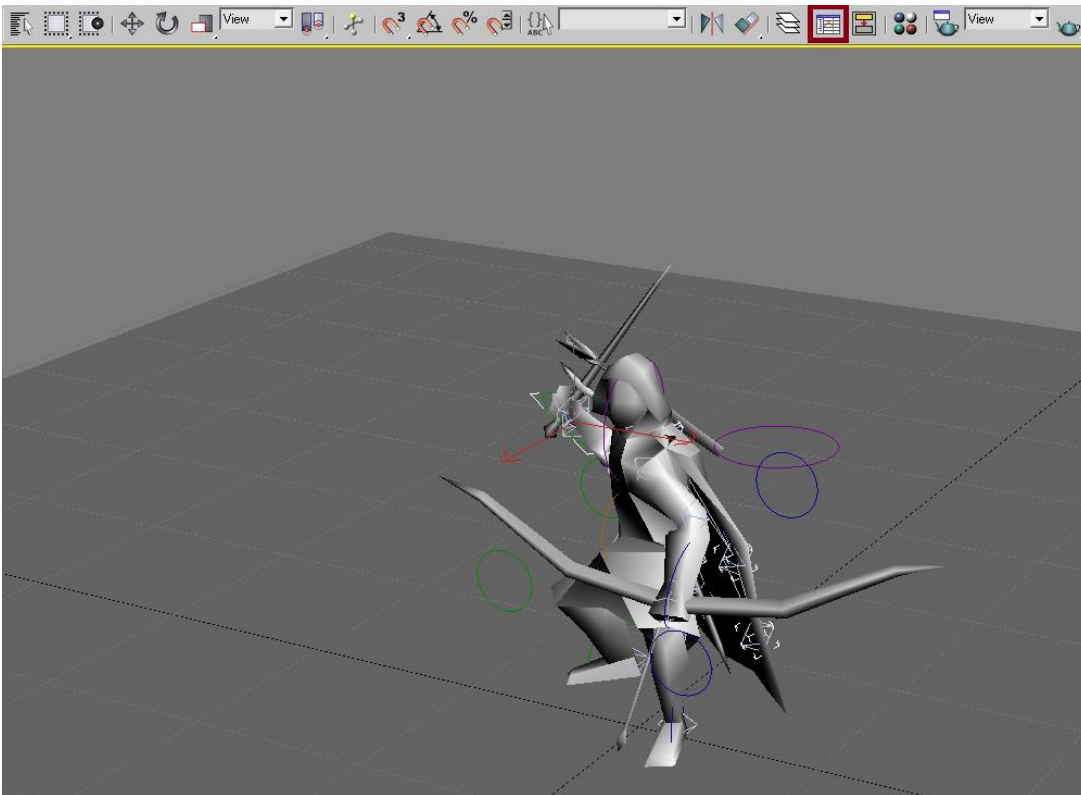


The Curve Editor is a tool I've begun to use in all my animations recently, once I finally got my head around it, and tried using it, I felt it was a powerful tool when it comes to help smoothing animations, so I feel like I want to share my experience with the Curve Editor, and how you could use it for animation, in case it helps anyone.

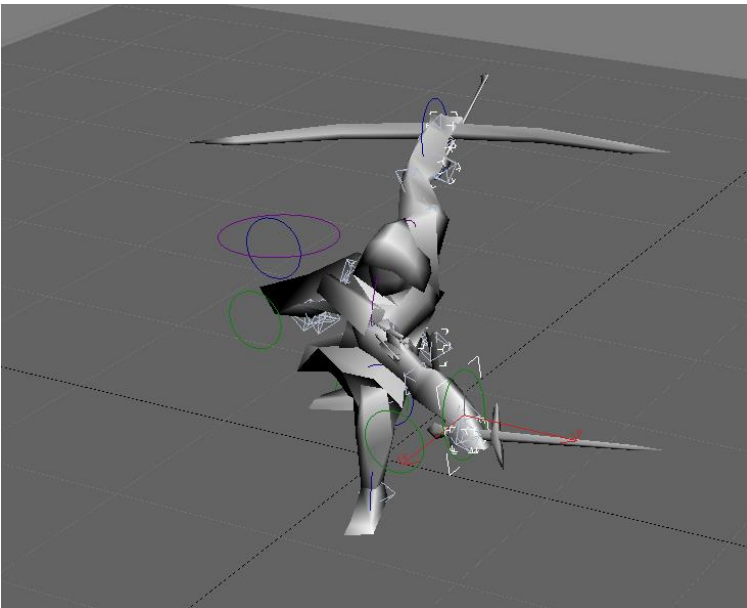
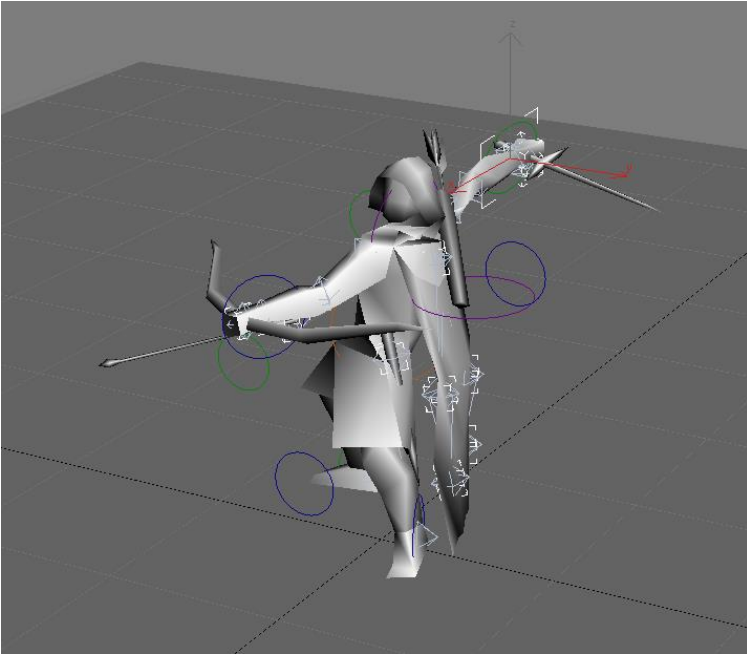


Keep in mind you can't just rely on good curve editing, you also need good in-betweens, basically frames that define the movement that happens in between, as for an example the sword contacting the person in front of him could be one.



Picture of In-betweens, the ones with all the colors are a keyframe you set, to make sure it saves the entire pose you created for when he reaches that state.

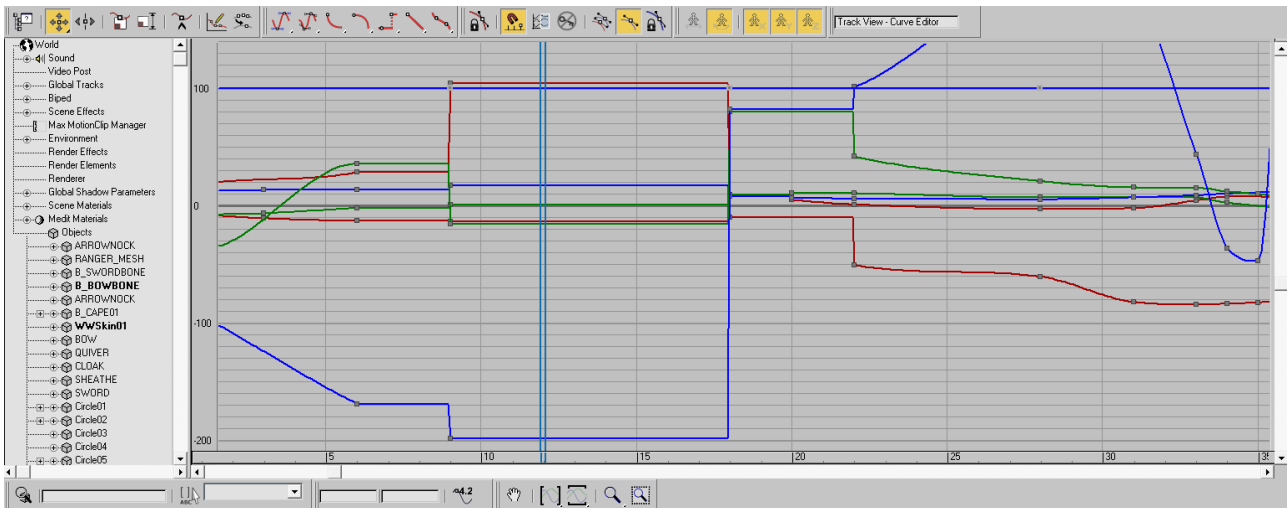
An example of this would be the two marked keyframes in that picture, look like this



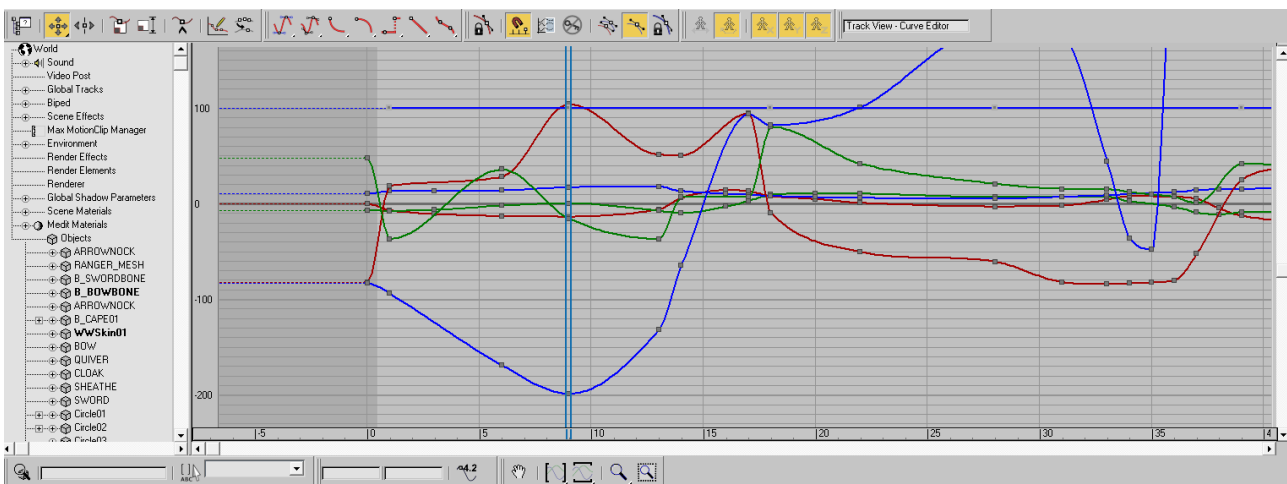
The in-betweens just help define the entire movement more, like him actually lashing forward to make the cut, and the sword contacting the person in front.

Now that you hopefully have a decent idea of keyframe marks, and in-betweens, we can move on.

Let's take my animation as an example, without any in-betweens my curve editor would look like this on the Right Hand Circle(Frame 9 – 18)



With in-betweens



The more eased-in your curve is, the smoother the animation is. (Google Ease-In Curves if don't already know what an Ease-In Curve is).

Picture 1 - is very static as you can tell, there isn't a lot of motion in the curve, except it goes from frame 9 to 18 with nothing in-between to define the movement further

Picture 2 – You should be able to see on the X Y Z rotations and positions, that stuff is actually happening between the marked keyframes 9 – 18, compared to picture 1.

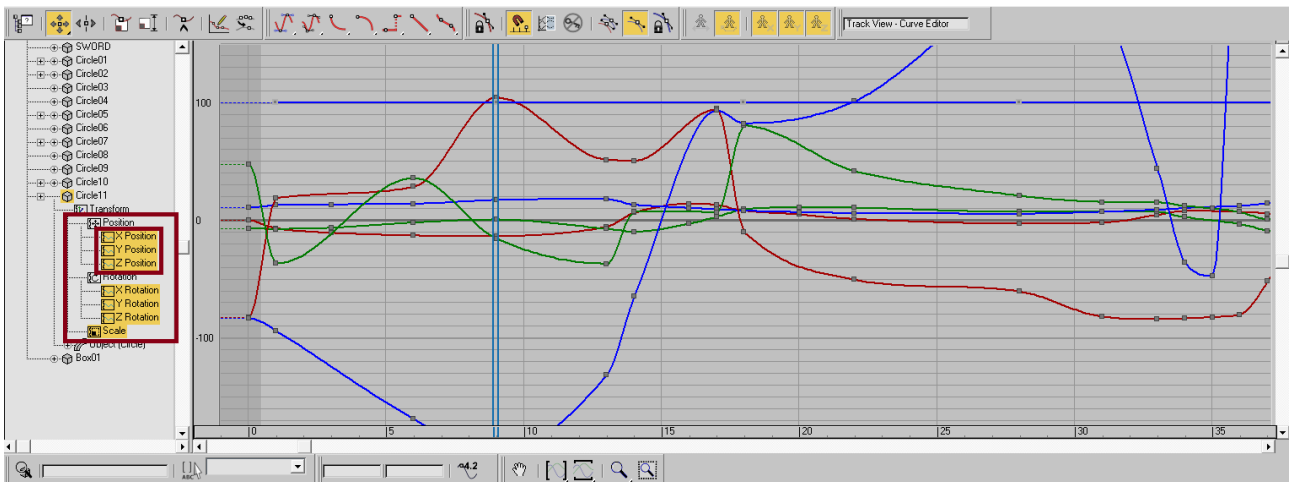
You have an asset of modifications you can use on your tangents inside the curve editor.



Personally, for most of the time I recommend not using any of these, since you do not want to readjust the already created frames, you want to smoothen out the motion.

These can modify it quite a lot, the last one may seem tempting called *"Smoothing"*, and it can lead to the animation looking ridiculous, as in making your animation look bad, in short, I recommend doing it by hand, since the program does a pretty good job of setting them up as you go through creating your animation.

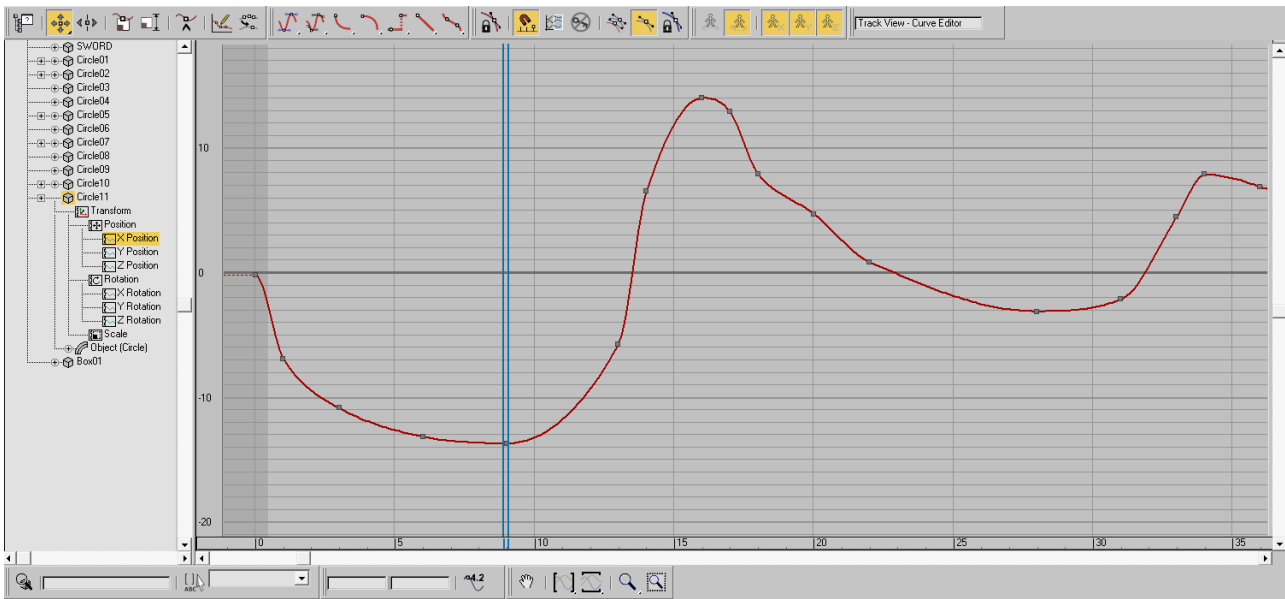
Anyways let's get back to it, when you have opened up your selected circle or whatever you use to animation that part of your skeleton you desire to smoothen out more with, you should be greeted with a list of positions and rotations you can modify showing up beneath your selection.



I recommend doing these in parts, as in, start with doing position X then Y, and then Z, single them out, same goes for rotations, since it helps you.

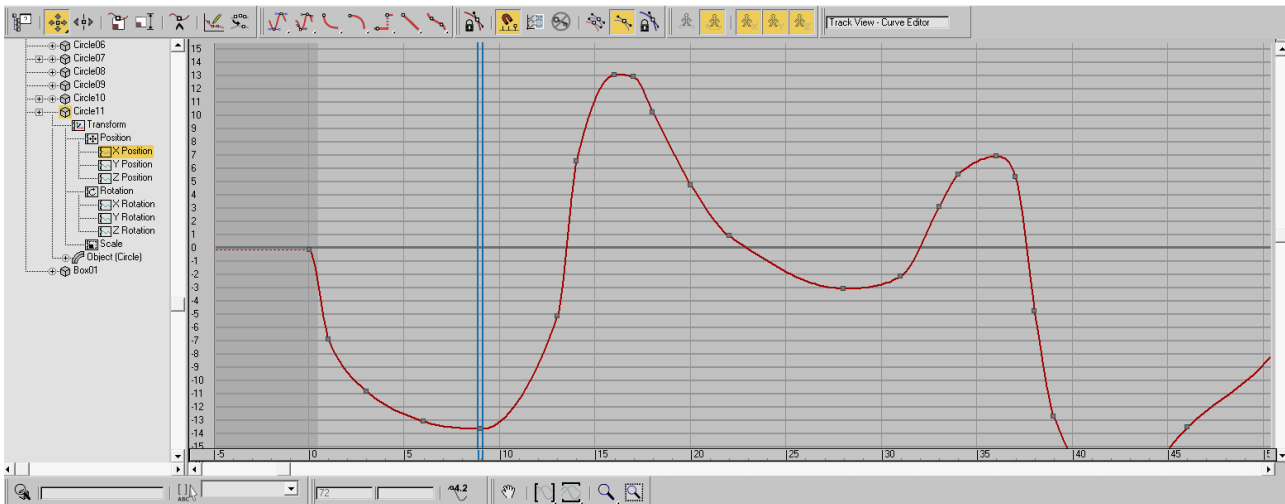
I also recommend doing this to all the tangents for the animation for every circle you made, since it will give a better result.

Now let's take a look at Position X, and zoom in to frame 9 – 18.

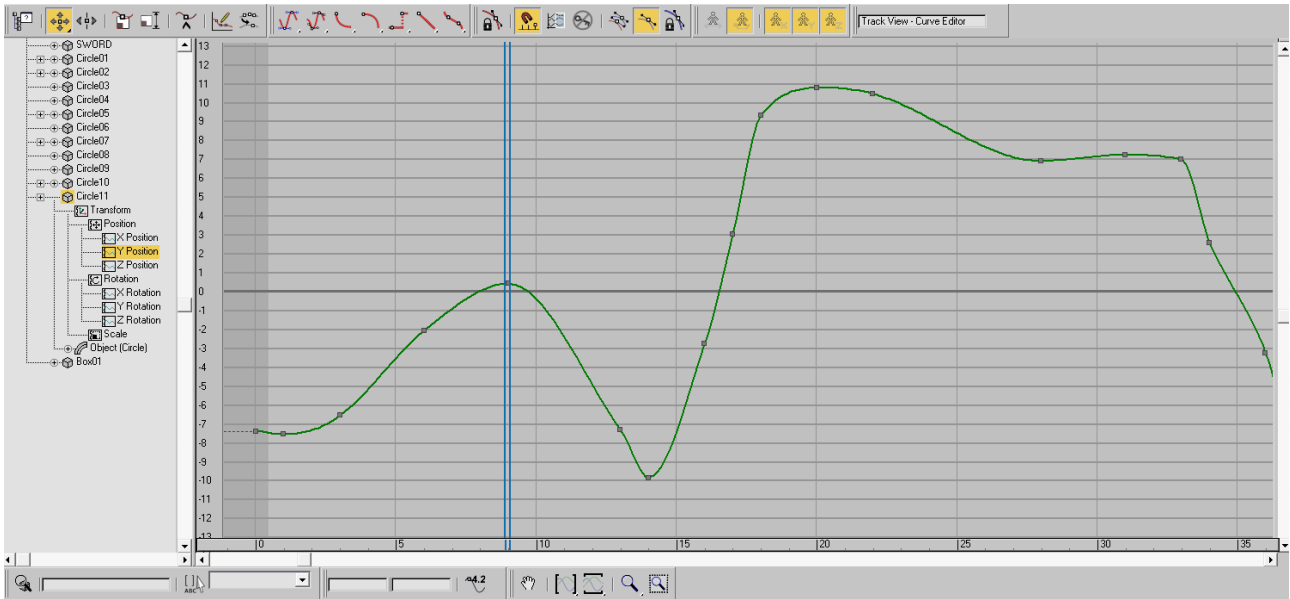


You can see the curve needs to be more smoothed out in some areas, generally between 9 – 13 and 16 to 18, it even goes further on than that. I recommend doing this to your entire animation, and not just single out areas like 9 – 18, I'm doing this as an example to show the progress of each area you come by.

After smoothing out that area and the next, we got a good result compared to the previous picture, it may not seem like much has changed to some of you, but it does help with the flow and smoothness of the animation.

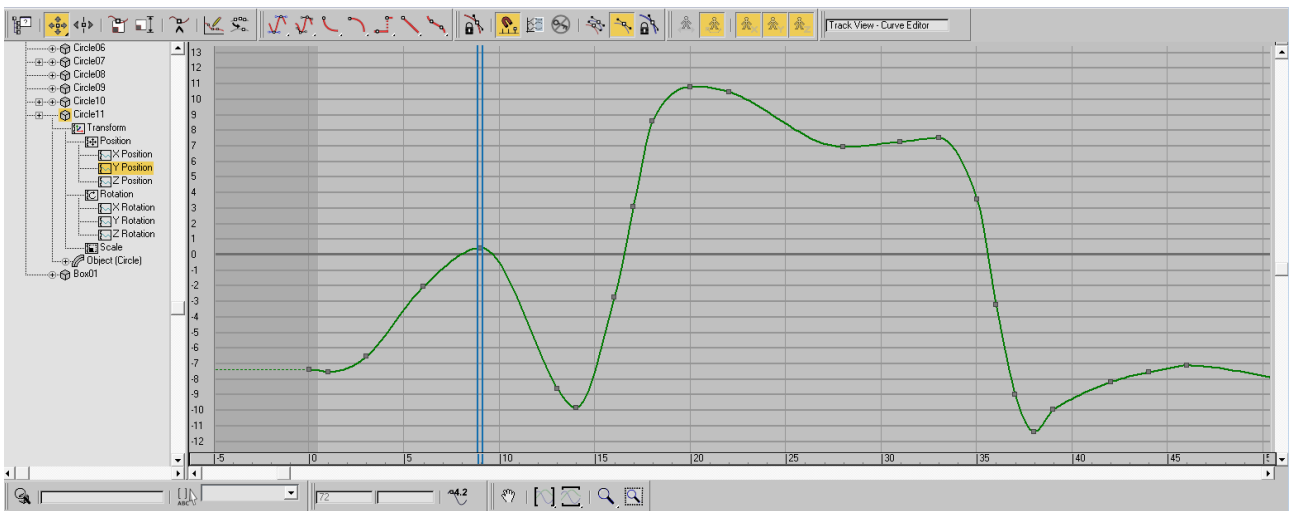


Let's take a look at Position Y now.

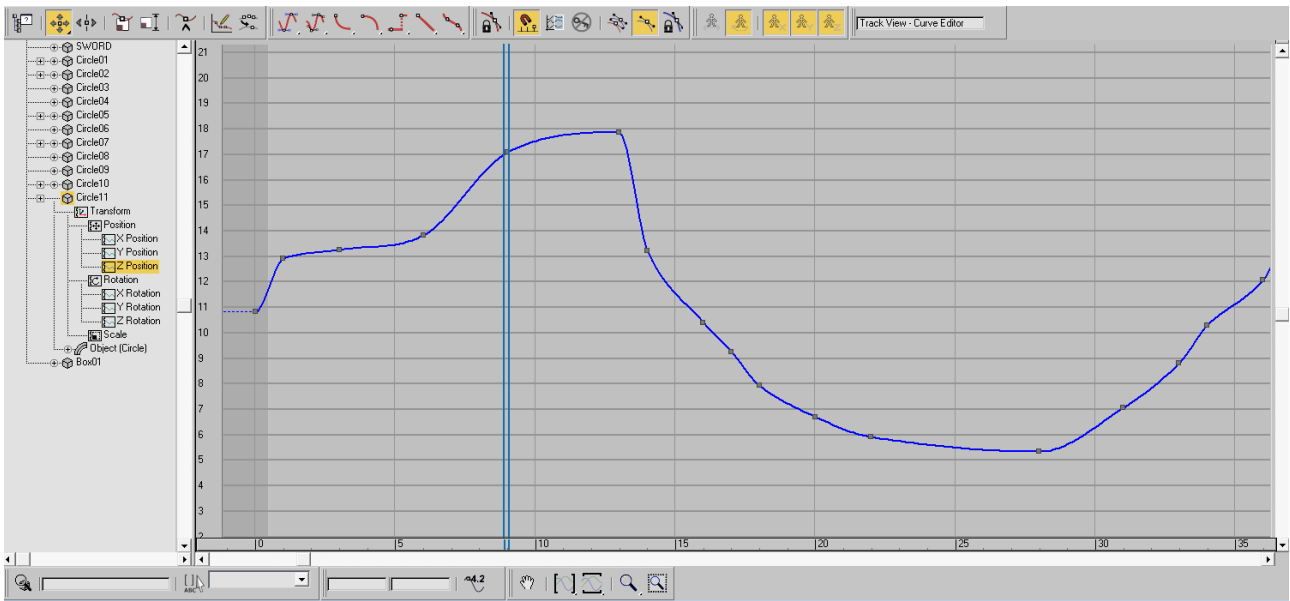


Now this area isn't that bad, but still the peak is a bit too wide and low at the finally peak, compared to how the animation follows on after that, and the drop at frame 13 seems to not drop low enough.

After editing the Y position you can see it looks better, and has a much smoother curve, the drop looks good, and the peak has a well-continued flow, same for the second peak.



Finally, let's take a look at Position Z.



Now this one doesn't look good at all, you can see the peak around where my timestamp is (frame 13), the frame goes too high in the Z axis, and the drop that follows up after the peak is dropping too low, and it goes back up while dropping, and the continued curve after the drop is clunky.

Now a thing you might have noticed about this one, is that I removed some of the tangents around the drop and the second peak, you can remove some tangents as they can help smoothing out an area more, if you have tangents like 2 – 3 frames in a row, one after another, you can try to remove some of those.

Let's say you have tangents from 1 frame to 6 frames, you would want to remove frame 2 to frame 5, if that doesn't work try to remove frame 2 to 3, and then 4 to 5, if that doesn't work try to smoothen them out, keep in mind removing tangents may affect the result of the animation area in action, as in it moves your in-between keyframes, which you don't want.

