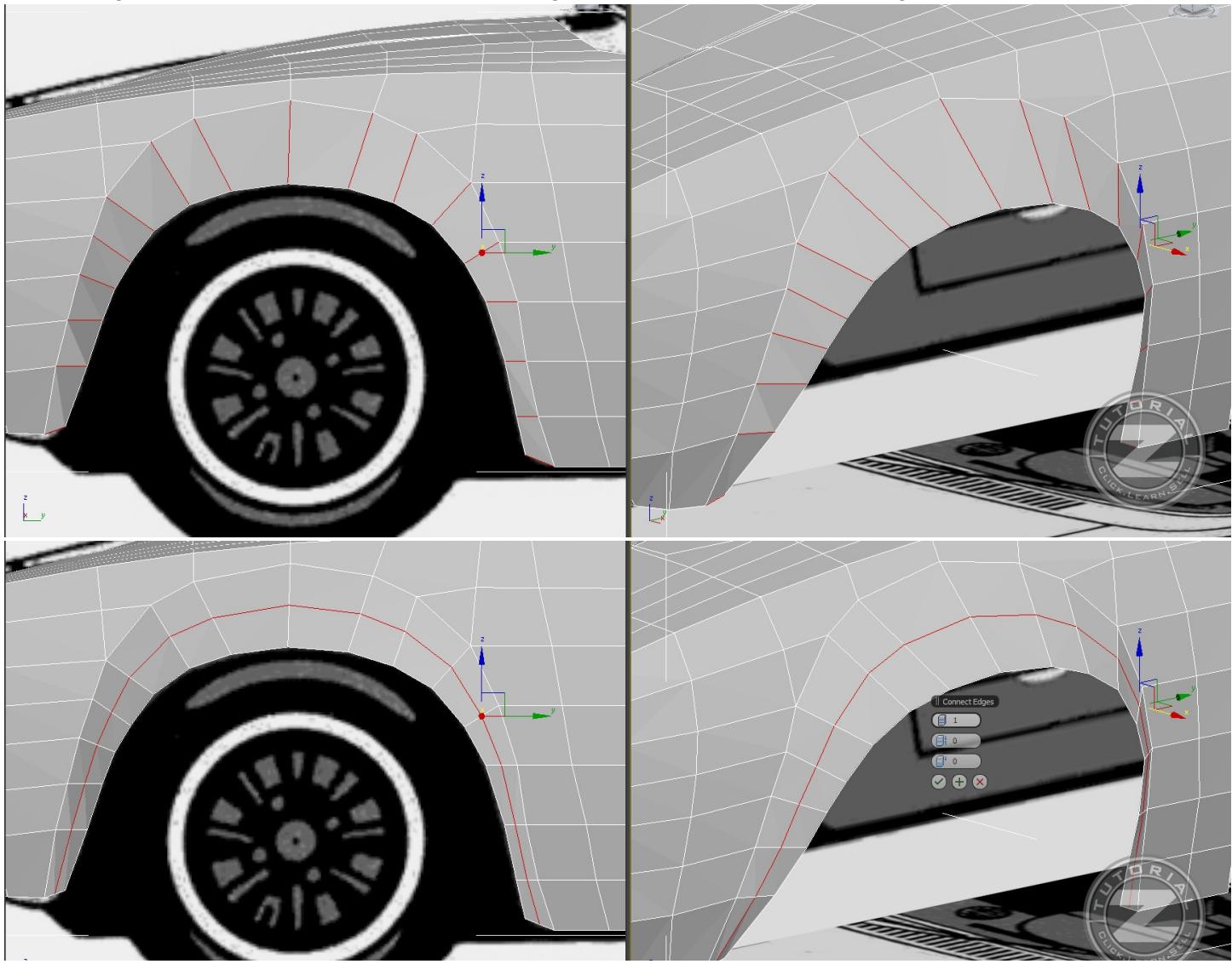


25. I don't have very much to say at this step because there are the same steps, just select and drag to complete the rest of the fender. Here you have some images to help you :)

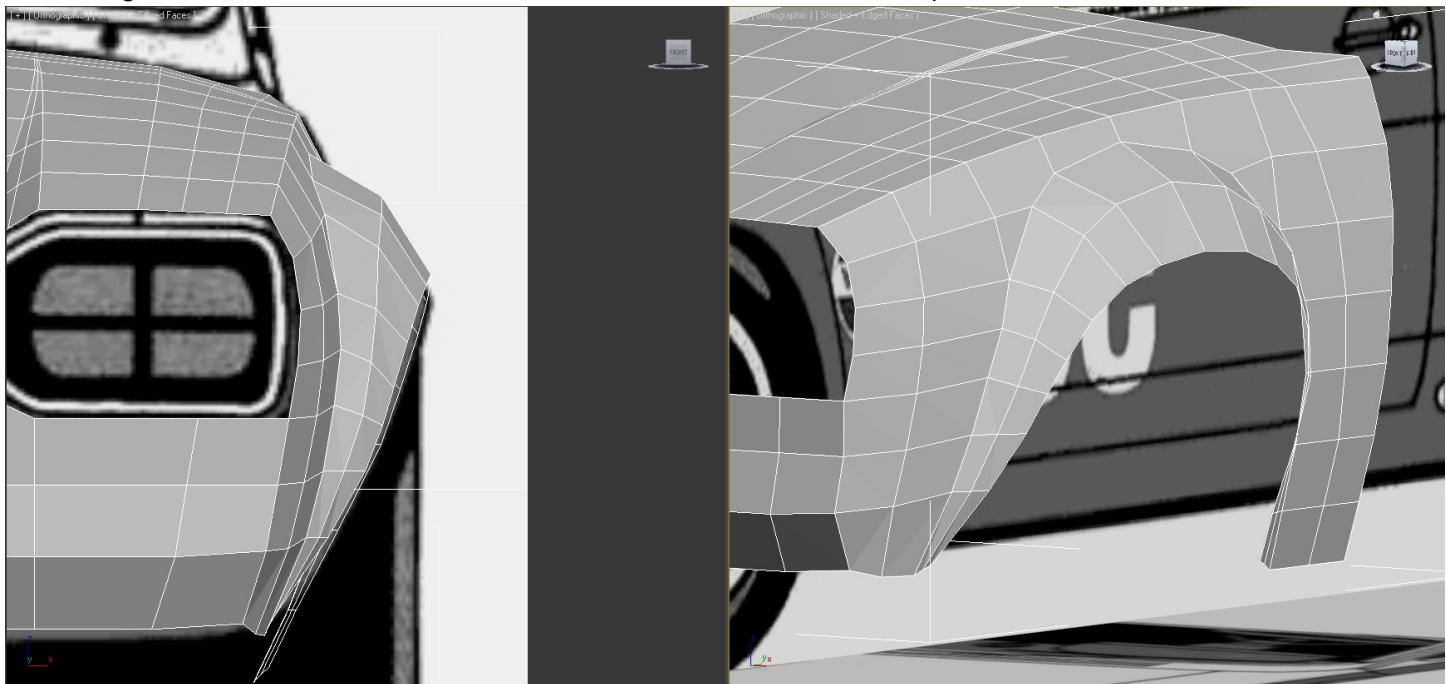


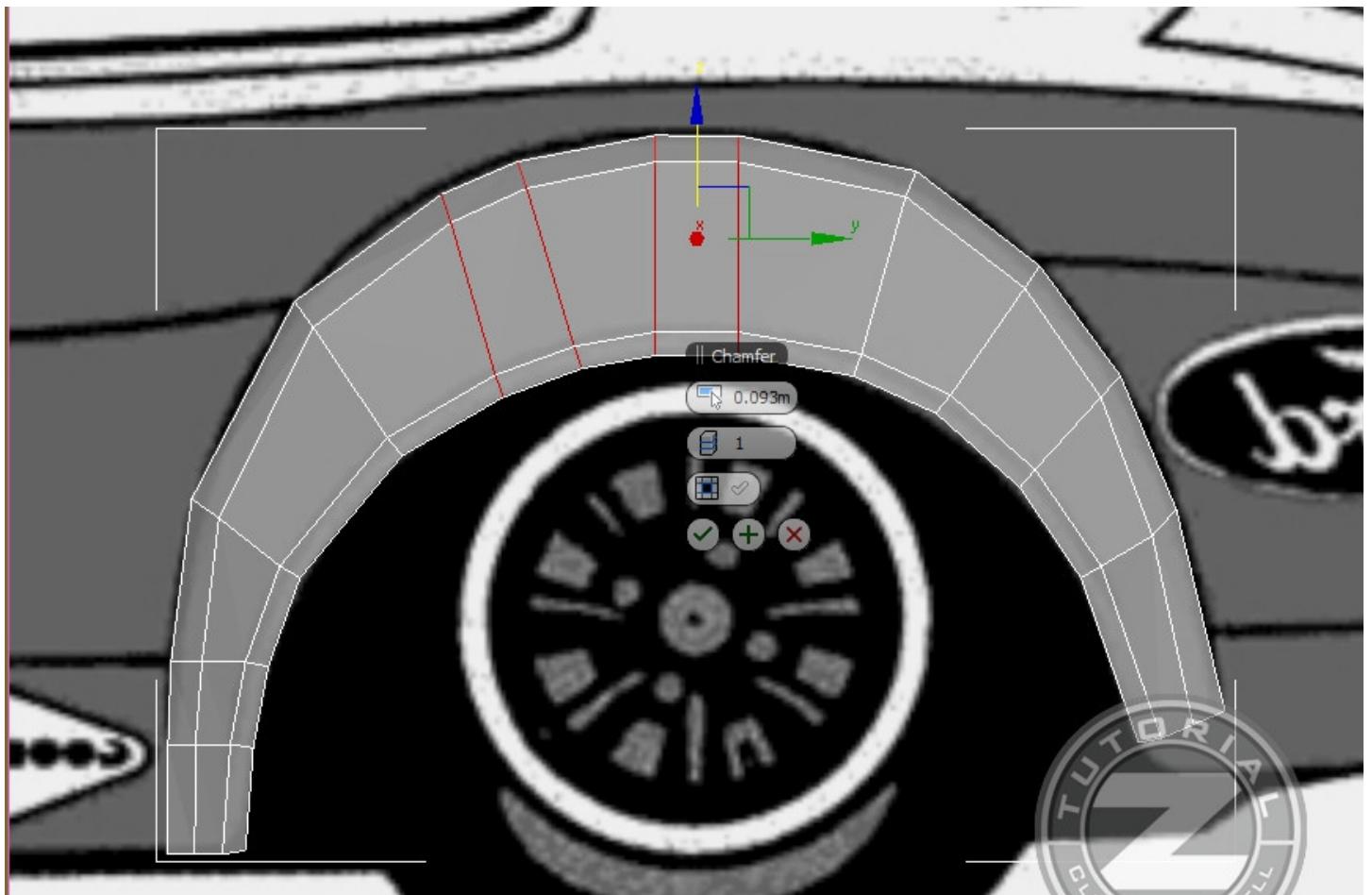


26. If we are cheking some reference images, we will see that the fender has a rounded shape and do the same thing, first we need to connect the same edges that are selected in the image :

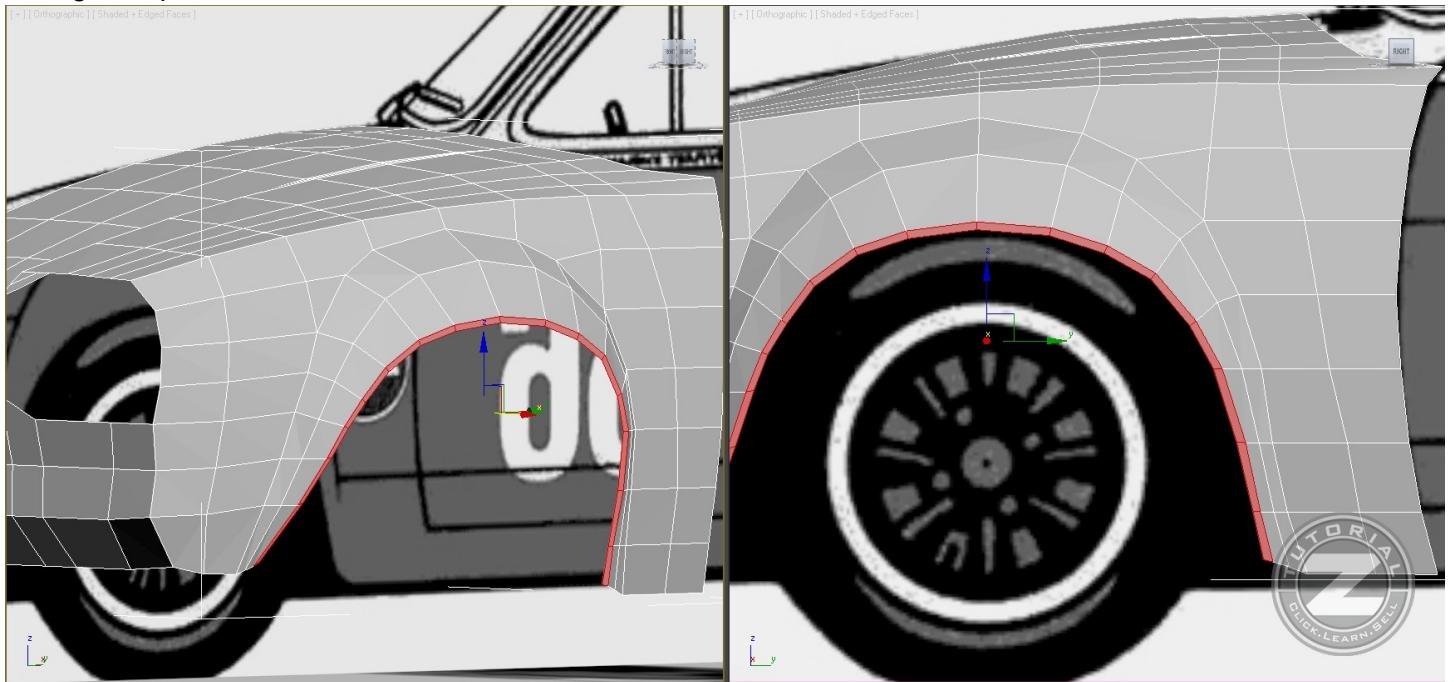


27. Now grab the vertices and move them in order to make a round shape of the fender

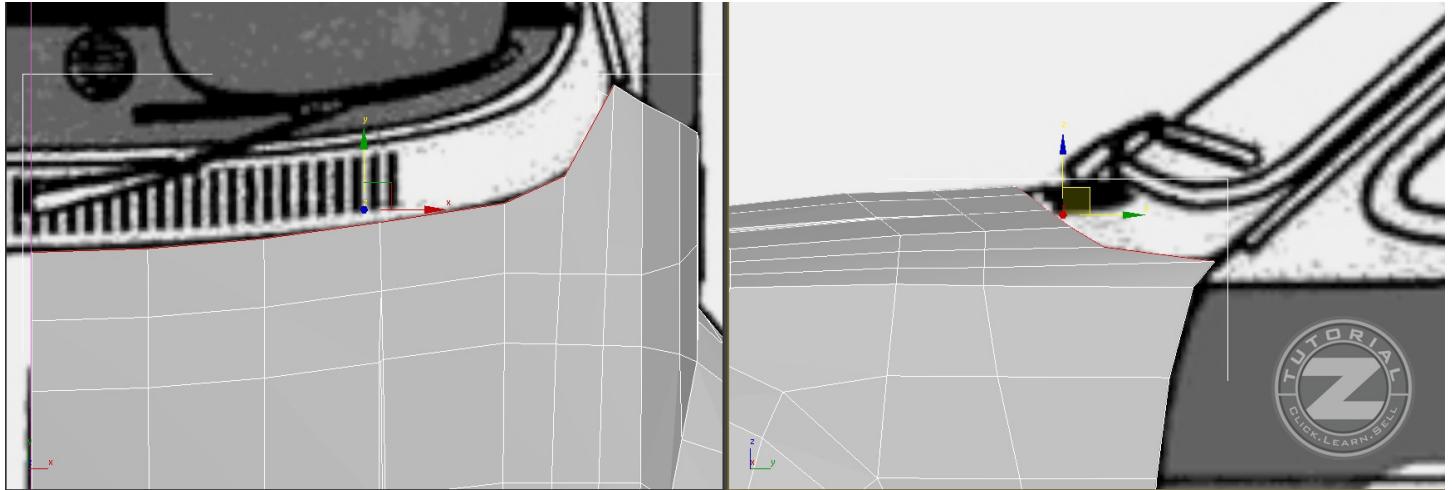




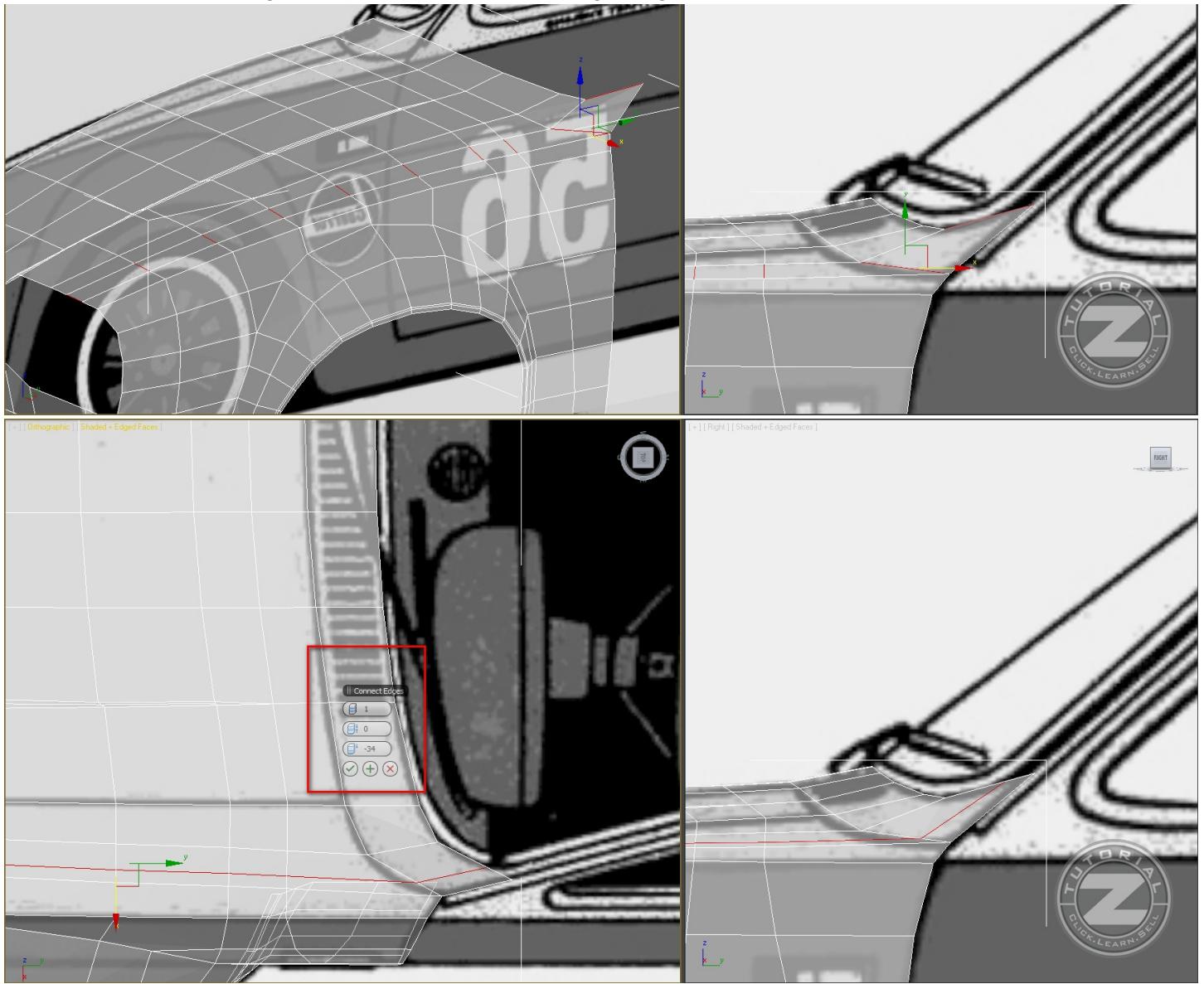
28. Make a small edge/border of this fender. This will improve the look of the fender very much and then we will move forward to make the rest of the car. We will sharp the edges and make the seams later, first, we need a rough shape :



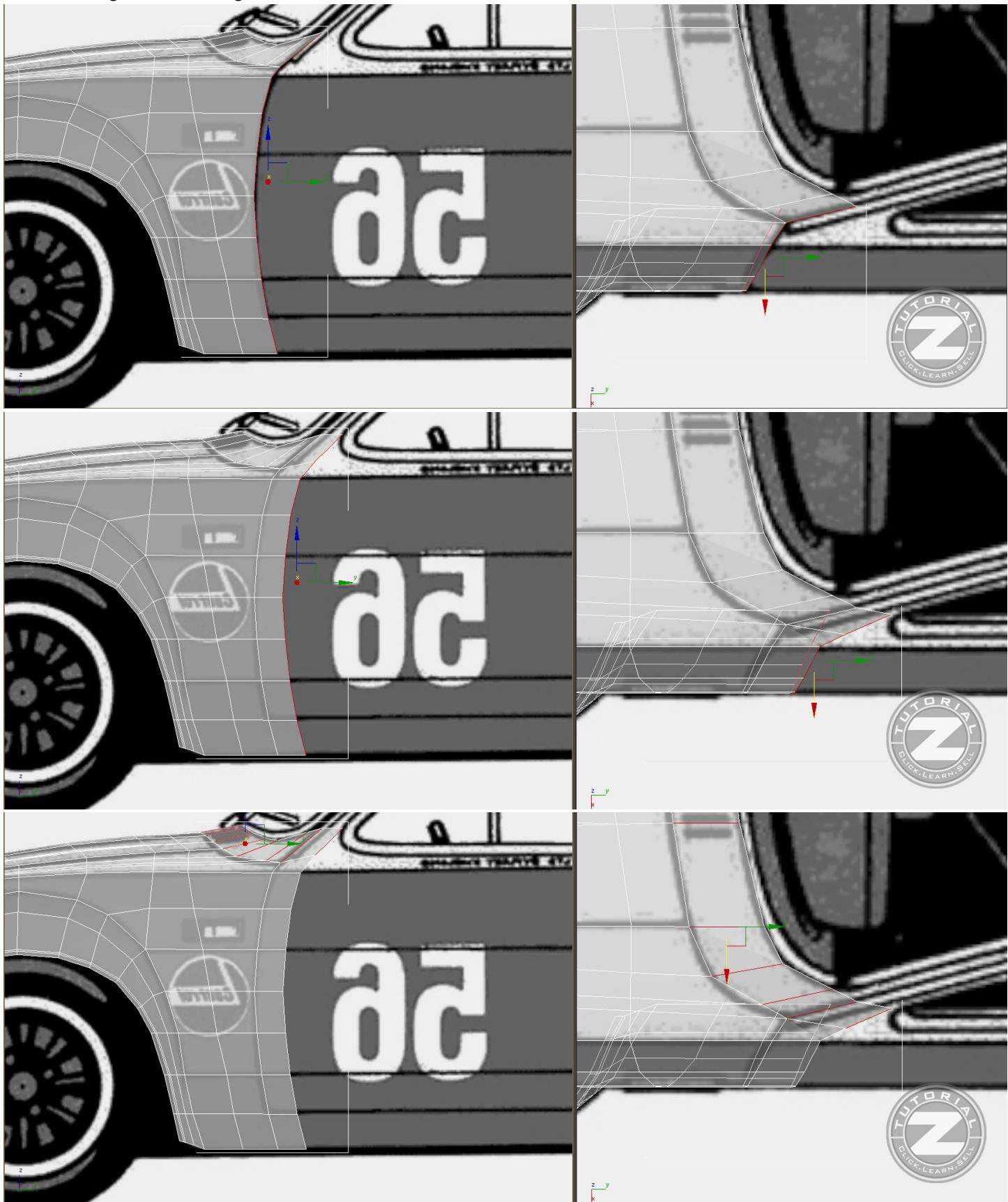
29. From this step we will move to the middle of the car. We will start by selecting the polygons from the top of the hood, then drag them until we will reach the bottom of the windshield:

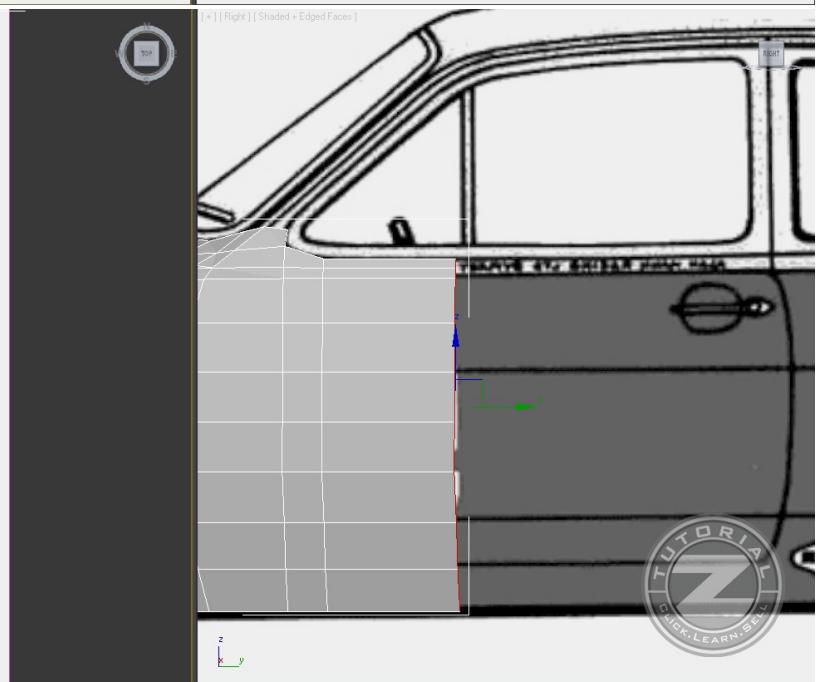
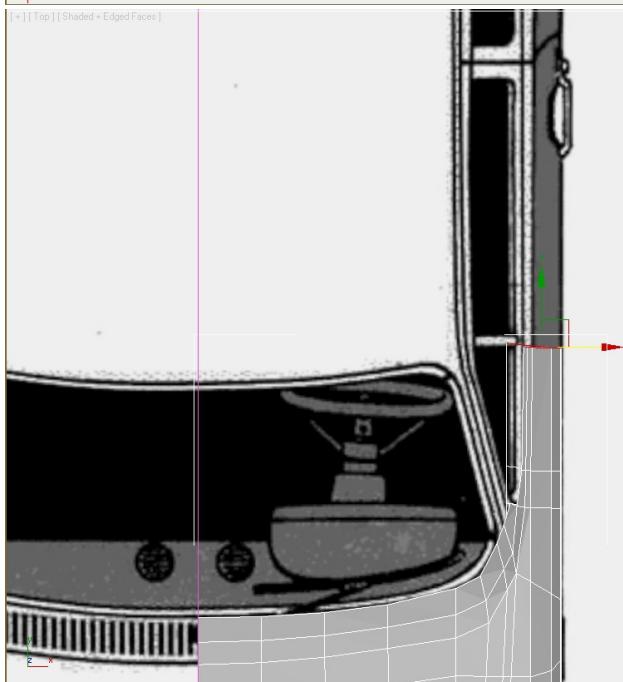
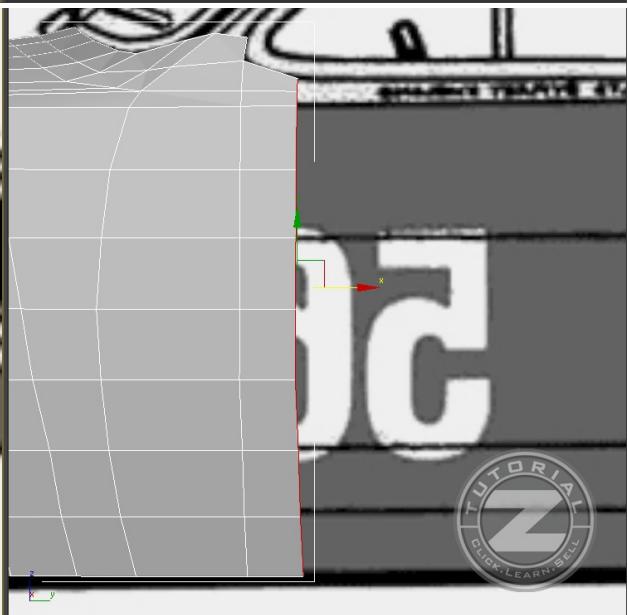
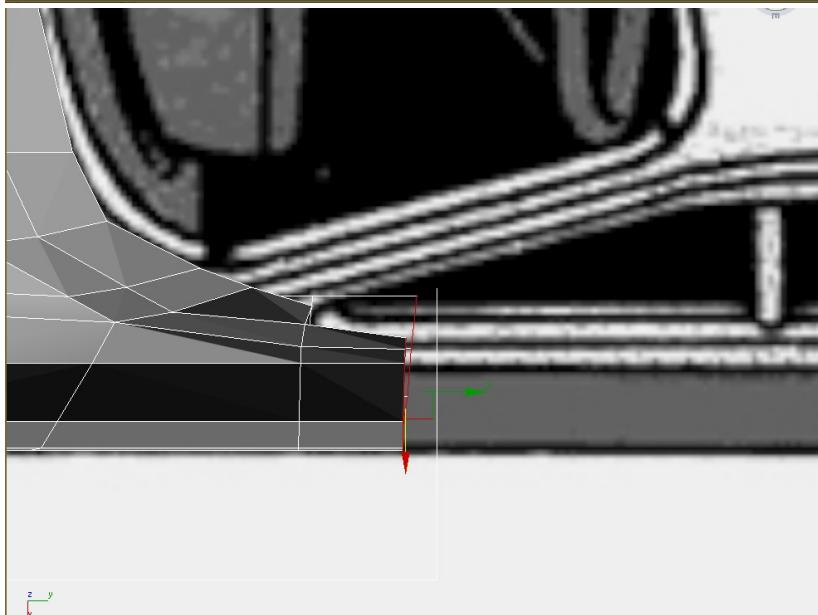
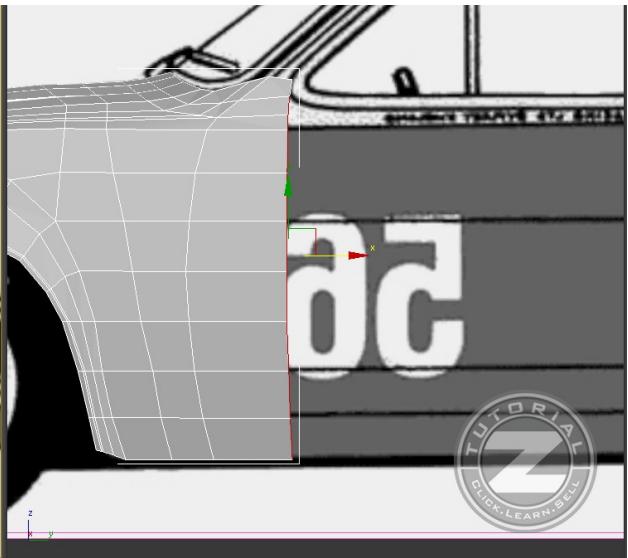
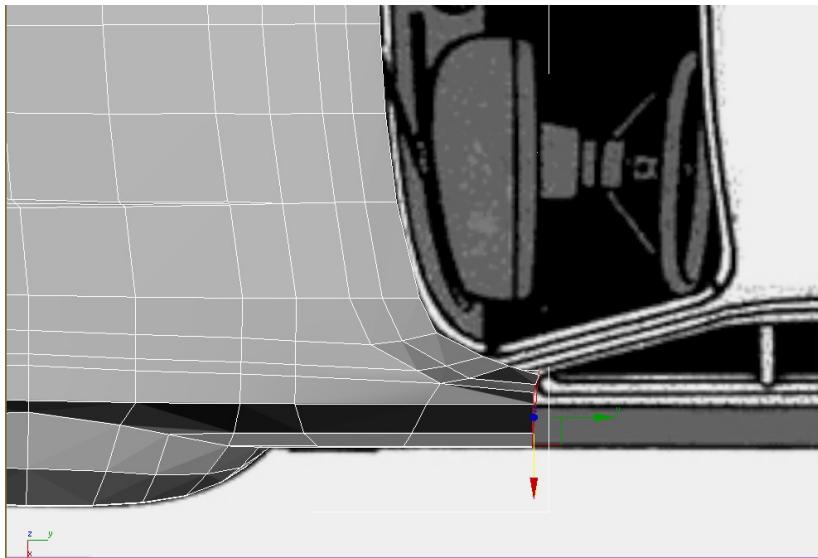


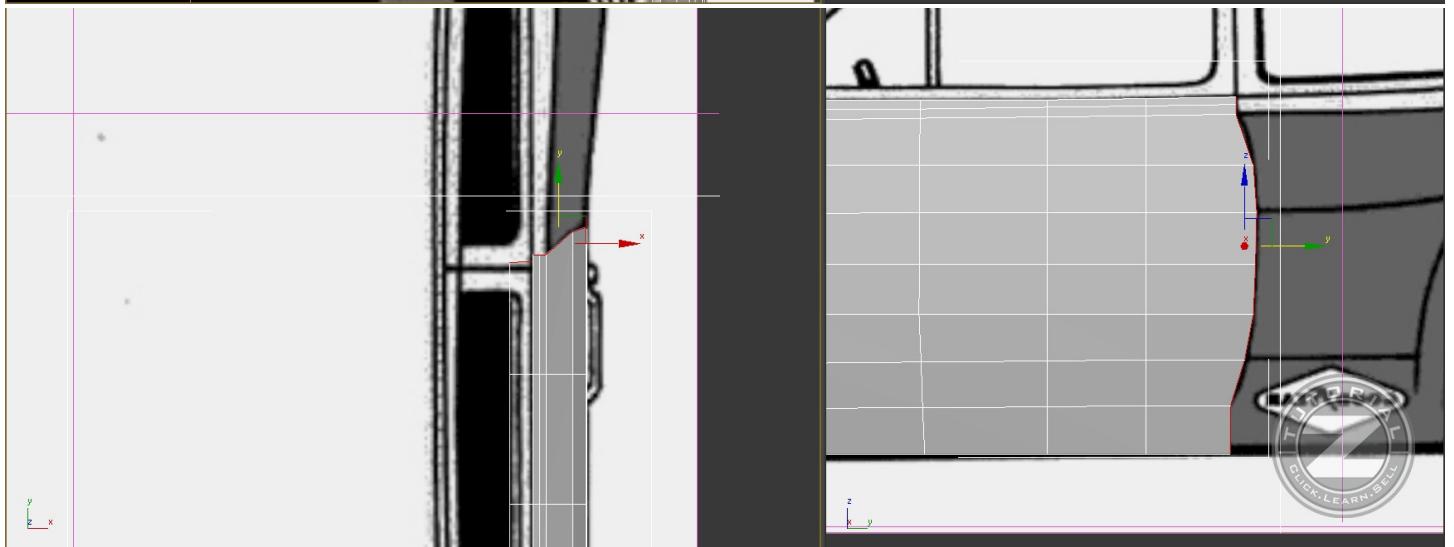
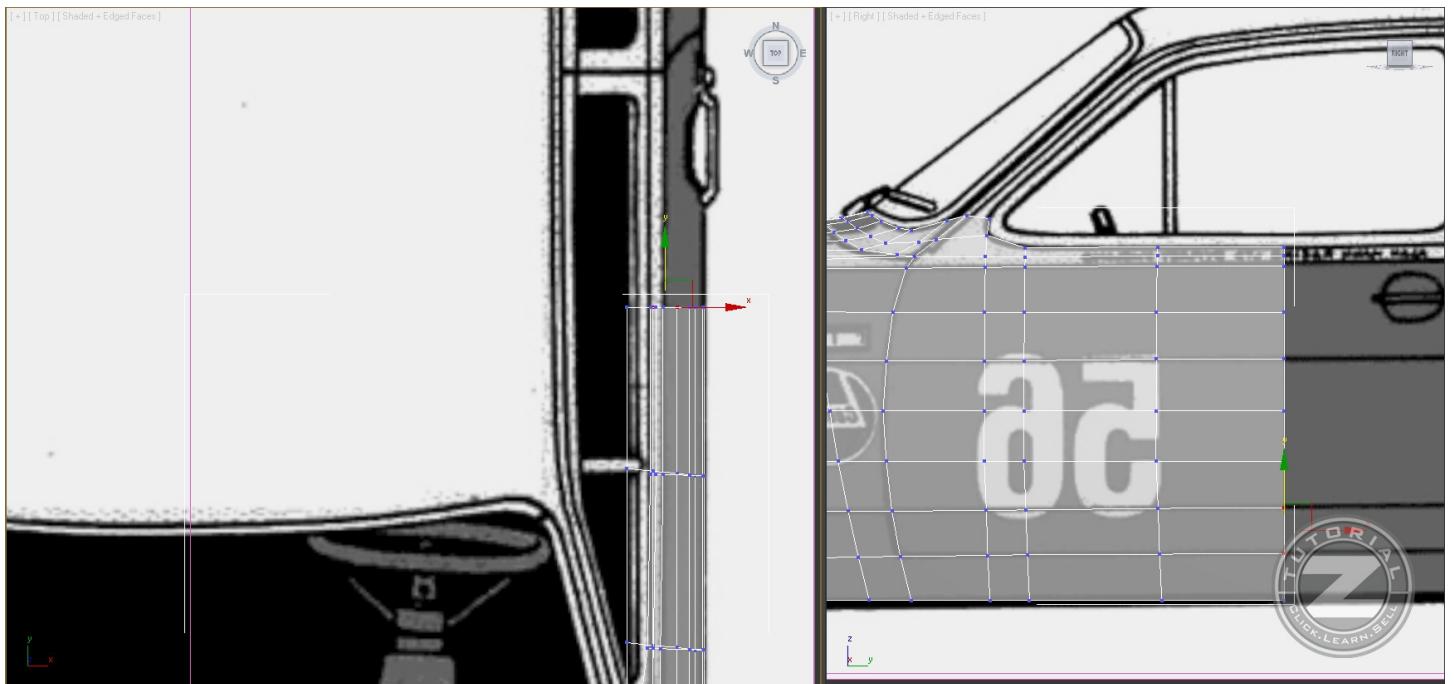
30. Now select these edges and connect the with a single segment :



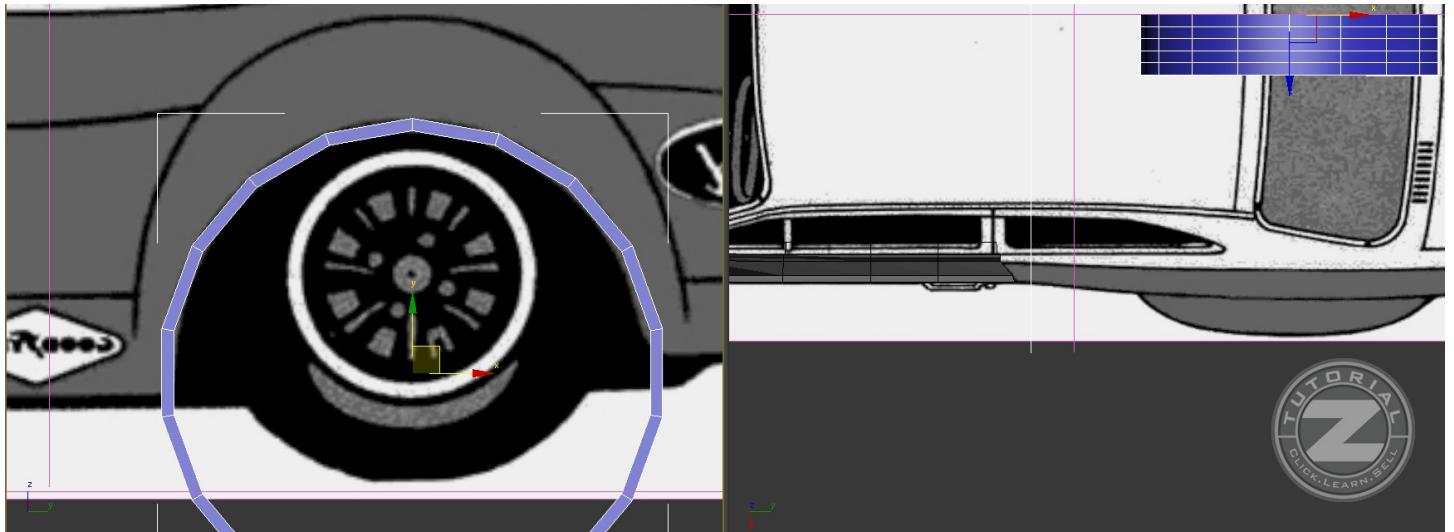
31. We will grab these edges and we will continue to make the middle of the car :



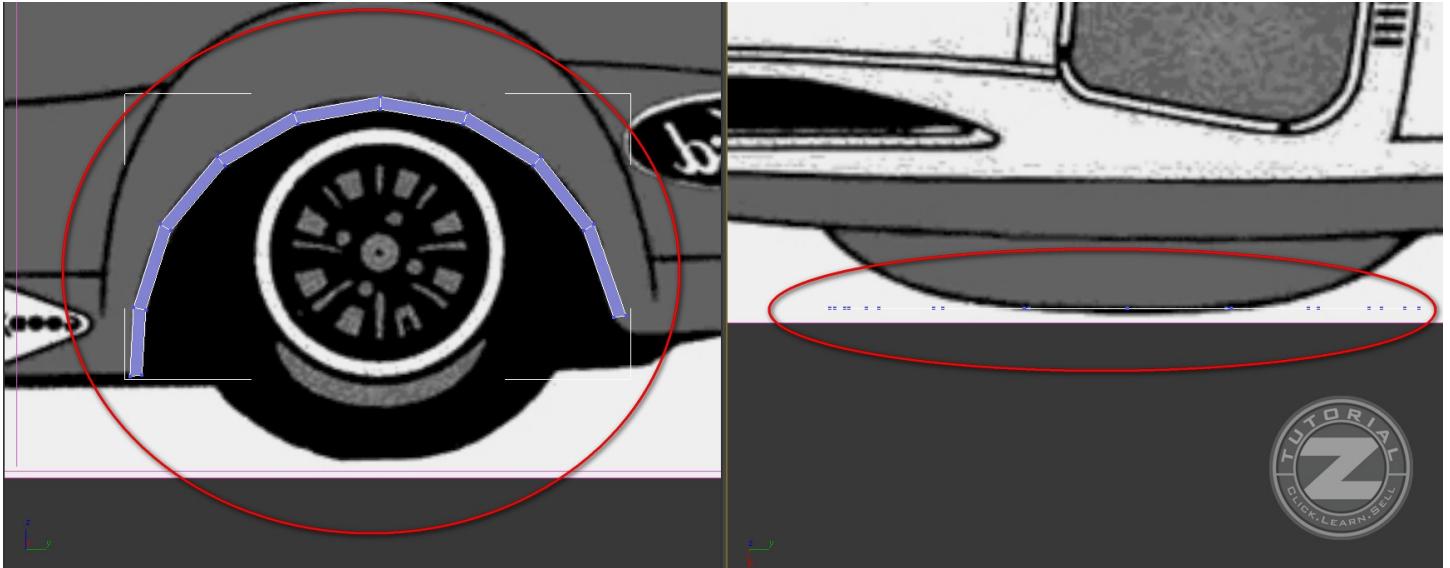




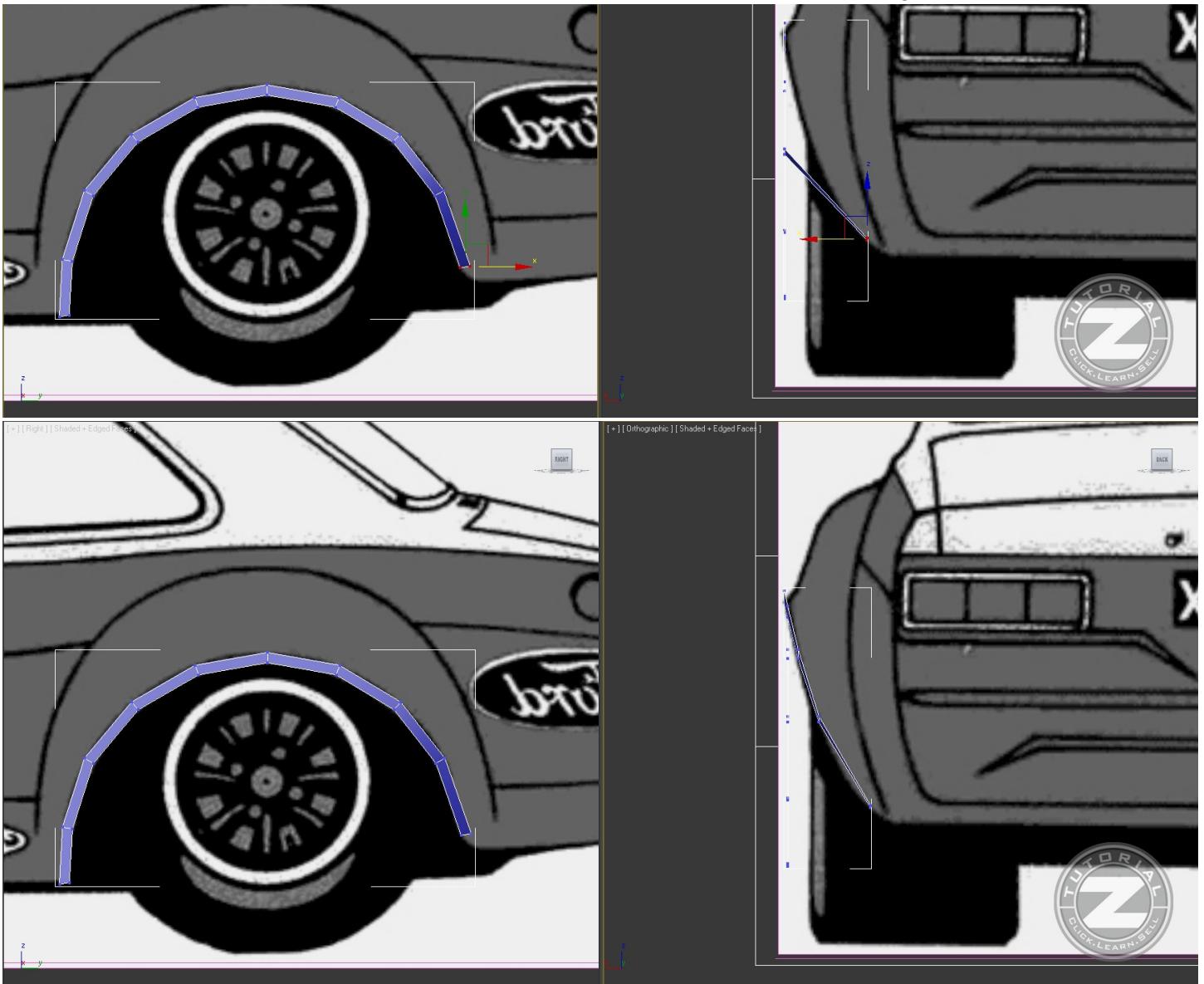
32. Now lets make the rear fender and then we will attach it to the rest of the body. So, start by making a tube like I did :

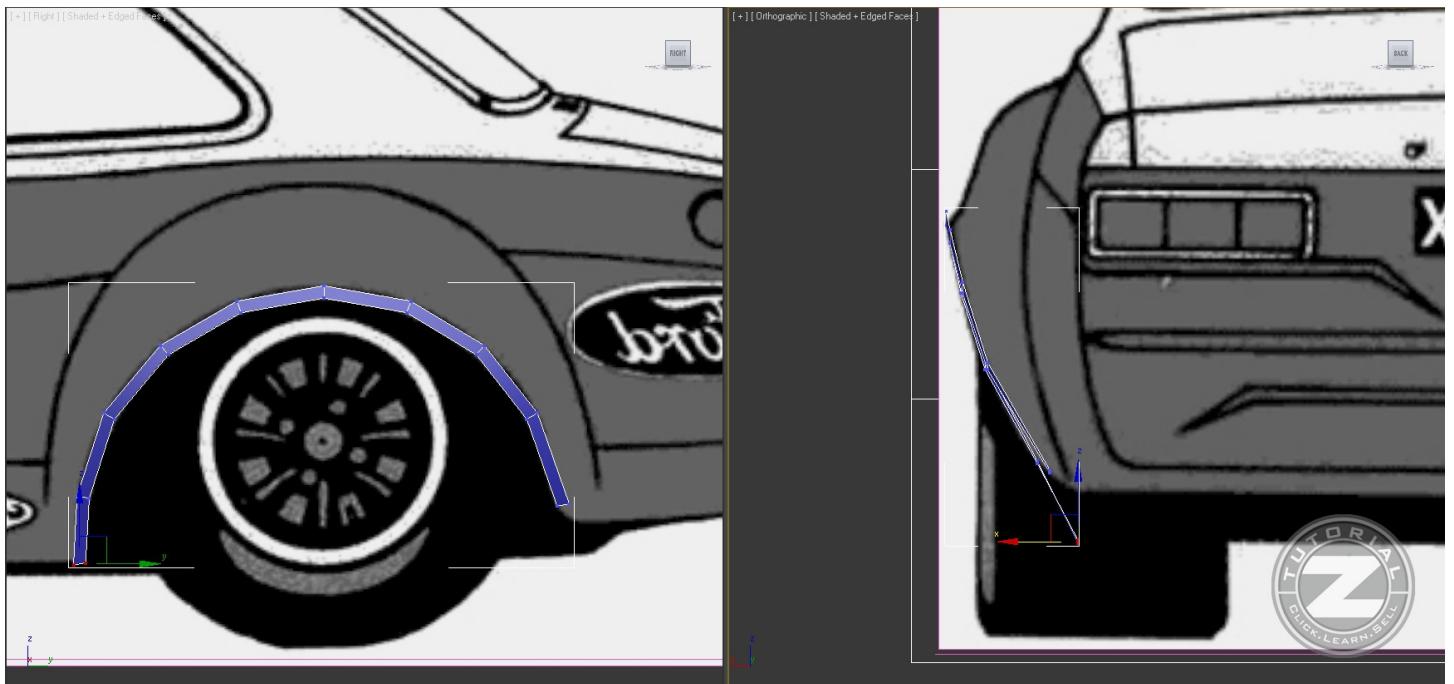


33. Then delete the rear of the tube and use only the front part of it and place it over the fender's lip (right viewport)

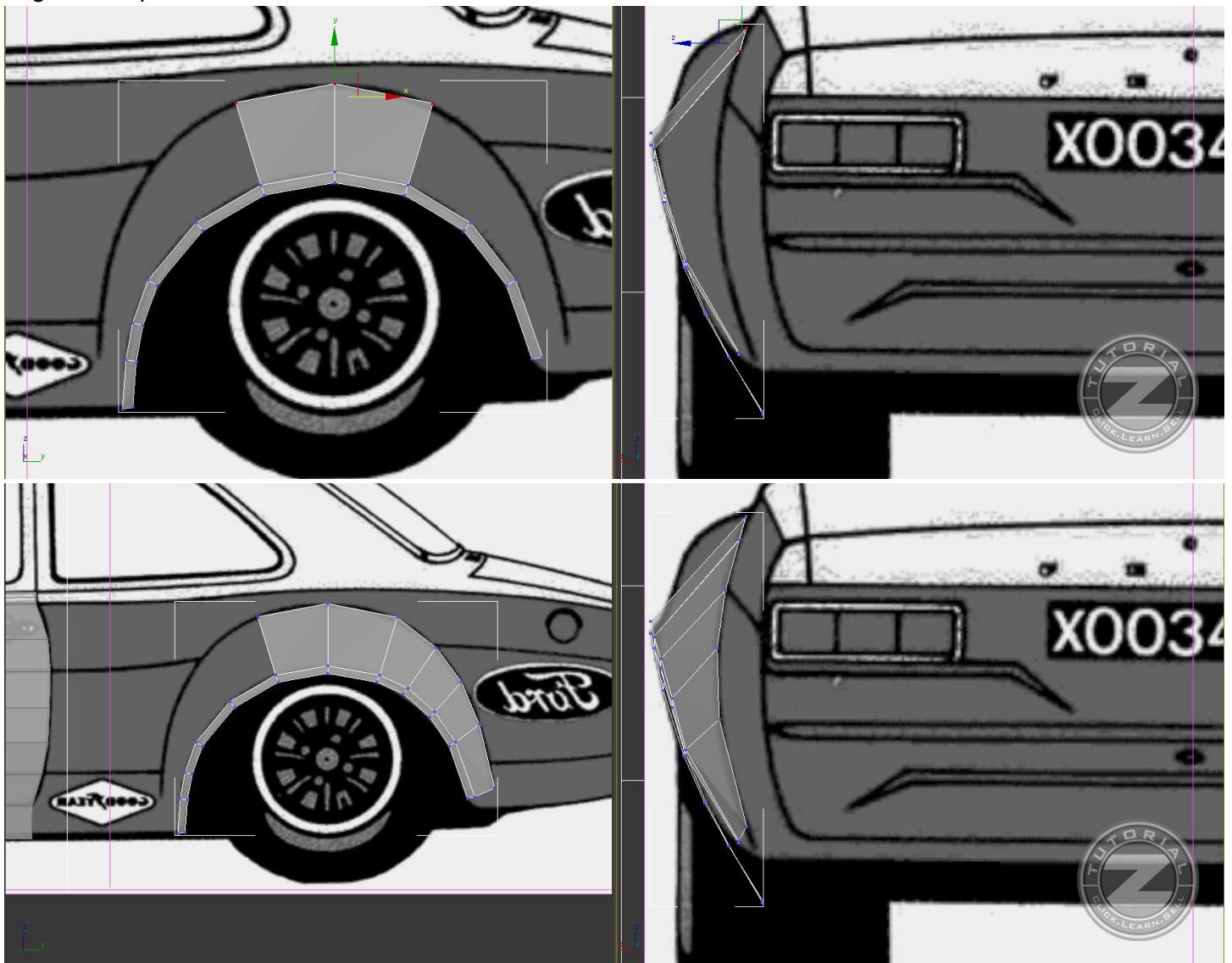


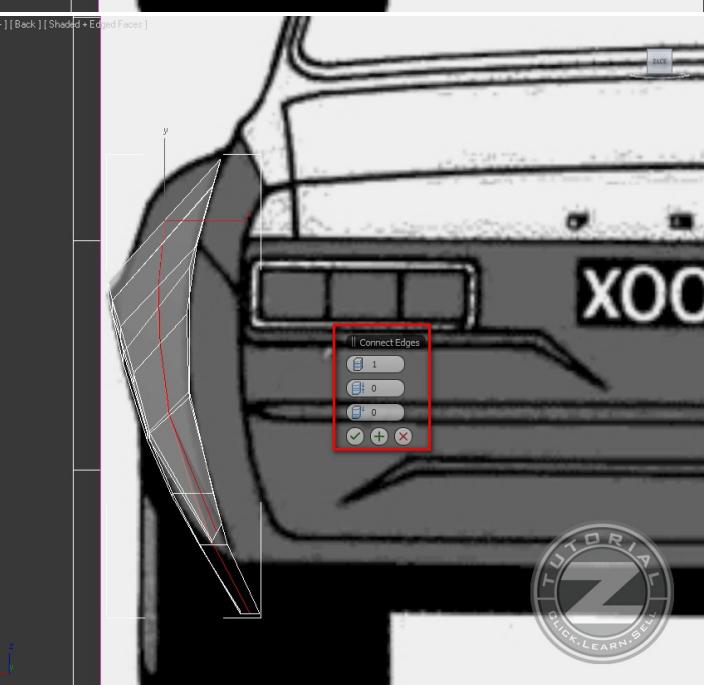
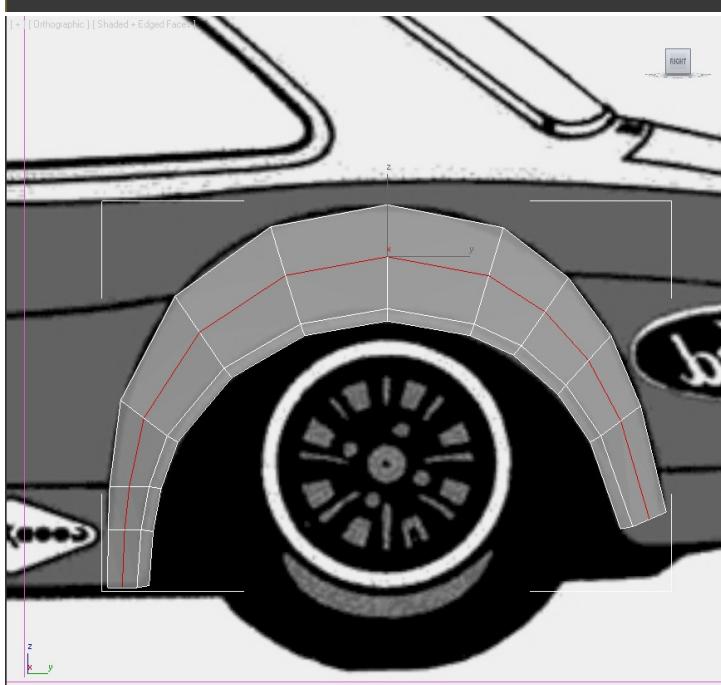
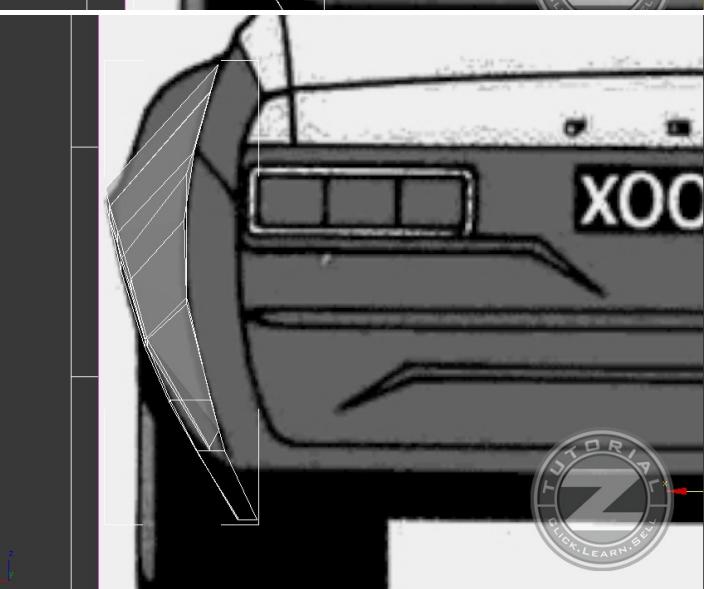
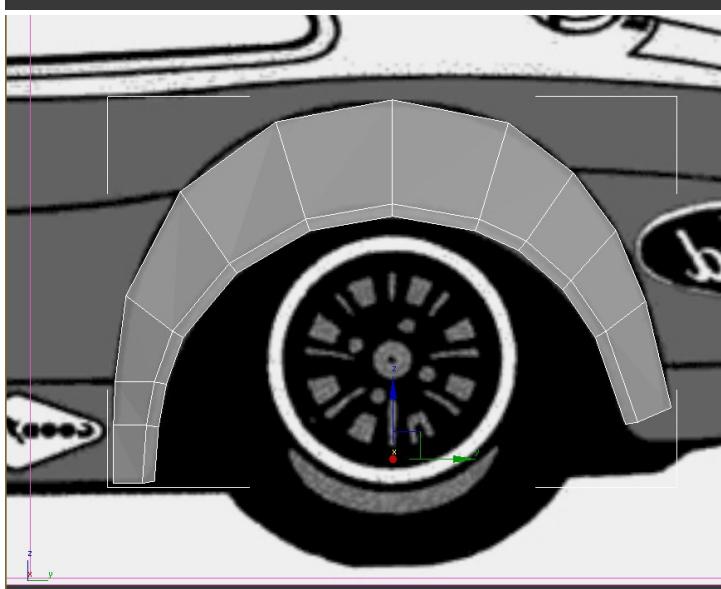
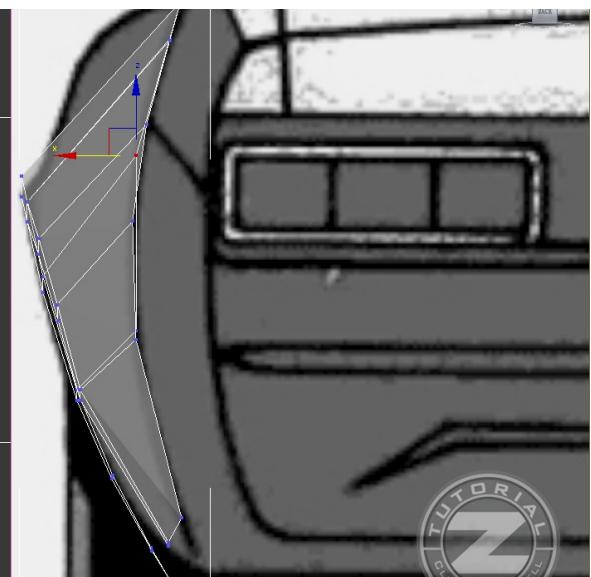
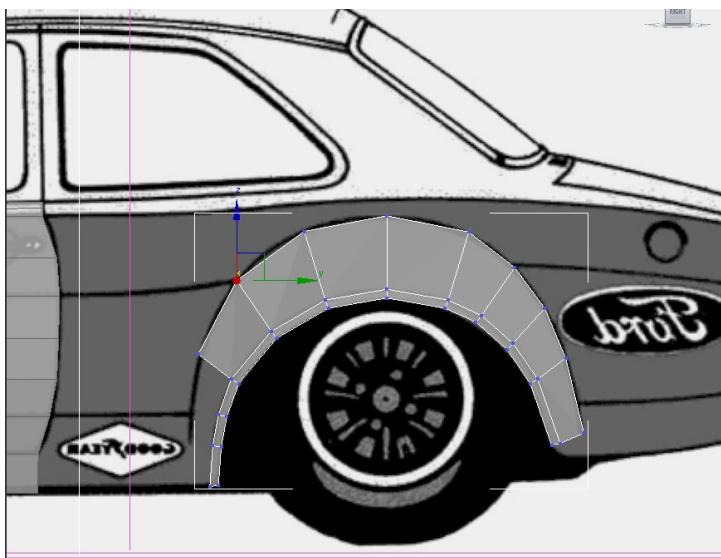
34. In the “back” viewport, put the vertices of the fender’s lip at their place, according to the blueprints :

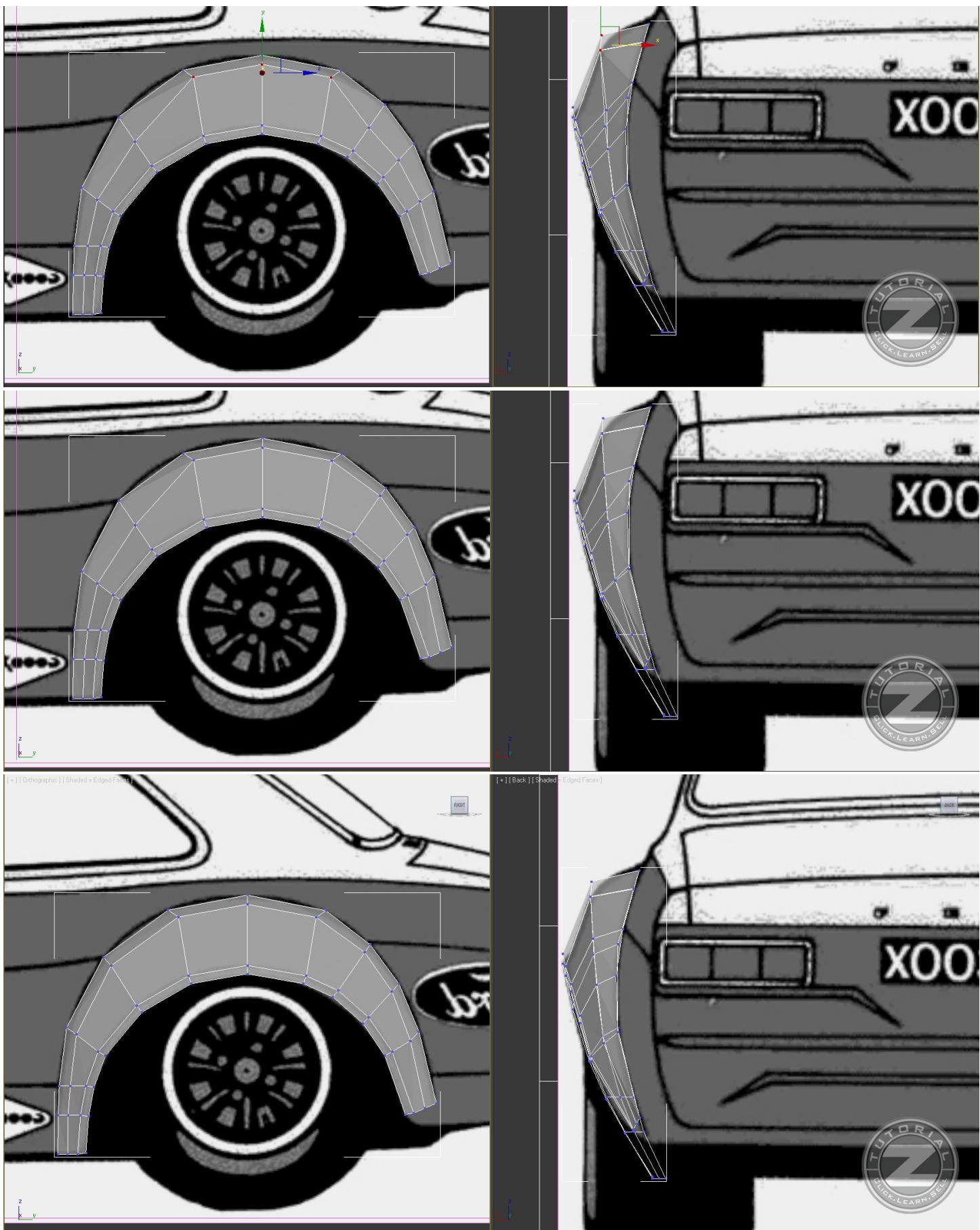




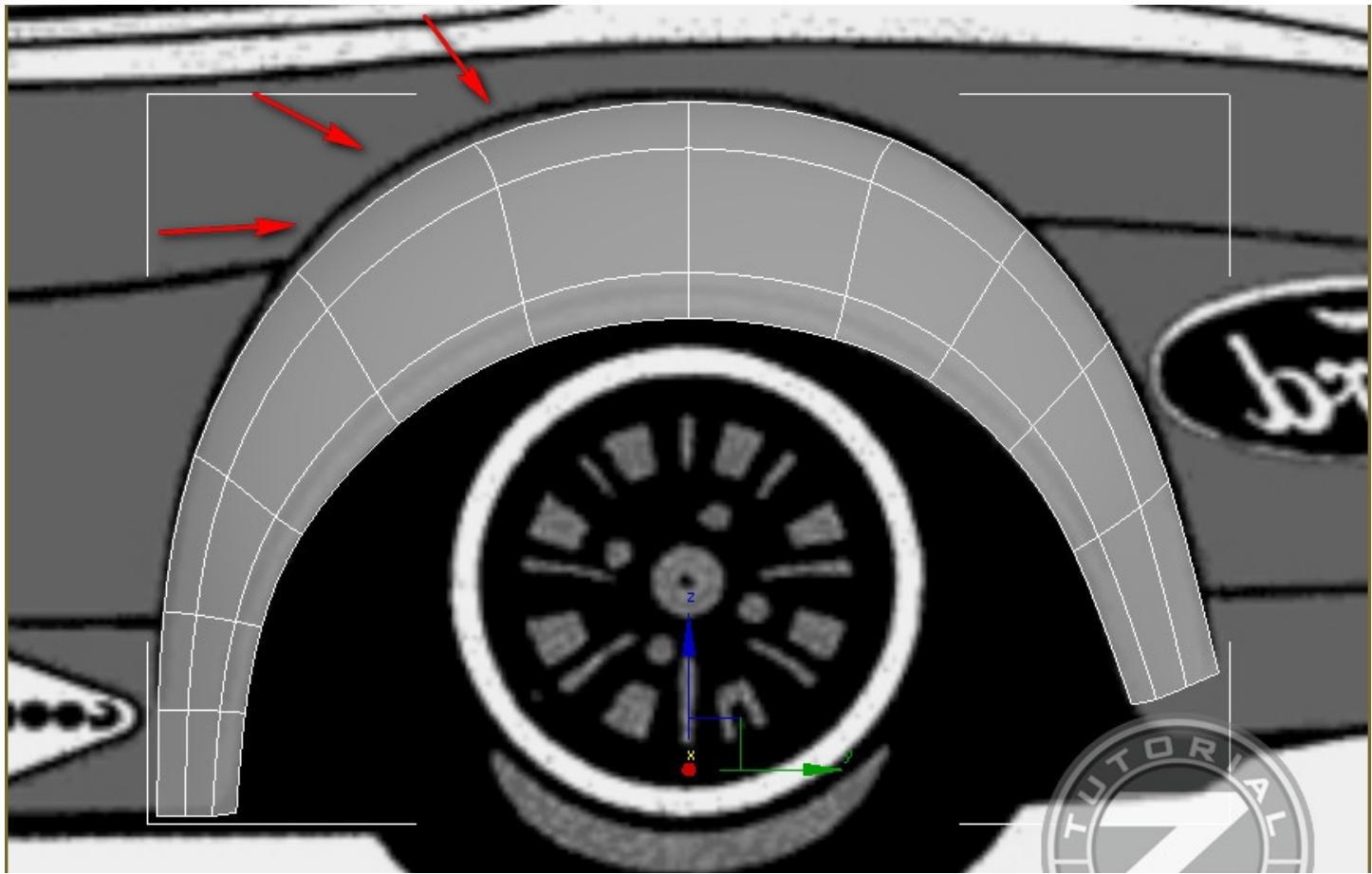
35. Here we will use the basic polygonal modeling by clicking , dragging and placing the vertices at their places, just as we did for the front fender. First, we are creating a rough shape, then we will add some new edges to help us the bend the fender :



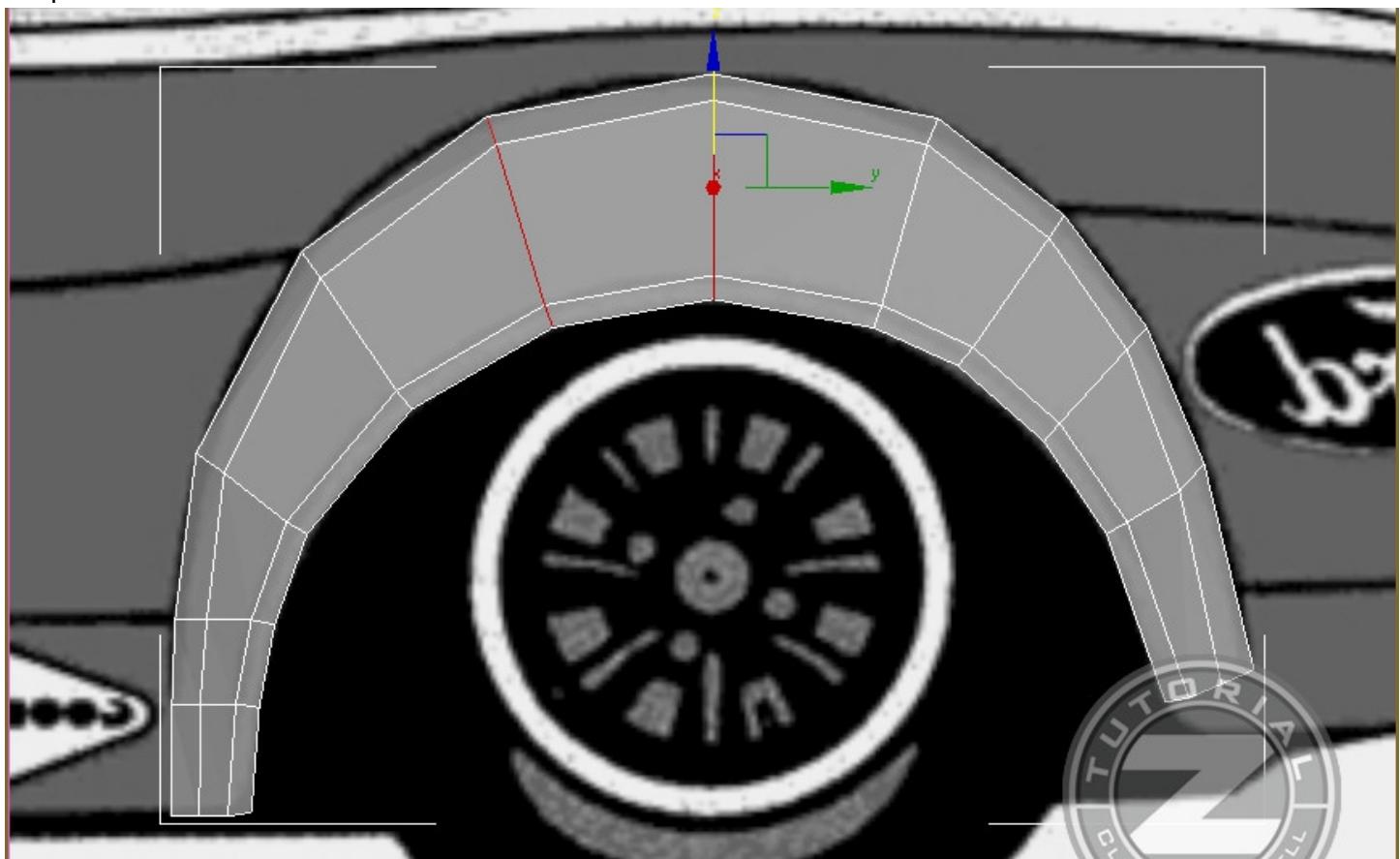




36. Now, if we will apply a smooth modifier, we will see that the edge of the fender wont follow the lines of the blueprint :

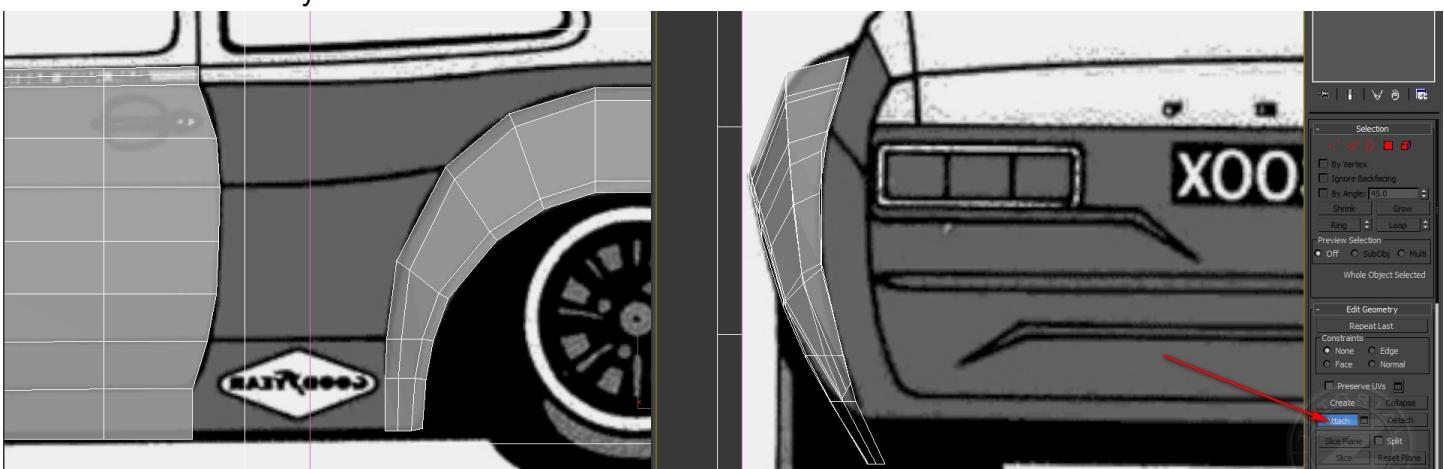


37. To fix that, select these edges, chamfer them and, if necessary, rearrange them and try to make a round shape of the border :

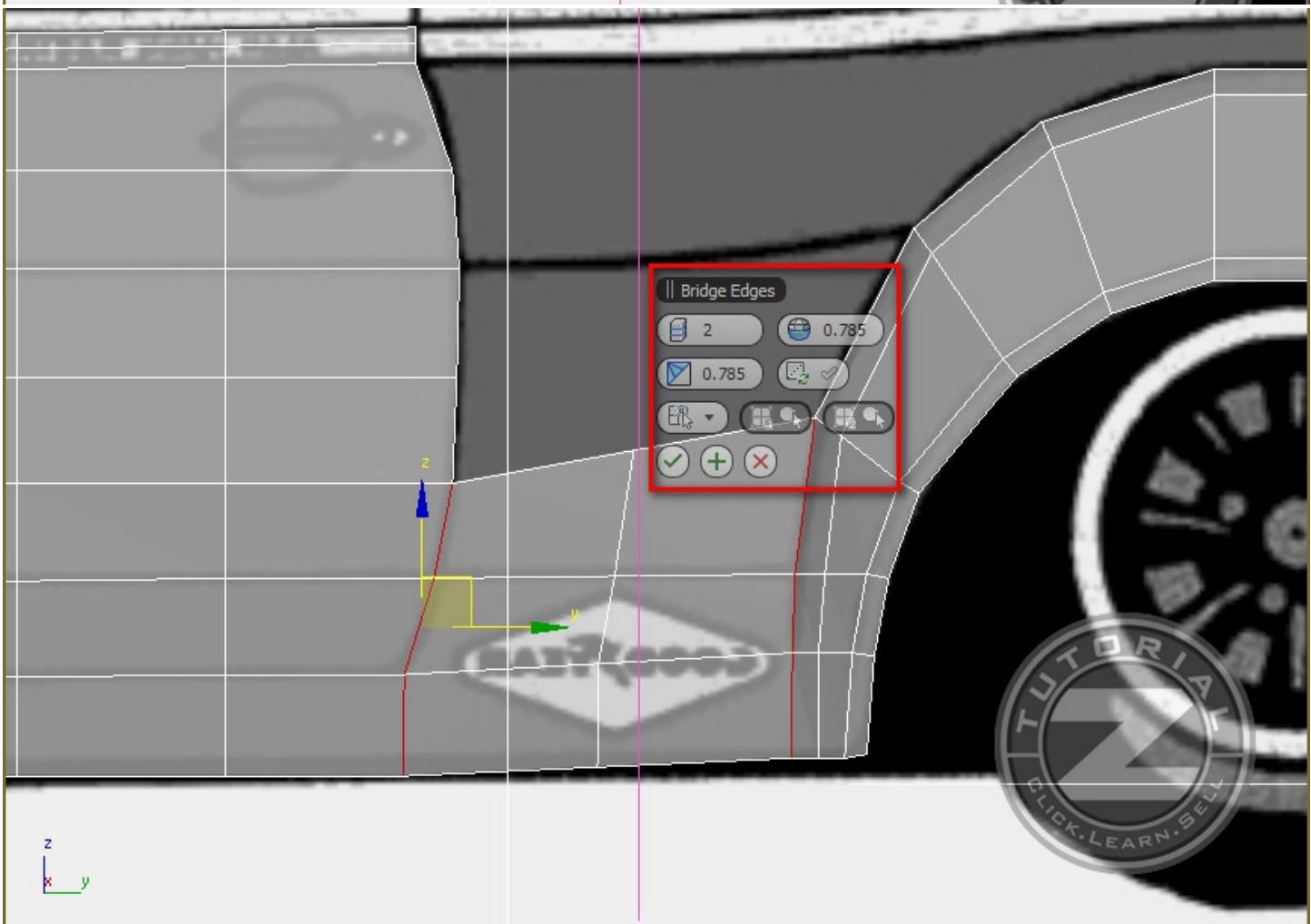
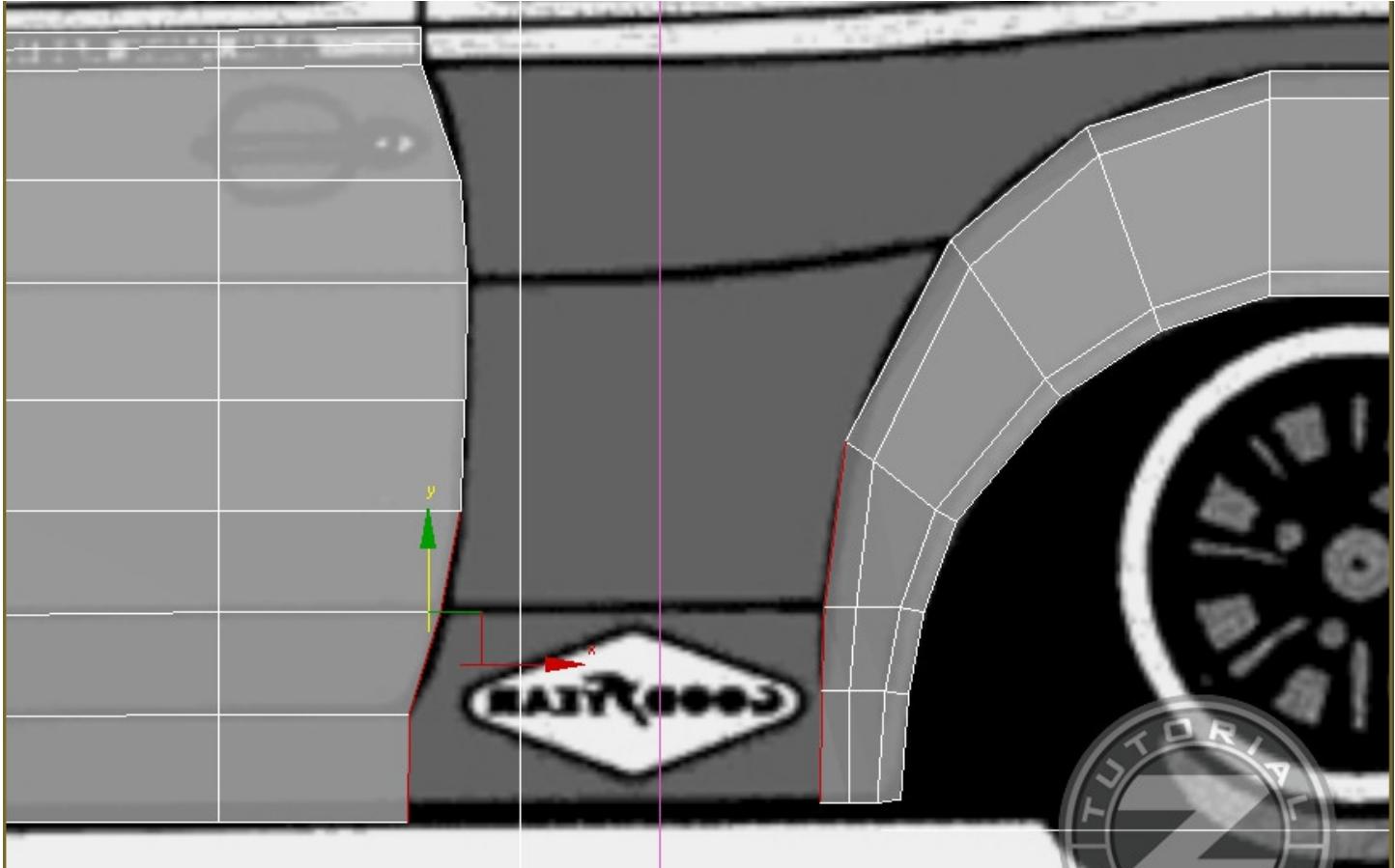




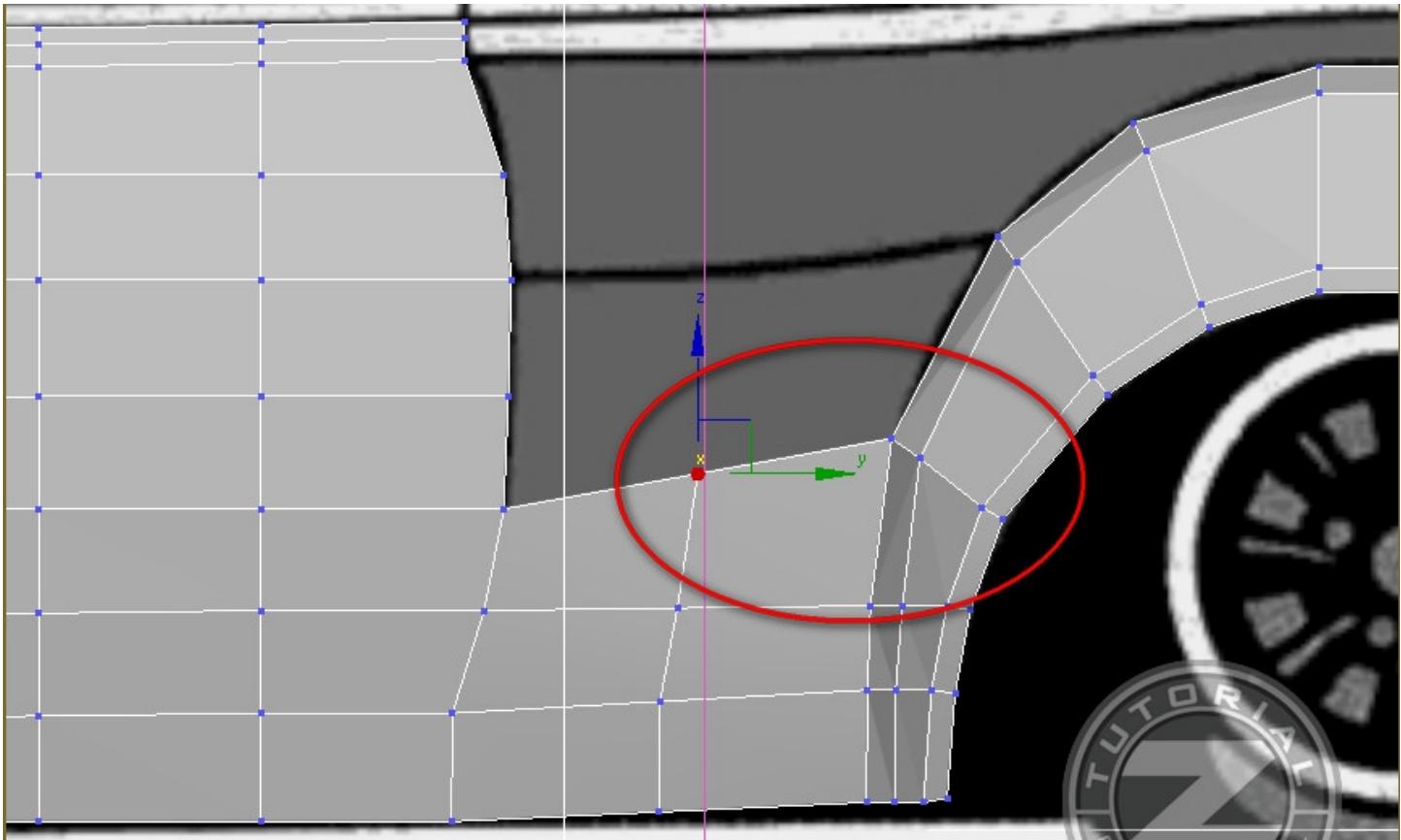
38. At this step, we will attach the fender to the rest of the body that we have made. So, select the rear fender and attach it to the body :



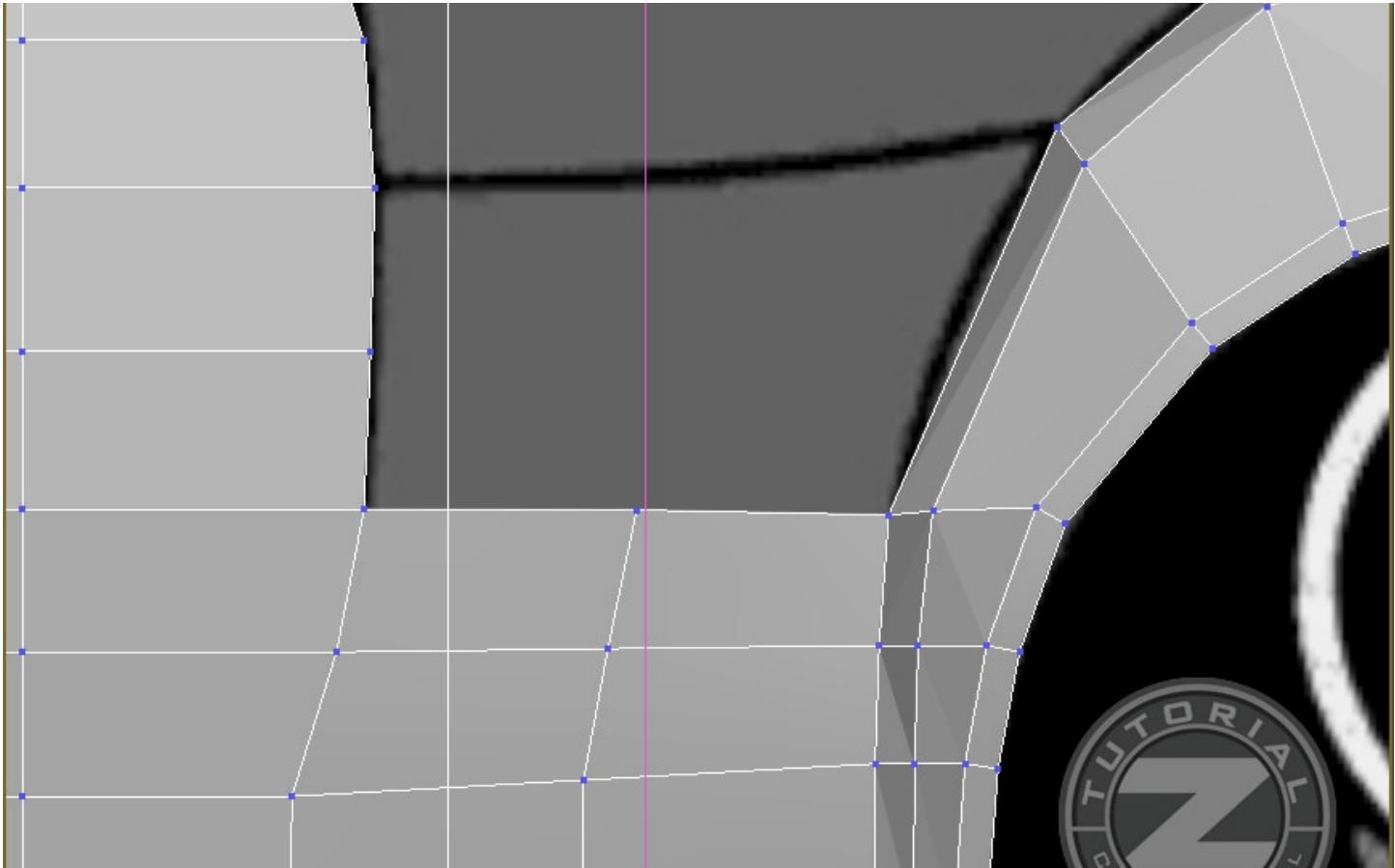
39. Select these edges and then use the “Bridge” tool to create some new polygons between them :



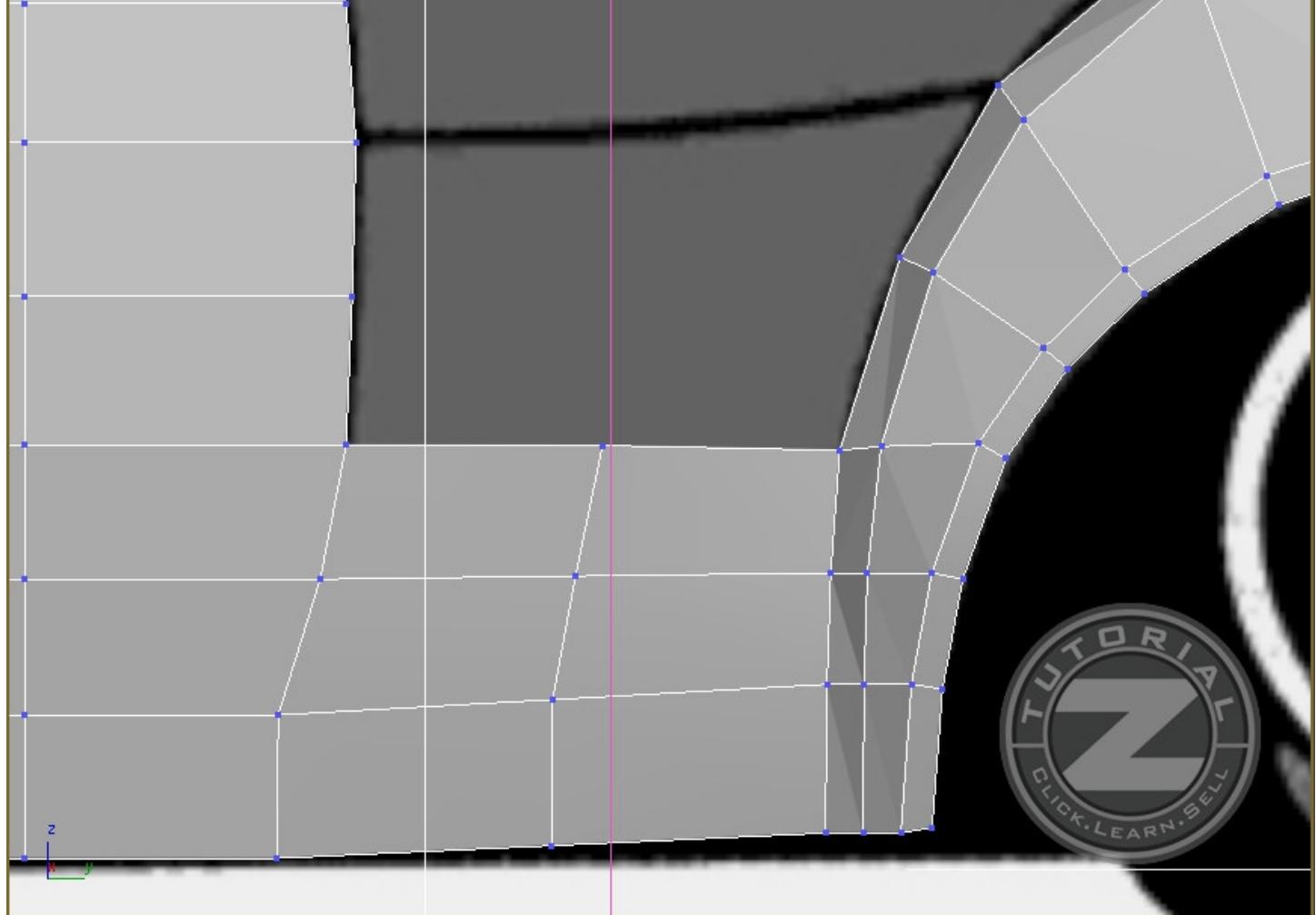
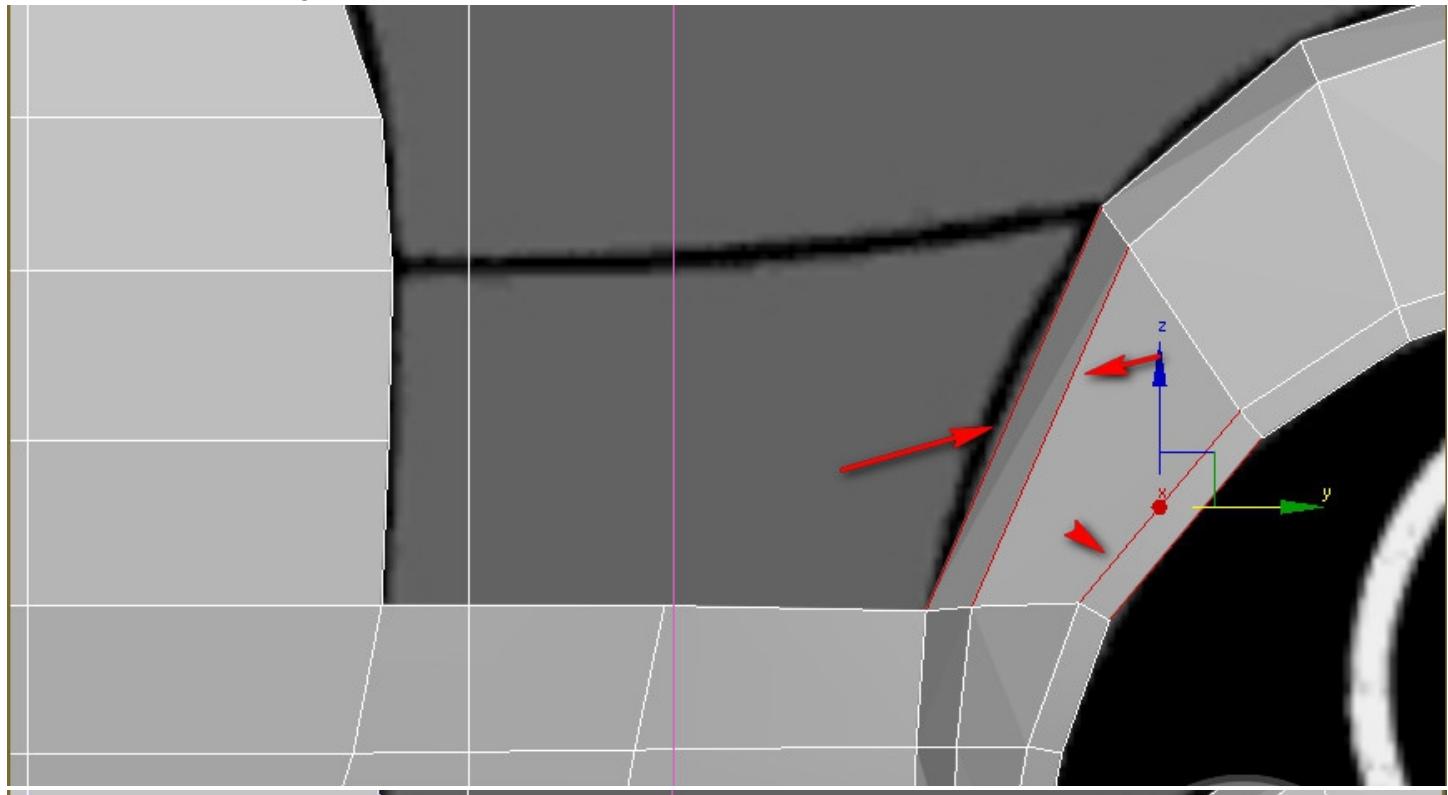
40. The parts wont fit correctly because we need one more polygon. To do this, take a look at this part :



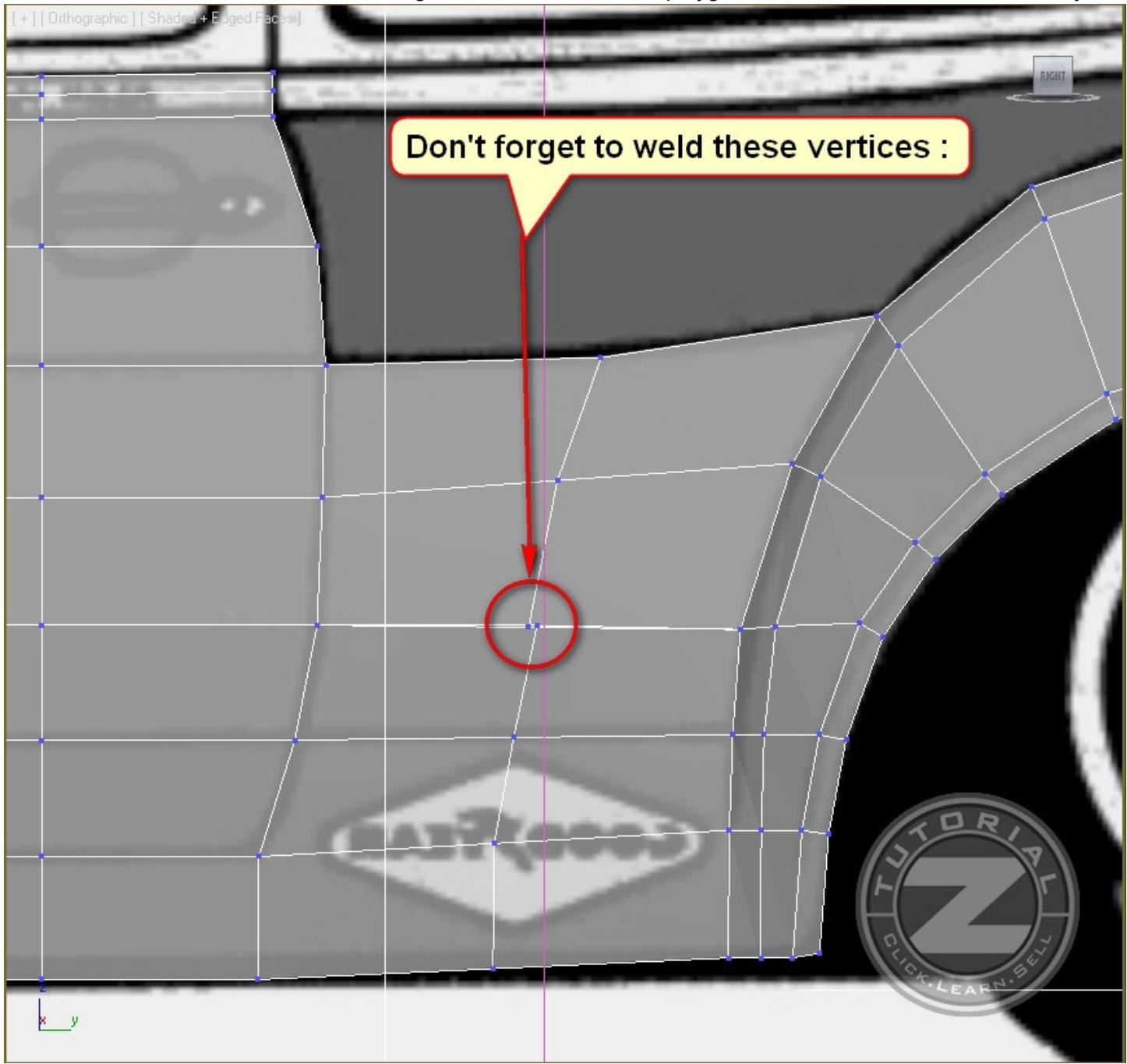
41. We can add a row of edges but before, put the vertices as below :



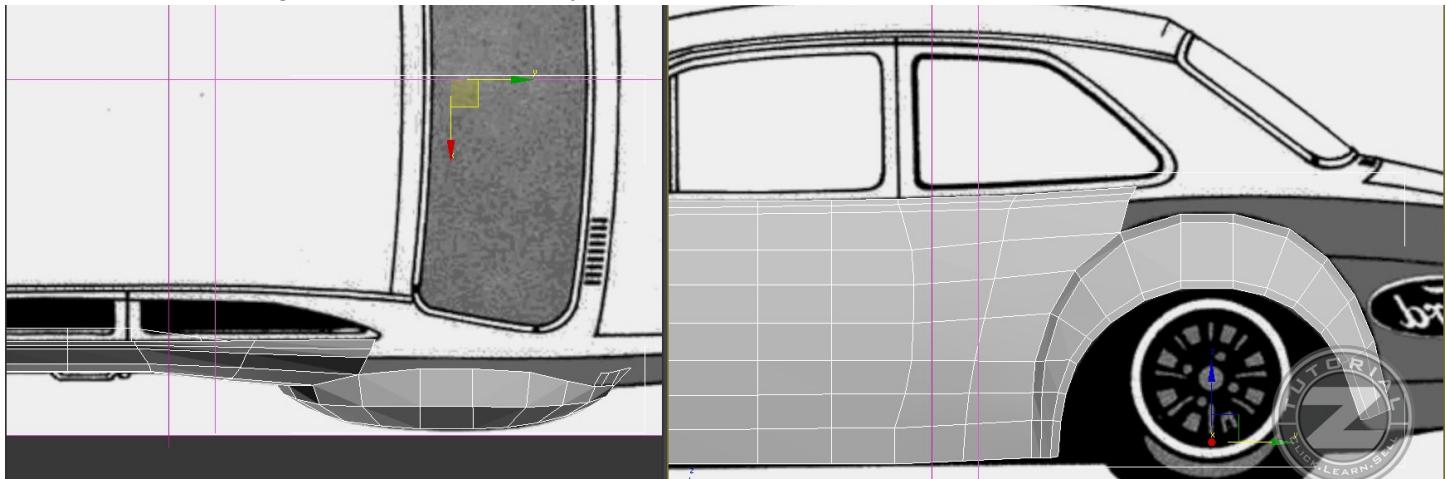
42. Here is the step were we will add that row of edges. Select the same edges ad I did, and use the “Connect” tool to add a row of edges in the middle :

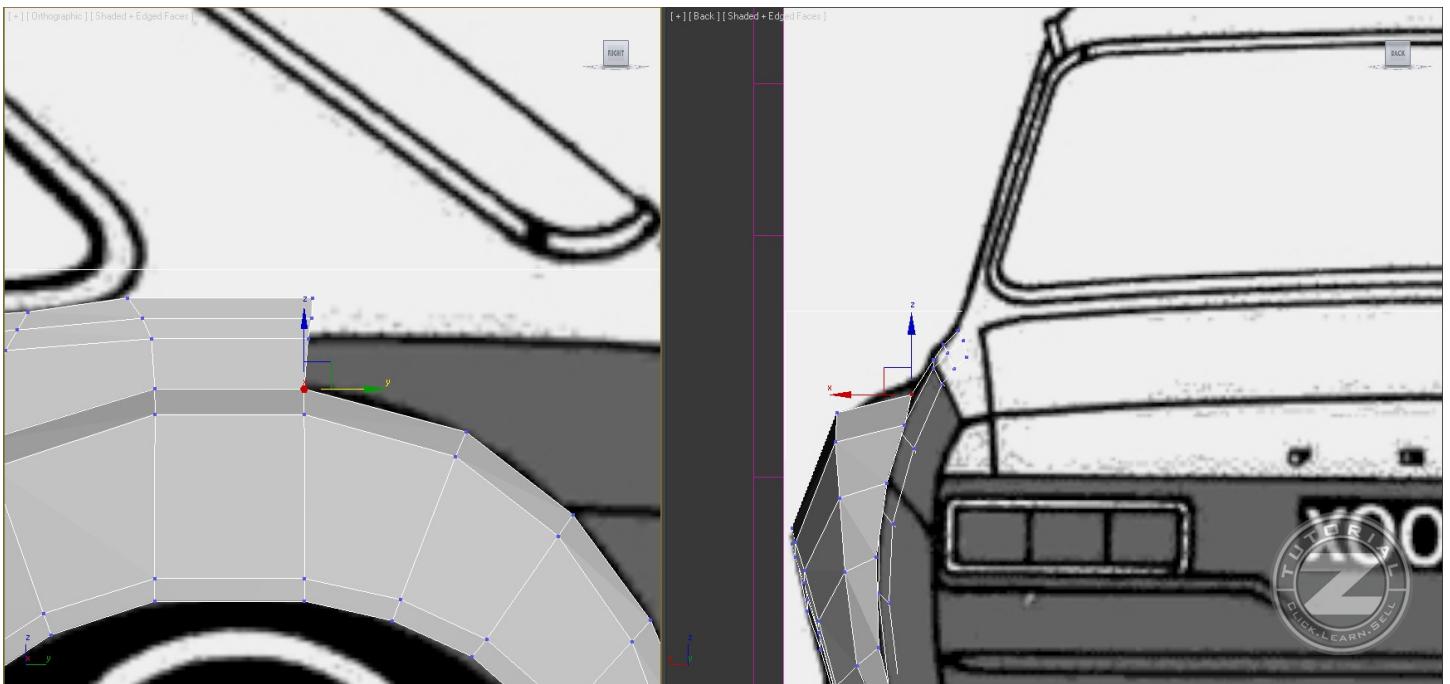


43. And now we are able to use the "bridge" tool to add 2 rows of polygons between the fender and the body :



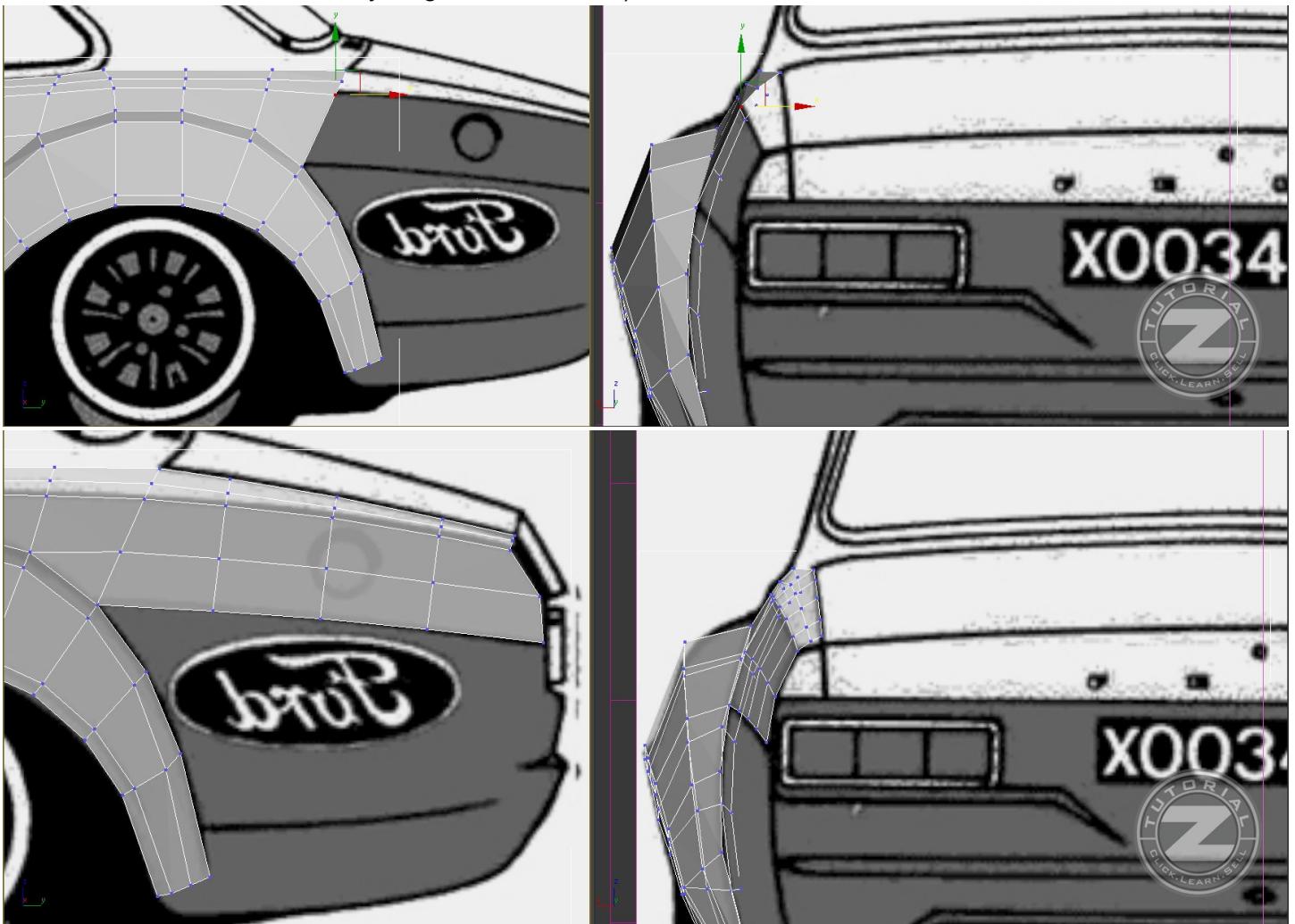
44. Do the same thing to the rest of the body, attach it to the fender :

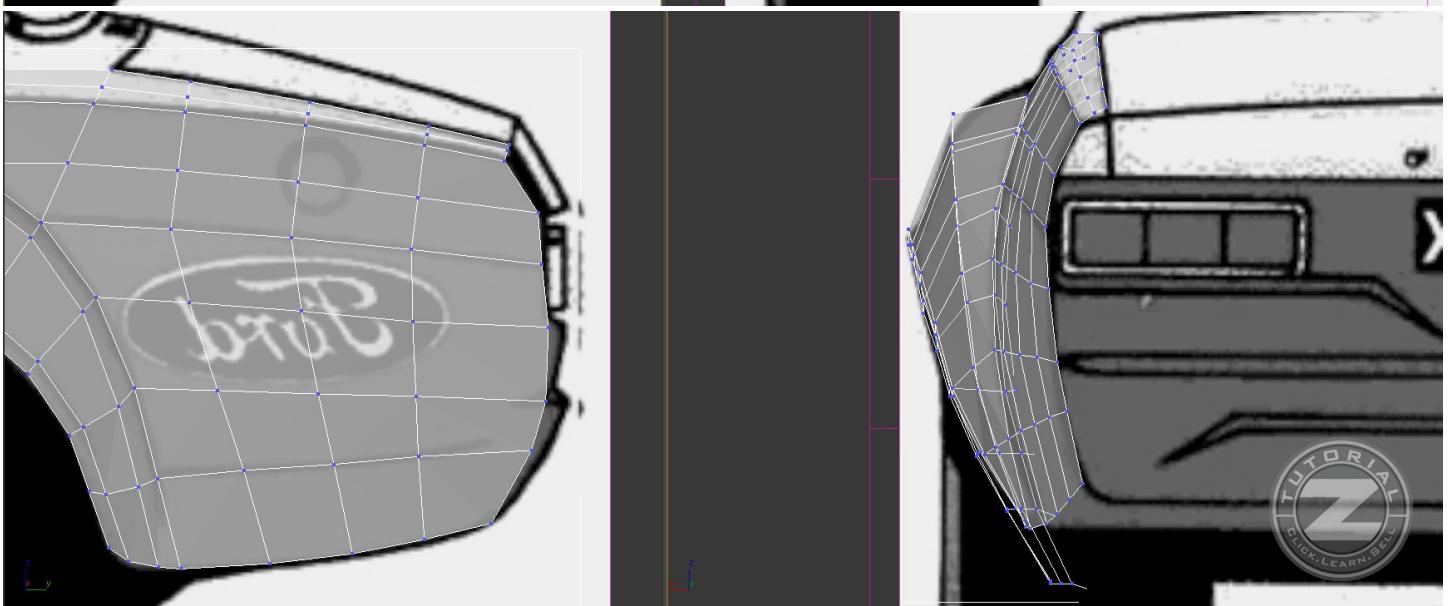
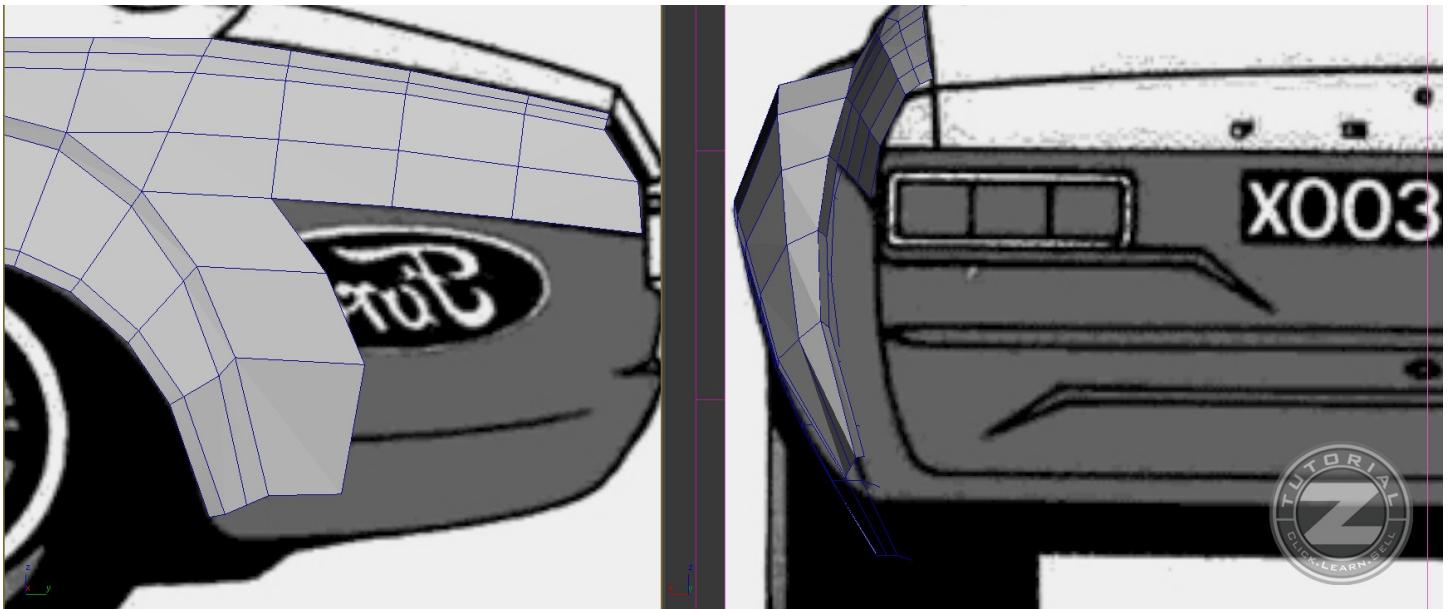




45. When the car's body is attached to the fender like in the image, continue to model the car until you reach the rear. As I have said at the beginning of this tutorial, try to make the same wireframe as me, and this is why I am providing you so many images, to see how I did it and understand it :) .

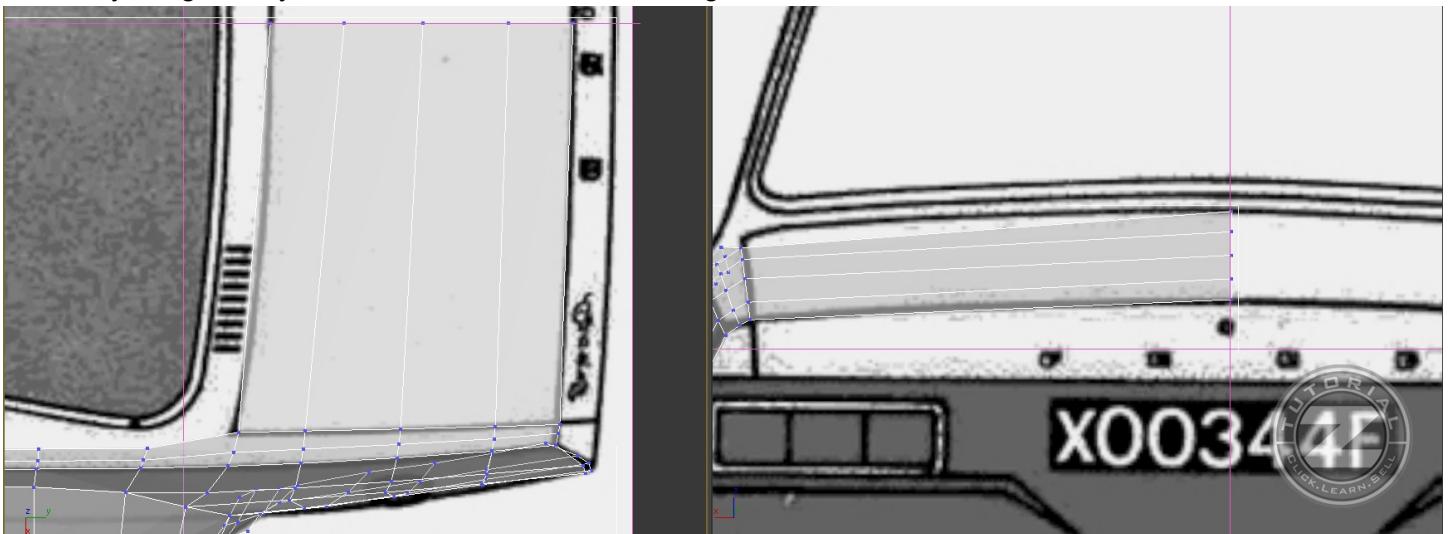
PS : I have noticed that top view is not very accurate but I hope that this won't be a problem for you. Just use the rear and side view and everything should be fine :)

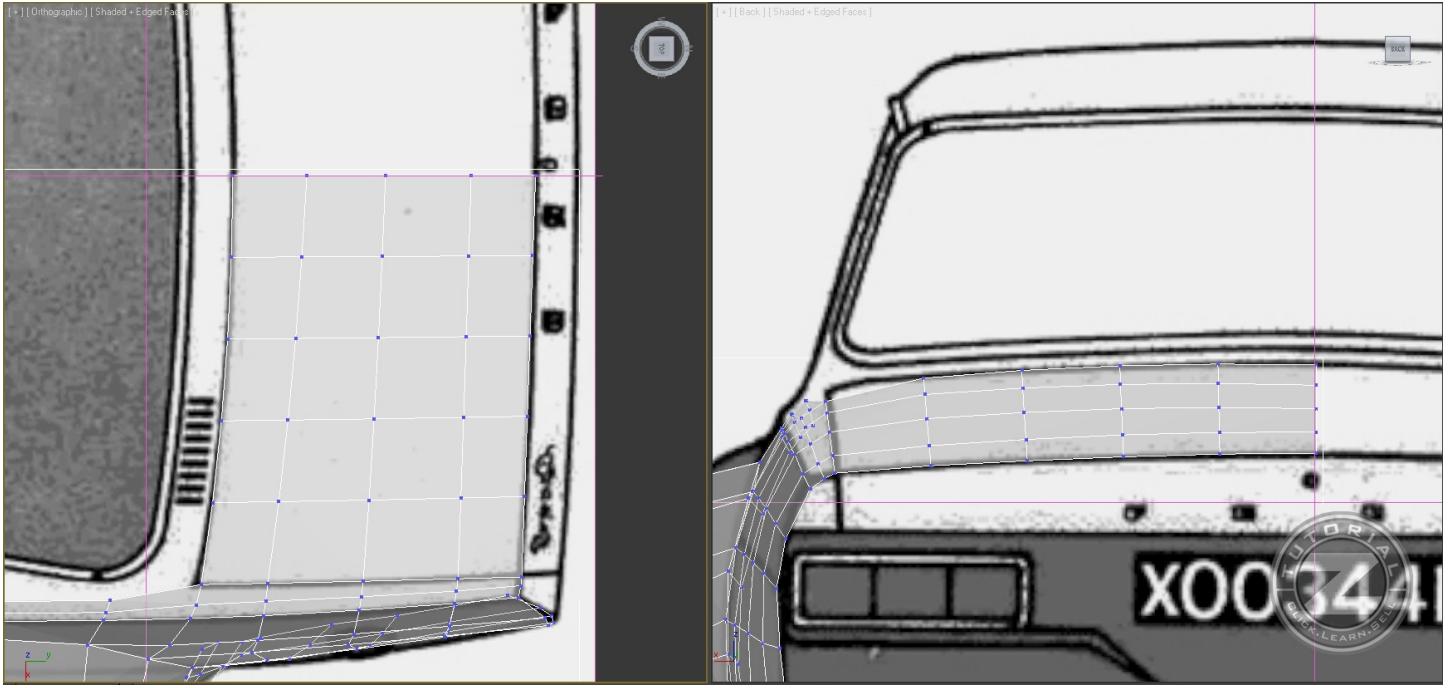
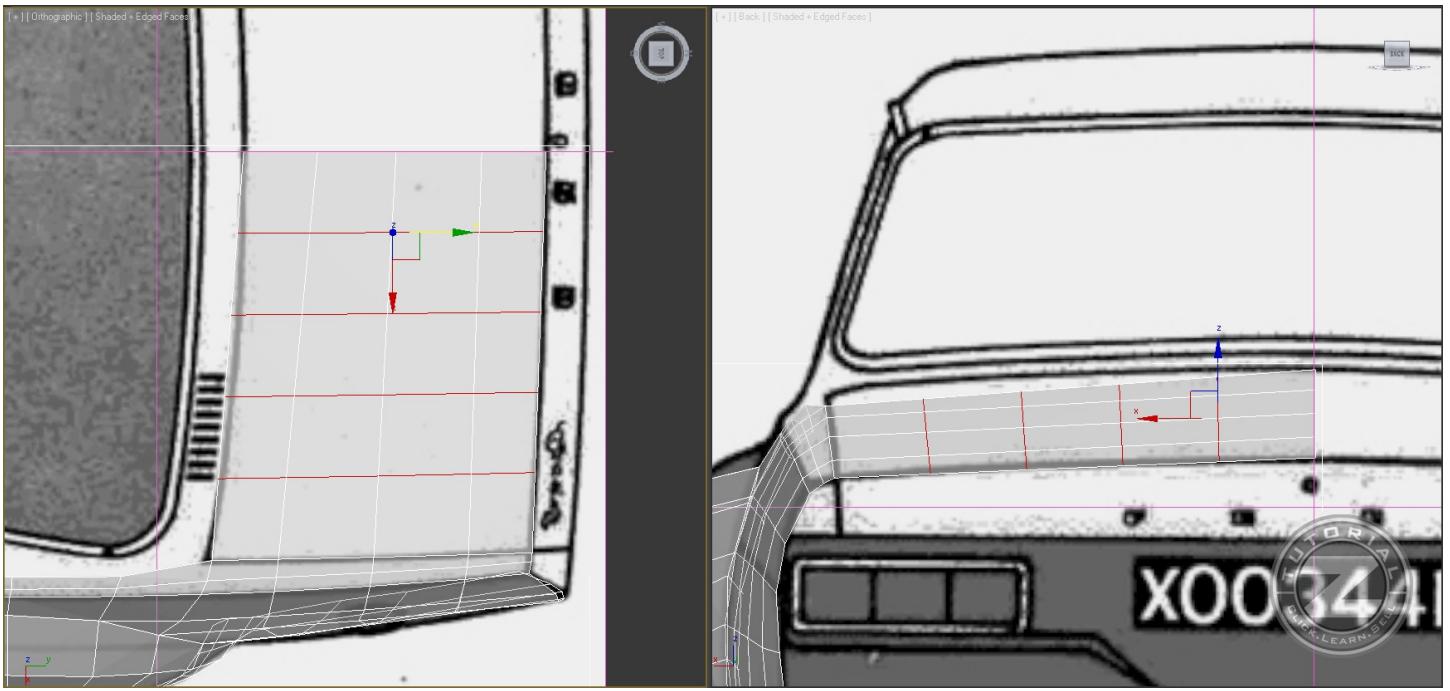




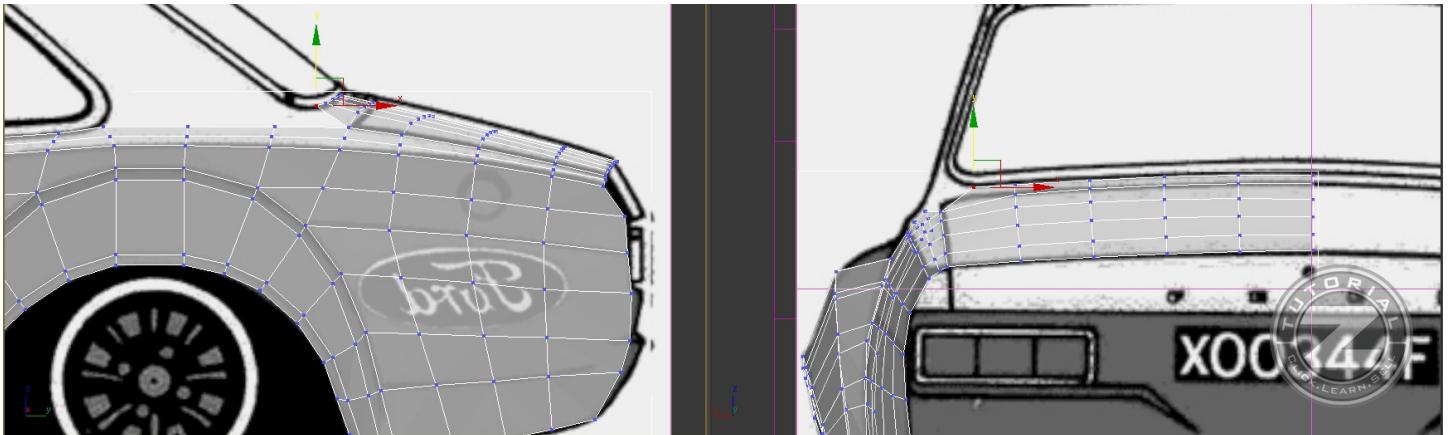
46. Let's move forward and make the trunk. Same steps as we did until now. Just try to make a clean mesh, even it will take more time, but in the end, you will be very pleased by your result :).

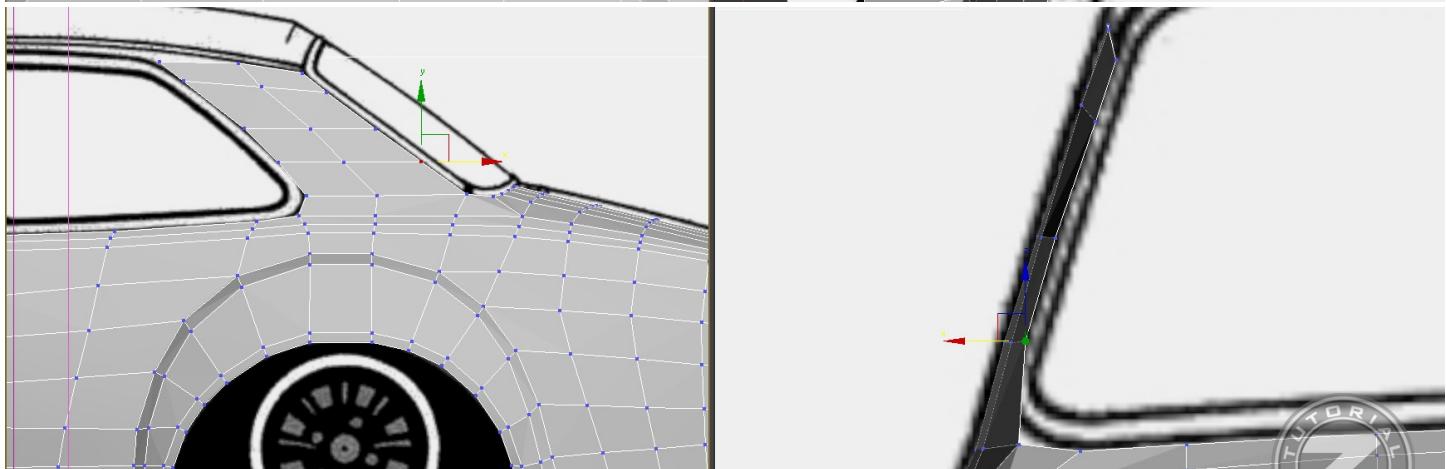
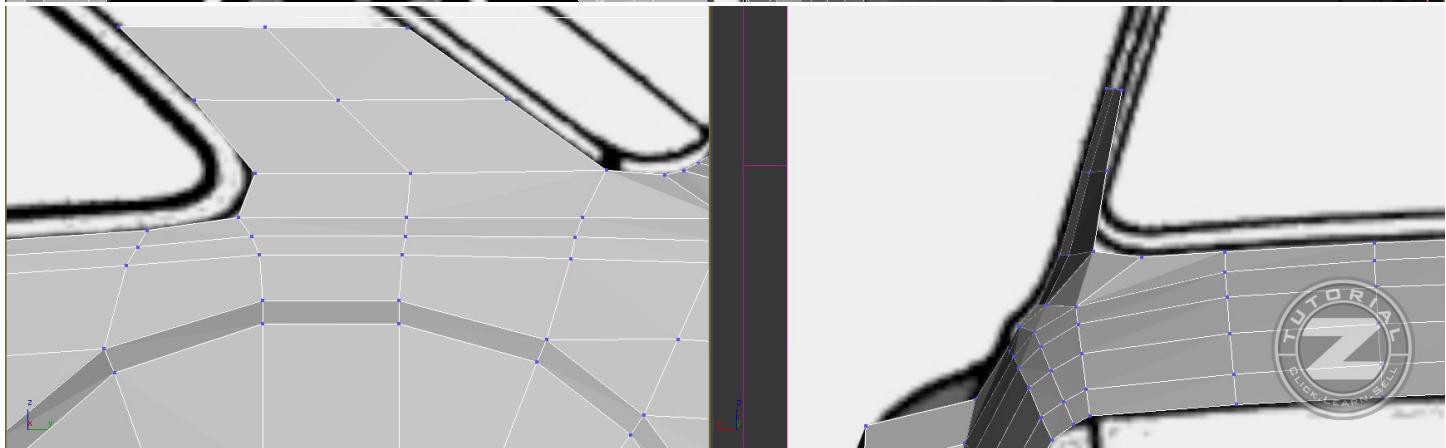
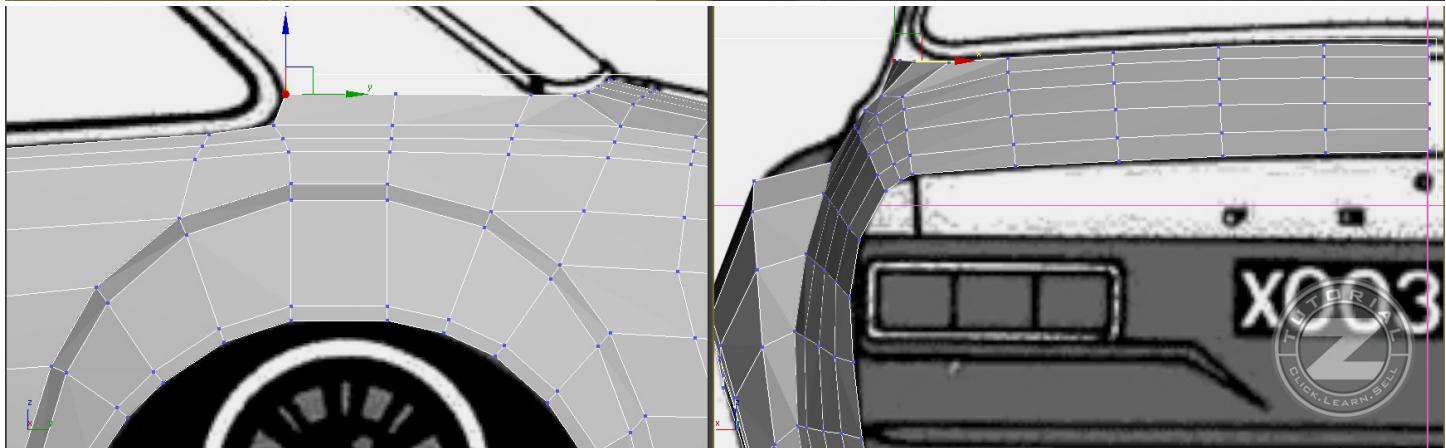
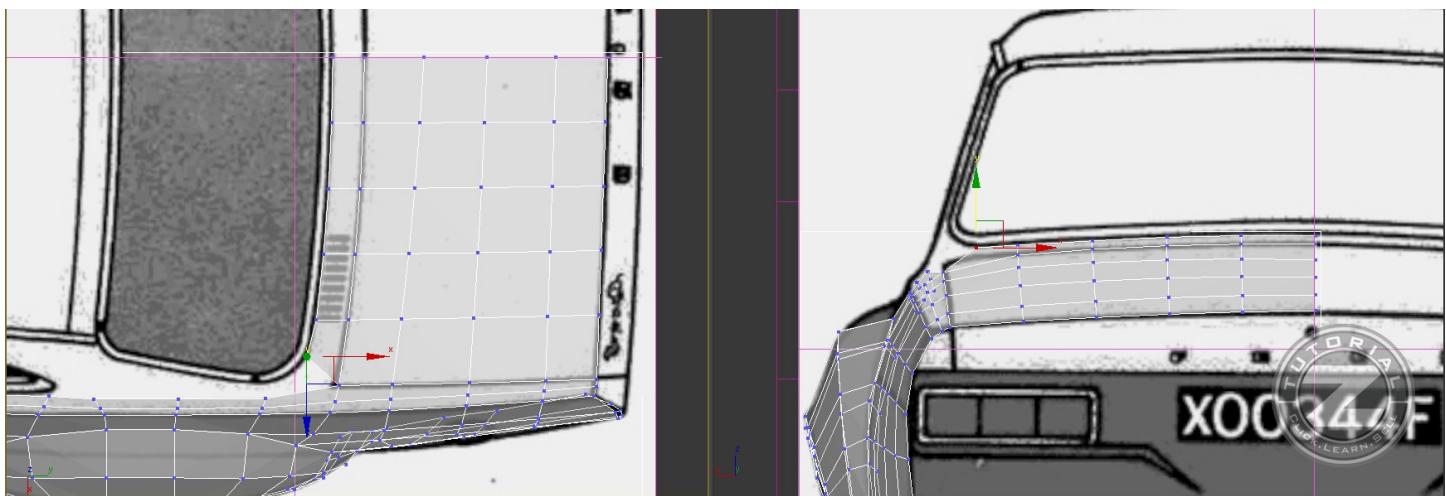
PS: As I have said earlier and at the beginning of this tutorial, the blueprint is not very accurate, so, you can follow my images, or you can use some reference images.



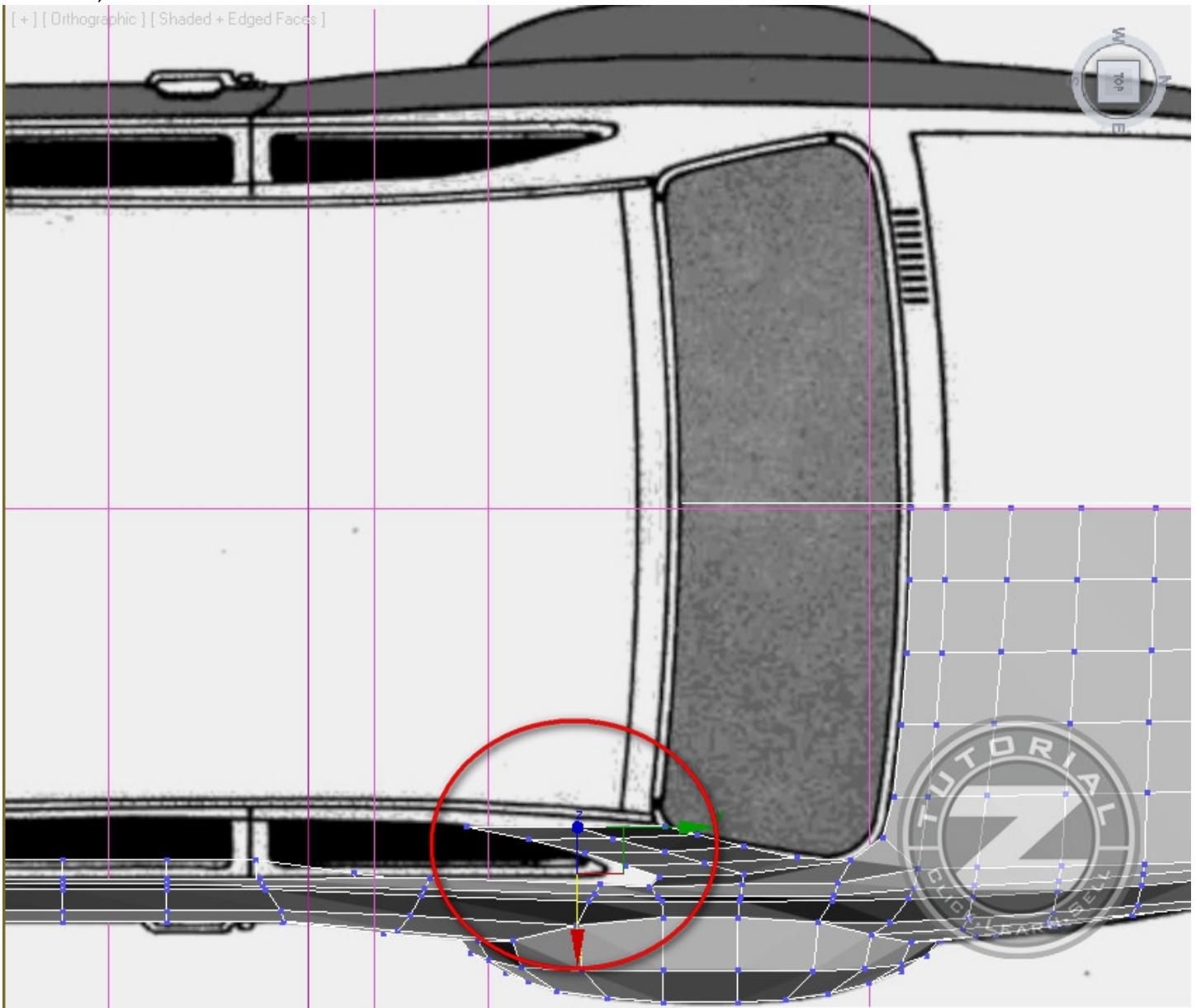


47. The next part will be the roof top, and then we will come back to finish the rear :

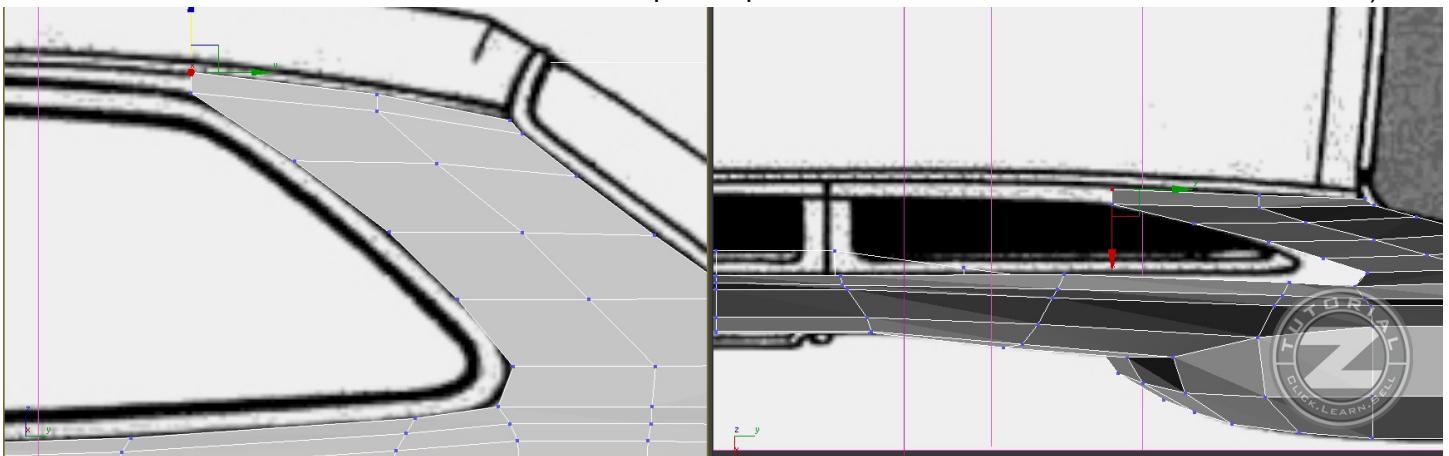


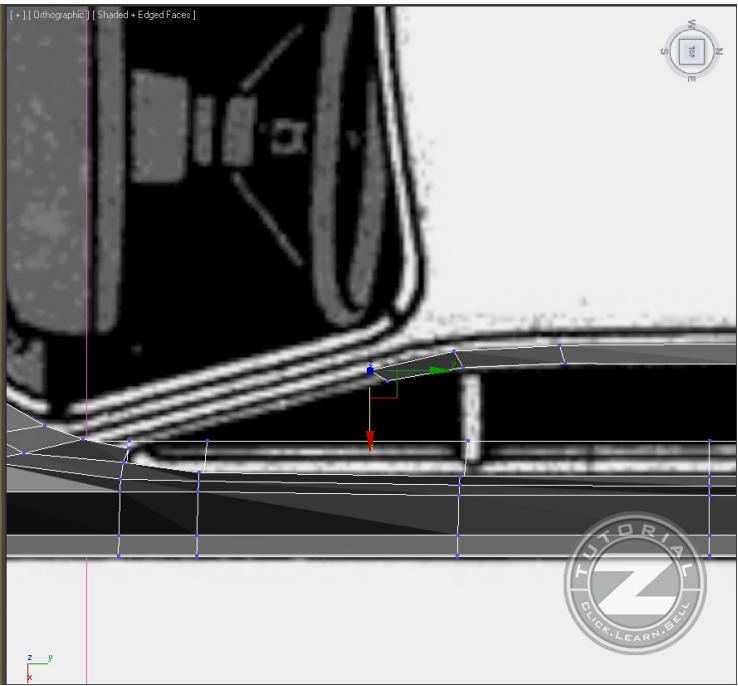
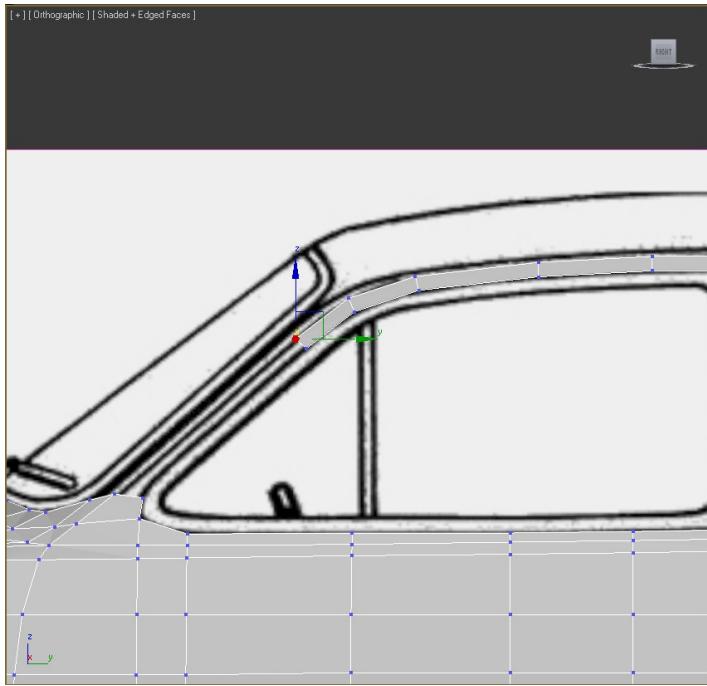
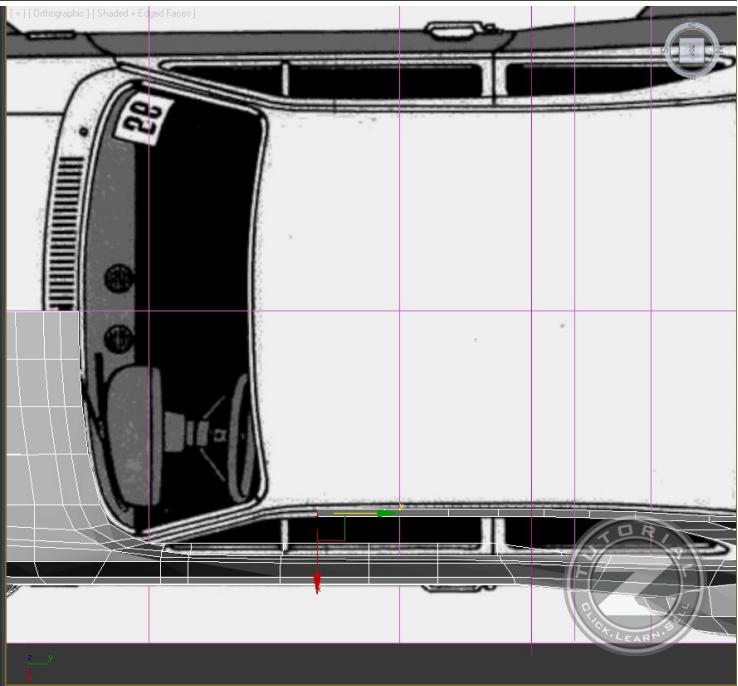
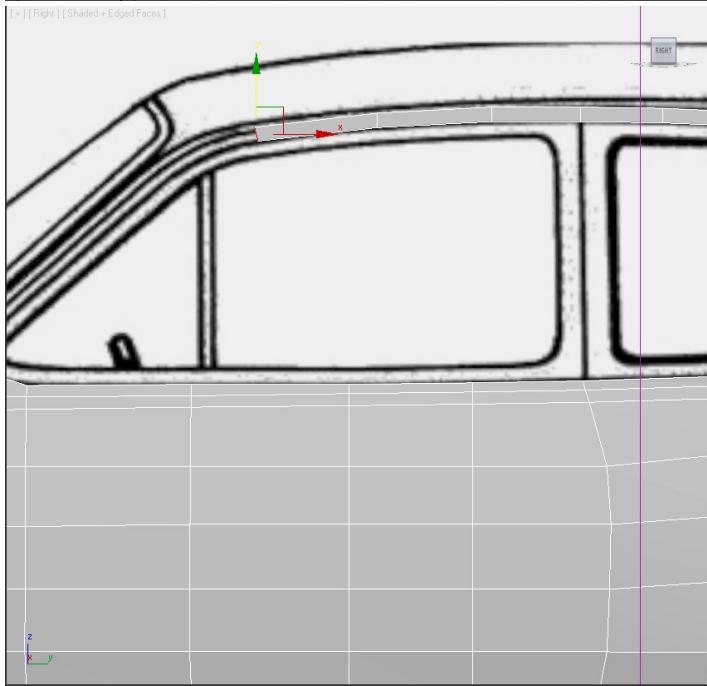
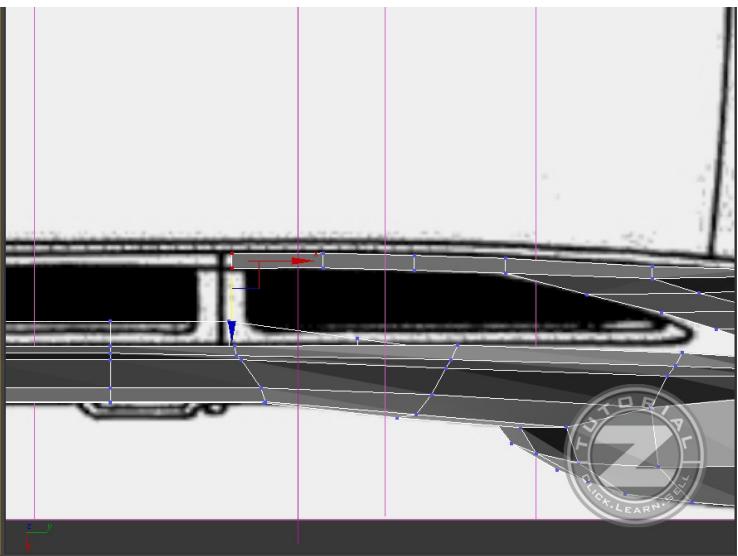
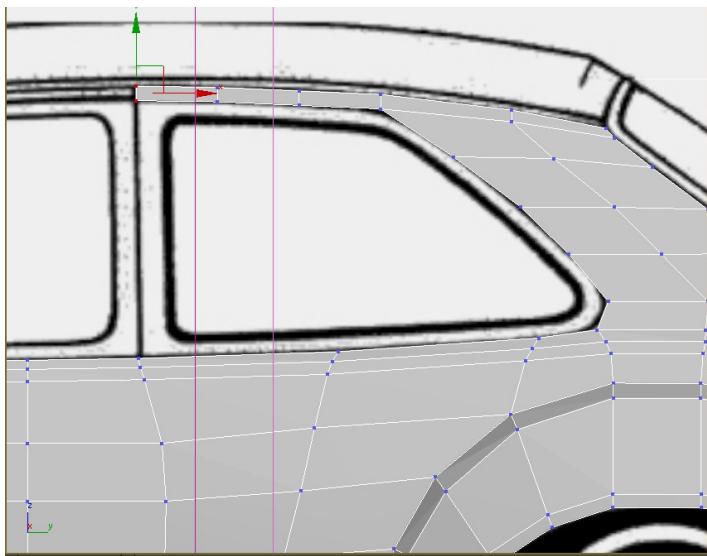


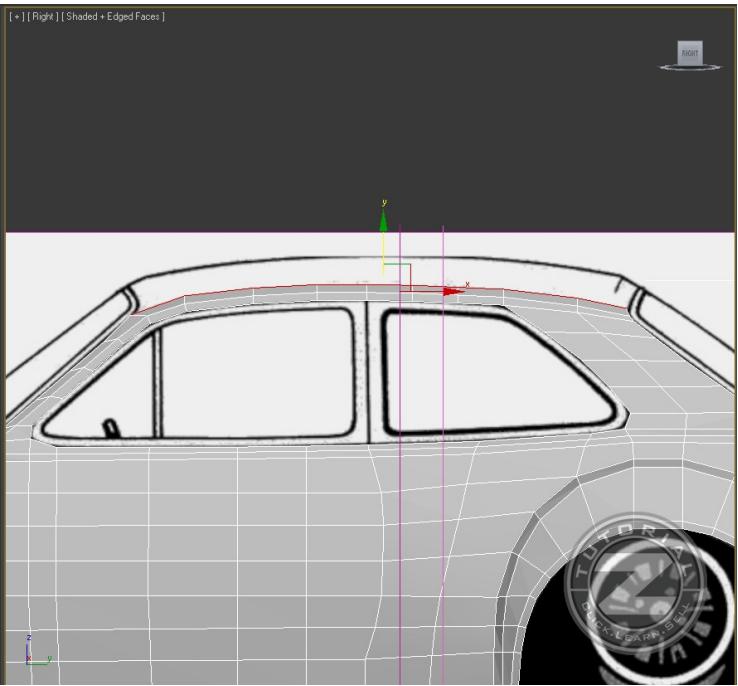
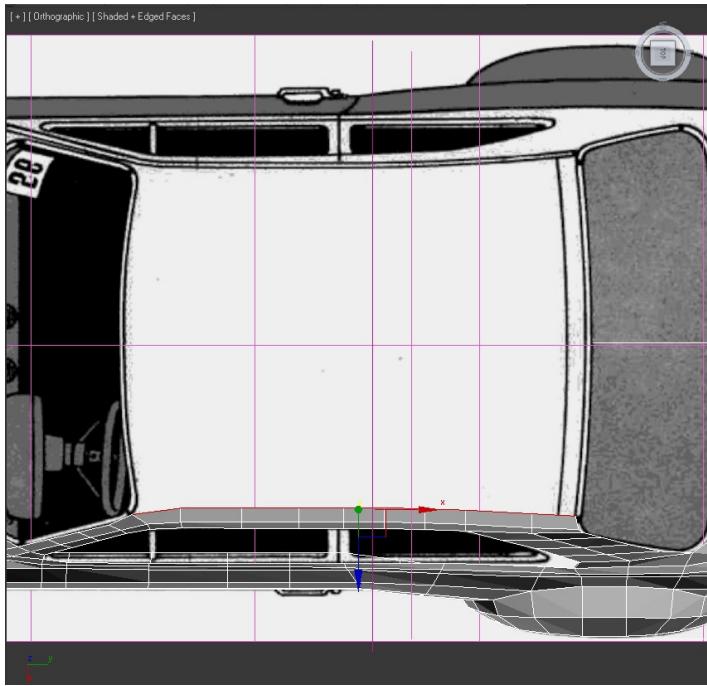
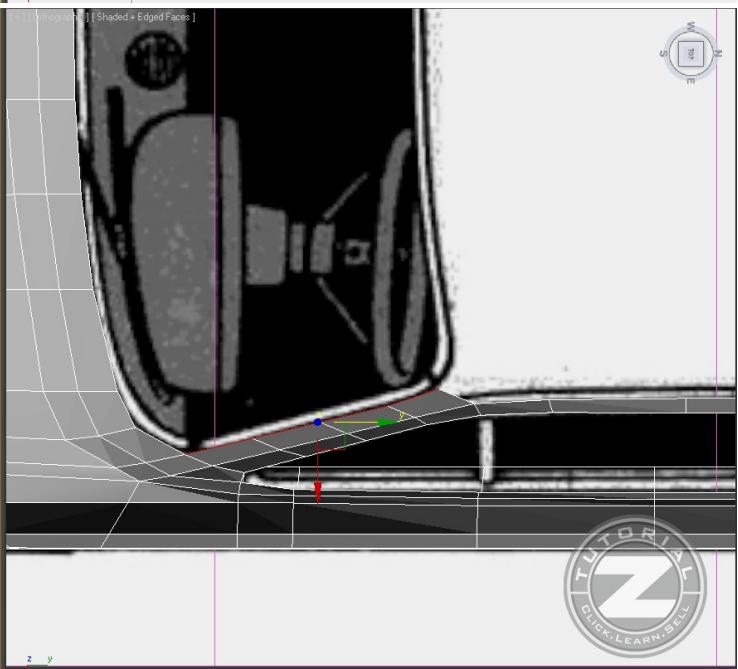
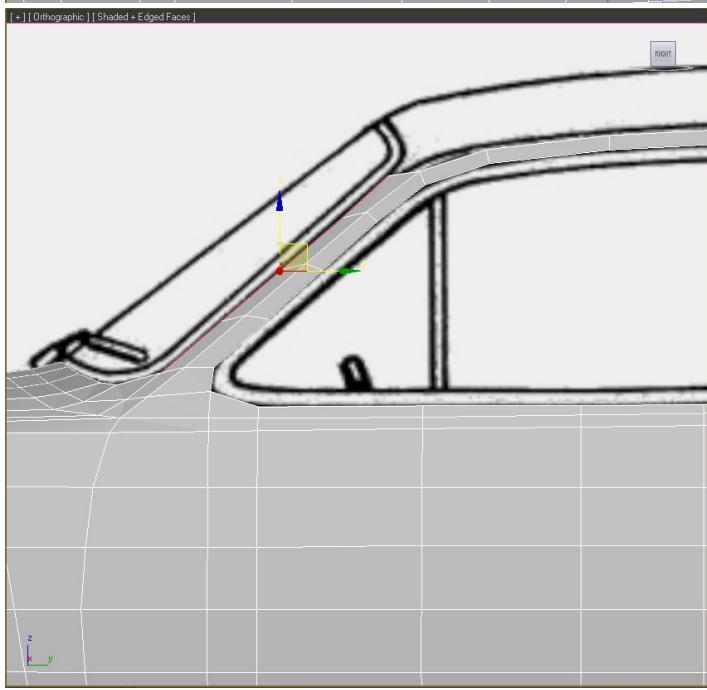
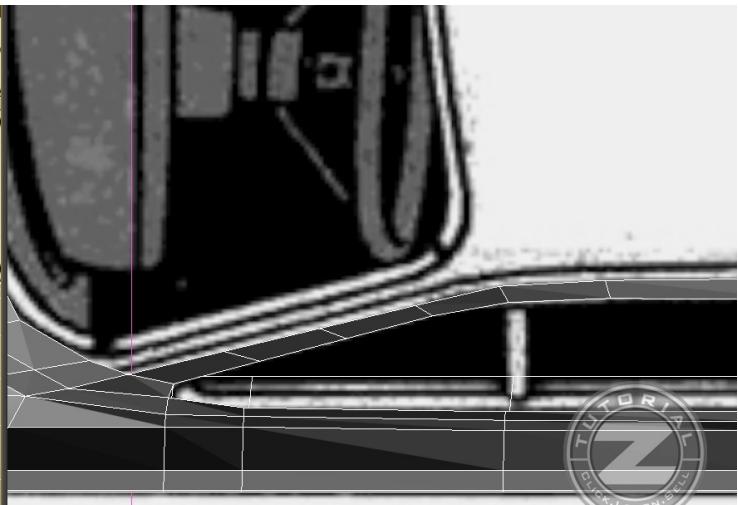
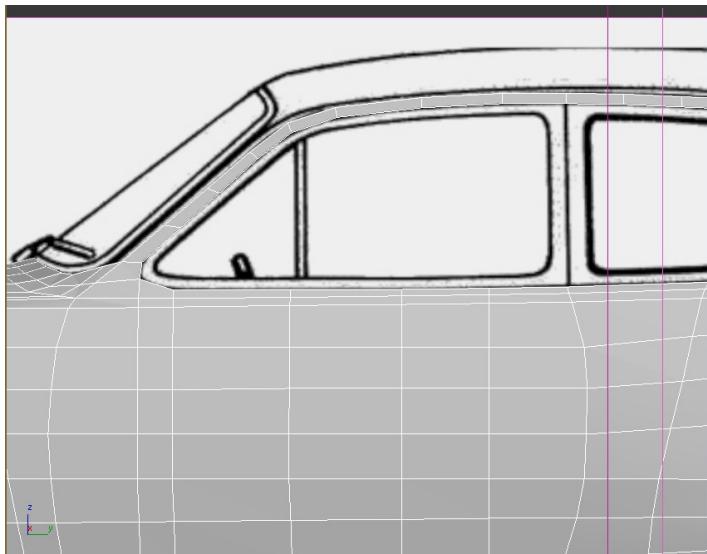
48. Here is something that you shouldn't be worry about. If you are watching from the top viewport, you will see that this part is not following the blueprint. Well, this is because of the blueprint, and sometimes we need to check some reference images to have a better view of the car. Maybe you are asking yourself how do I know what part of the blueprint it wrong well, everything fits on top viewport except this part from the rear window :)



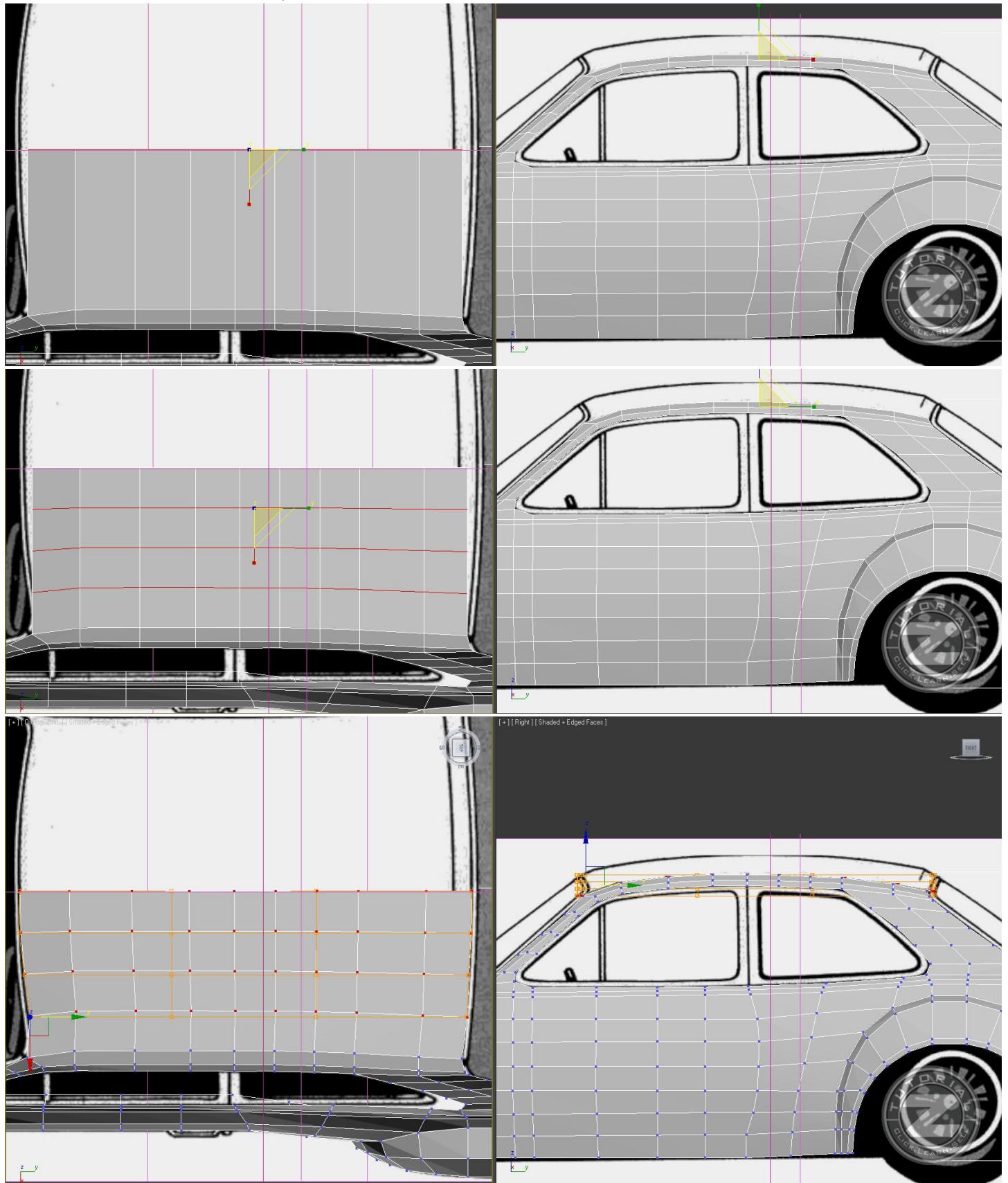
49. So, from now we will use the "side" and the "top" viewport to make the roof of the car . Let's continue :)

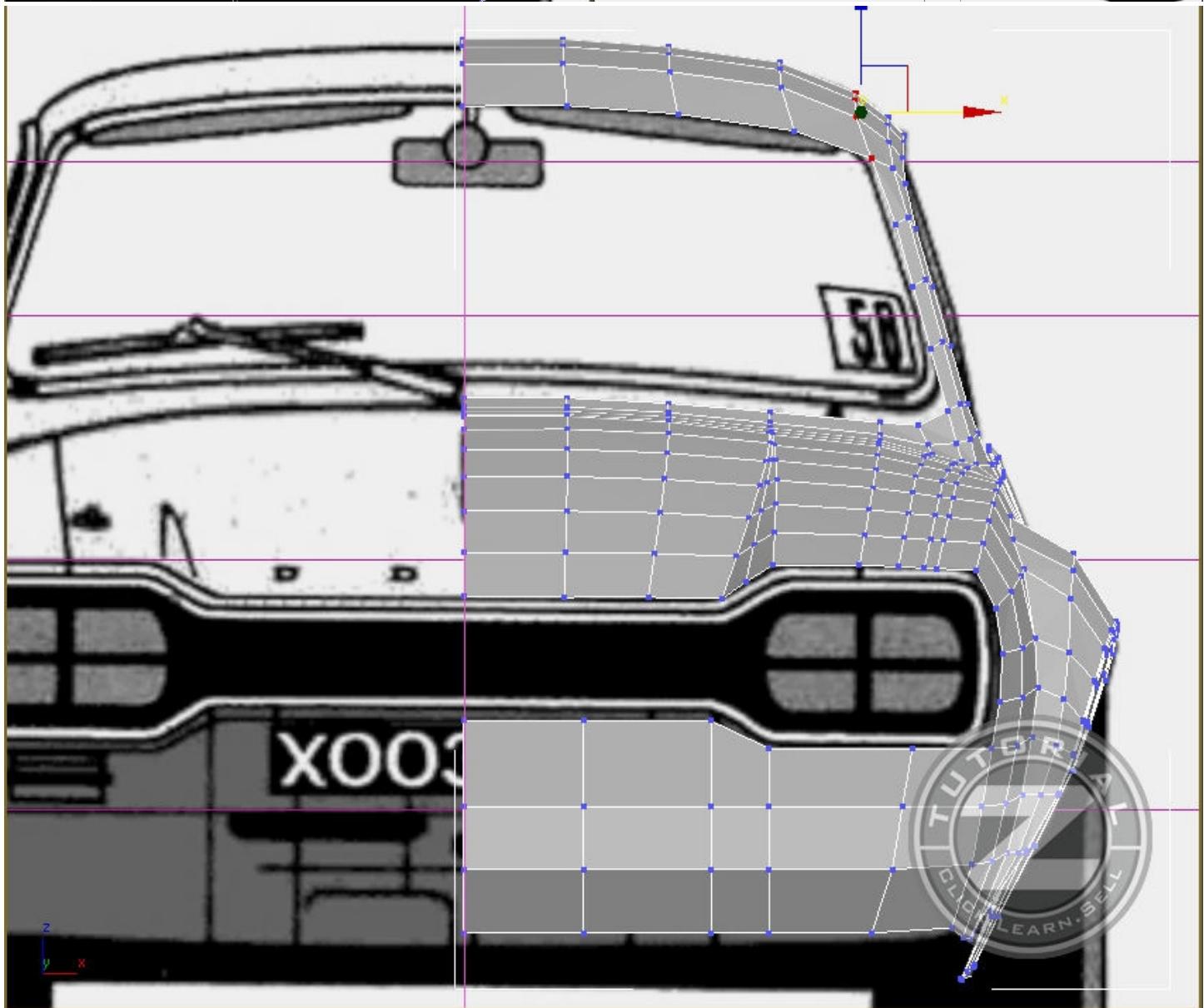
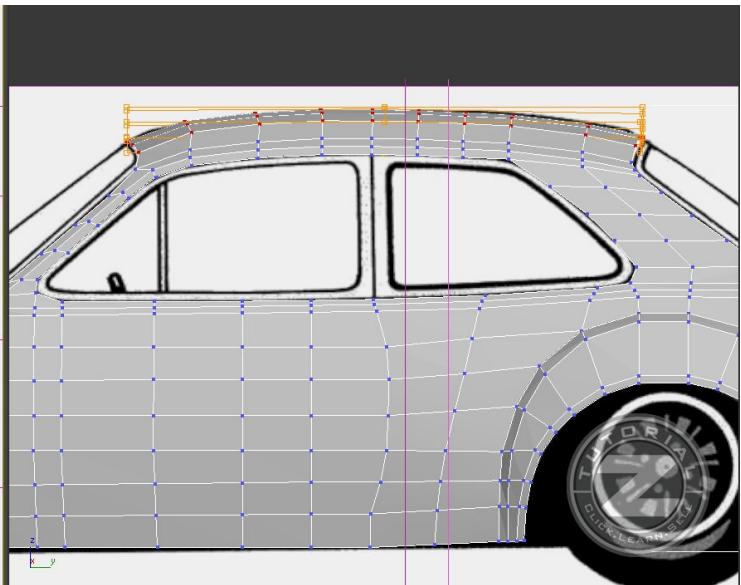
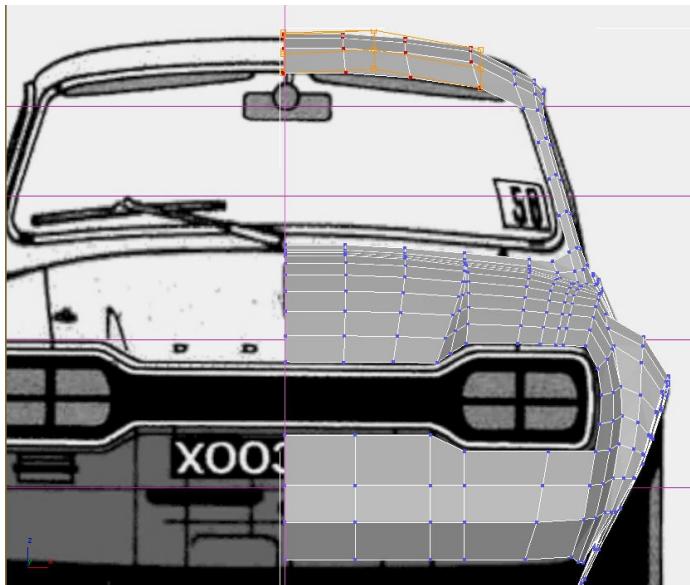




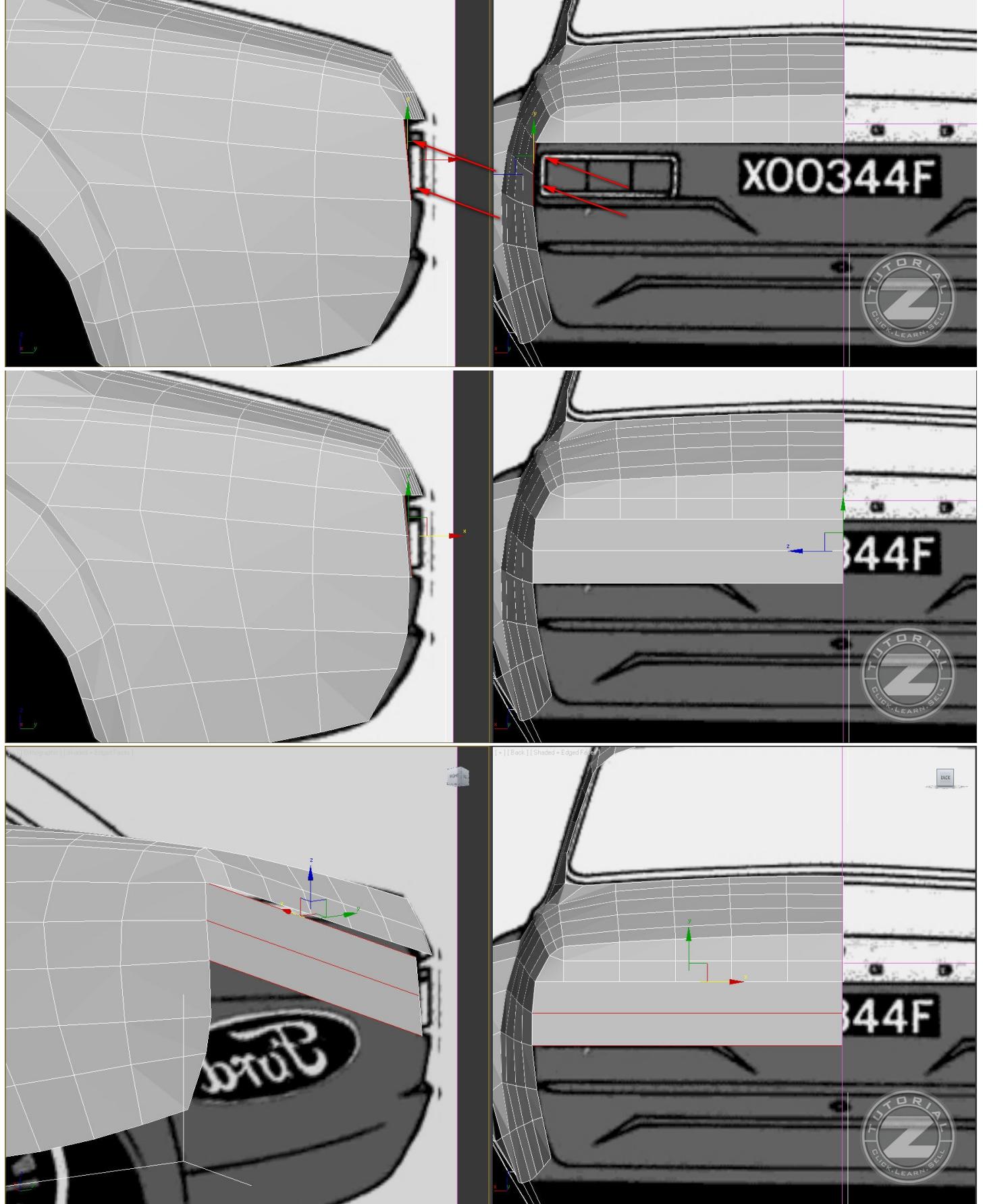


50. To make the roof, please use the same viewport as me because the rear one is not very accurate but the side and top viewport are fine :) :

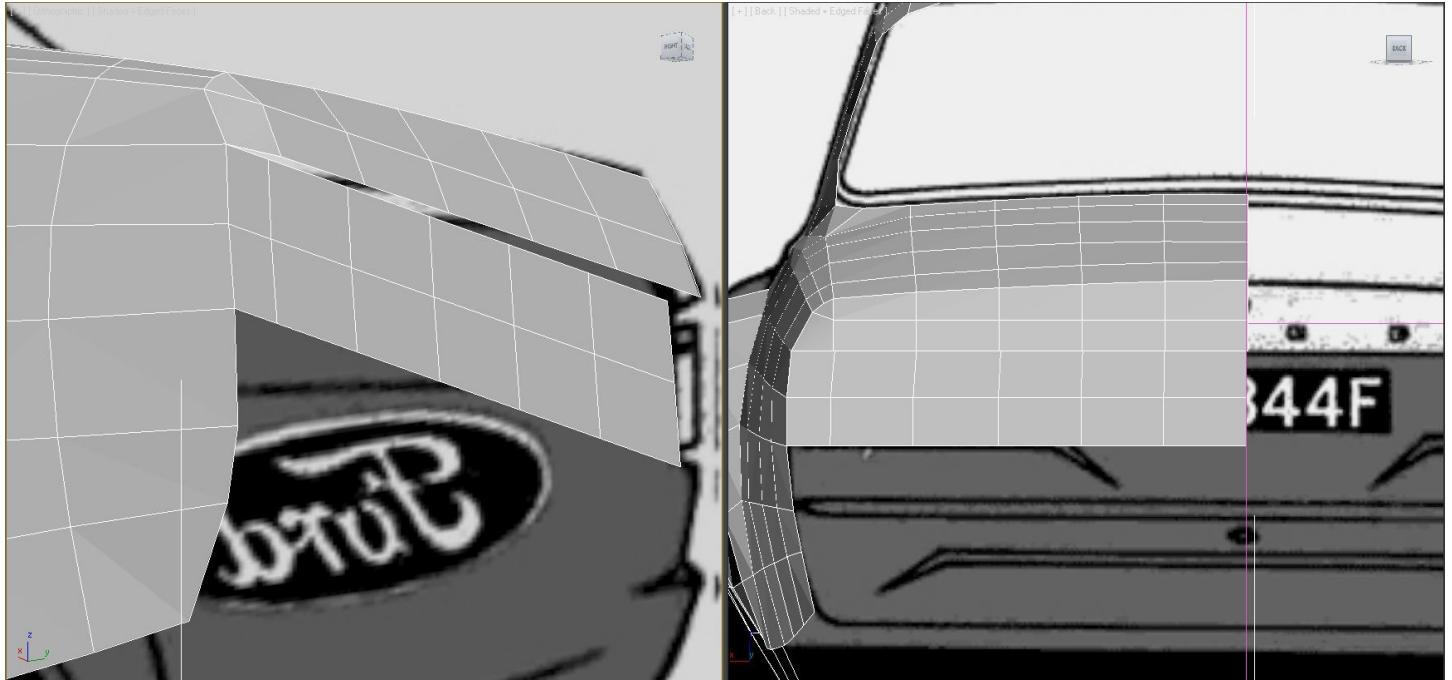




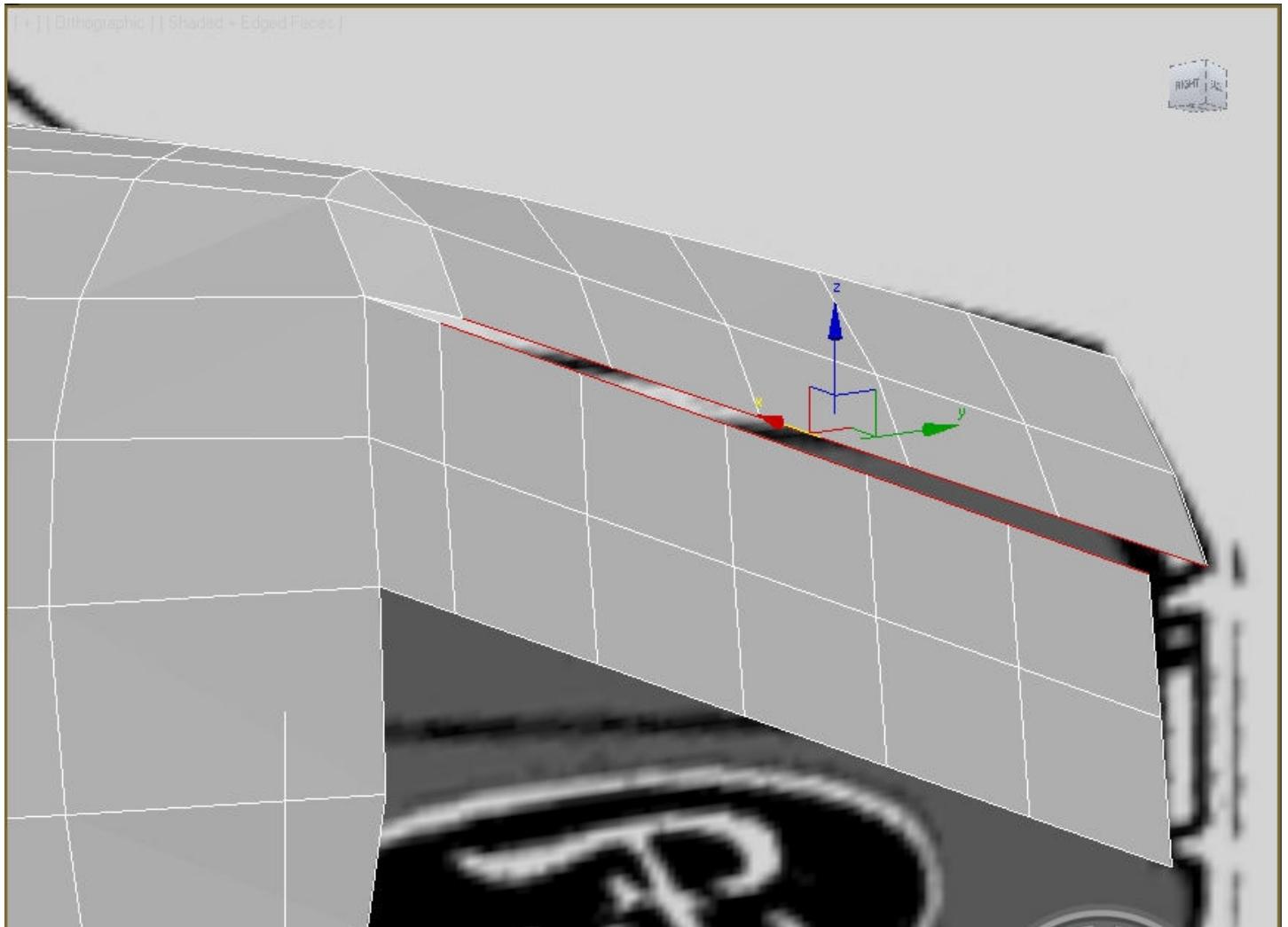
51. Let's go back and close the rear part of the car. There are some shapes on the rear, so, we don't need to rush if we want to have something nice. We will start by selecting these edges, and once they are selected, drag them until you reach the middle of the car :

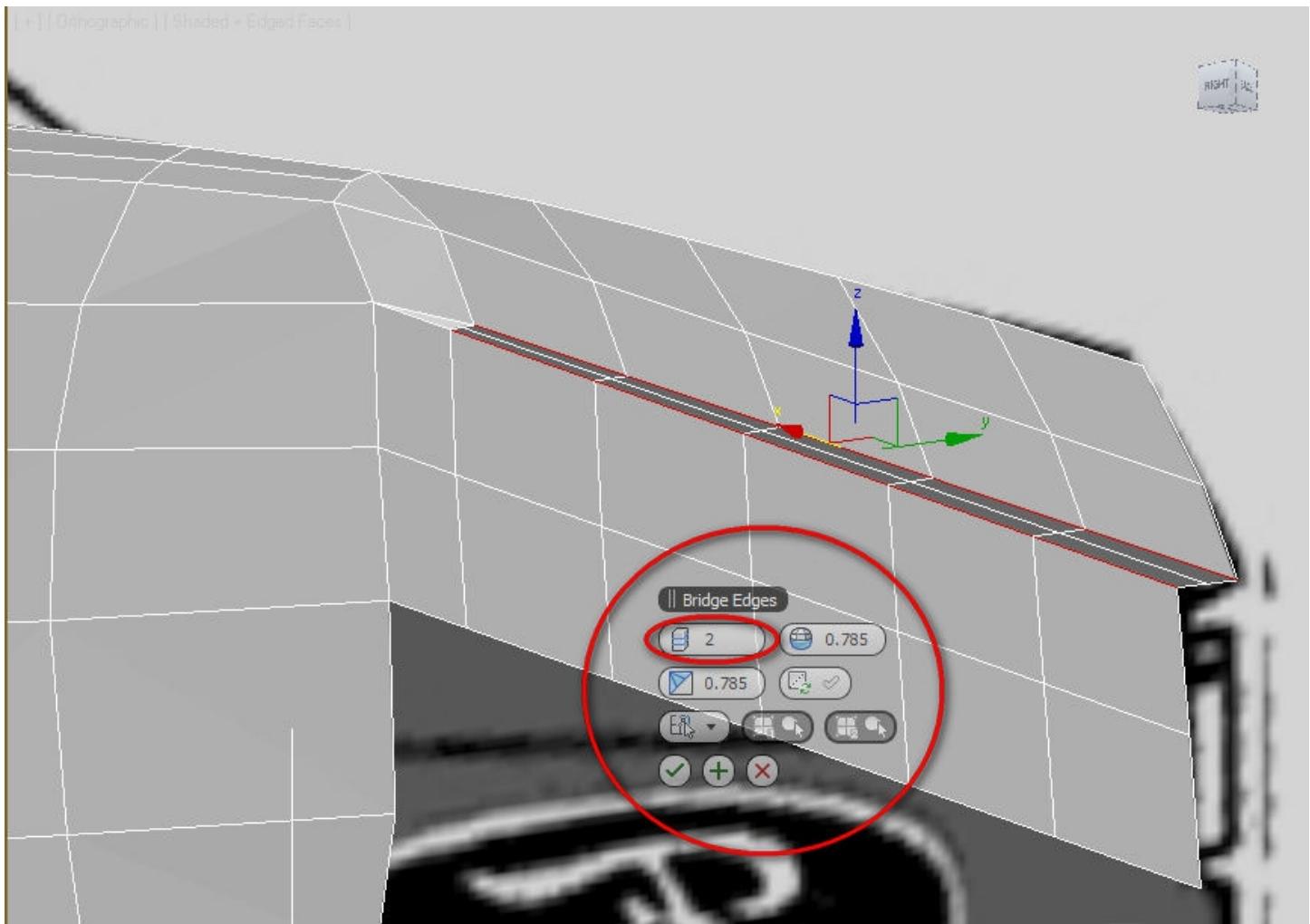


52. Now we need to connect these new polygons using 5 rows of edges. Why 5 ? Because we need to connect them with the polygons from above and with 5 segments, it will fit perfectly. Select and connect these 3 edges and connect them using 5 rows. Be sure that the rows are fitting with those ones from above :

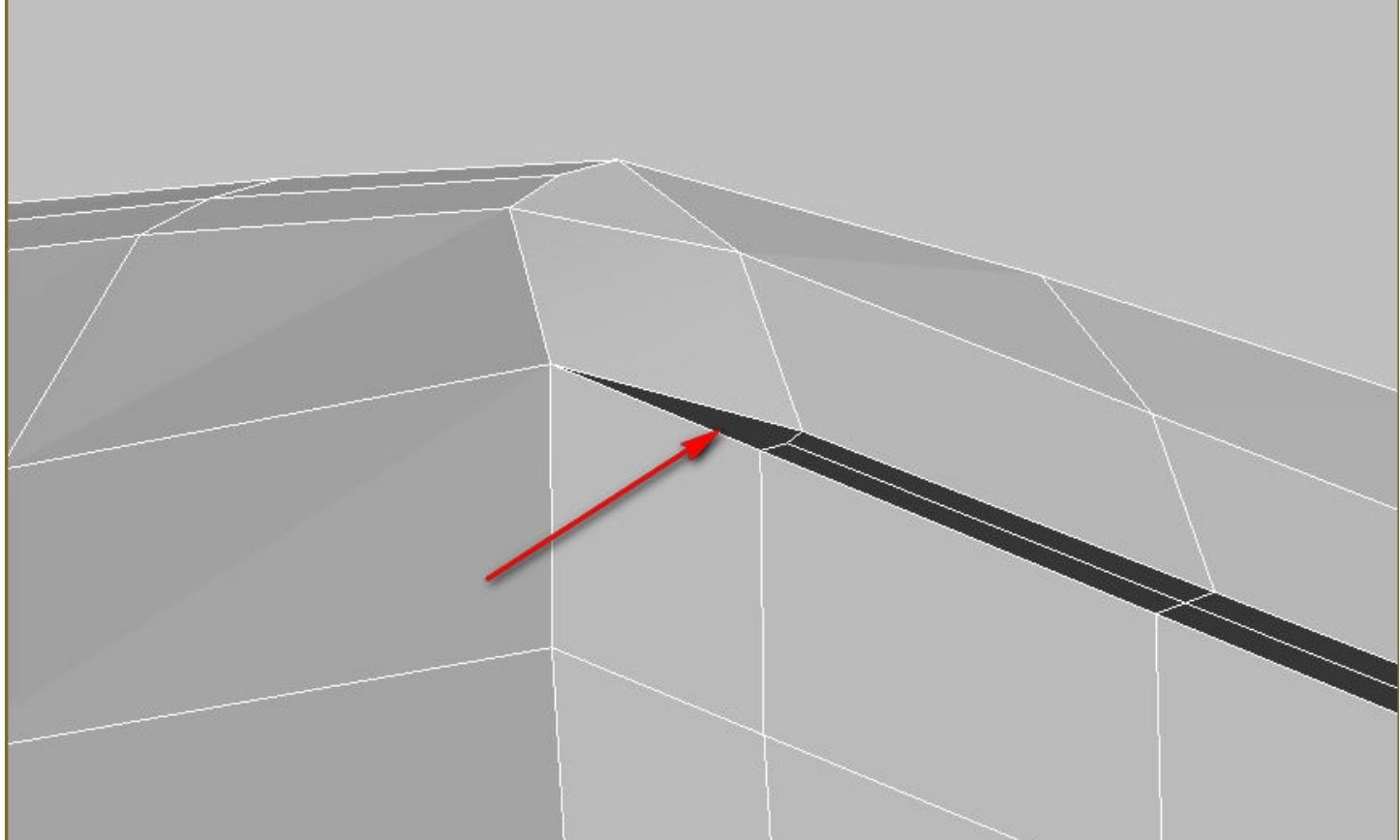


53. At this step we will unite the polygons. Select ONLY these edges and use the “bridge” tool to connect them. Don't forget to add one more segment too :

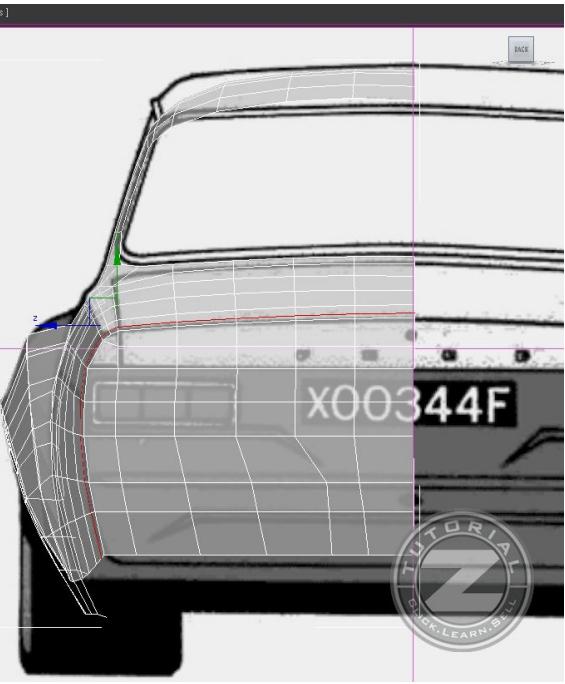
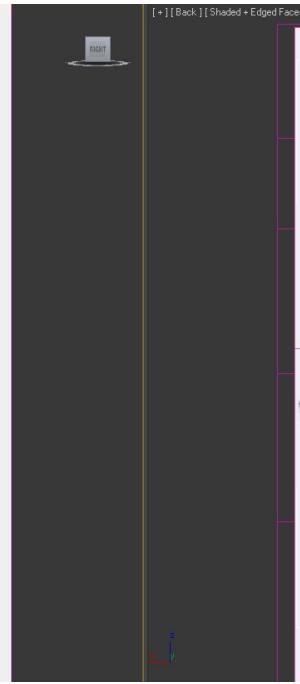
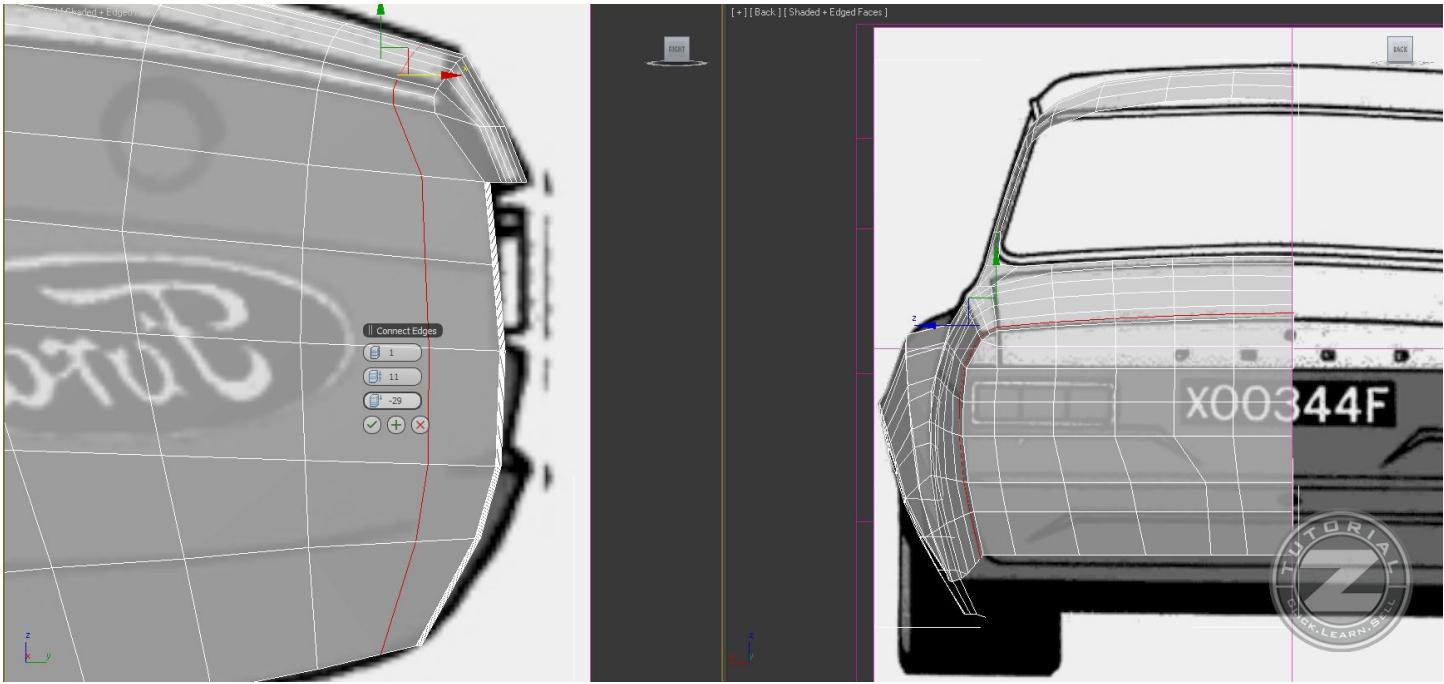
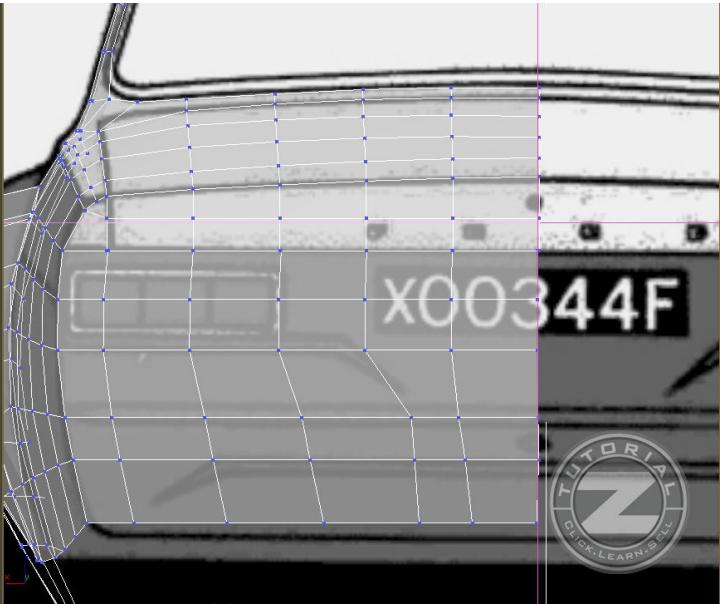
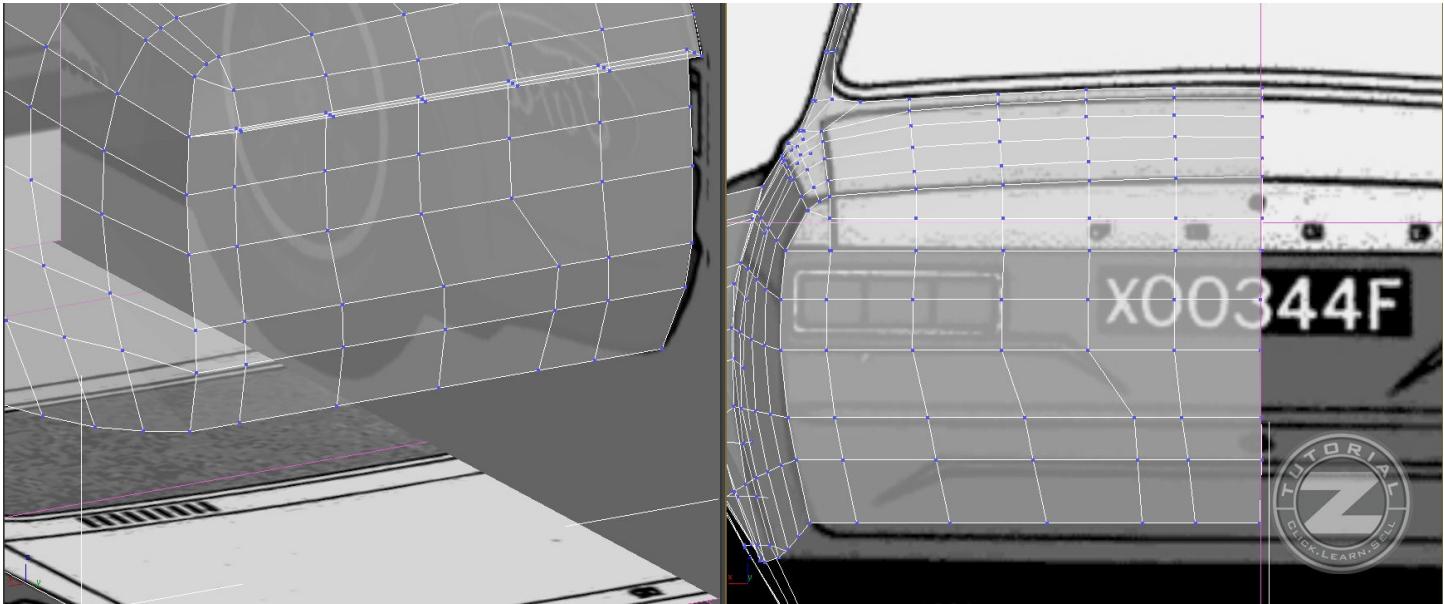
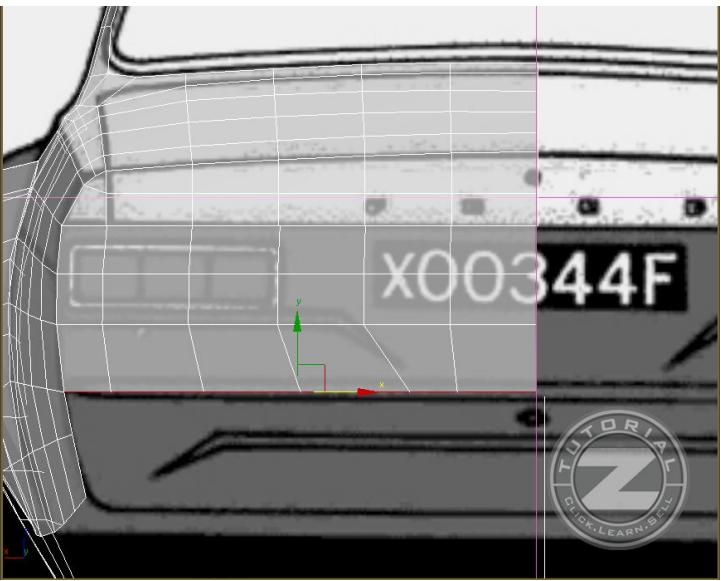
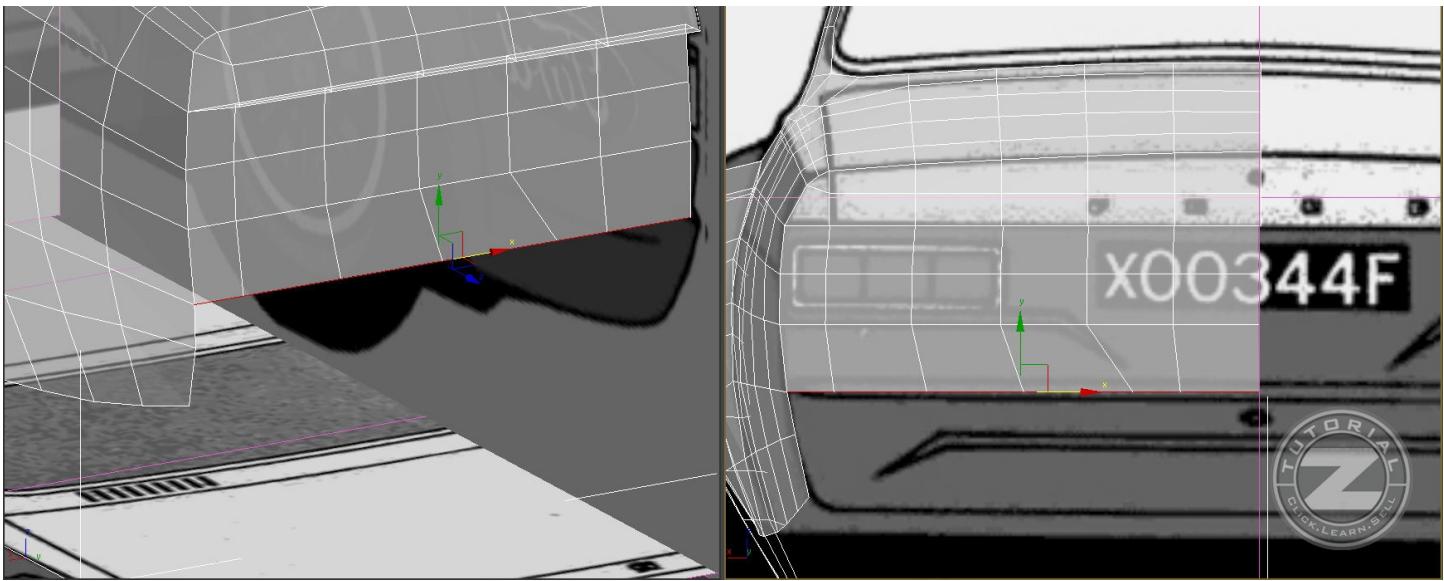


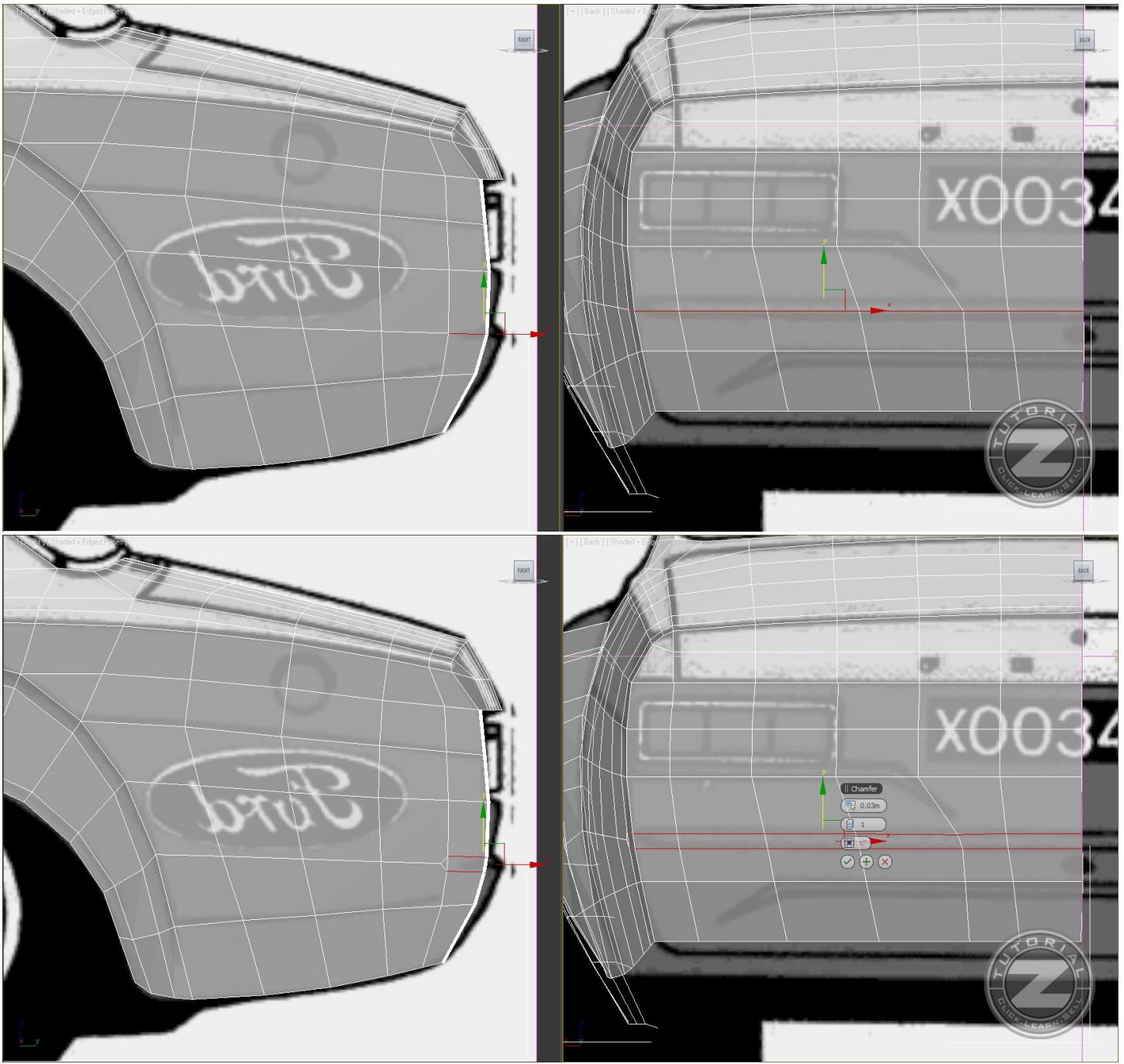


54. Use the "Cap" tool to close that hole :

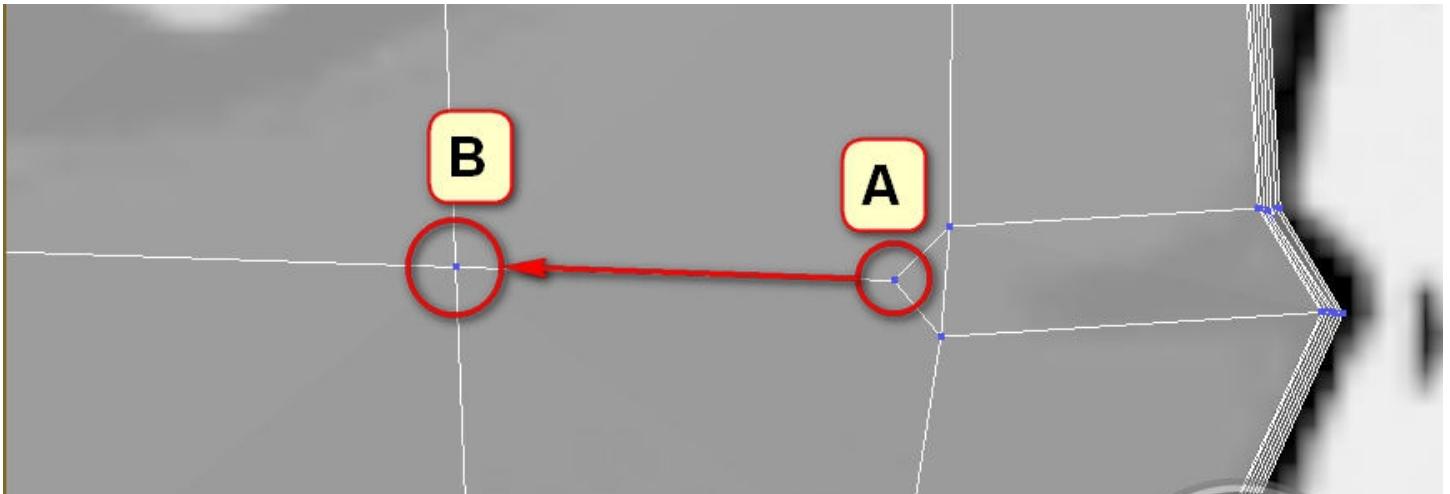


55. Now continue like I did :

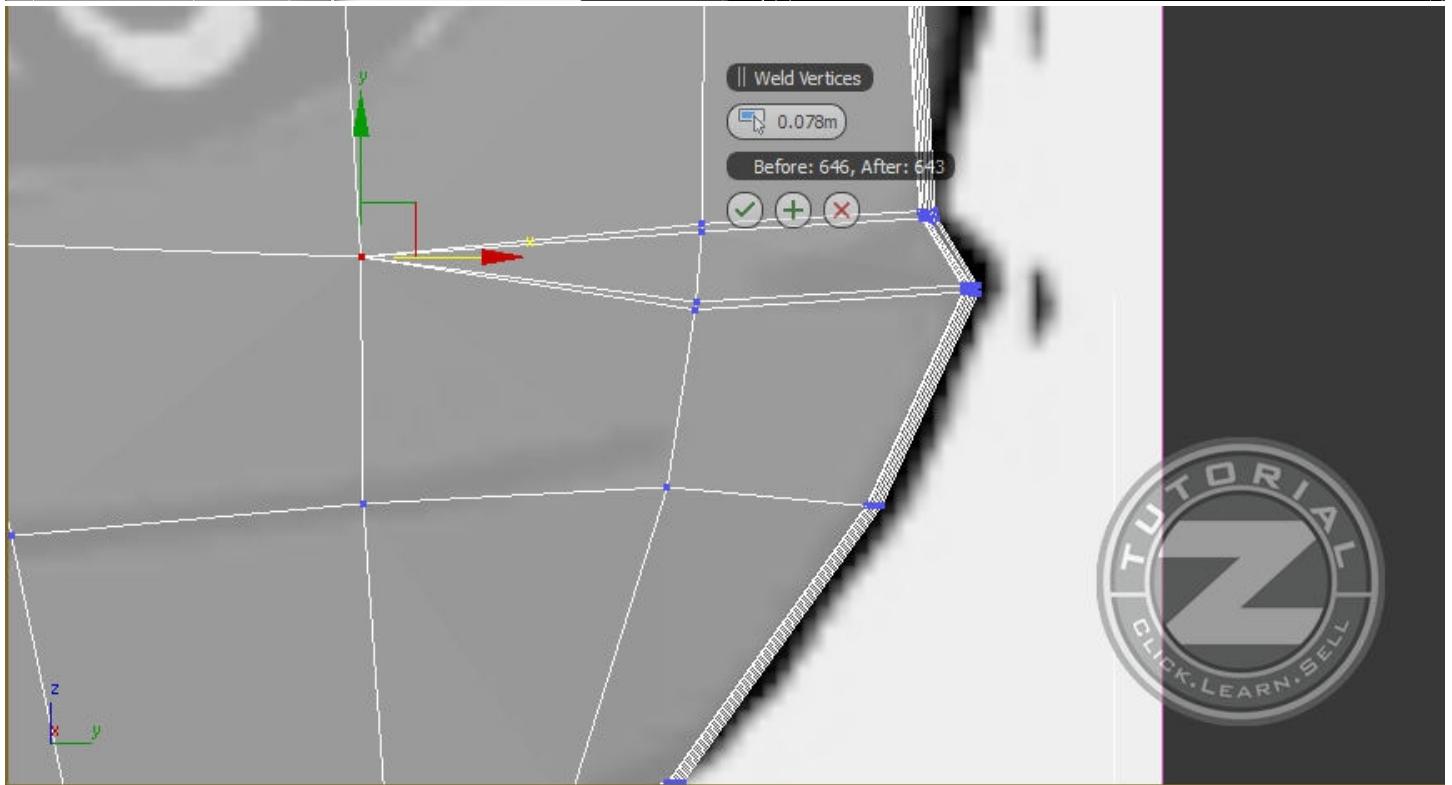
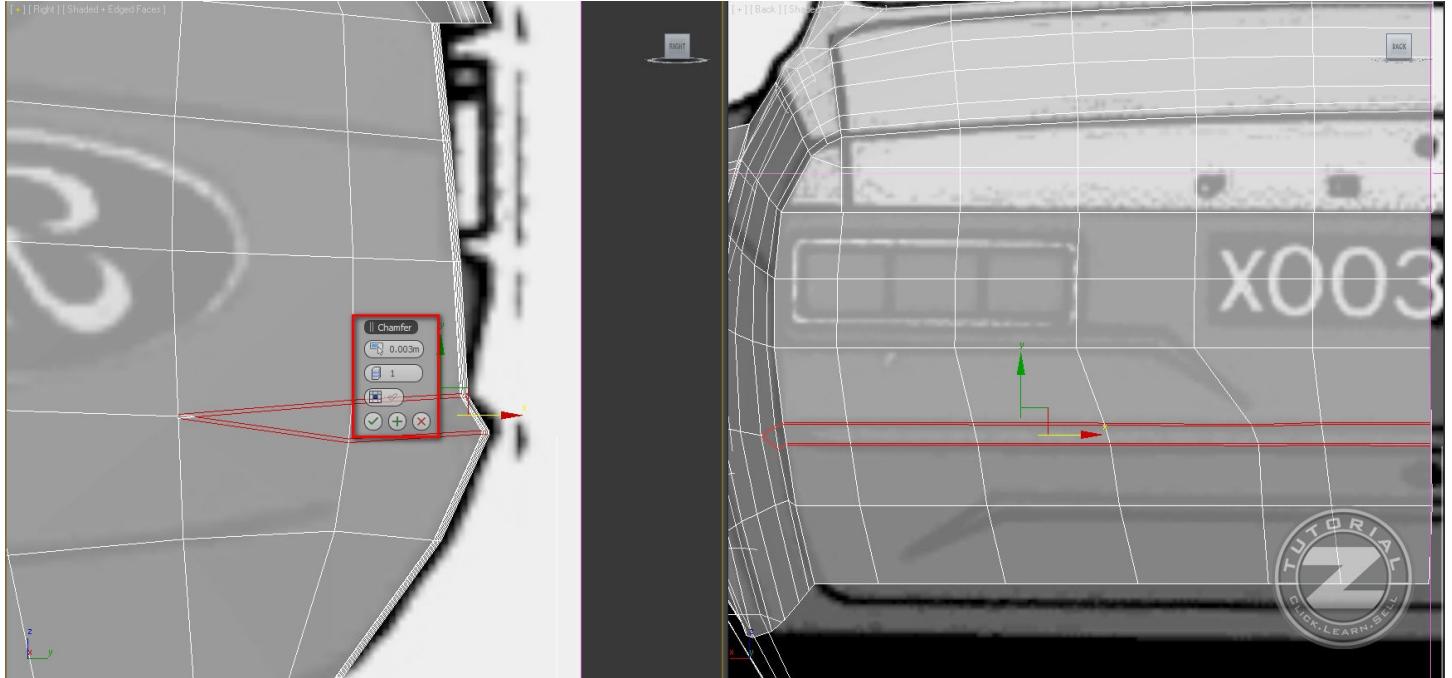




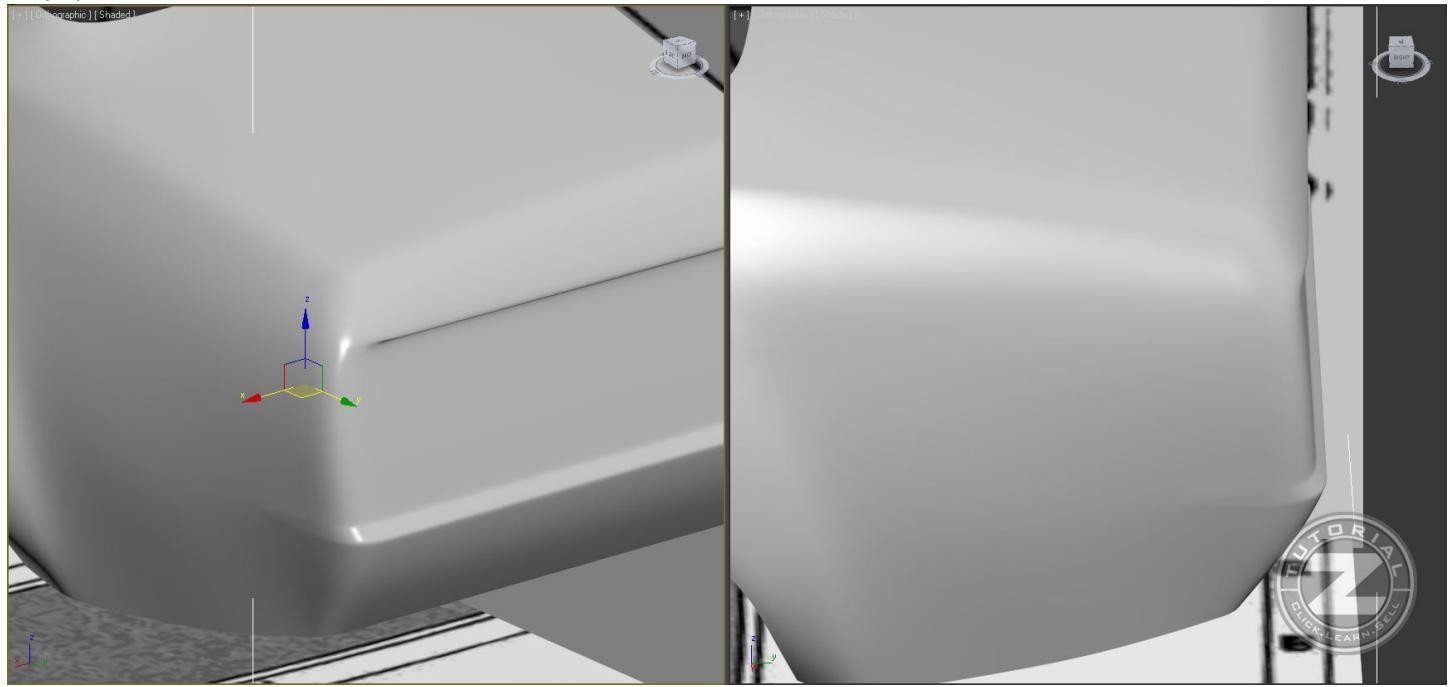
56. Weld the vertex A to the vertex B. I know that I have said that we should avoid triangles but in this case, it looks good :



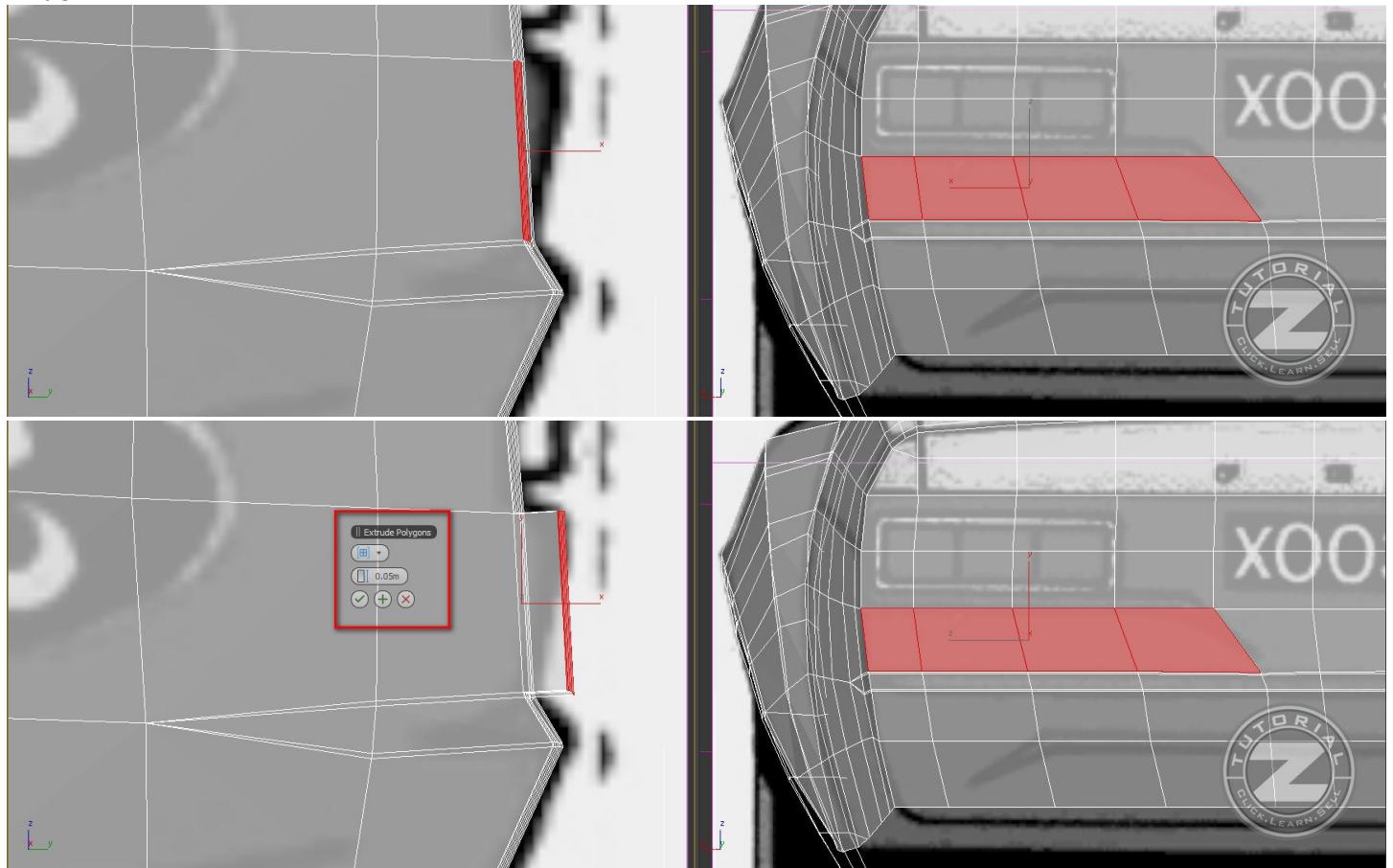
57. Chamfer these edges, and once you are done, select the same vertices as me, and weld them (use weld, not target weld)



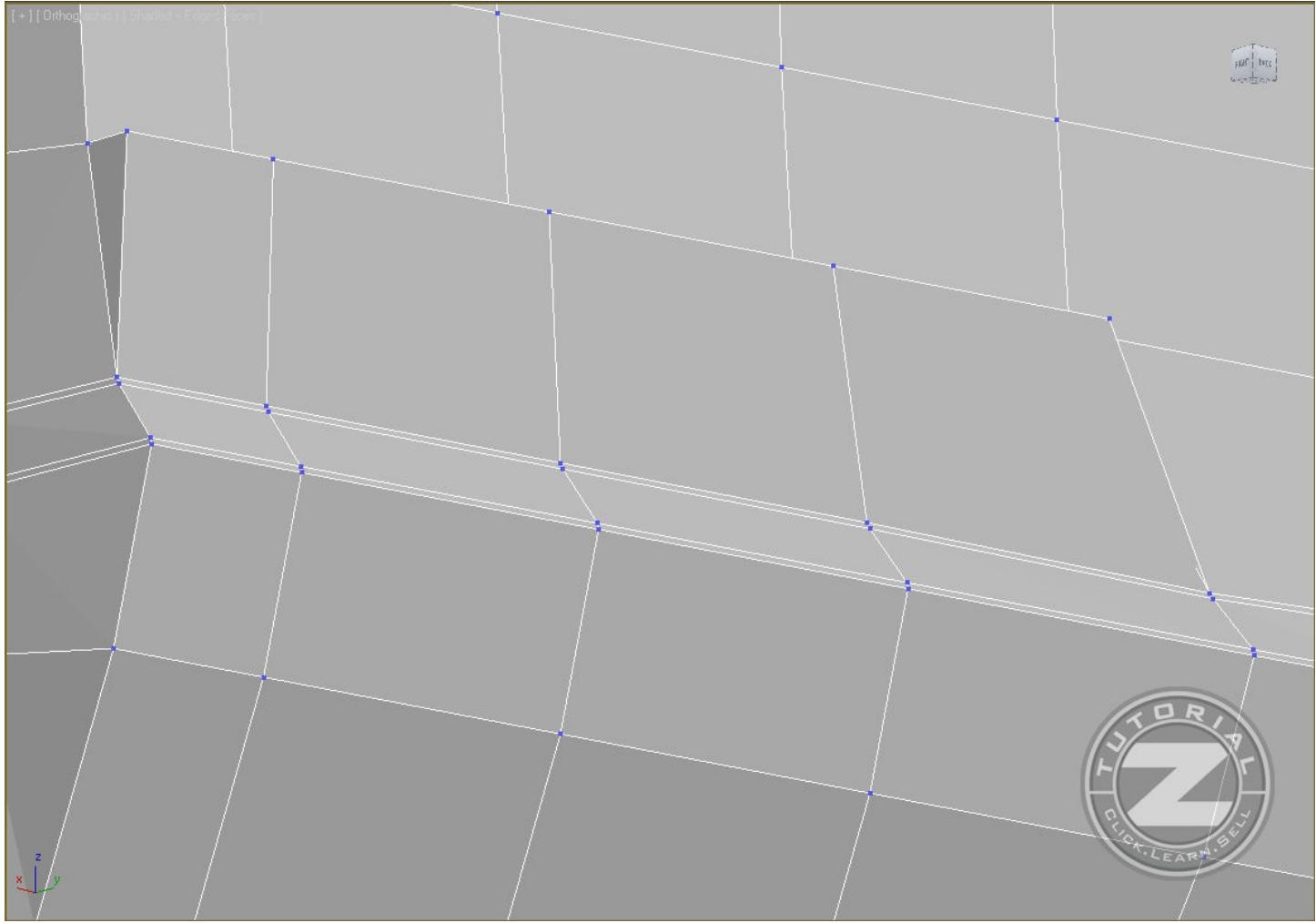
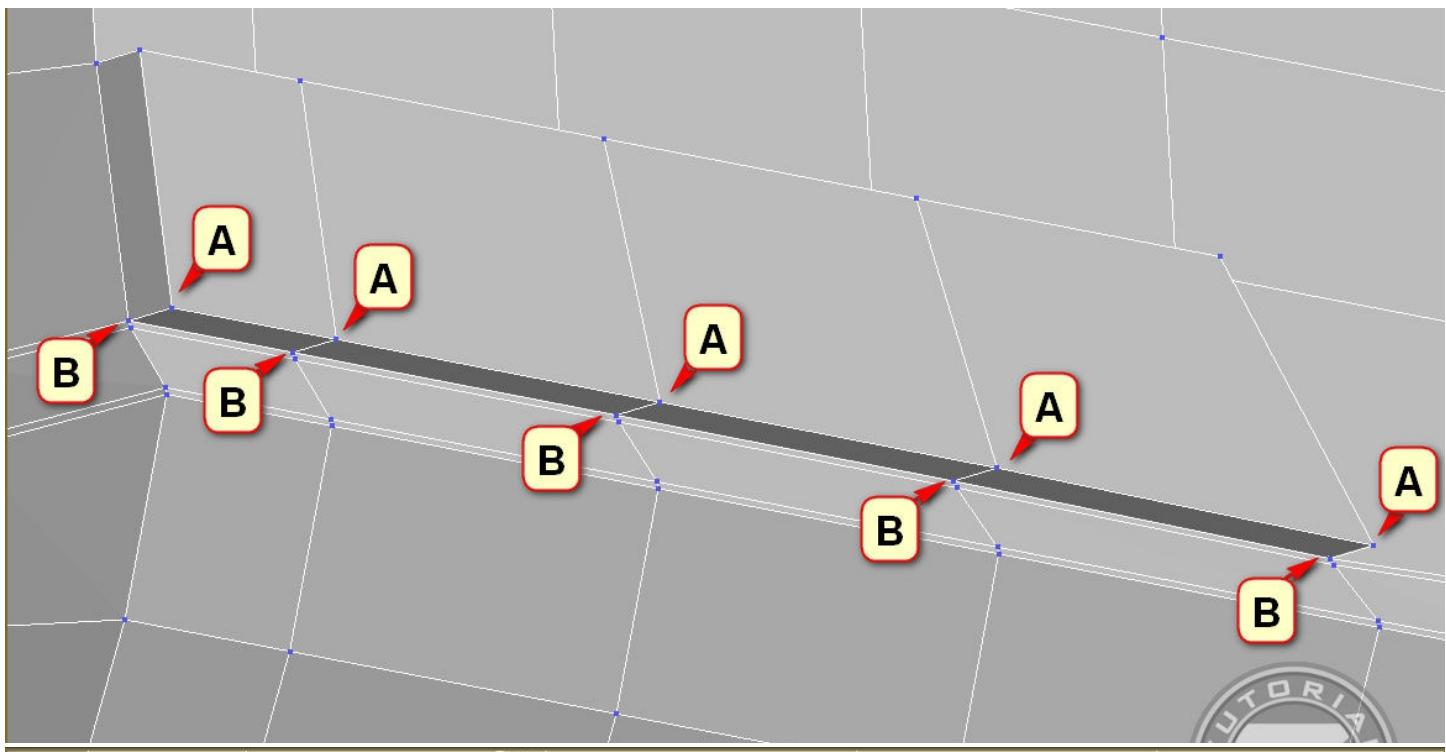
58. If you will apply a smooth modifier, you will notice that these triangles didn't affected the mesh in a bad way :)



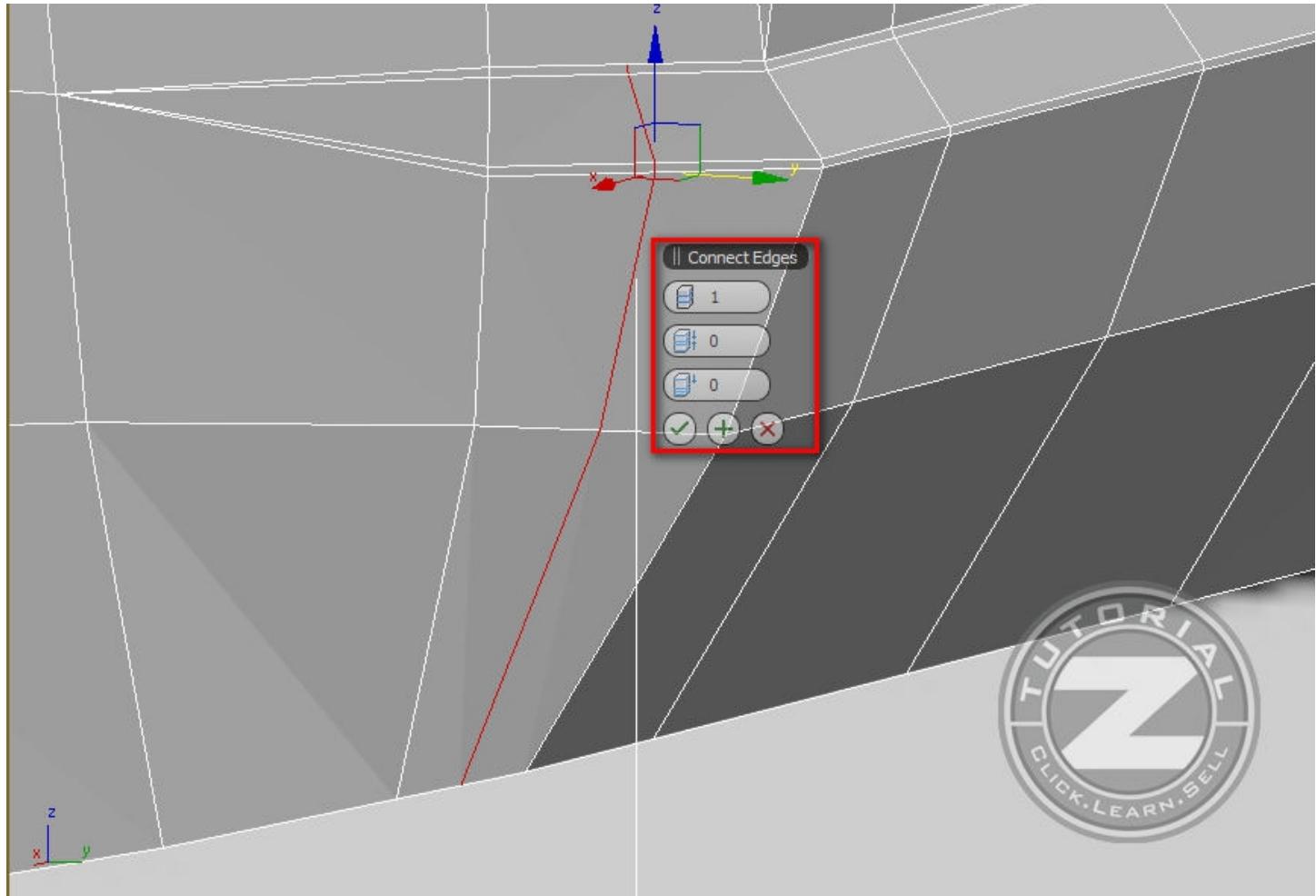
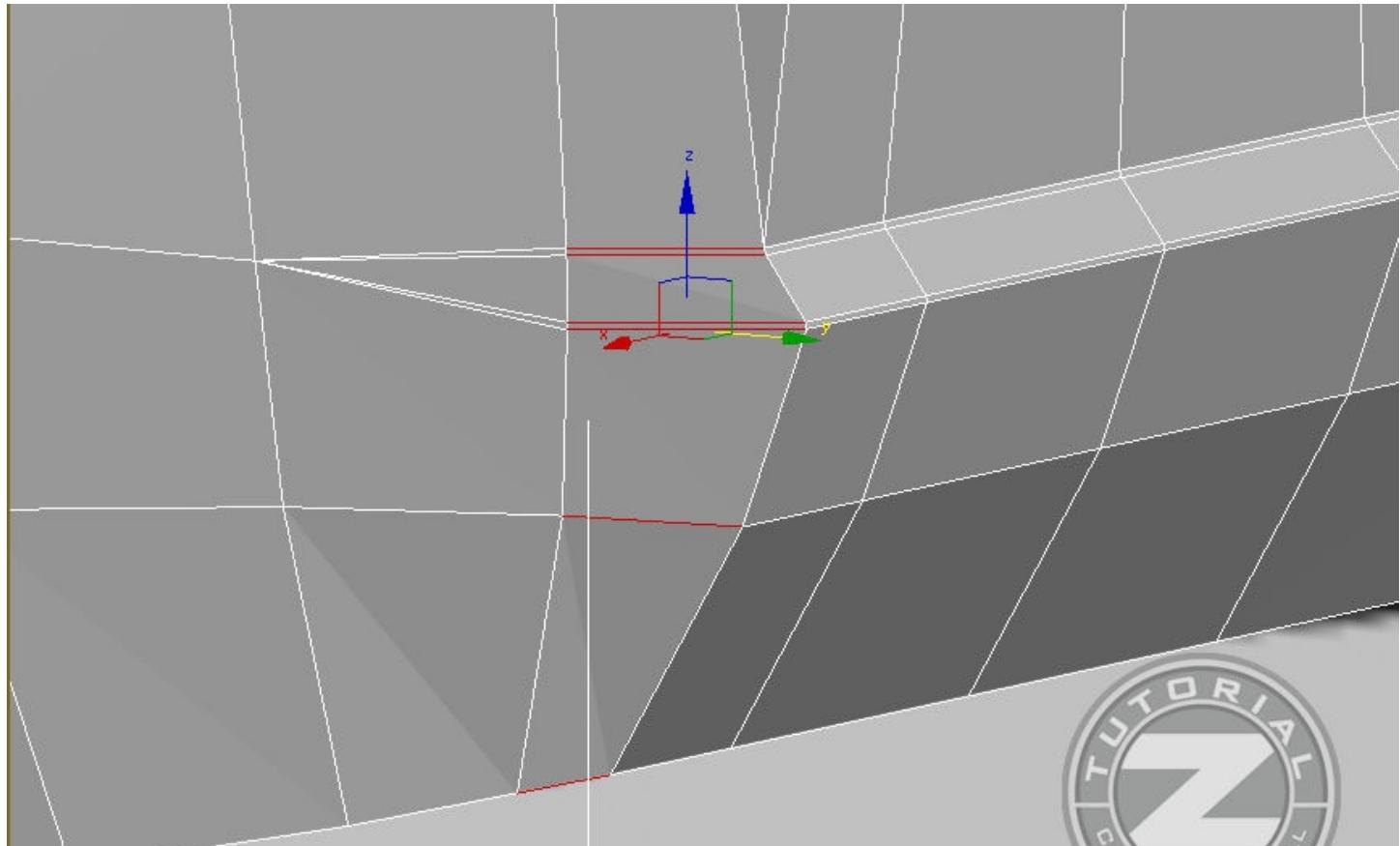
59. We are almost done with the bodywork from the rear of the car. We will finish the body and then we will start to make the details from the front of the car and we will advance to his rear. So, select and extrude these polygons :



60. Now weld the vertices A to the vertices B :

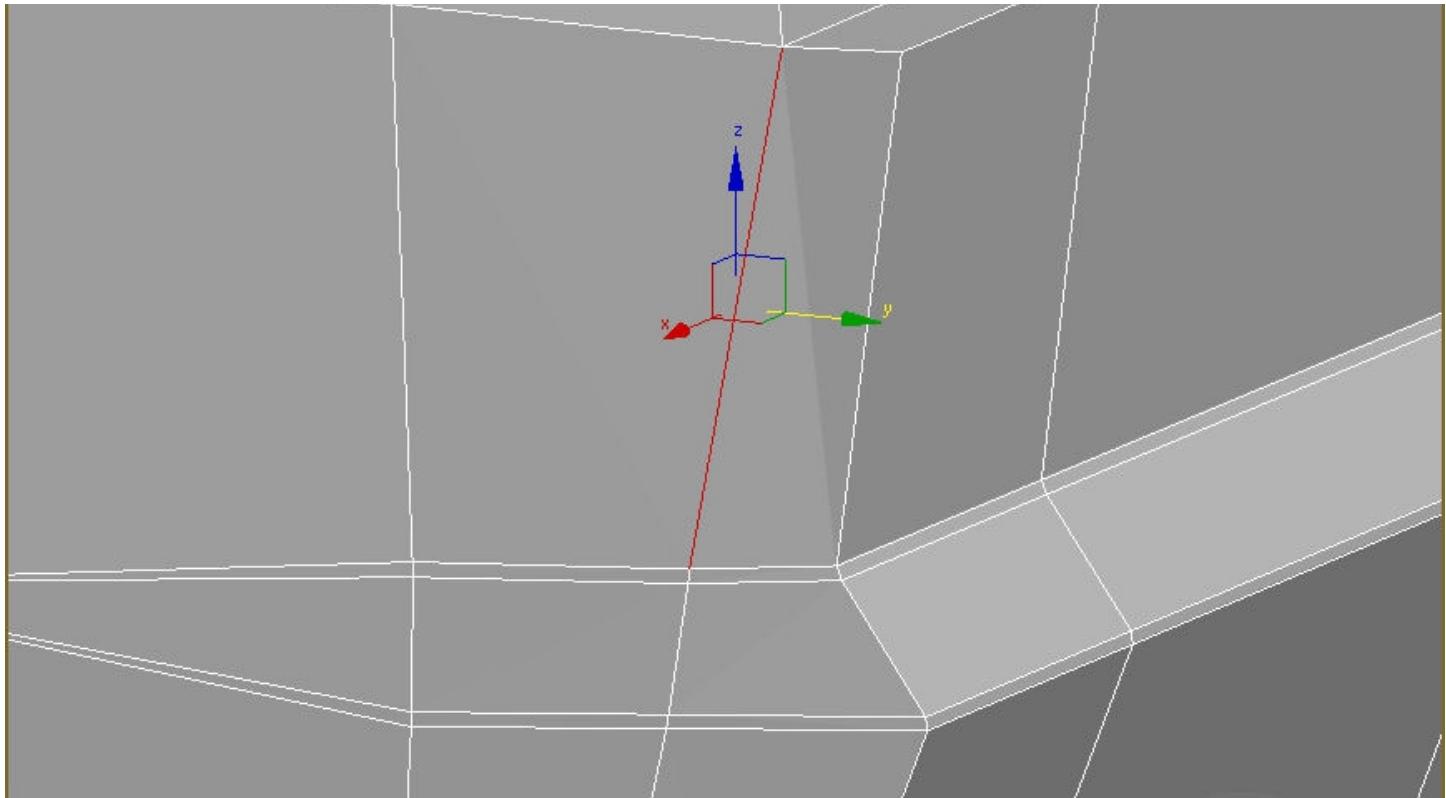
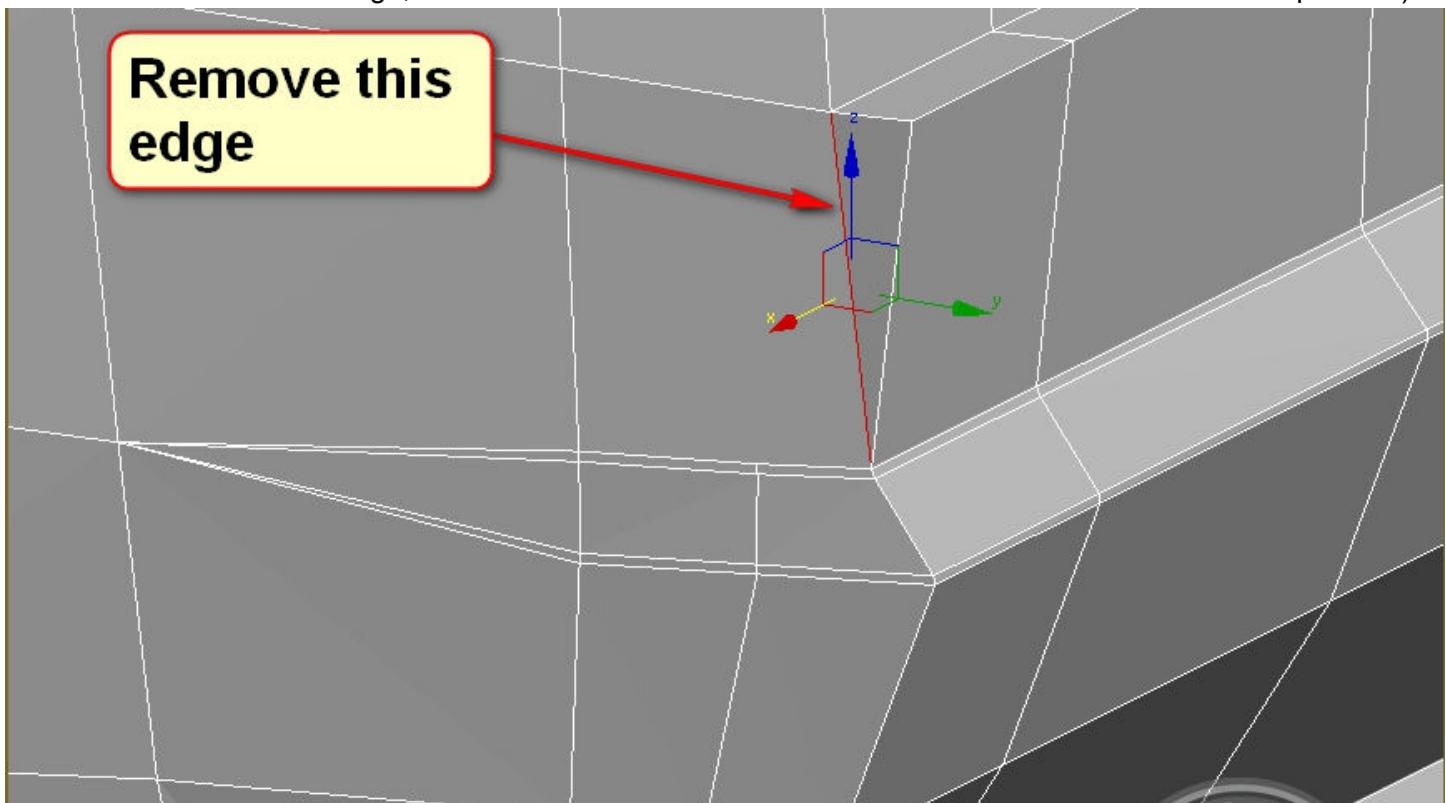


61. Select and connect ONLY these edges :

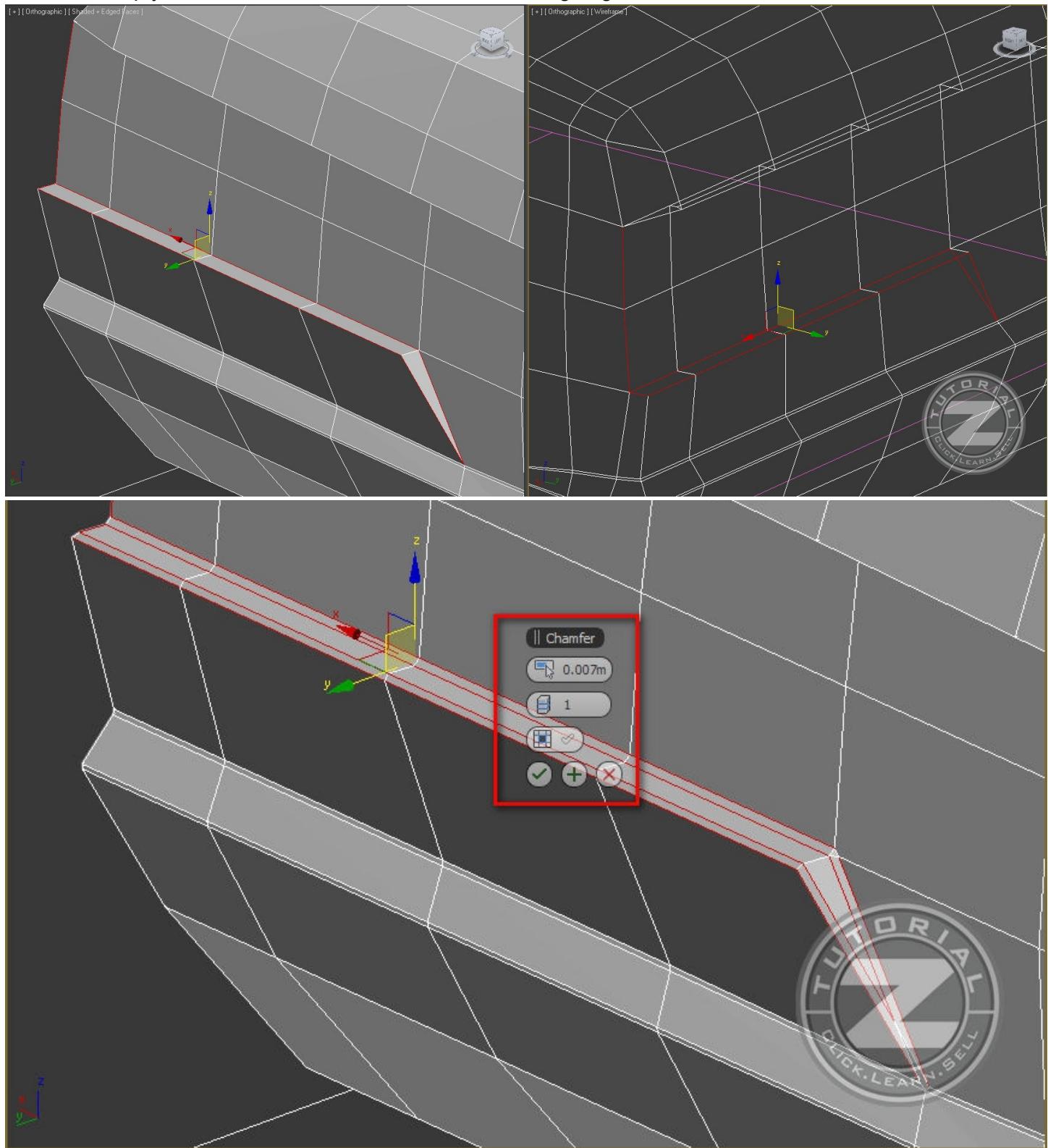


62. Remove the selected edge, and then use the “Cut” tool to create another one like in the second picture :)

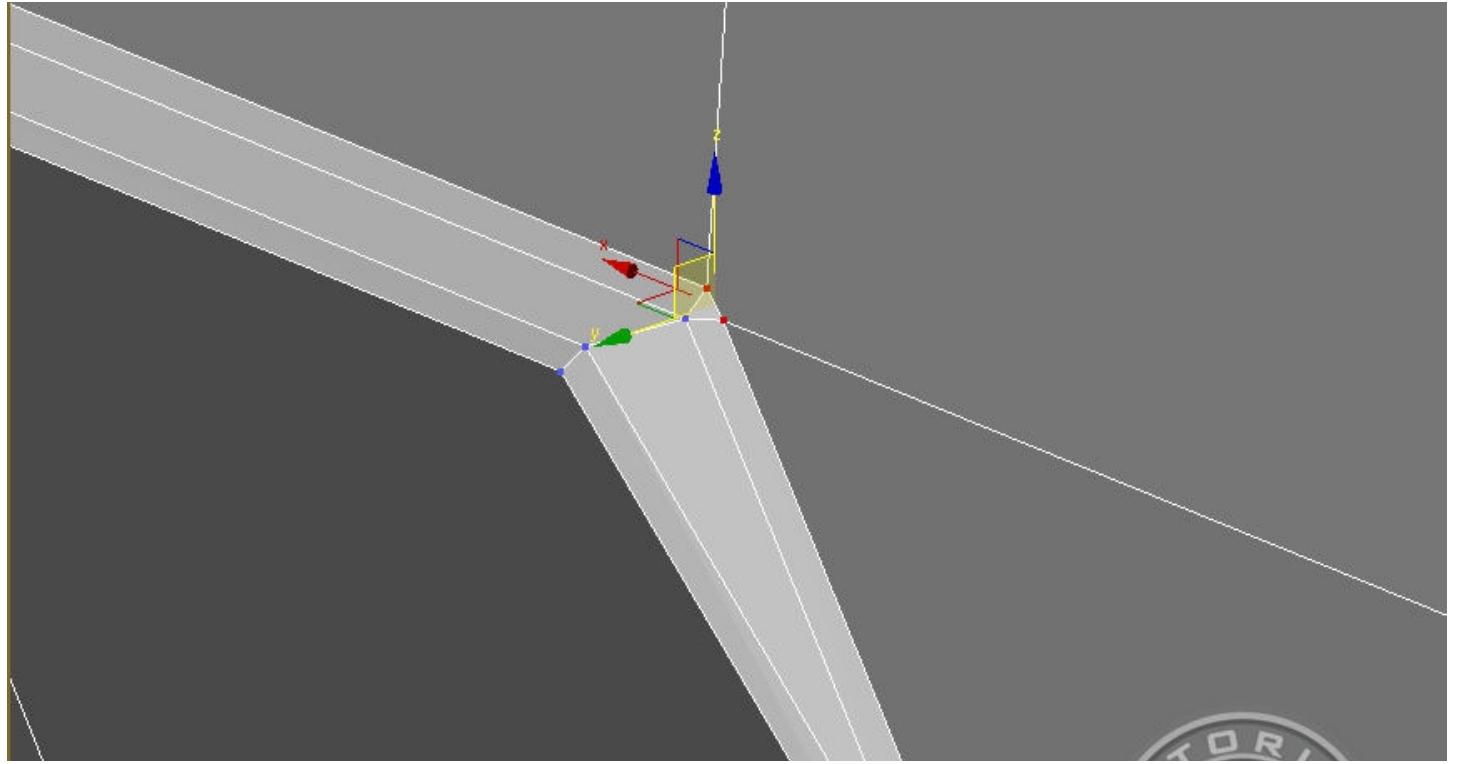
**Remove this
edge**



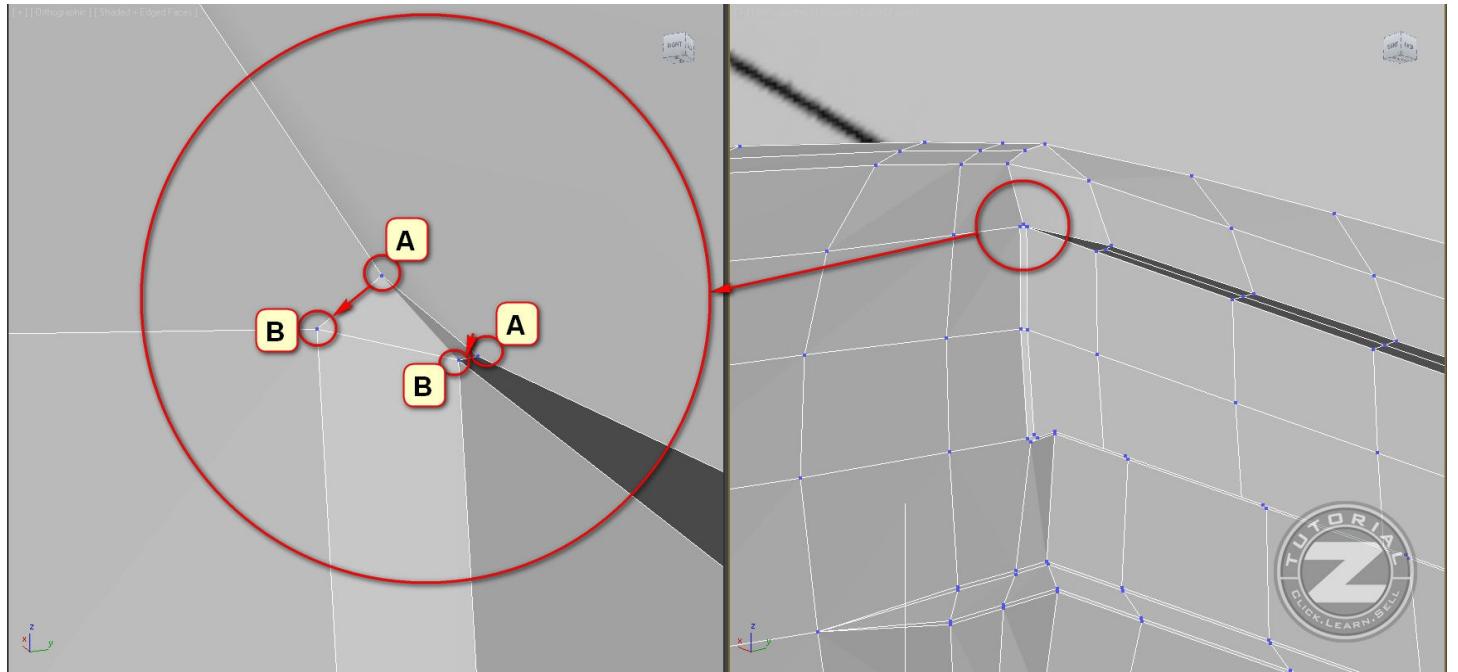
63. At this step you need to select and chamfer the following edges :

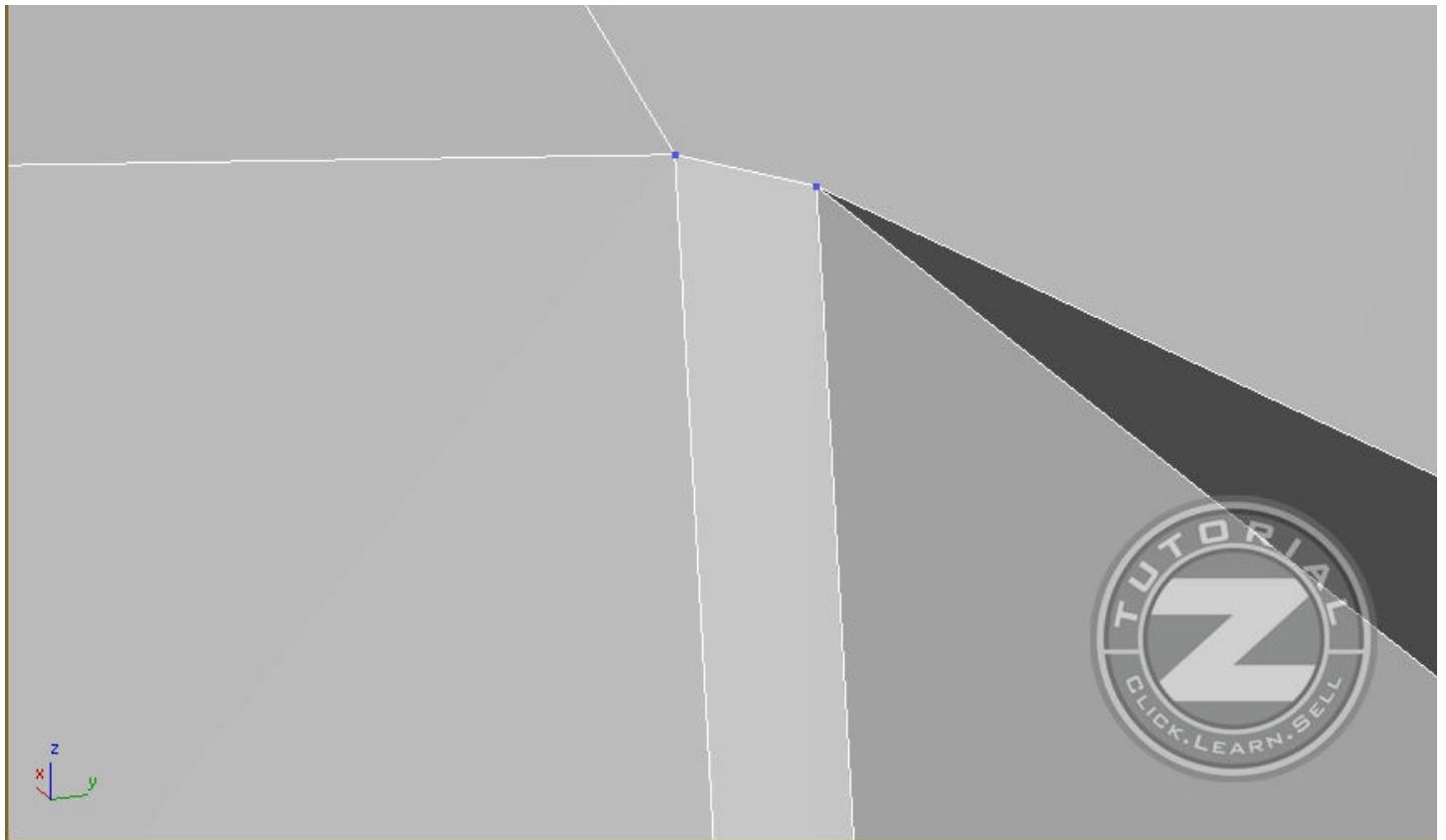


64. If you will zoom a little bit, you will see that a small triangle appear after the chamfering process. To solve the problem select these 2 vertices and use the “Weld” tool to weld them together :

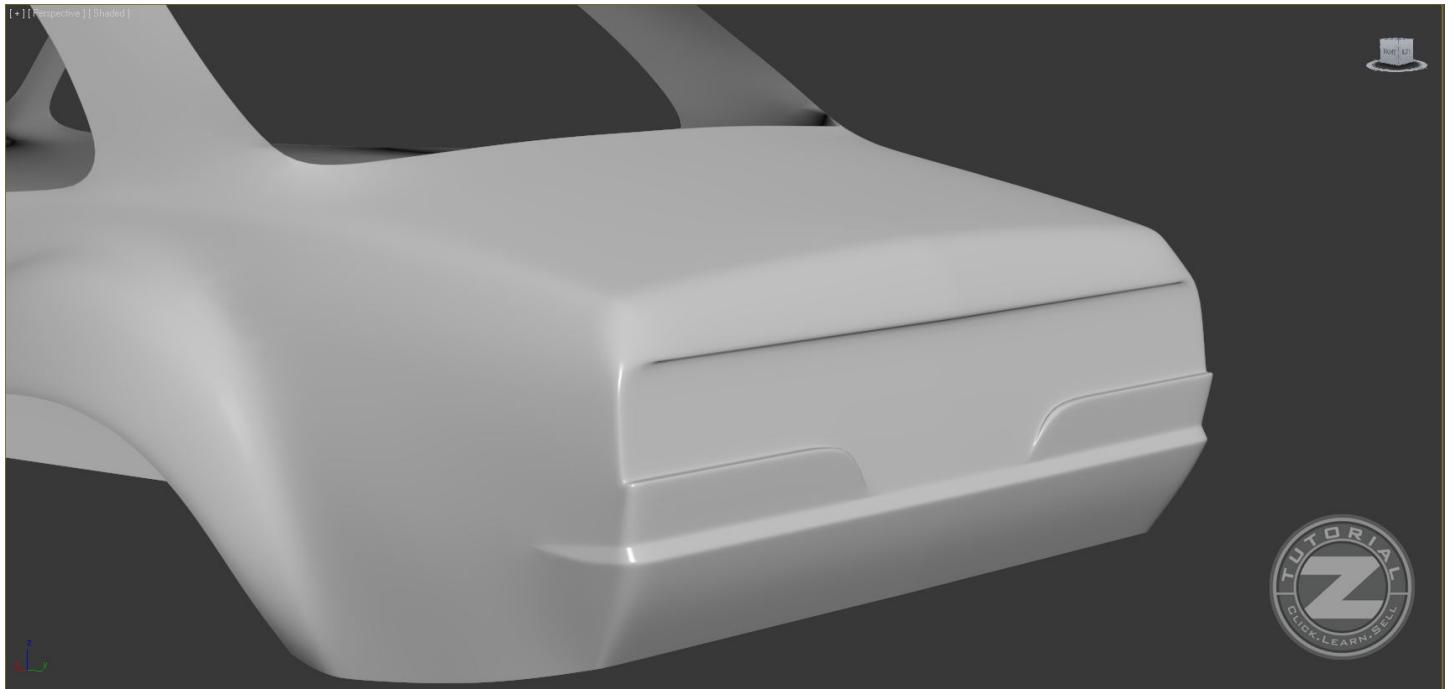


65. We need to repair something else which is not a very big mistake but I like to keep the things clean :) . Zoom in the same spot as it shows in the image, then weld the vertices A to vertices B

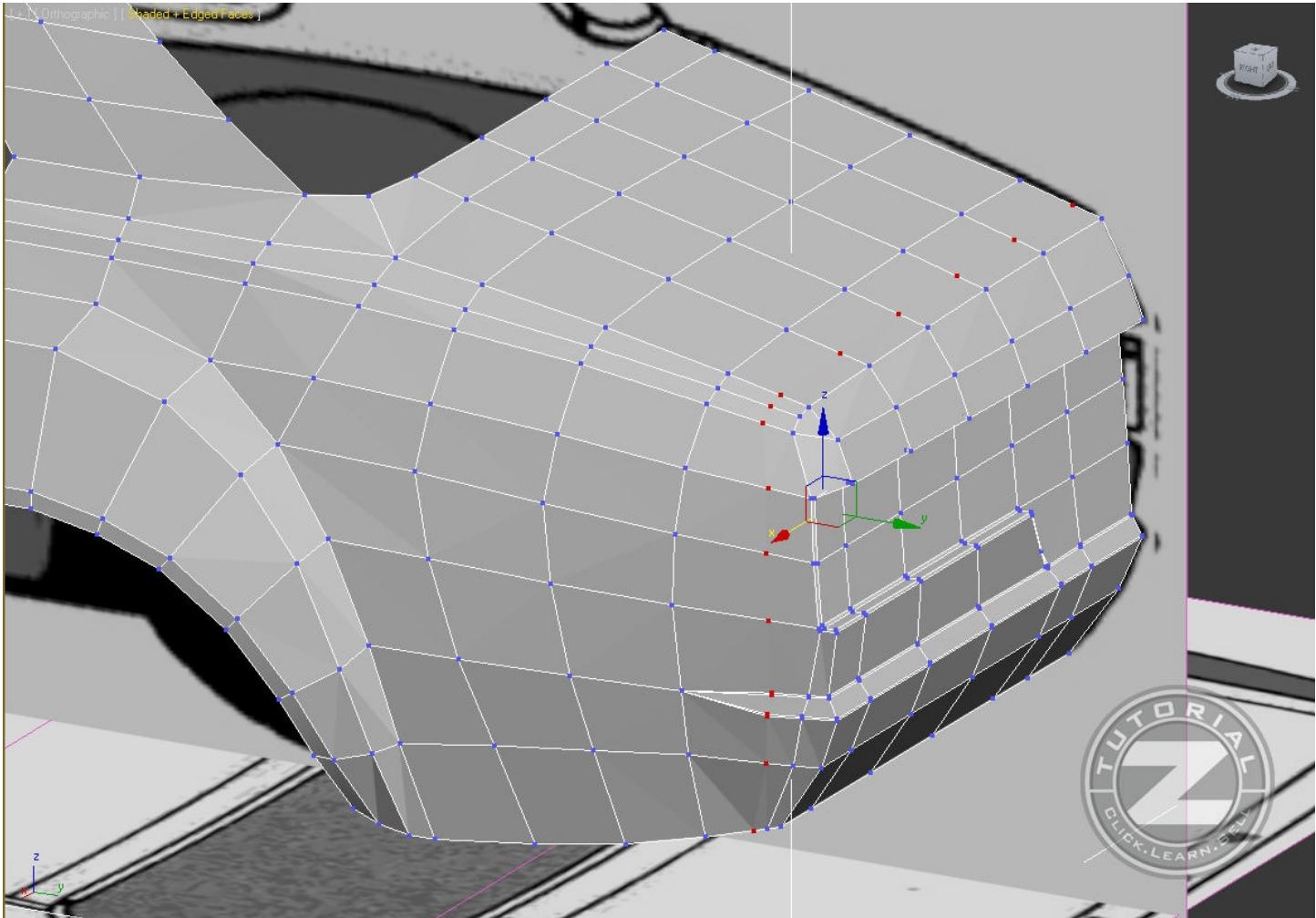
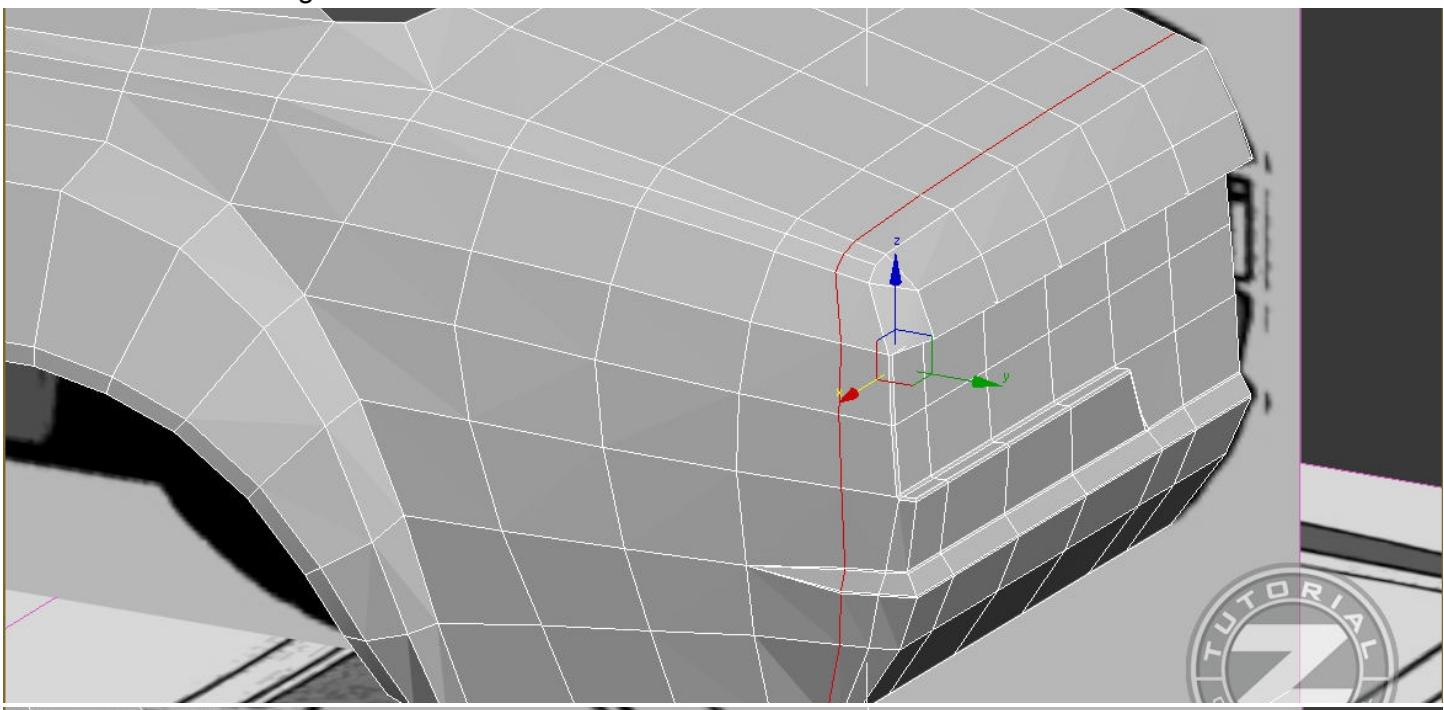




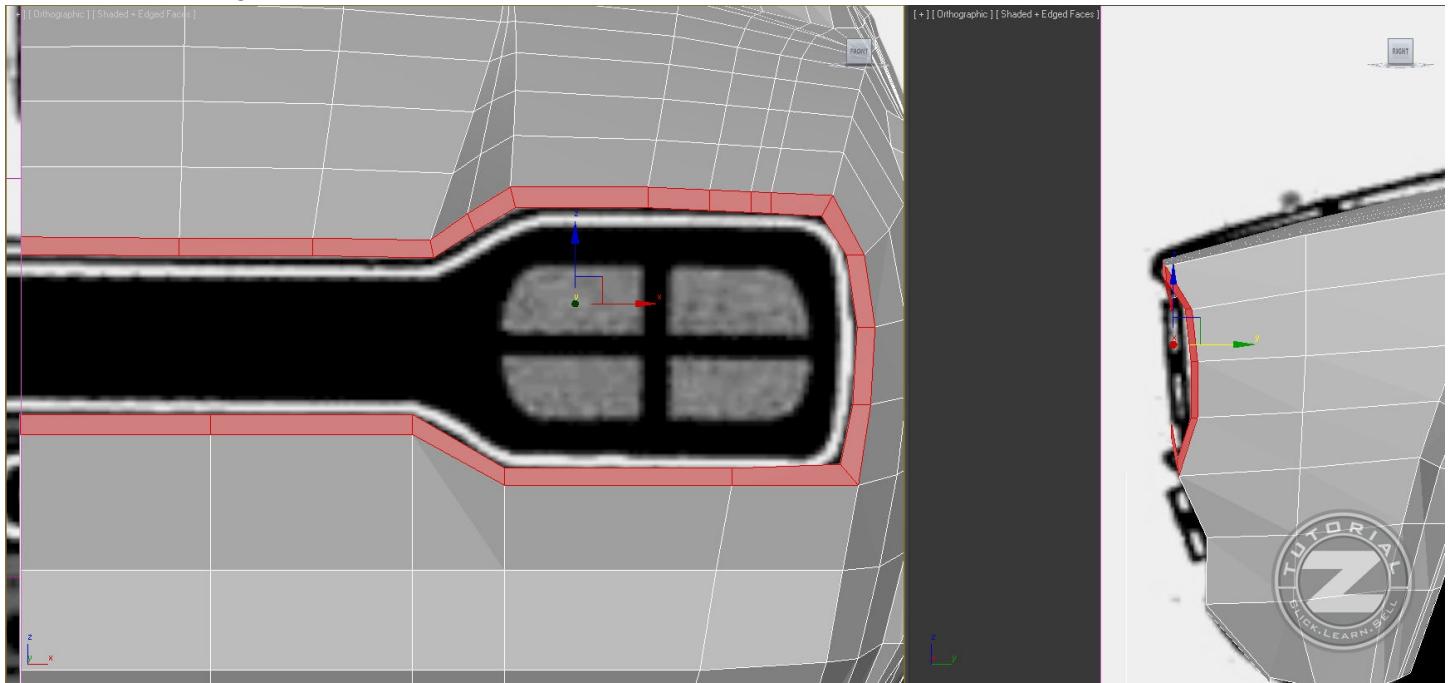
66. Apply a meshsmooth on your model and check it. If you have the same mesh as me, everything is good. If not, go straight to our forum and ask for help



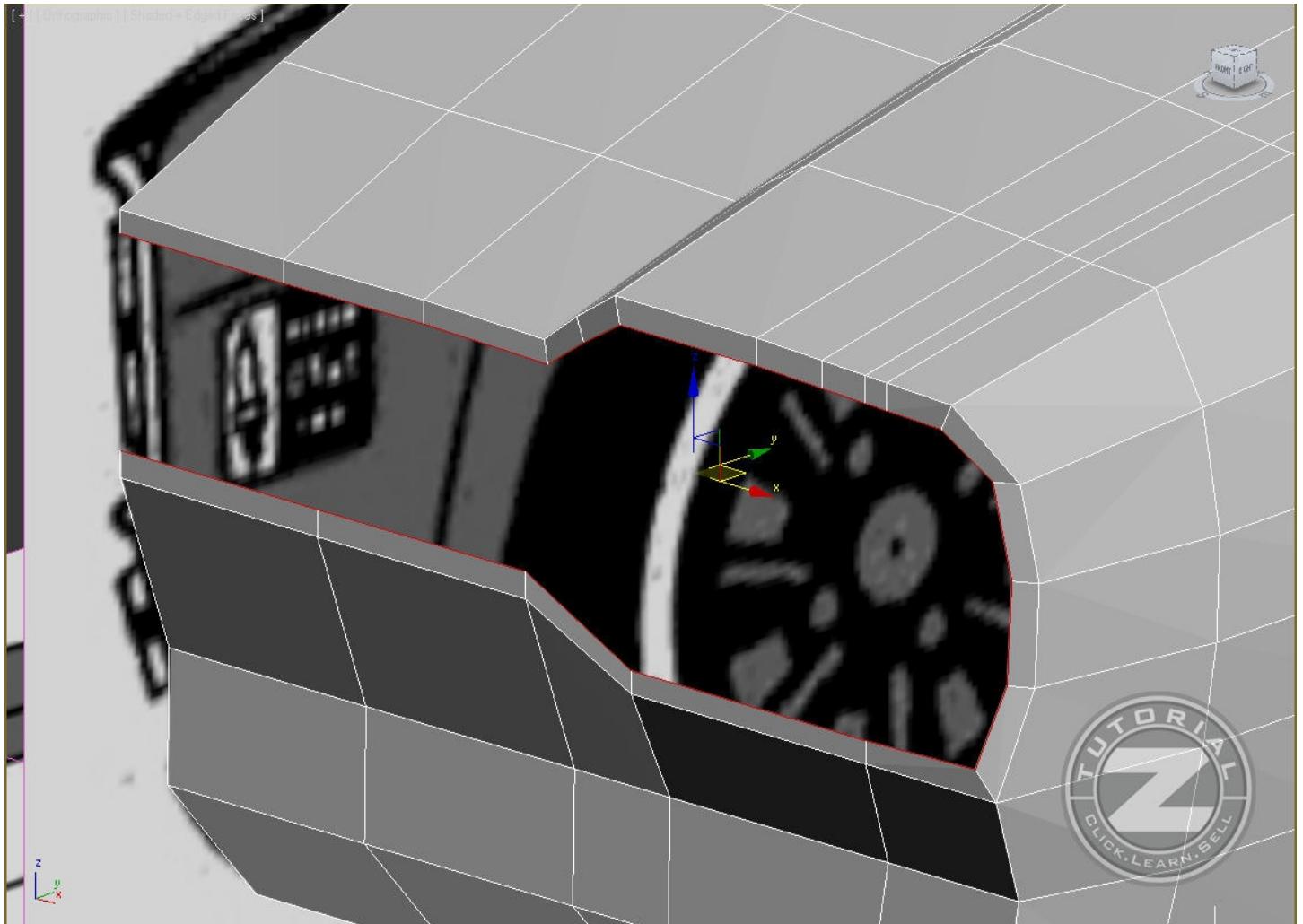
66b. Remove these edges and then remove the vertices too :

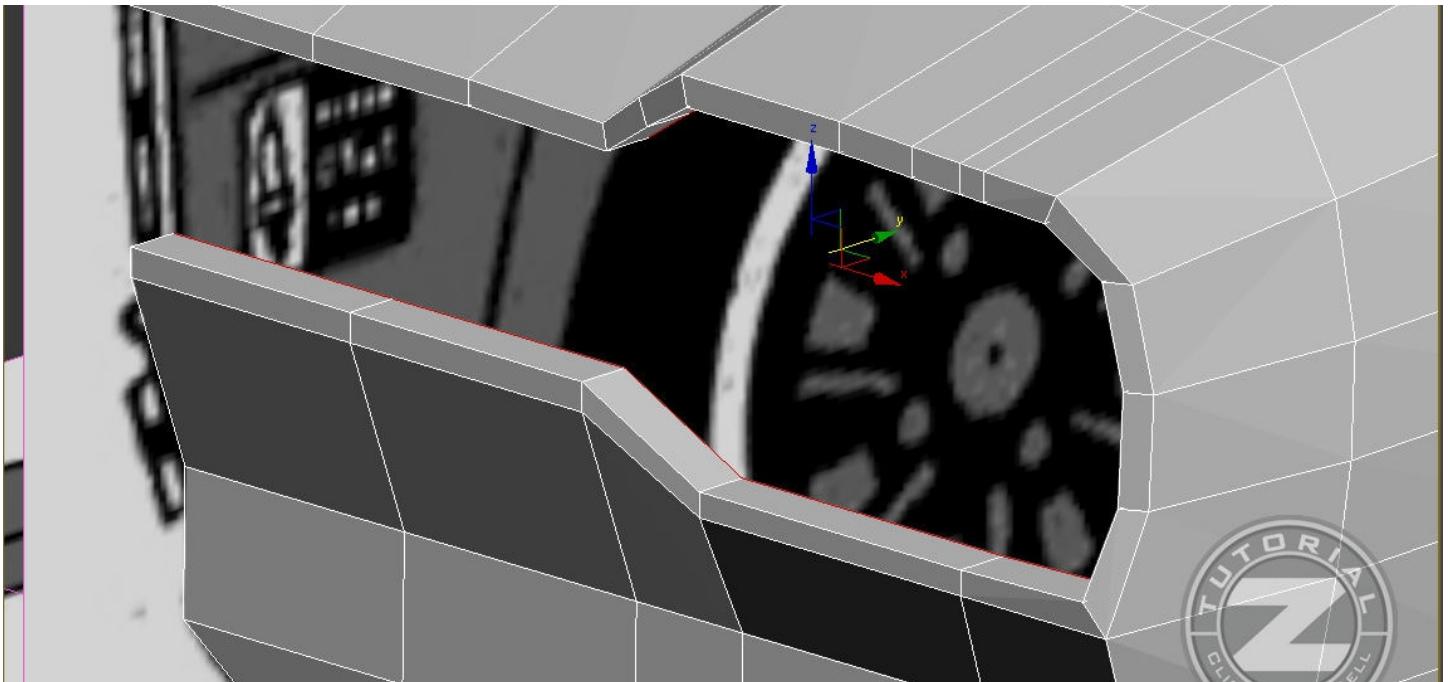


67. From this step we will begin to make the details starting from the front of the car. If you are not too lazy, take a look at some reference images with the car, and you will notice that the headlights are round and not like in the blueprint. Again we need to improvise. First make this "border" :

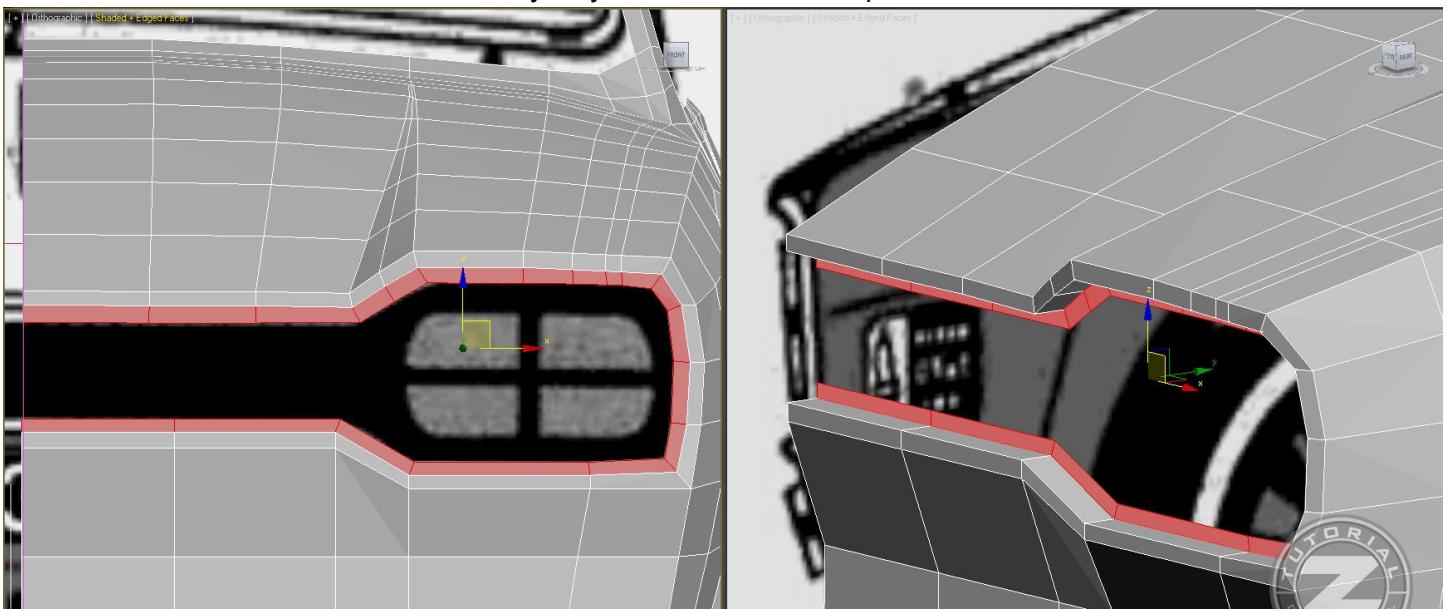


68. Once you are done, select the same edge and drag them a little bit to the interior (by holding the shift button, of course)

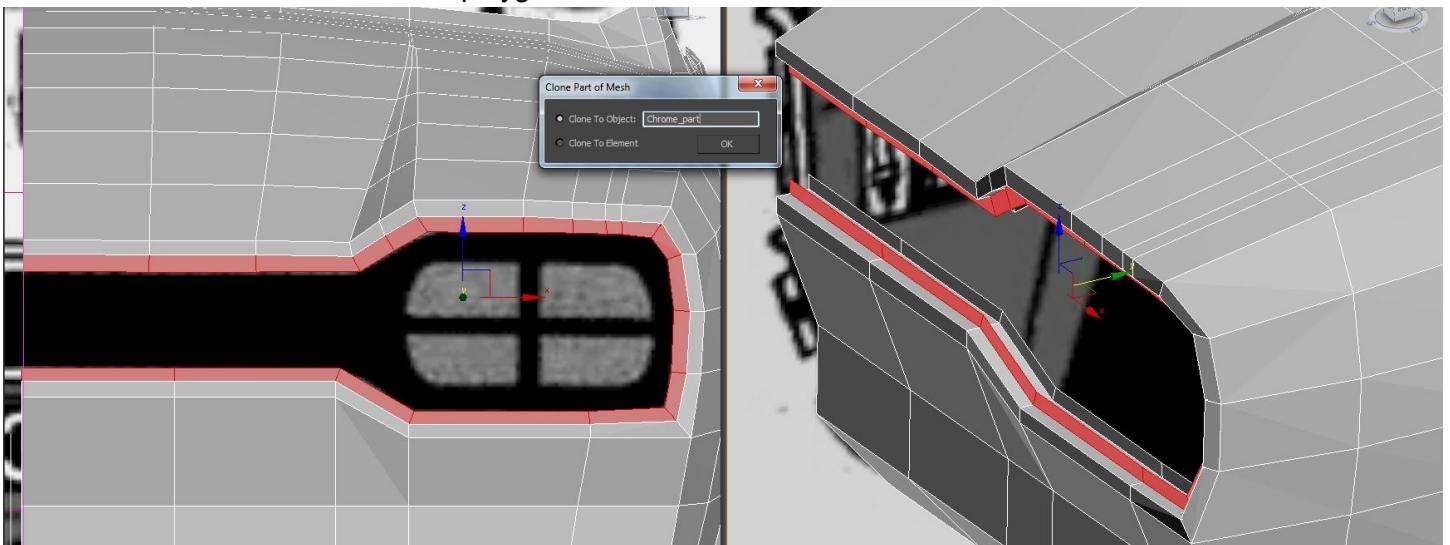




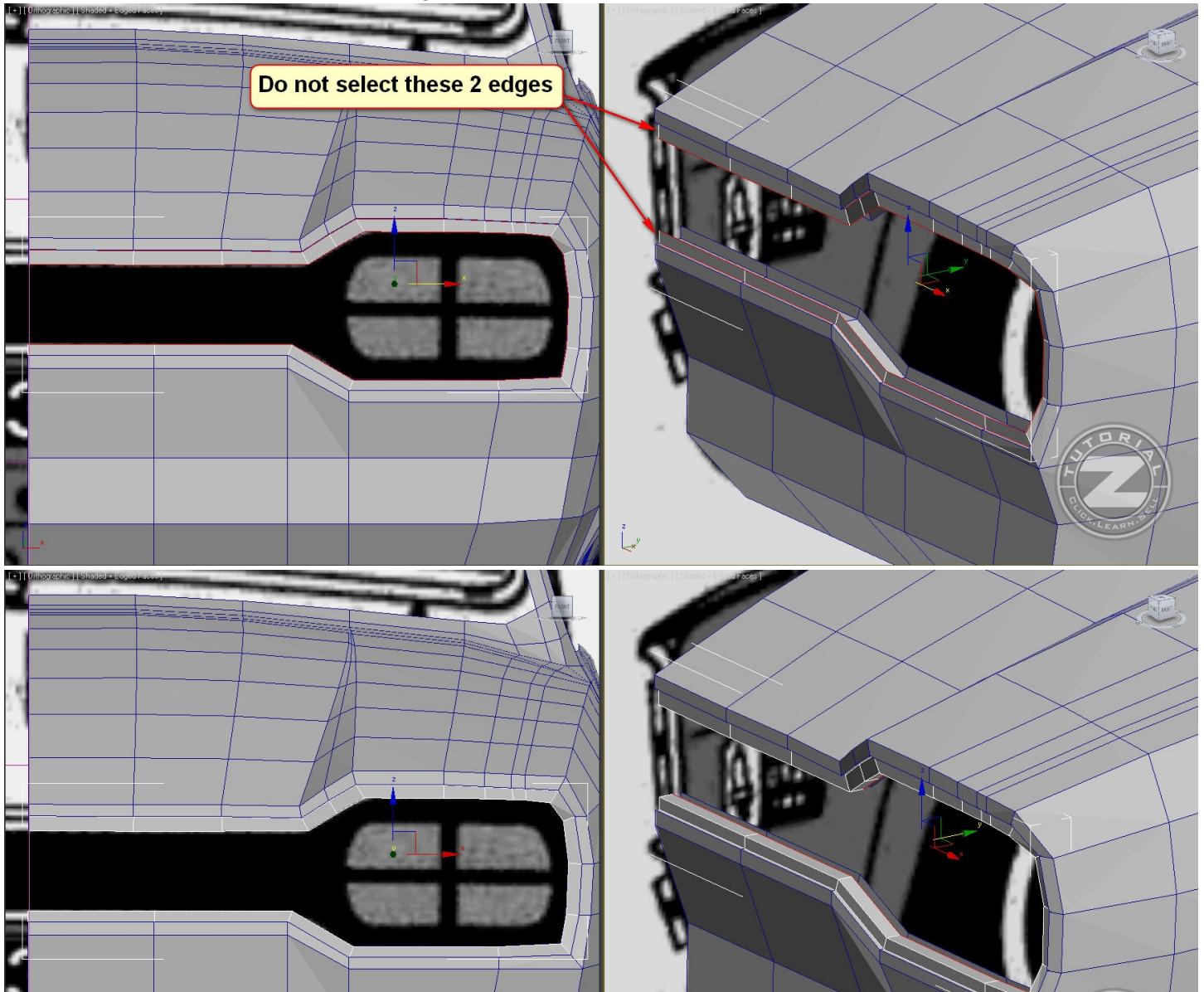
69. Now make another “border” in the say way as we did at the step 67th :



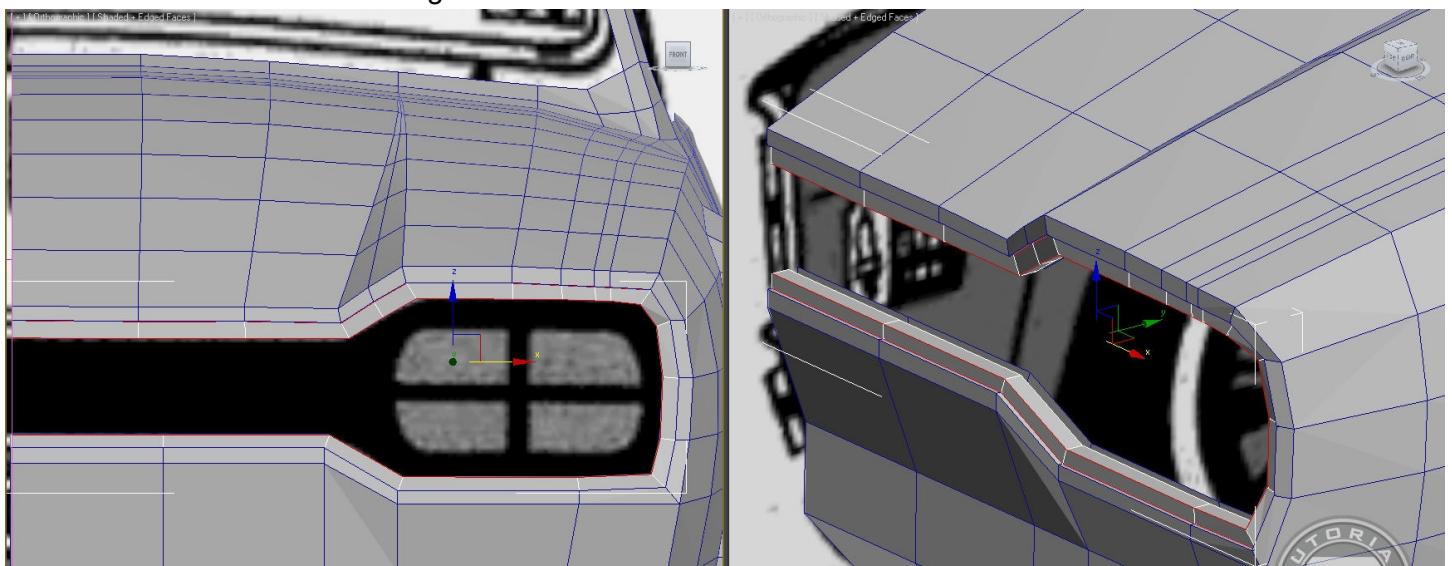
70. Select those polygons that I have selected in the last image, the hold the shift button and drag them outward, to create a clone of those polygons :

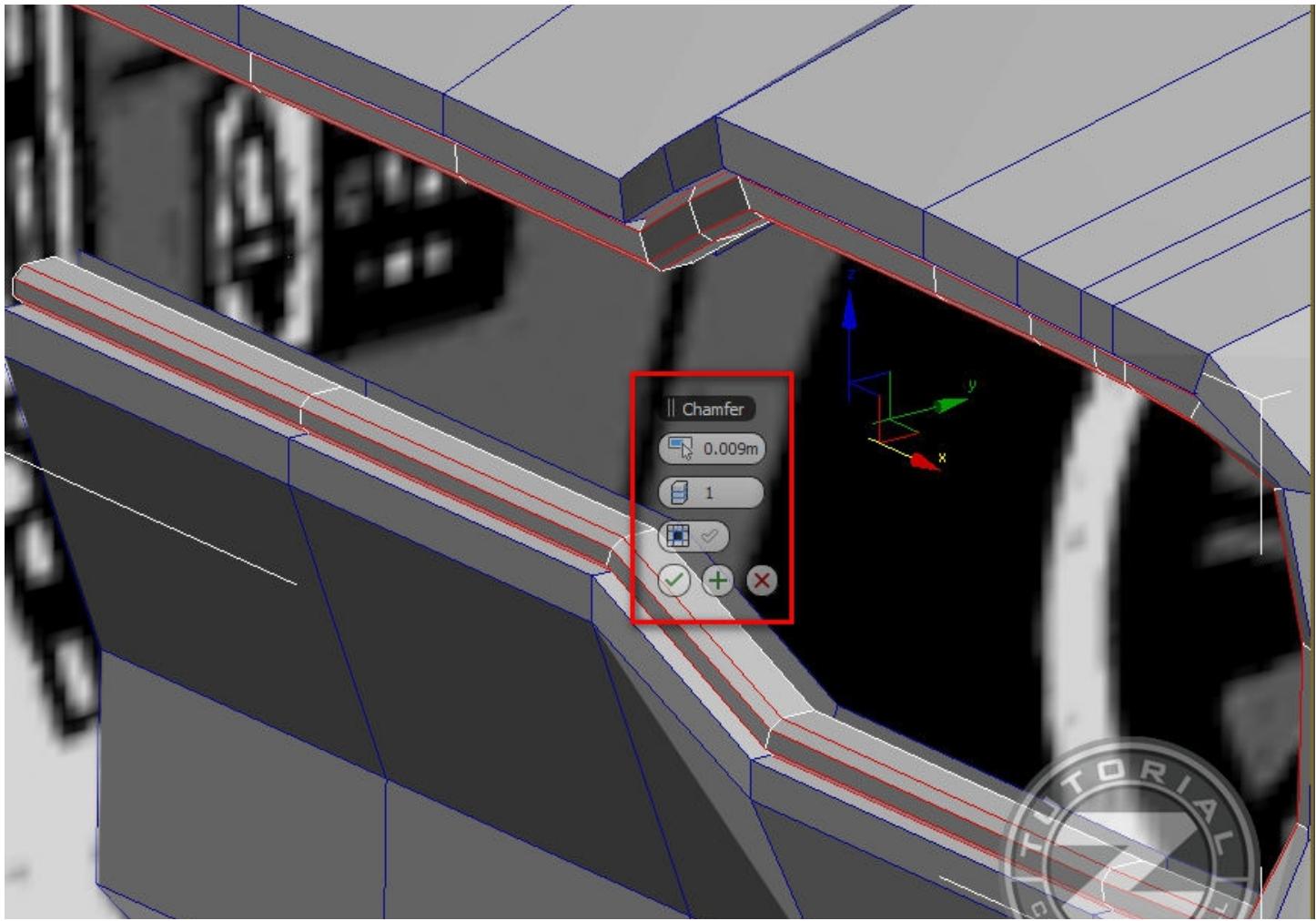


71. select the same edges as me. I have marked on the image which one you don't need to select. When you are done. Hold the shift button and drag them backwards :

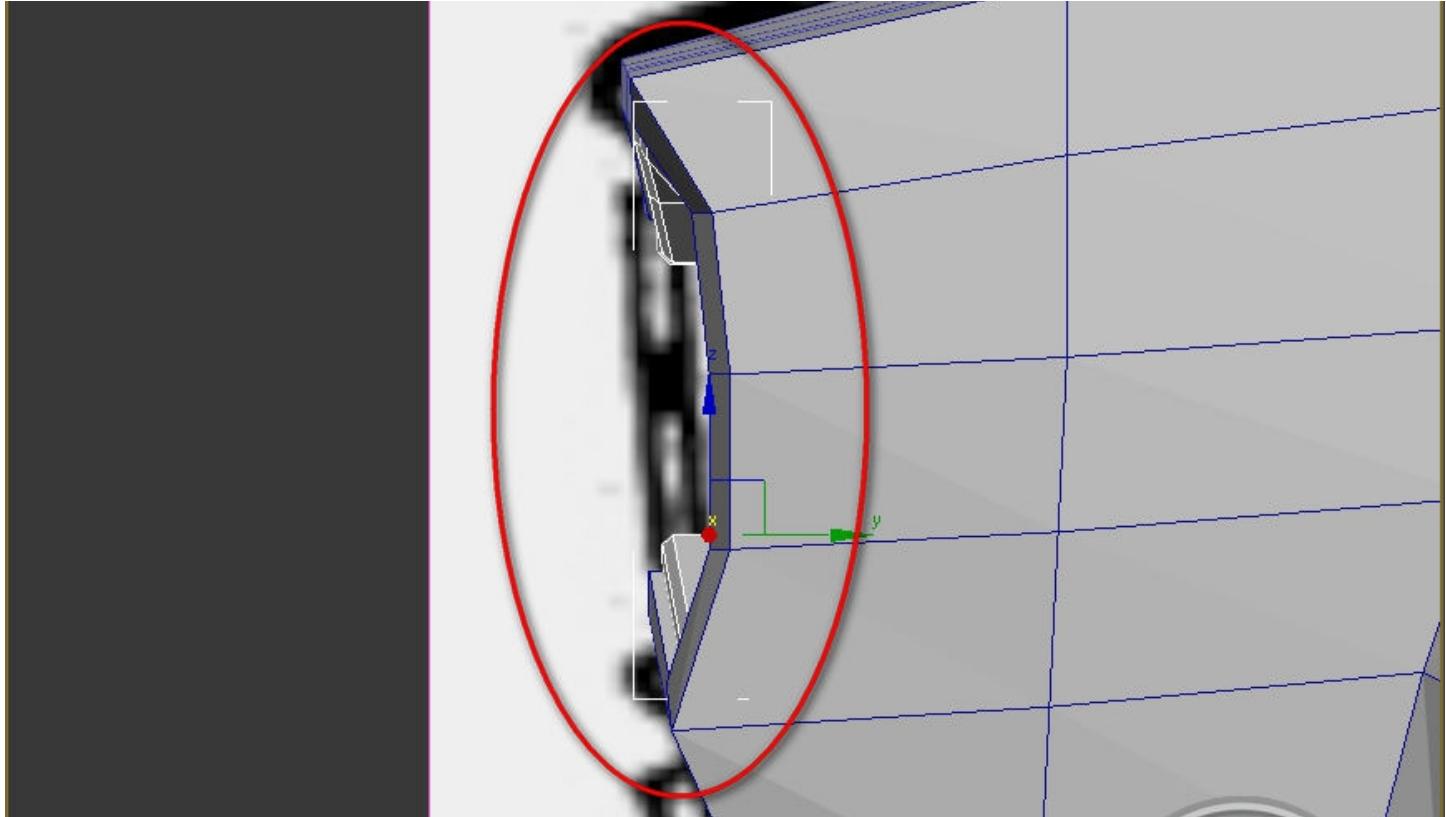


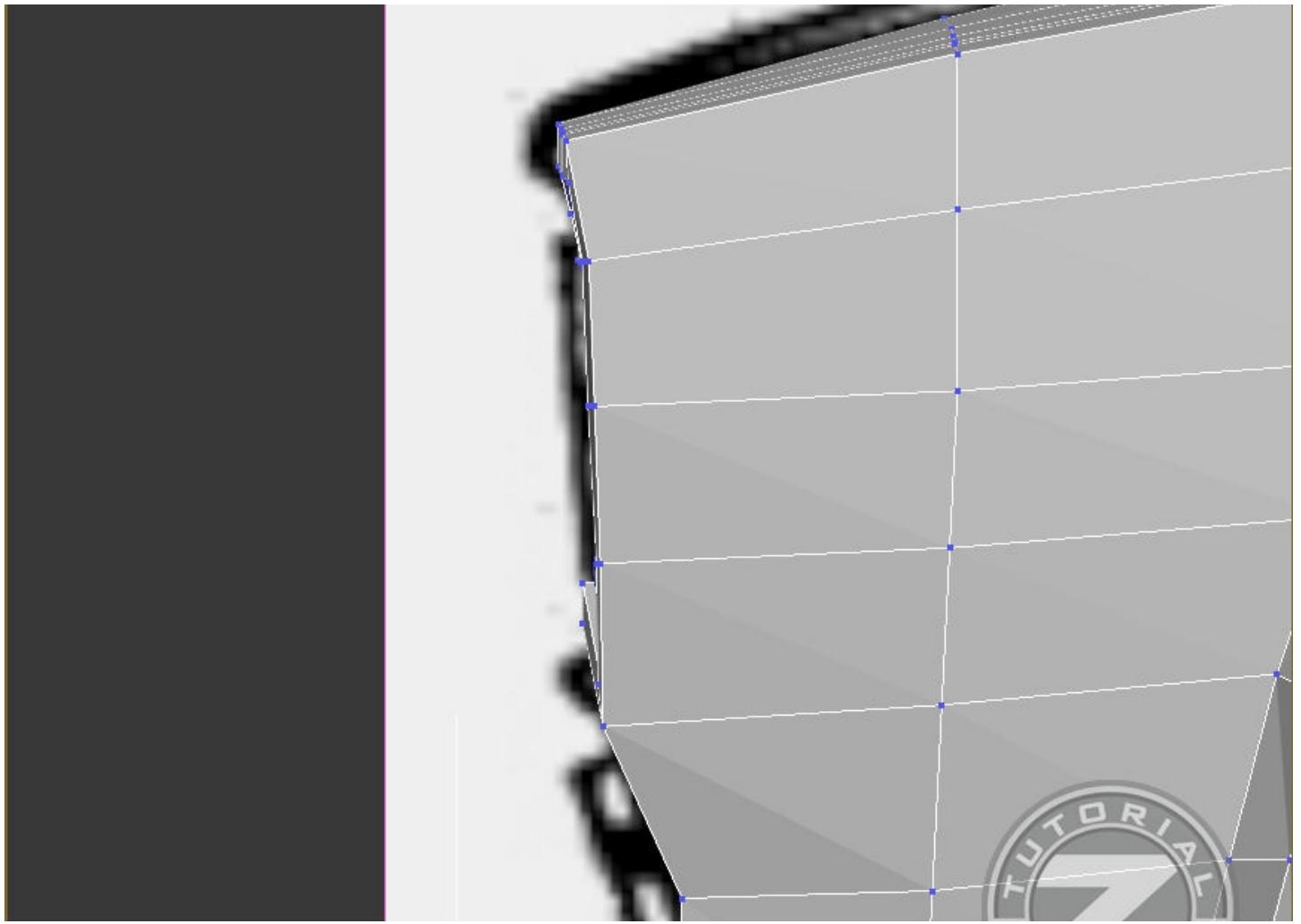
72. Select and chamfer these edge :



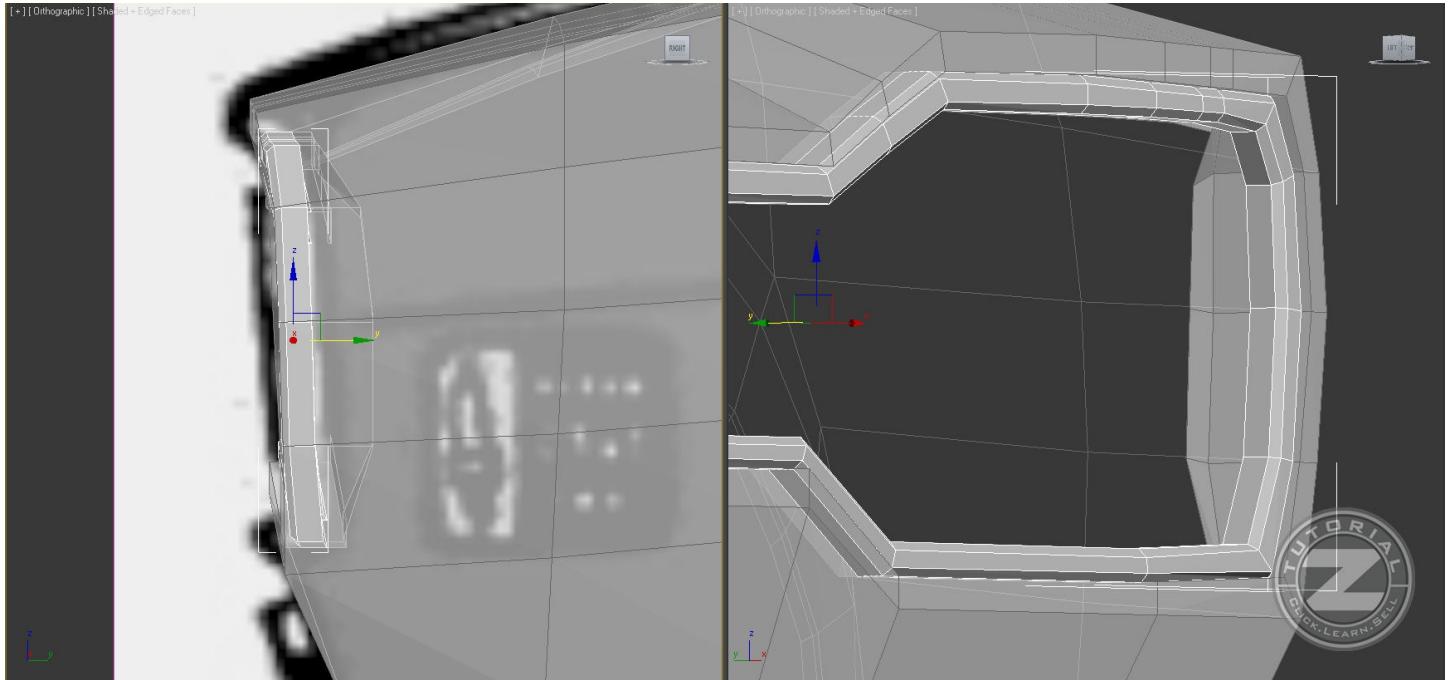


73. We have made a small mistakes. Well, it happens when the blueprint is not accurate. If you watch the front part of the car, you will notice that the shape of the front part, where the headlight is, is bended.

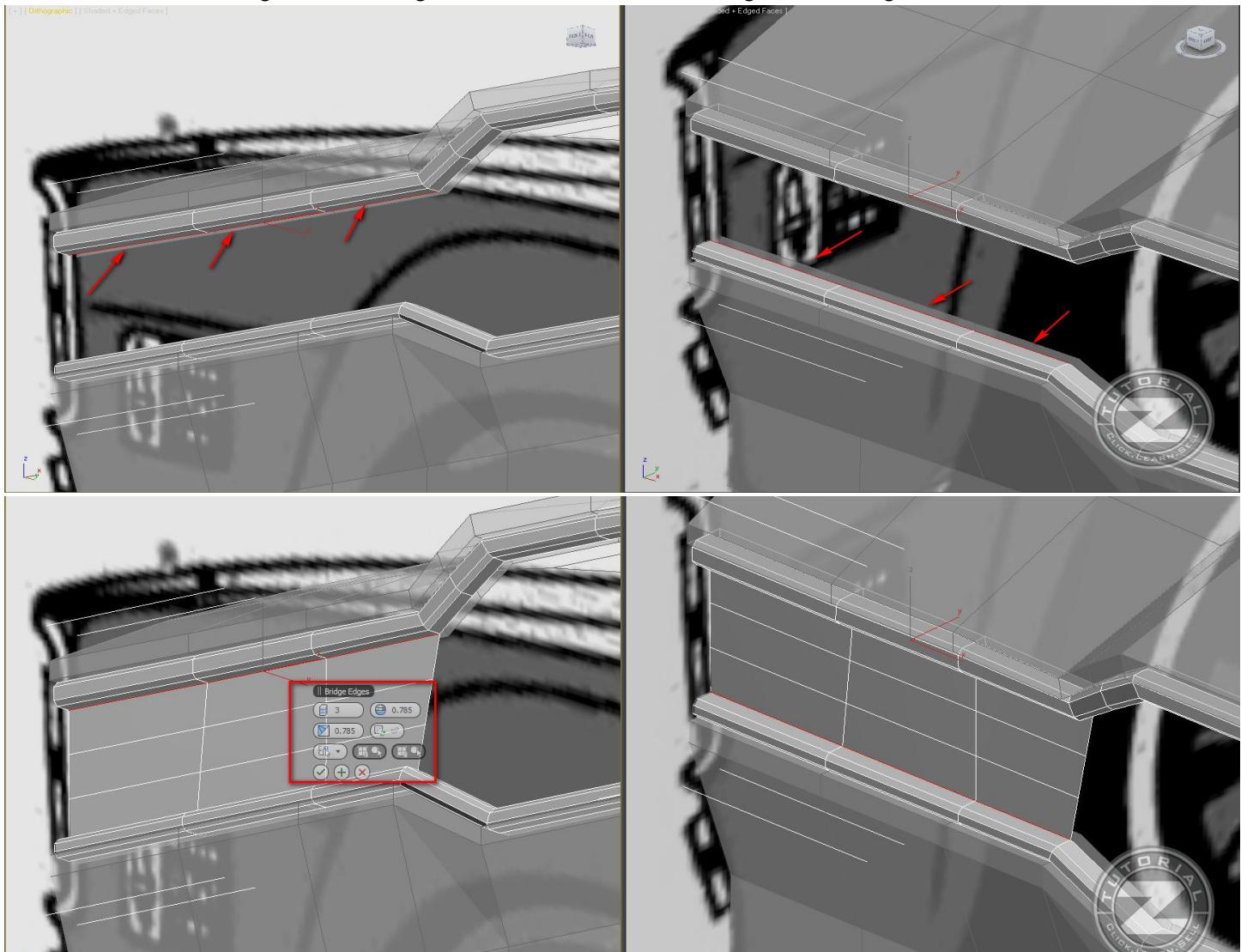




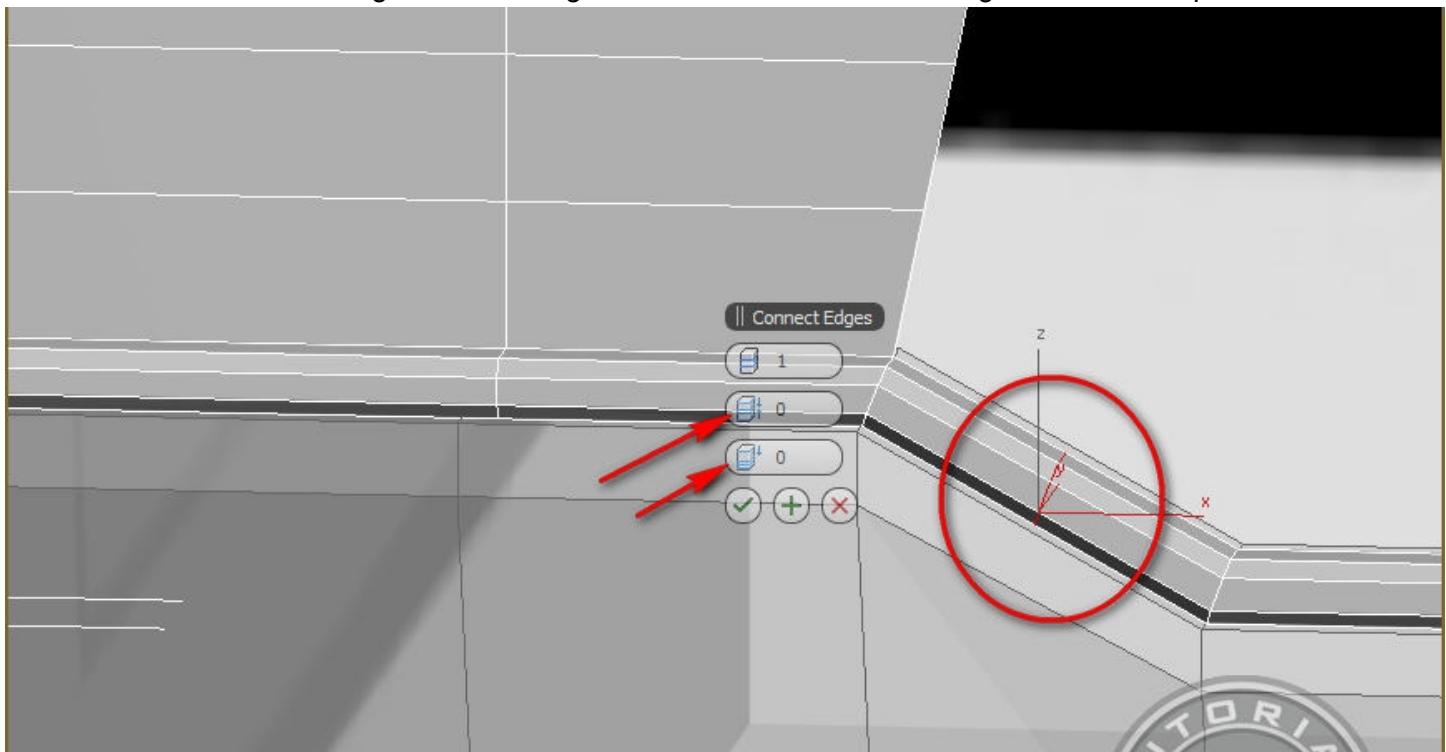
74. Using the side viewport, move the vertices as me. Use only the Y axis

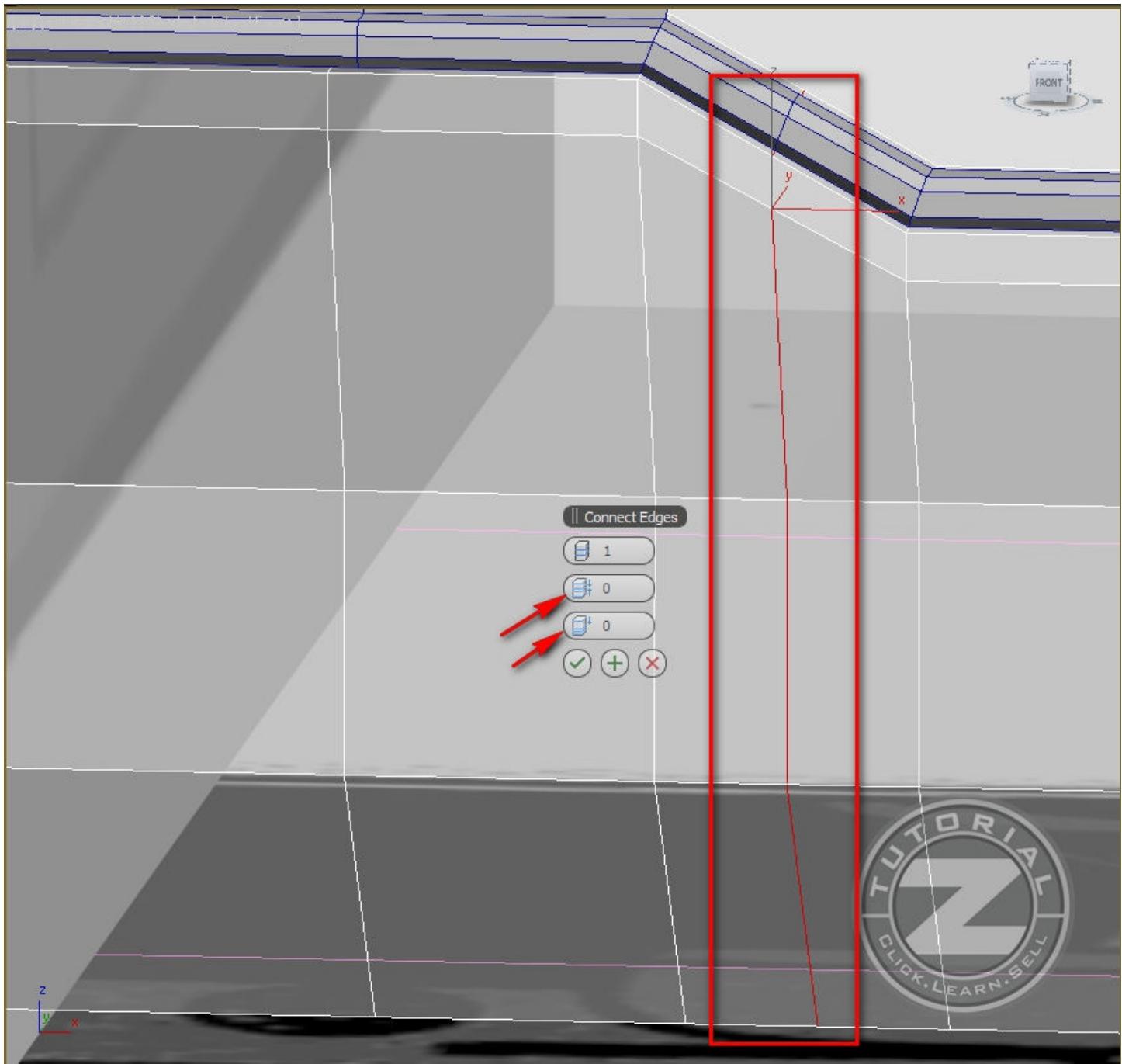


75. Now we are working on the front grill. So, first we need to “Bridge” these edges :

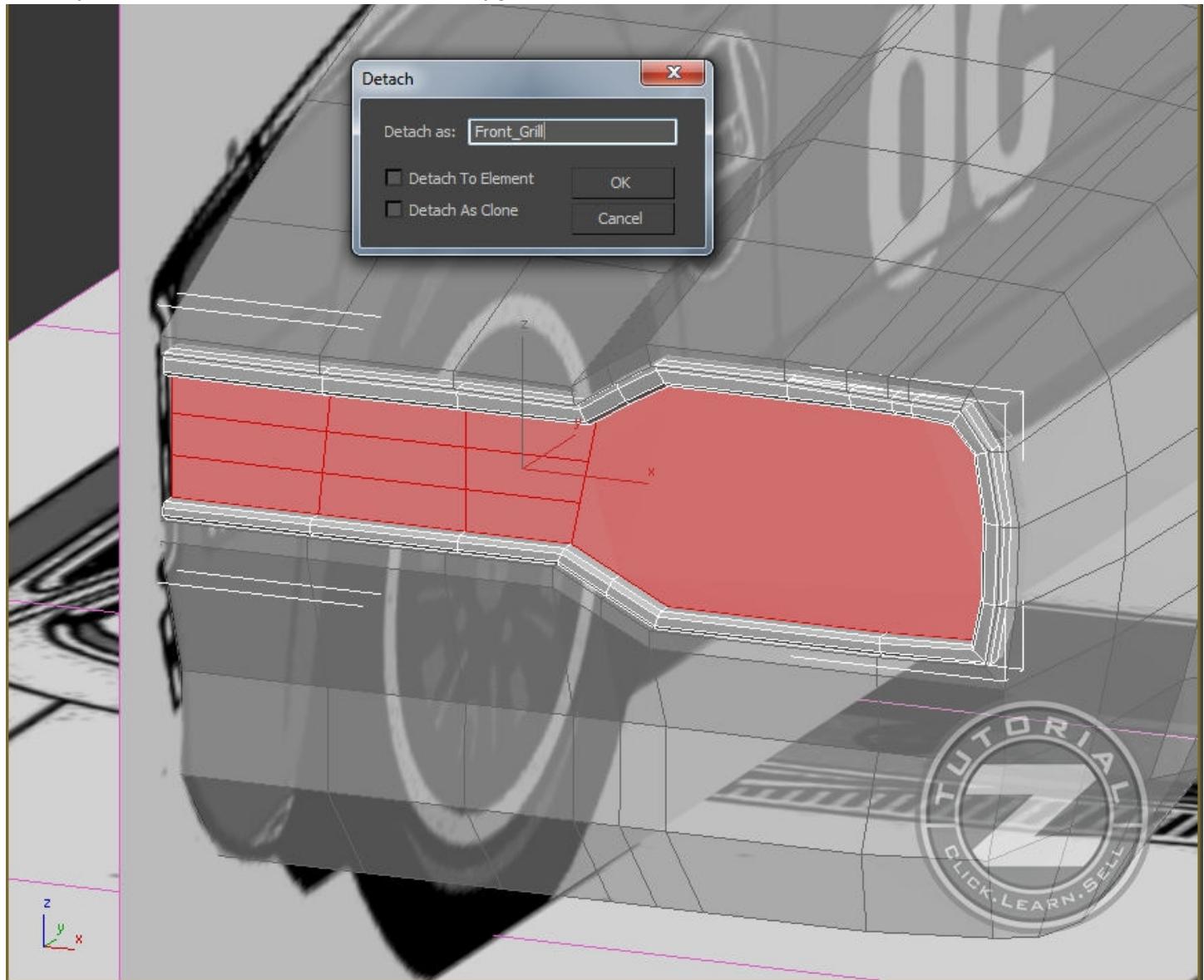


76. Just one more small thing before moving forward : Add a new tow of edges in the same places as I did :

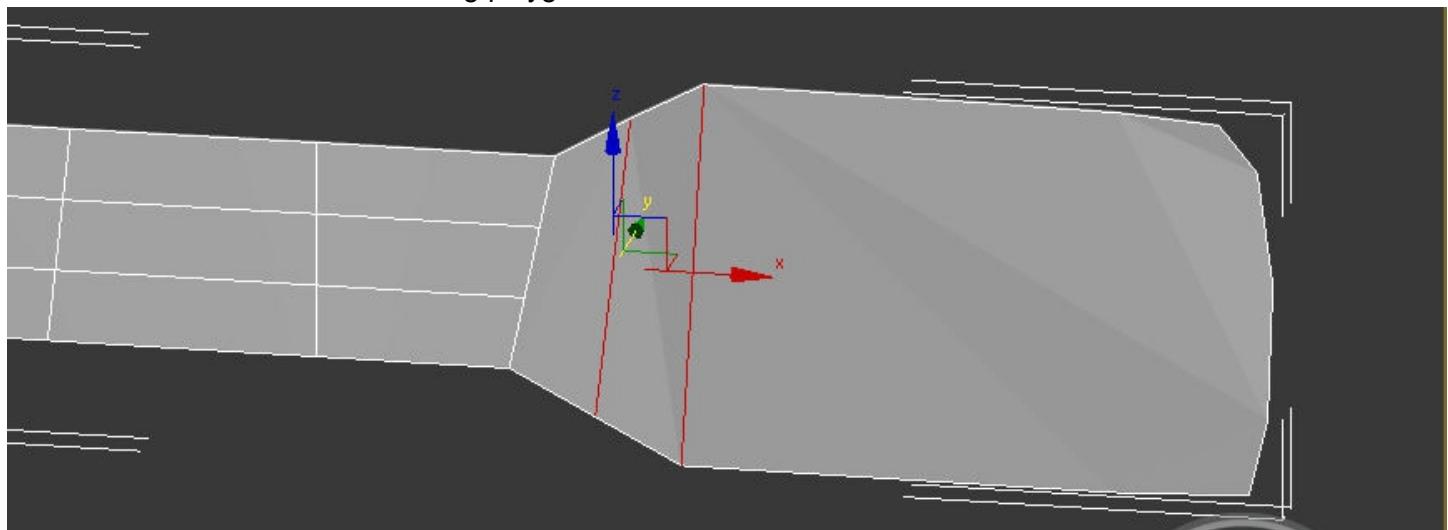


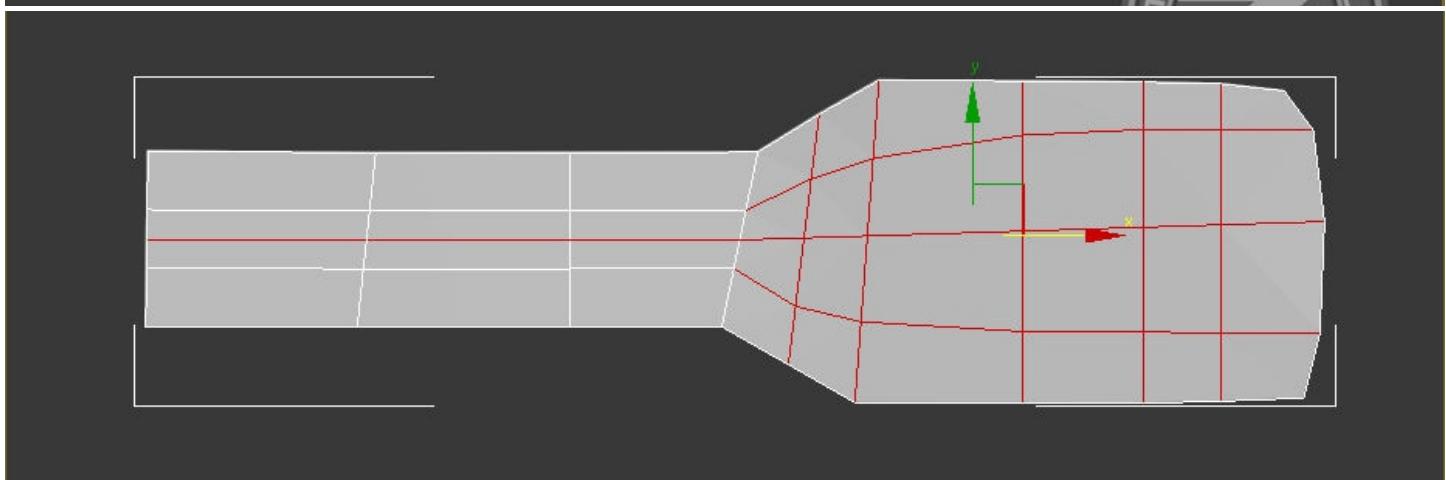
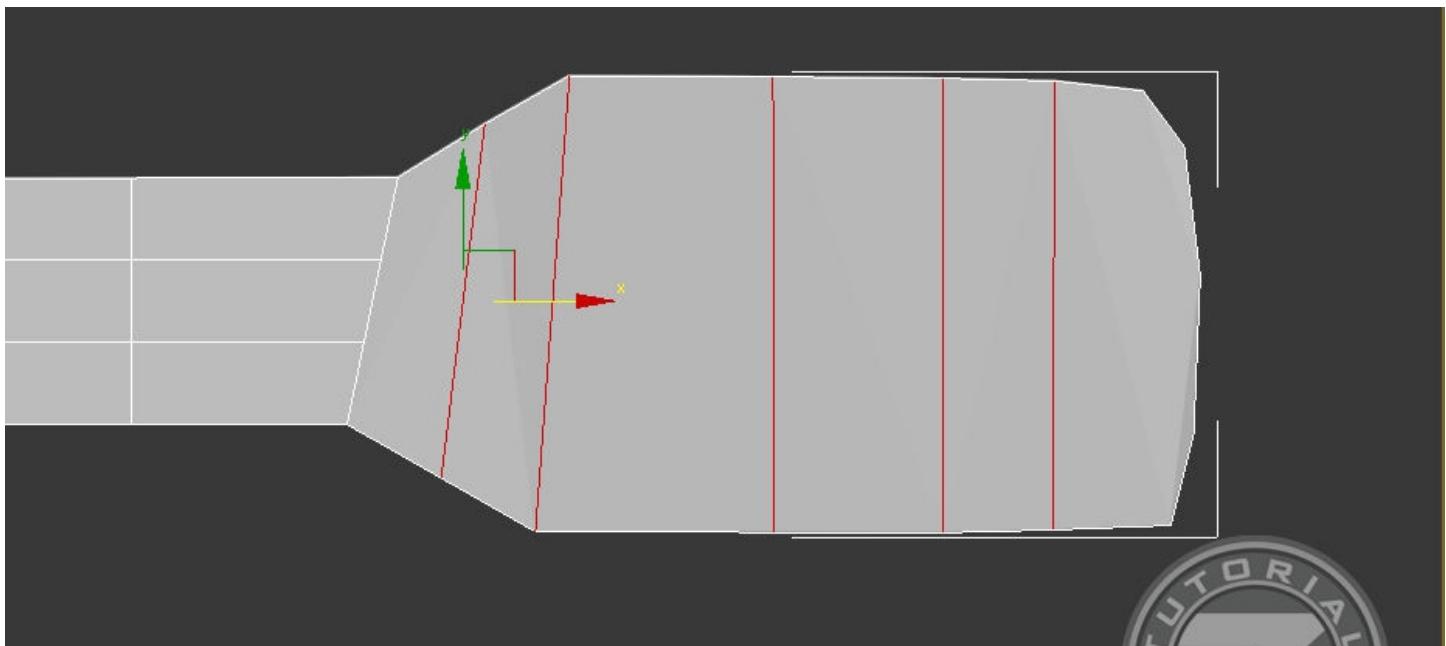


77. Let's go back to continue with our grill. Use the "Cap" tool in order to close that hole from the headlight. When you are done, detach the selected polygons :

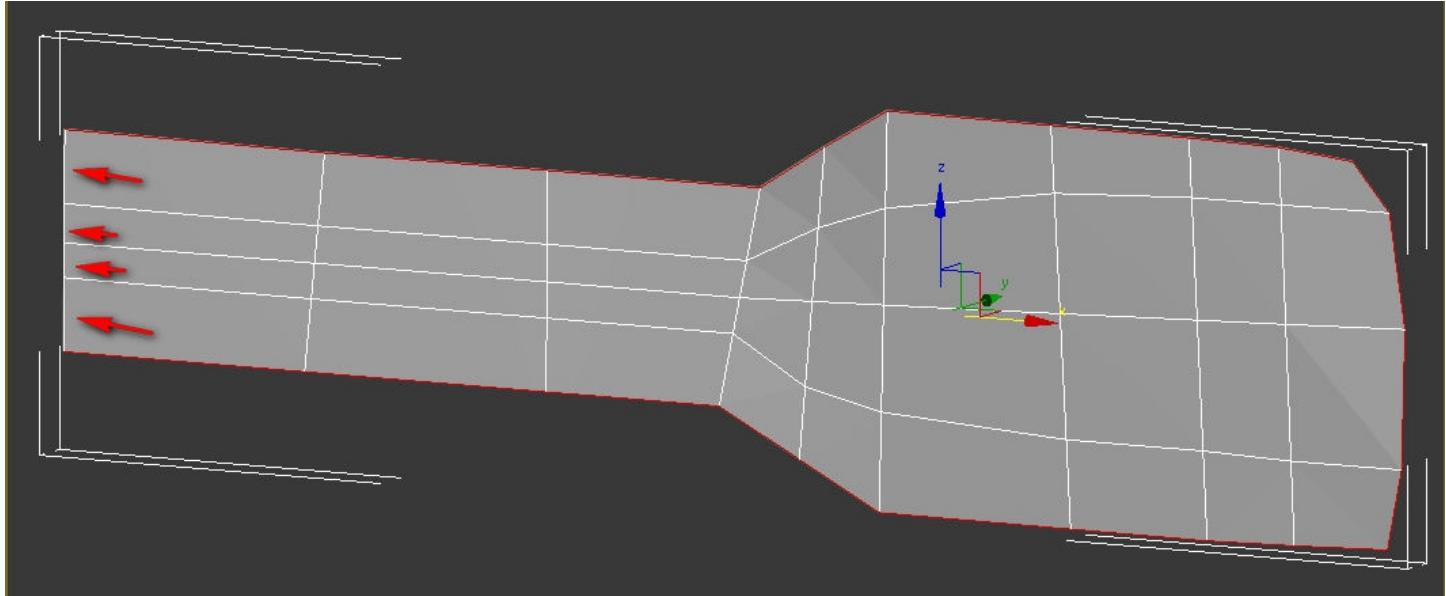


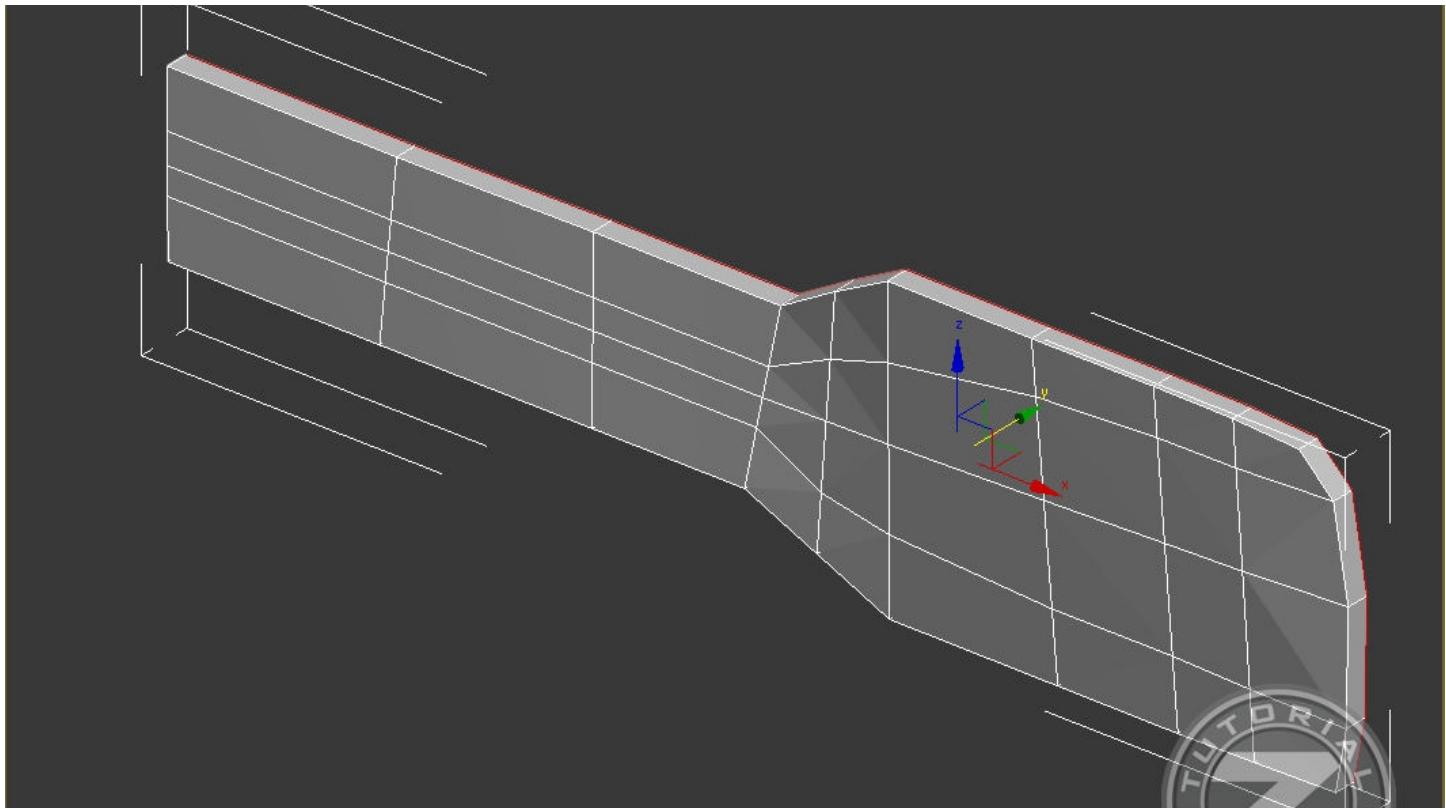
78. When you are done, hide everything except the grill (which is not yet a grill) . Use the cut tool and make the same wireframe as I did on that big polygon :



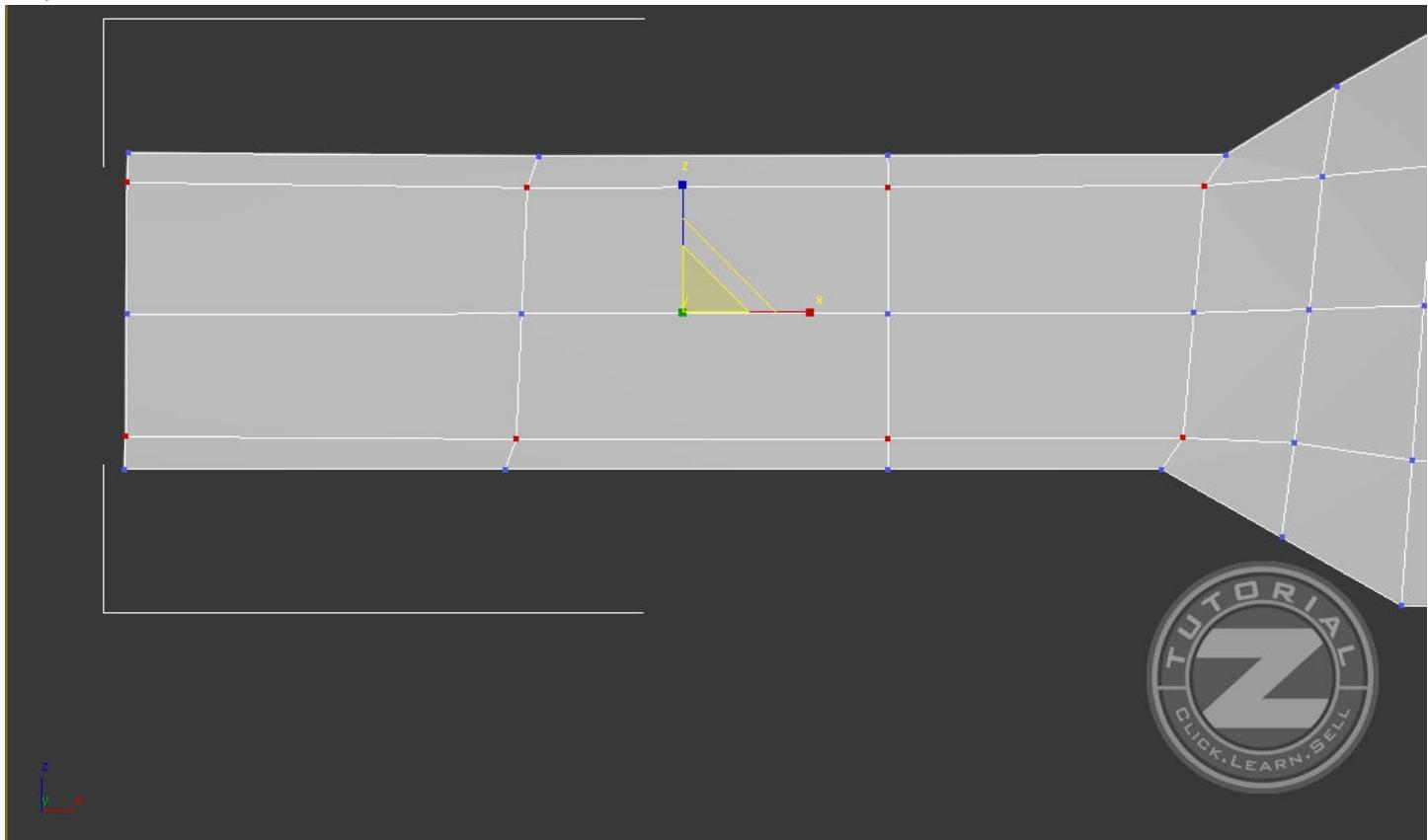


79. Select the entire border, except those edges that I have marked. Then Drag the backwards a little bit :

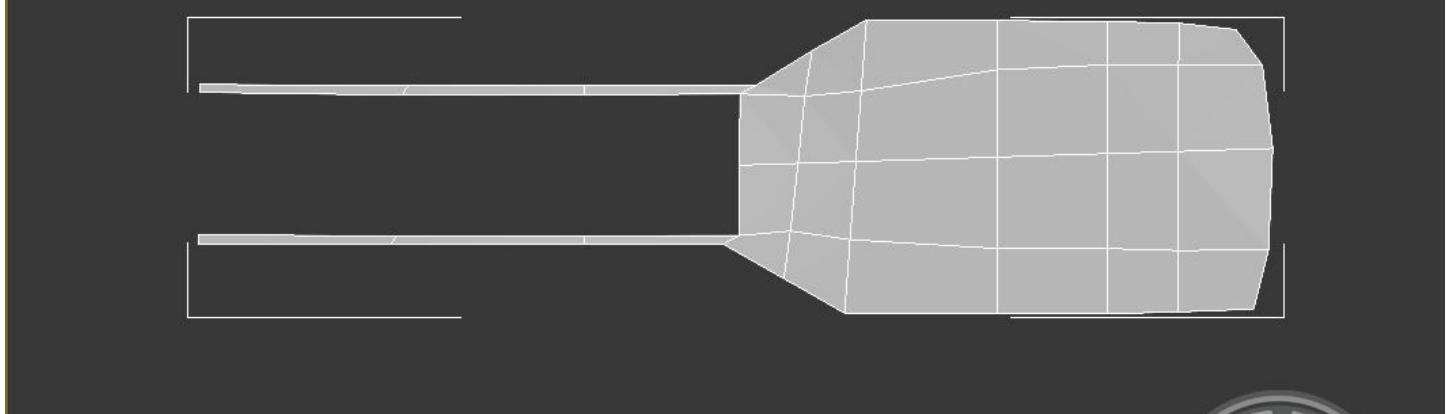
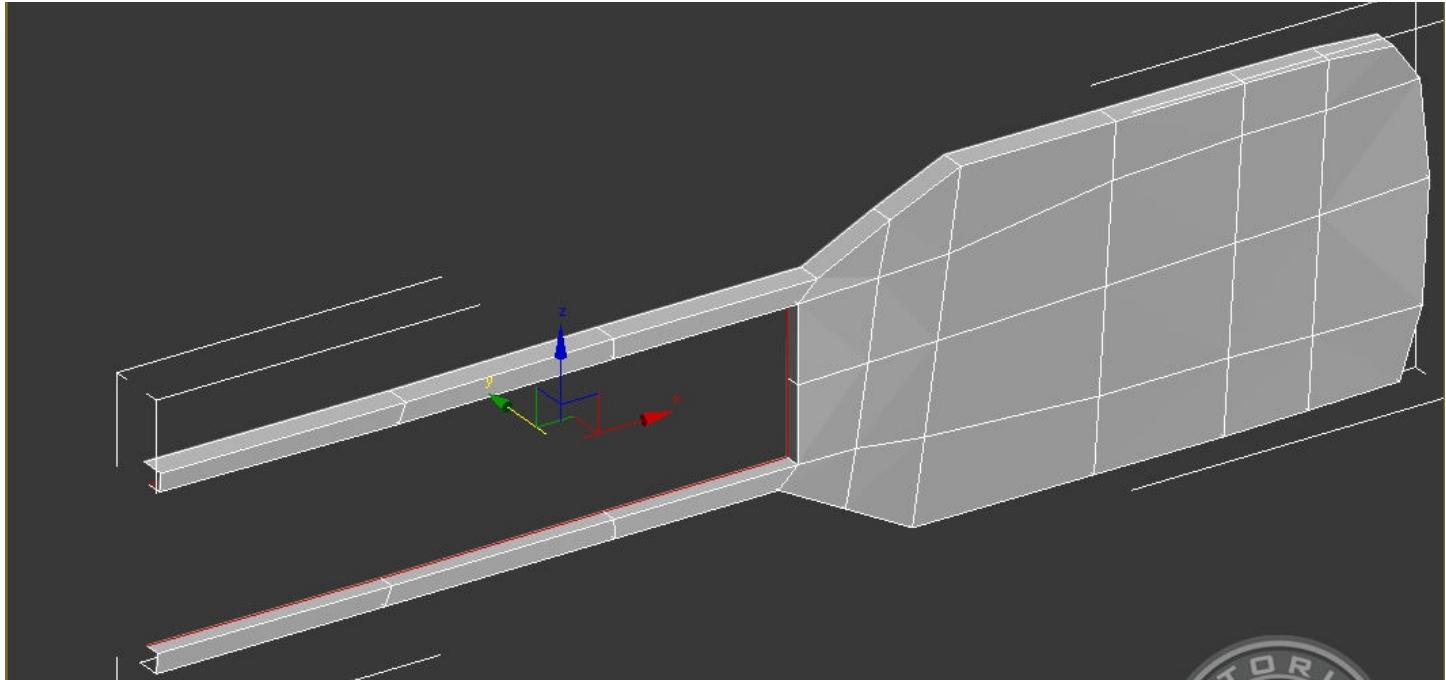
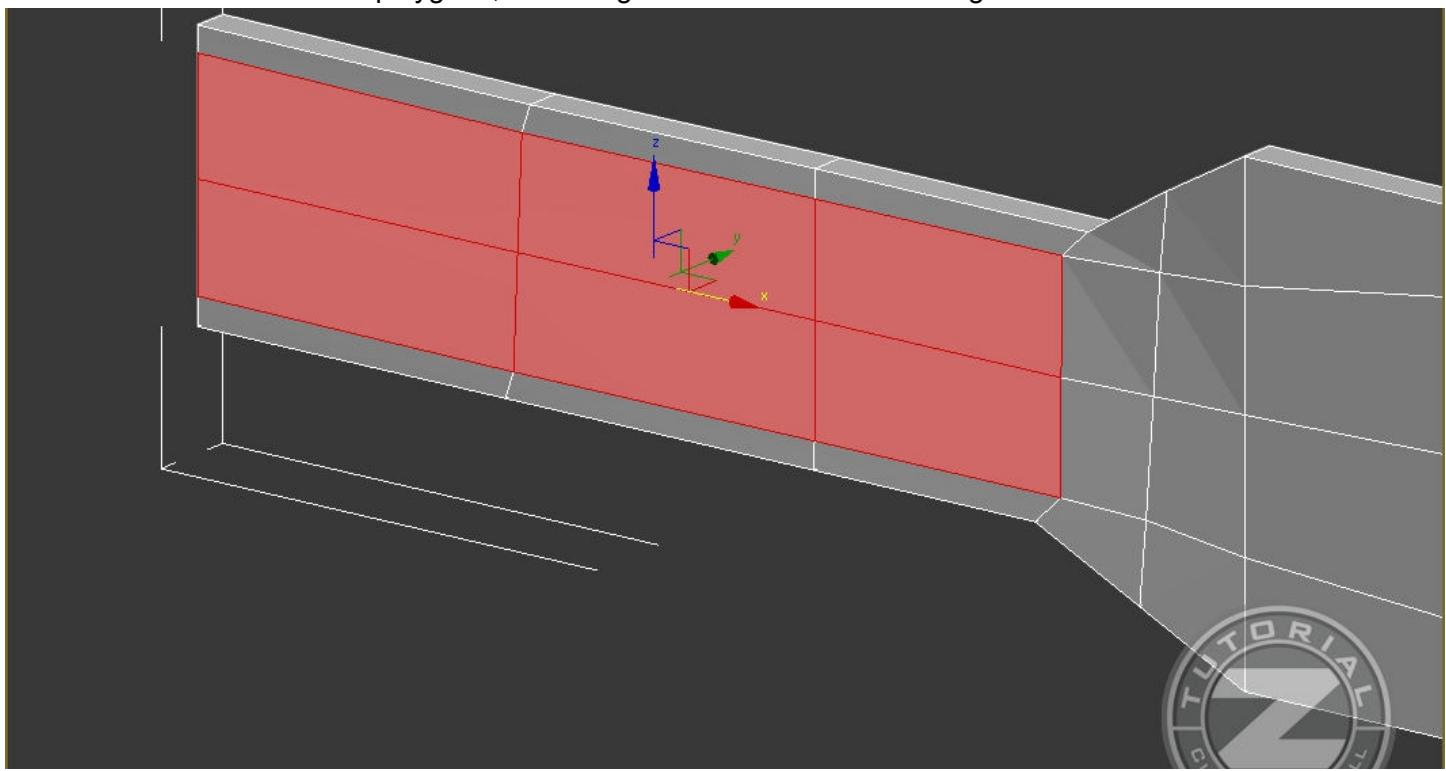




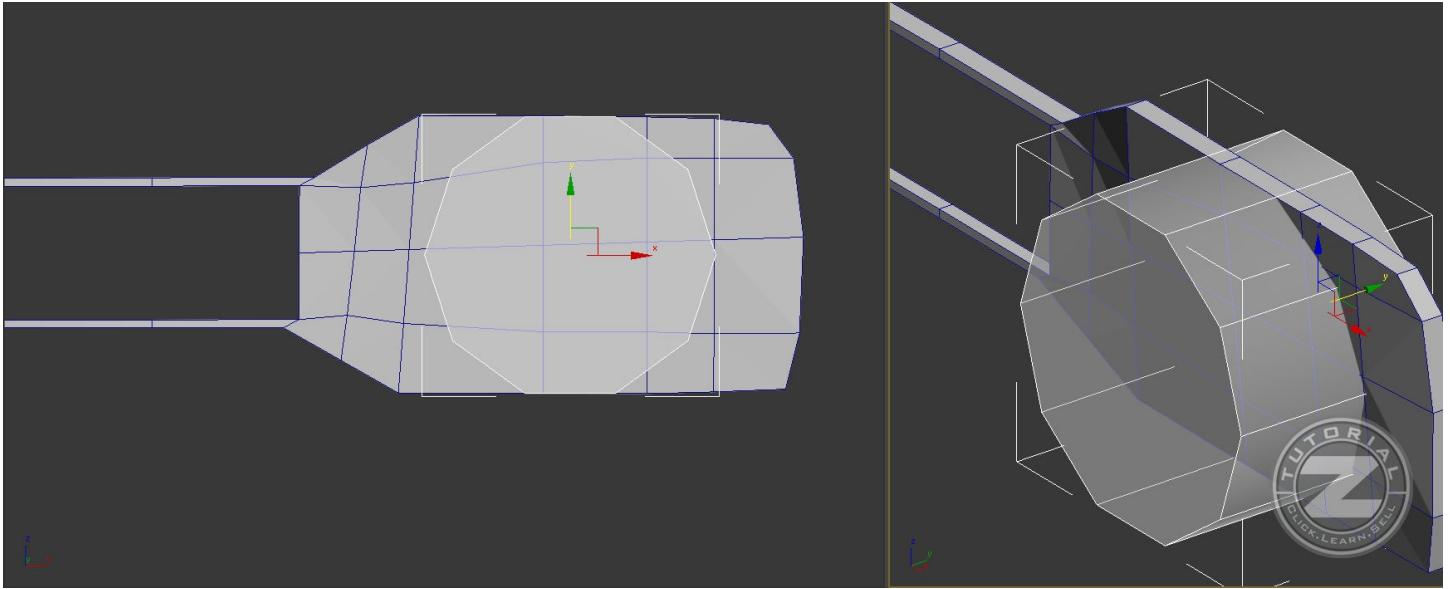
80. Select the same vertices, and use the scale tool, to split them a little bit more. In the front viewport, use only the Z axis :



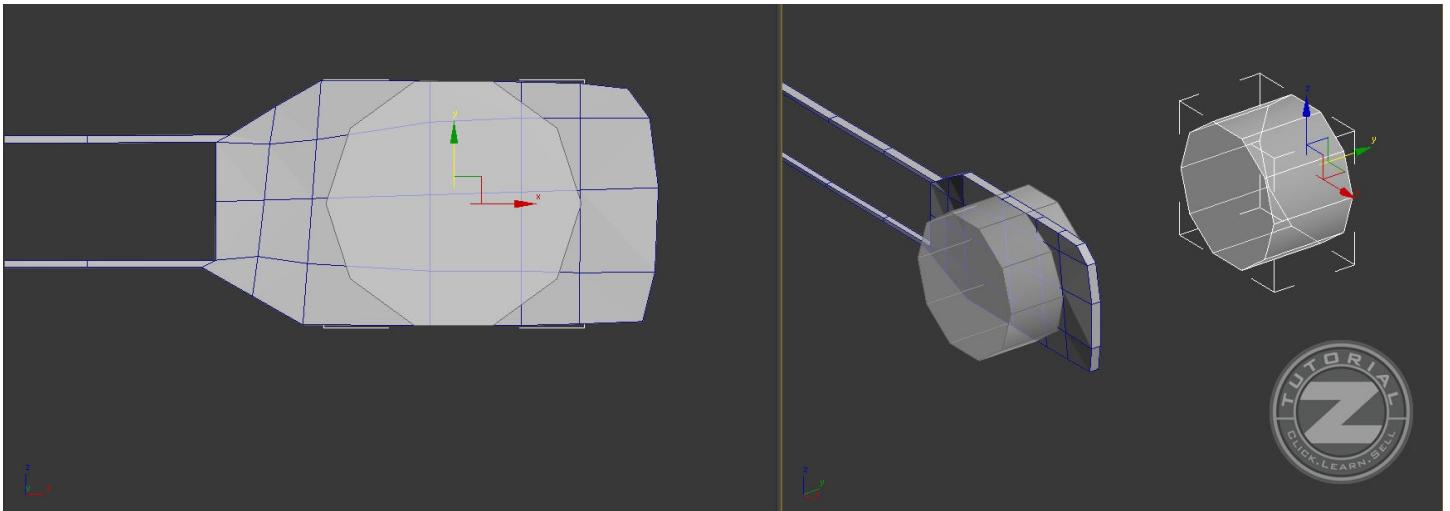
81. Now delete the selected polygons, then drag backwards the interior edges :



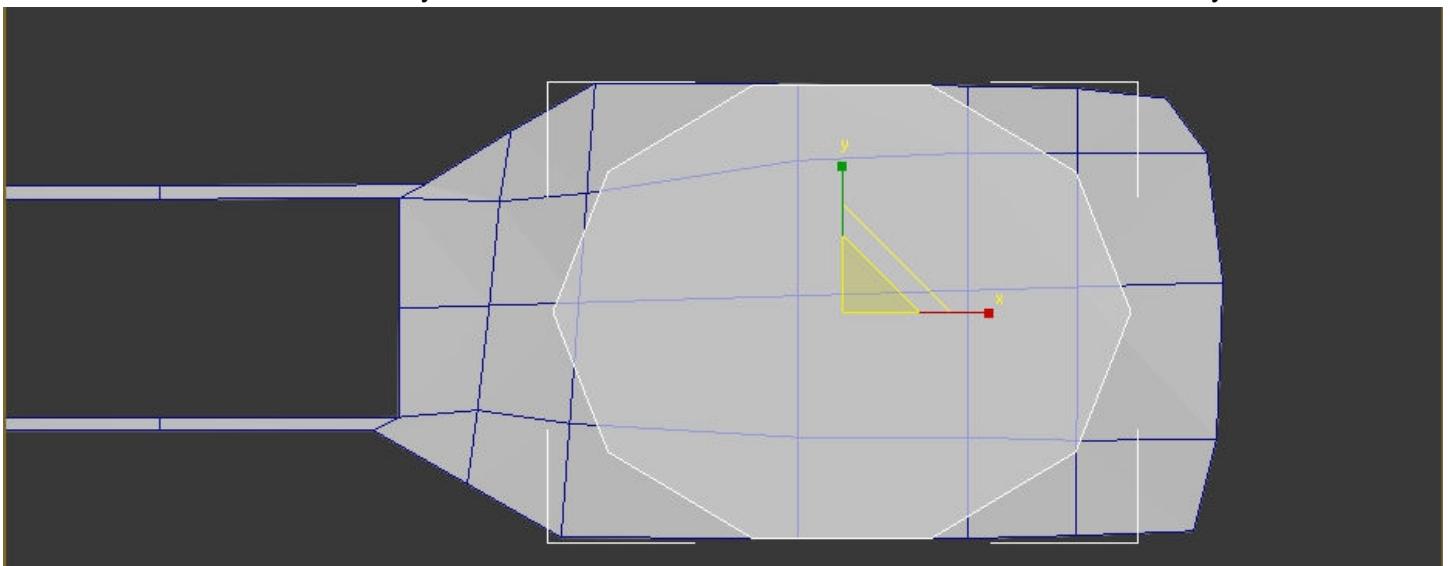
82. Here comes an interesting part. First, make a cylinder like me and be sure that it touches the top and the bottom part of the “grill”



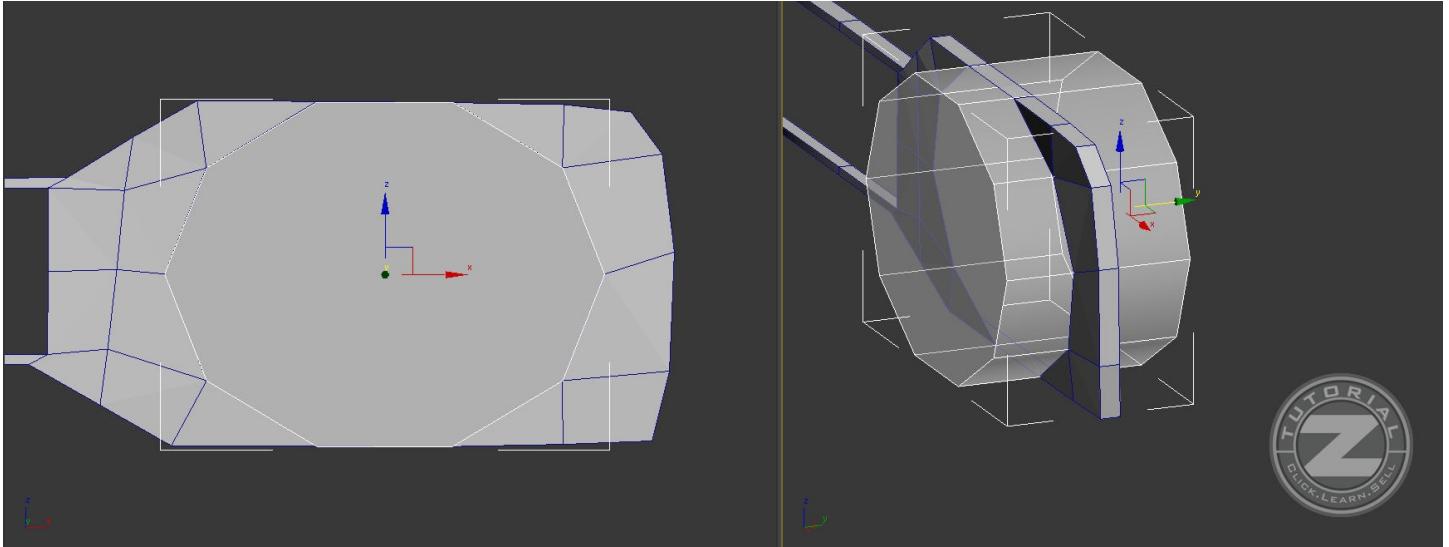
83. Create another copy of this cylinder and drag it backward , but just backwards (not left-right or up-down) , then hide it :



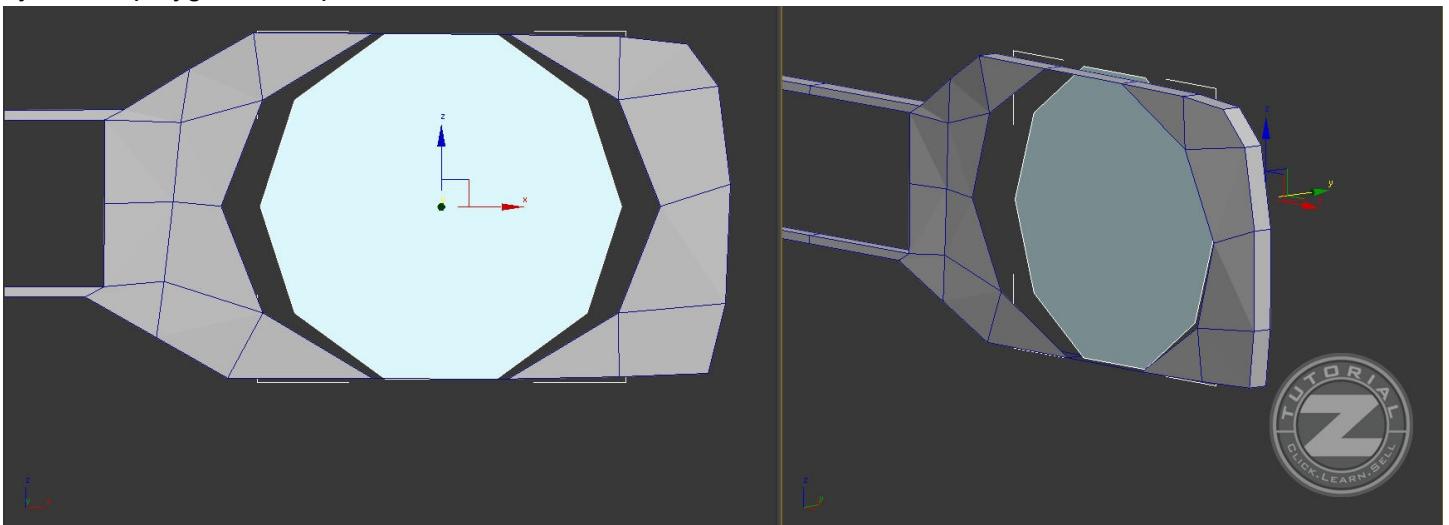
84. Now come back to the first cylinder and use the scale tool to stretch it a little bit horizontally :



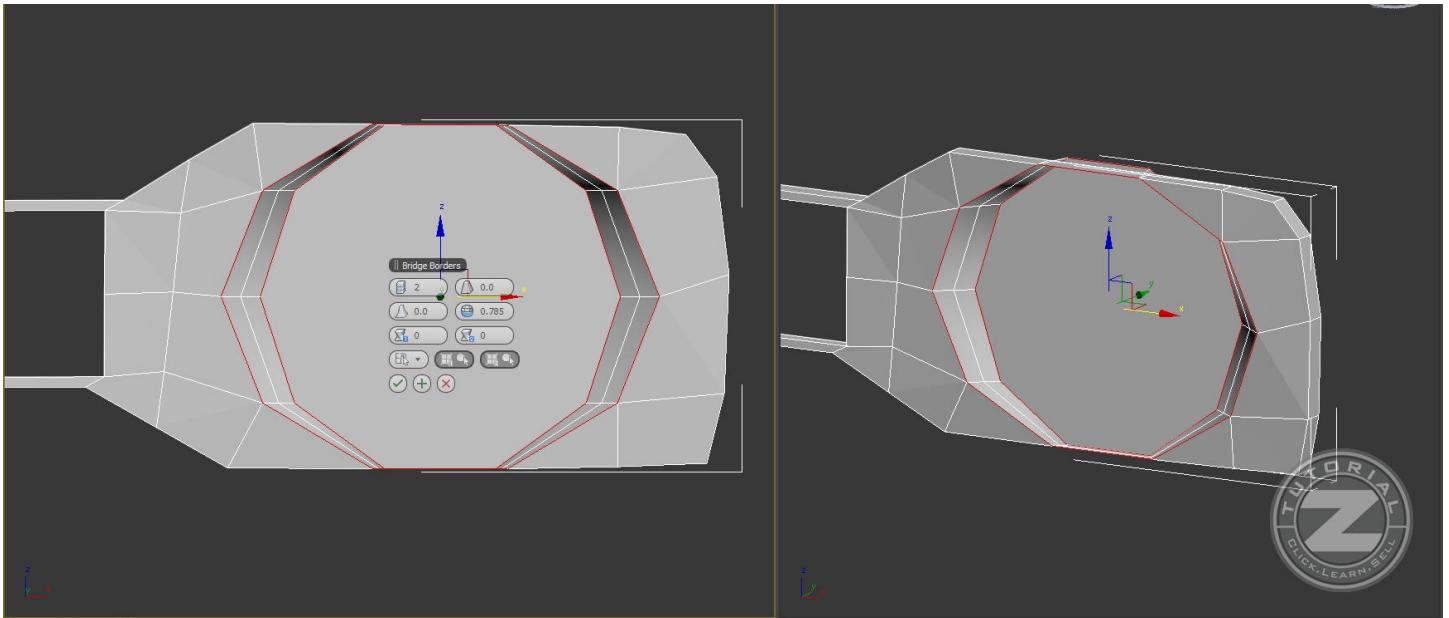
85. Put the vertices in the same way as I did and delete the polygons from interior in order to make a hole :



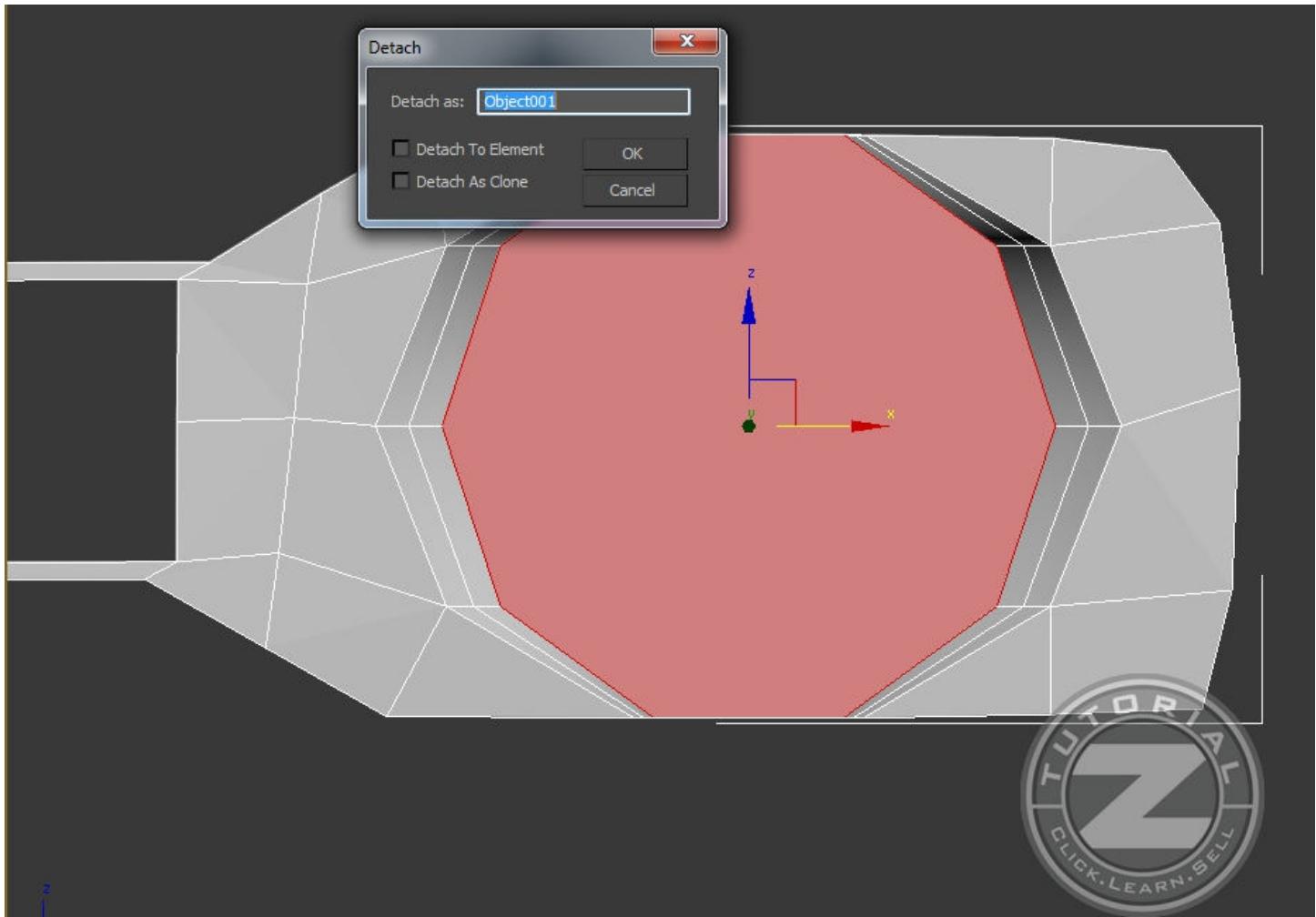
86. At this step, you need to unhide that cylinder and bring it forward as me. By the way, do not put the cylinder exactly at the same limit with our grill, but put it a little bit behind . And by the way, delete the entire cylinder's polygons except the front one :



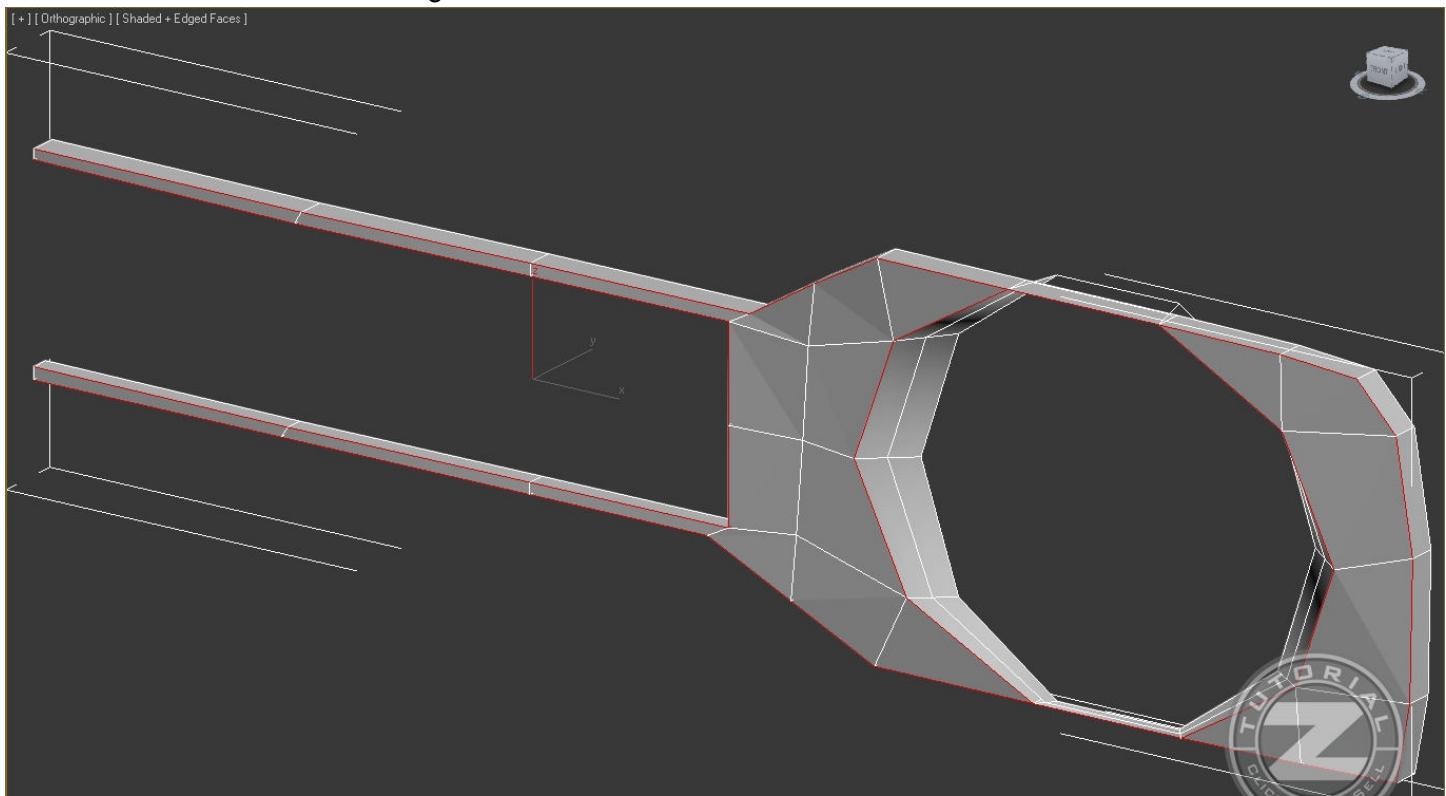
87. Attach the polygon that remains from the cylinder to the grill, then bridge the edges between them.

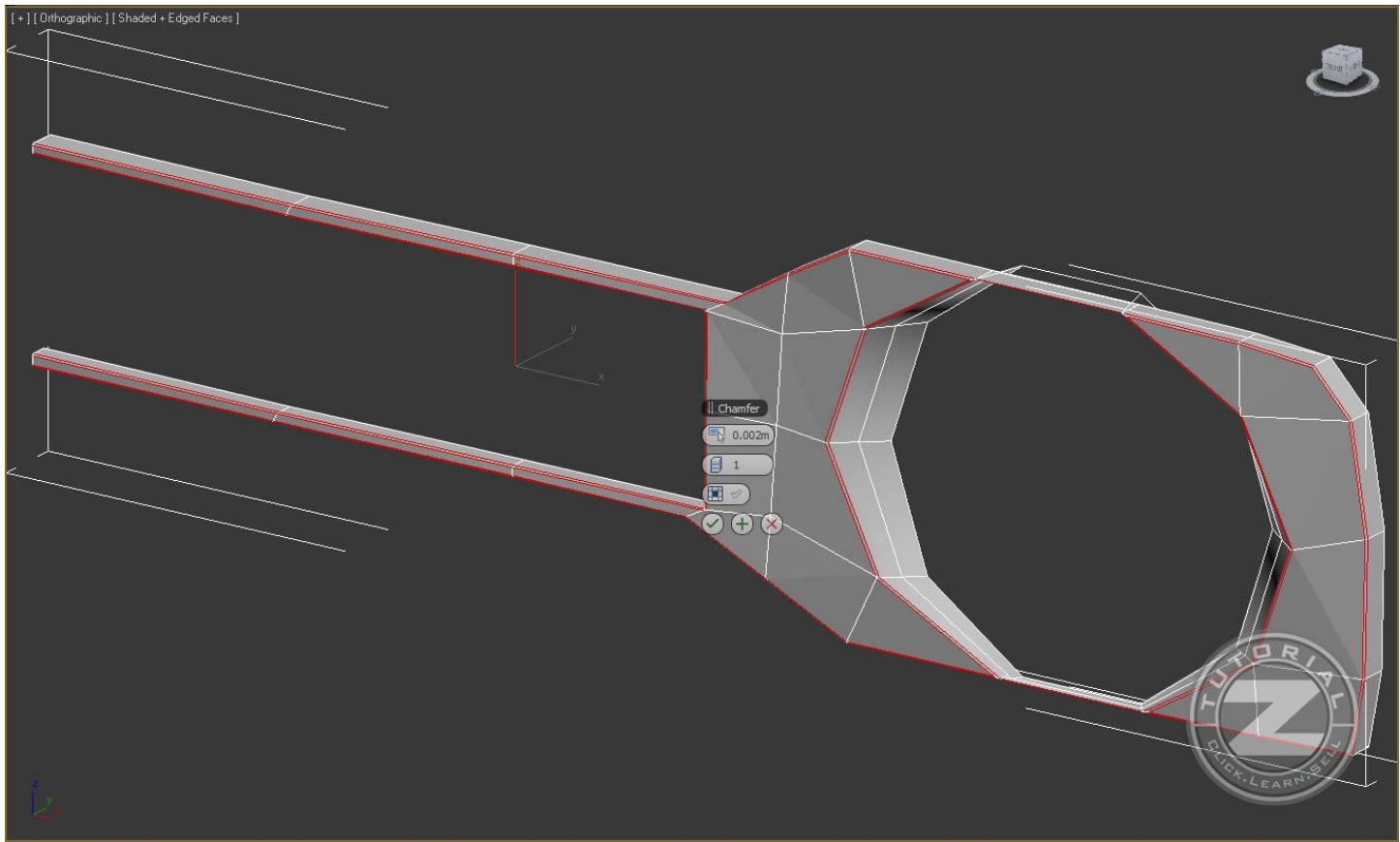


88. Detach the middle polygon but do not delete him, because we will need this polygon later. Once you have detached the polygon, hide it :

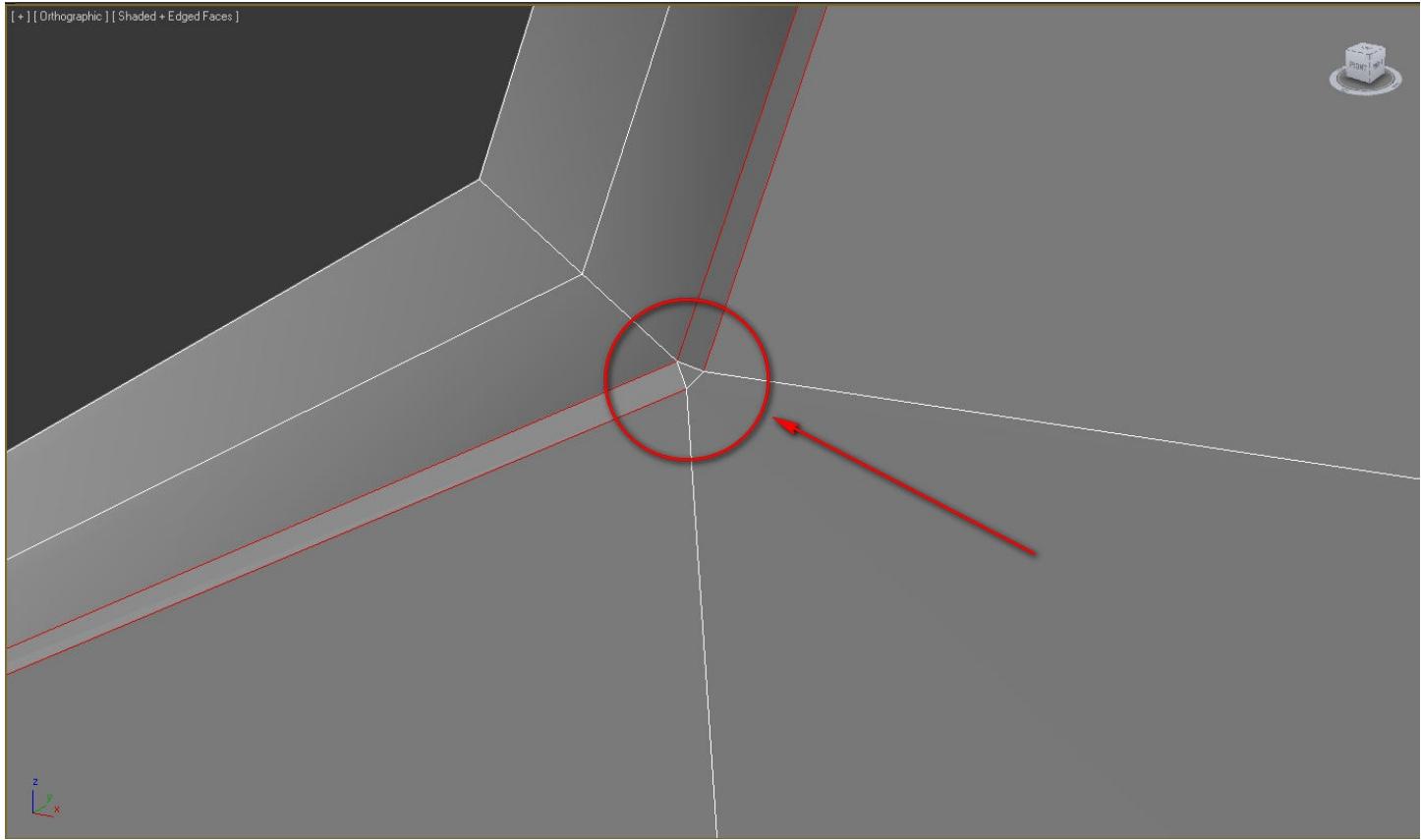


89. Select and chamfer these edges :

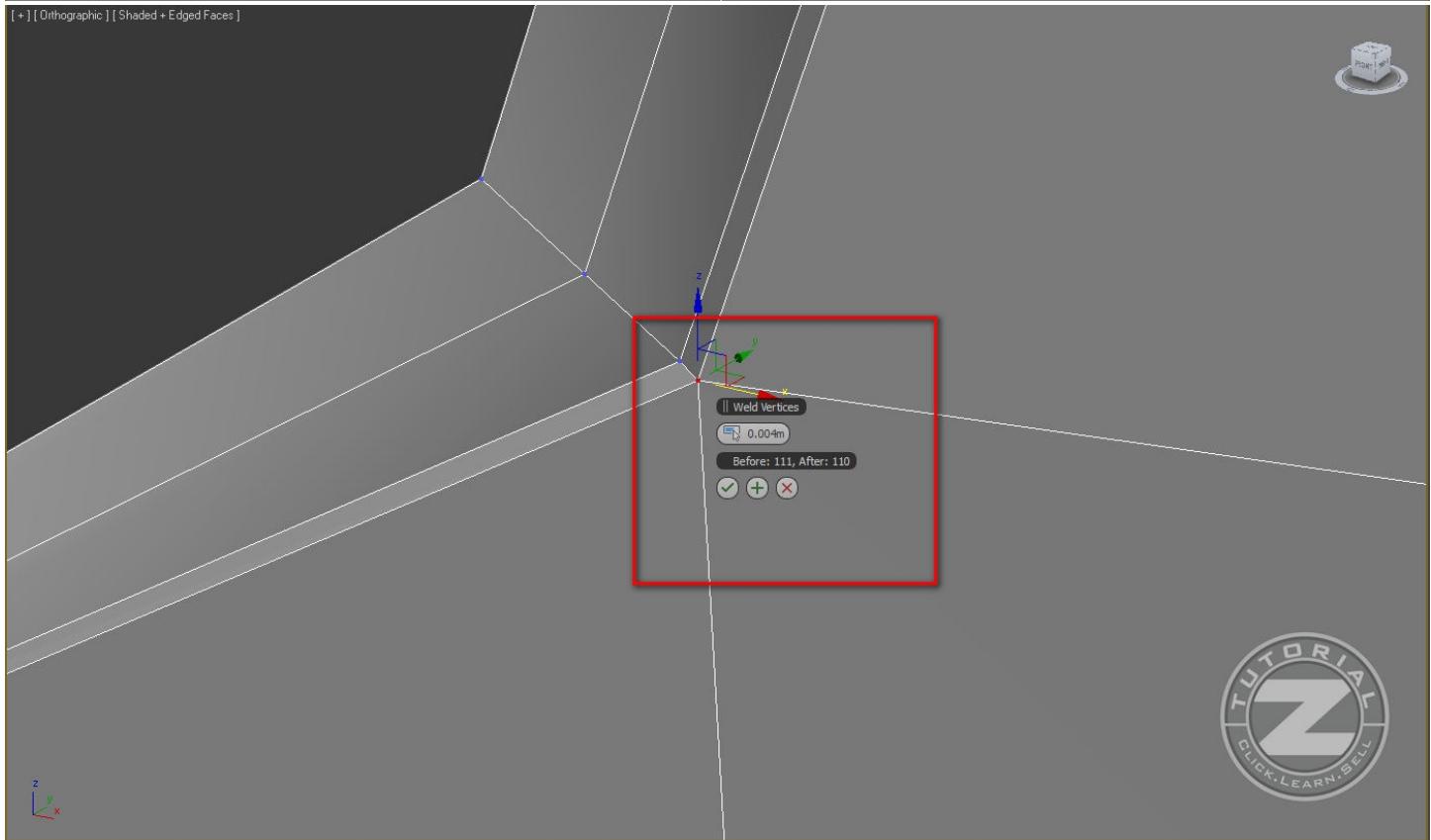
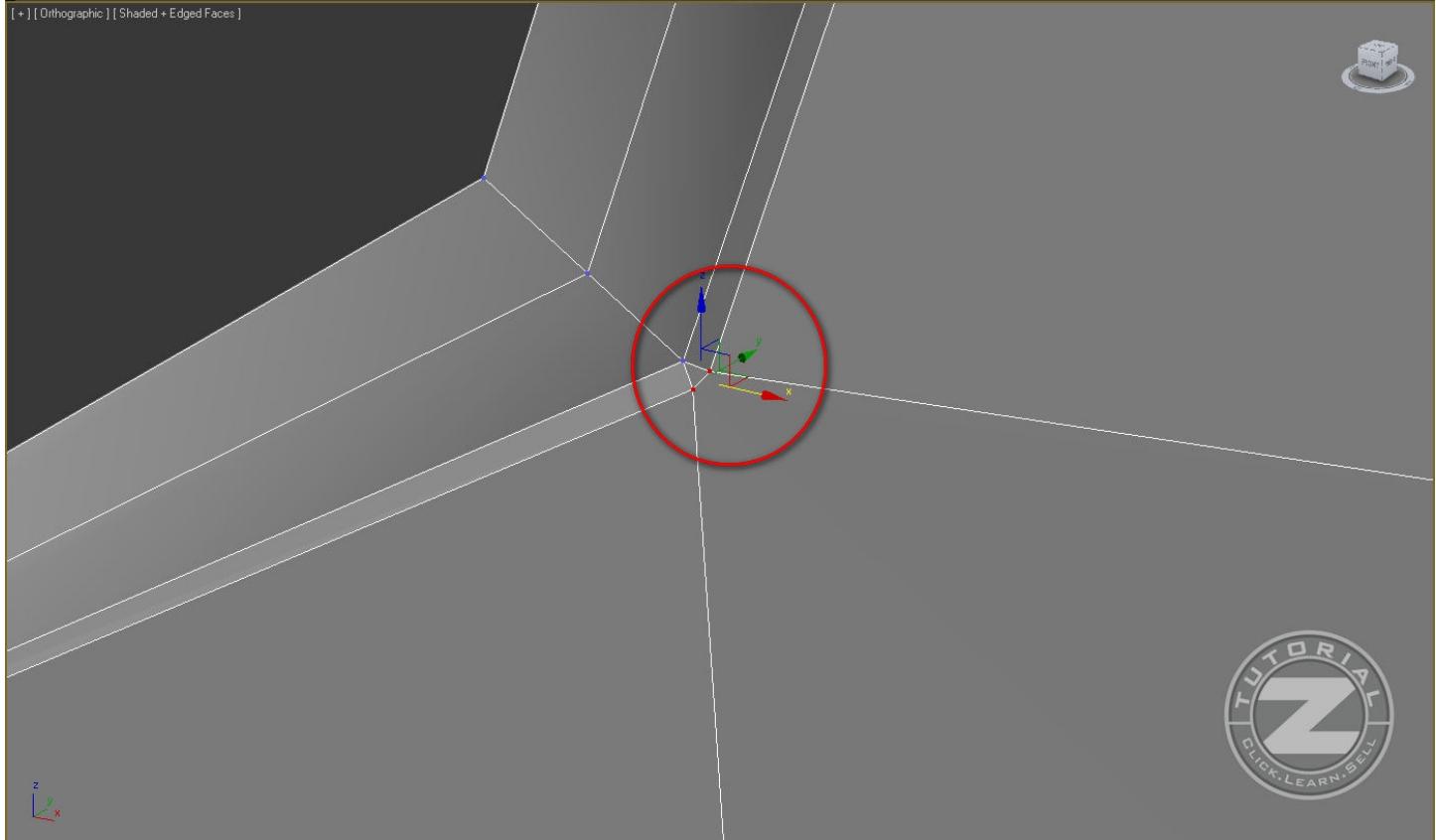




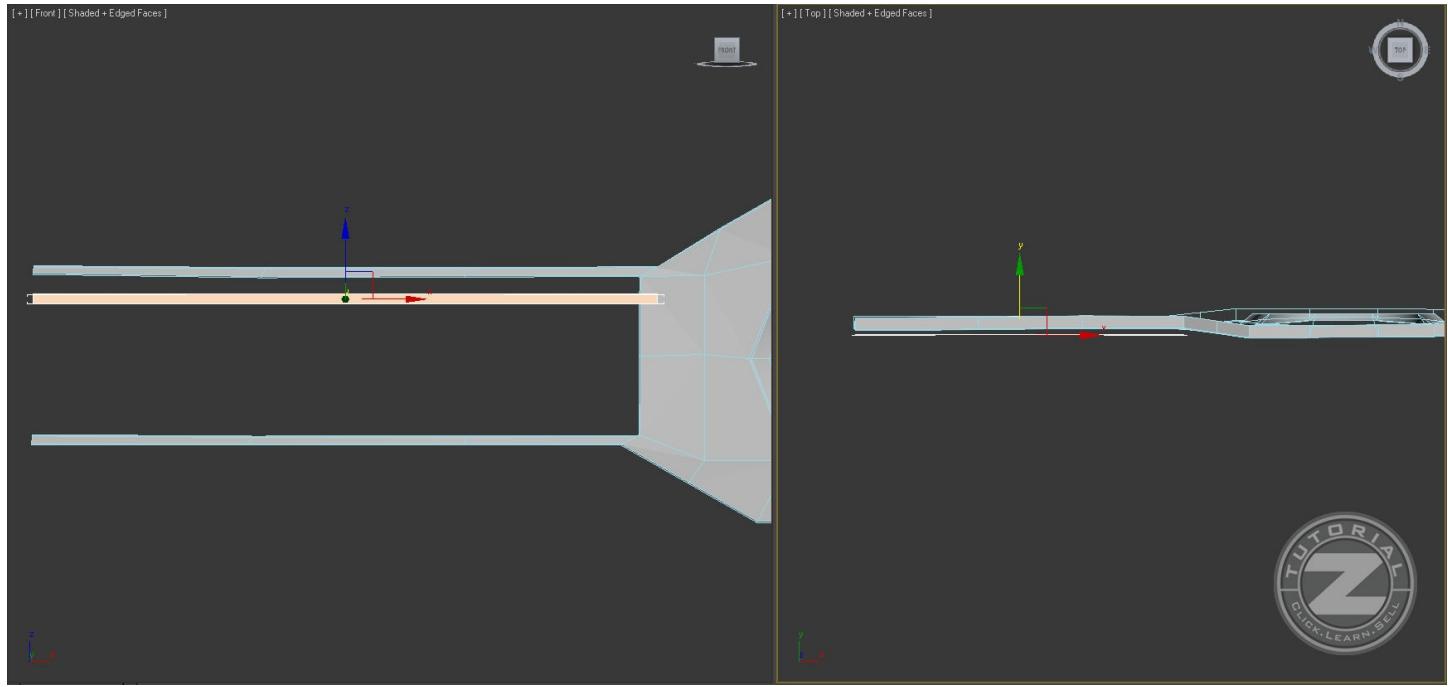
90. Pay attention because I am showing you this for the last time. Solve the triangle problems : after the chamfering process, sometimes you may end up with triangles like below



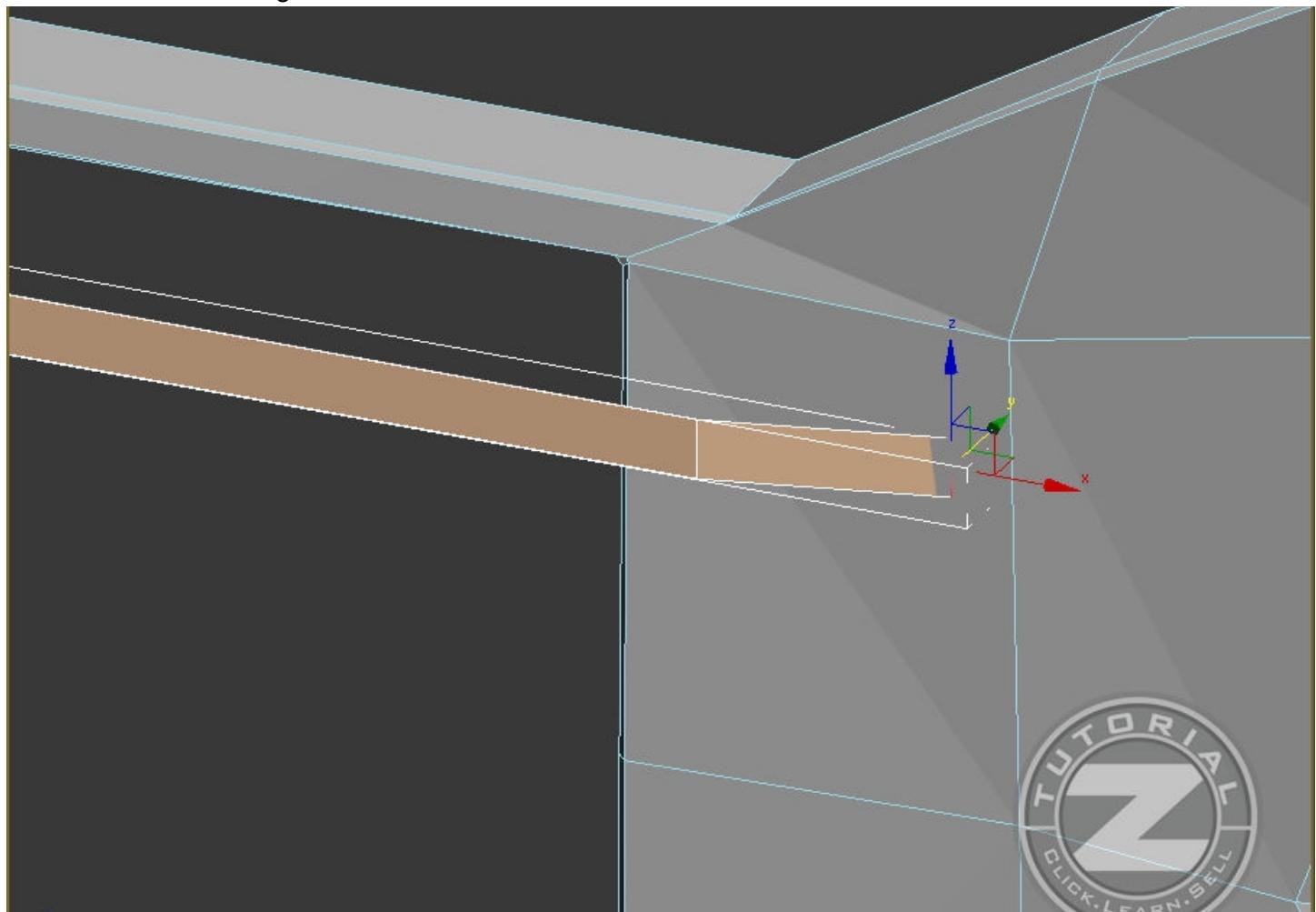
91. Select these 2 triangles and use the weld (NOT target weld) tool to attach them together :

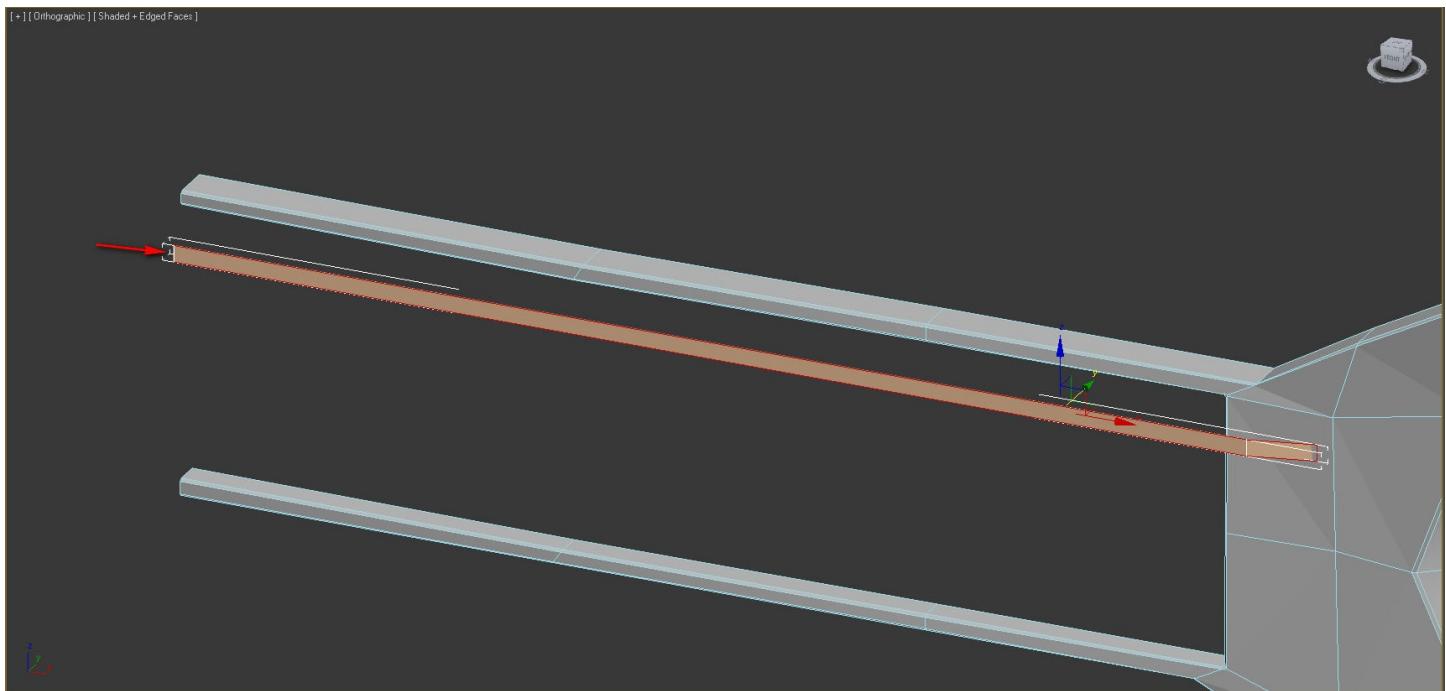


92. Check the entire model to spot and solve the triangle problem. Now we will make the real grill. First, make a place as me:

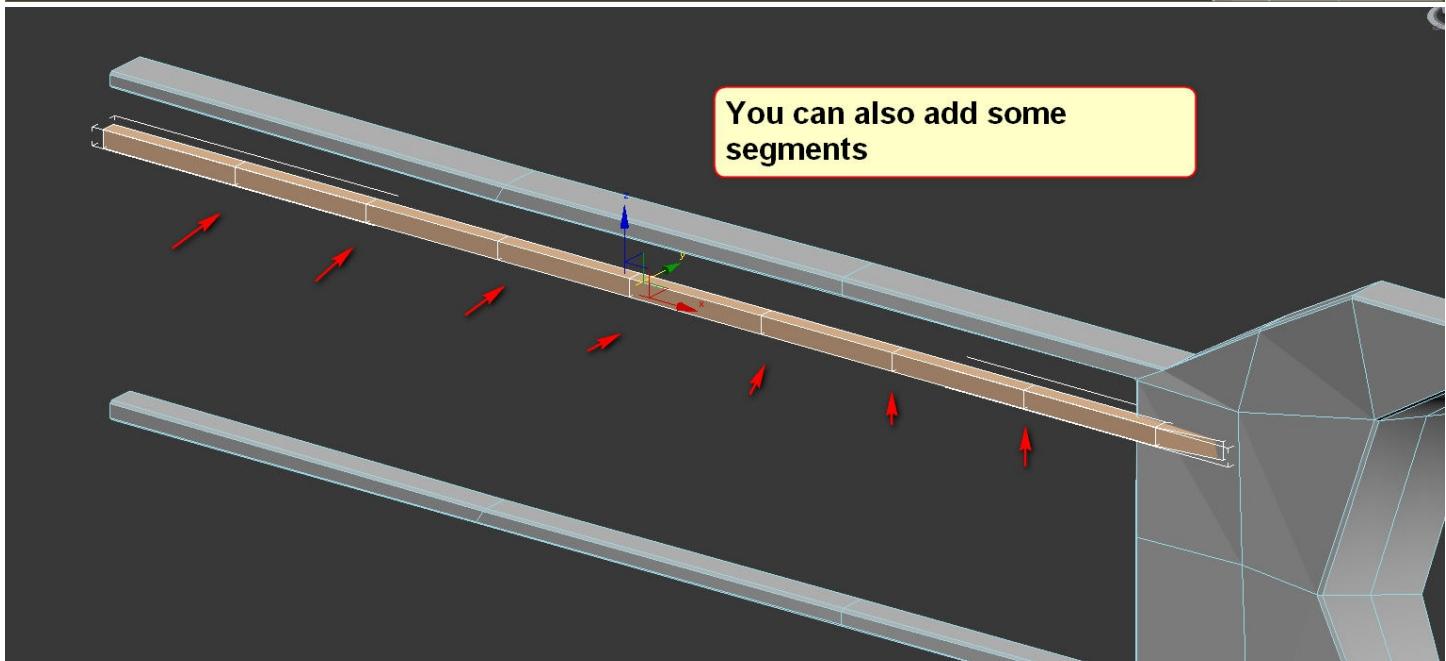


93. First bend the right end a little bit. Just create a new polygon and drag it to the interior (see first image). Then grab these edges (image 2) , hold the shift button and drag them to the interior of the car. Be careful because there is an edge which is not selected.

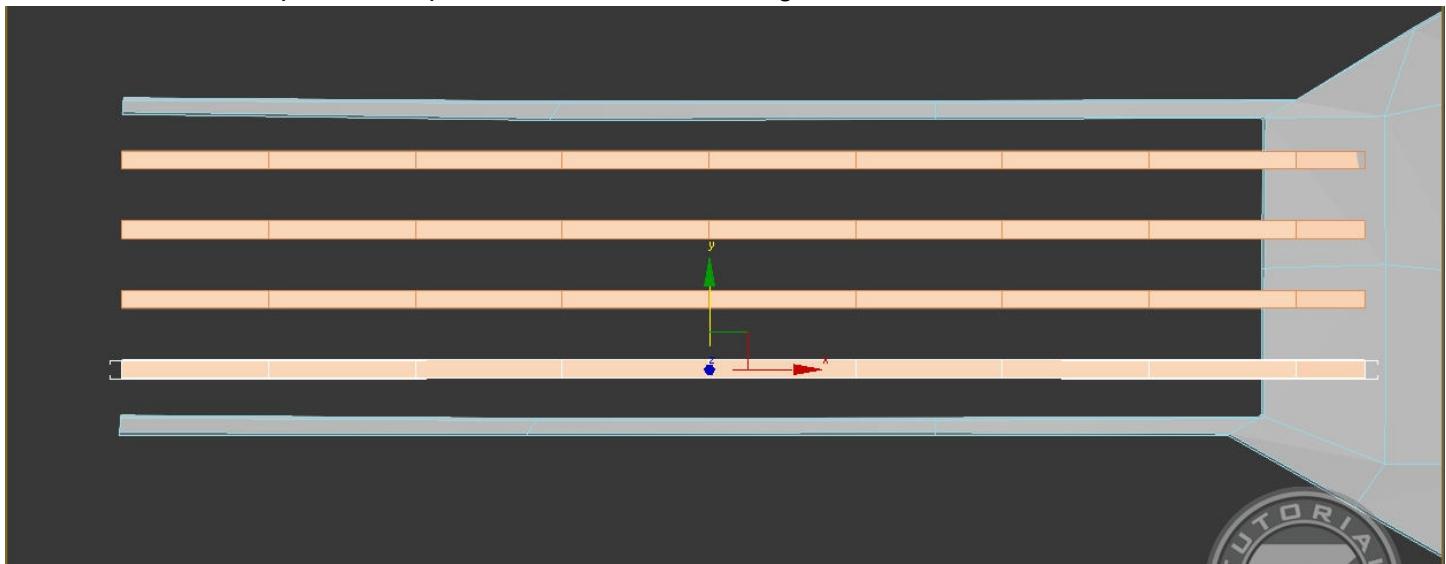


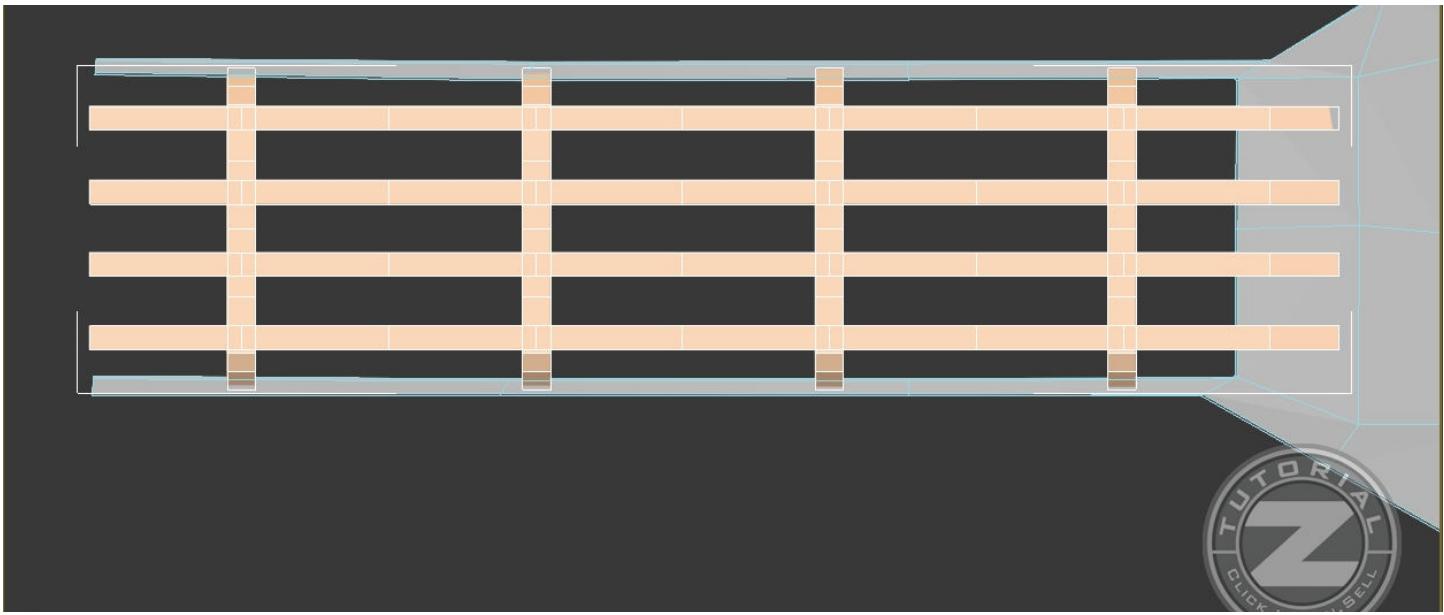


You can also add some segments

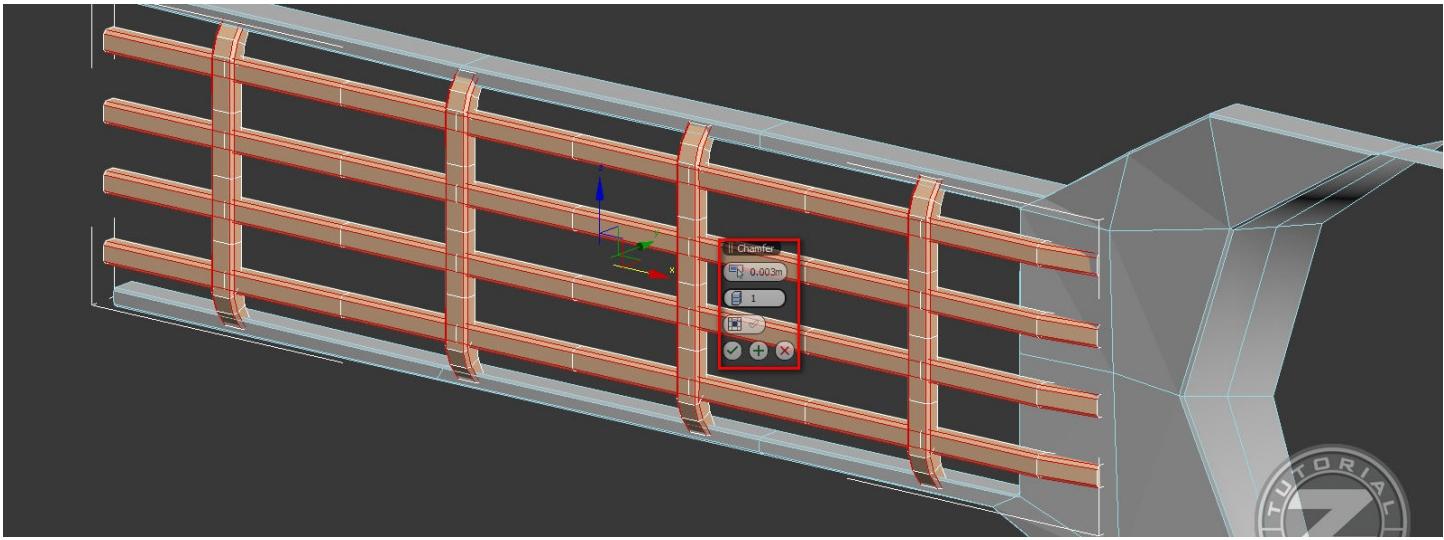


94. Create 3 more copies of this part, then do the same thing for the vertical ones :

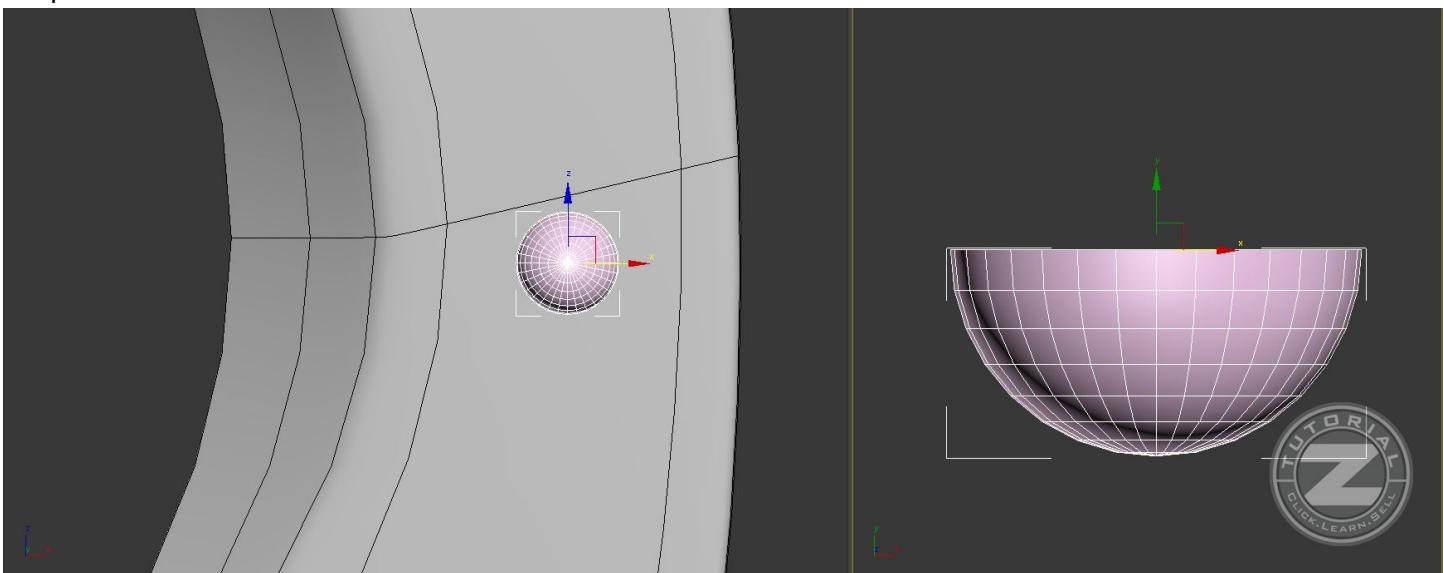


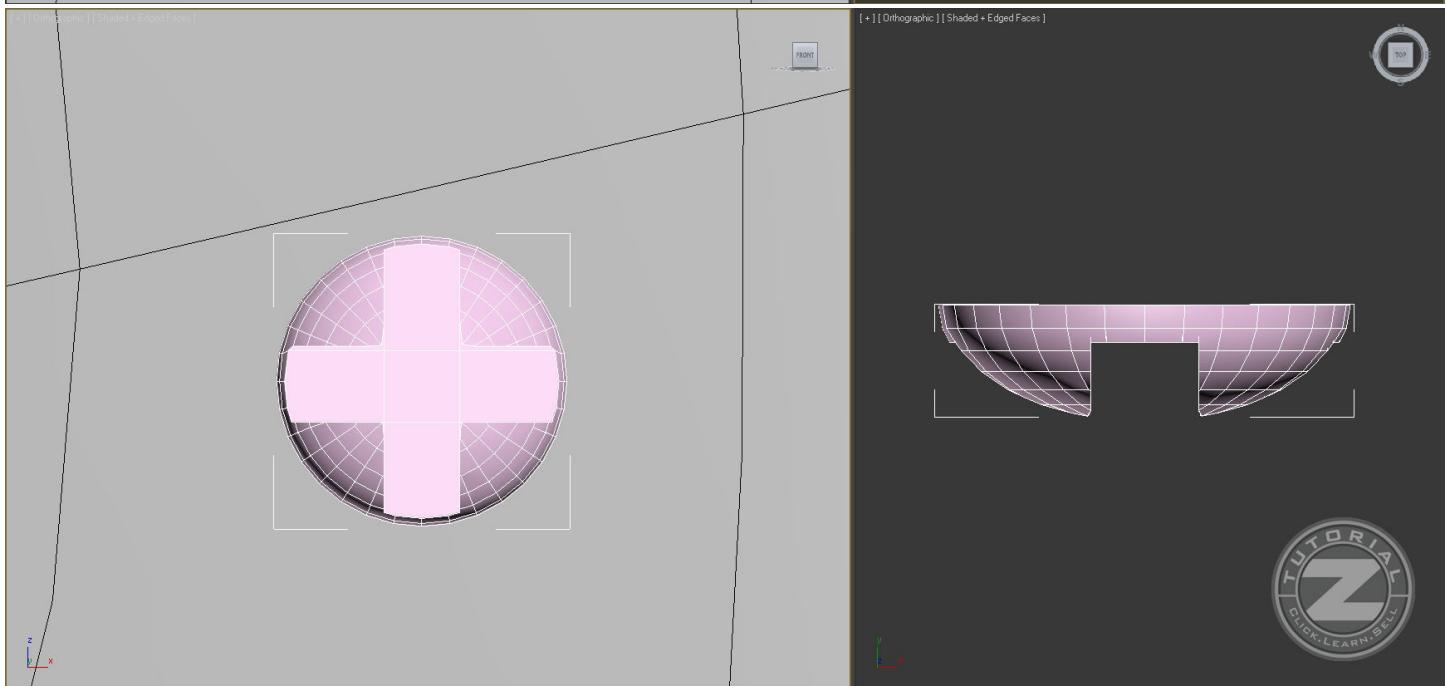
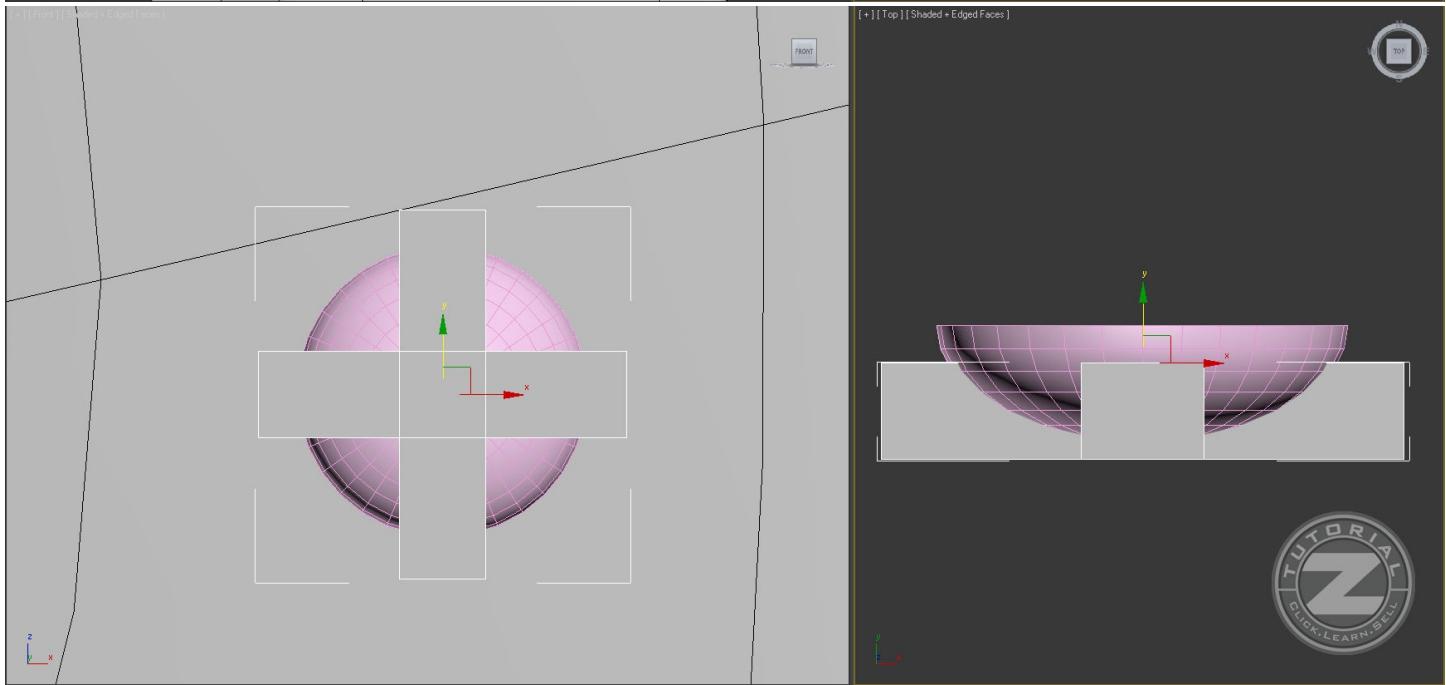
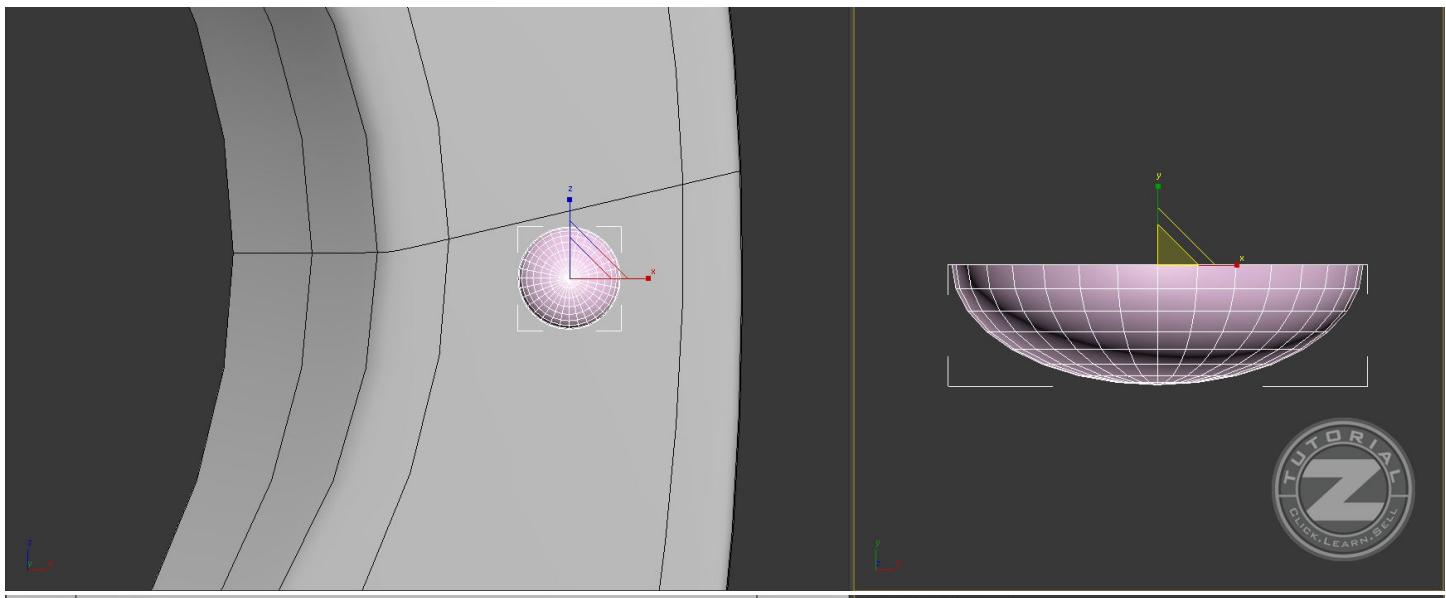


95. At this step we will chamfer this edges and we are done with the grill :

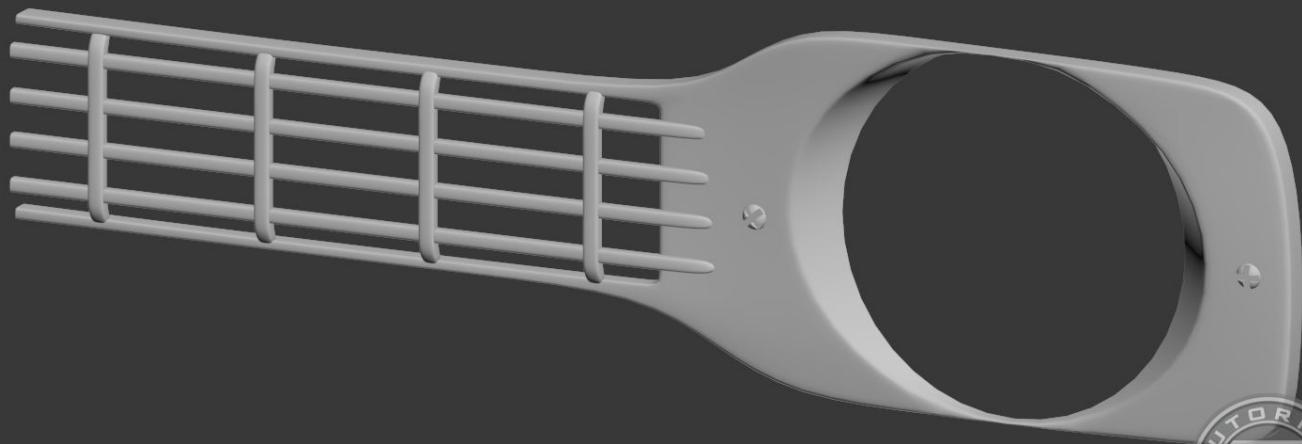


96. There are 2 small bolts near each headlight, and I would make them too. If you want, you can skip this part. So, Here is I have created the bolt. Create a sphere and delete a half of it, then use the scale tool to make it a little bit flat and the last step, create o boxes as I did in the 3RD image and use the boolean tool to cut out the shape :



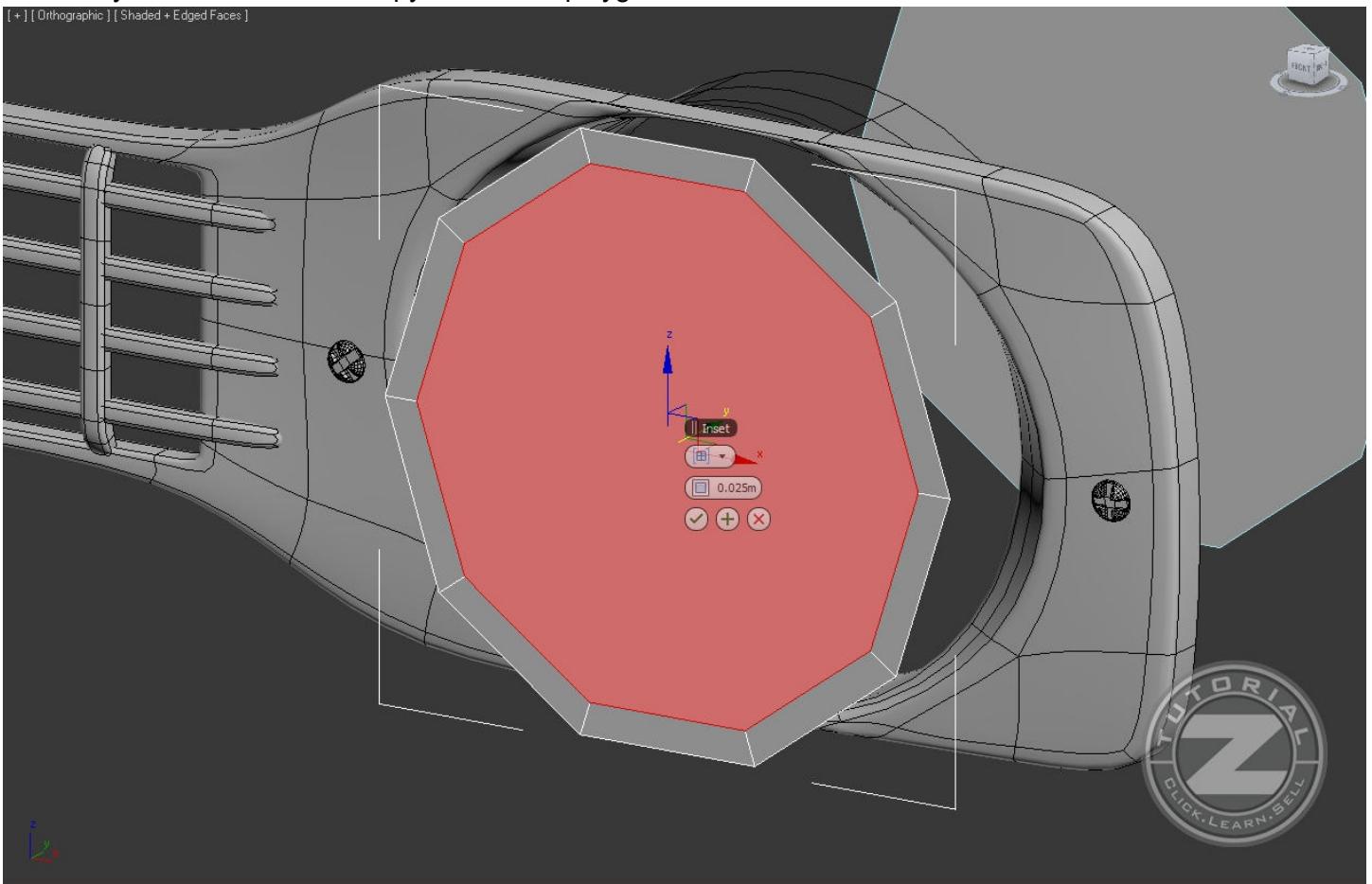


[+] [Orthographic] [Shaded]

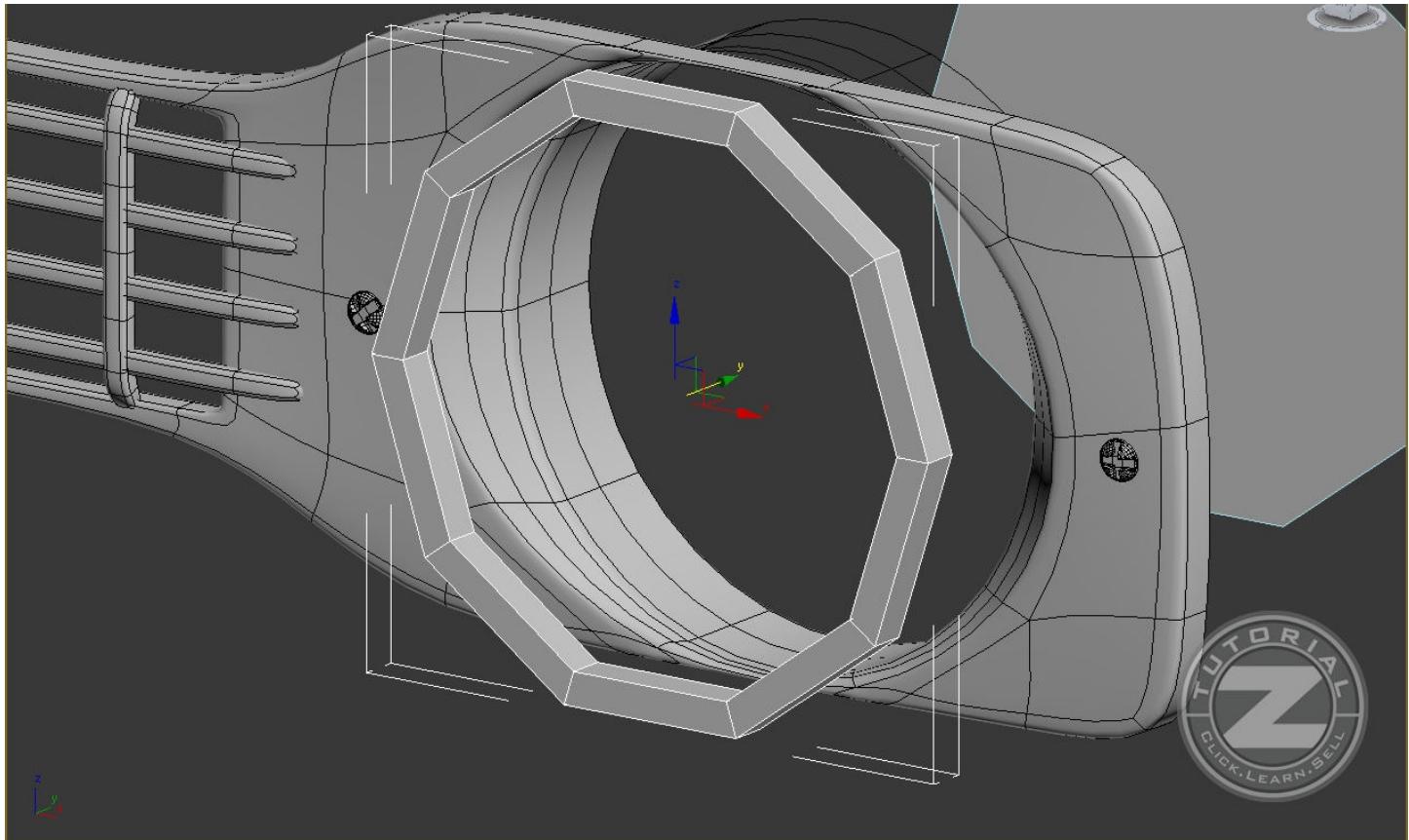


97. Let's make the headlight. We will make just a basic shape on the glass, and in the texturing chapter I will show you how to make it look real ☺ Now unhide that polygon that I have said to keep it and make a copy of it. When you have made that copy, select the polygon, and use the "Inset" tool to create a border like below :

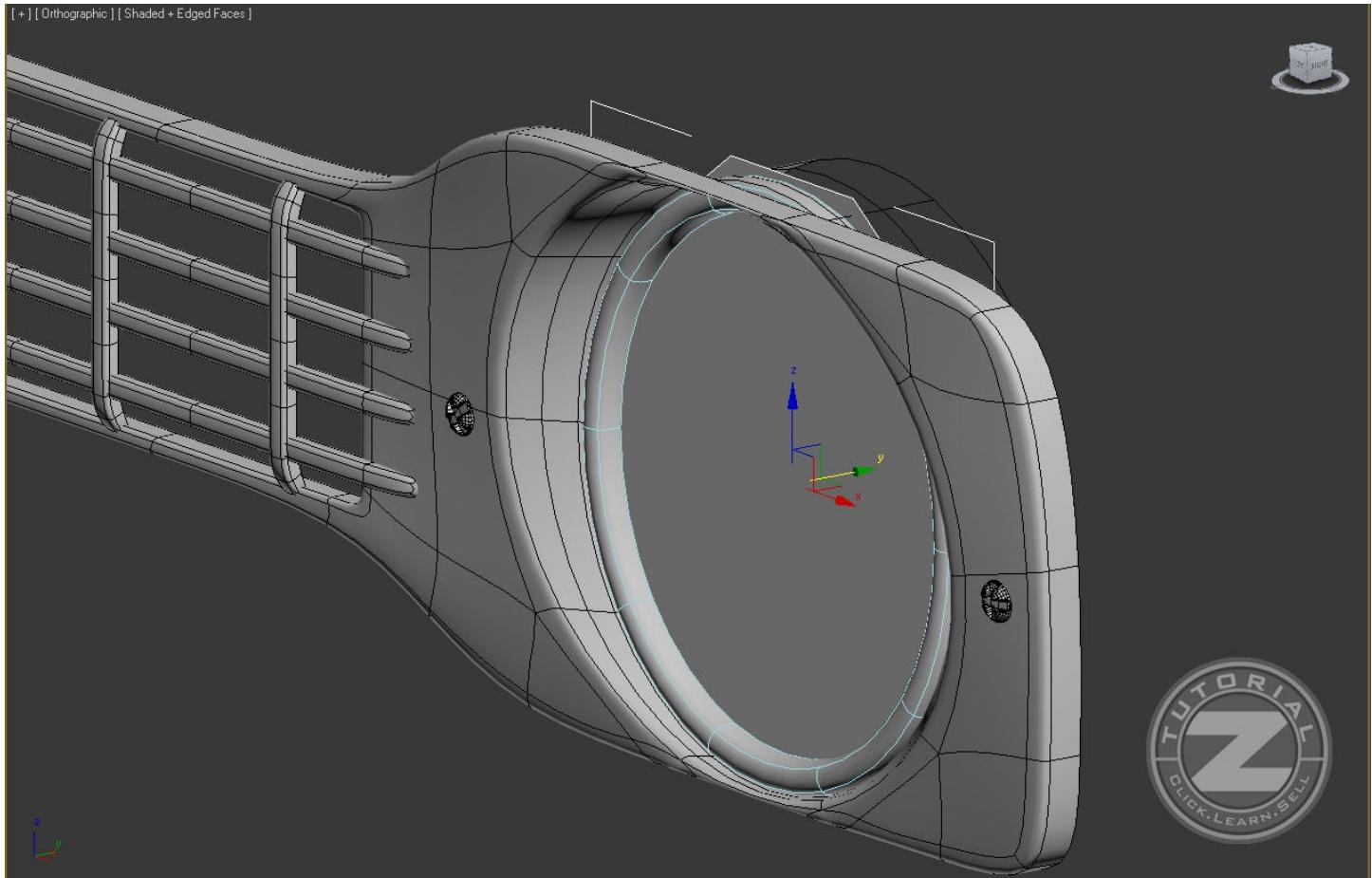
[+] [Orthographic] [Shaded + Edged Faces]



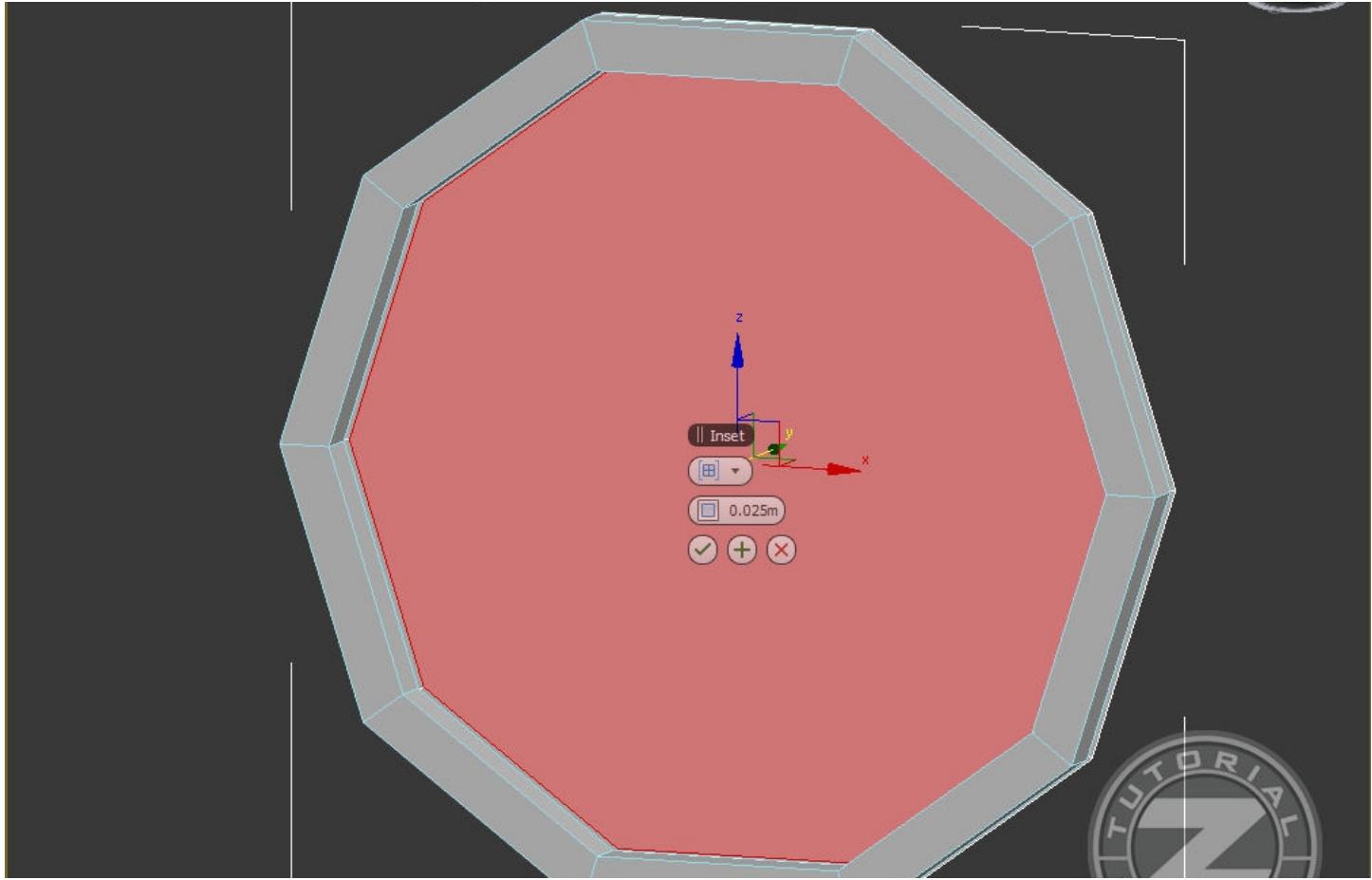
98. Delete the middle polygon then extrude the rest of the polygons as I did :



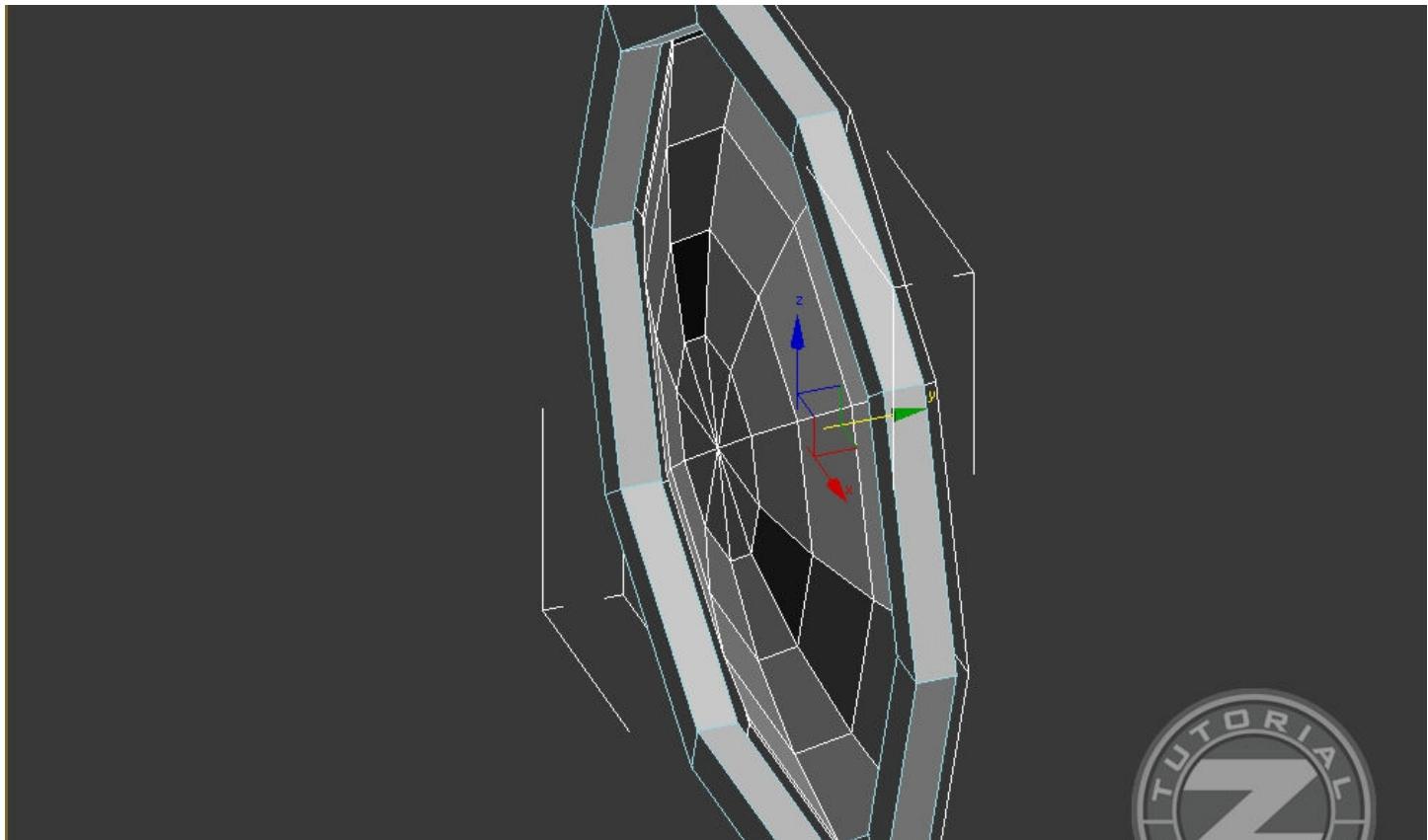
99. Put that ring in his place and then, create another copy of that polygon that we hid before and place it just behind the ring:



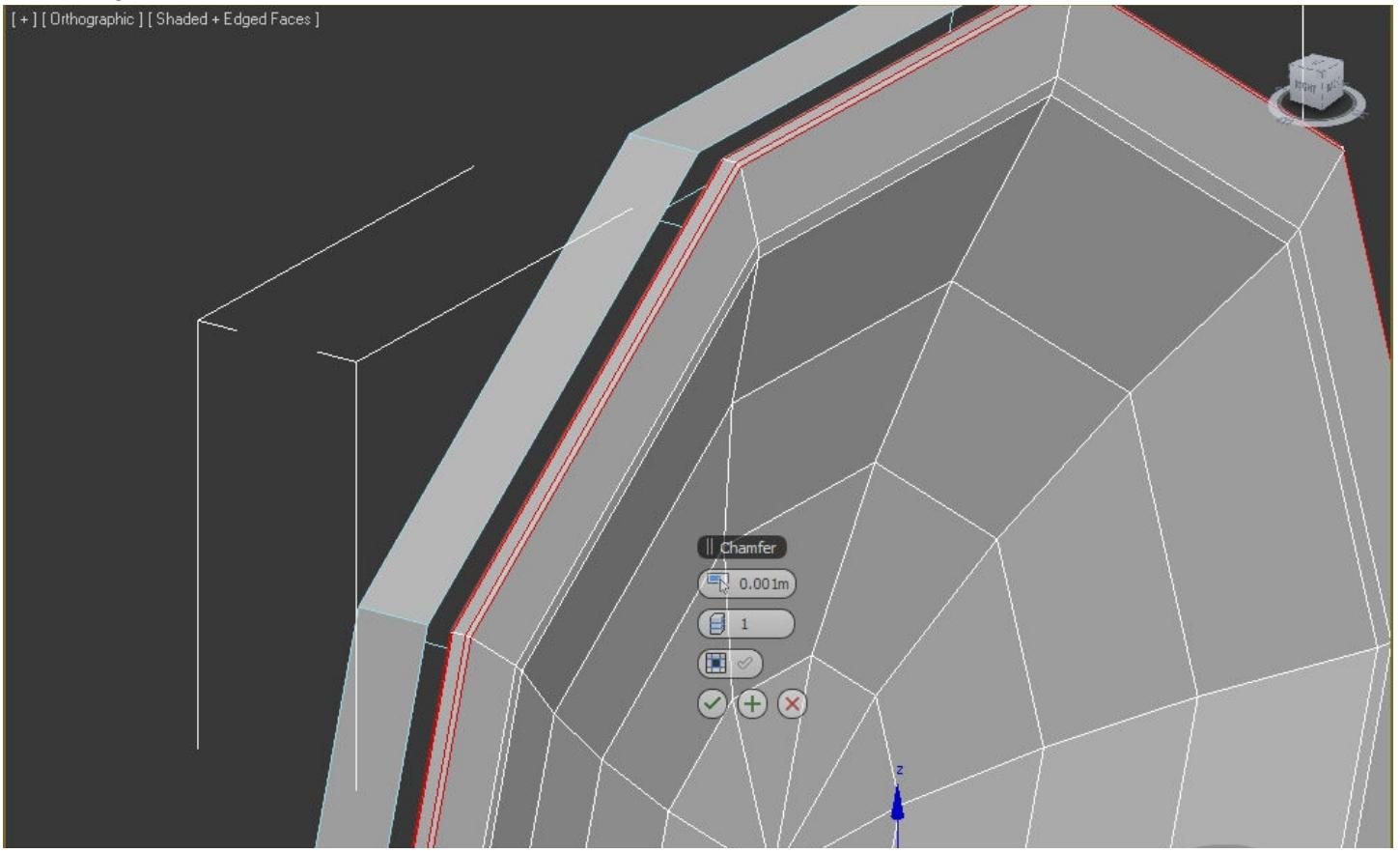
100. I have left only the ring and that polygon in the viewport for a better view. The polygon is behind the ring, so , select it and chamfer it until you will reach the limit of the ring :



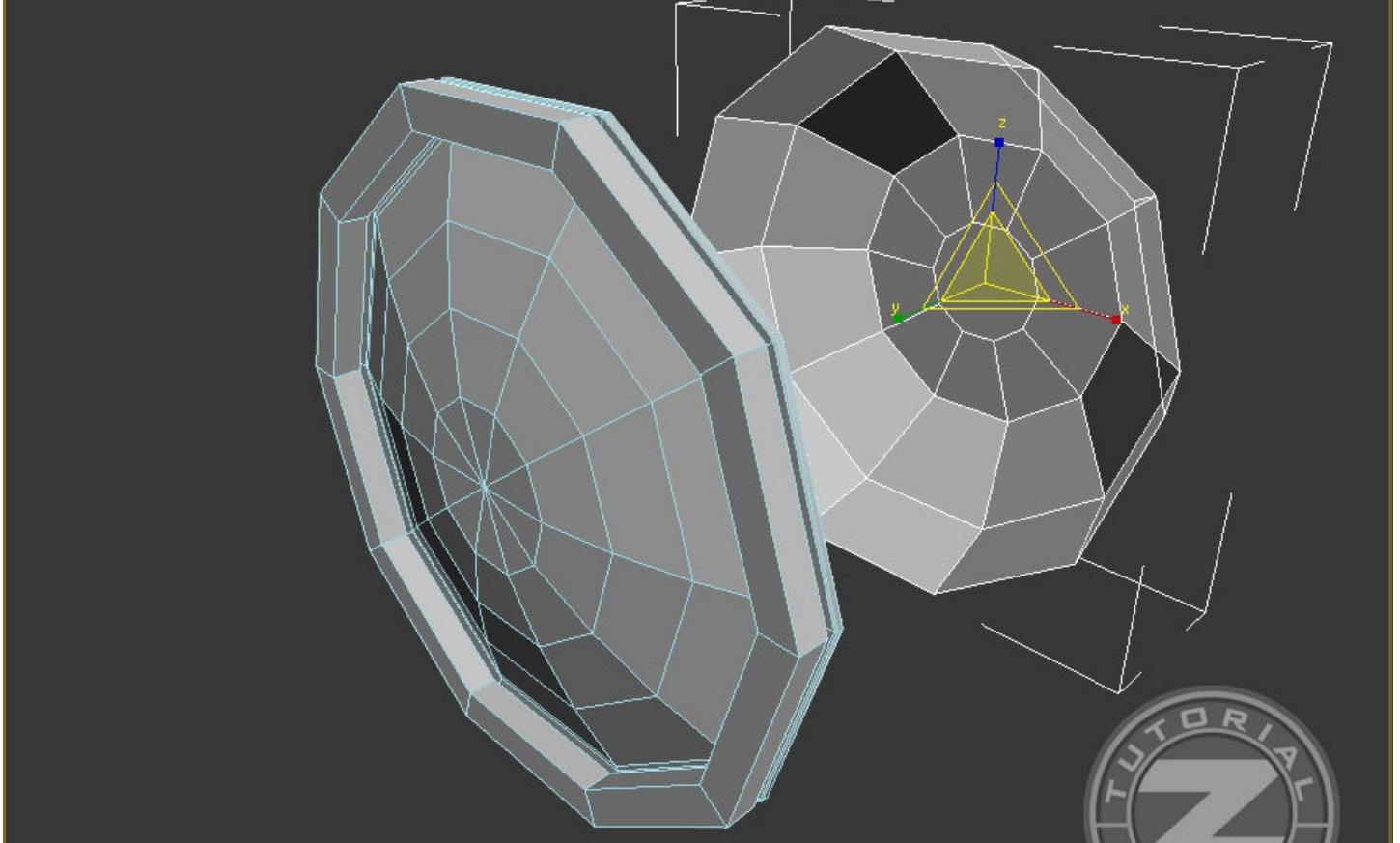
101. Use the inset tool to create several rows of polygons and make the headlight glass a little bit rounded to the exterior :



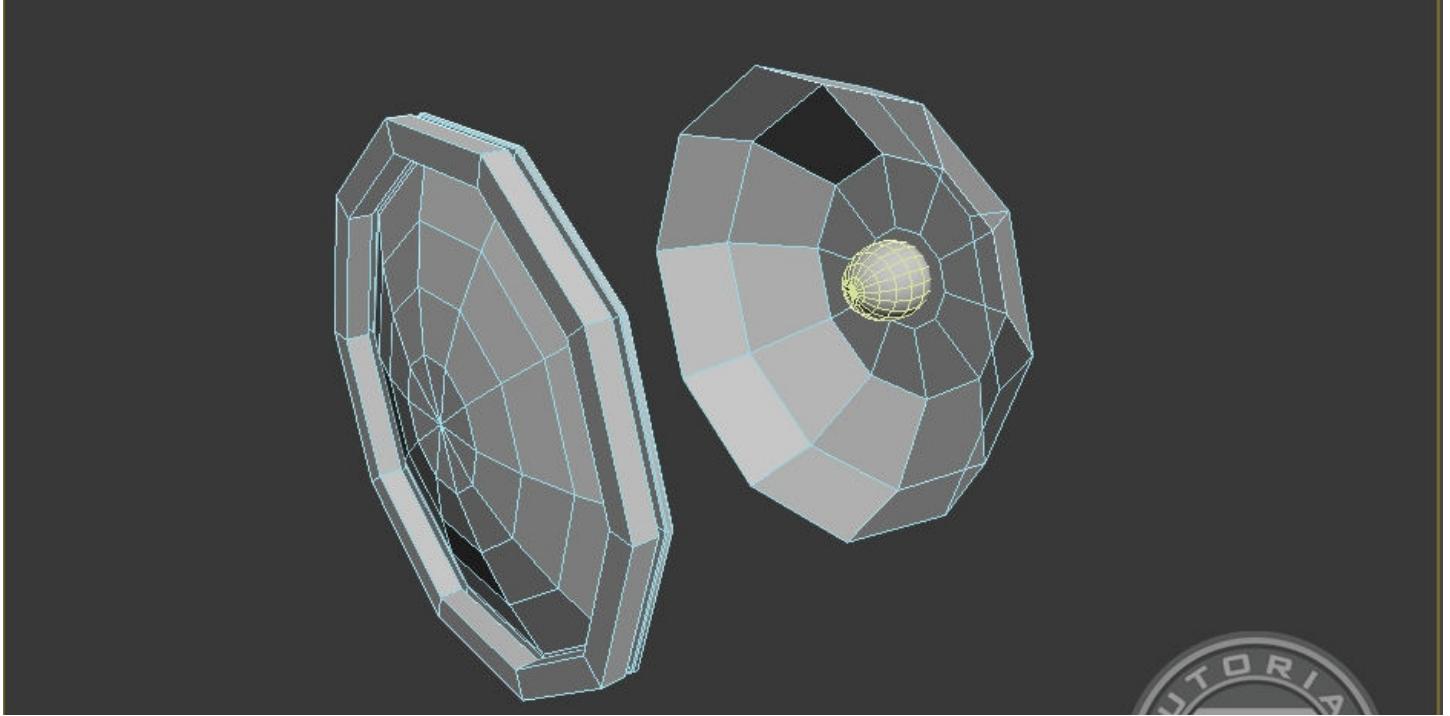
102. When you are done, add a “Shell” modifier in order to give some thickness to our object. Then “Chamfer” these edges :



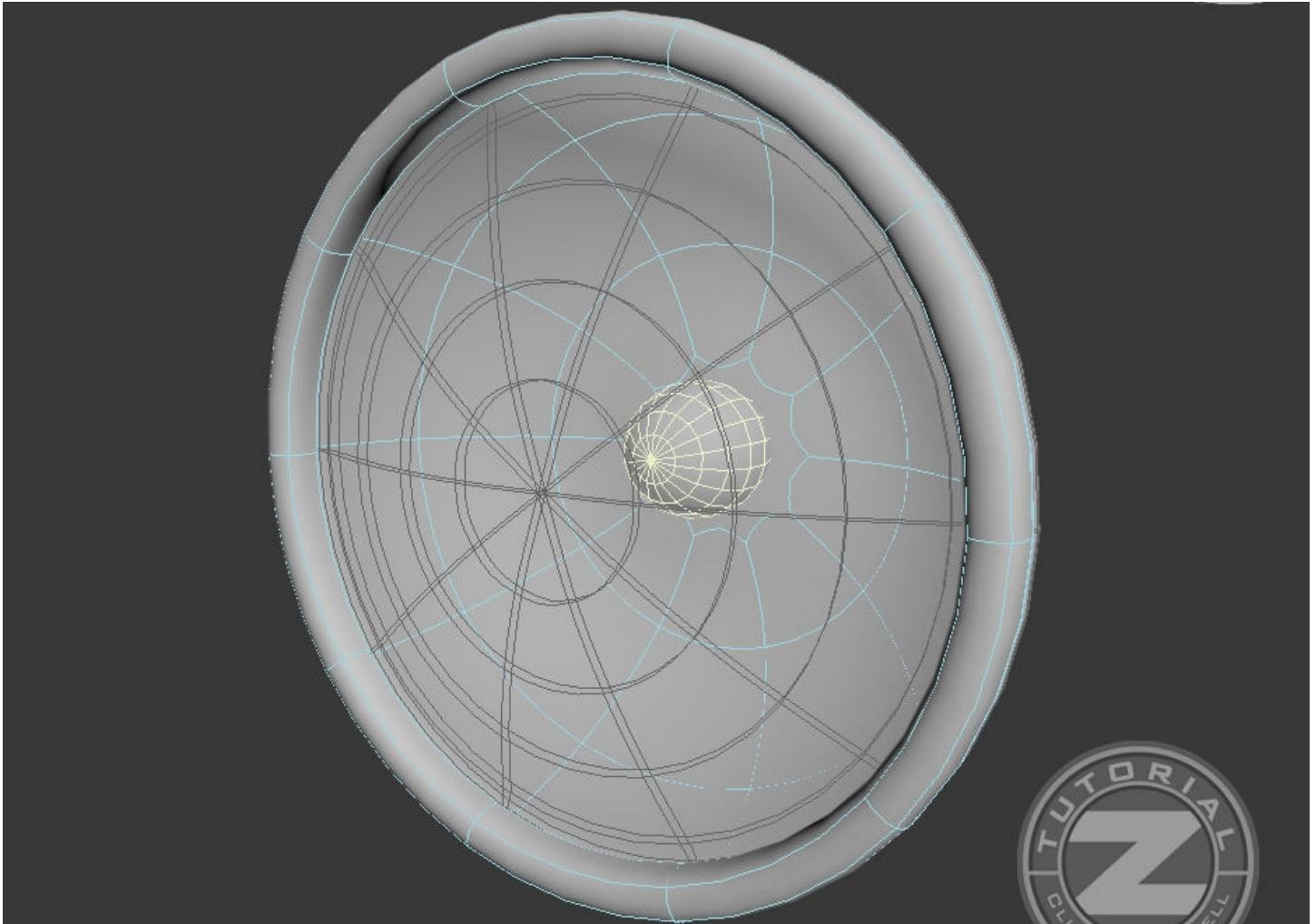
103. Now we will make the headlight box, which is very simple. Just do the same thing that you did to make the headlight glass rounder (inset the polygon several times then make it rounder) .



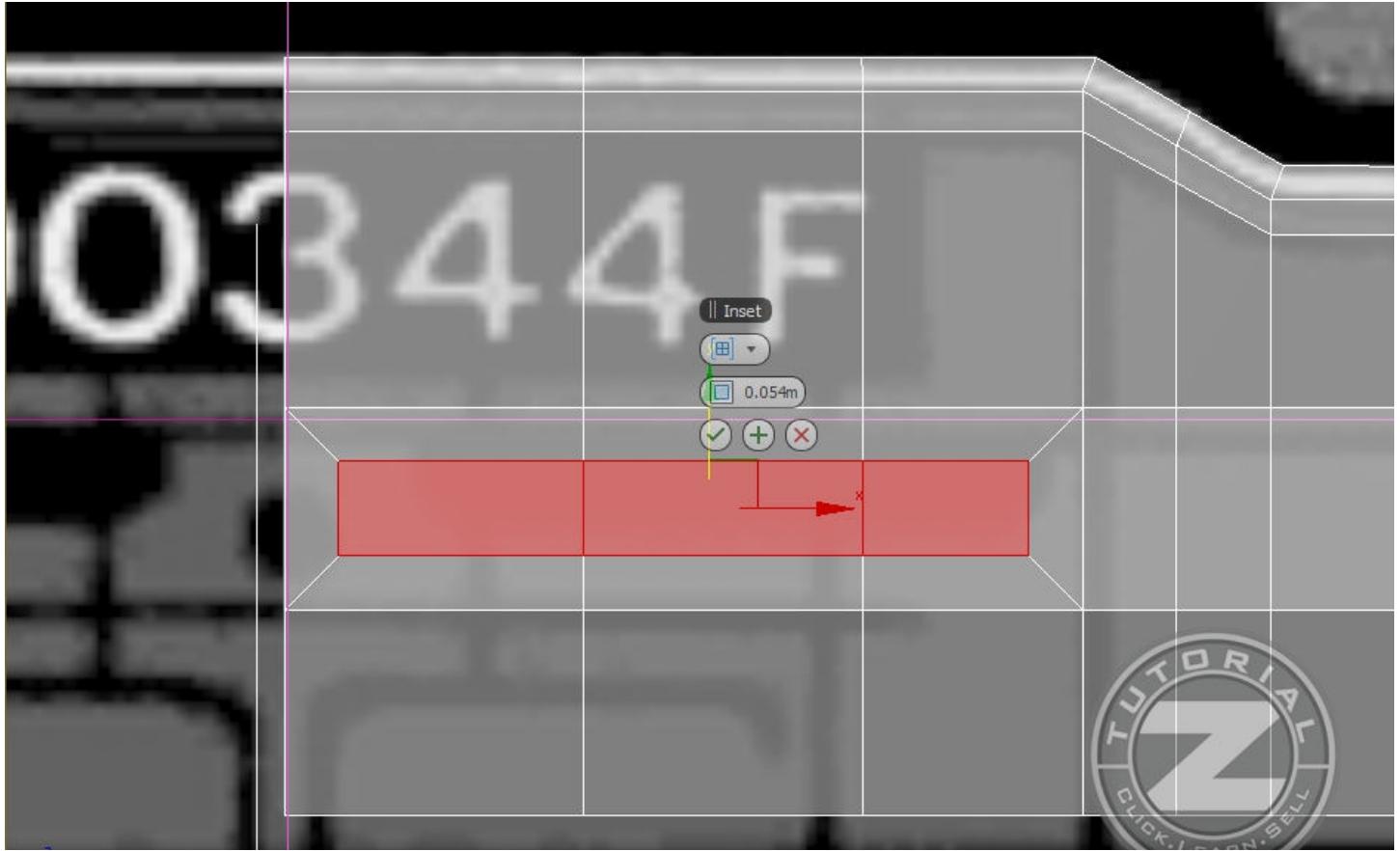
104. When you are done, make a small spherical-oval object in the middle to immitate the light bulb. It won't be visible very much, because the headlight glass will have many details but we will see the shape of the bulb, so , we will know that there is a bulb :



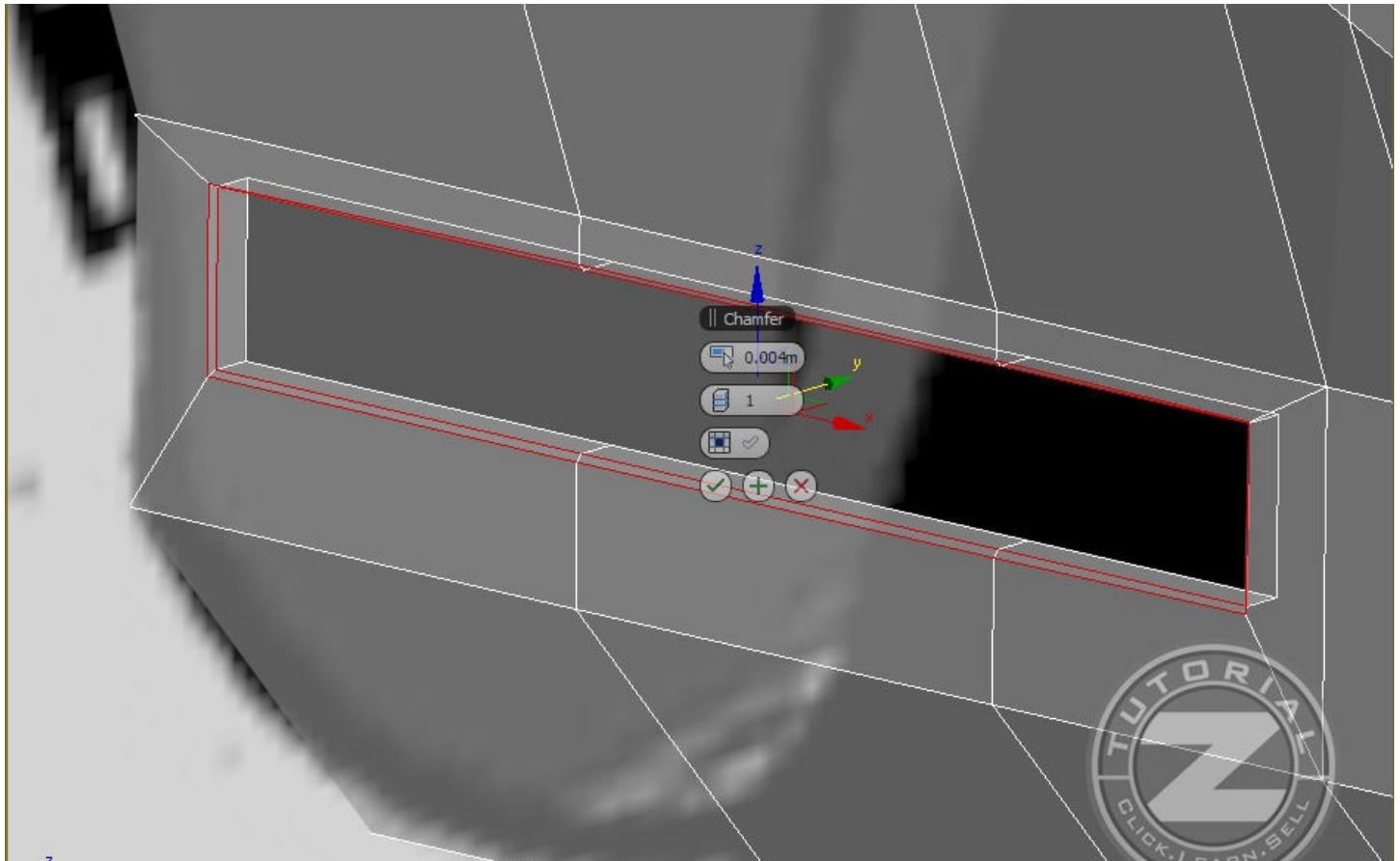
105. Assembly the headlight and if you will apply a smooth modifier , this is what you will have :



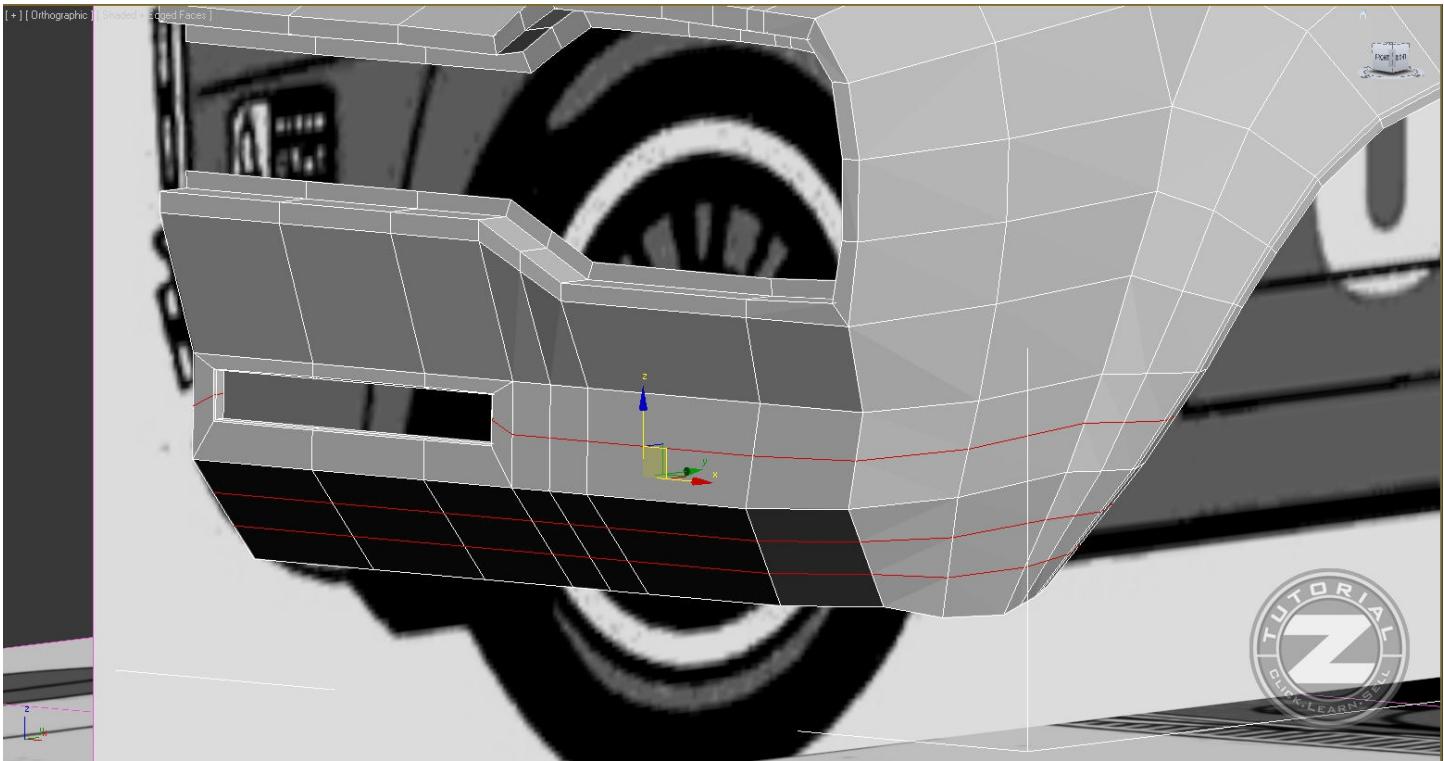
106. Let's go back to the car's body and work a little bit on the front. There is a hole and we will do it too and in order to do it, select the same polygons and then use the "Inset" tool like I did :



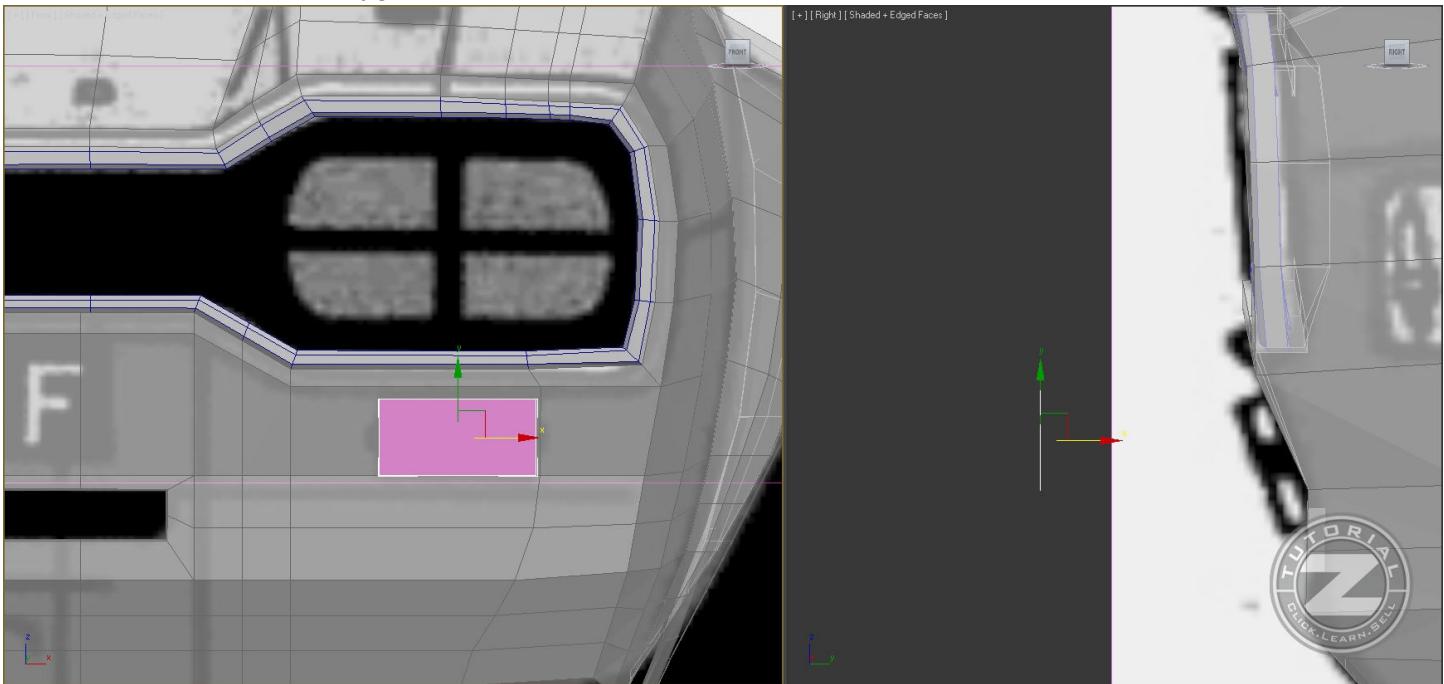
107. Now delete those polygons and drag the border of the hole to the interior, and when you are done, chamfer the edges (and after that, you know you to solve the problem with the triangles, I hope) :

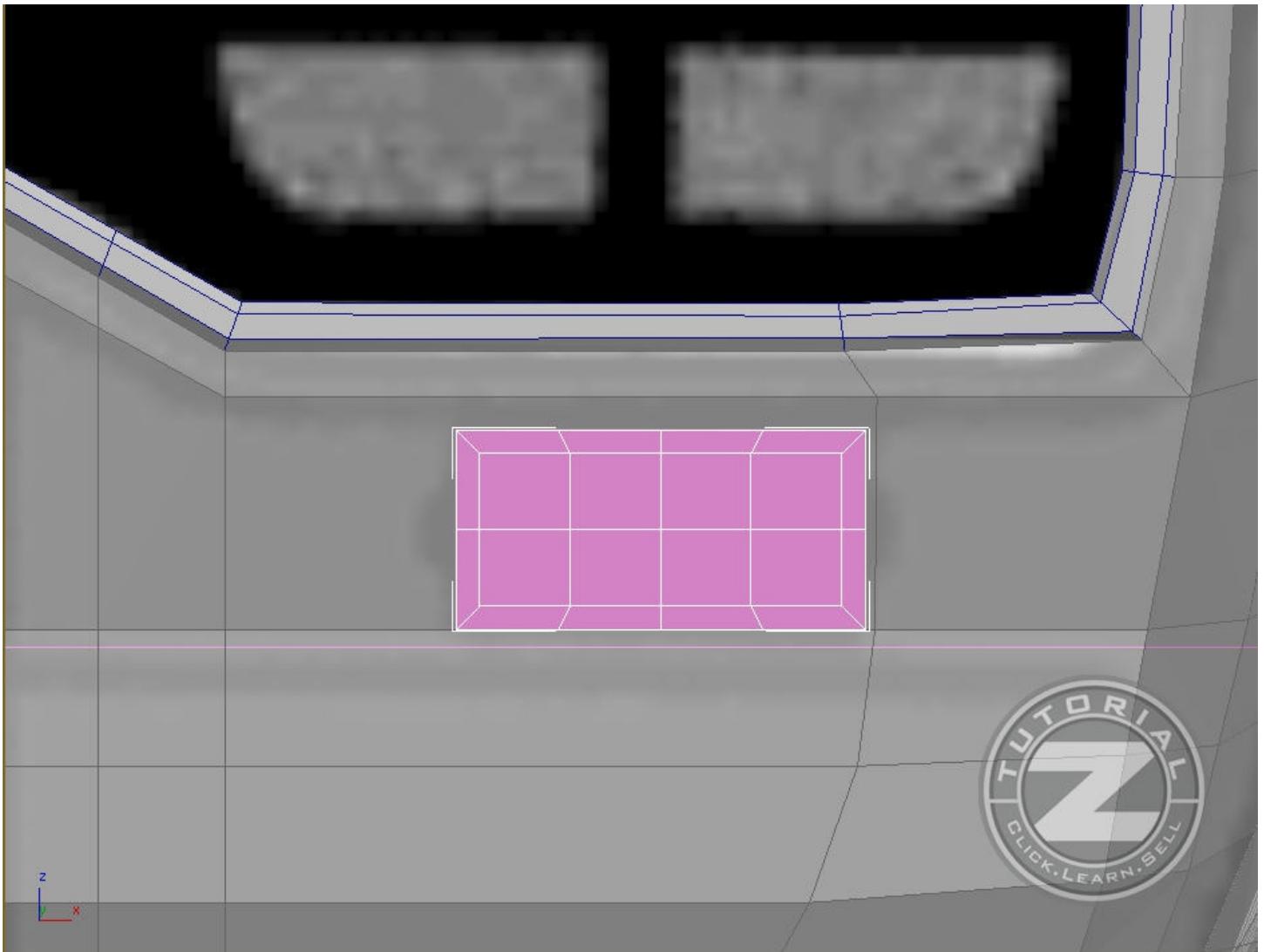
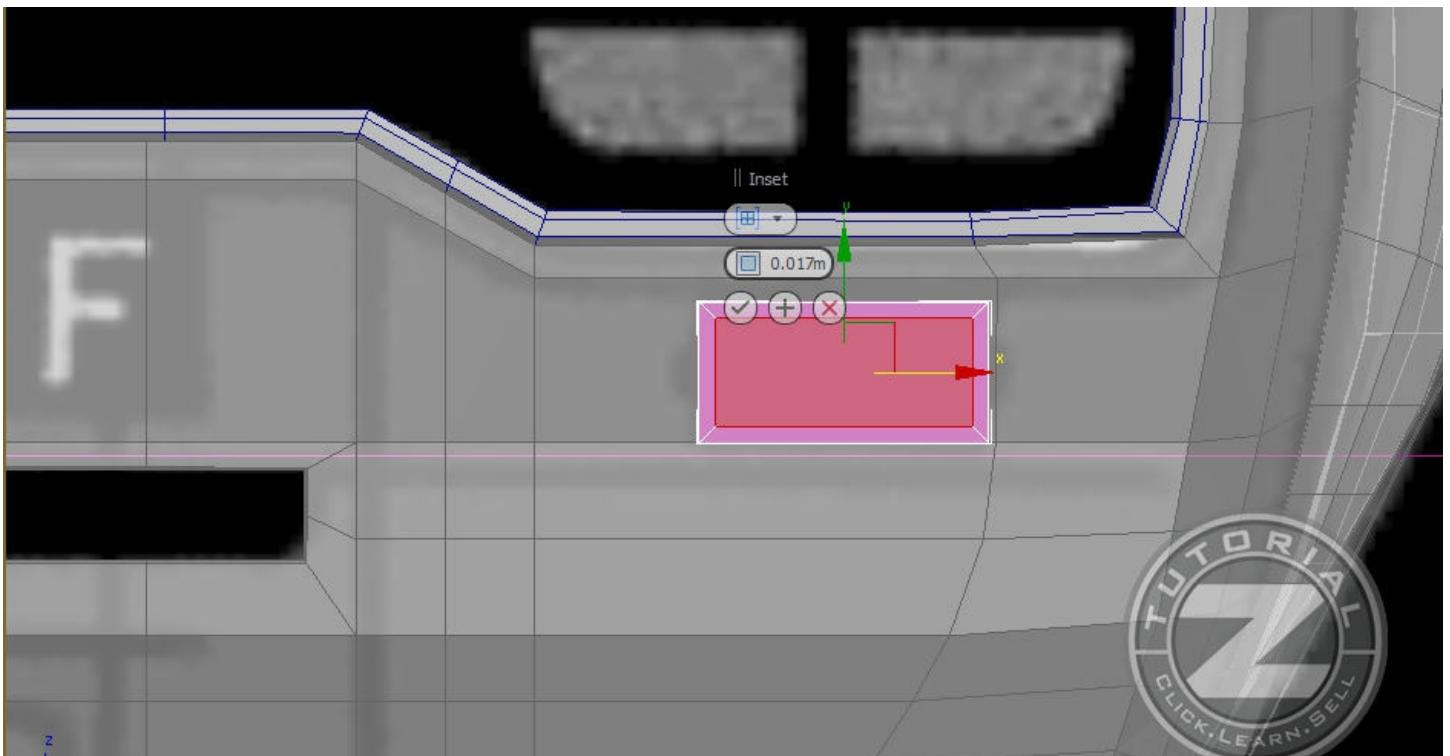


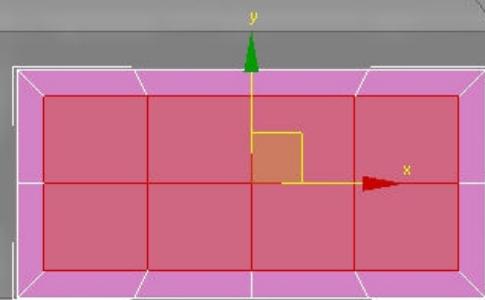
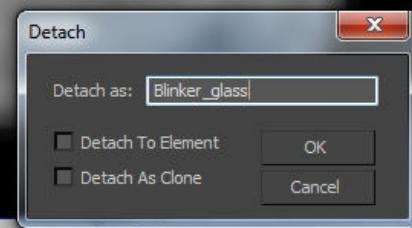
108. Using the “Connect” tool, add new rows of edges as I did :



109. At this step we will start to make the blinkers. It will be simple. Just start by making a plane made by a single polygon, then “apply” an inset on the polygon, add a 2-3 rows of edges as I did detach the middle one and extrude the exterior polygons :

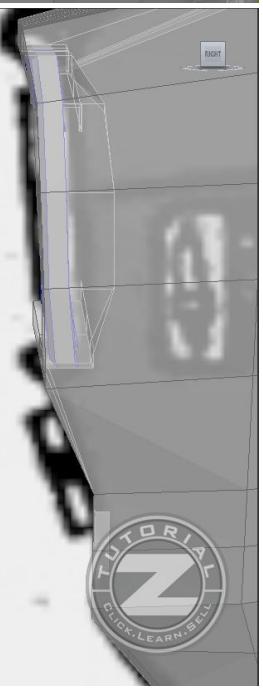
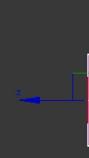
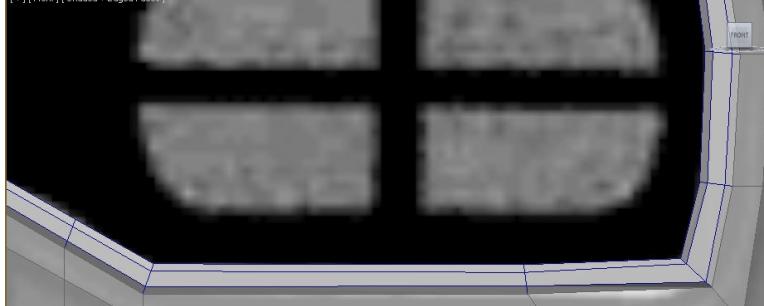




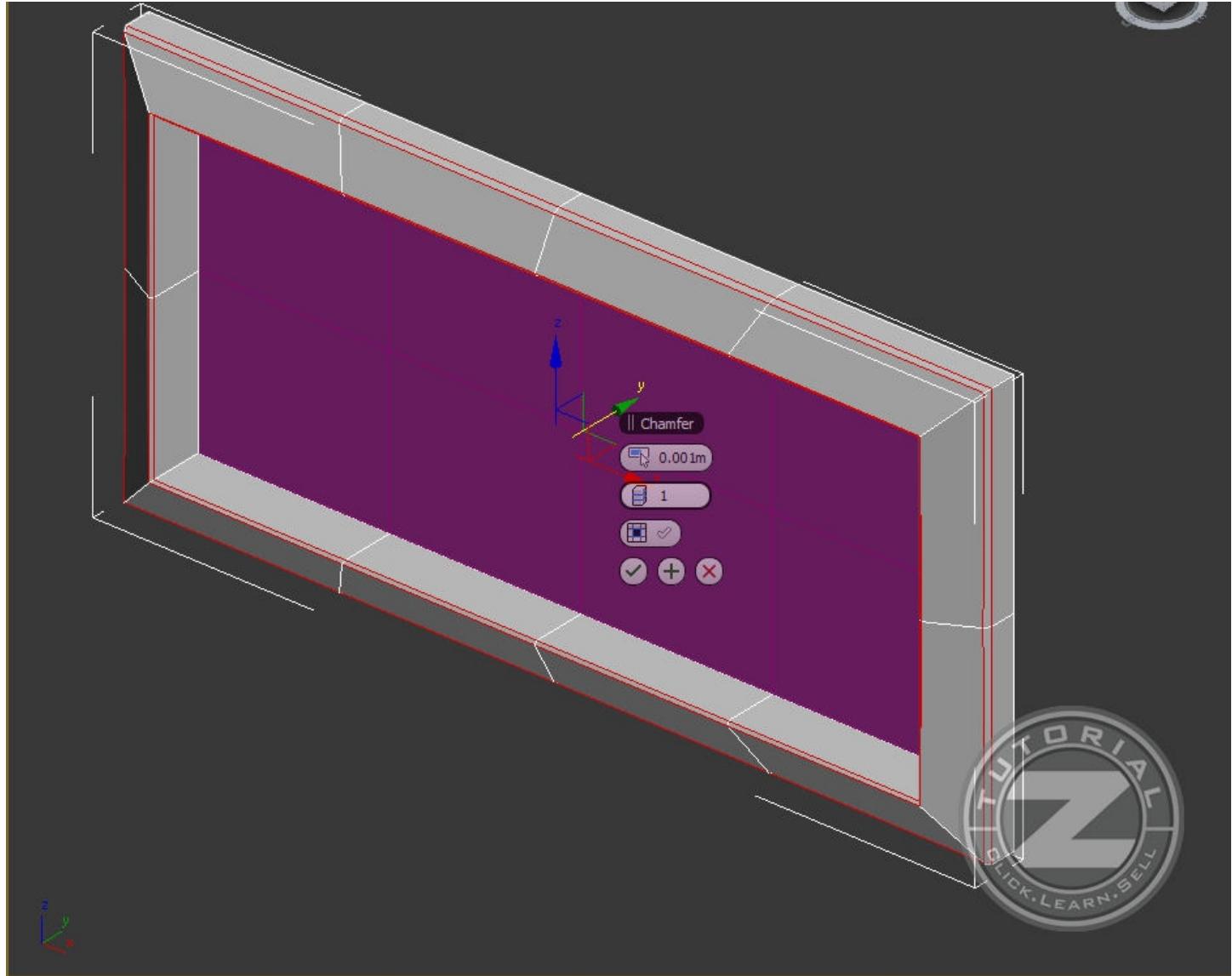
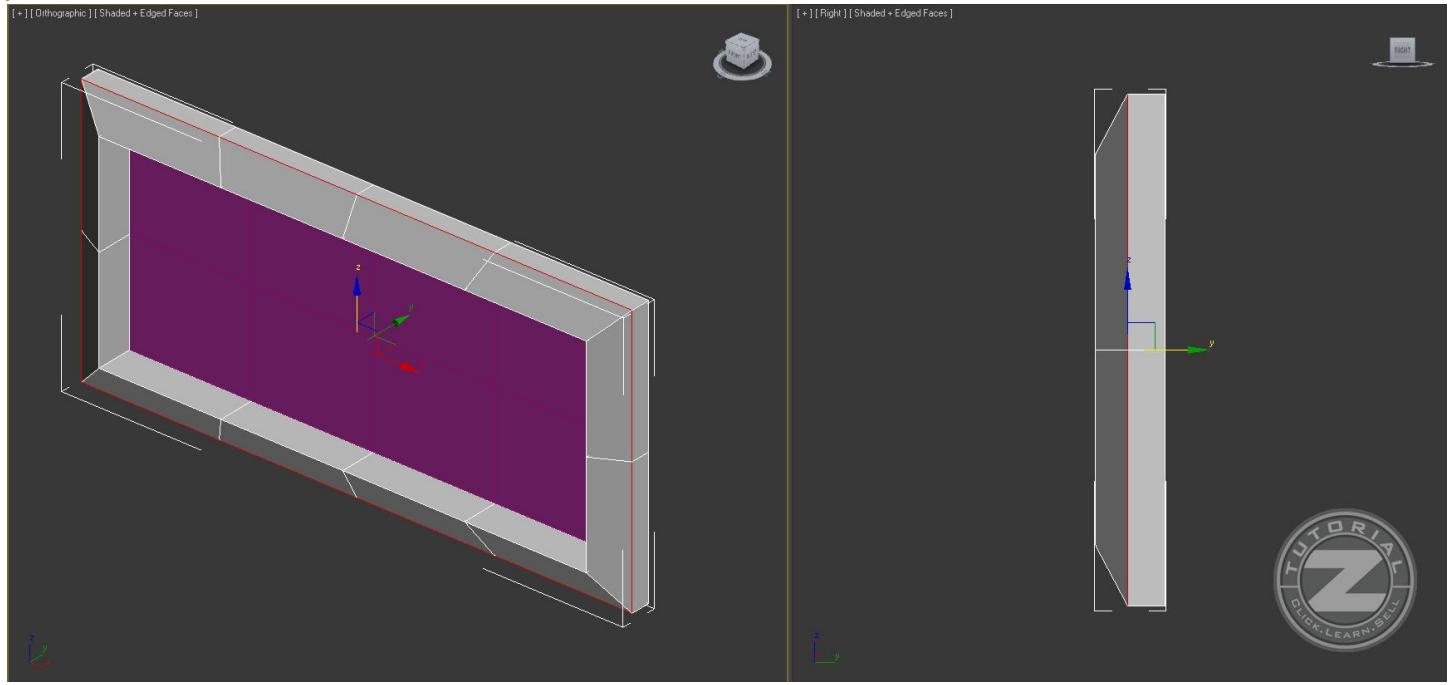


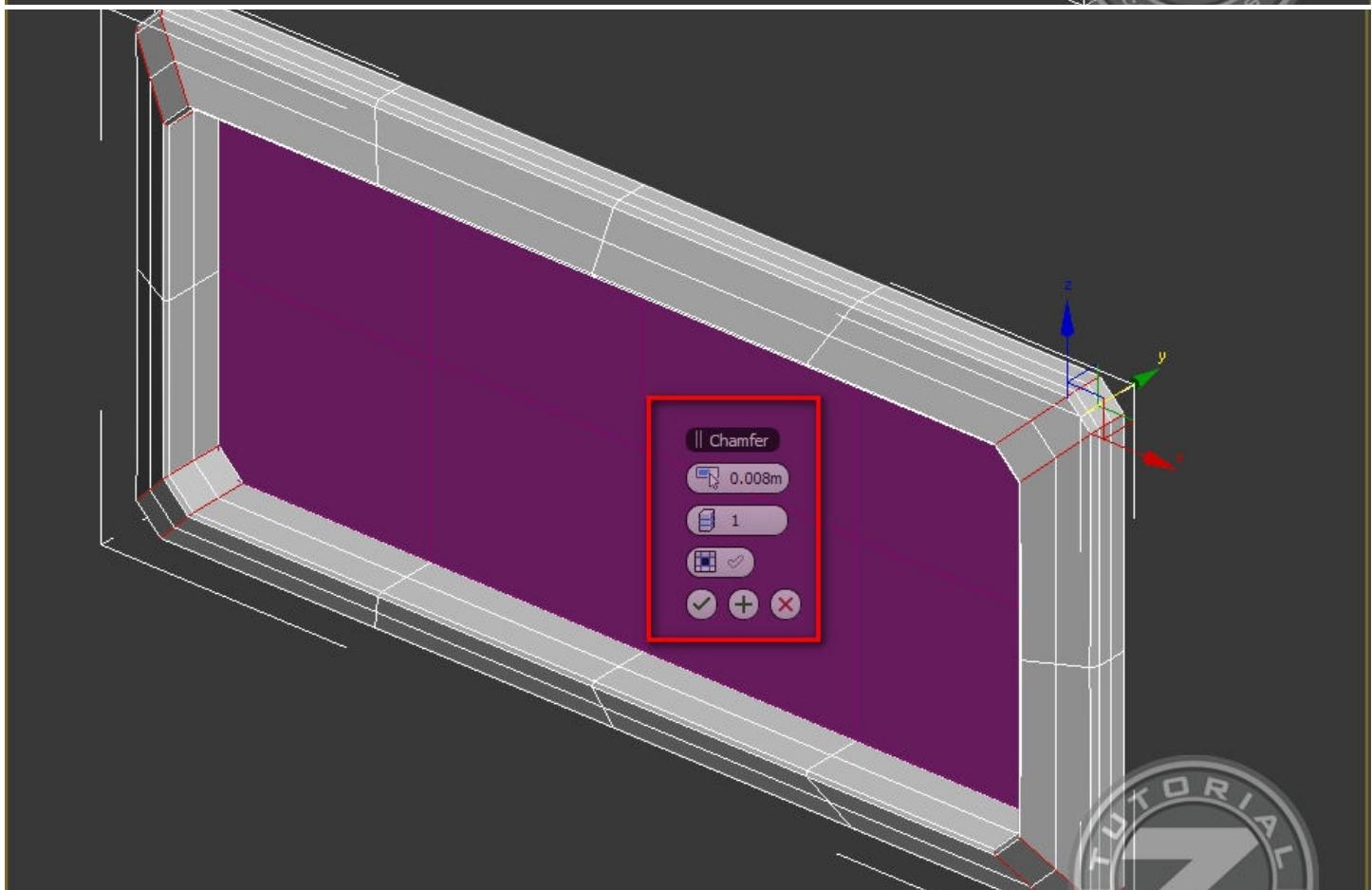
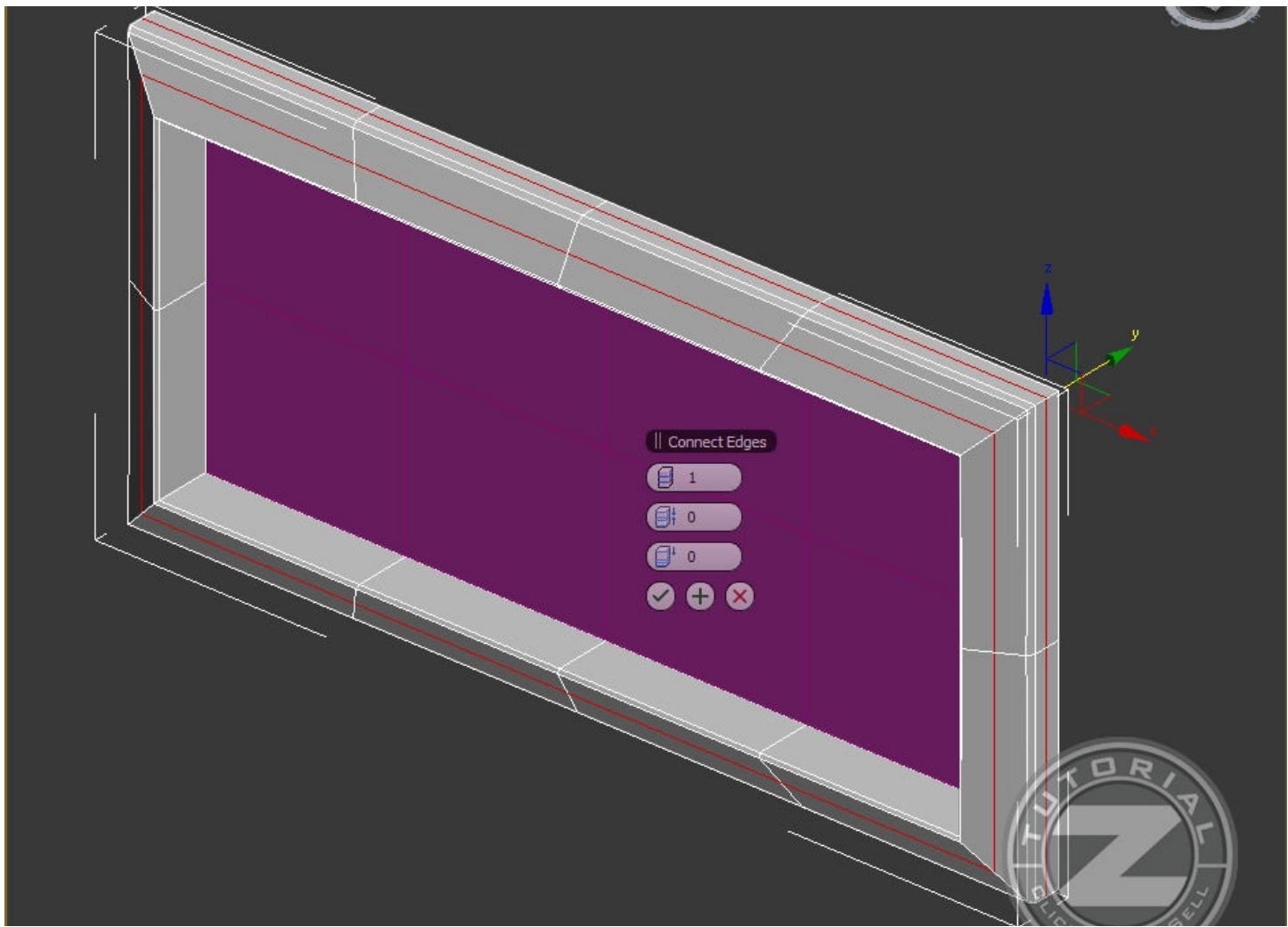
[+] [Front] [Shaded + Edged Faces]

[+] [Right] [Shaded + Edged Faces]

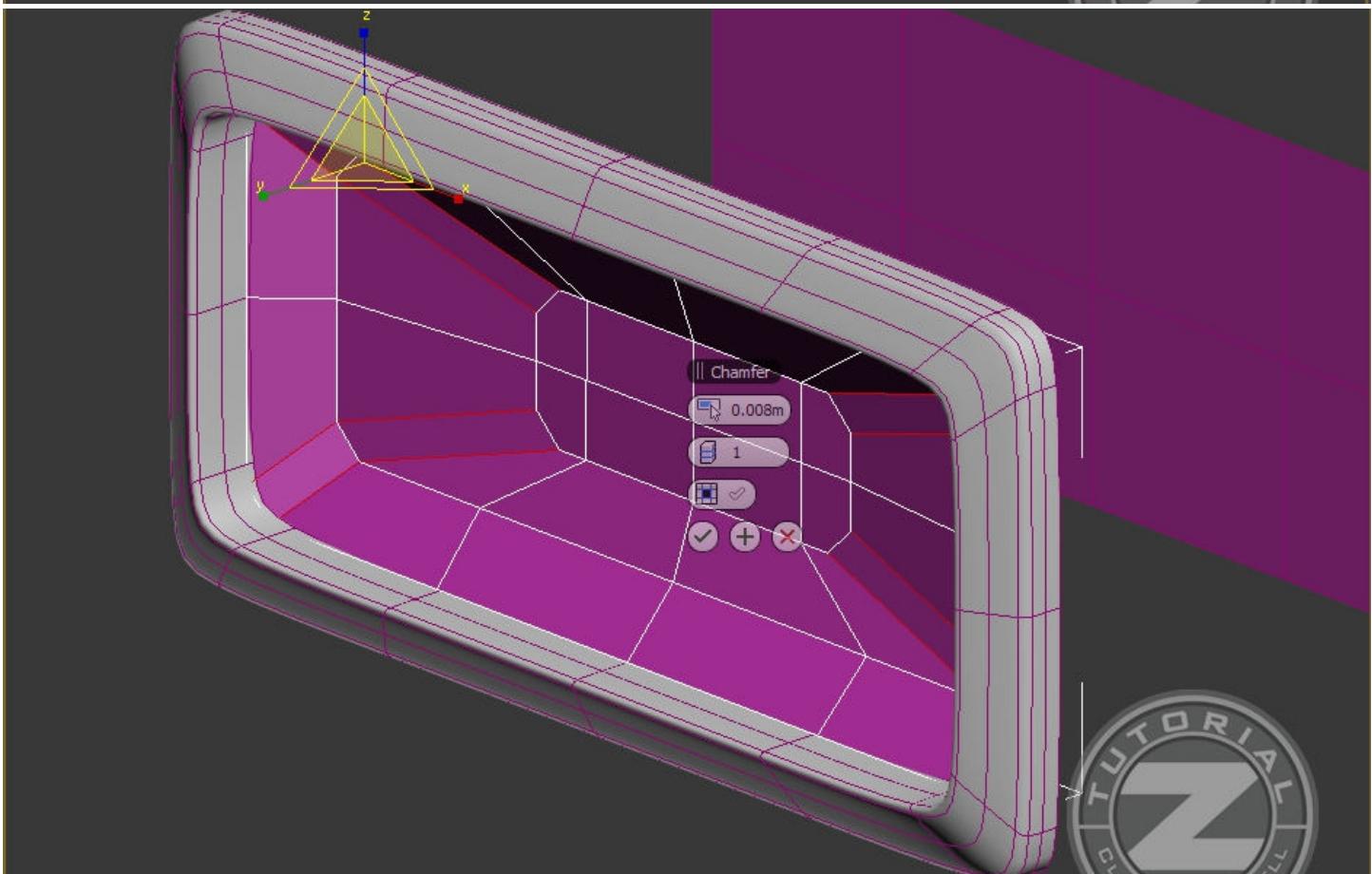
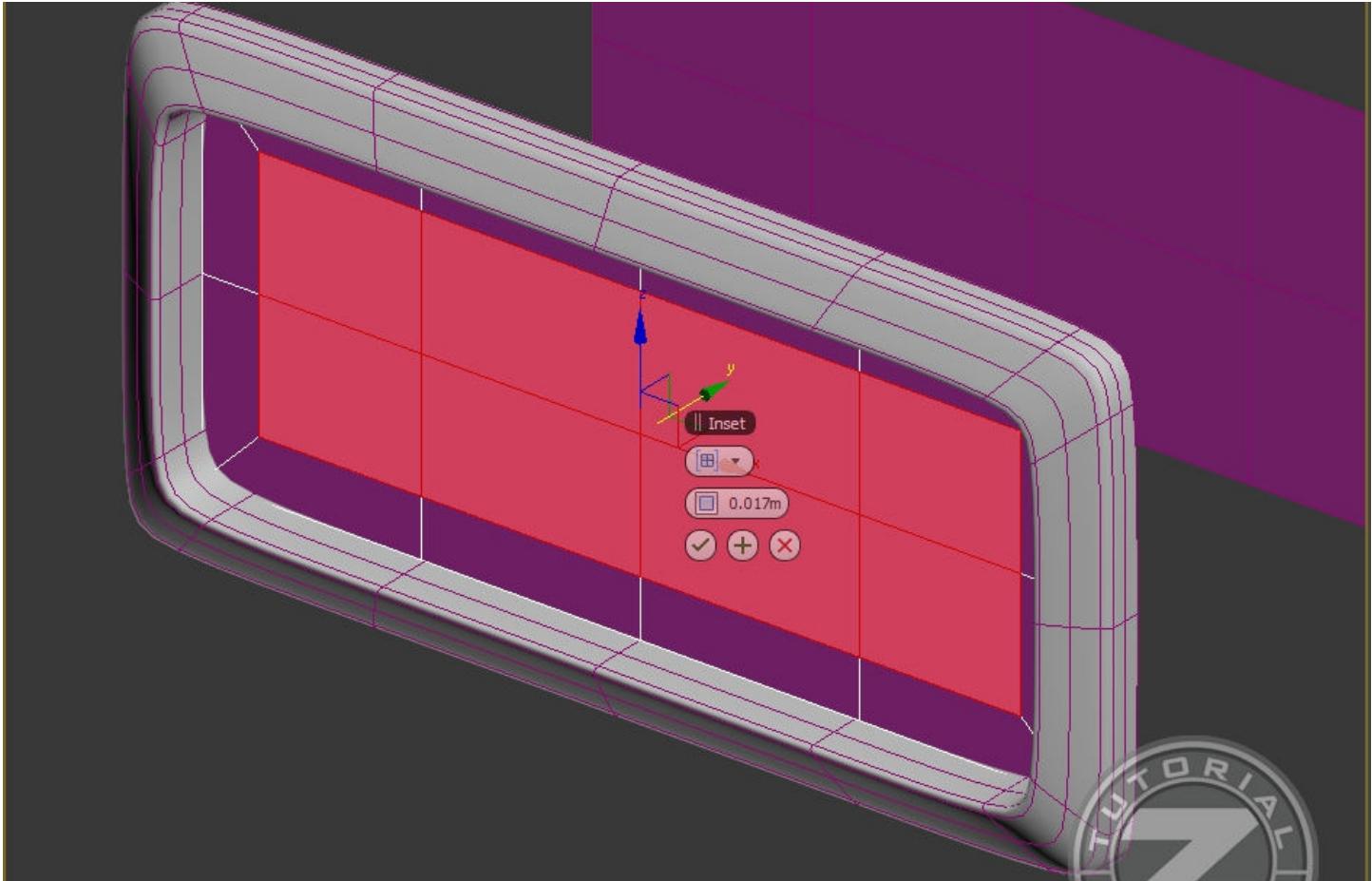


110. Now you have some images to help you to model the chromed ring which surrounds the blinker. There are just simple steps that I don't think that requires instructions :





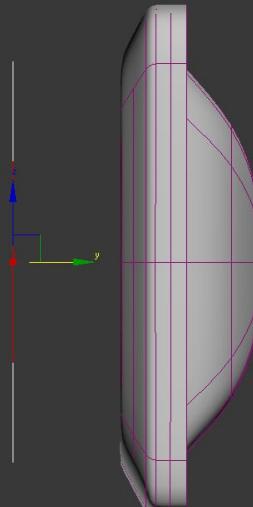
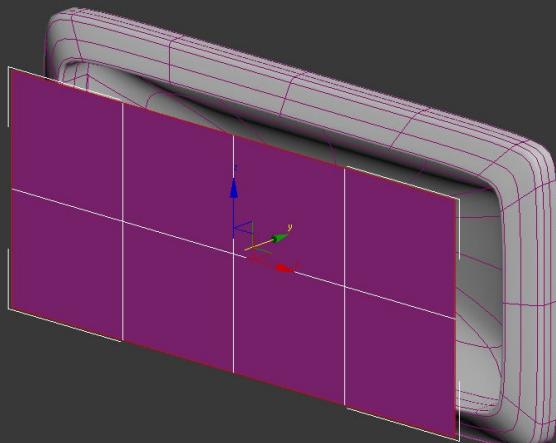
111. When you will model the blinker, chamfer the corners with the same amount that you have chamfered the corners of the chromed ring. Like this, it will fit perfectly. And by the way , do the same thing that we did for the headlight : make 2 copies of the place (1 for the blinker's glass, and the other one for the interior)



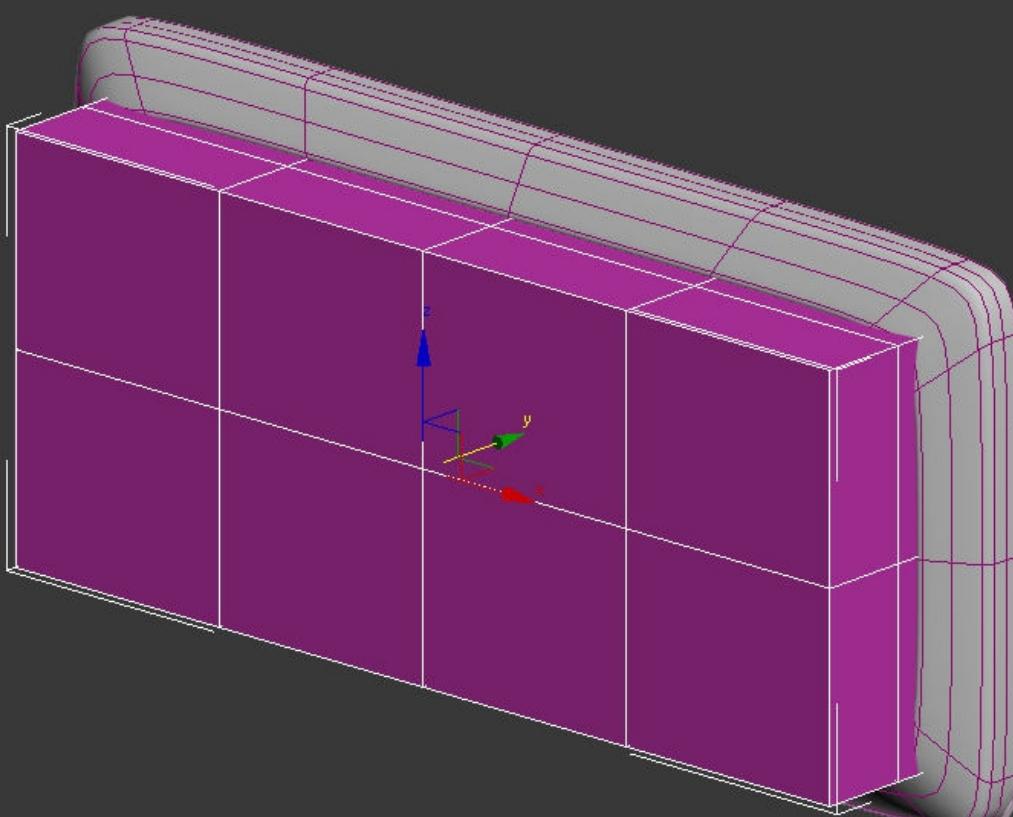
[+] [Orthographic] [Shaded + Edged Faces]

[+] [Orthographic] [Shaded + Edged Faces]

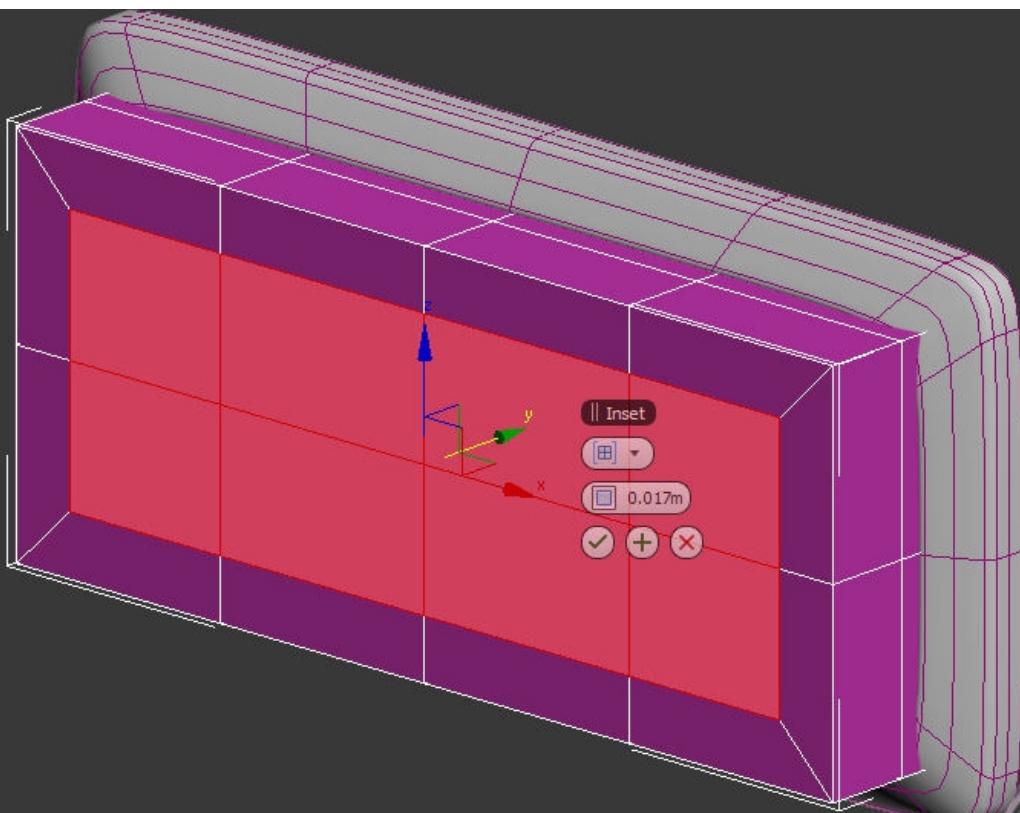
RIGHT



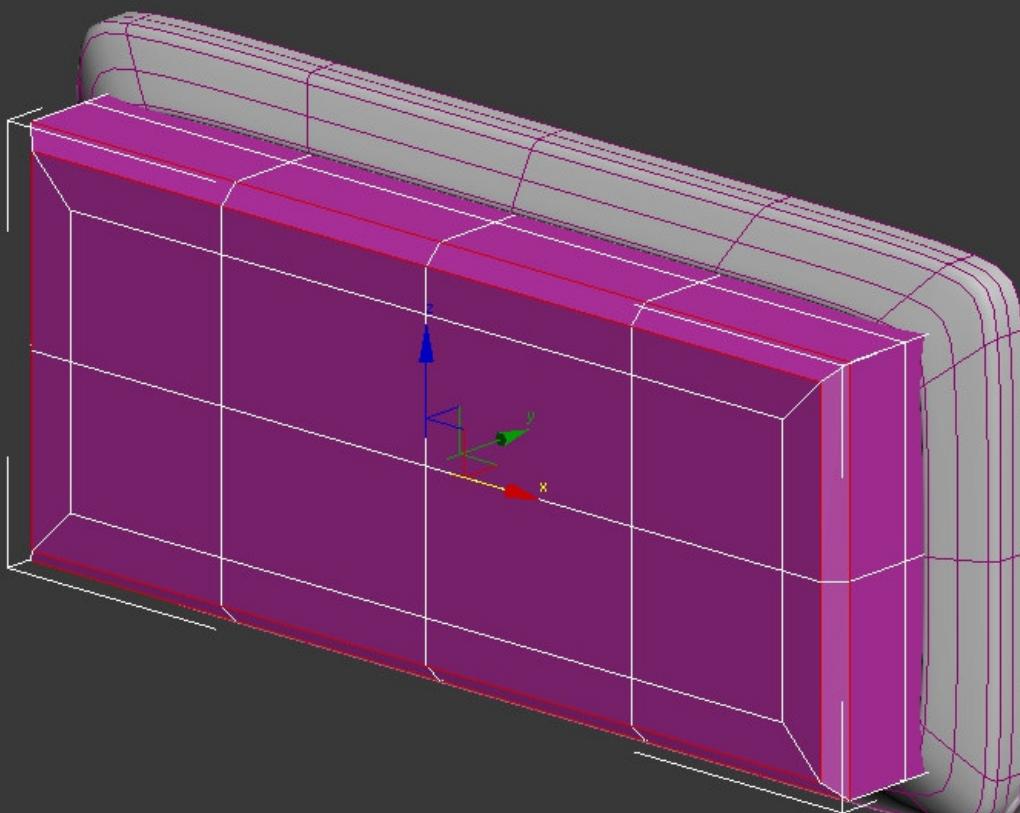
[+] [Orthographic] [Shaded + Edged Faces]



x
y
z

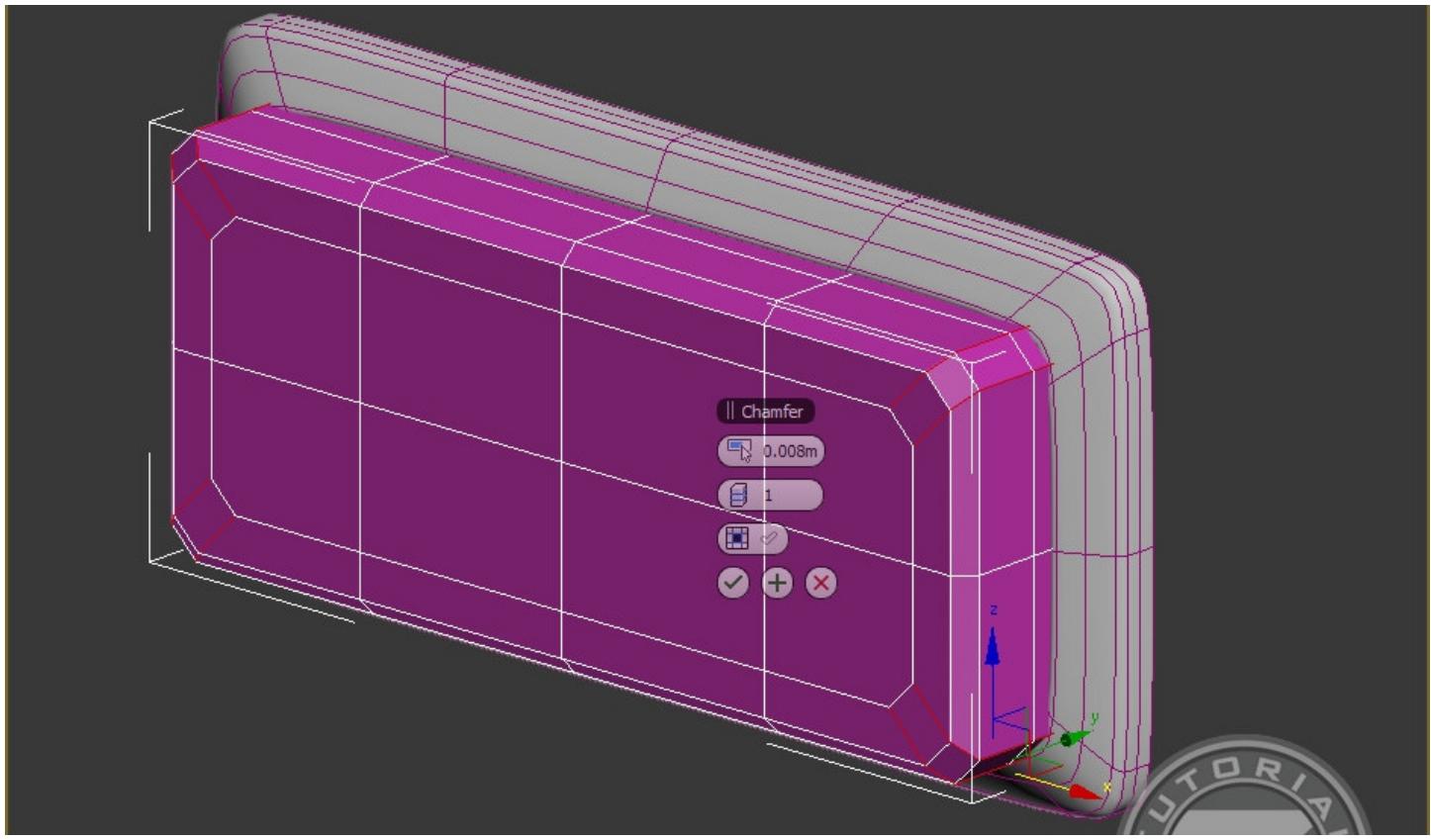


TUTORIAL



TUTORIAL
CLICK.LEARN.SELL

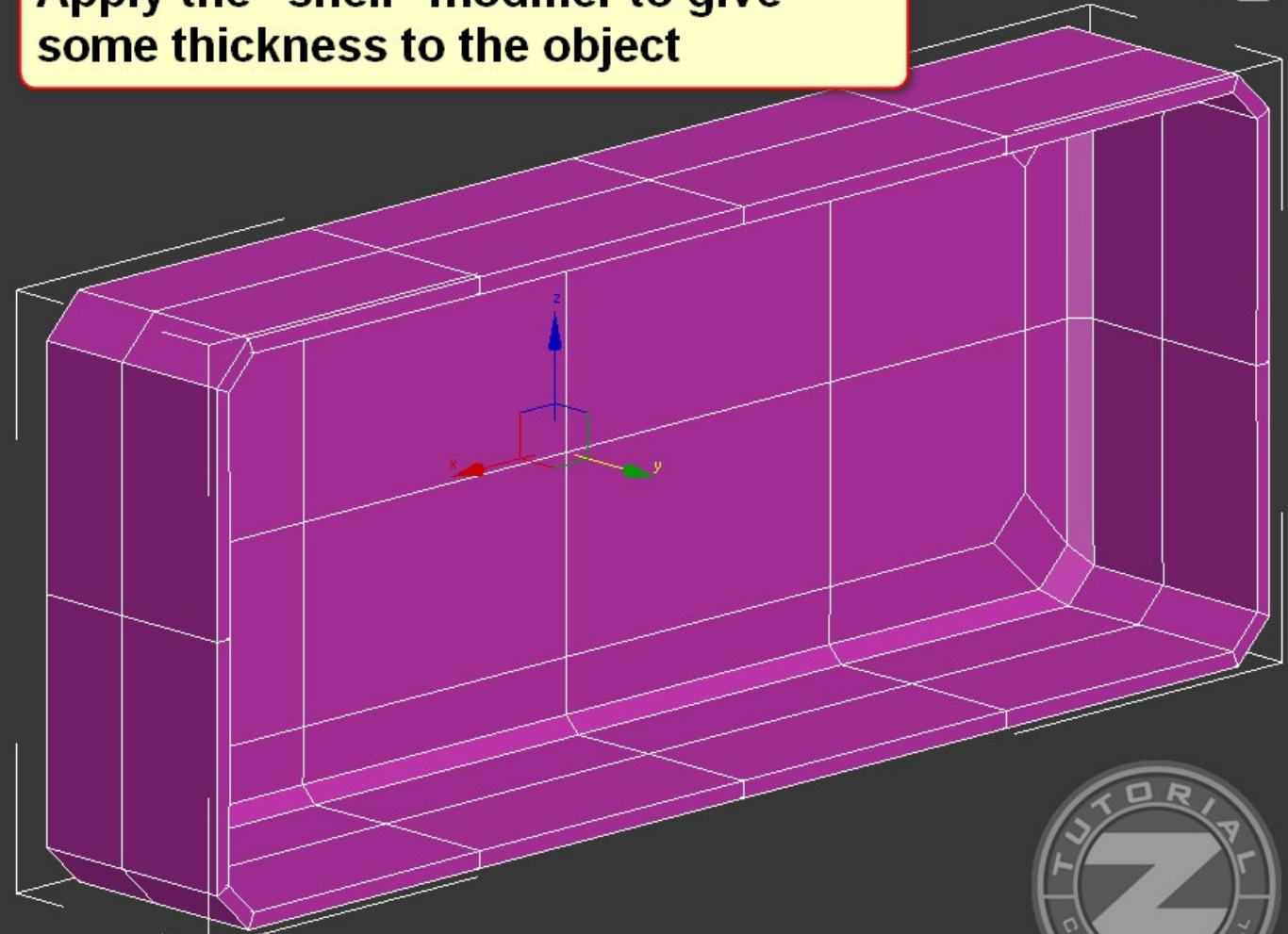
z
x

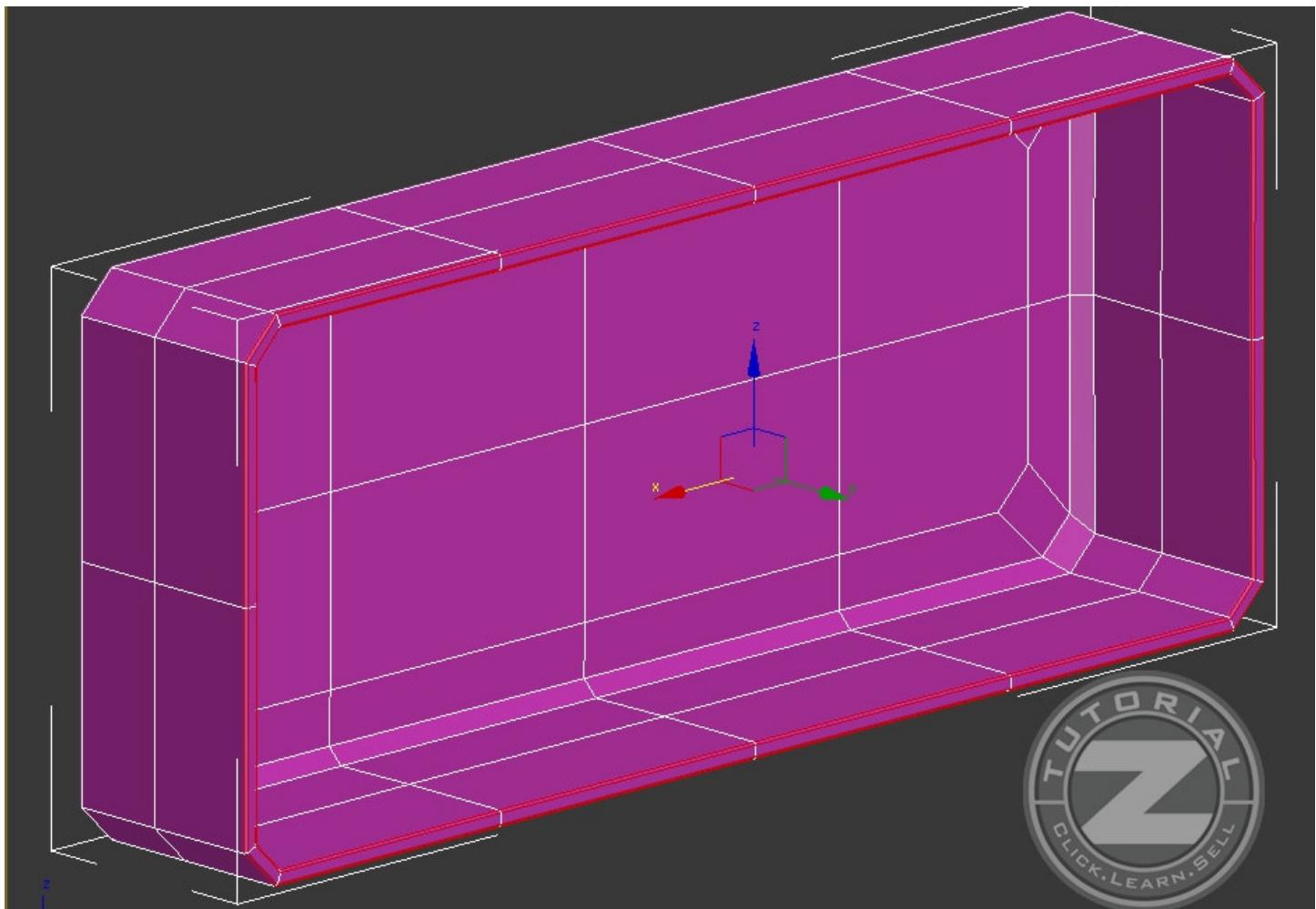


[+] [Orthographic] [Shaded + Edged Faces]

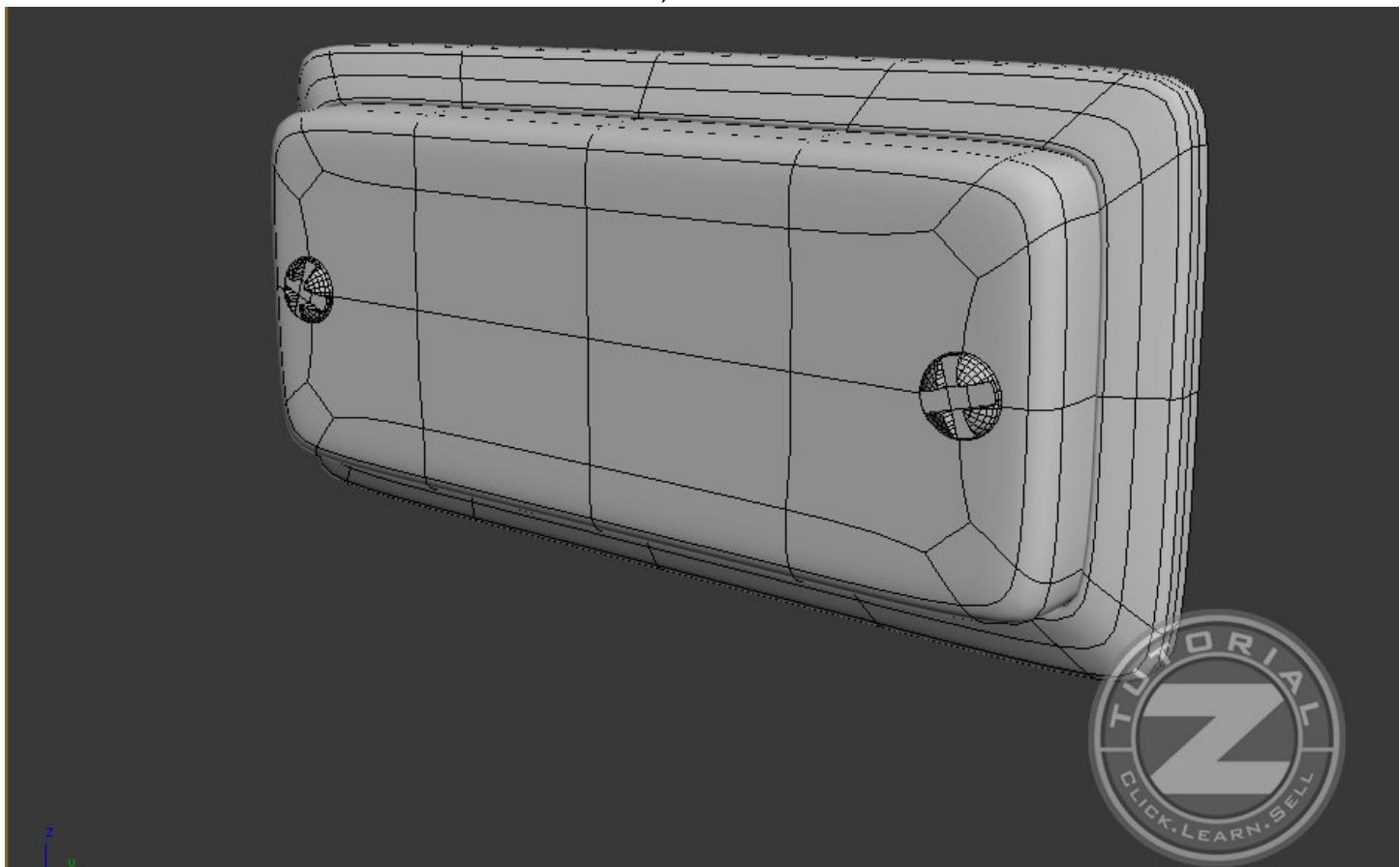


Apply the "shell" modifier to give some thickness to the object

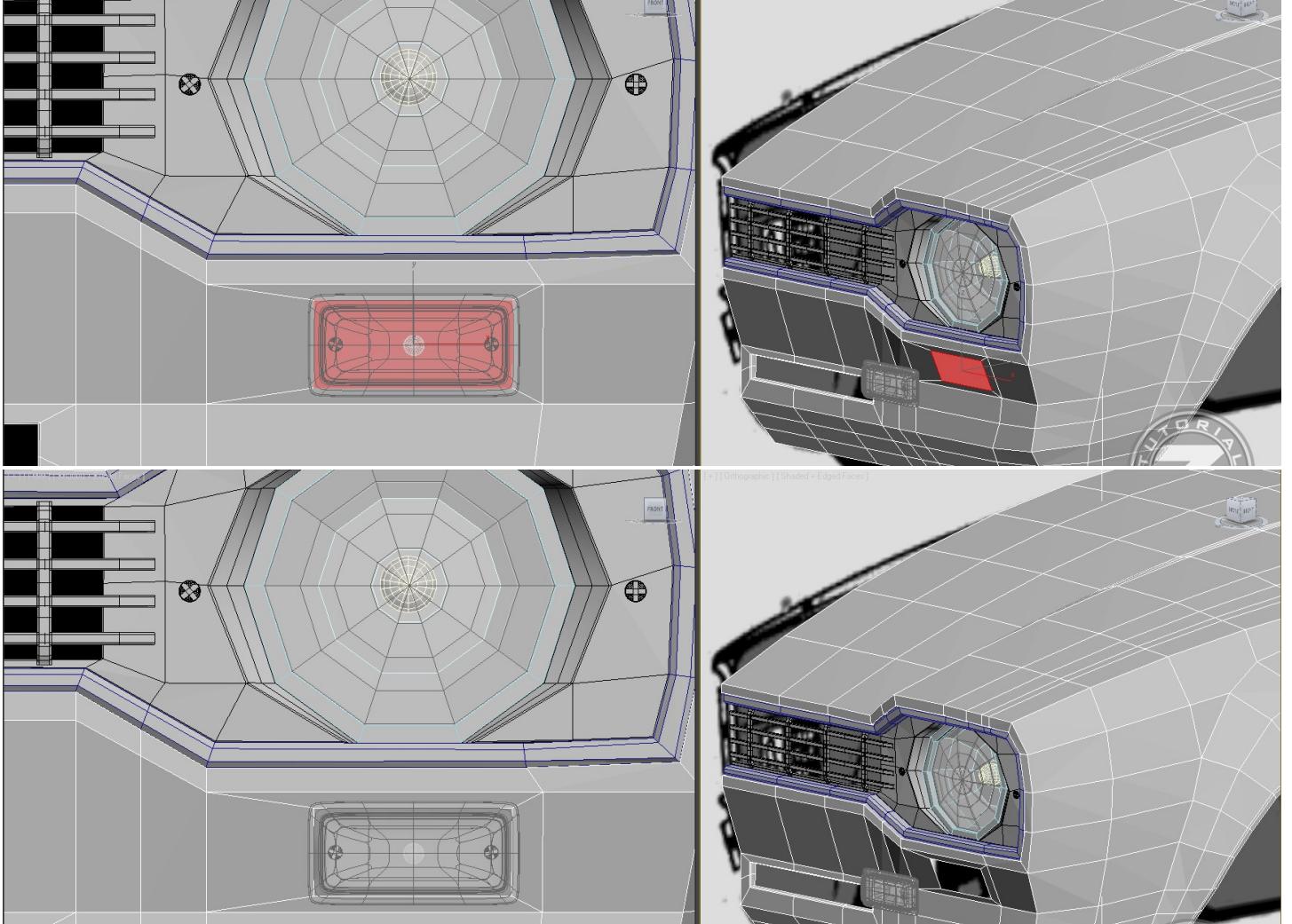




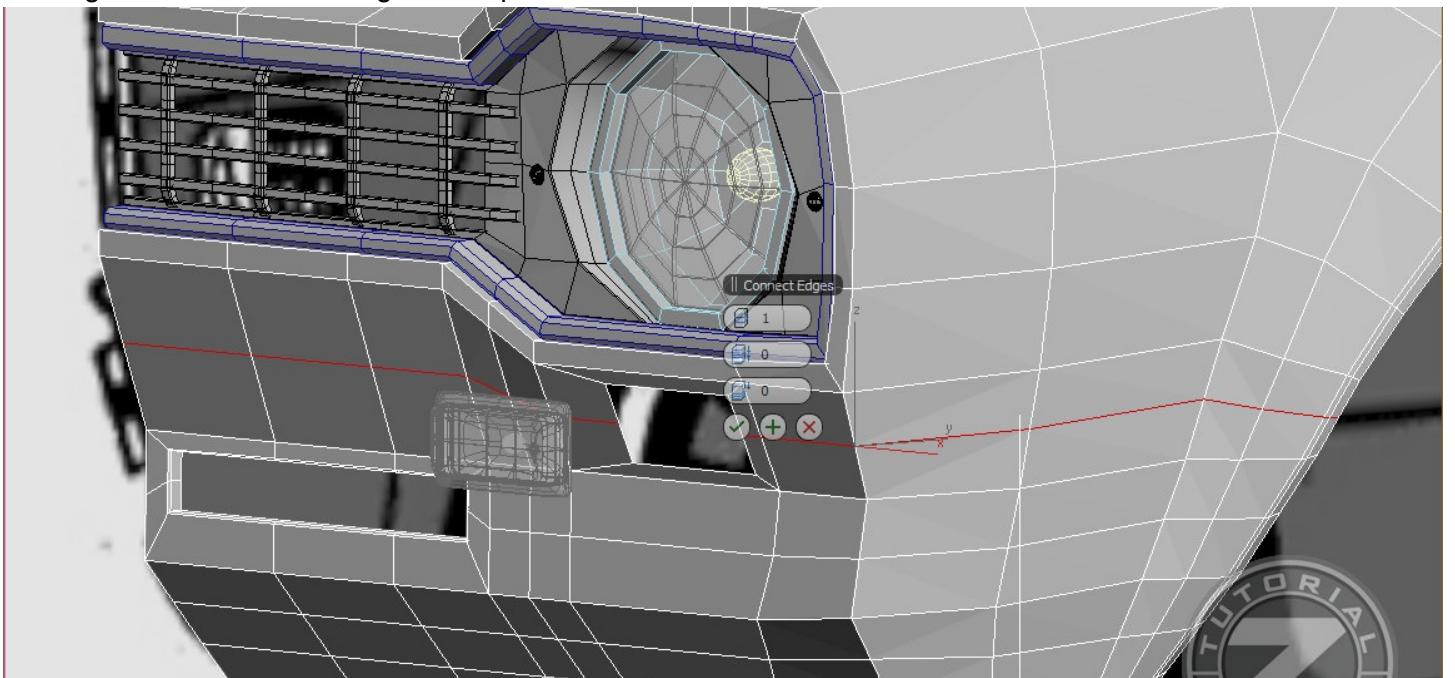
112. Here you have my result, my blinker (I have also duplicated the bolts that we have made for the grill, scaled them down and use them on the blinkers too) :

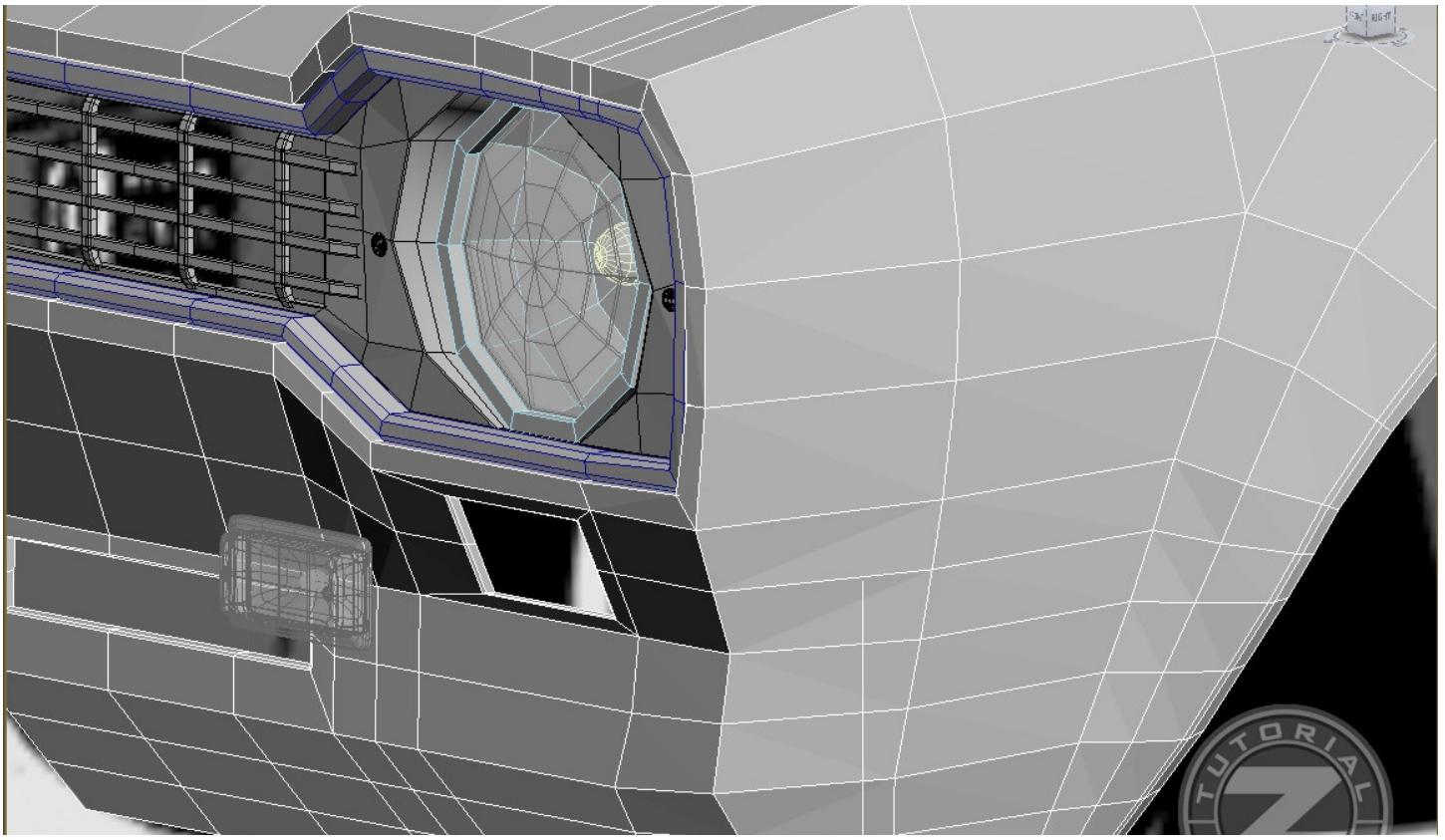


113. Now let's place the blinker. But first, we need to make a hole in the car's body because it will intersect with the interior of the blinker. So, apply an inset over the polygon where the blinker should be, then delete that new formed polygon.

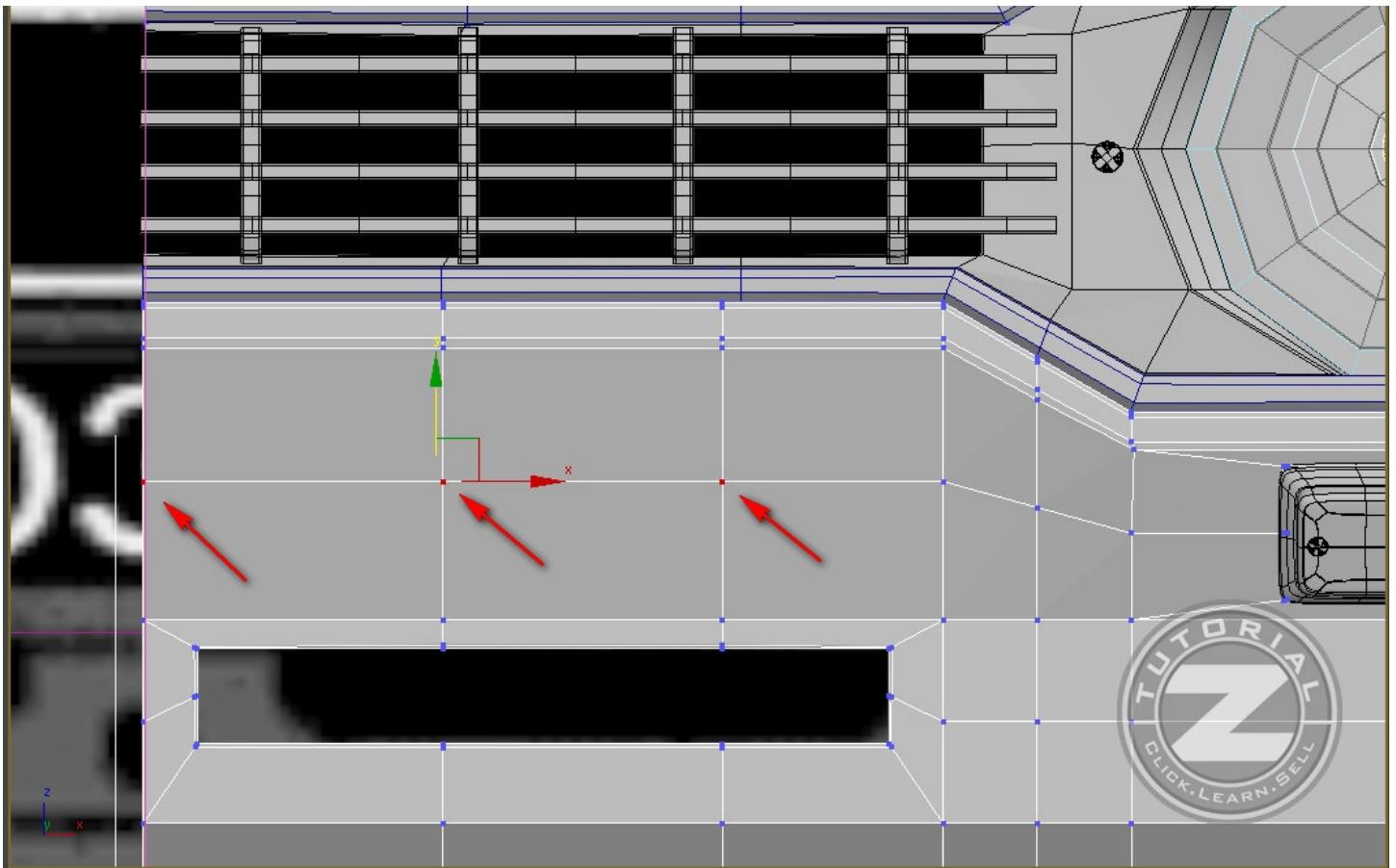


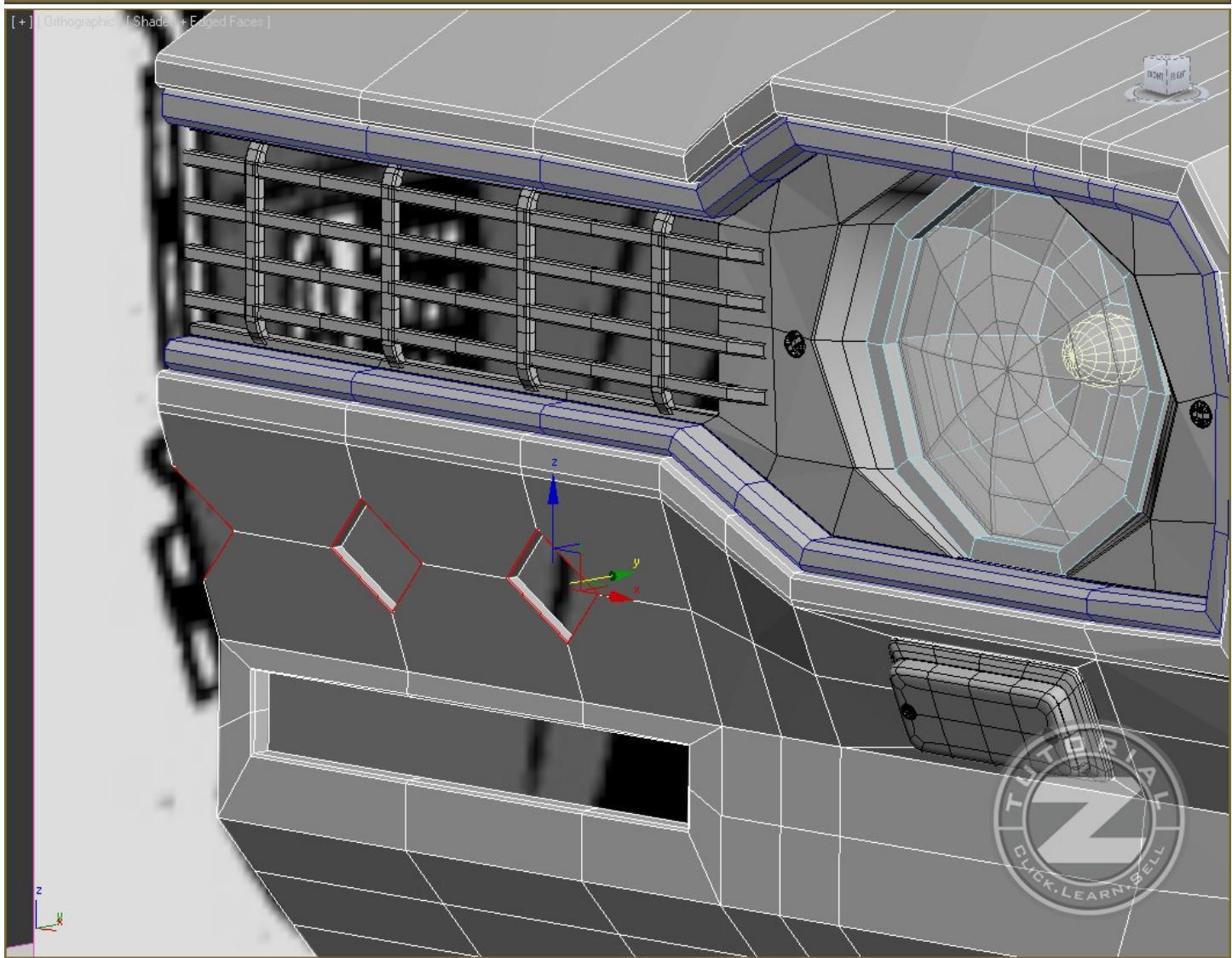
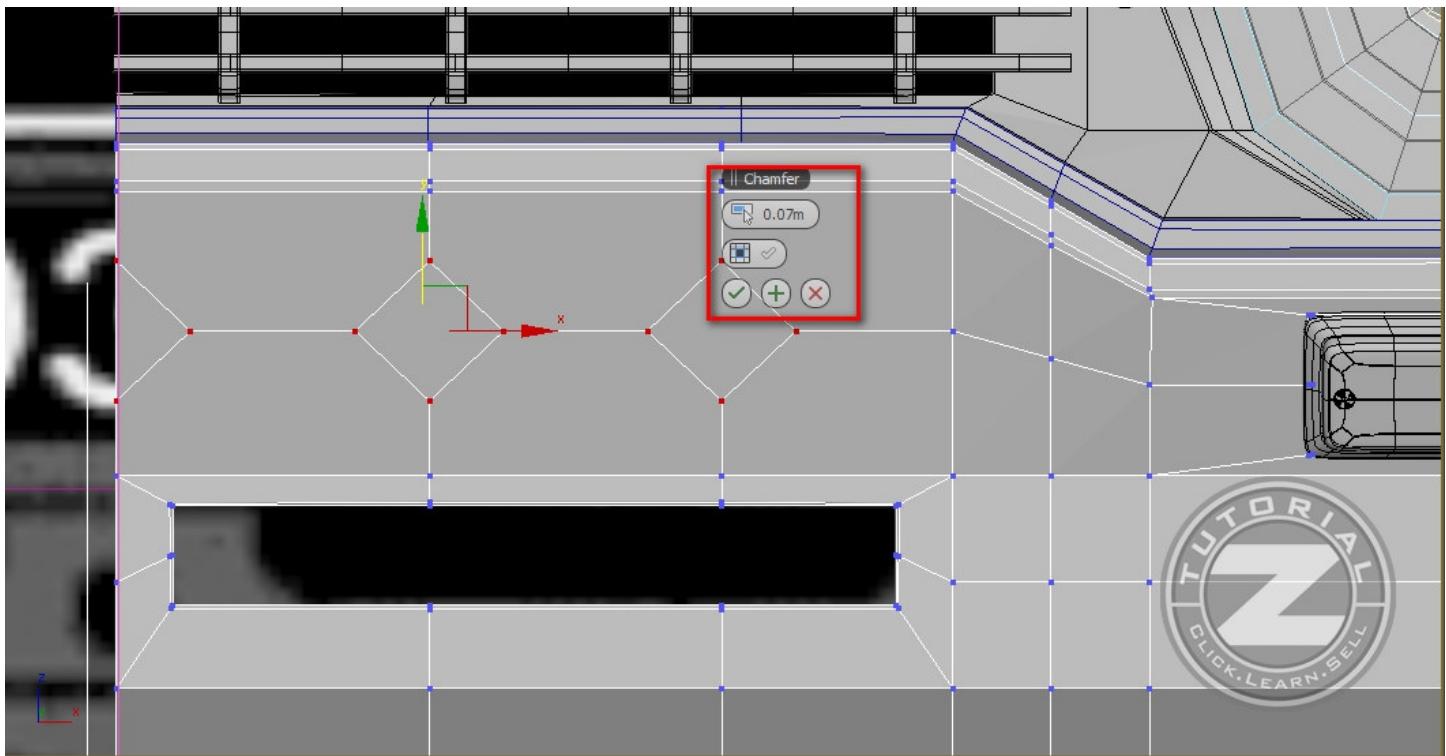
114. Add a row of edge as me, then select the border of the hold, drag it a little bit to the interior and chamfer the edges showed in the image. Then put the blinker there :



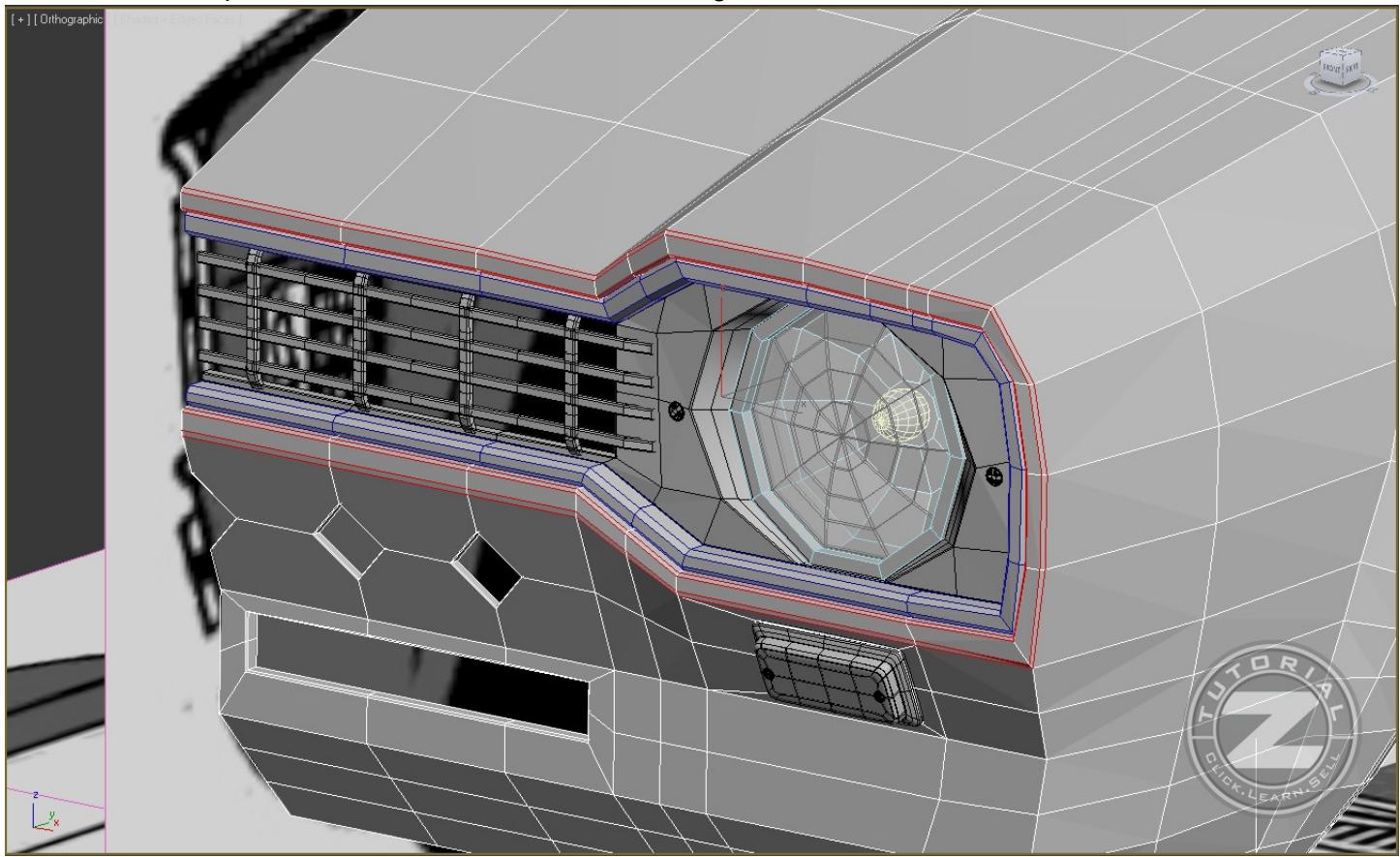


115. If you will check some reference images, you will notices that some models have some holes under the grill and I will do them too, because it gives a better looking to the car. It's very simpel to make them, just select the same vertices as me , use the "chamfer" tool to split them, then delete the polygon which is formed between them :

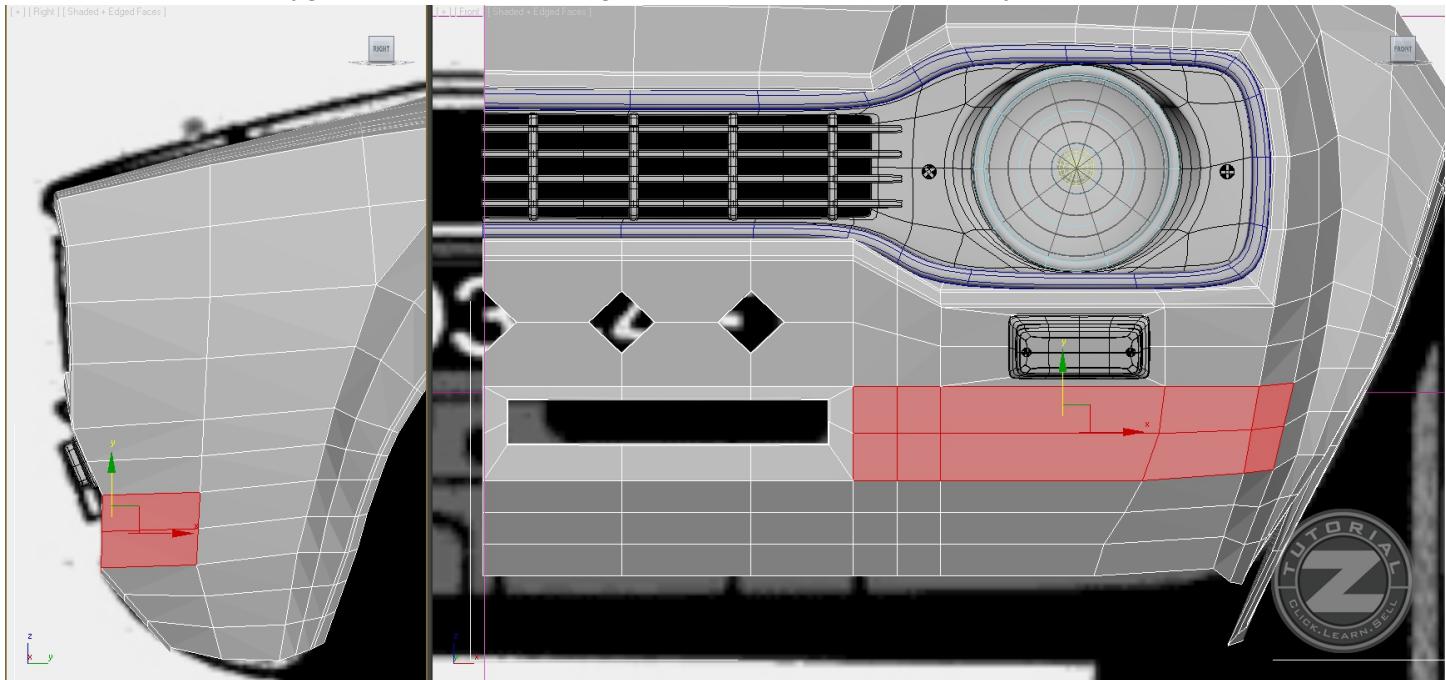


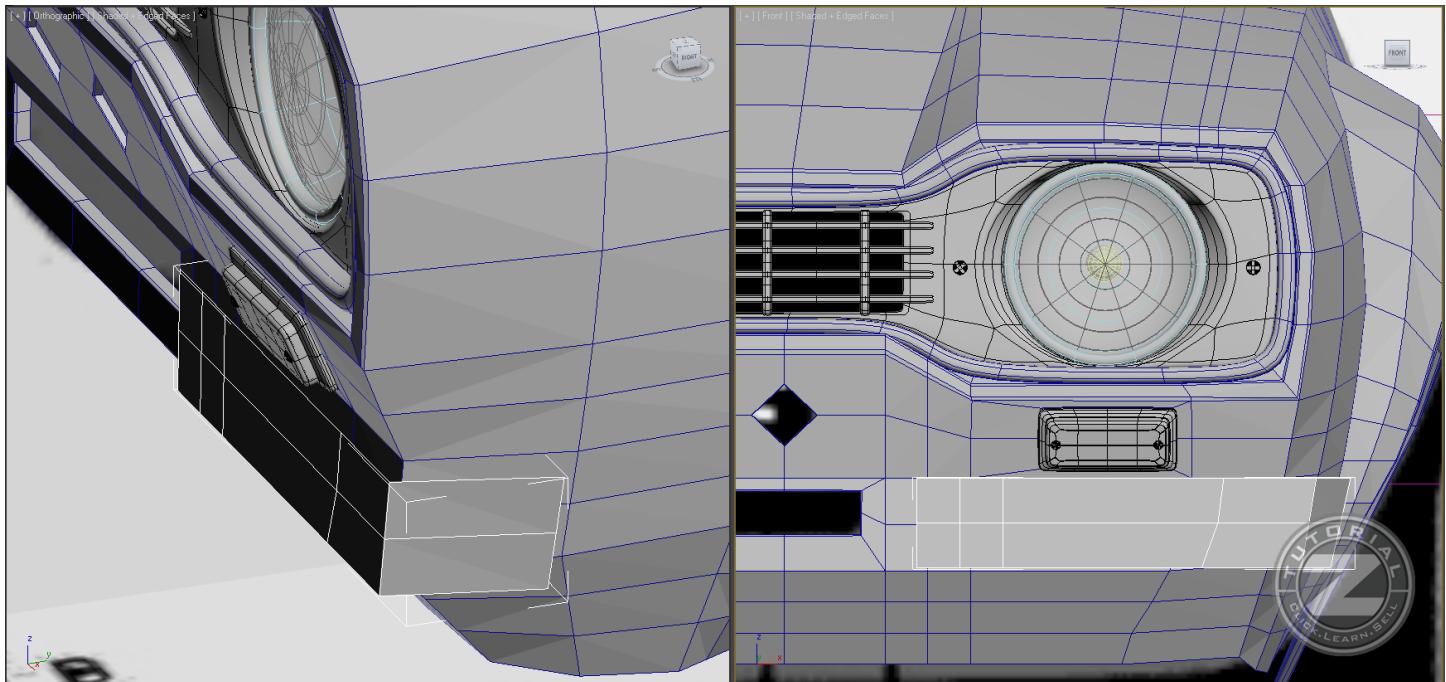


116. The next step that I did , it was to chamfer these edges :

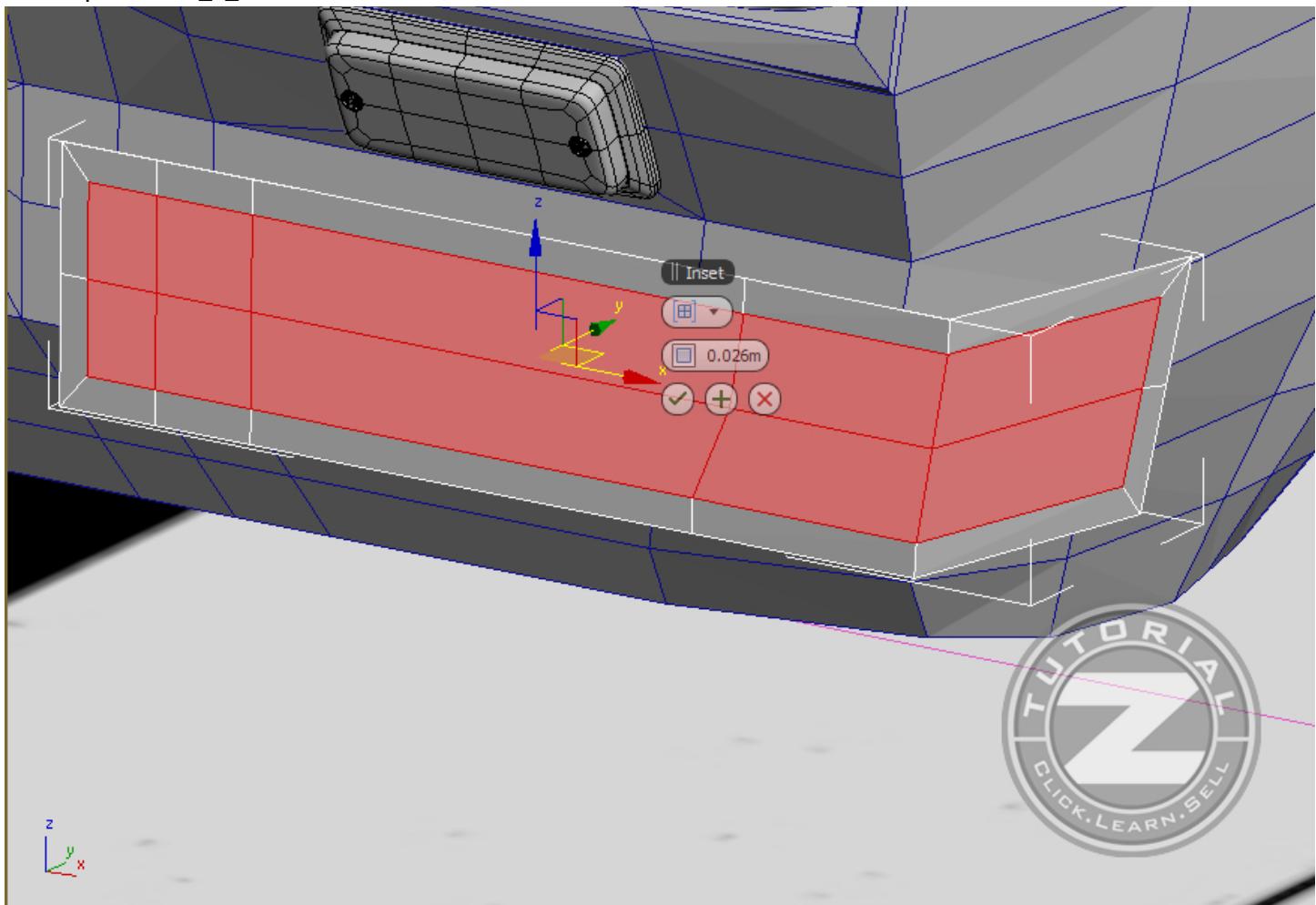


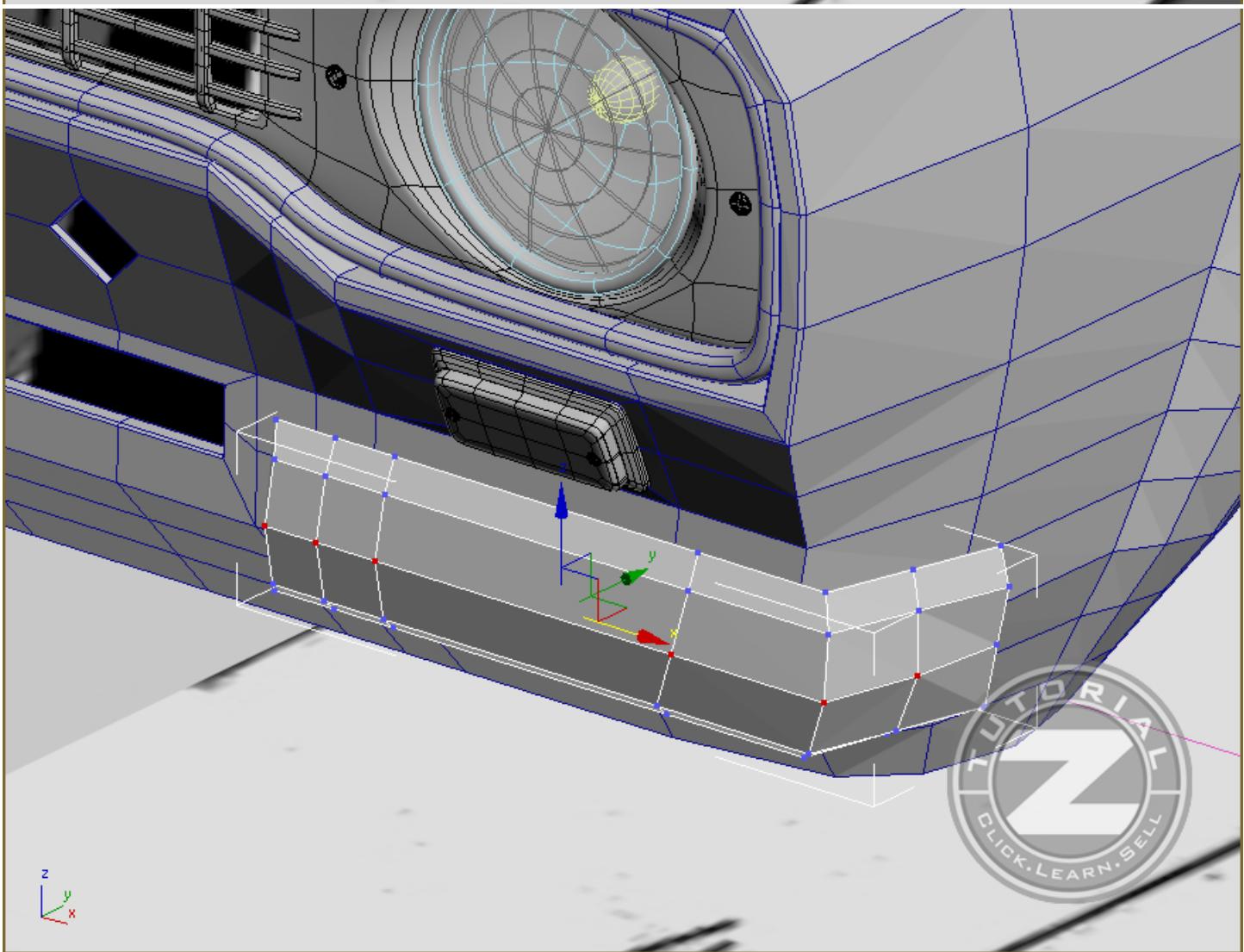
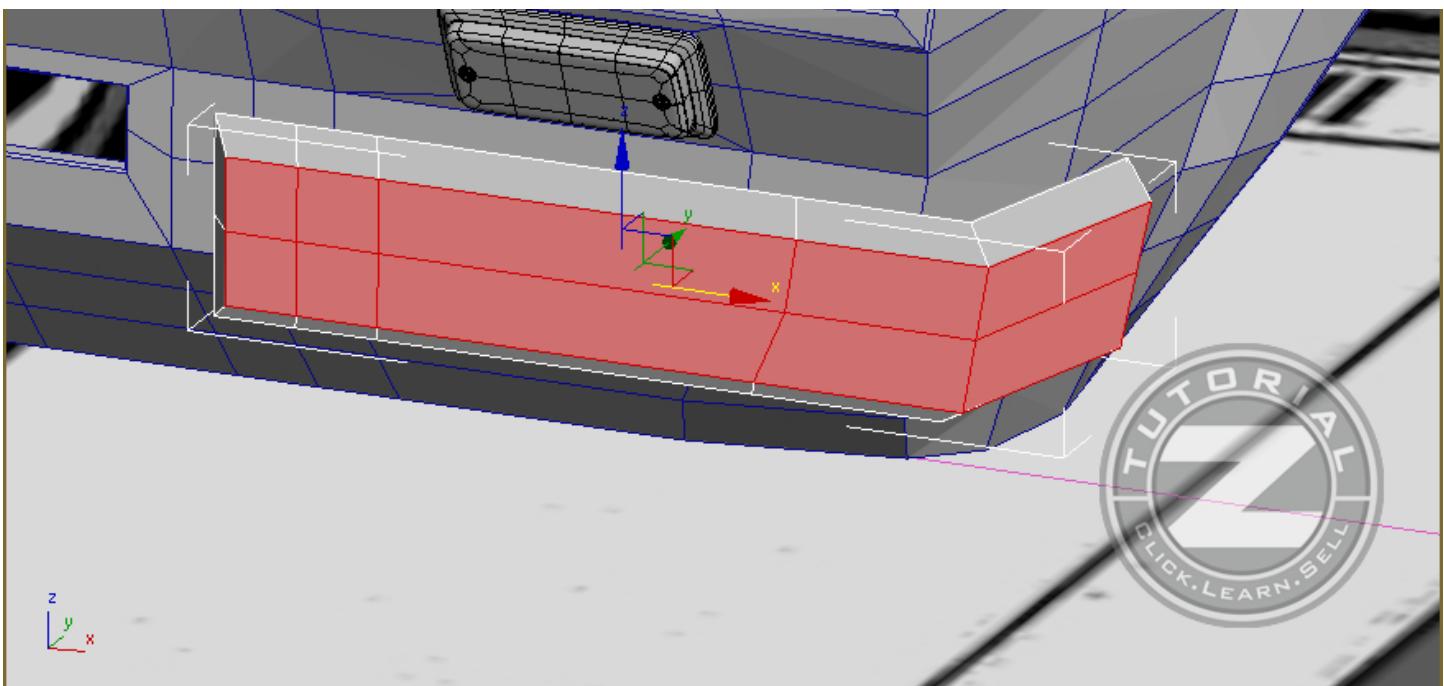
117. If you are checking some reference images, you will notice that the front bumper is made by 2 parts, but there are models without these chrome bars so, if you want, you can skip this part. So, to make them I have selected the same polygons as in the first image and then I have made a copy of them :

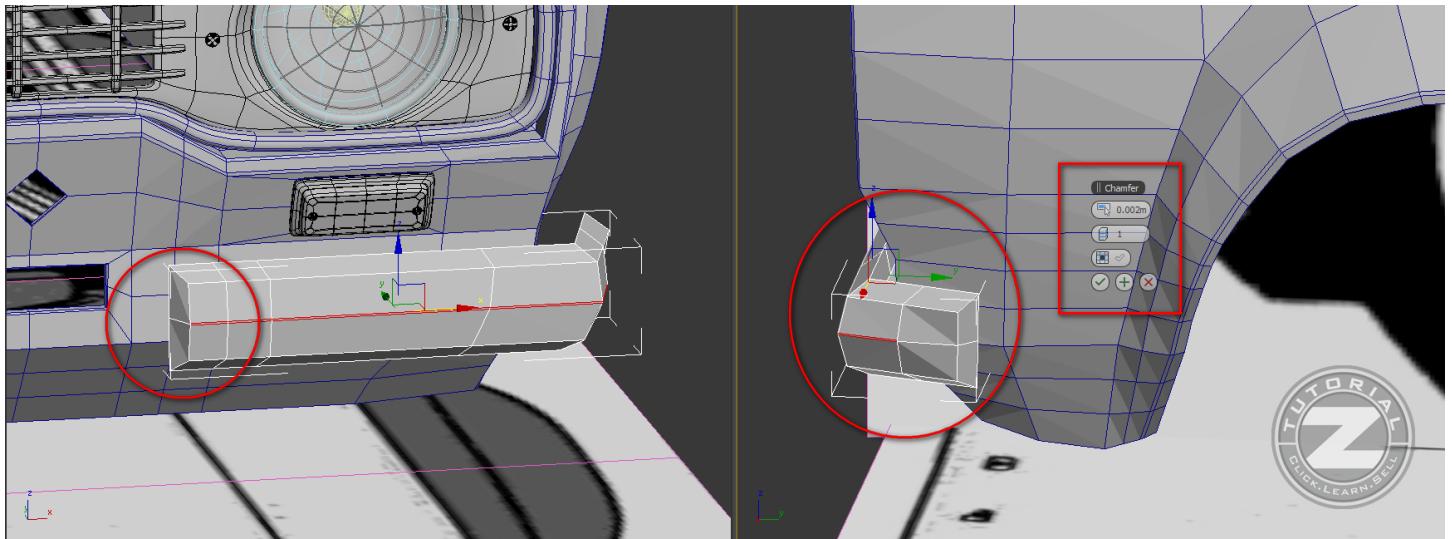




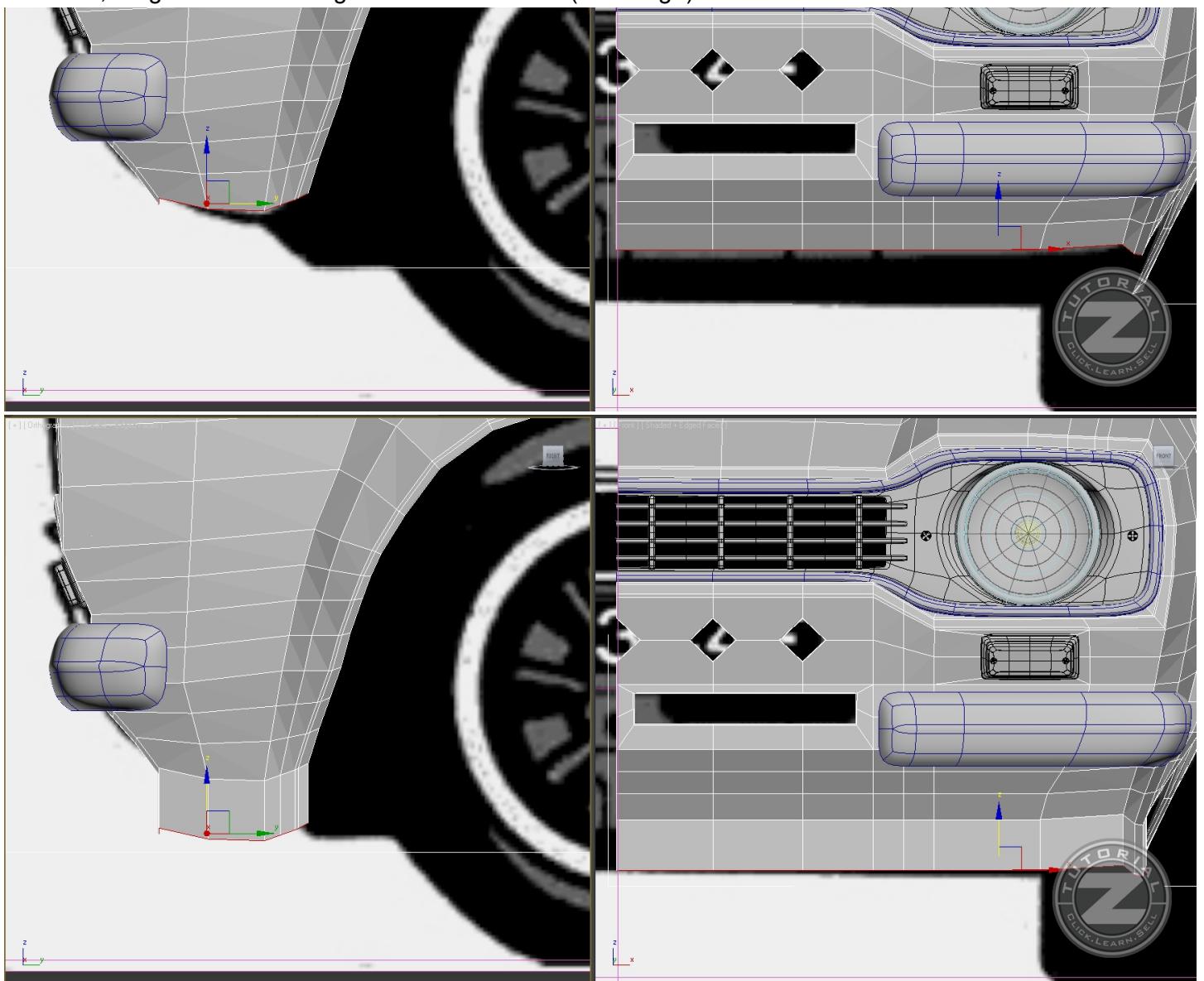
118. I have scaled up a liitle bit using the Y axis to make it wider , and then I have started to model it. You have the steps below

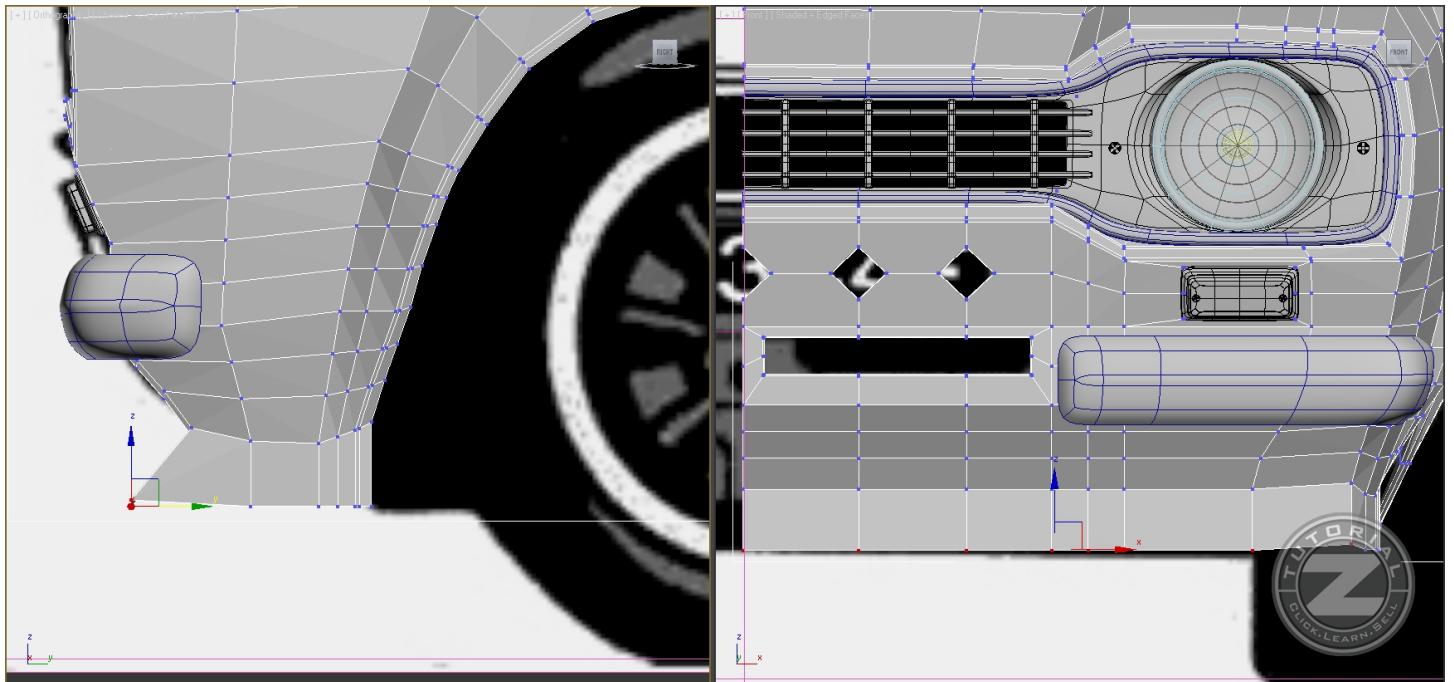




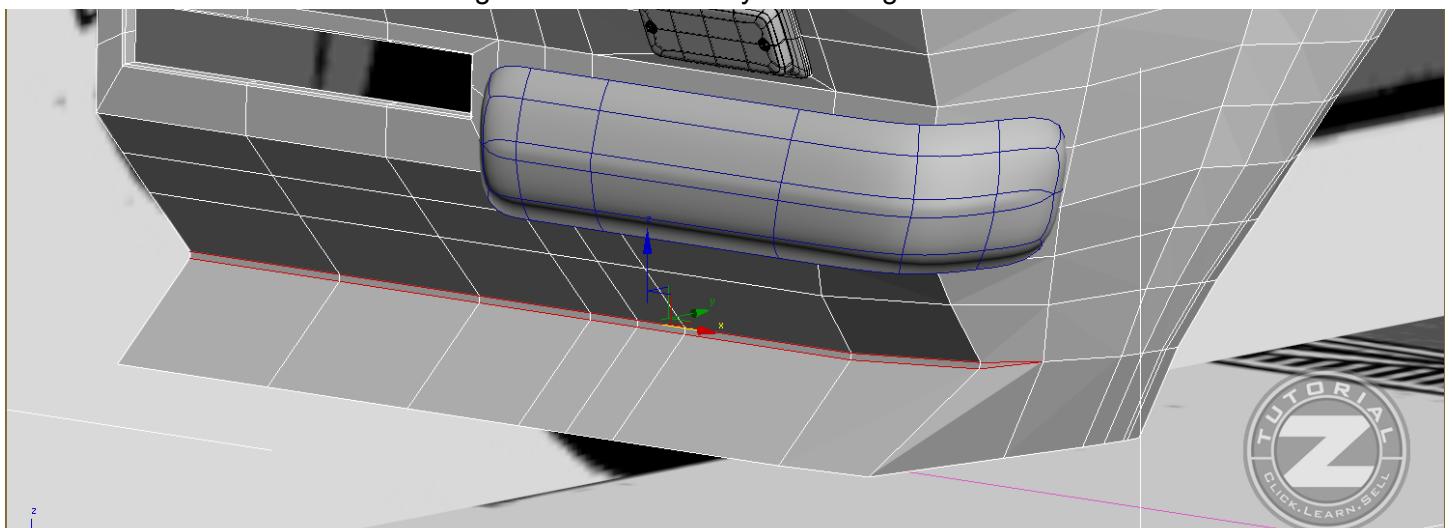


119. I will add a small/personal detail. At the bottom of the front part, I will make a small "lip" which will make the car a little bit more aggressive. To do it, just select the same edges ad me, then drag them down. When you are done, drag the selected edges a little bit forward (3rd image)

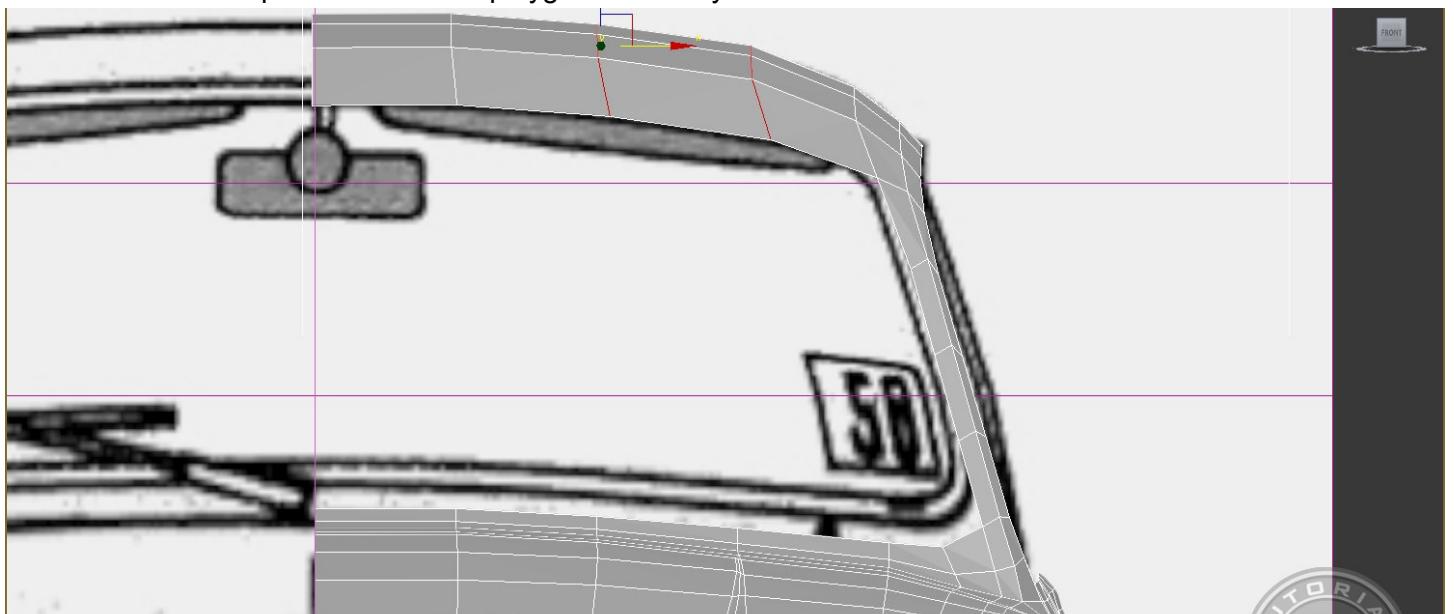


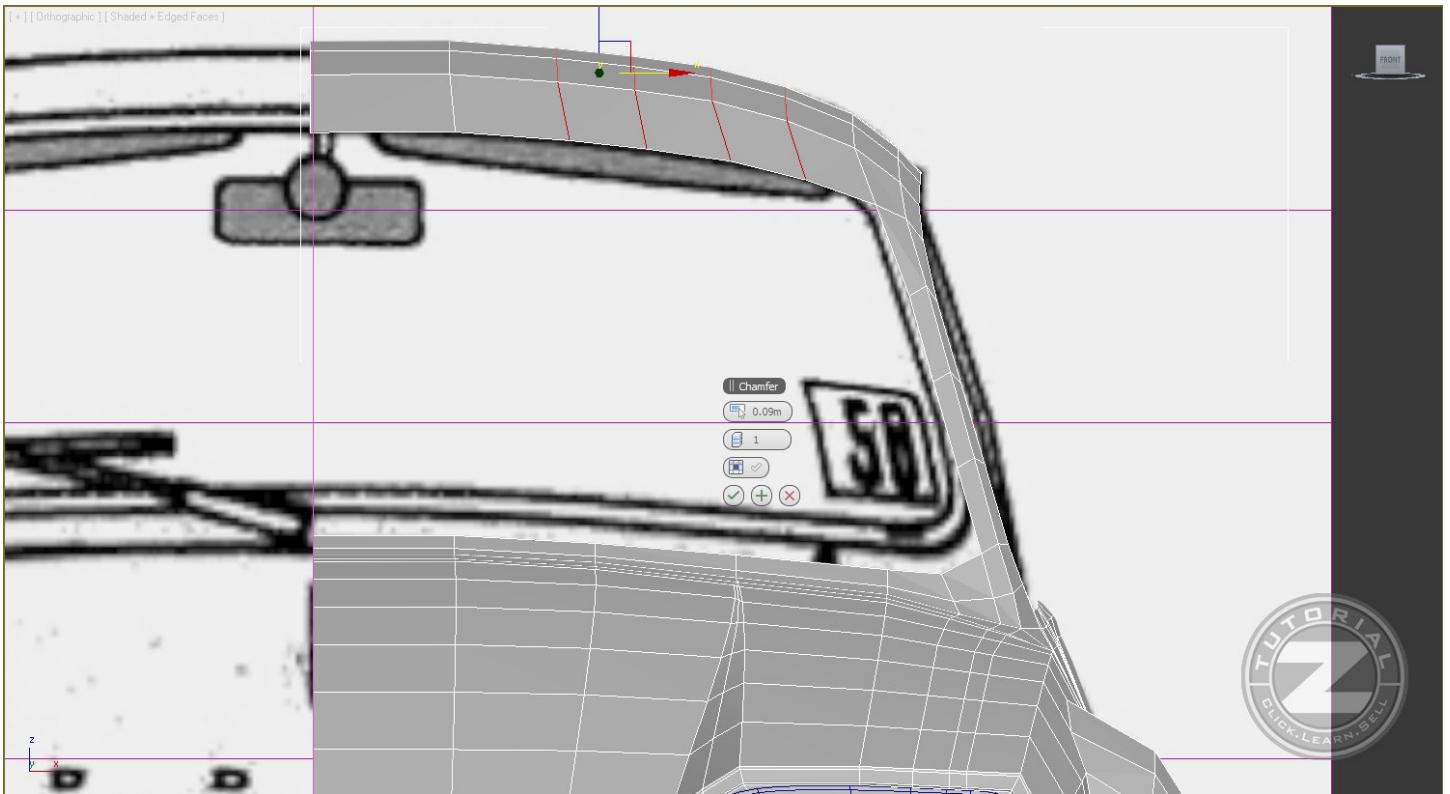


120. You can also chamfer these edges to make the body line stronger

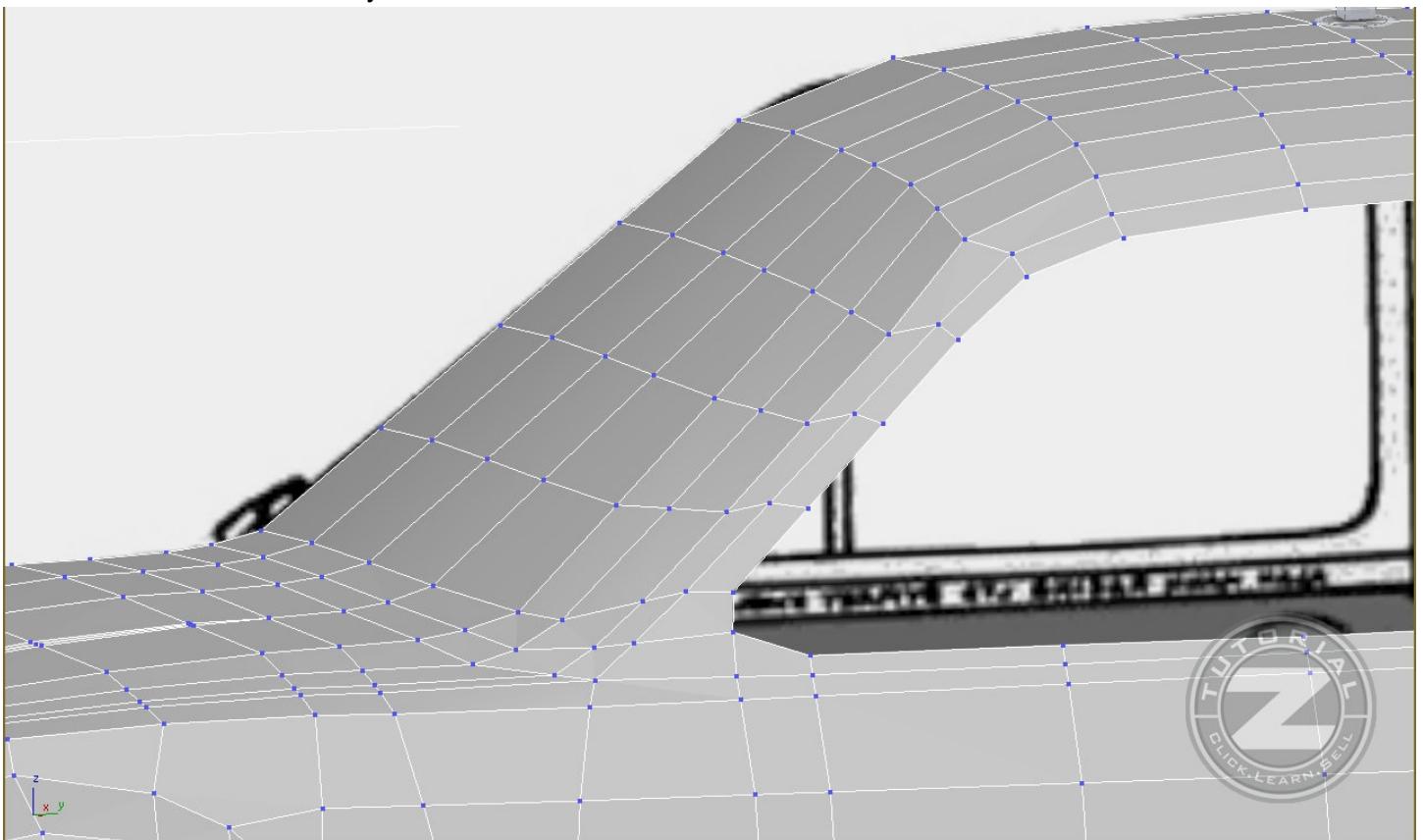


121. The next part that we will make, its the windshield. First, select and chamfer these rows of edges , because we need to fit the top and the bottom polygons correctly :

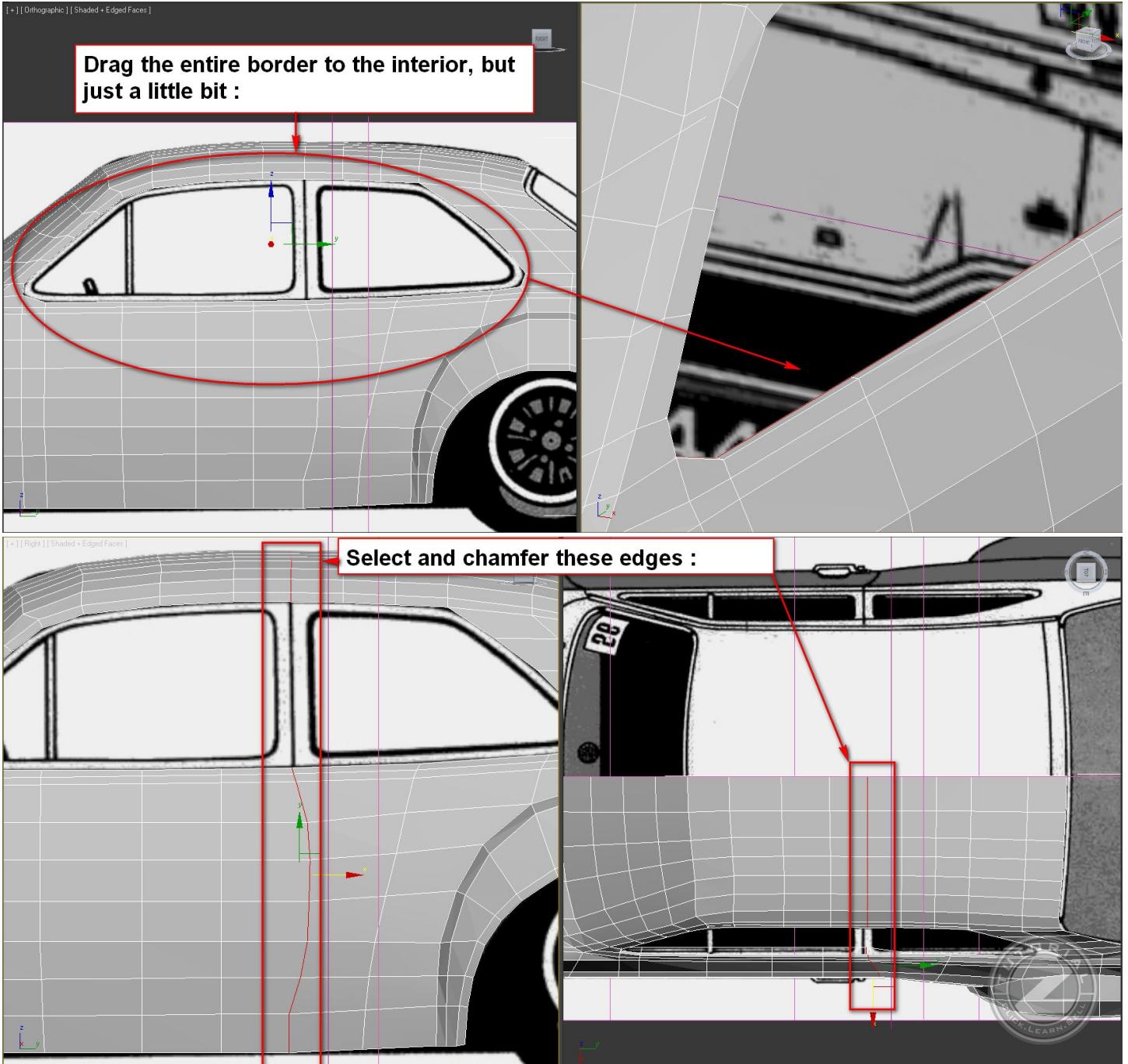


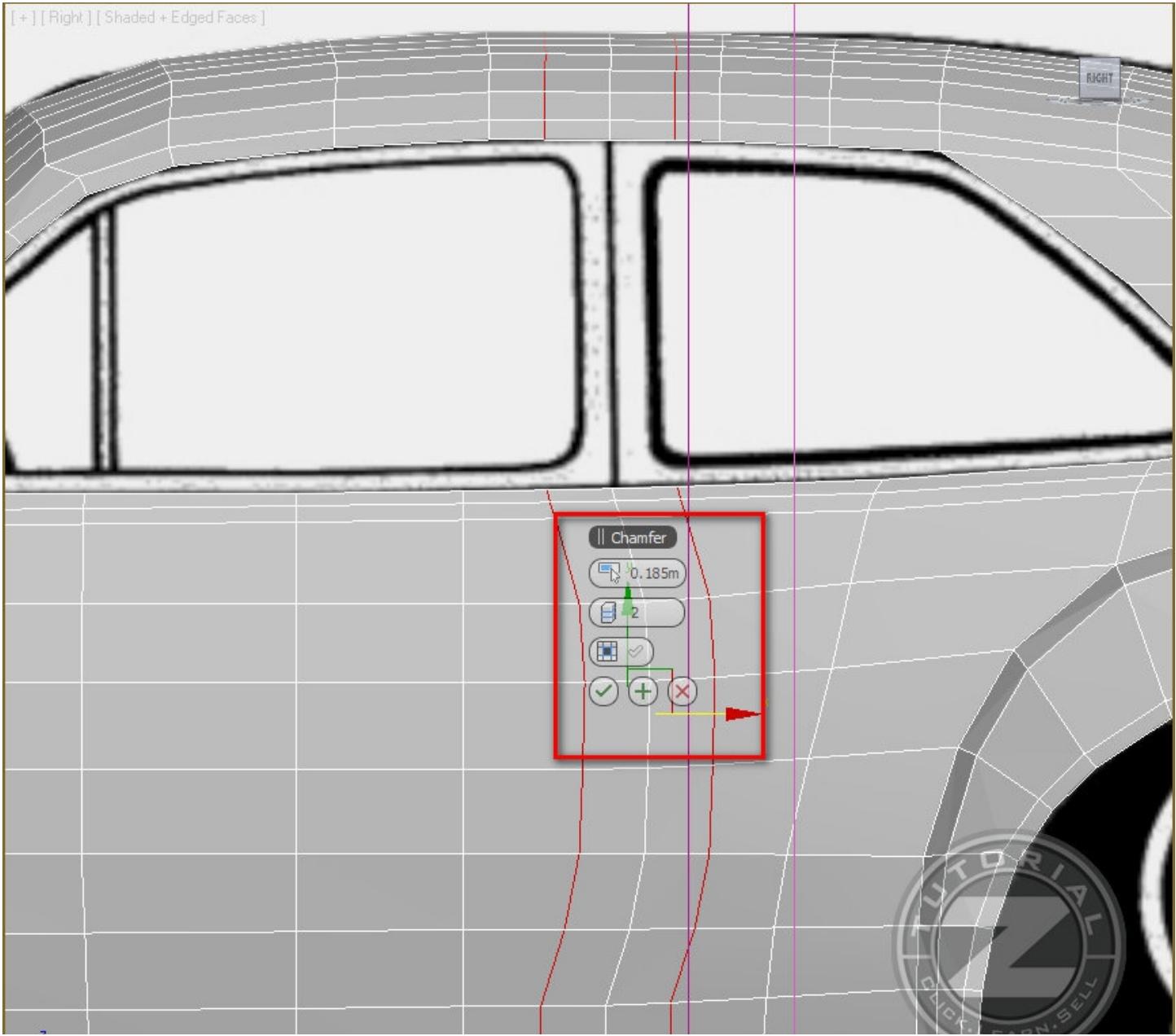


122. Now connect the top polygons with the bottom and side polygons. Try to create a nice bended shape of the windshield. Do not rush, you have all the time in the world :

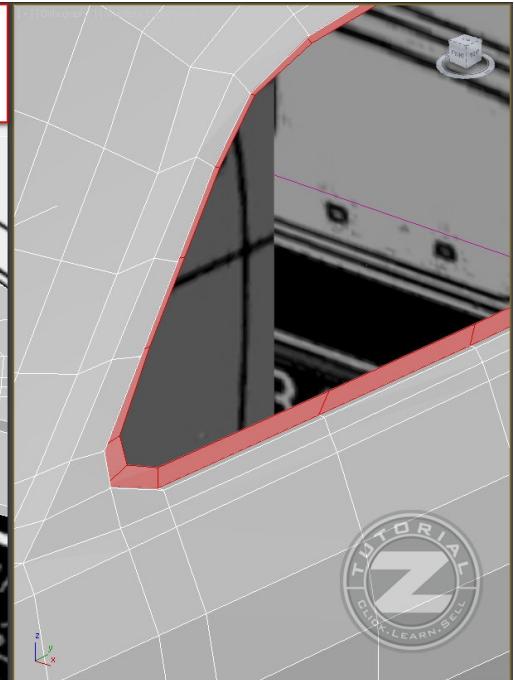
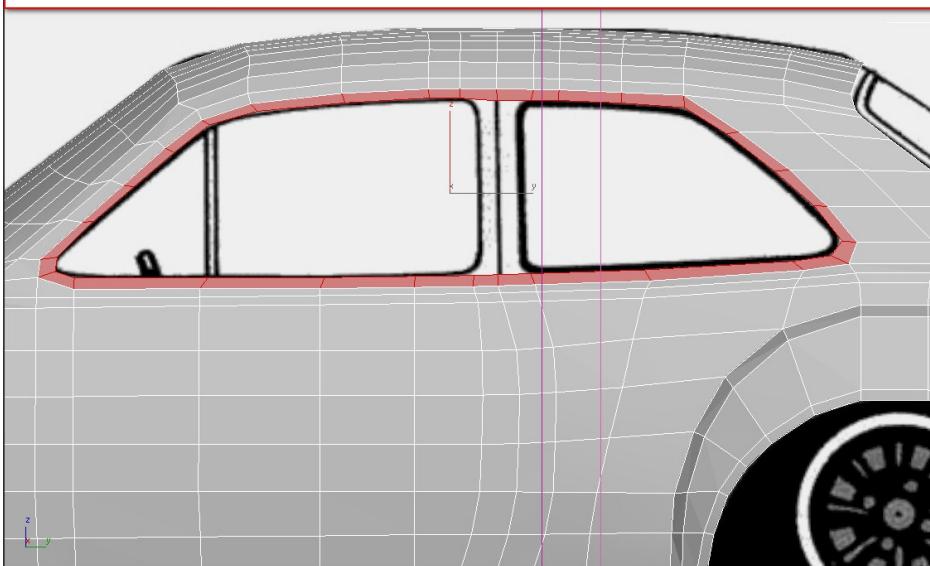


123. leave the windshield like this, because we will detach it from the body when we will make the seams. Now let's move forward and create the side windows & details. Just use some reference photoshop, or follow the images because everything its explained step-by-step :

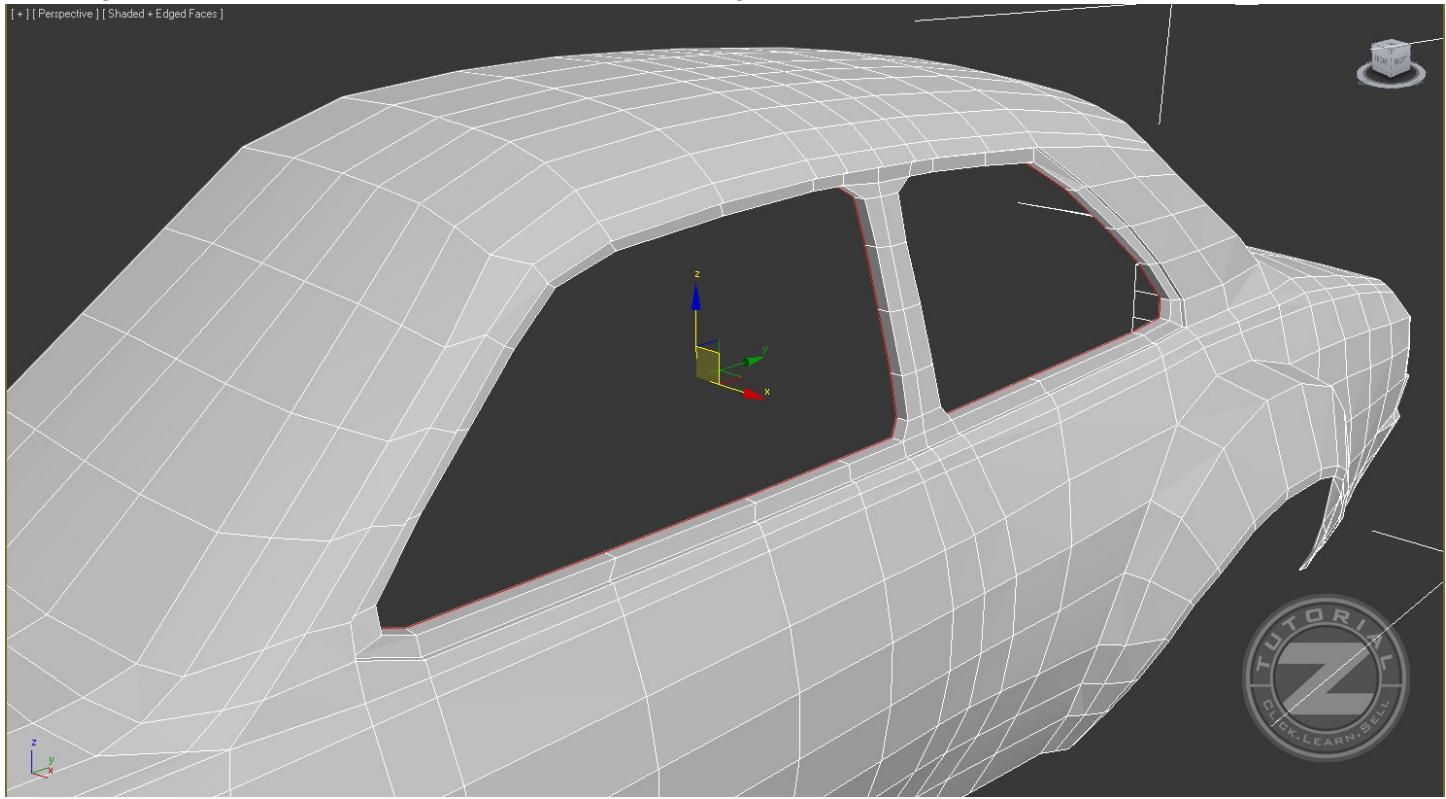




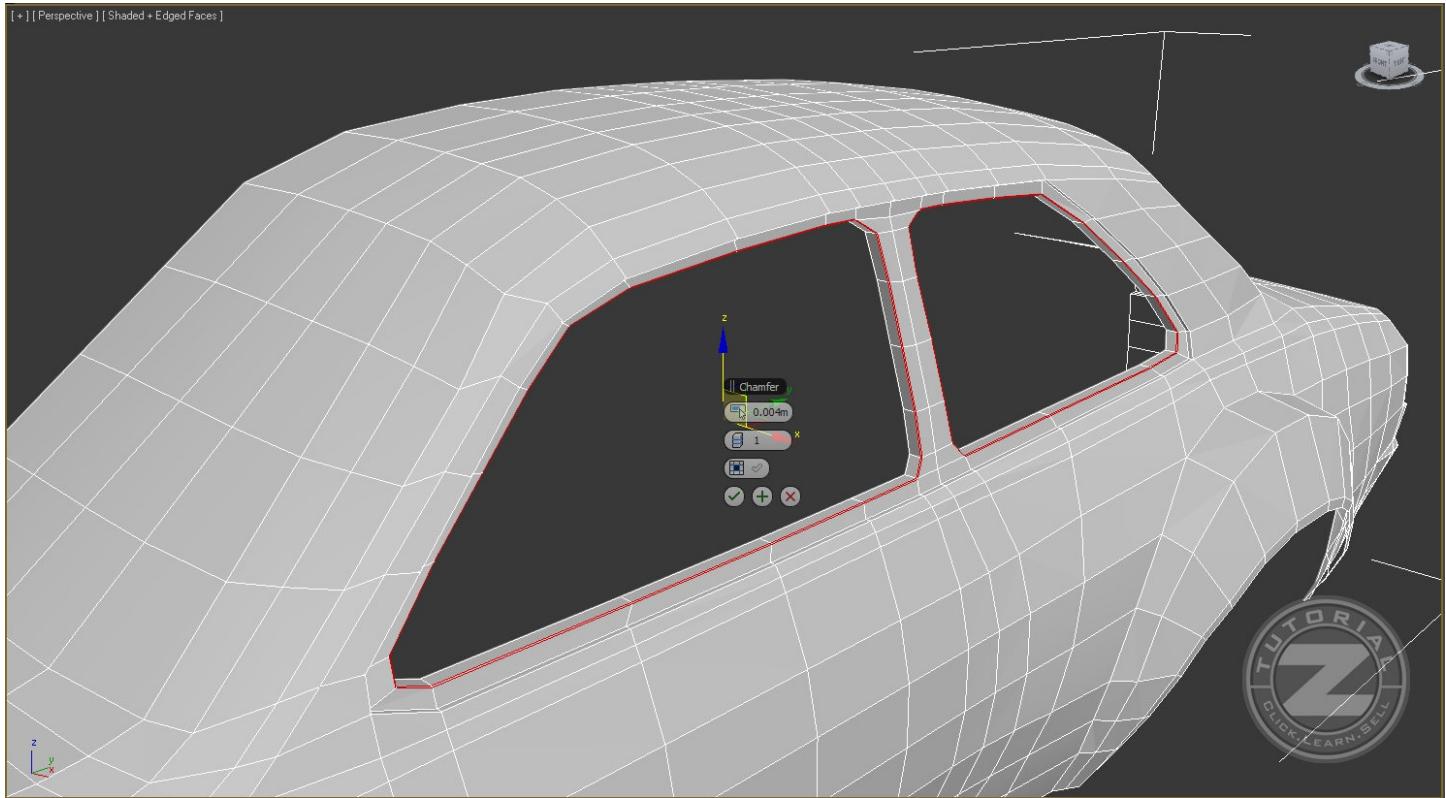
First , grab the border of that hole, hold the shift button and make it smaller. When you are done, place the vertices in the same manner as me :)



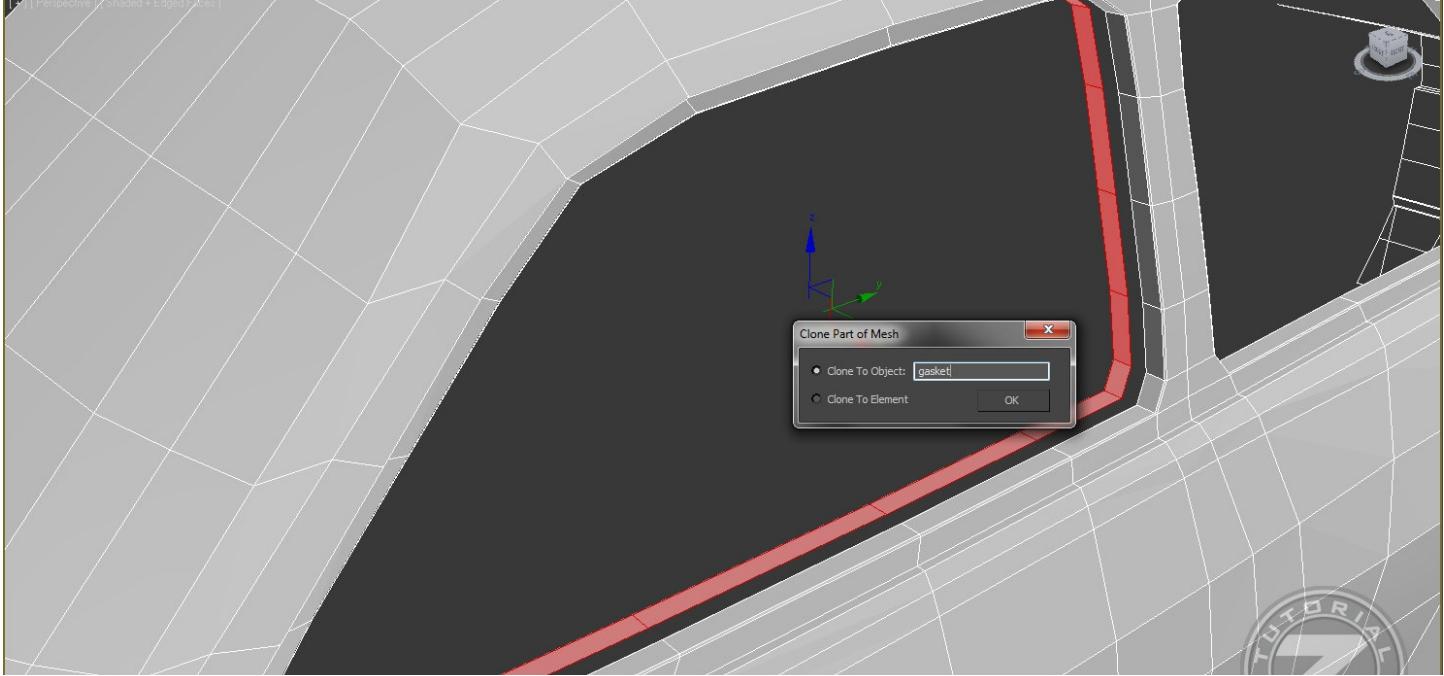
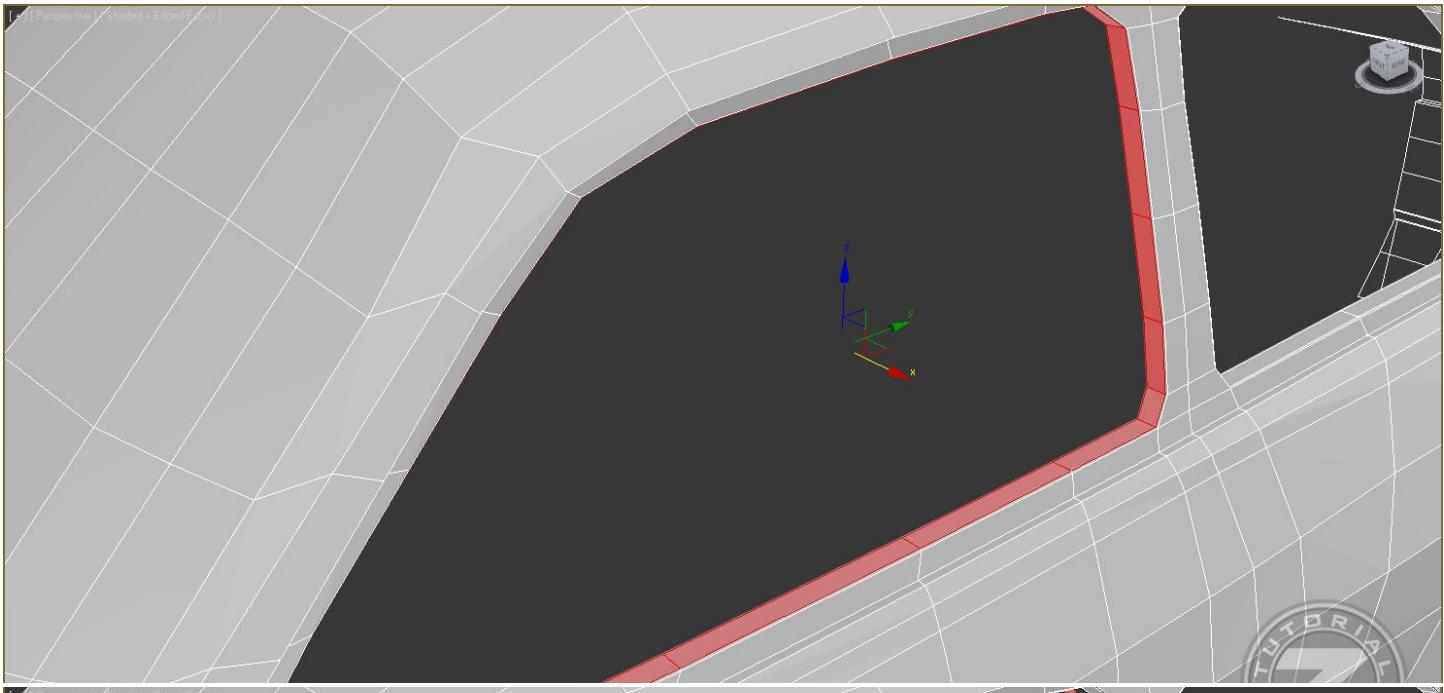
124. Before making the windows, we need to make another small detail. On each side window, there is a rubber gasket. Grab the borders of the windows and drag them a little bit to the interior :



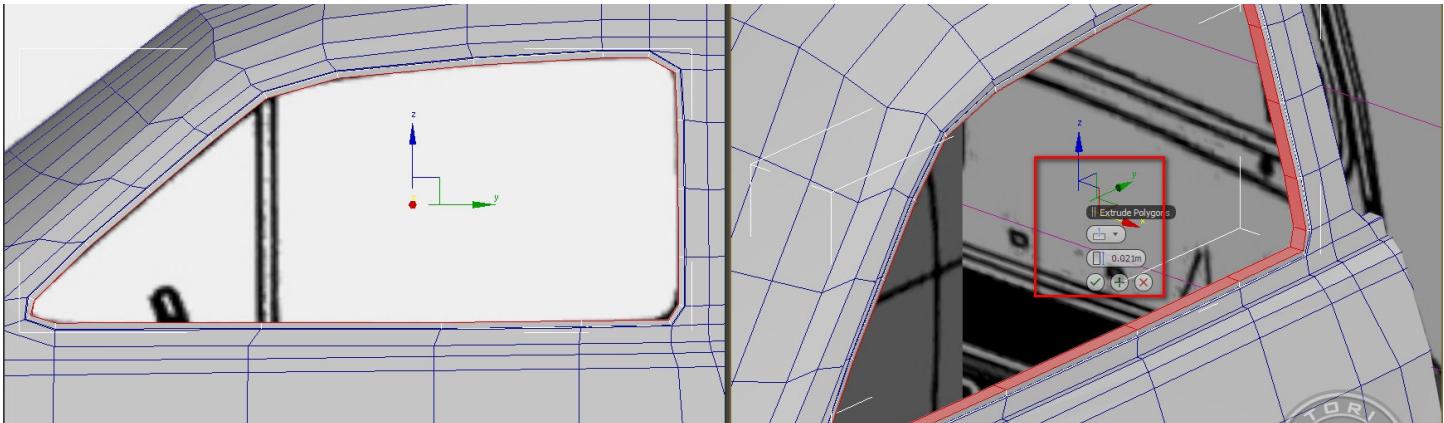
125. Chamfer the same edges as me with a very small value. Then don't forget to look out for triangles :



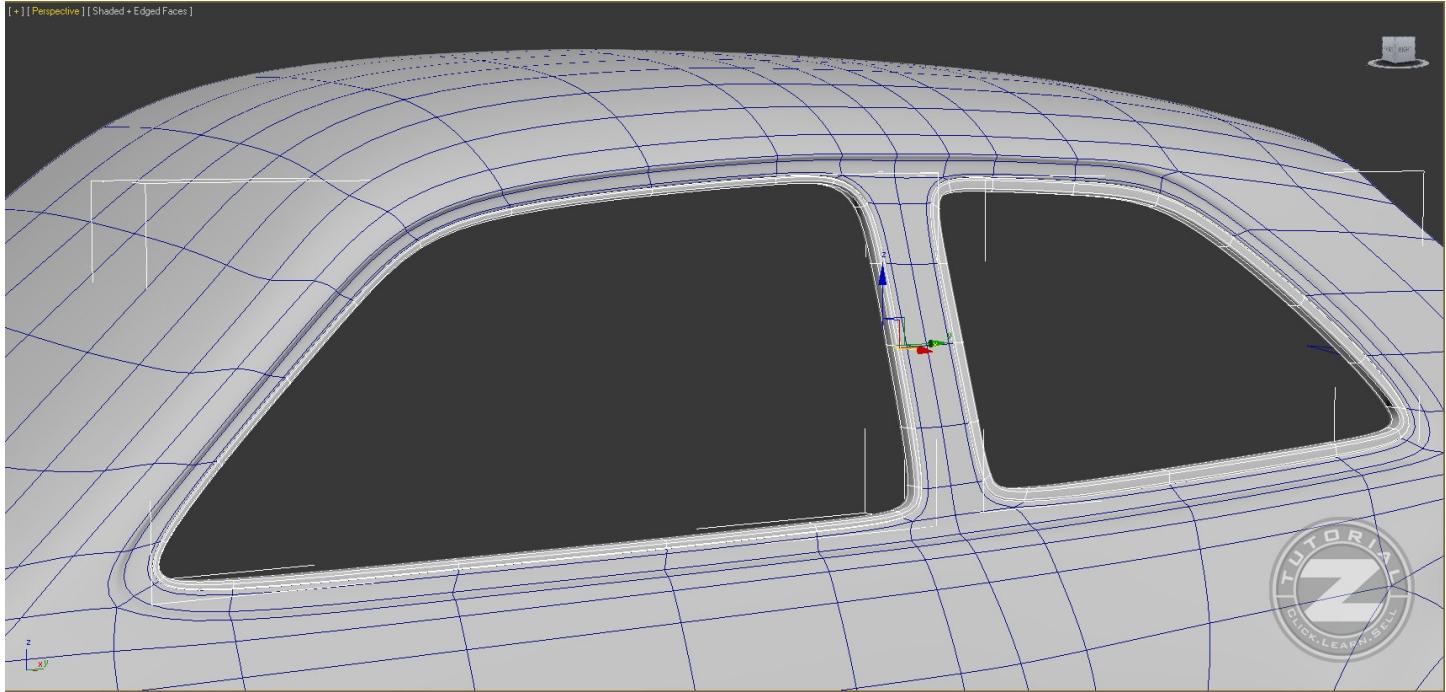
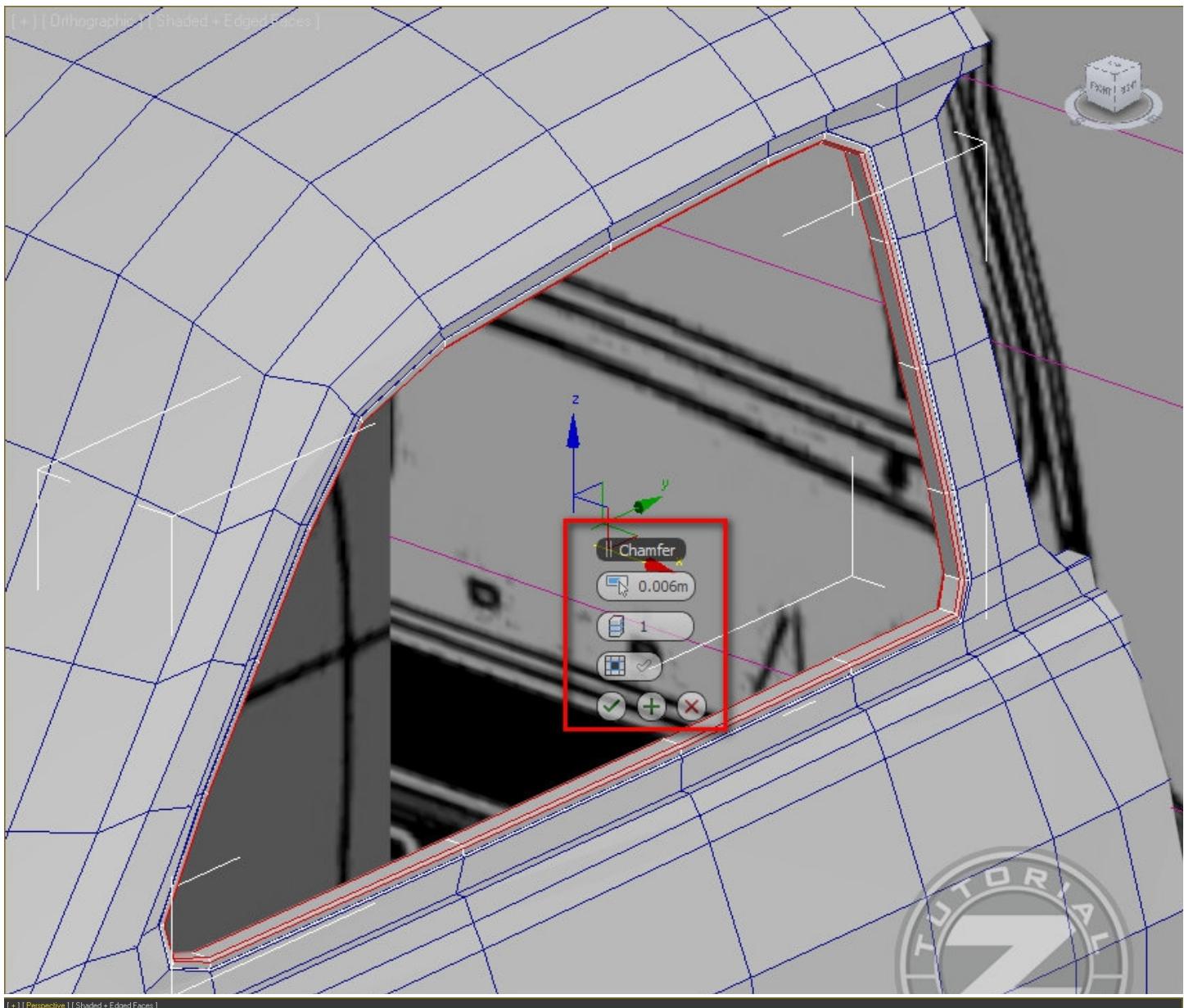
126. Now select the same polygons as me and make a copy of them :



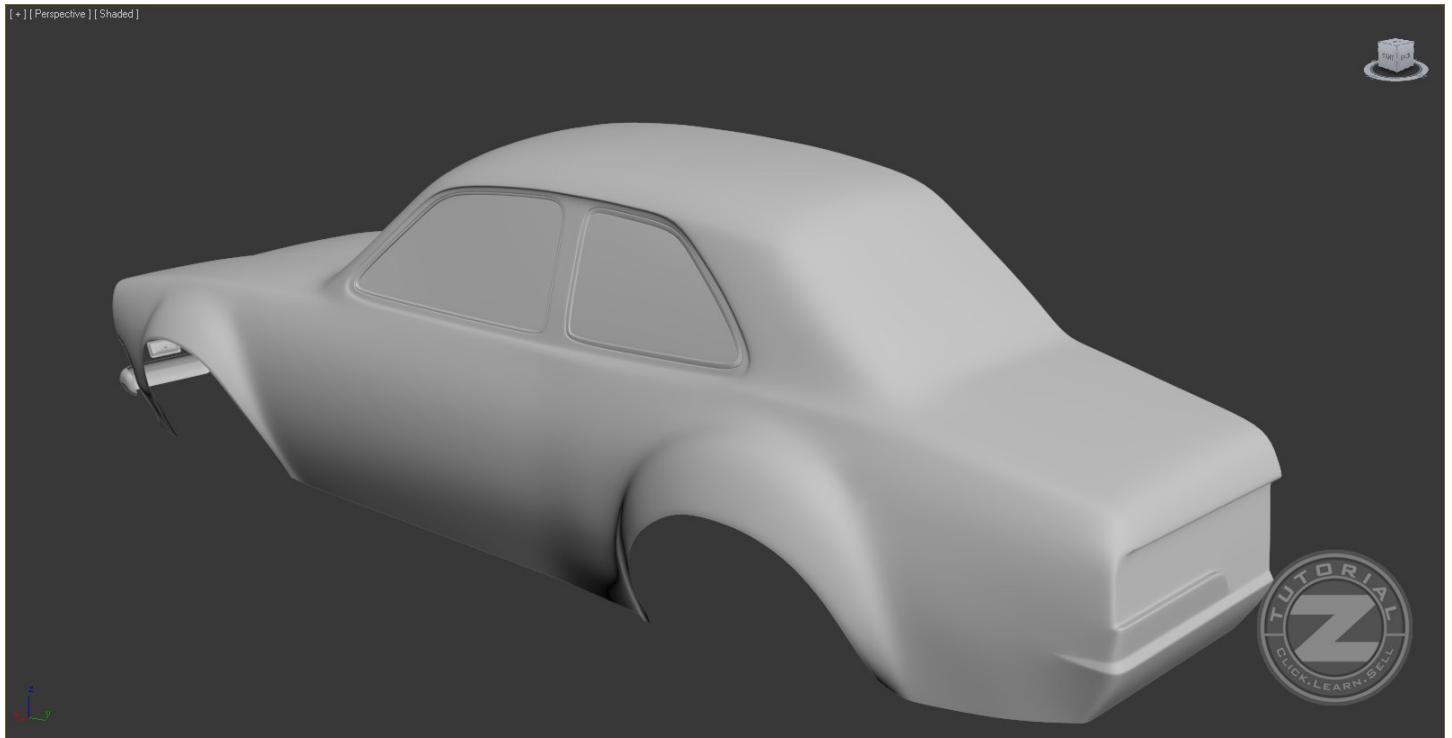
127. Use the “Snap (vertex)” tool to place the copy of those polygons back and then switch to the side view.
When You care done, extrude the polygons



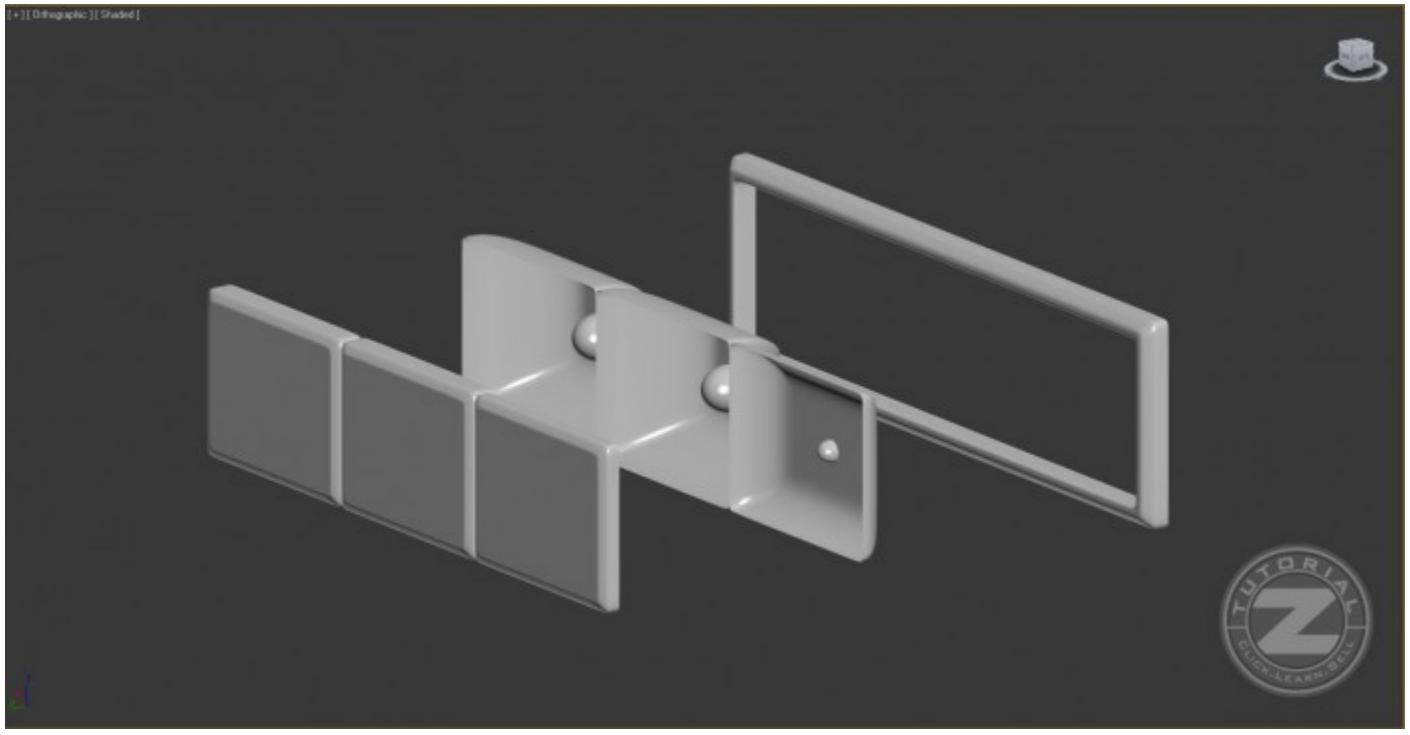
128. Chamfer the selected edges, then do the same thing for the other gasket, for the rear side window :



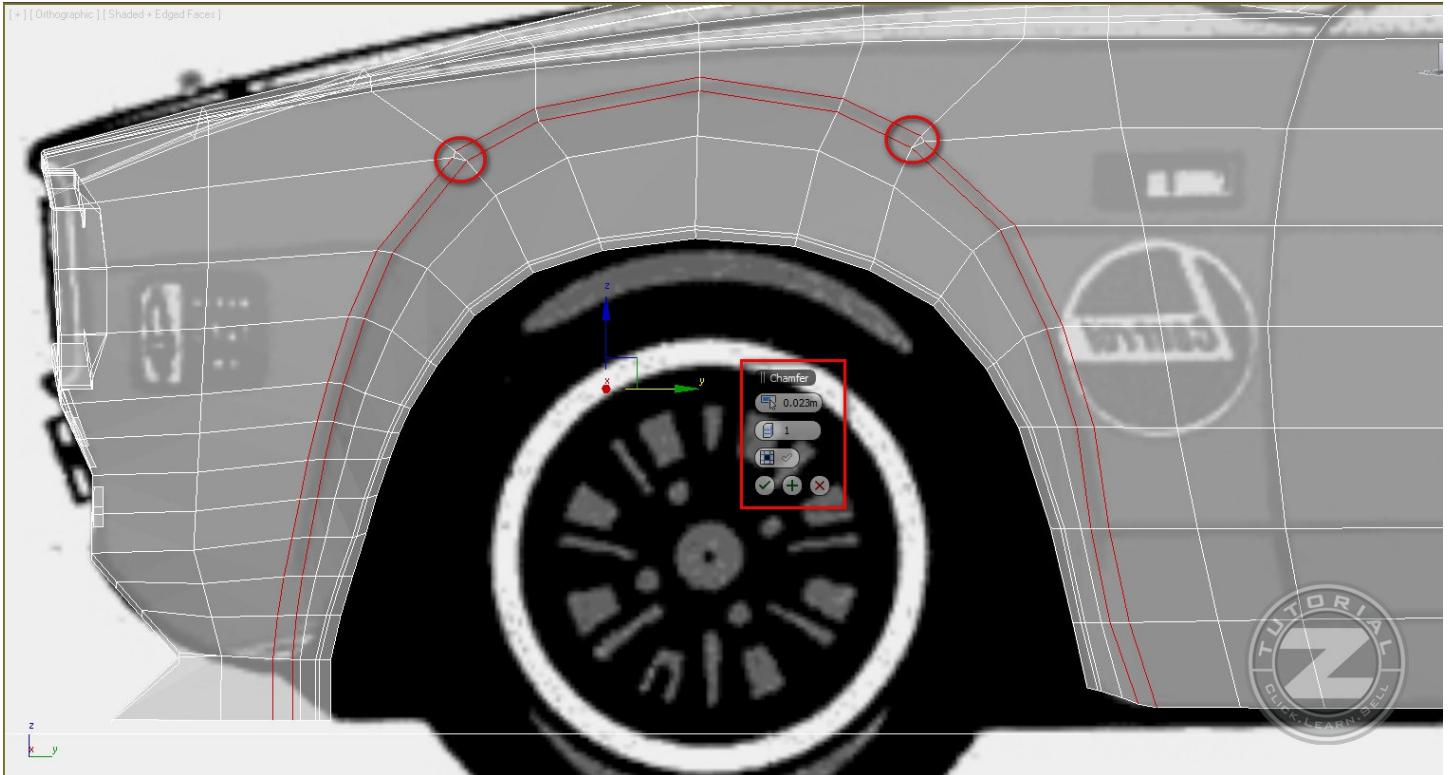
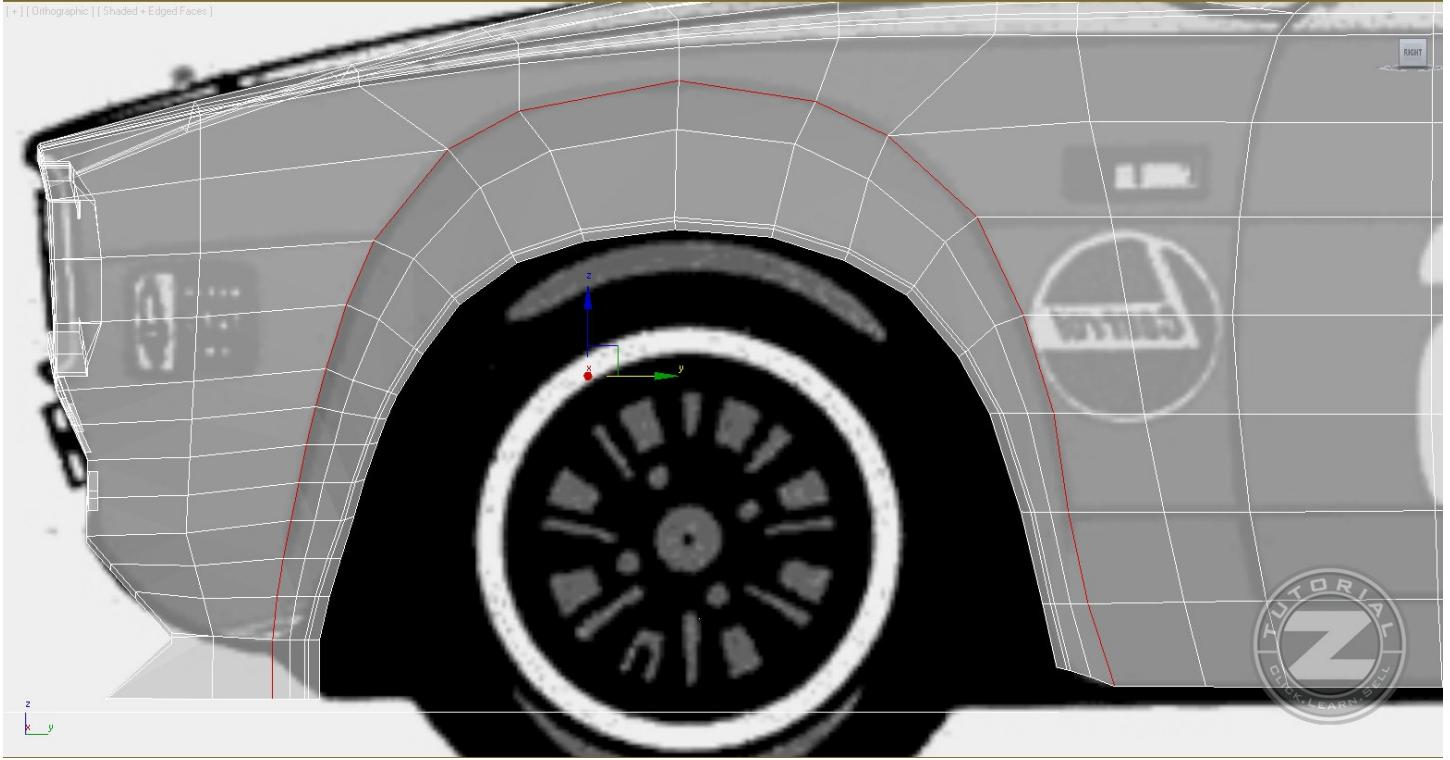
129. The side windows where the next thing that I have made. And use the same technique that we did for the windshield to make the rear window :



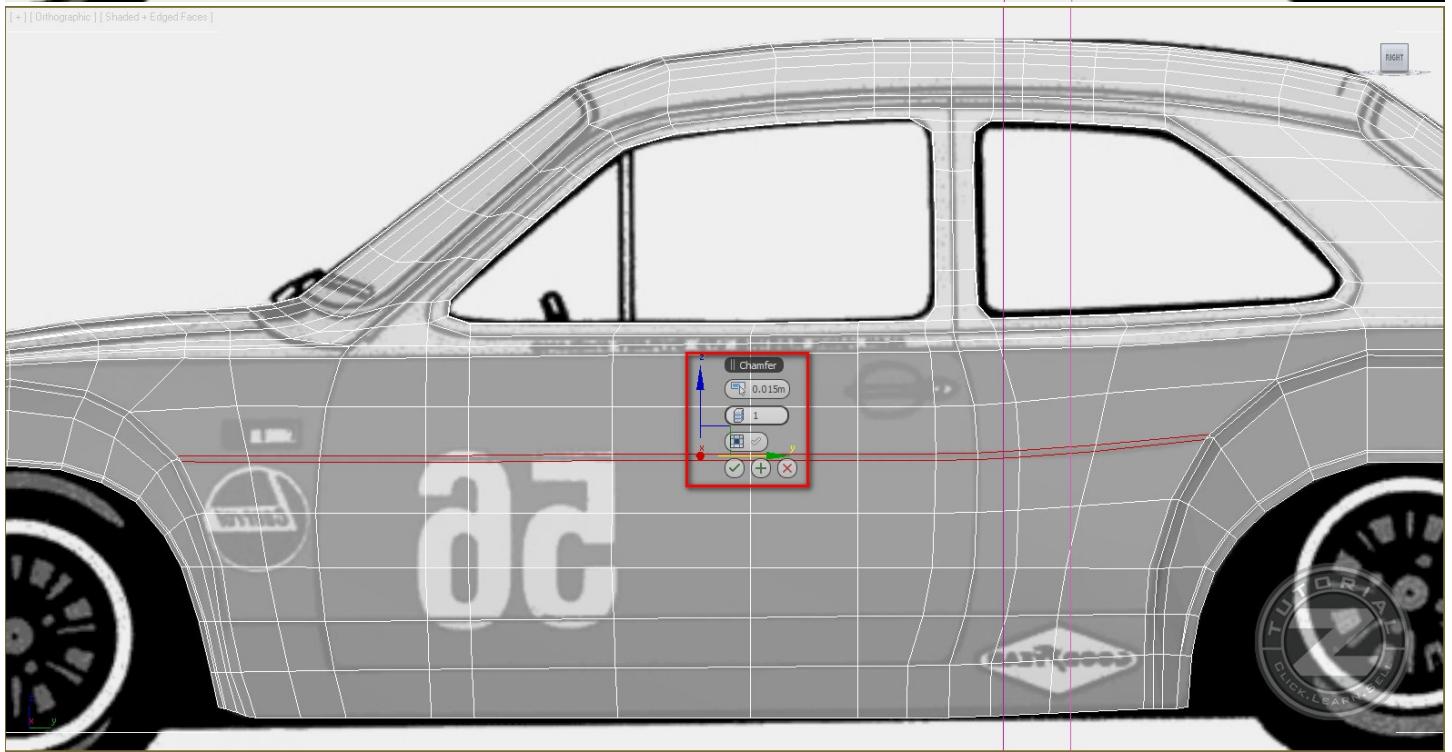
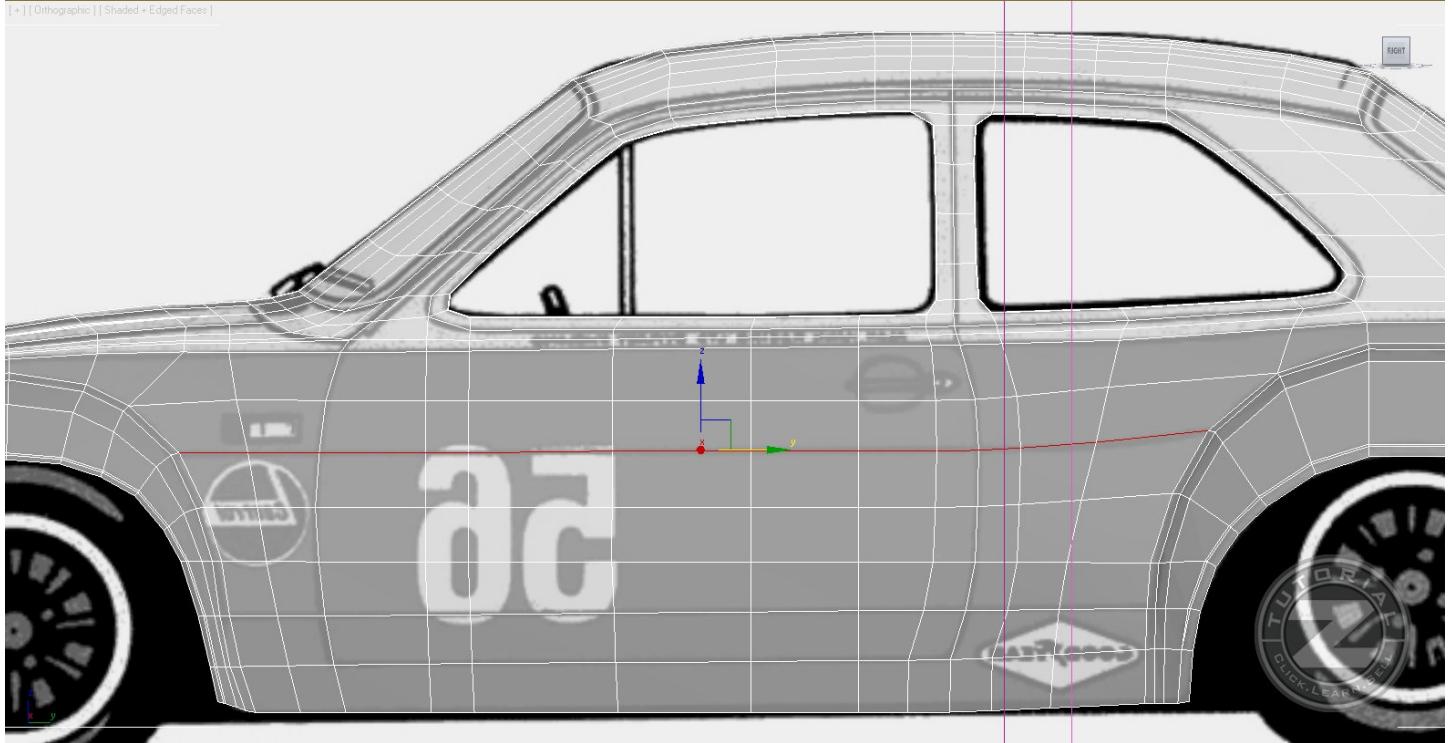
130. Use the same steps that we did for the front blinker to make the tail light. It will be useless to show the same steps and below you have all those parts that I have made :)



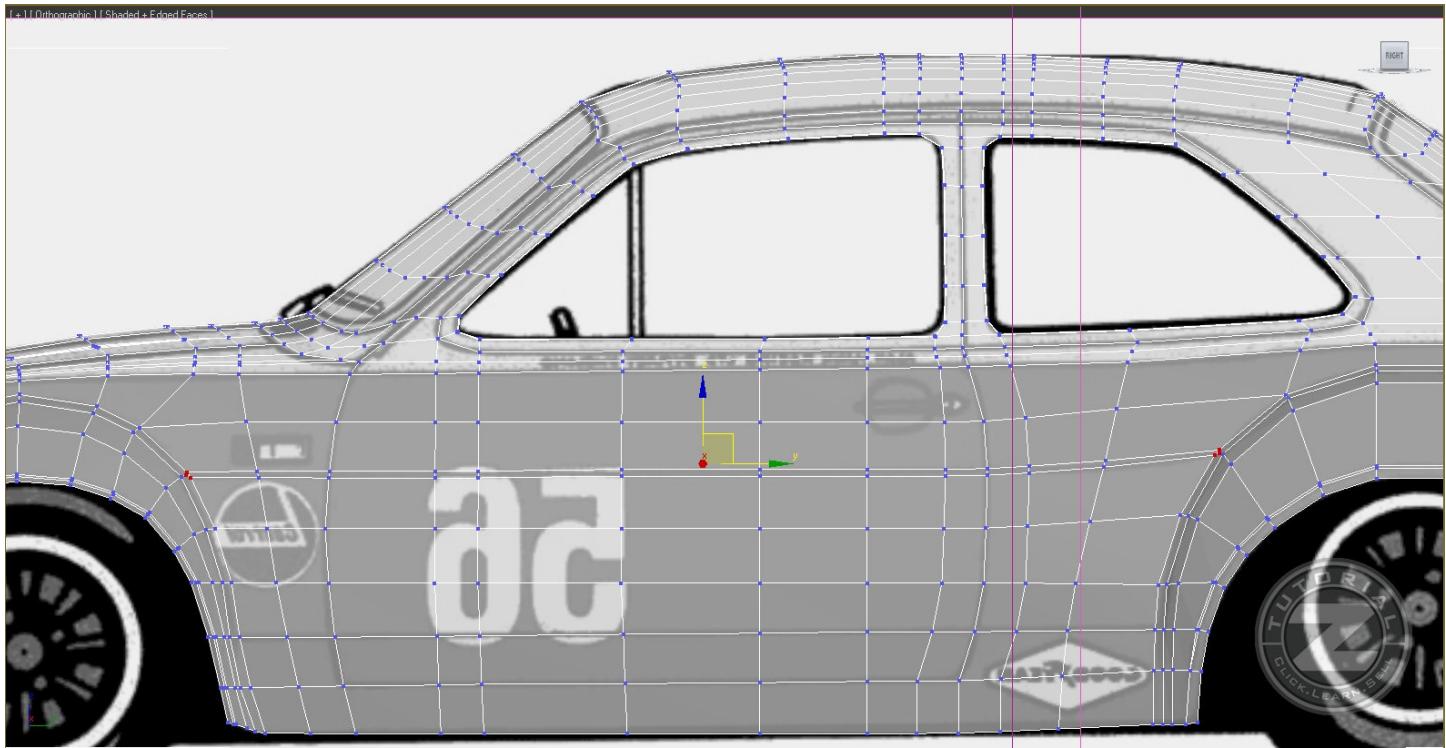
131. Let's take care a little bit of the fenders because later we will move forward and I have almost forgot about them. So, we need to make them a little bit sharper but not very much. Select the same edges, and then "apply" a chamfer. When you are done, do the same thing for the rear fender :



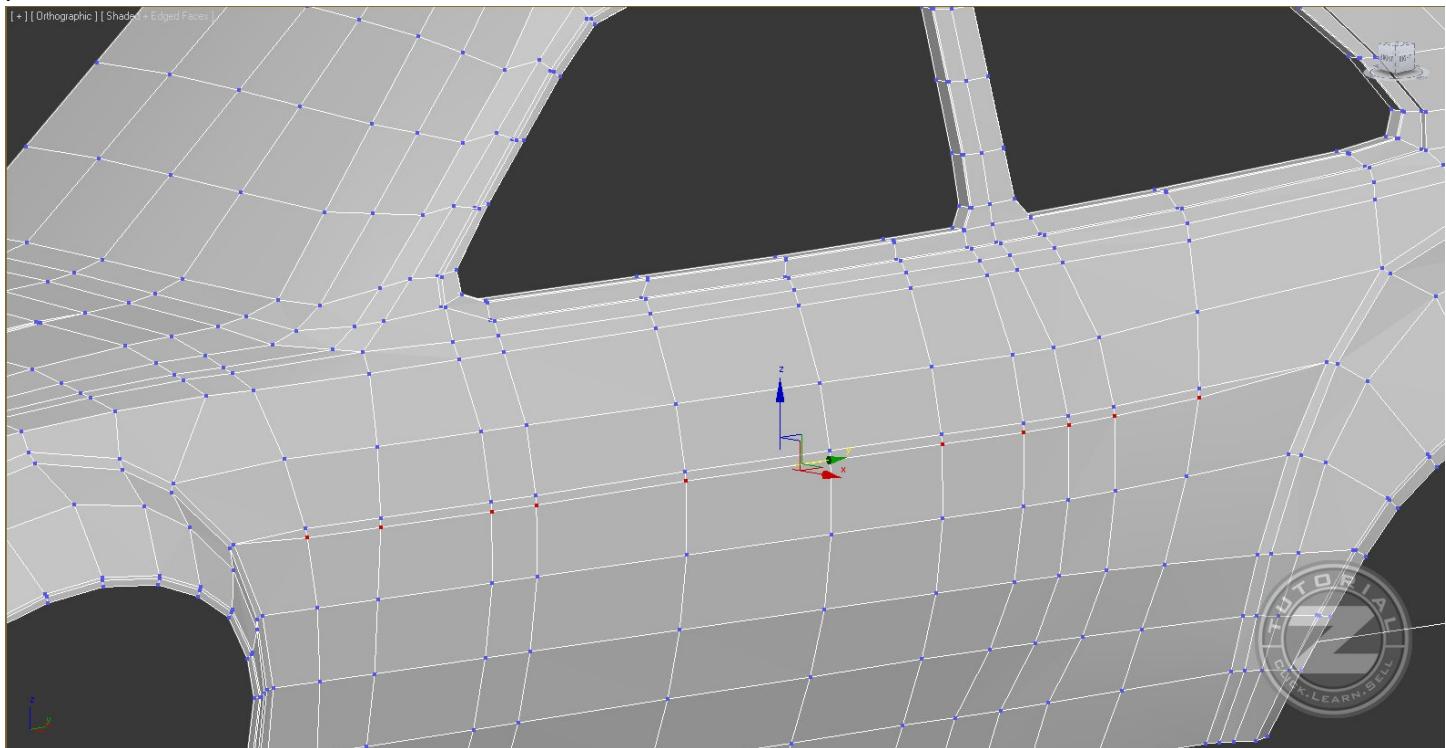
132. Before making the seams, we will make a small detail, because its easier to do it now , instead of doing it after the chamfering process. So, the car has on the side a sharp line, and this is what we will do right now. Select the same edges and chamfer them :

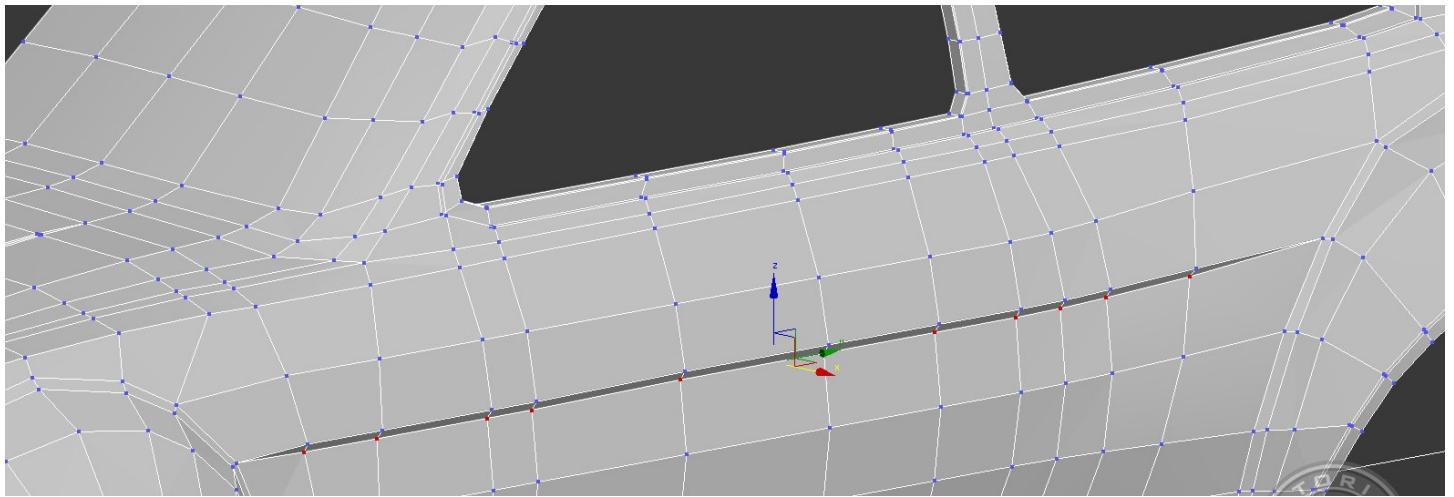


133. Select and weld these vertices :

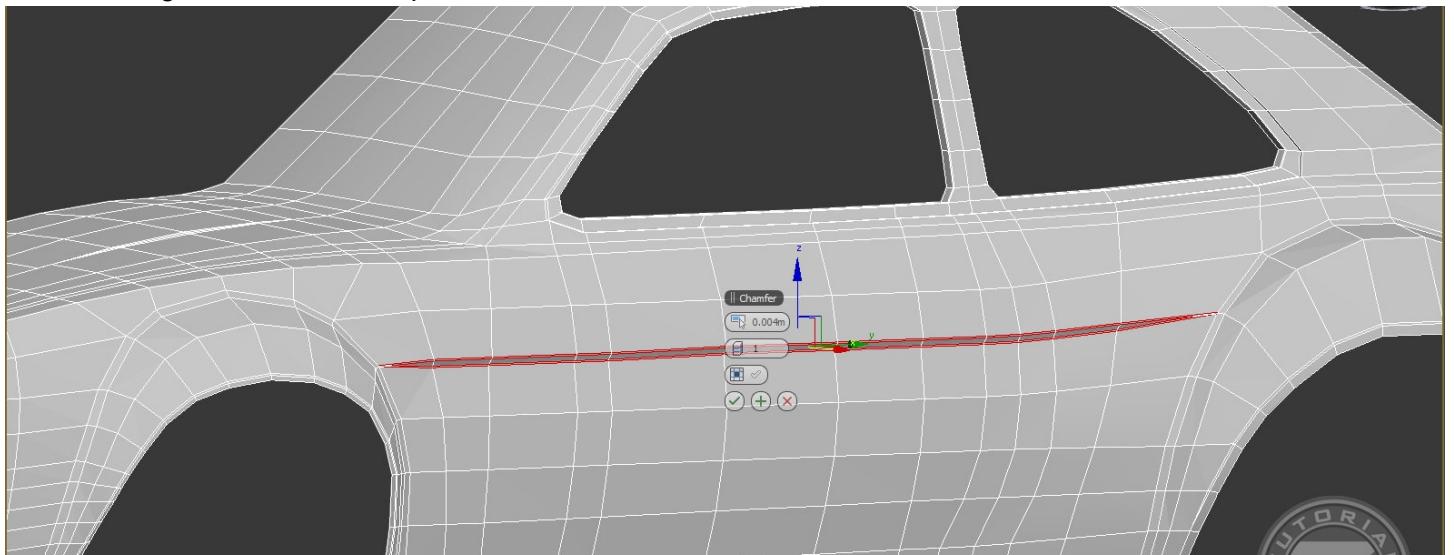


134. Now, after the chamfering process, you need to select the lower row with vertices (see first image) , then push them a little bit to the interior :

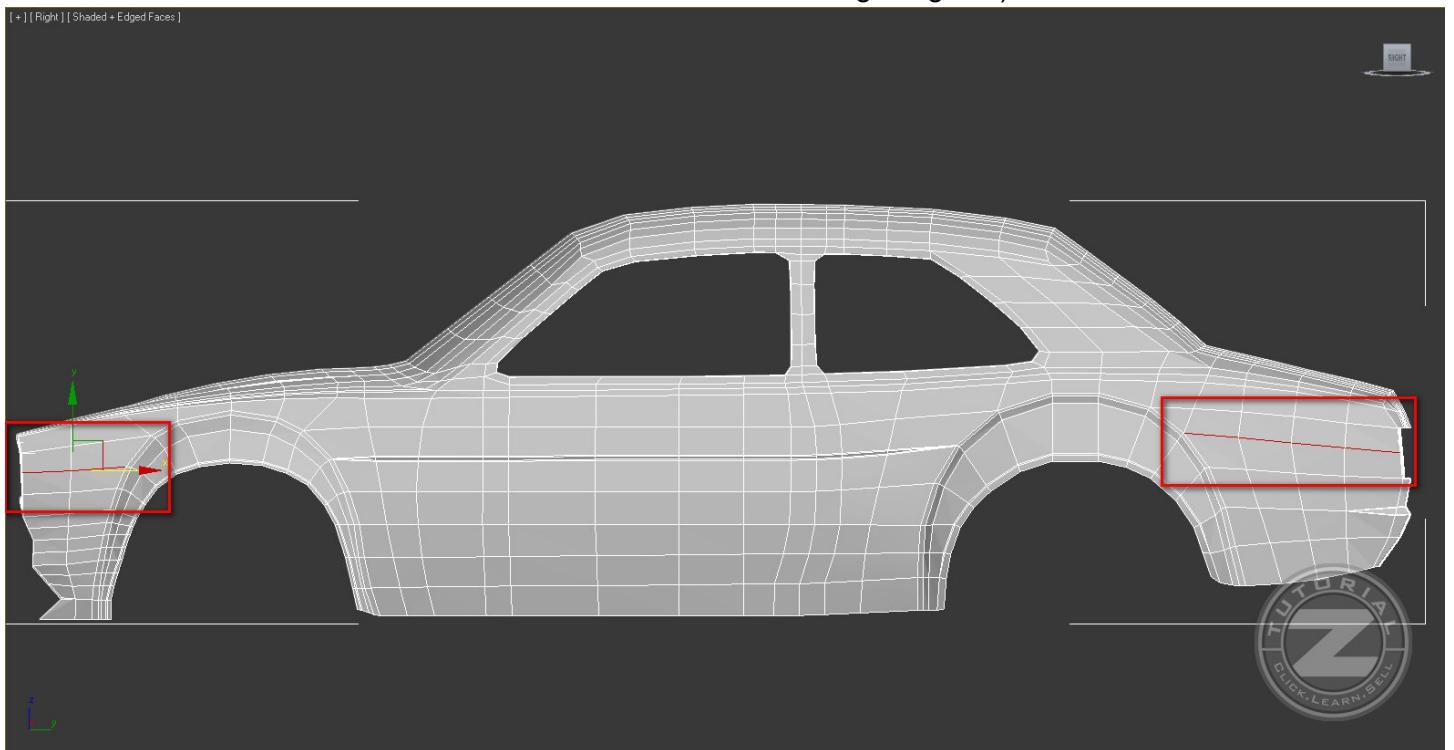




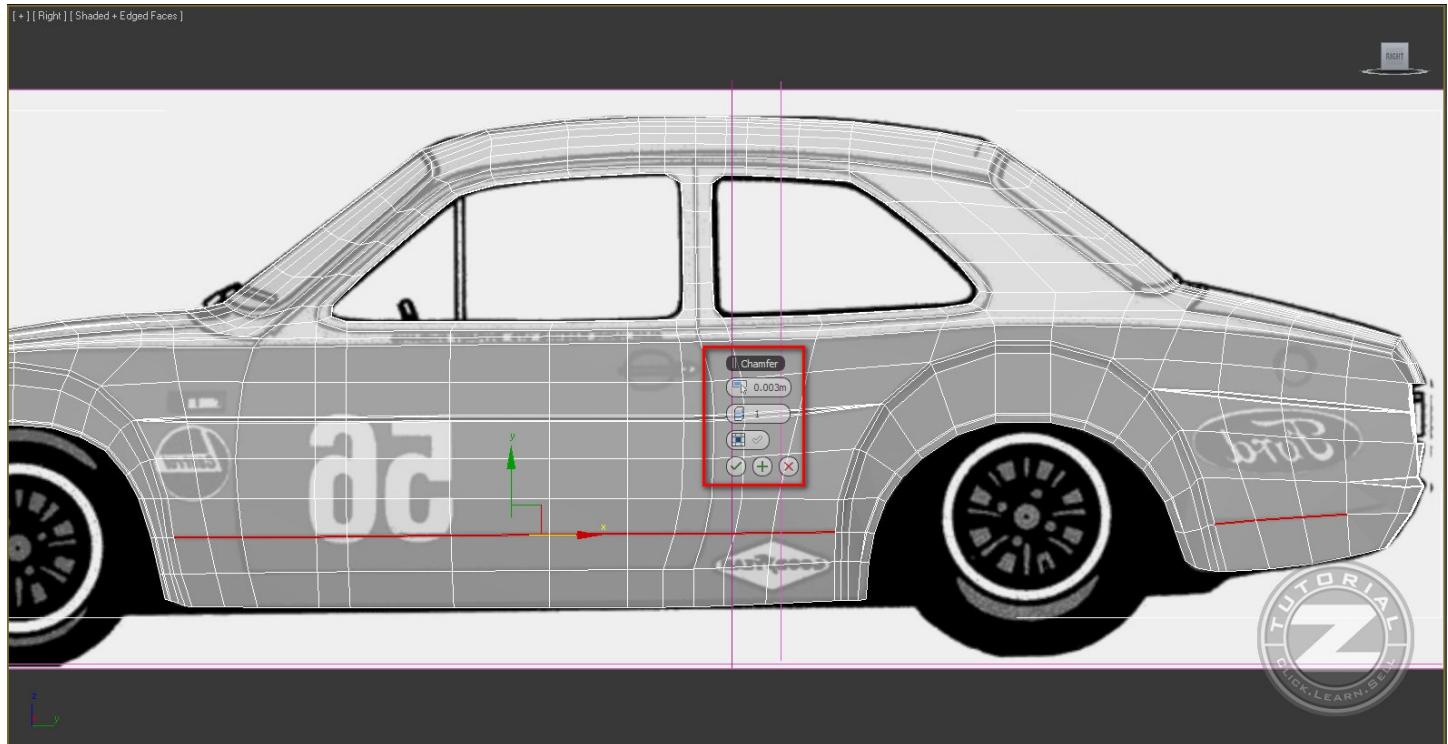
135. Select again these edges, and apply a “chamfer” on them. Use a small value but not very small , because then, the edges will be too sharp :



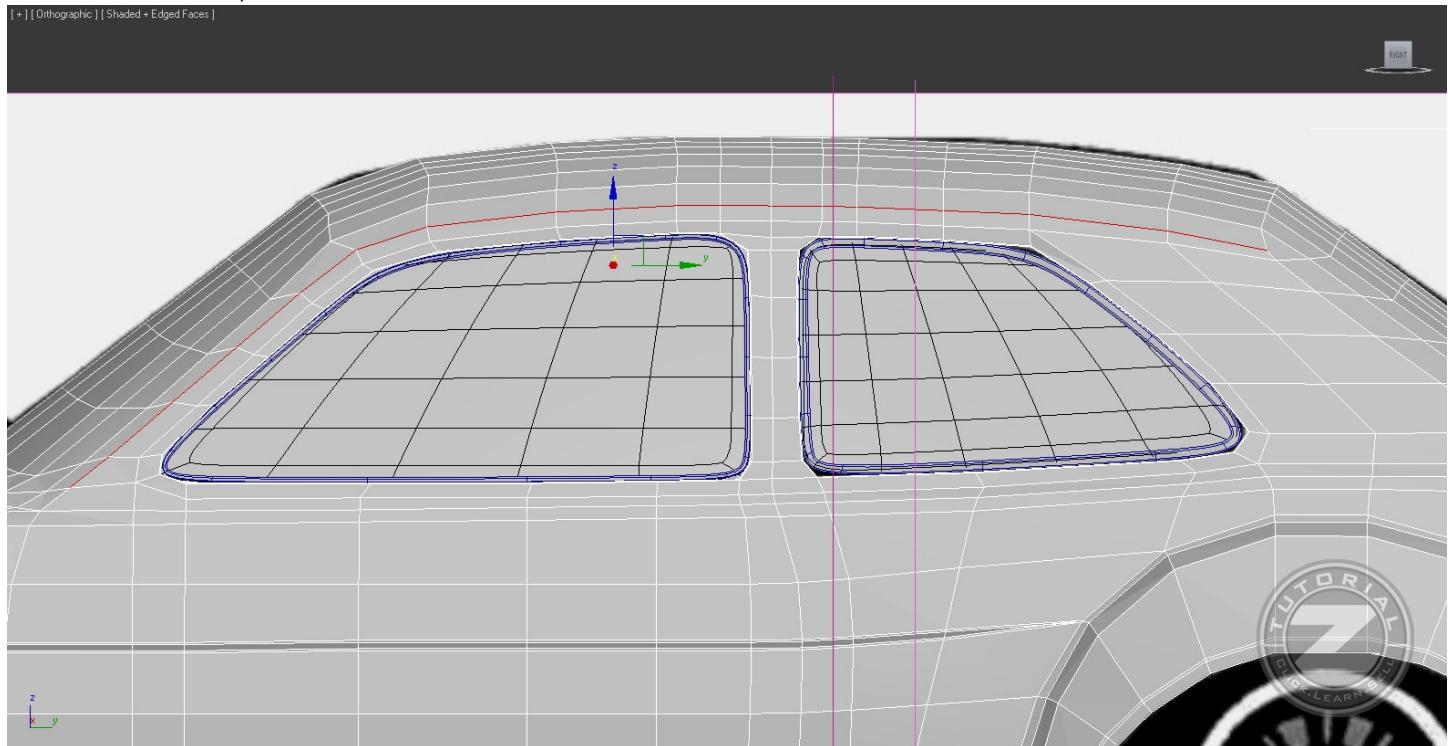
136. Do the same thing for these edges too. Just chamfer them, weld the vertices at each end, push the bottom row of vertices to the interior a little bit and chamfer the edges again :)



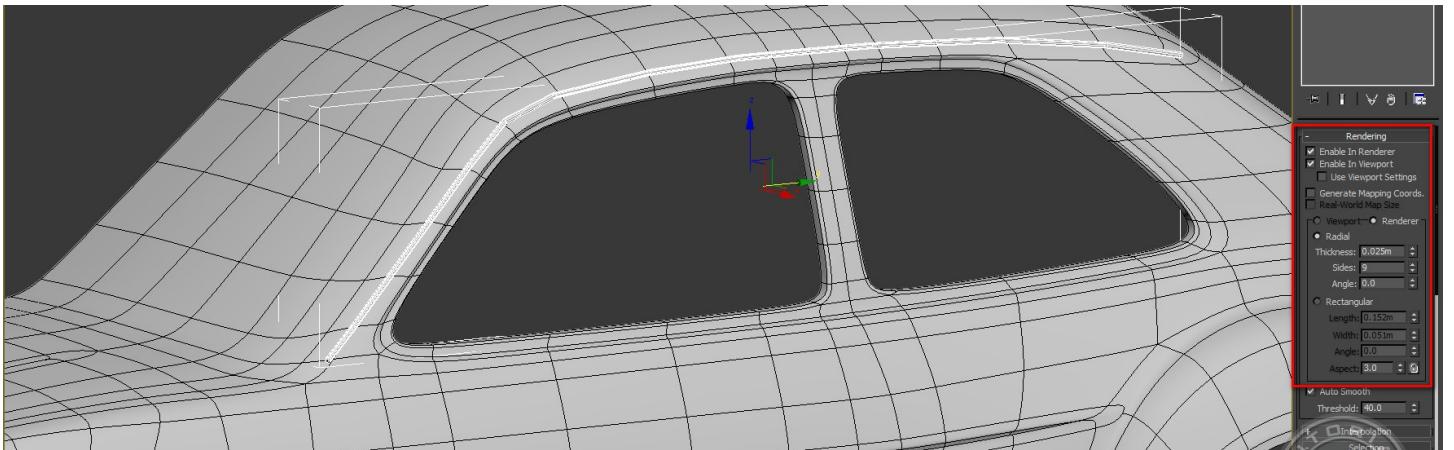
137. Select and chamfer these edges too. Chamfer them using a tiny amount and then weld the vertices at each end :



138. Another detail that I have forgot to add is that small channel, above the door, which I guess its to stop the water to glide on the side window. To do it, select the same edges > right click > create shape (choose linear instead of smooth) :



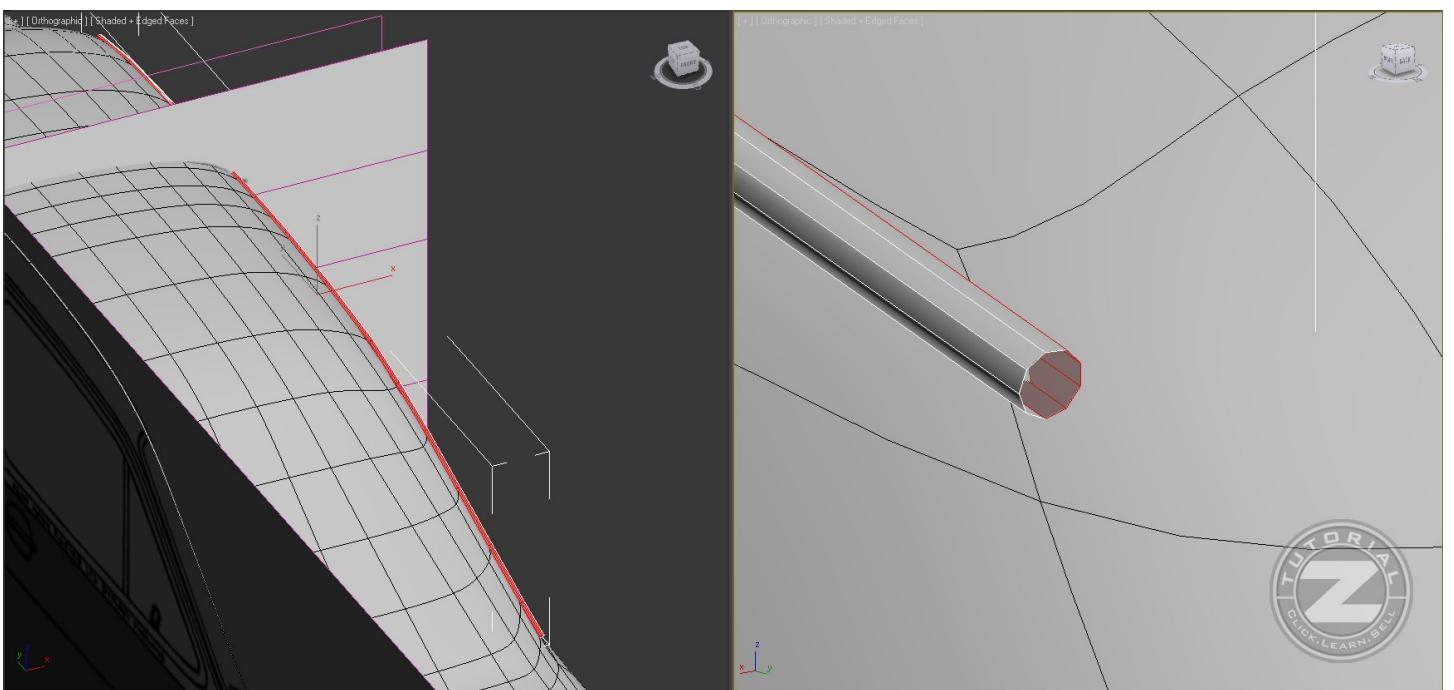
139. When you are done, select the spline, and in the modifier menu , check “Enable in Renderer” and “Enable in Viewport”, then add a little bit of thickness :



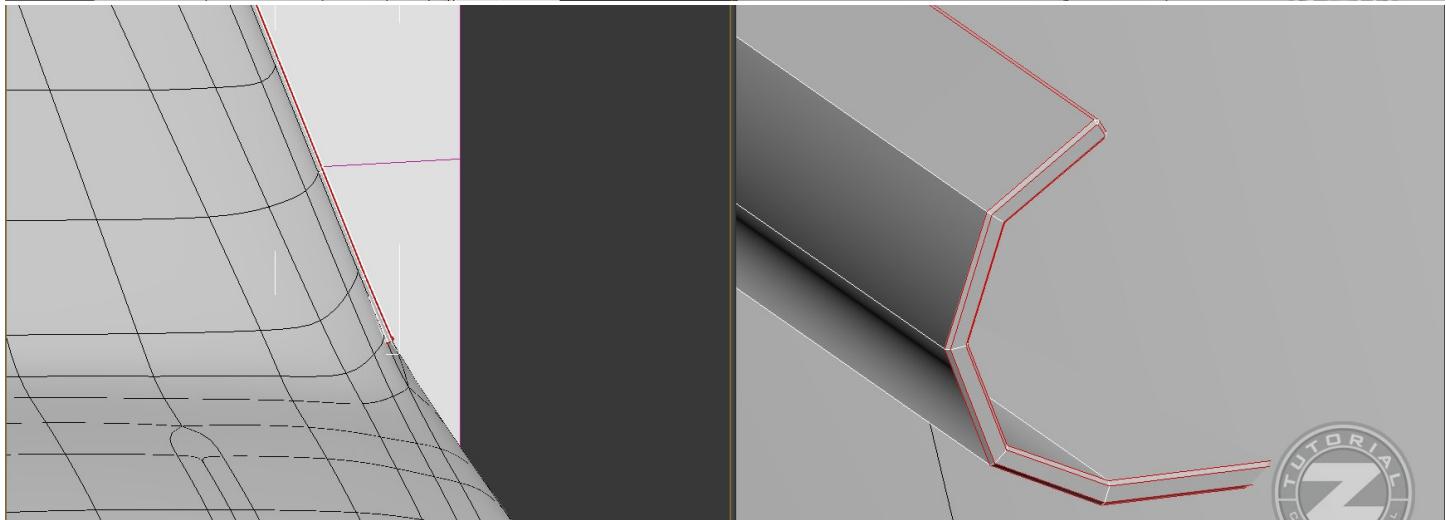
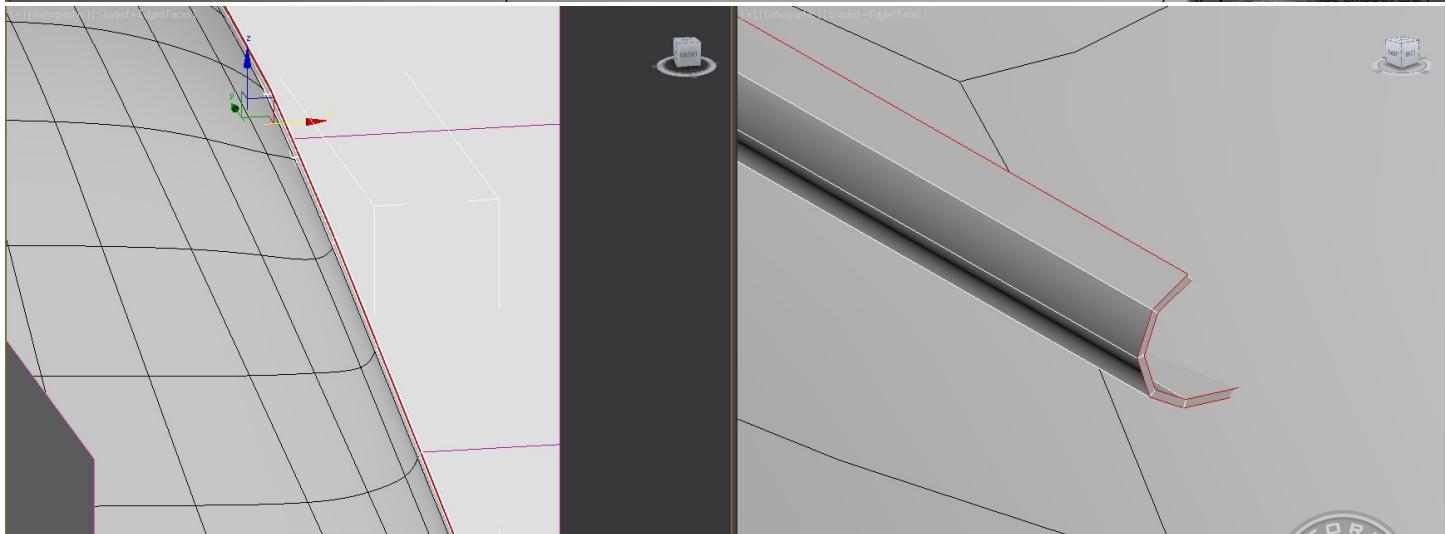
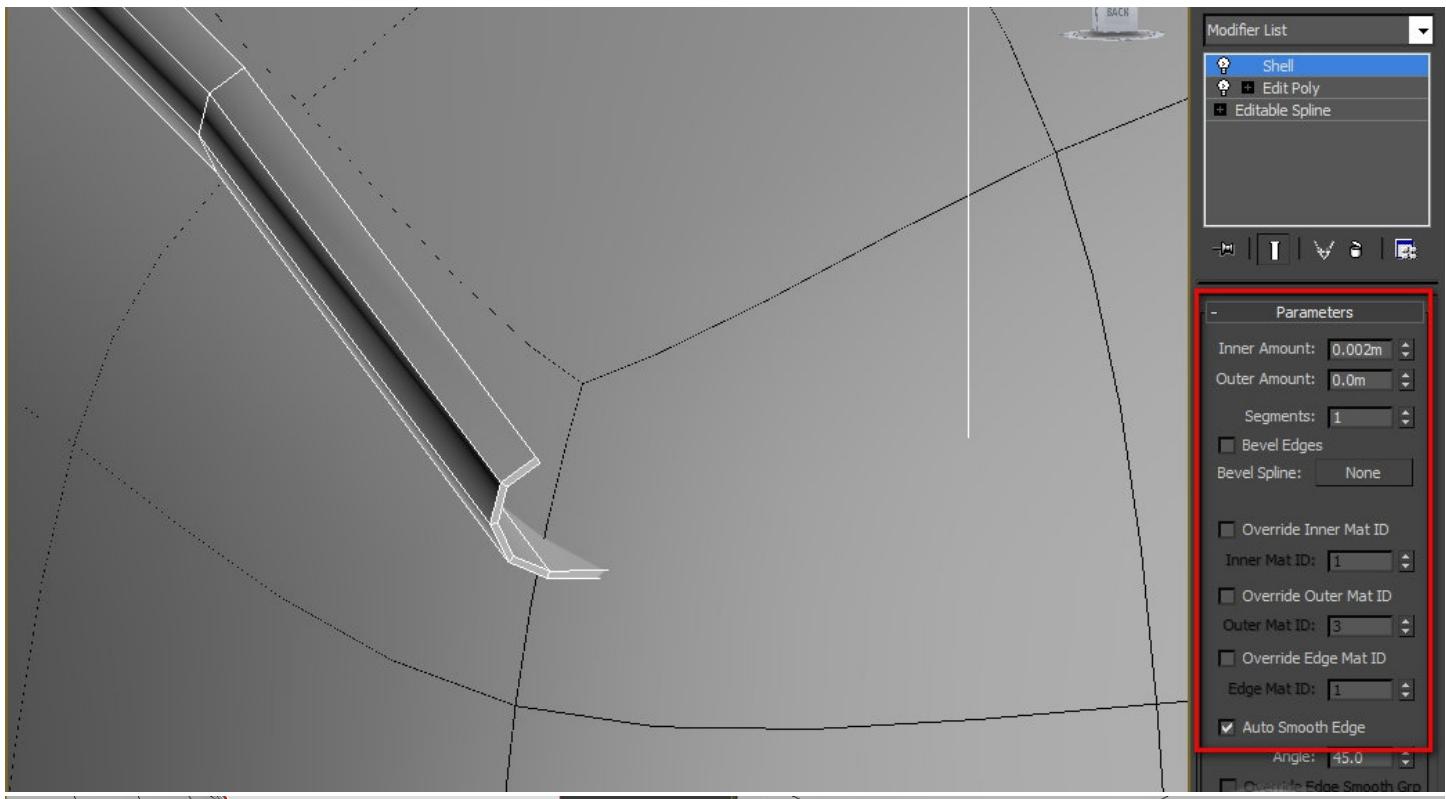
140. At this step, you need to delete the polygons from each end:



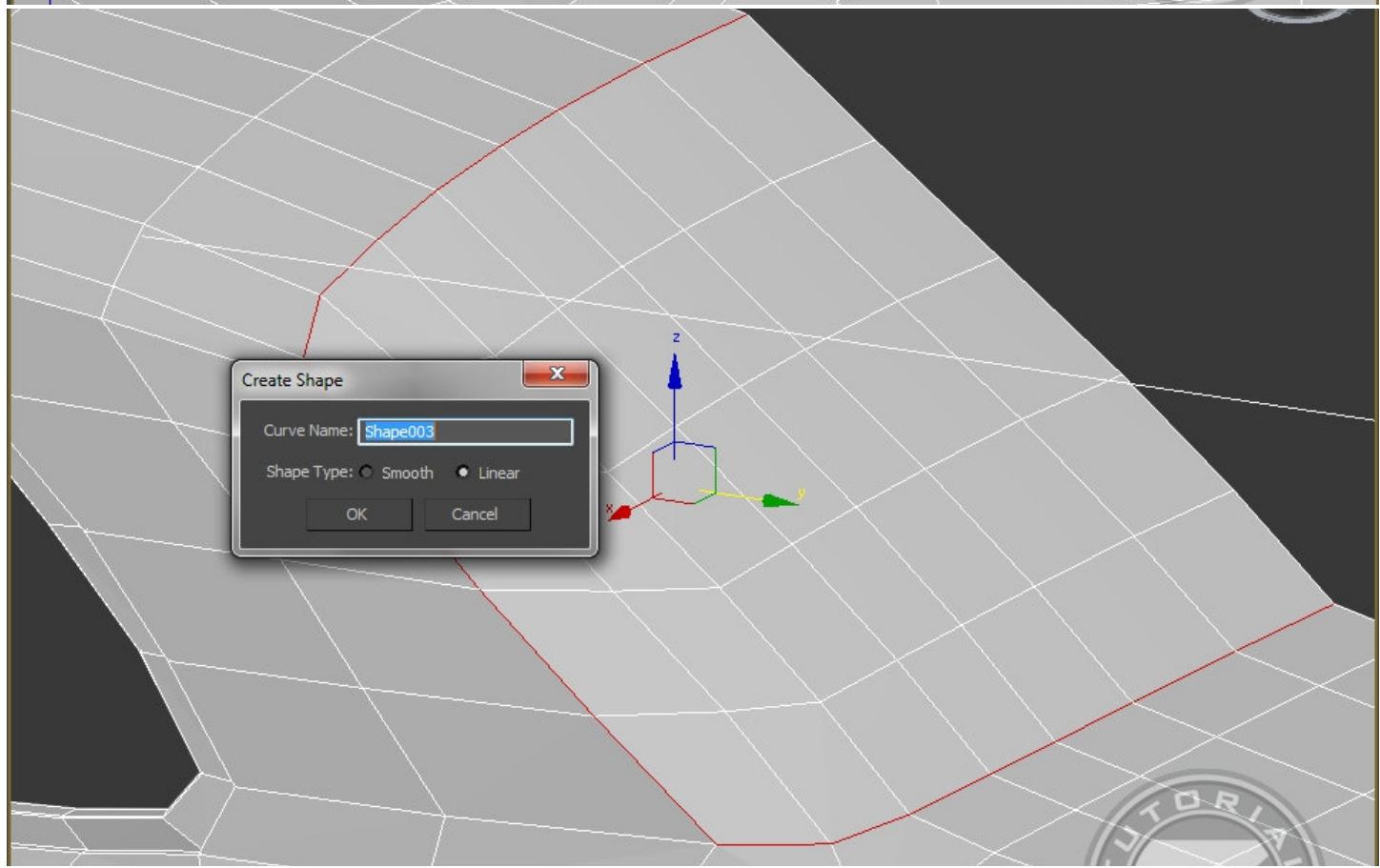
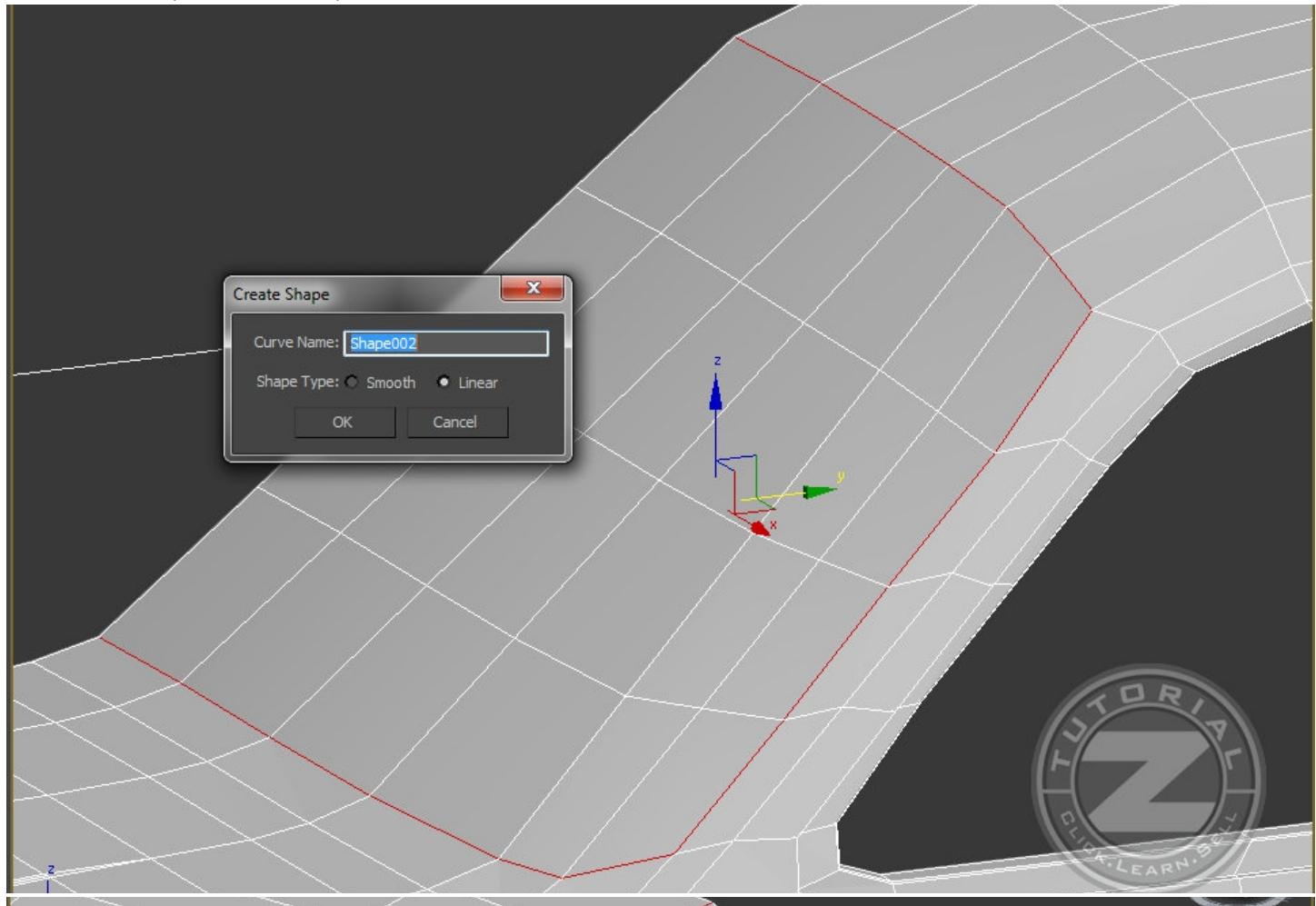
141. Now select a half of the spline/cylinder. BUT, delete the half which is to the interior of the car, not to the exterior



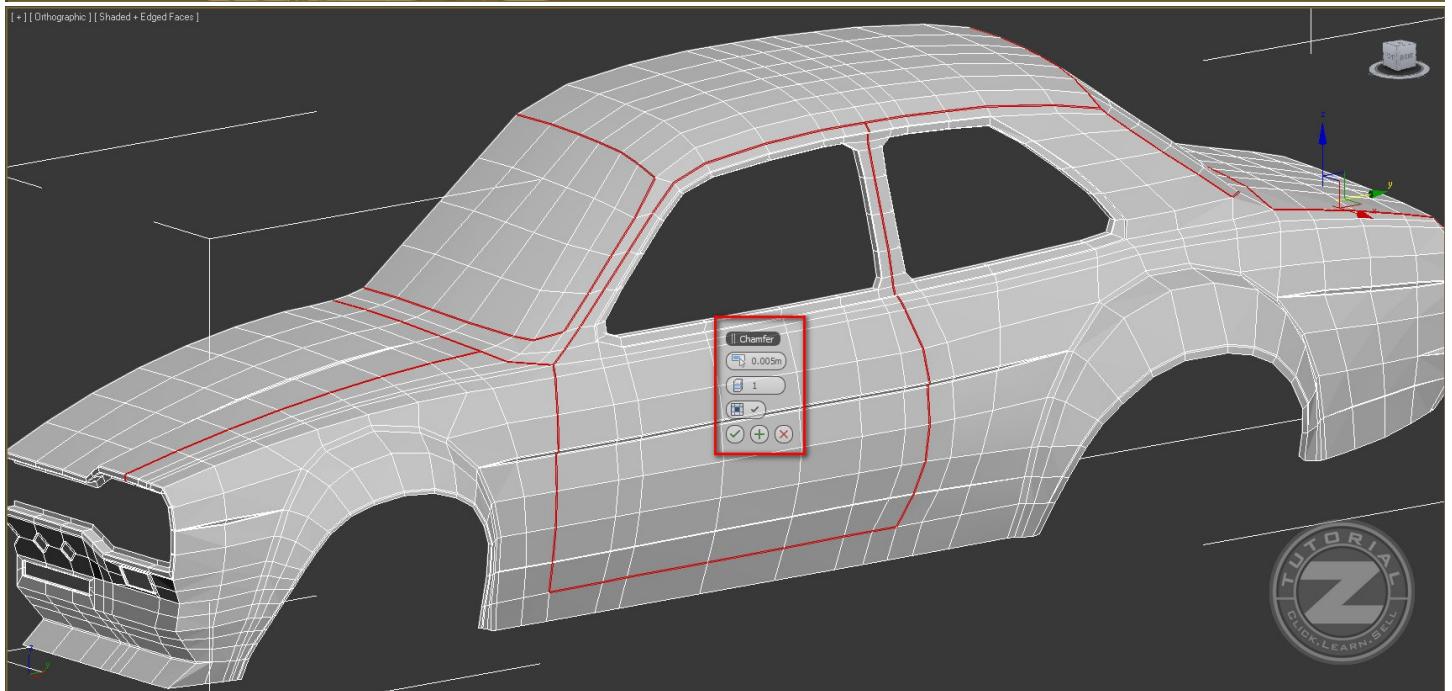
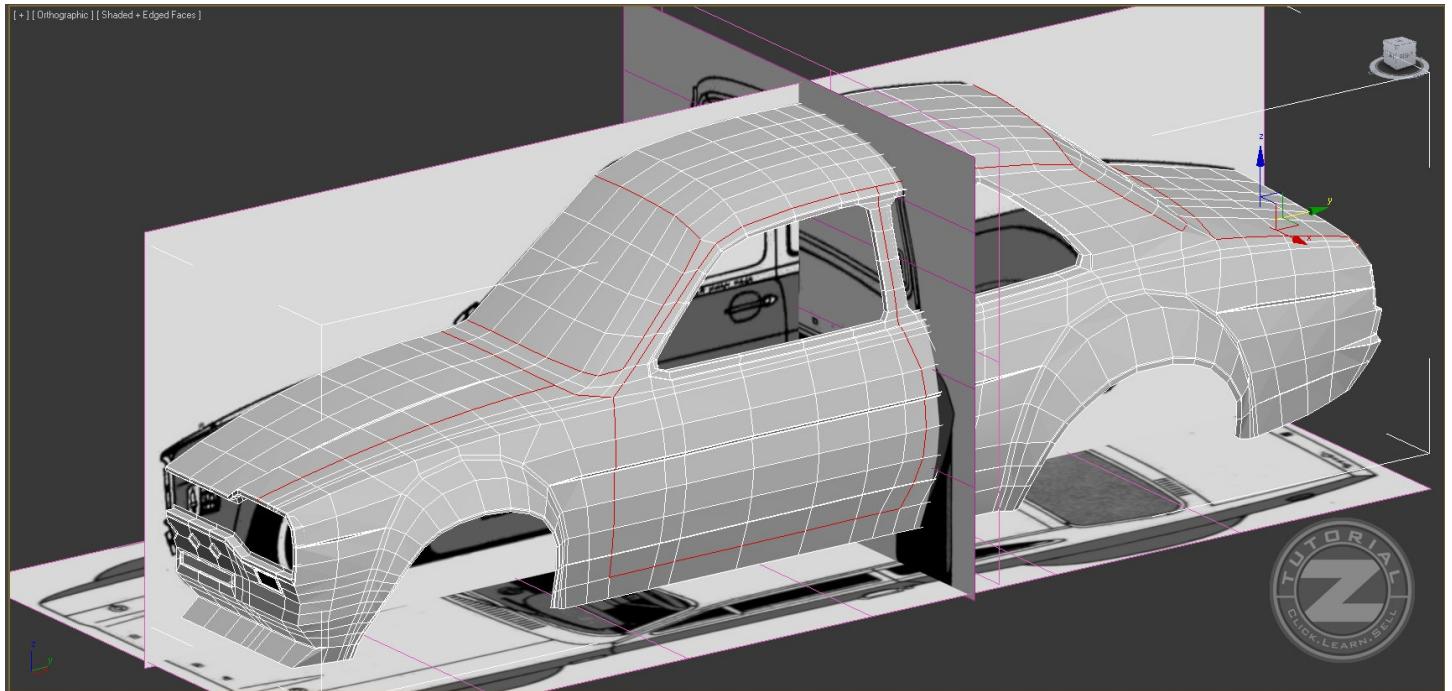
142. Having the spline/channel selected, go to the modifier list and pick “Shell” and use a very small amount. When you are done, chamfer the edges :



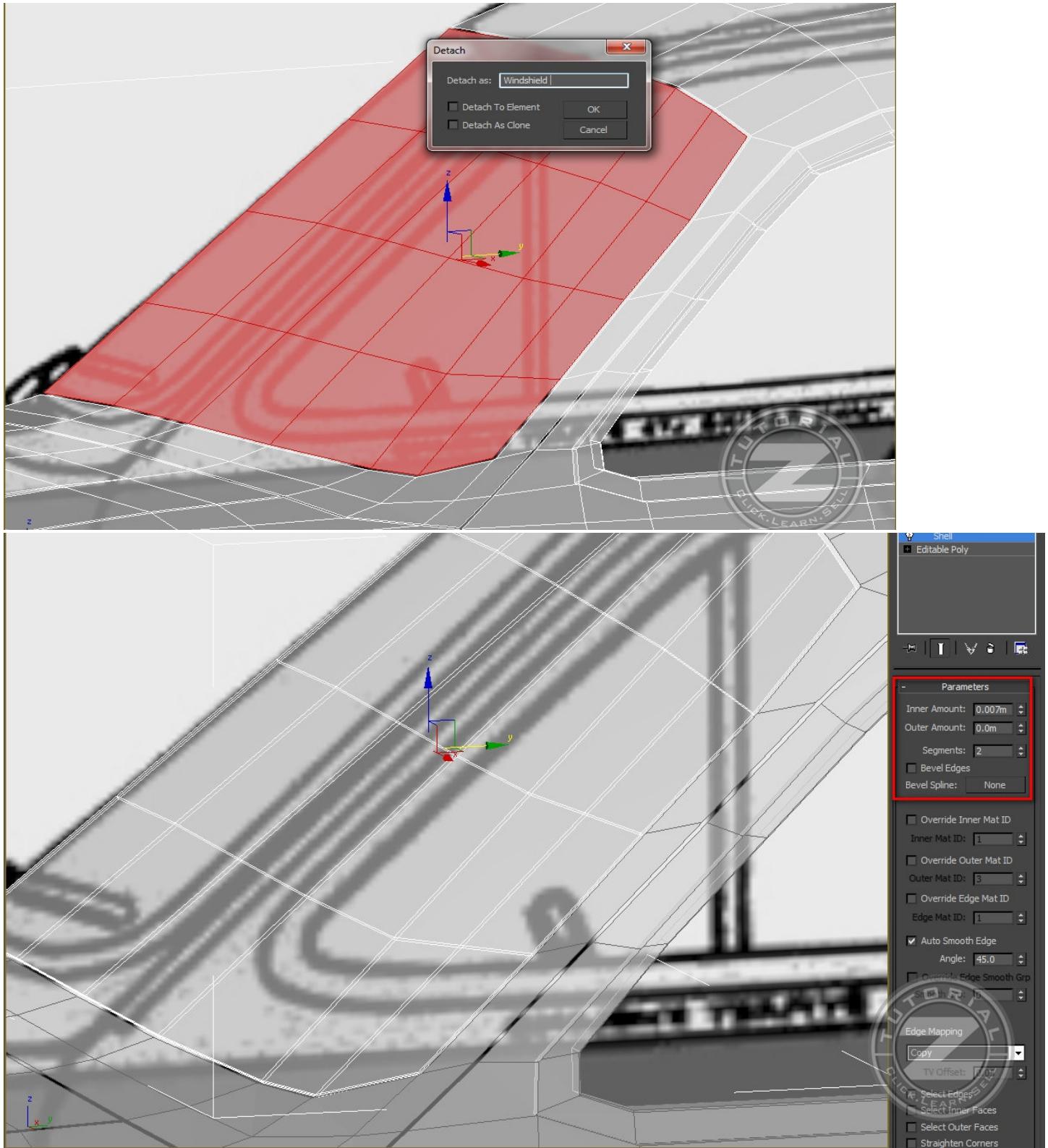
143. Select these edges (the contour of the windshield and the contour of the rear window) > right click > create shape (choose linear). We will use them later to make the rubber seal .



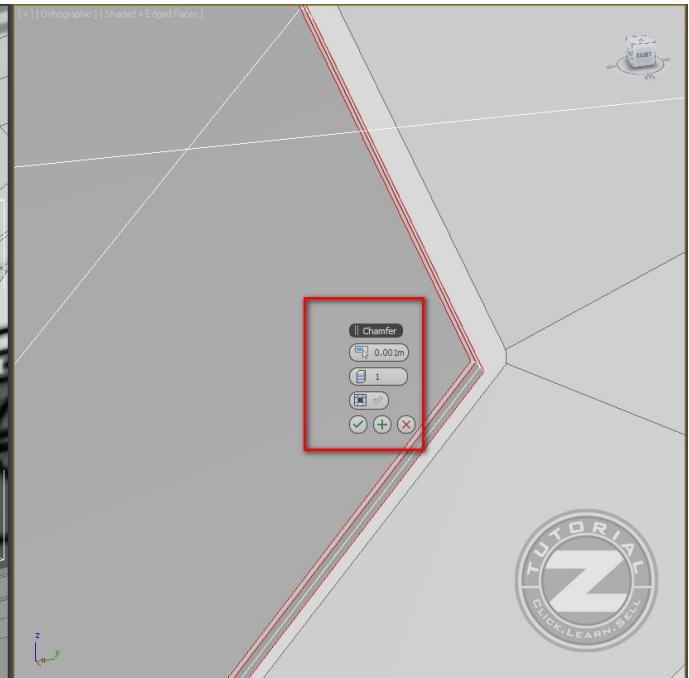
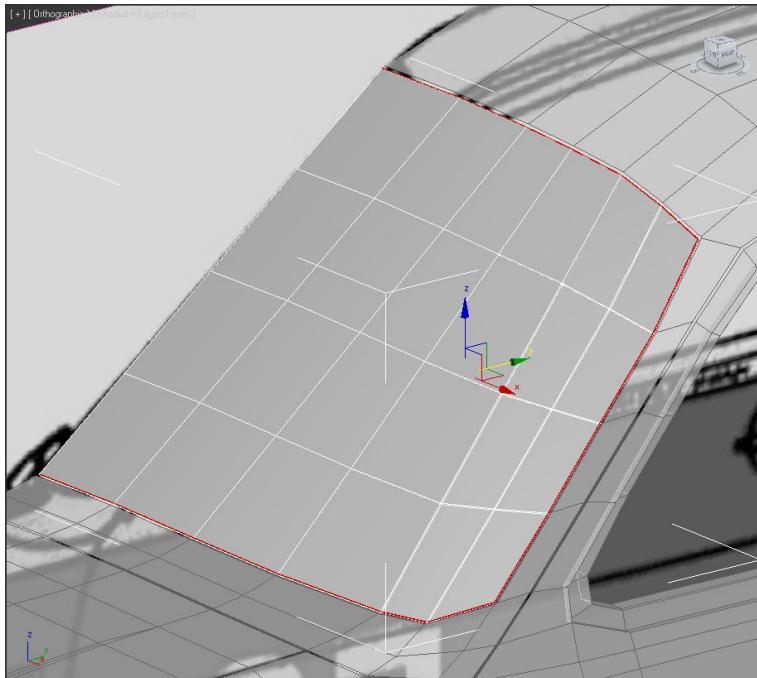
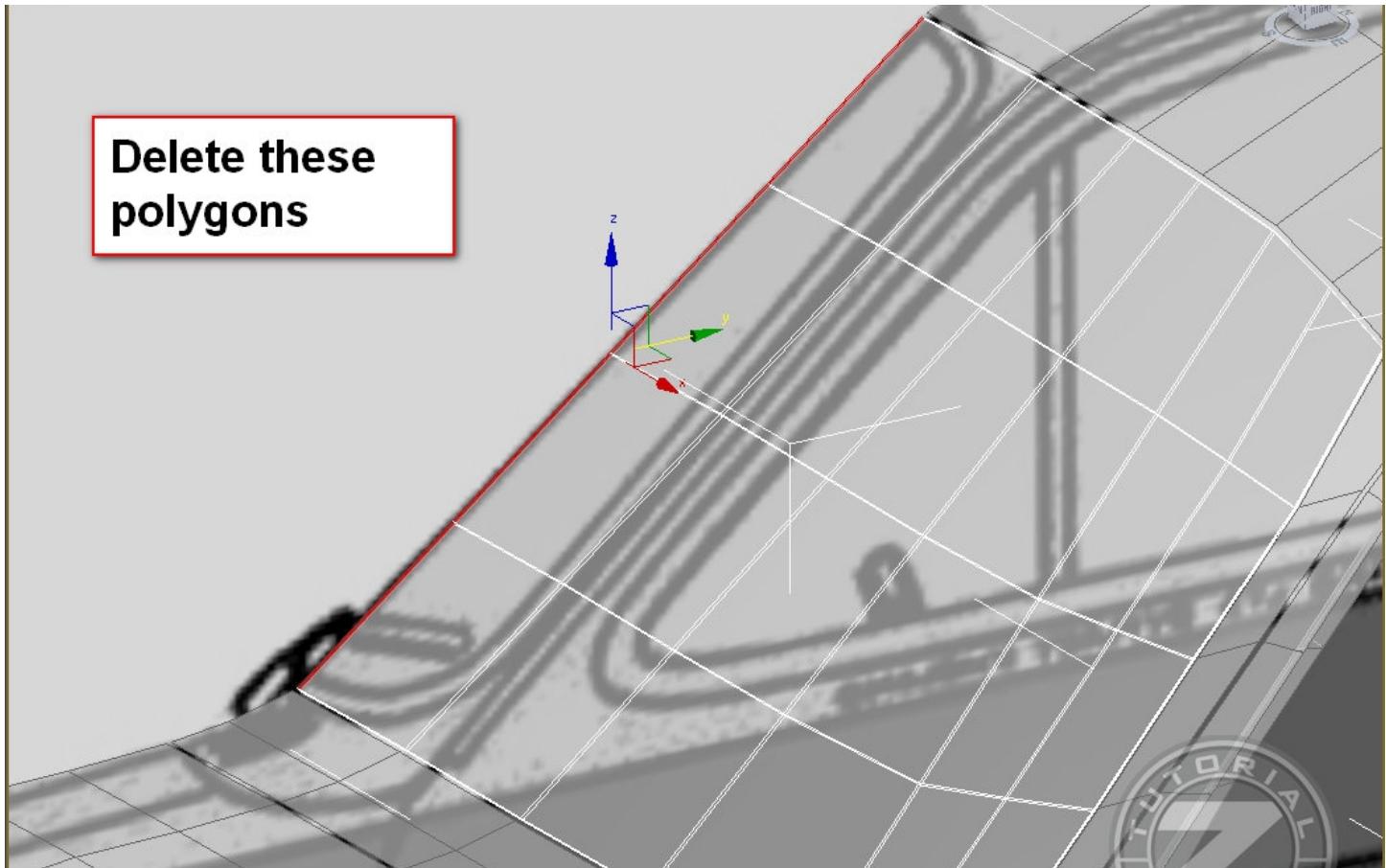
144. And now, we will make the seams. So, pick the same edges, basically the limits of each part and then chamfer them. Use an “Open Chamfer”



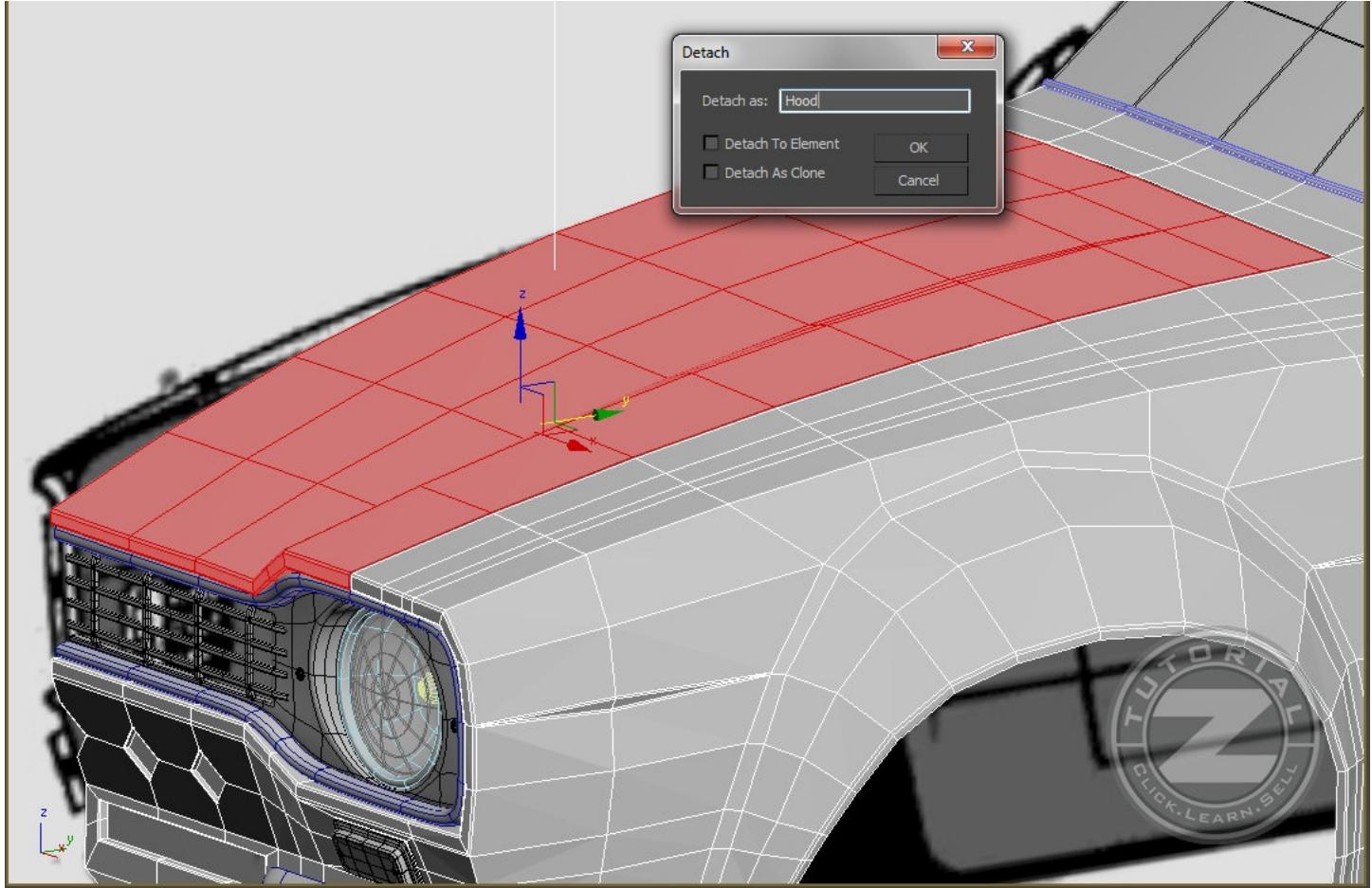
145. Let's start with the windshield. Detach it from the rest of the body, go to the modifier list, choose "Shell", add a little bit of thickness and then chamfer the selected edges in the last image. Then do the same thing for the rear window too :



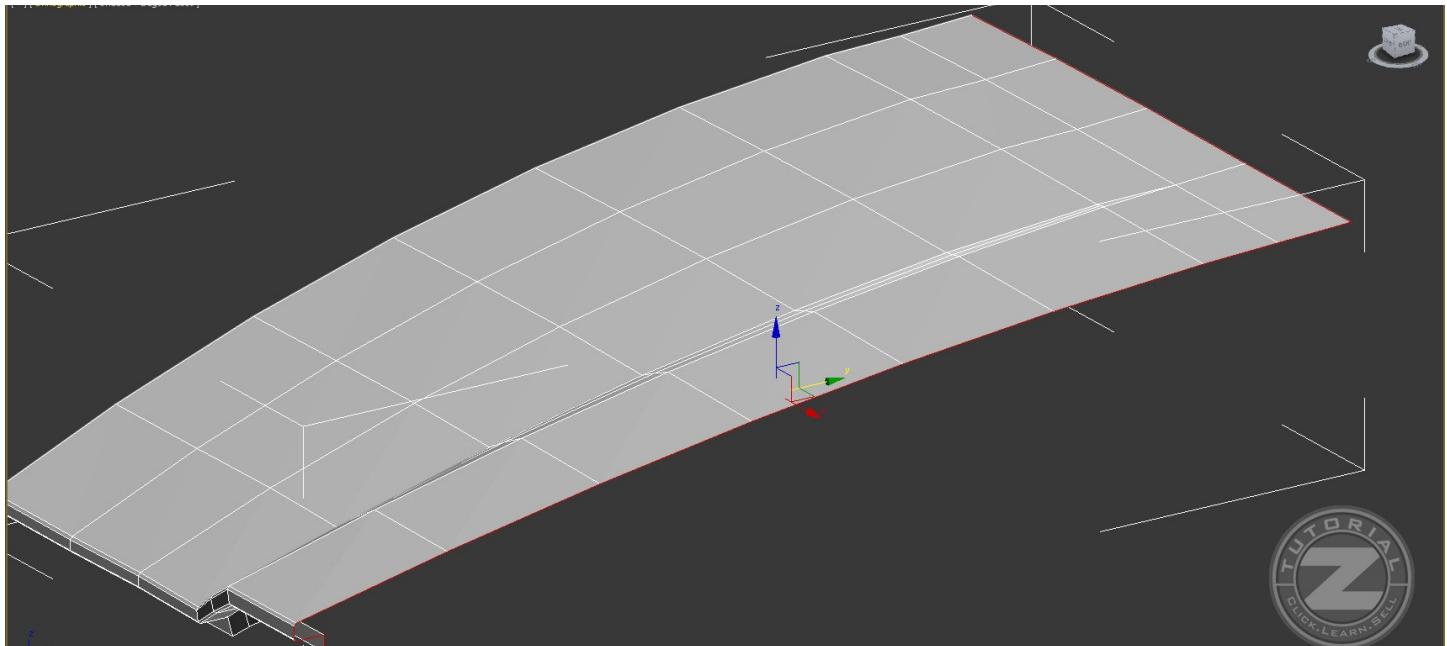
Delete these polygons

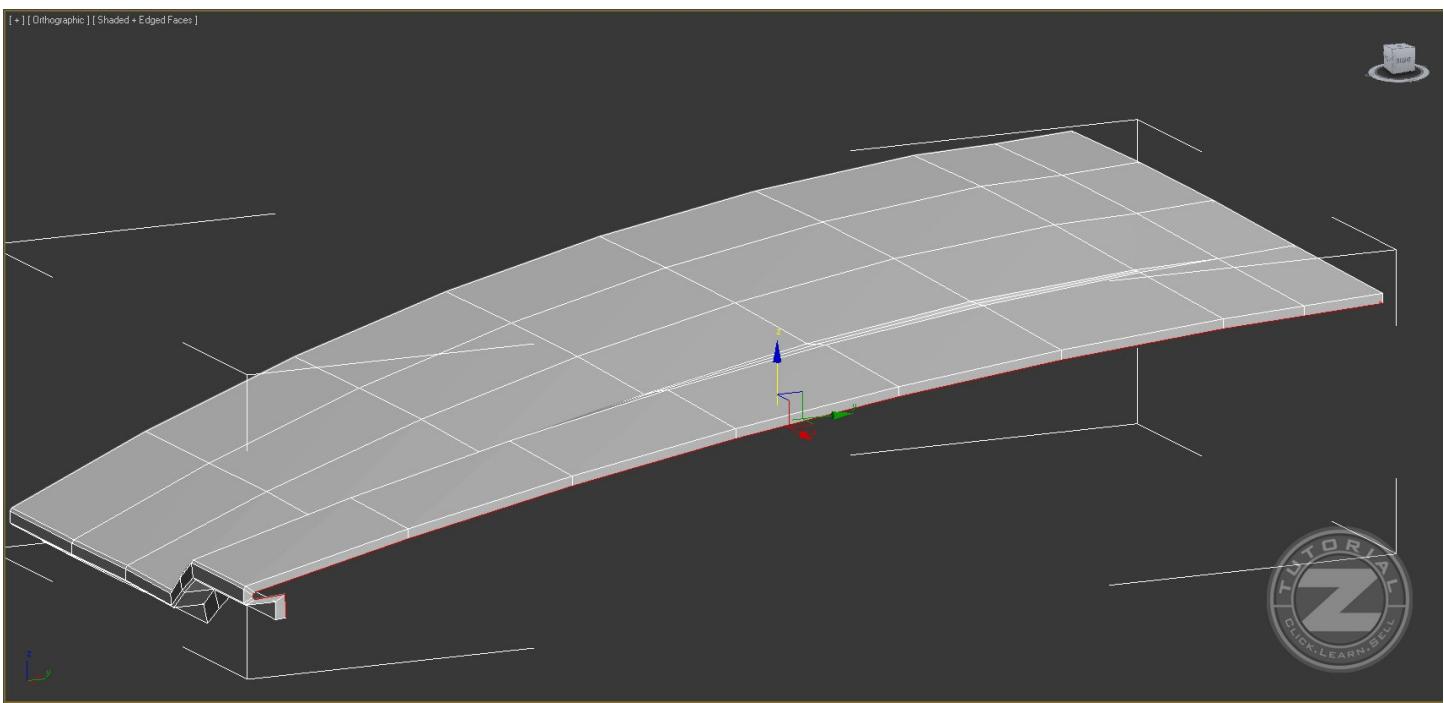


146. So, if we will leave the seams like this, it will look awful and it will give the impression that the body is made by sheets of papers because of its thickness. At this step, I will show you only for the hood how to do it. Then, you do the same thing for the rest of the parts and if you need help, just ask us on the forum :) . Detach the hood, and hide everything else :

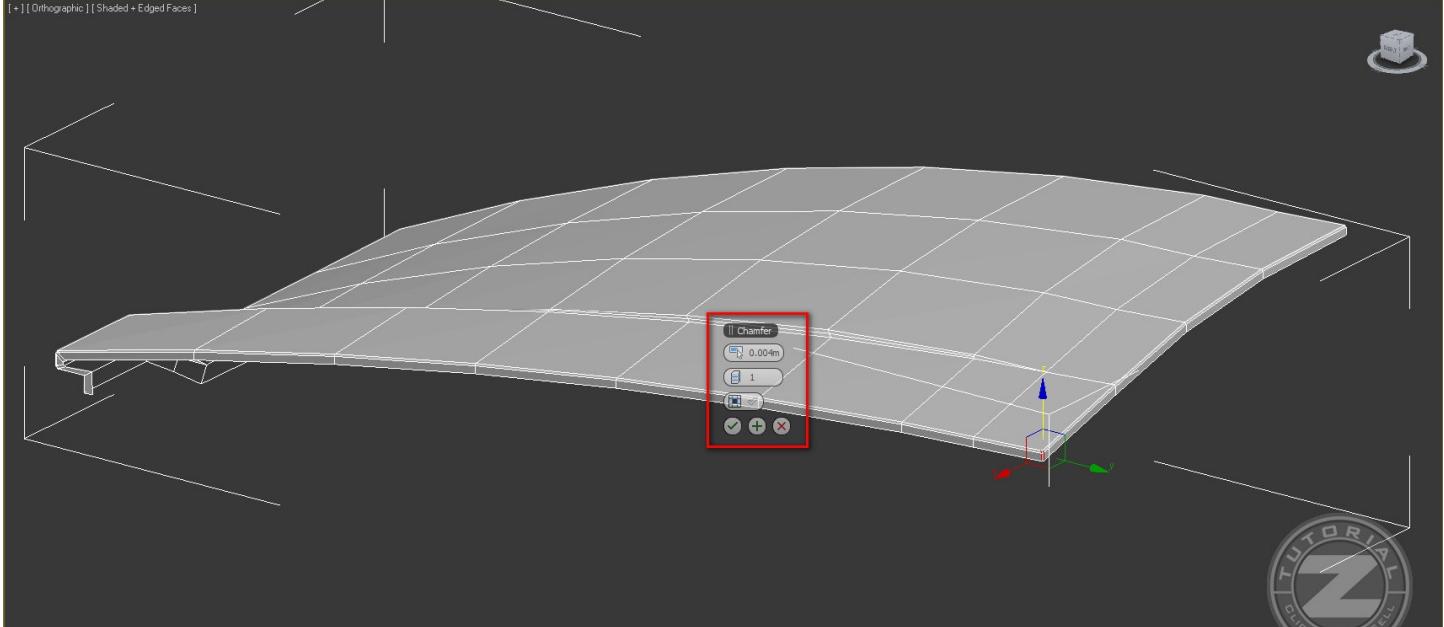
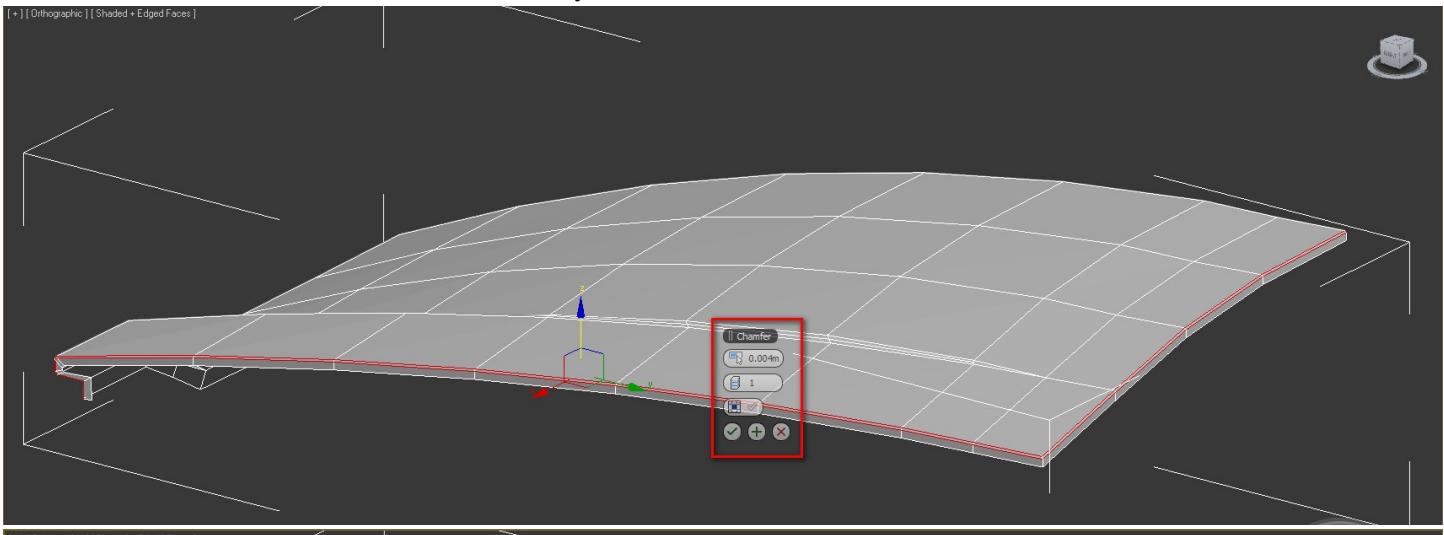


147. Now drag the exterior edges of the hood and drag them to the interior. Don't do this on the middle, because we will use the symmetry tool and it will be useless. So, select the side edges and drag them to the interior a little bit :

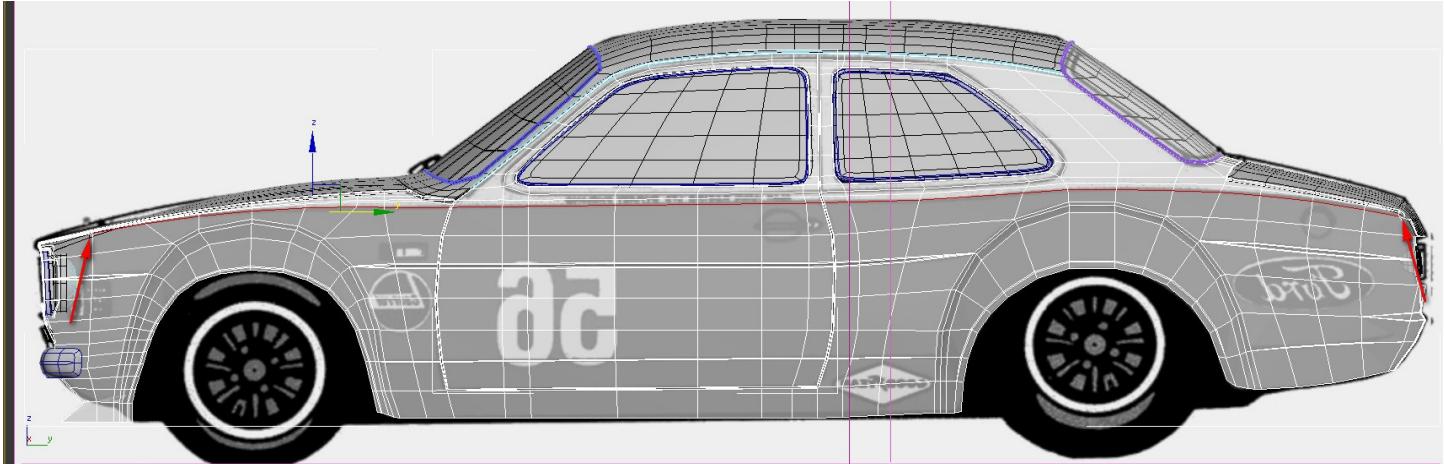




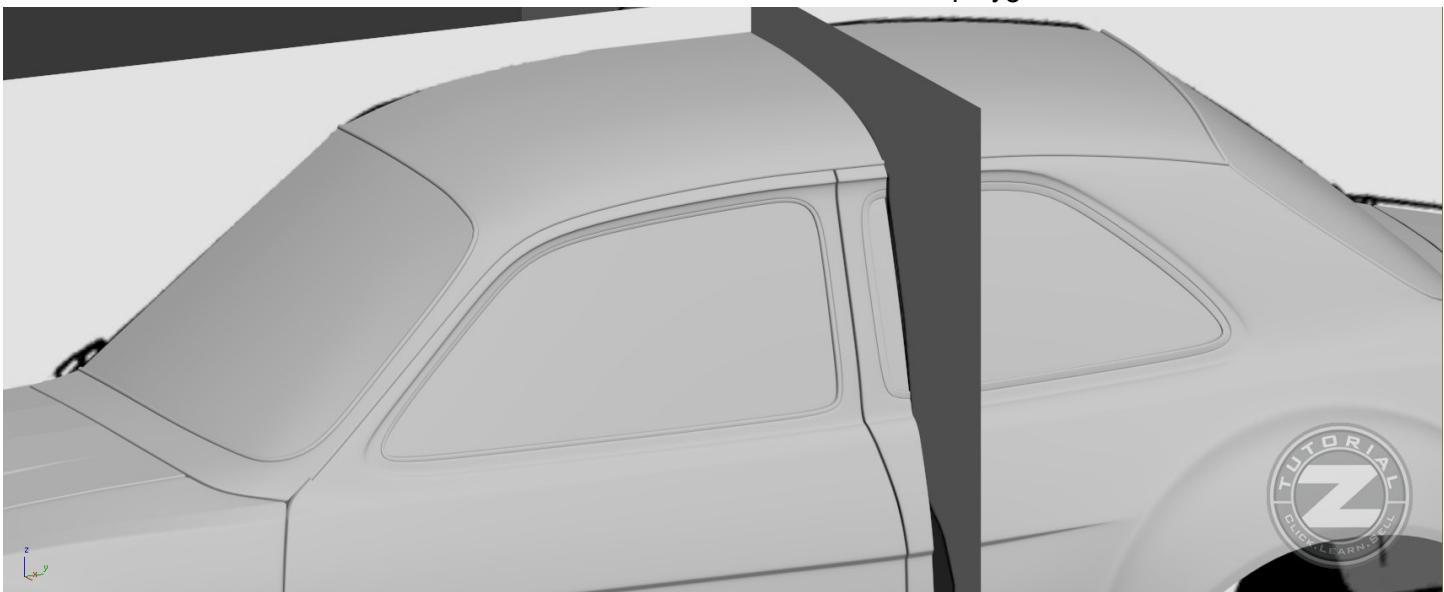
148. And when you are done, chamfer these edges, and the chamfer the corner to keep it sharp. Don't chamfer the both in the same time because you will ruin the mesh :



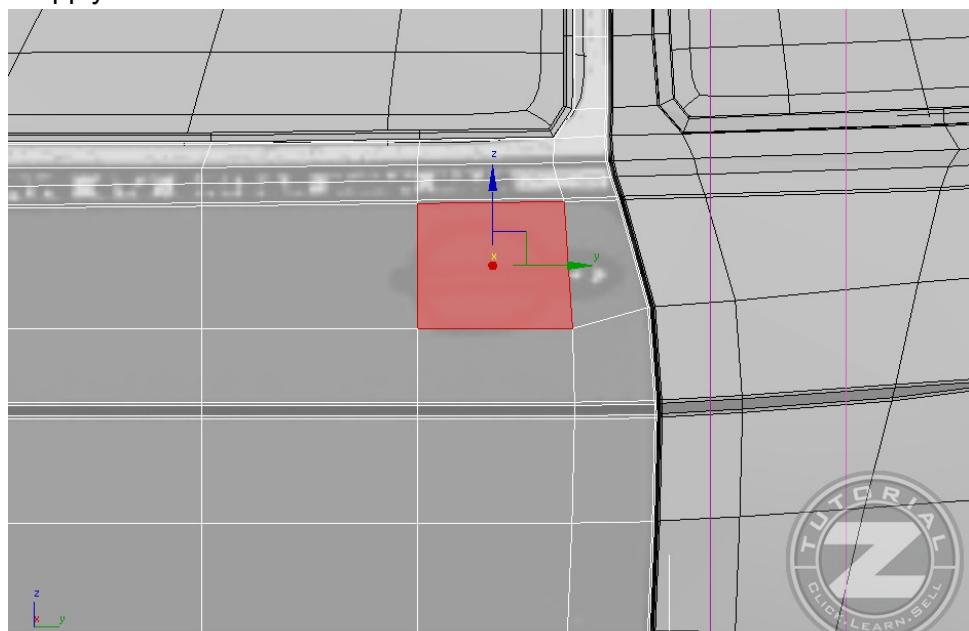
149. I have forgot to mention something. When you are done with the chamfering process, you also need to chamfer these edges, and then weld the vertices at each end :

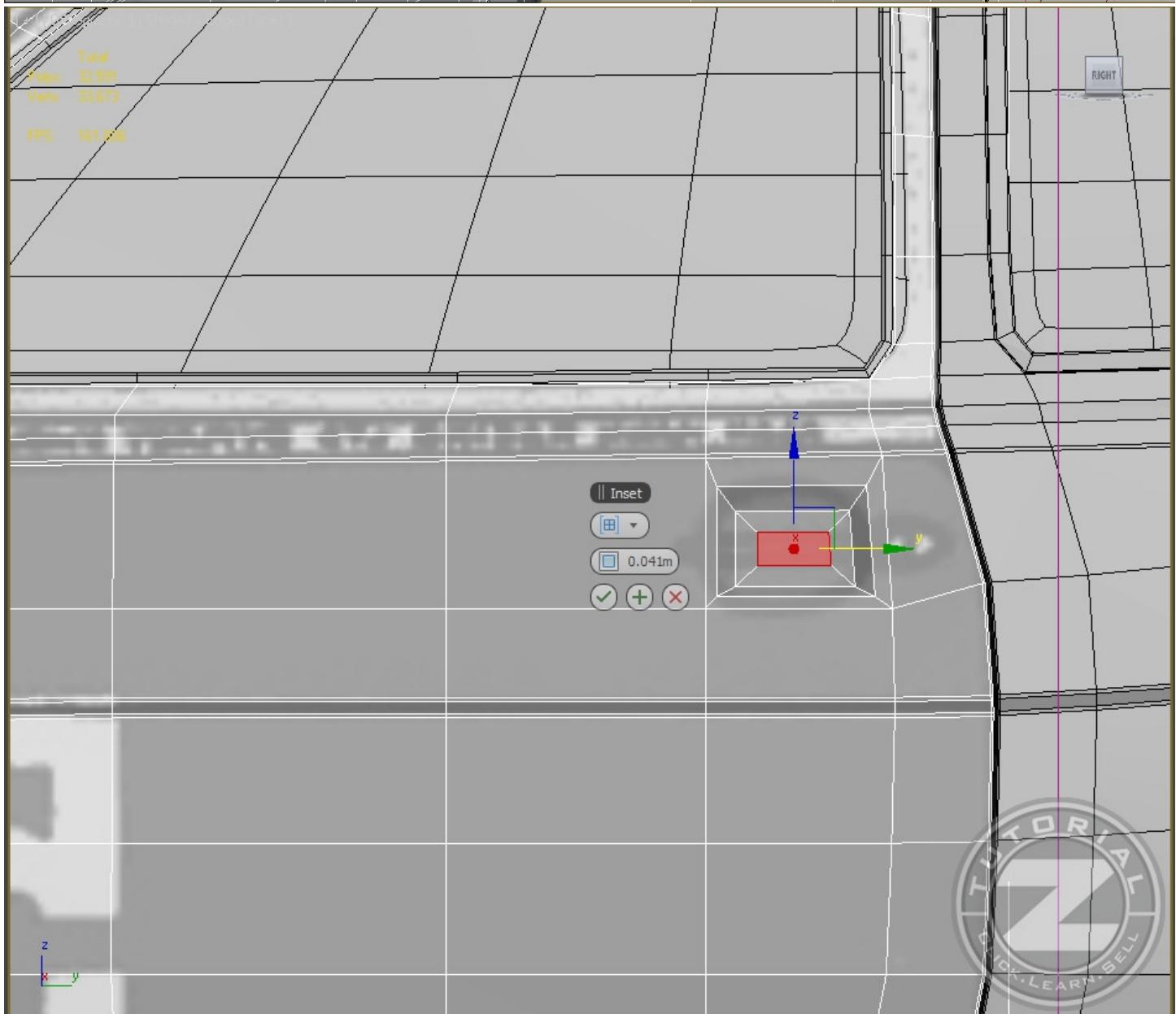
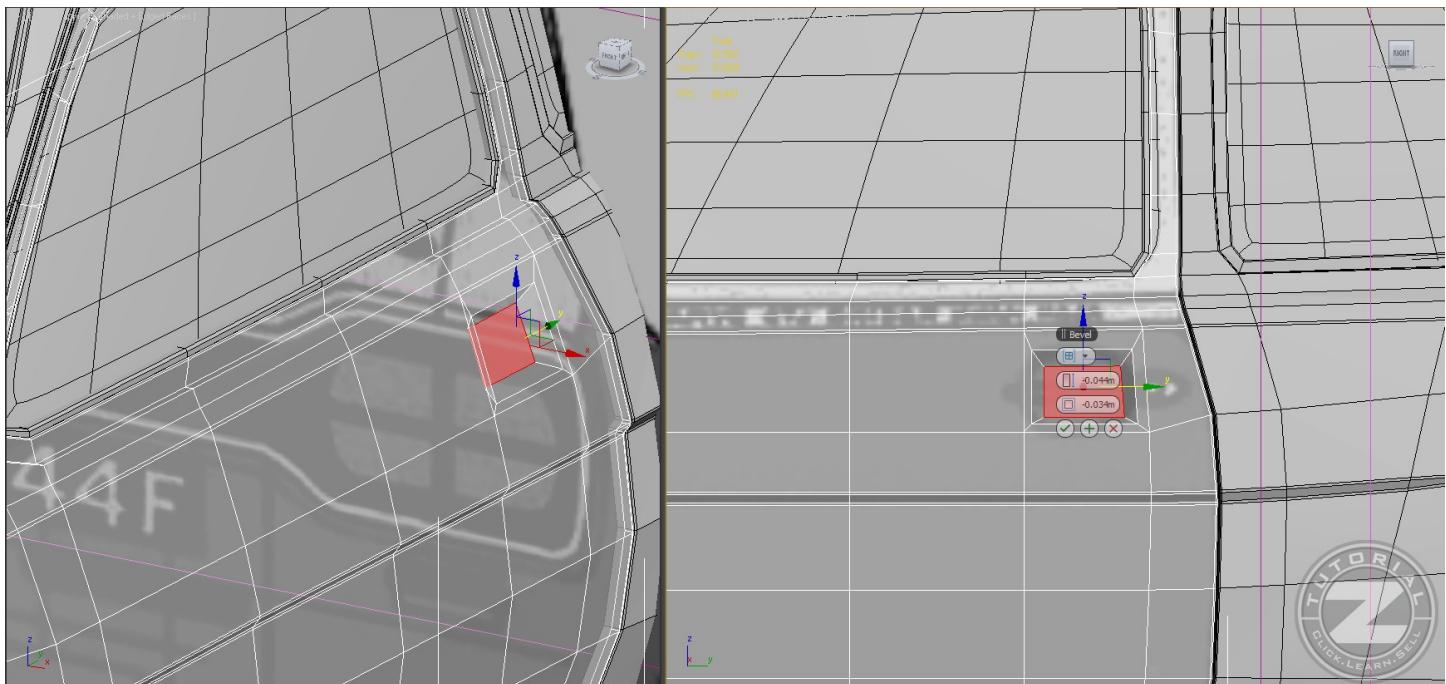


150. Unhide the splines that we have made using the contour of the windshield and rear window, add a little bit of thickness, and use them to make the rubber seal. And also, delete the polygons from each end too :

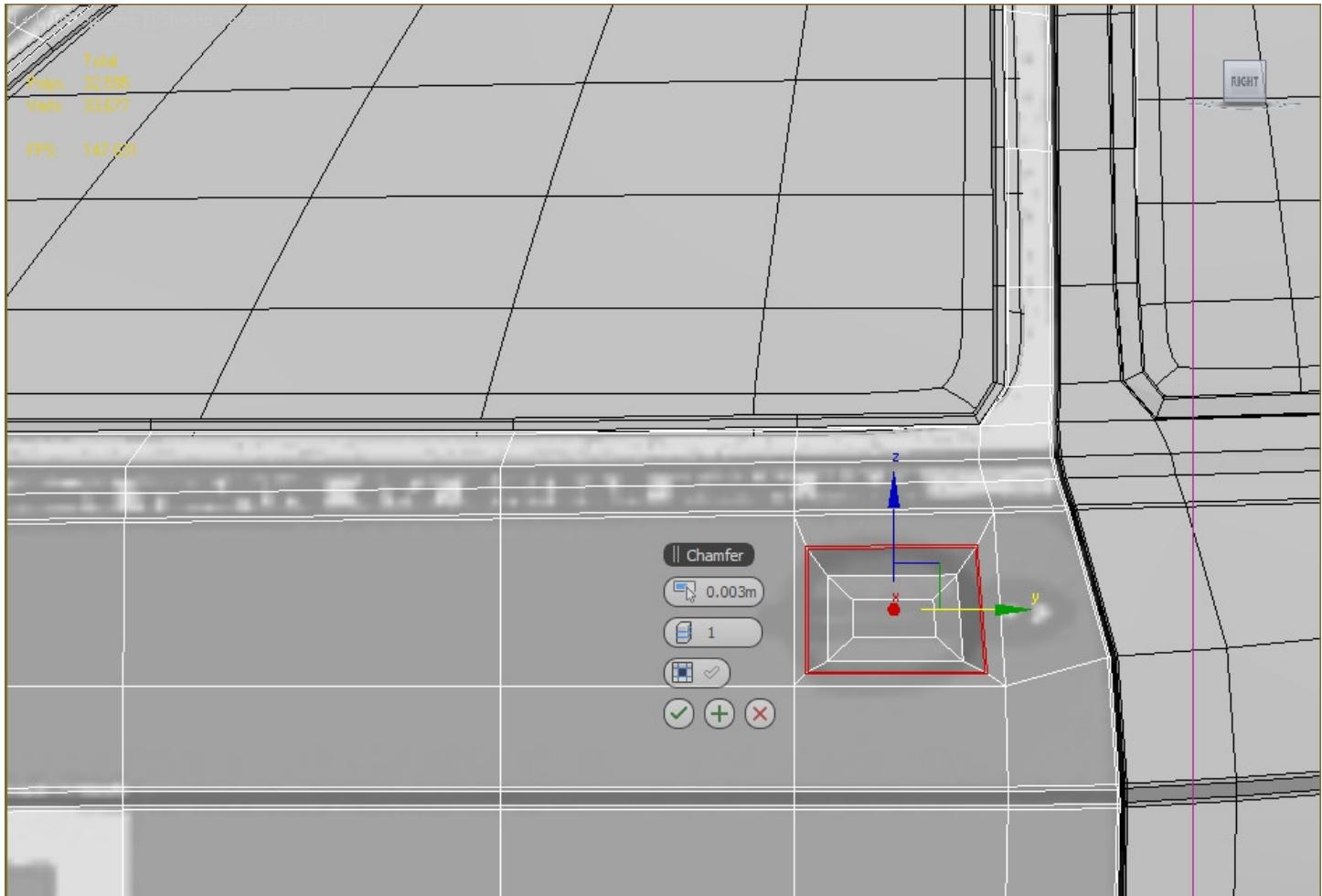


151. Now we will work on the door handle. We will start by selecting the same polygons that I have selected in the first image, then apply an inset on him :

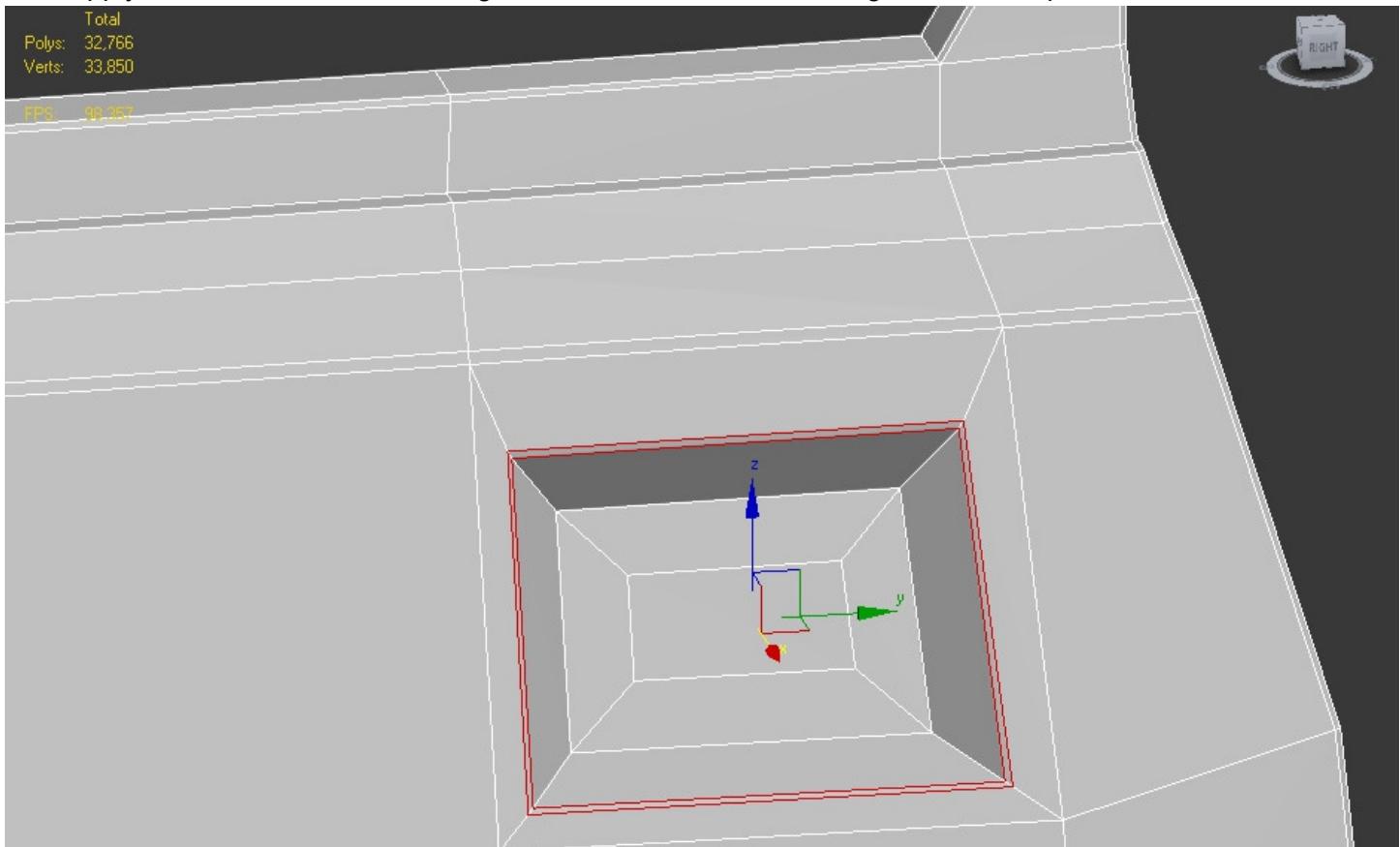




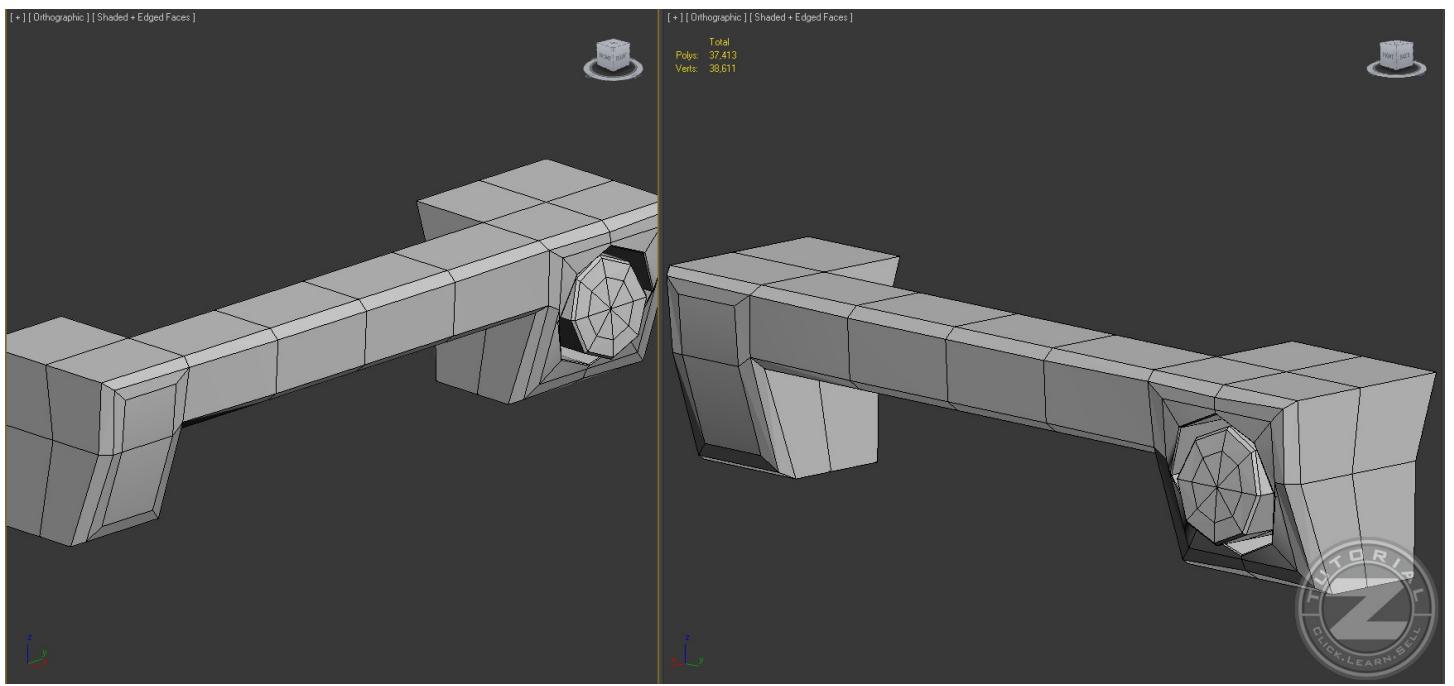
152. Bevel the same polygon that is selected above using the same values as me :



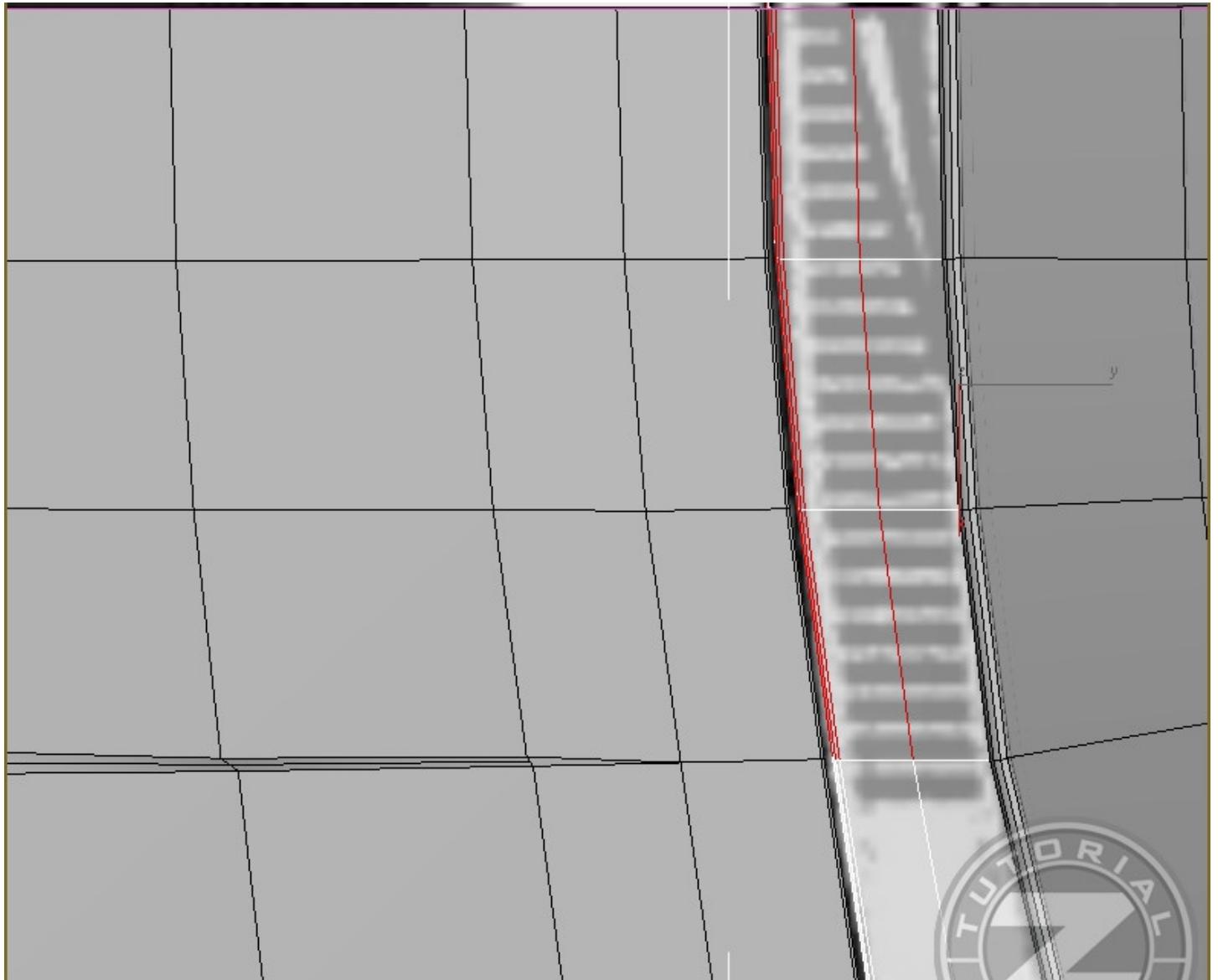
153. Apply a chamfer on the same edges because we want those edges to be sharper :

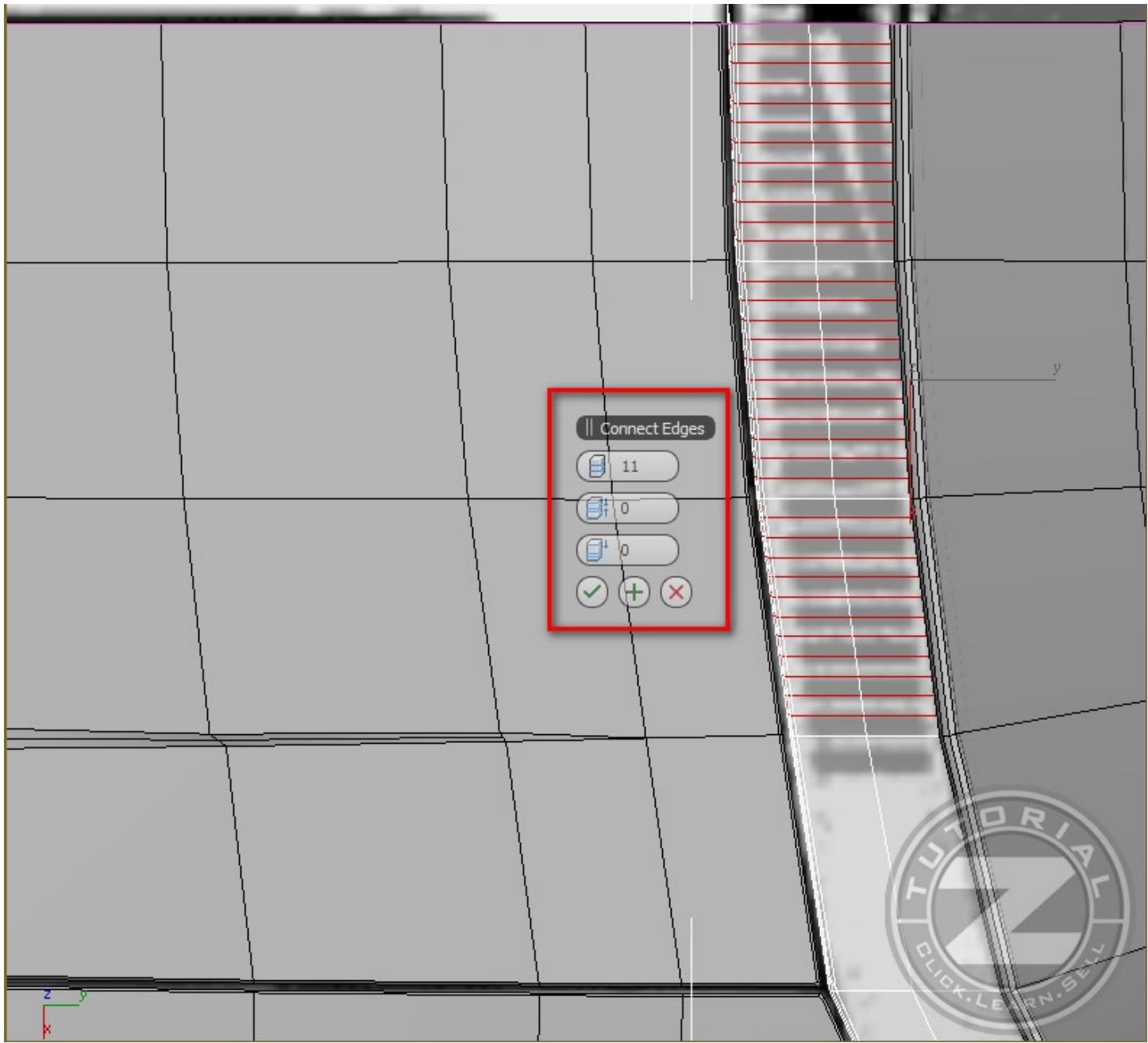


154. Here you have the door handle that I have modeled :

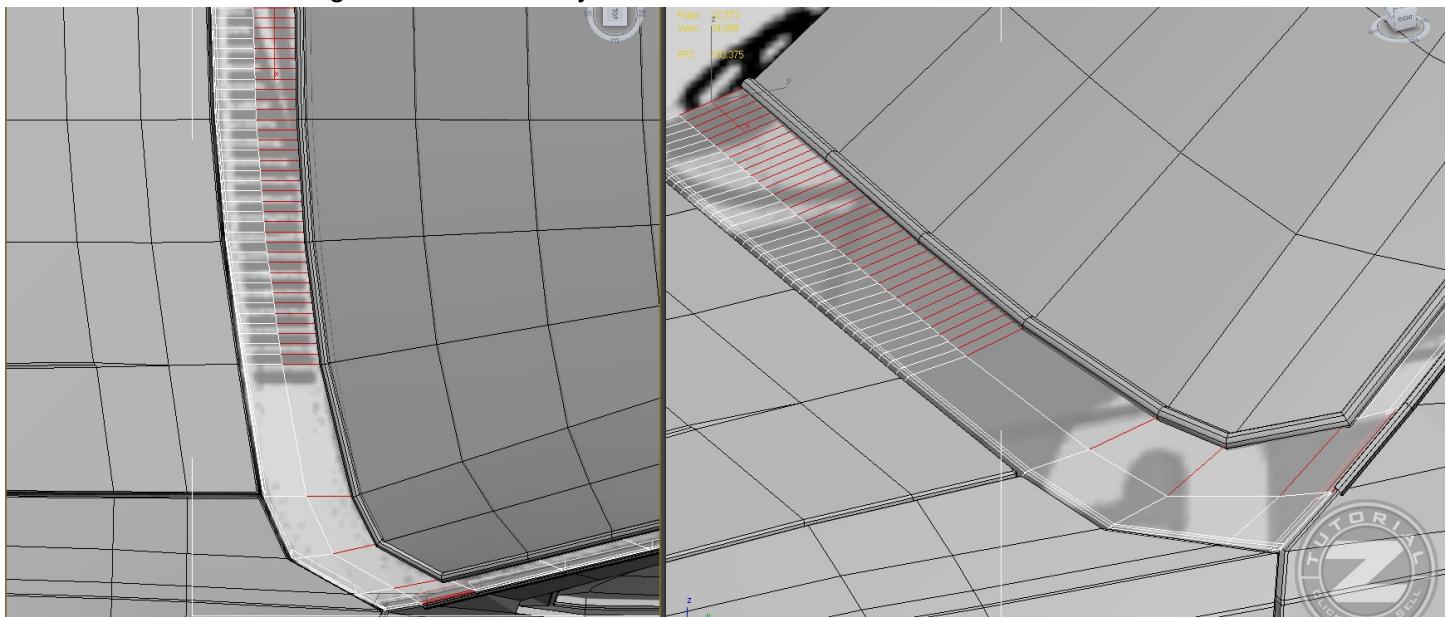


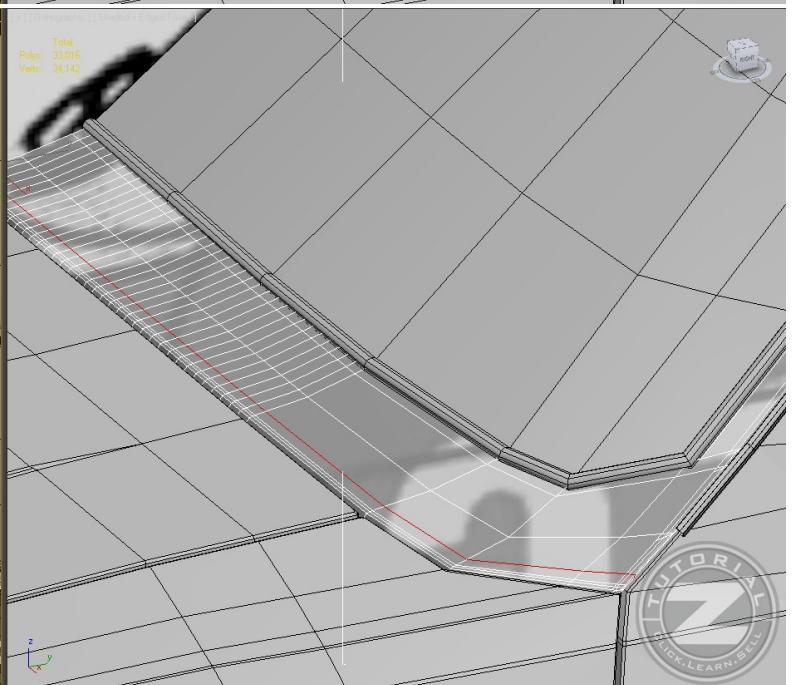
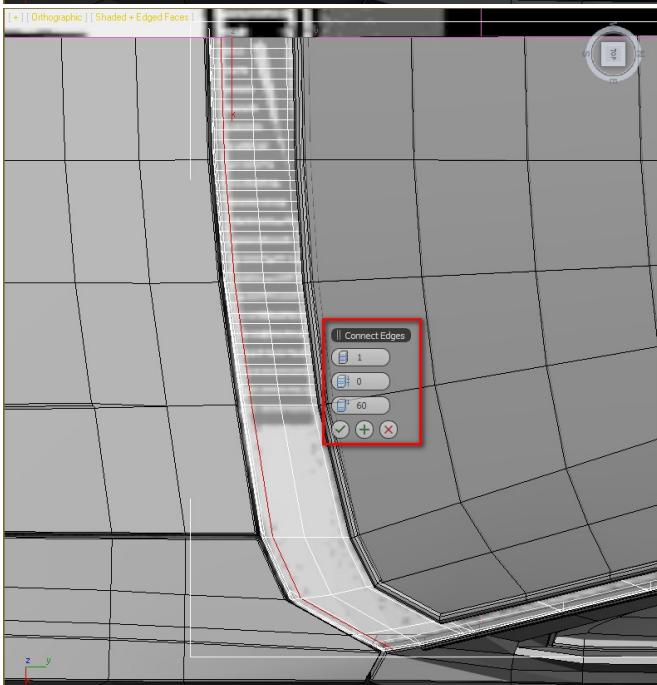
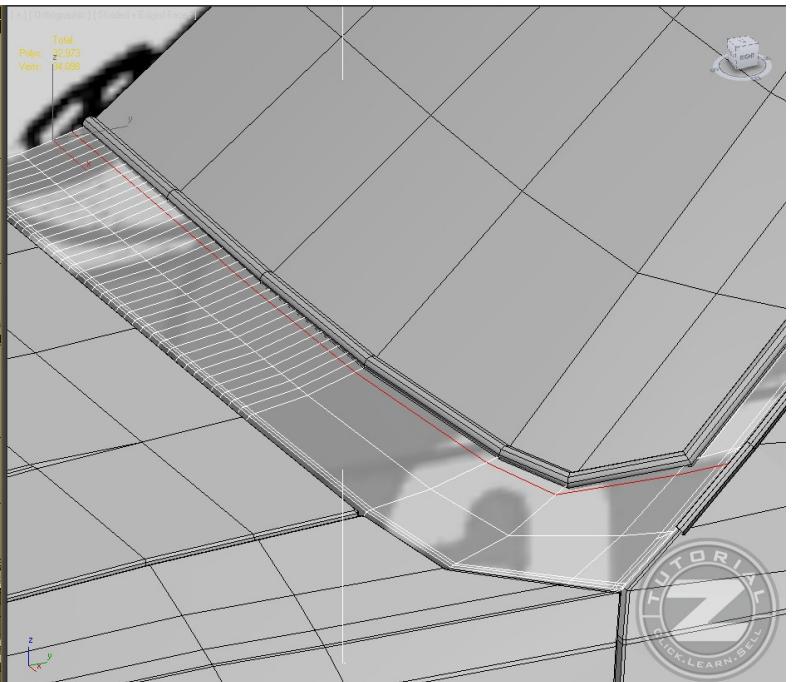
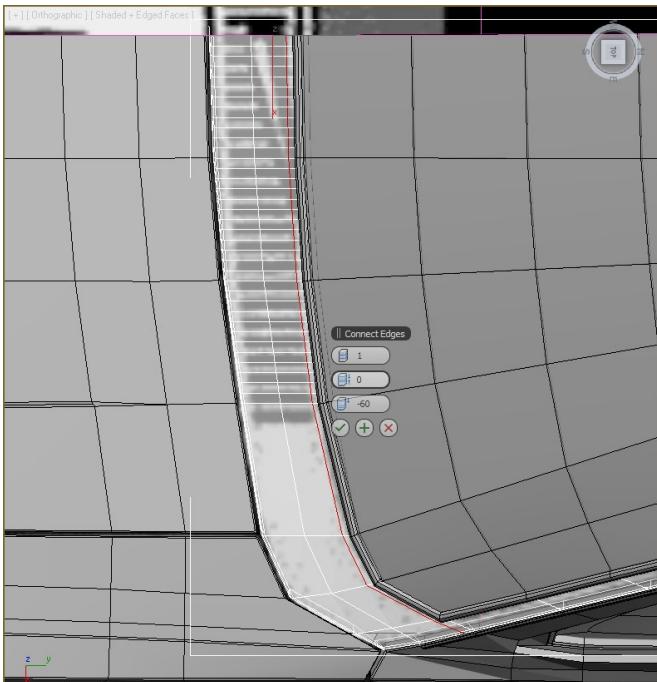
155. Another small detail that we will make , will be those tiny holes, under the windshield. And to make them, we will start bi selecting these edges and connect them :



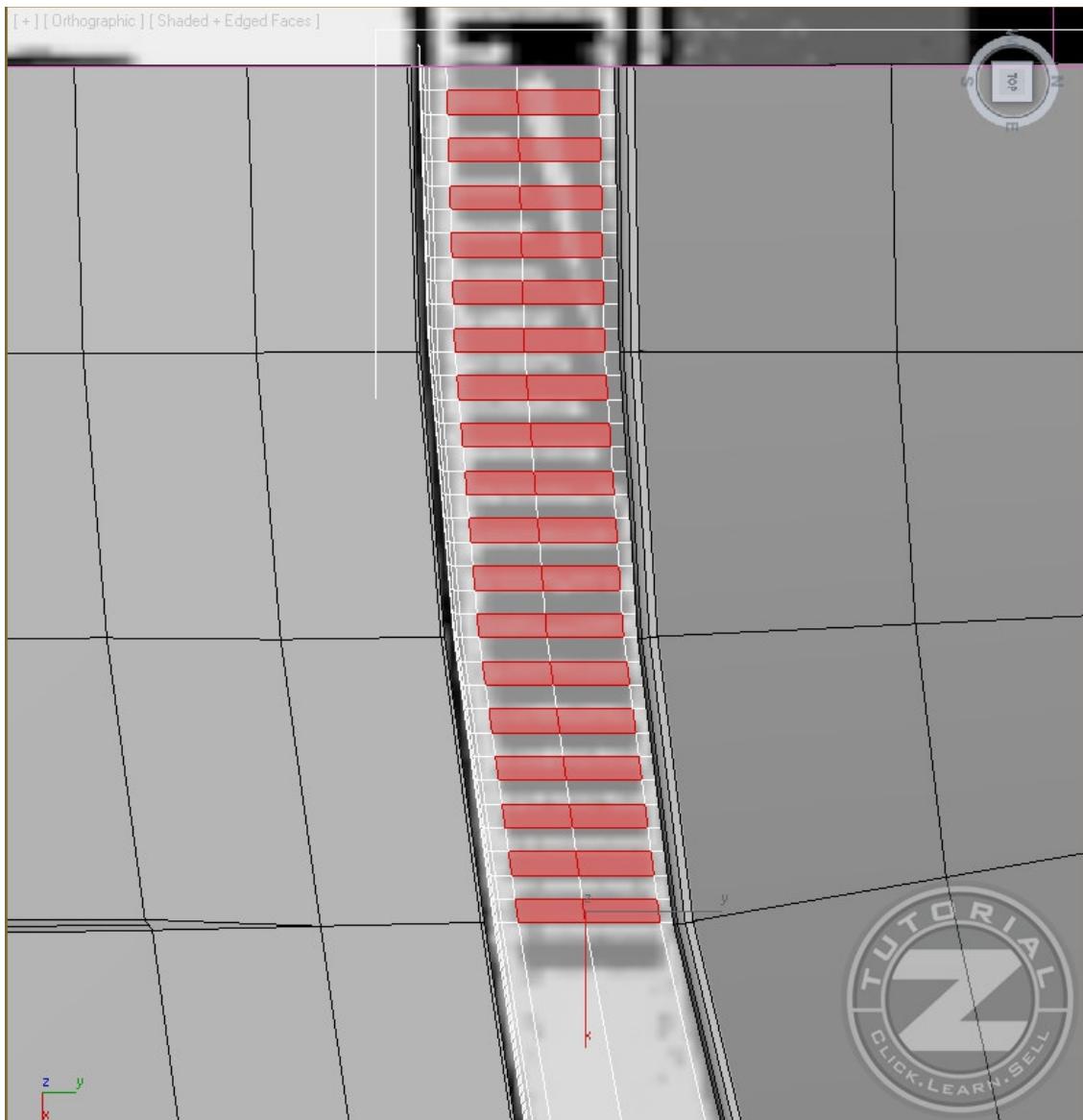


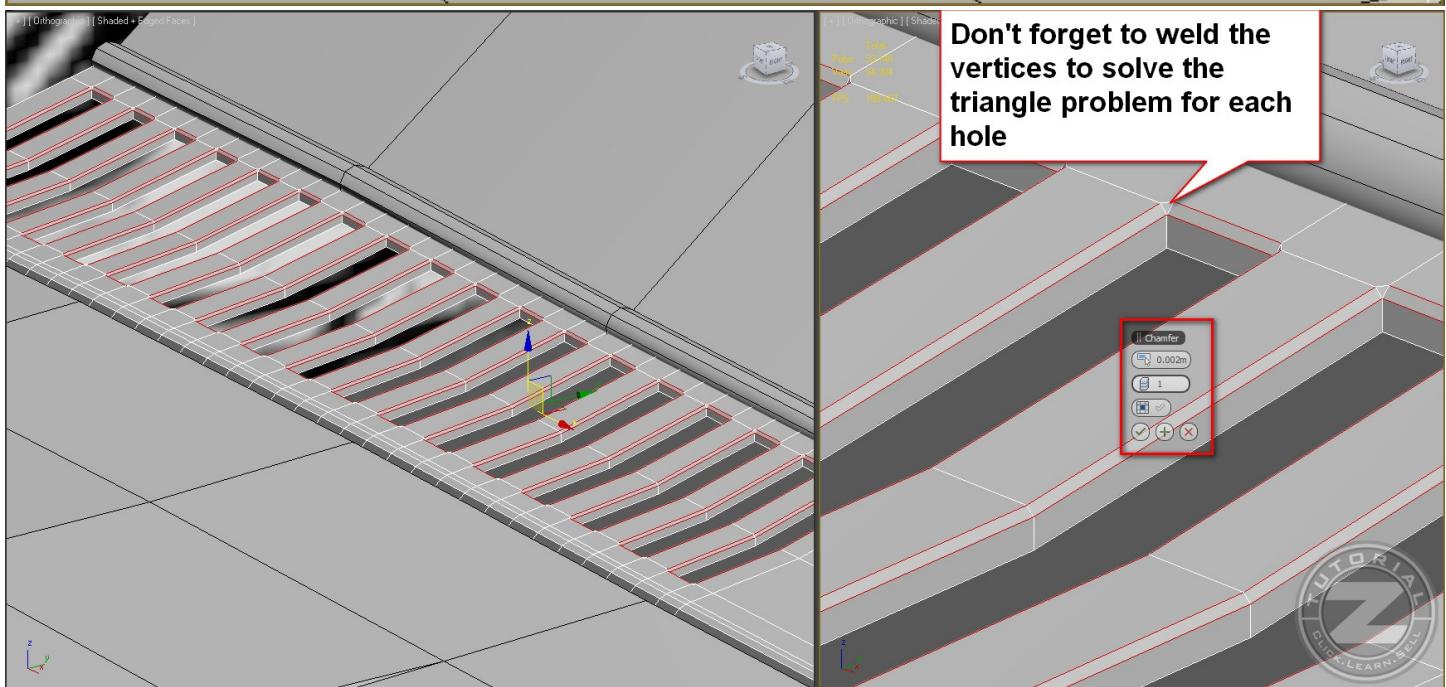
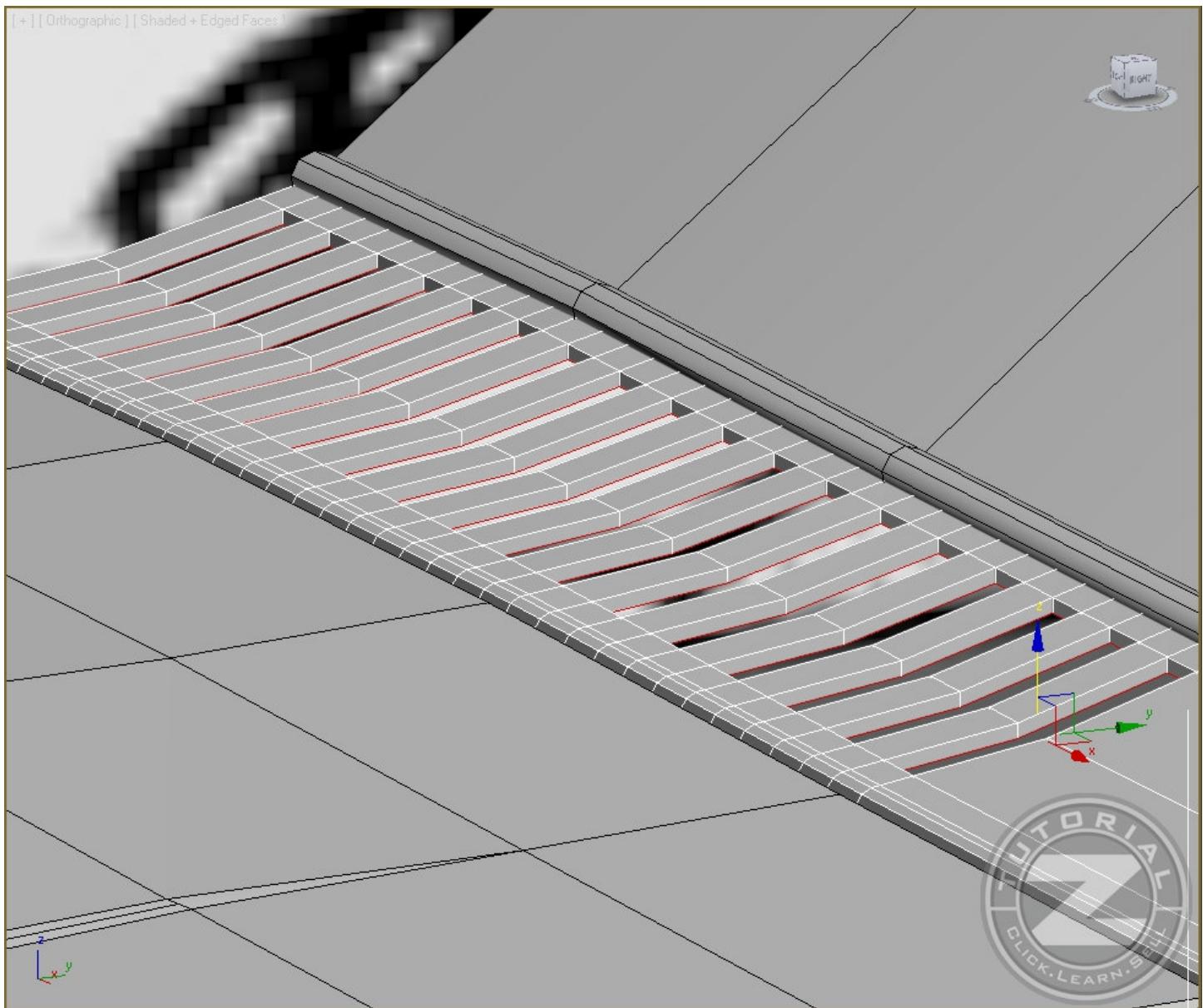
156. Now connect the edges in the other way :



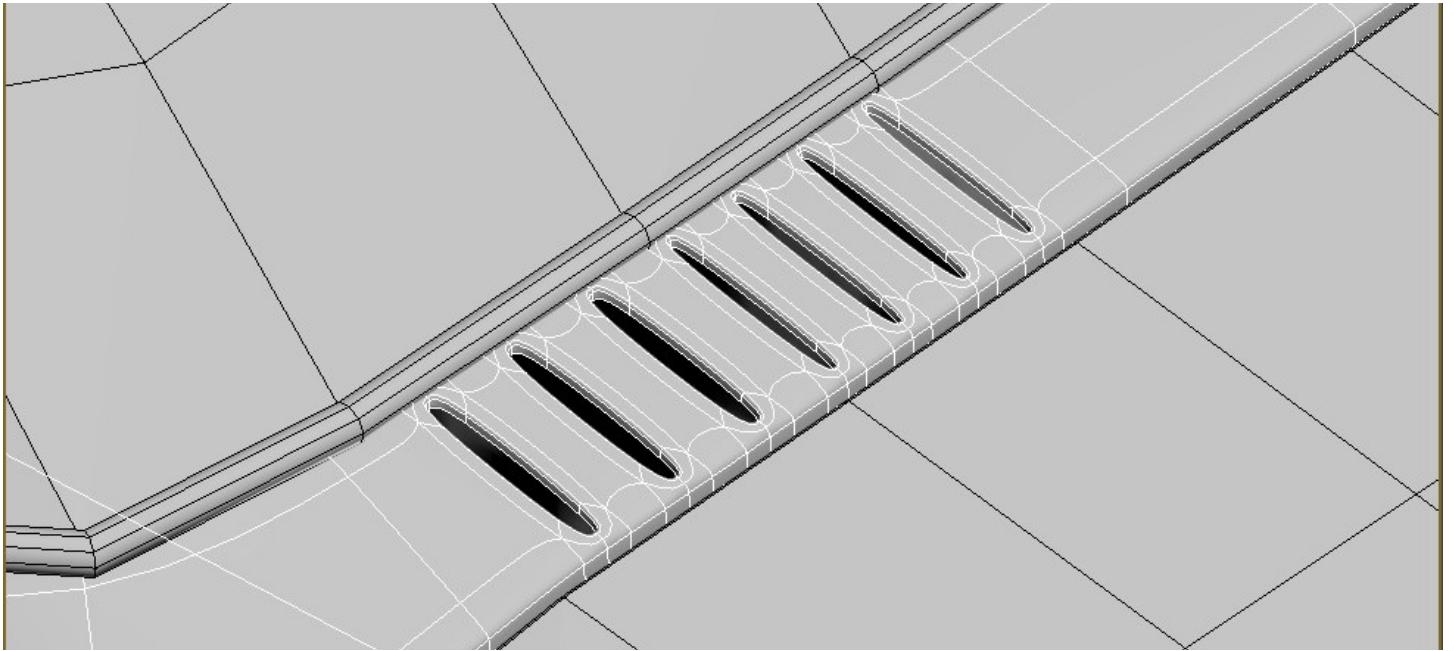


157. Select and delete these polygons, then drag the border of the holes a little bit to the interior and chamfer the borders :

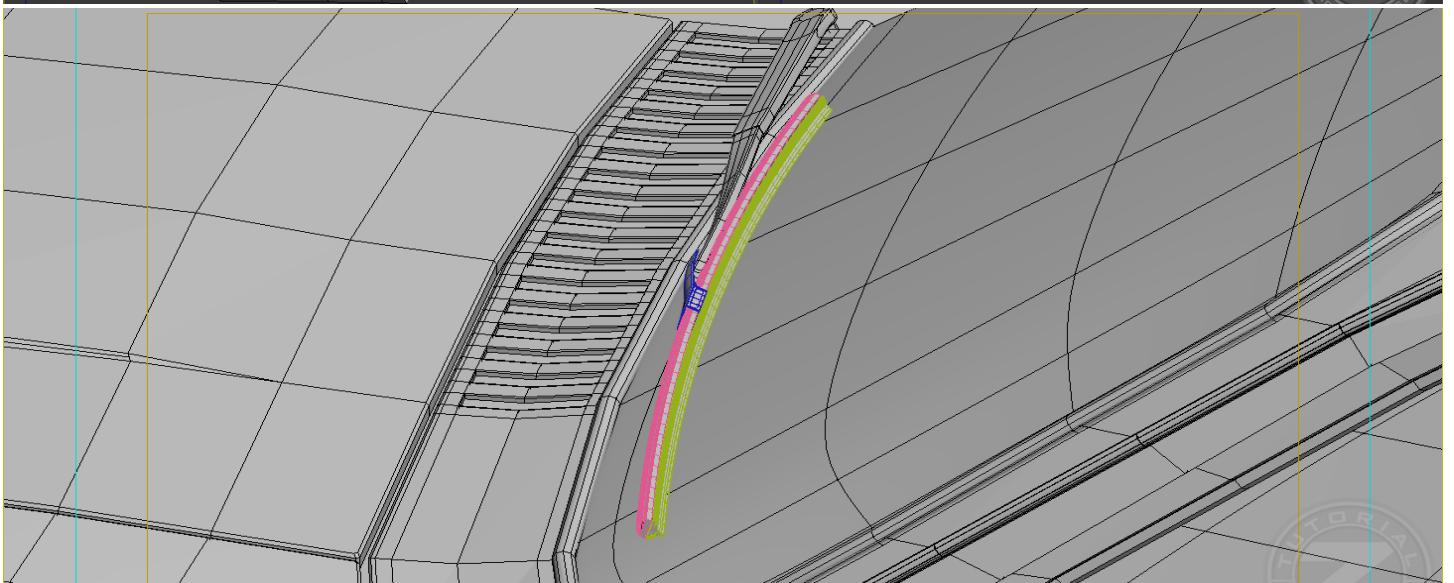
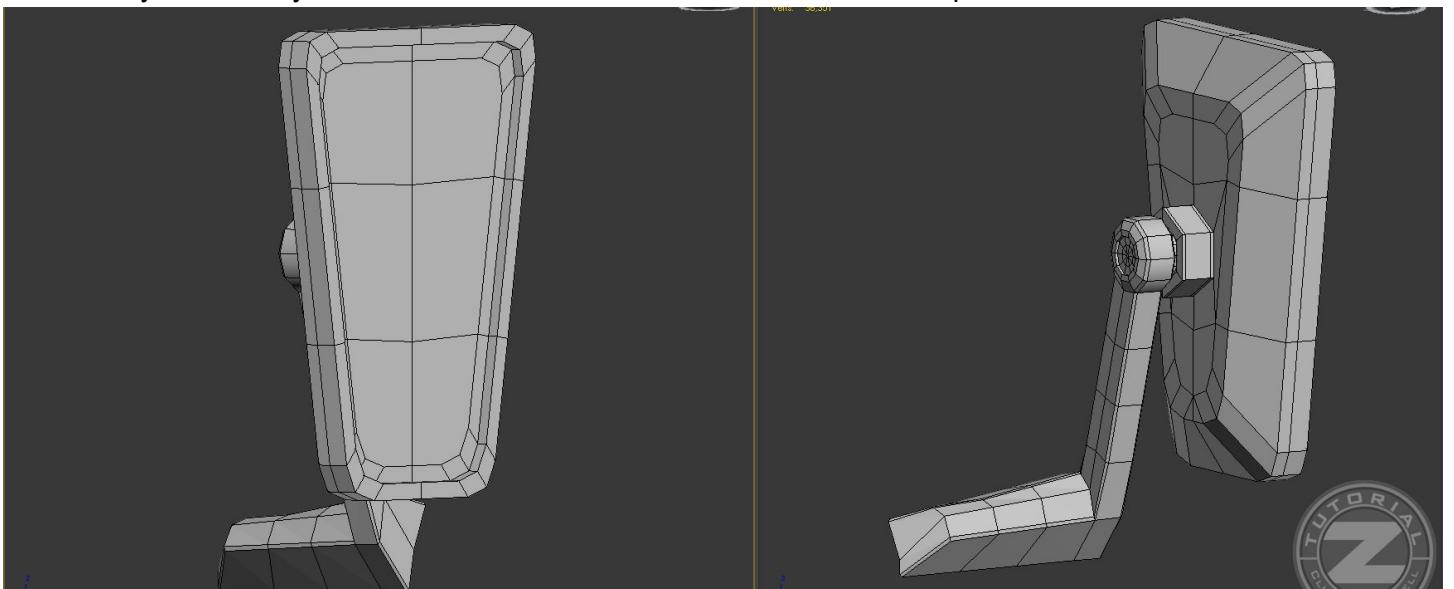


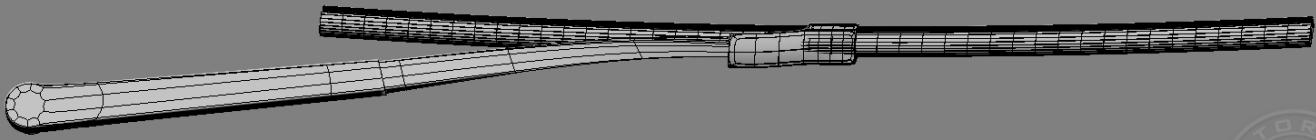


158. You also need to make (if you want) the rear holes, from the rear window :

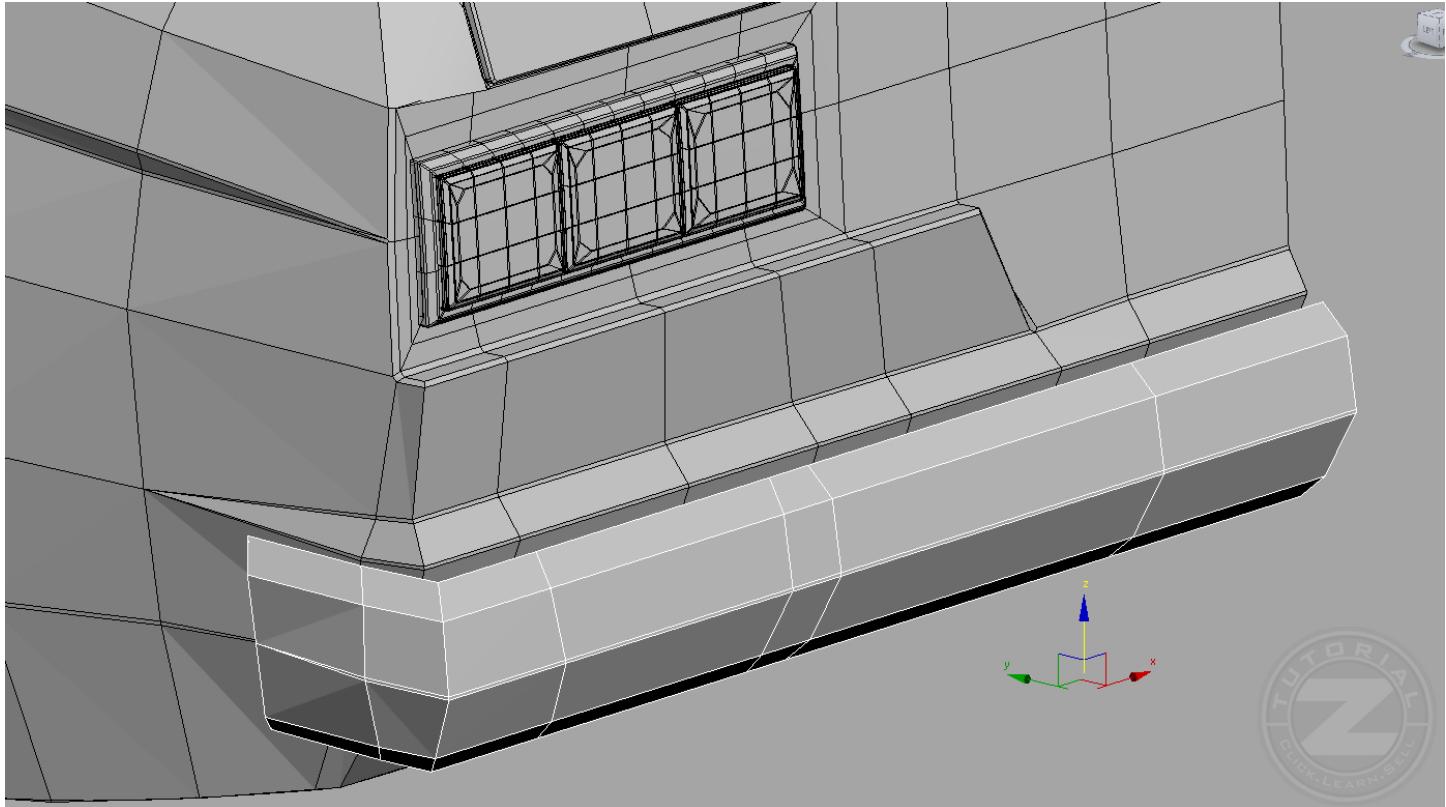


159. Here you have my mesh for the side mirror and for the windshield wiper :





160. And the final part was the rear bumper. It won't appear in the next render because I have made it after. I guess that it looks better :) . Just make it as we have made those small bumper in the front :



Thats all for the modeling chapter. To finish the model, be sure that you will also make the rims and the tire. Also, a very important parts is the underneath plane. If you don't know how to make some rims, please search on the website and you will find a tutorial, also , do the same thing for the tyre too :) . Here you have my renders for this chapter and in the next chapter we will move forward and we will make the interior of this car :



