

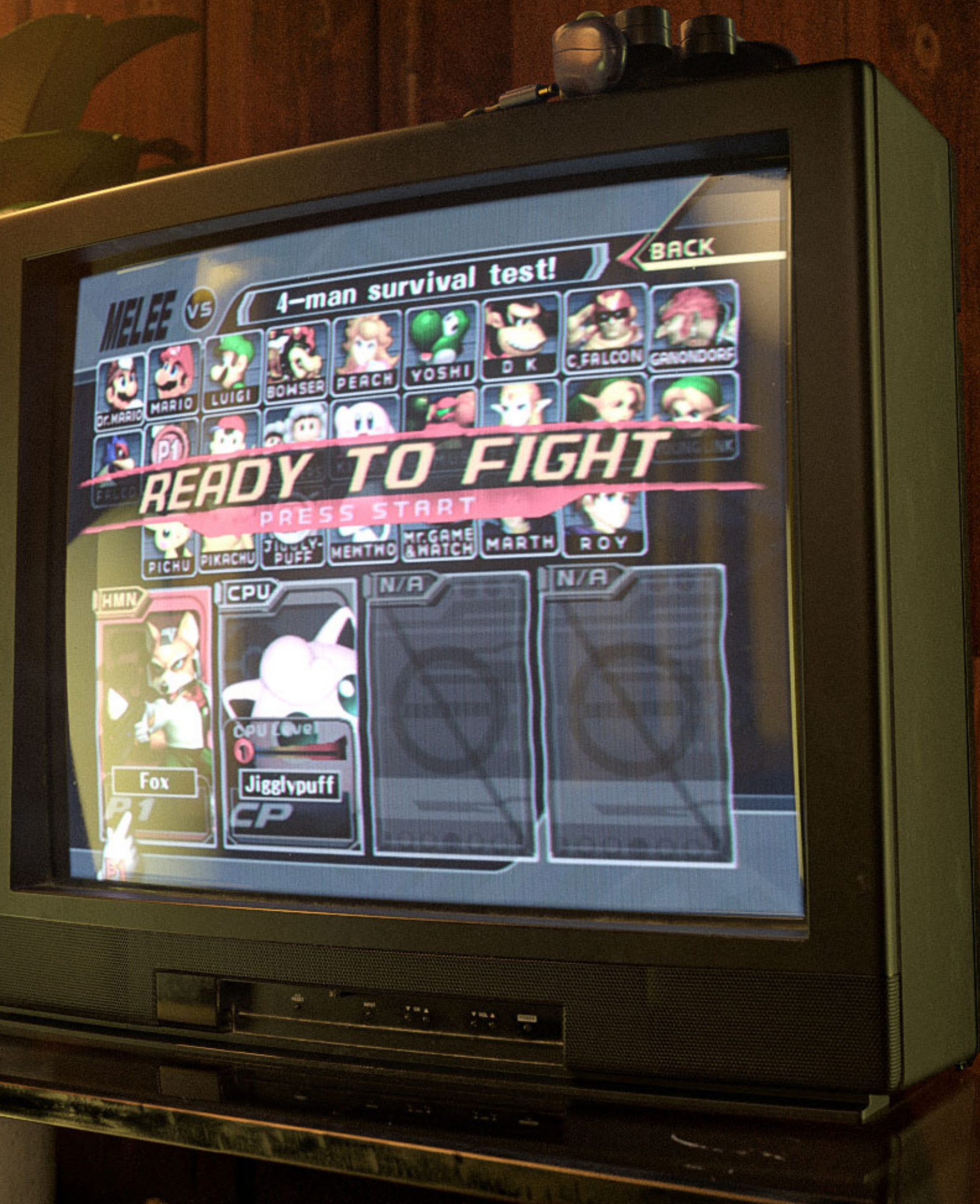
# mitsubishi CRT TV

## PROCESS DOCUMENTATION

### PROJECT STATEMENT

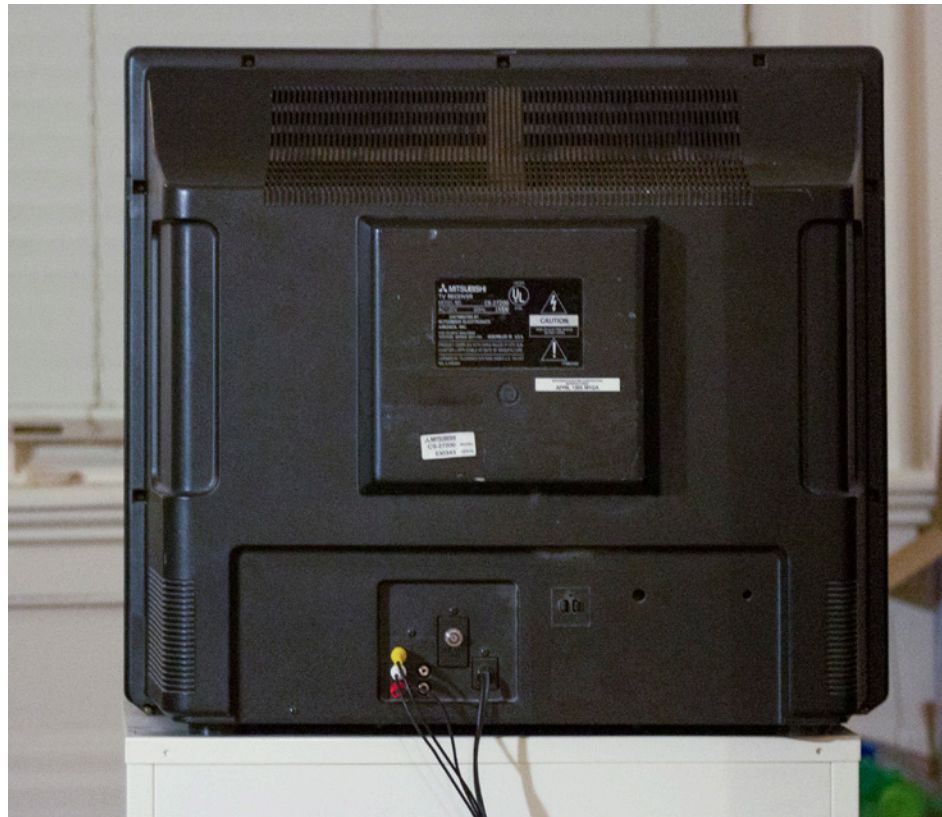
This Mitsubishi CRT Television was modeled in 3DS Max, UV unwrapped in Maya, textured in Substance Painter, and rendered in Redshift. The piece is a demonstration and challenge in modeling film-quality assets with good topology, texturing, and rendering that tells a convincing story.

The project was created for Kinetic Vision's Artstation Challenge to be showcased on the company's page in the future.





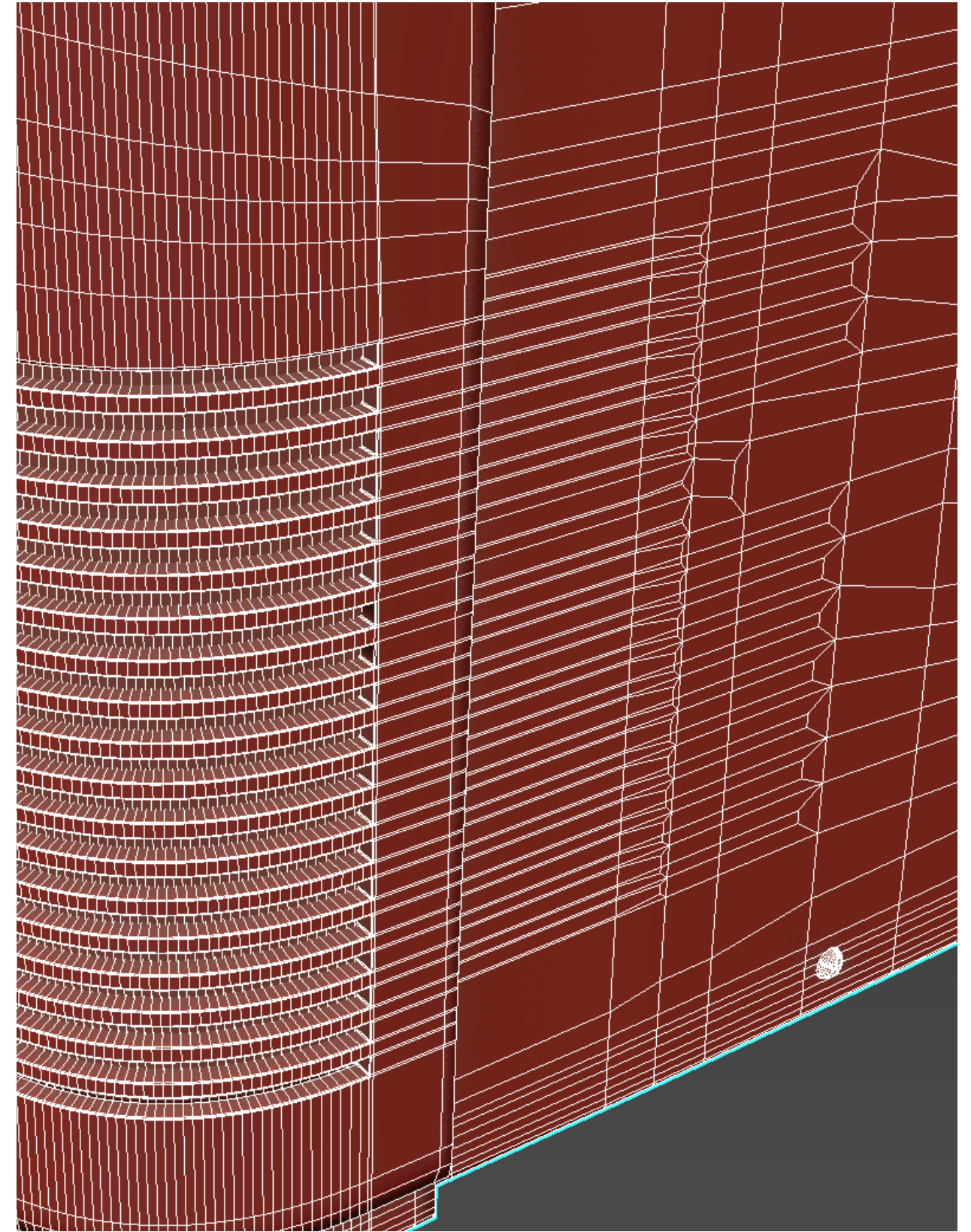
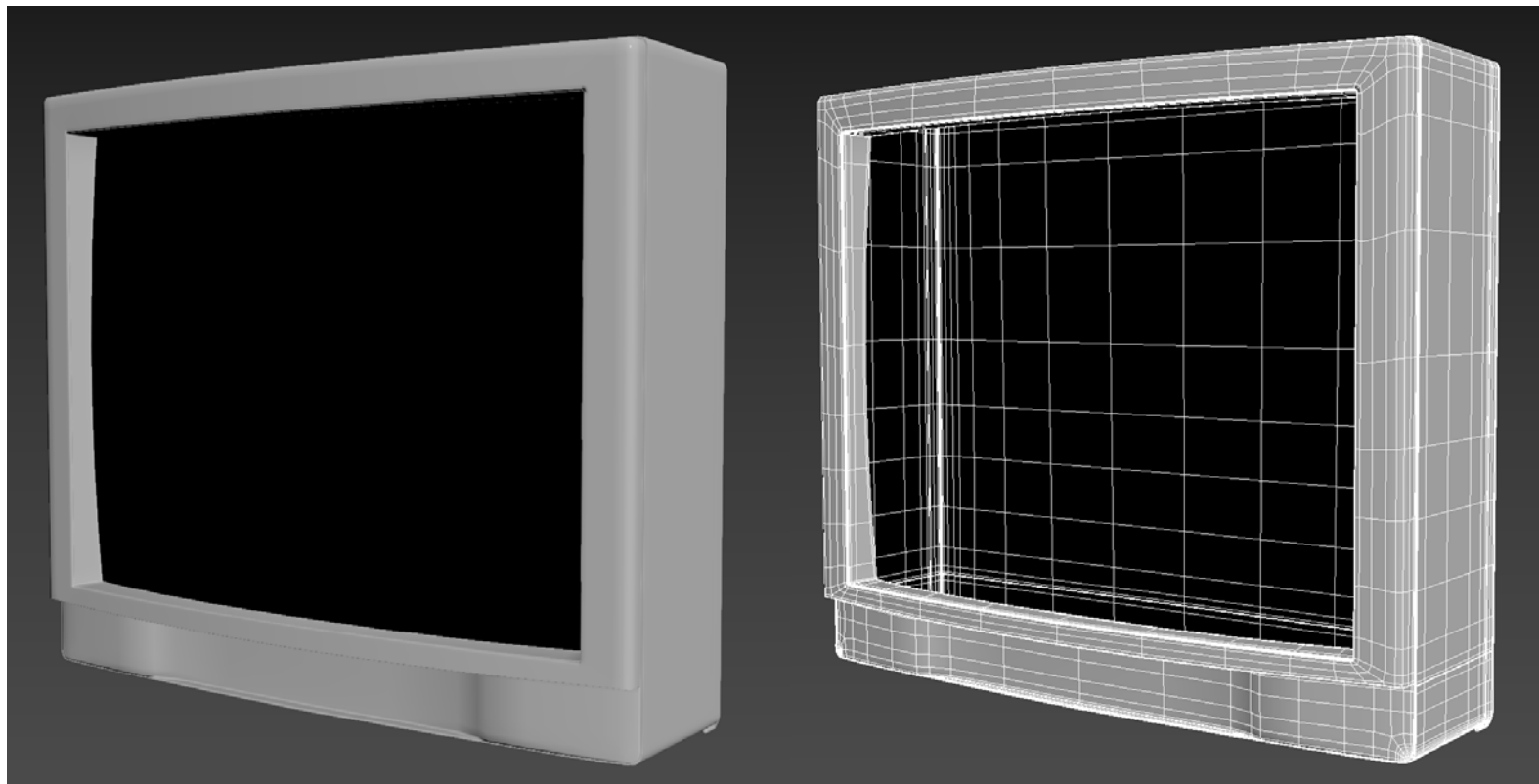
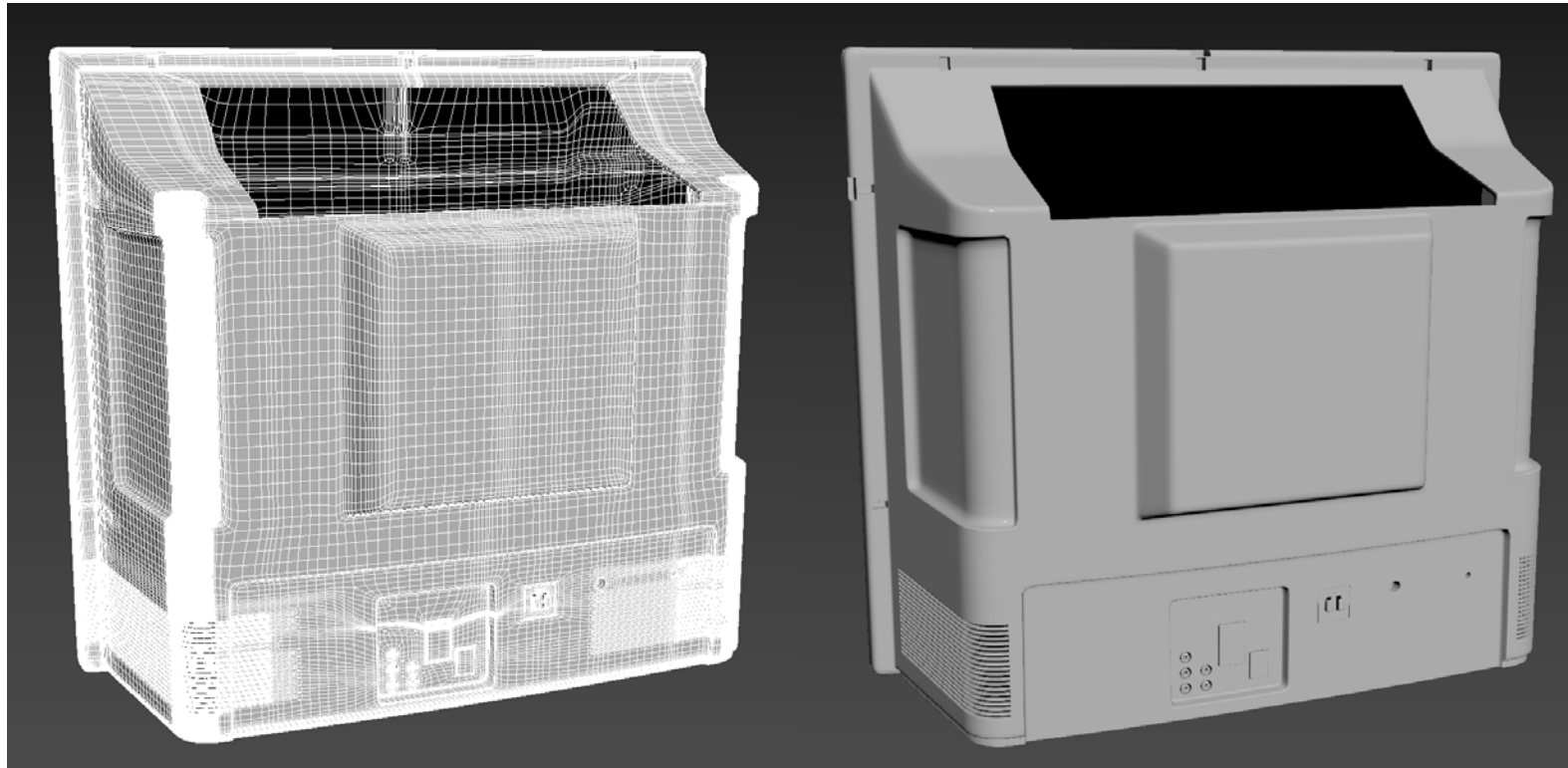
## REFERENCE



Profile reference photos and detail photos were taken and used throughout the entire process to ensure accurate recreation of the object.

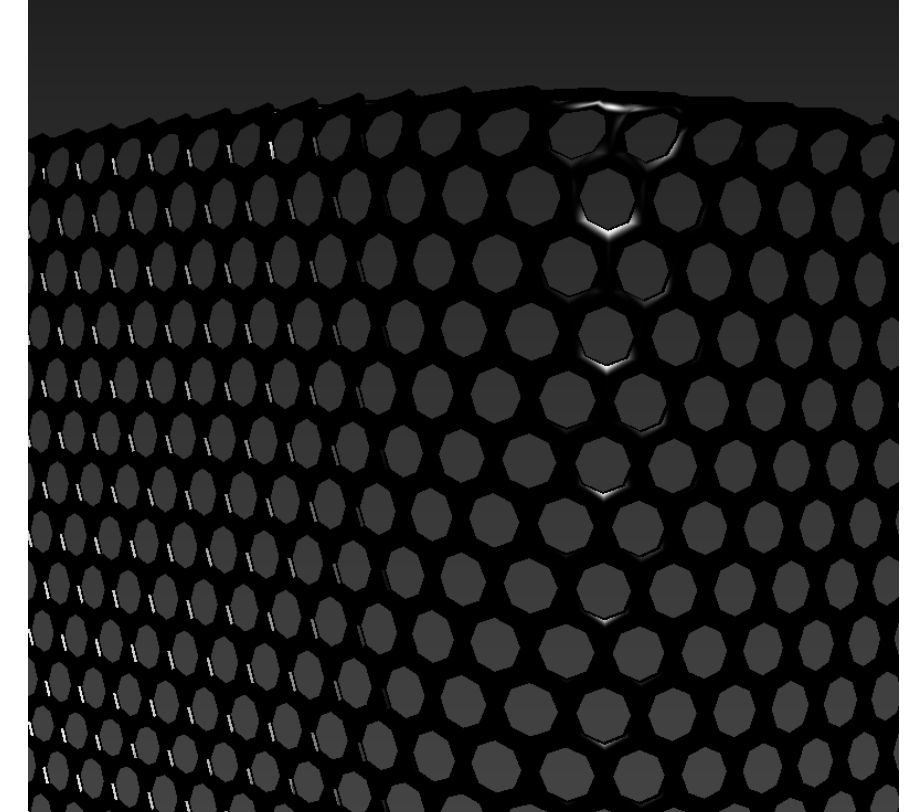
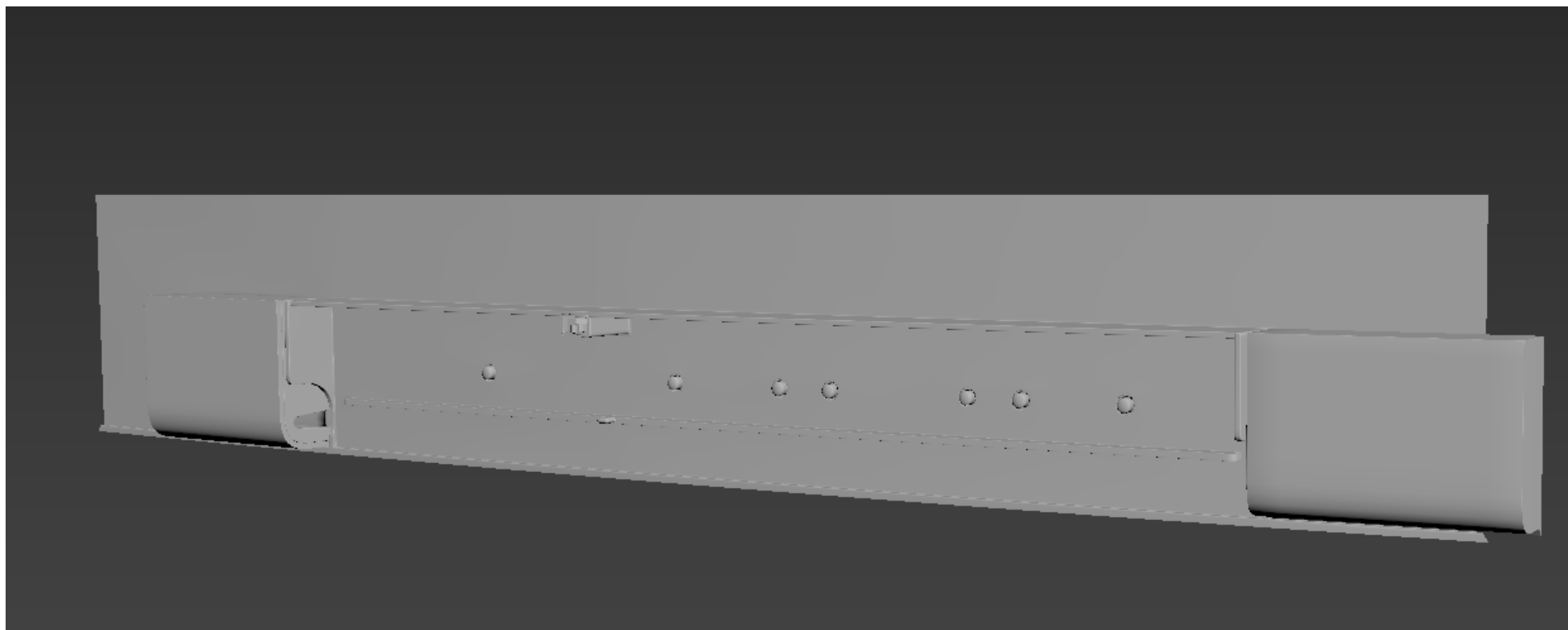
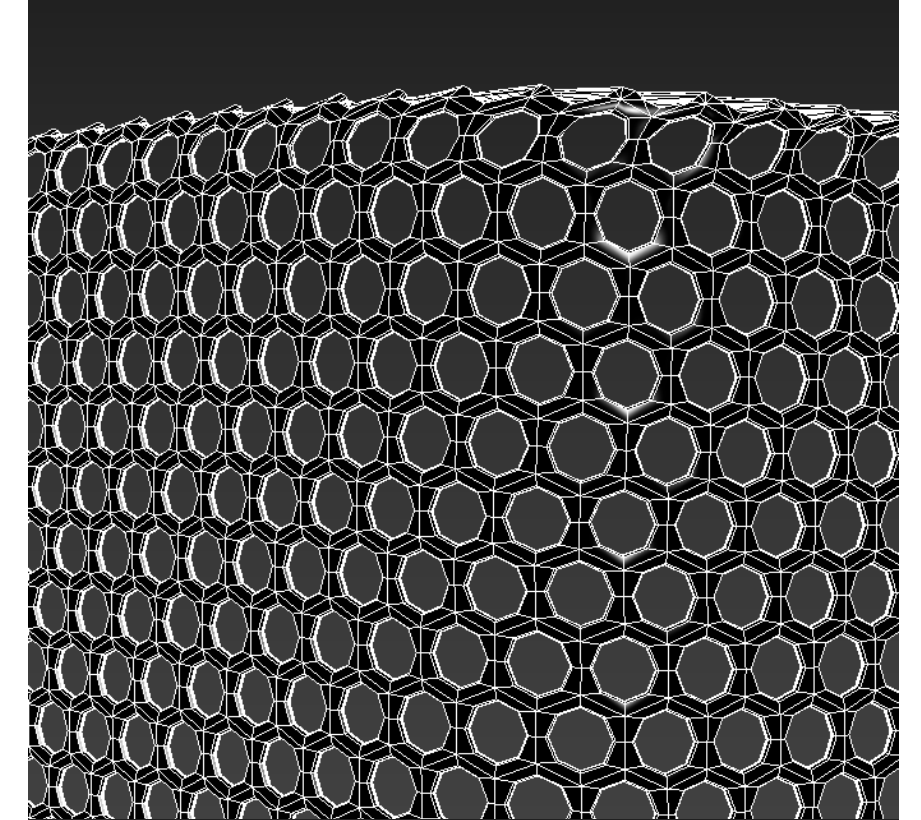
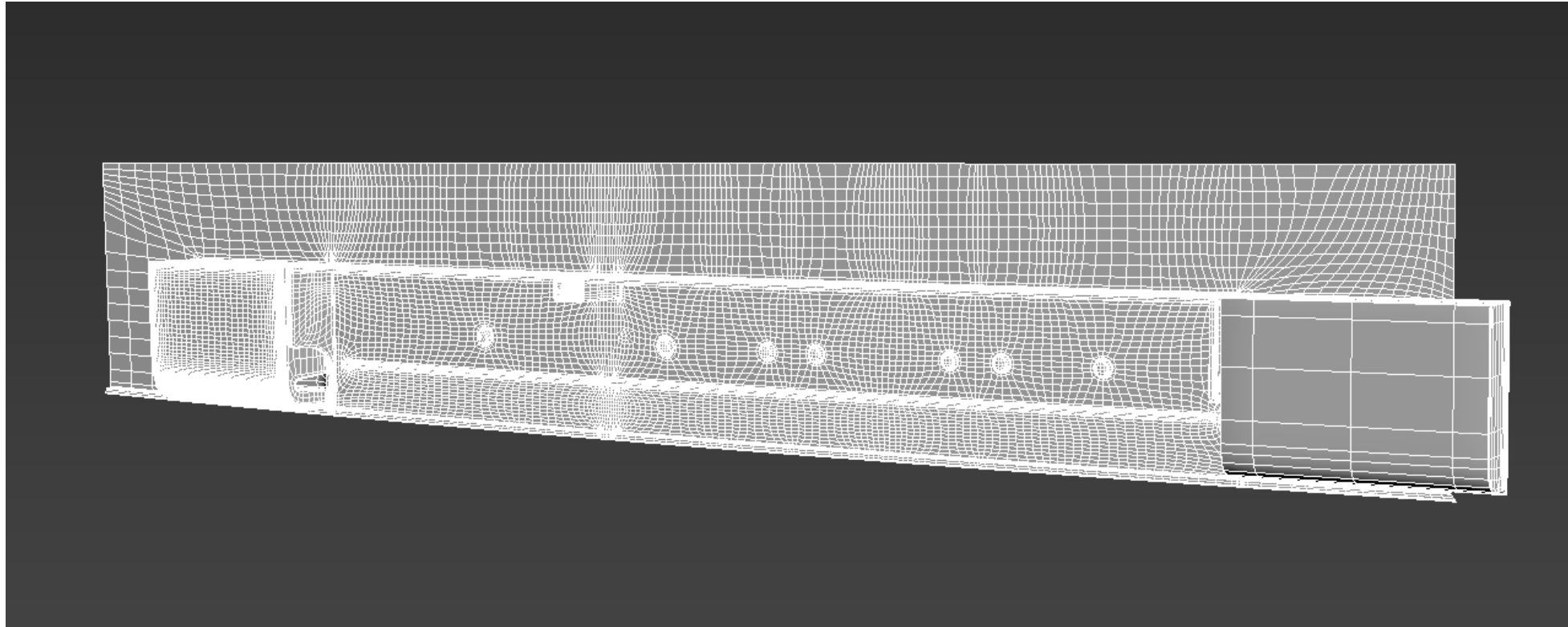


## MODELING



The CRT was broken into pieces according to the way it was manufactured. Every small detail was considered, including the ventilation on the back of the TV. Proper topology was considered in all situations. For complex areas, edge loops were reduced on flat surfaces to transition to other areas that needed less edge loops to keep proper curvature.

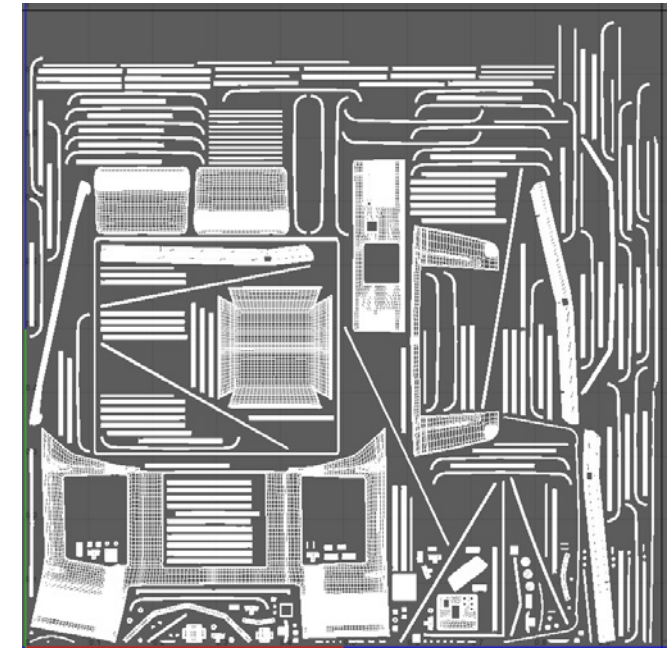
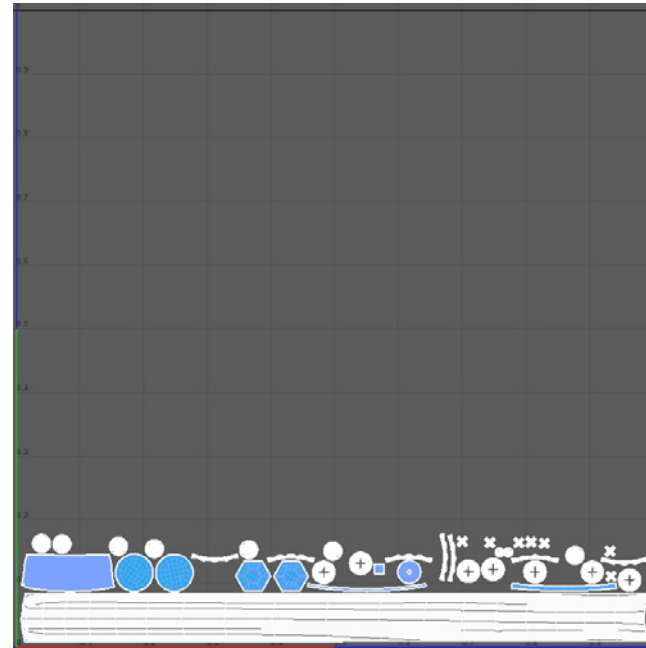
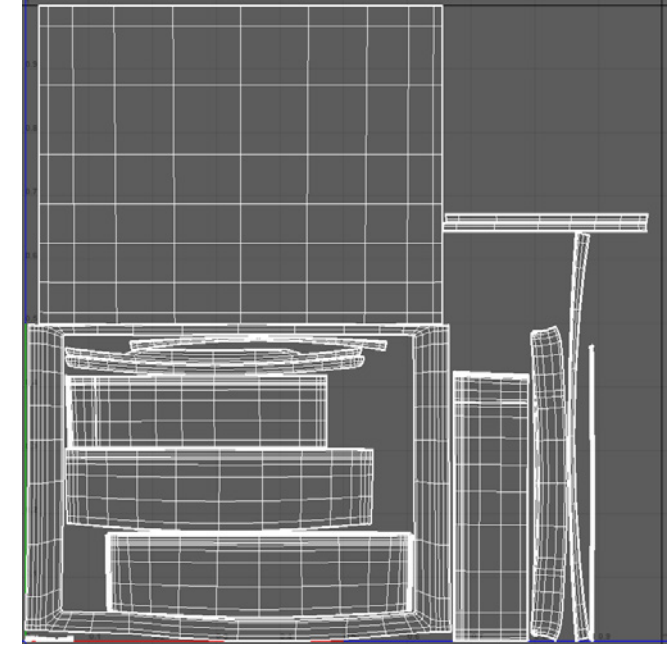
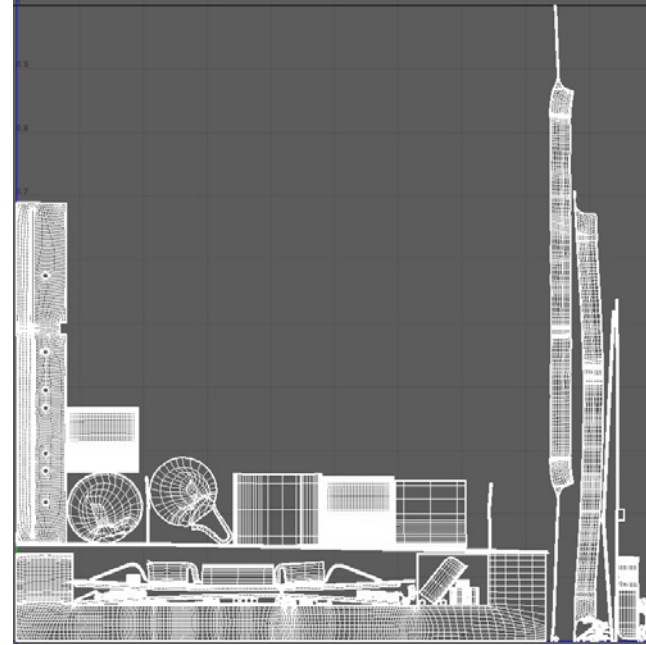
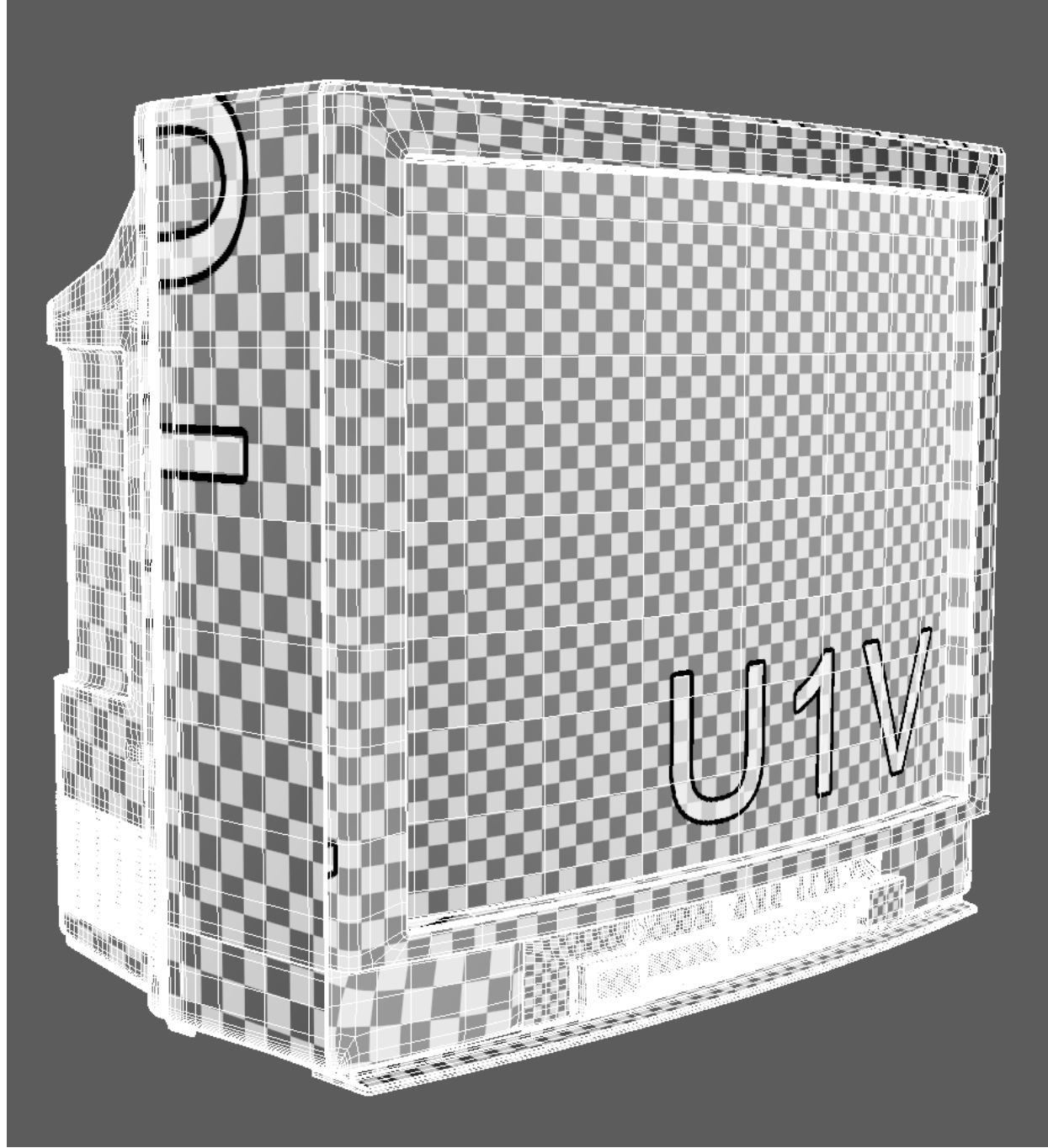
## MODELING



Because Substance painter does not currently support painting across UDIMs, the front panel was broken off to allow for high resolution close-ups with its own UVs. The speaker portion of the TV was modeled as an individual cell, cloned and welded to make a sheet, and then wrapped to fit the proper shape using a shrink wrap script.

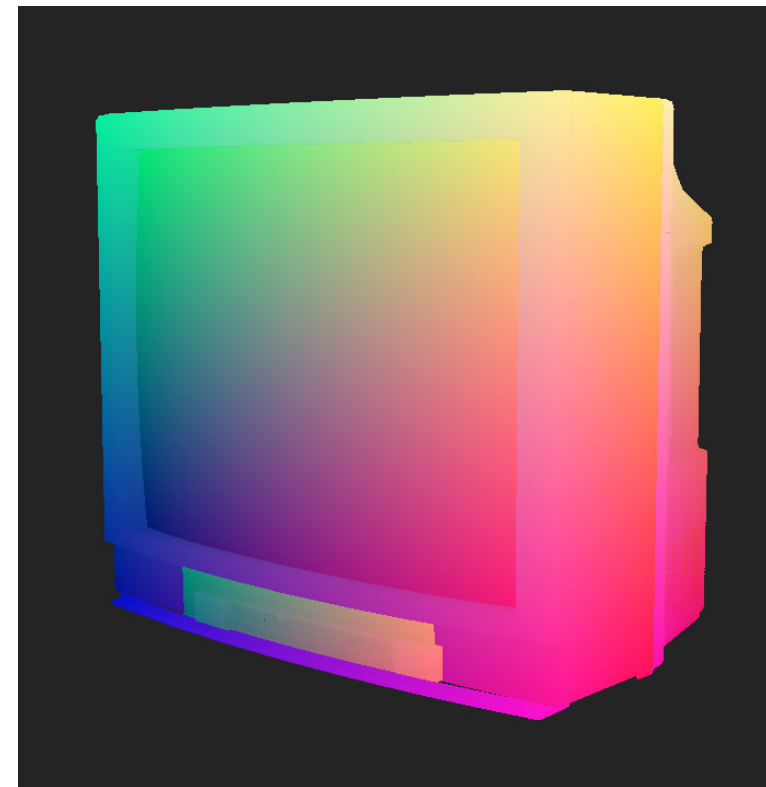
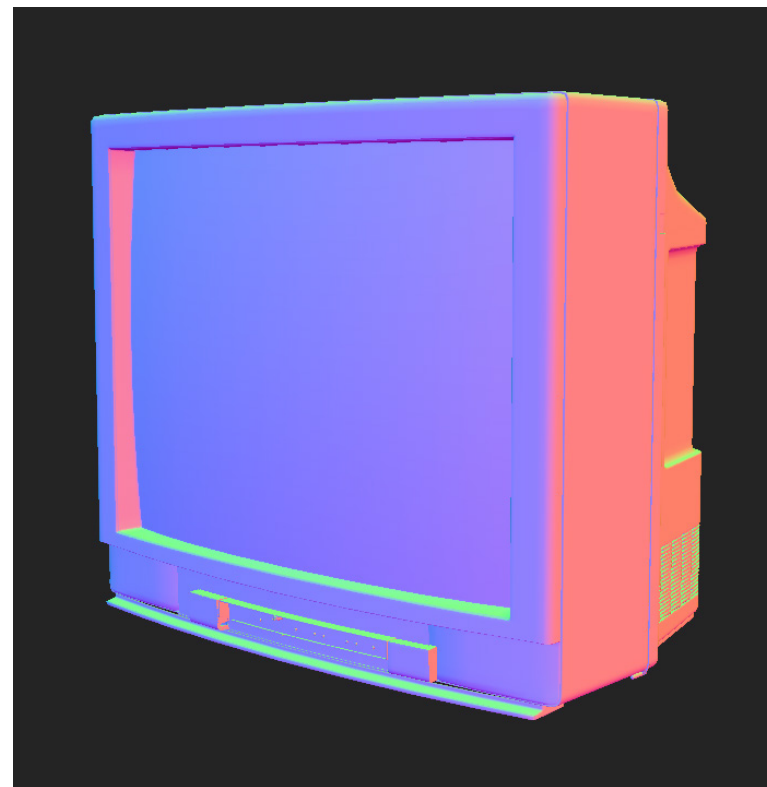
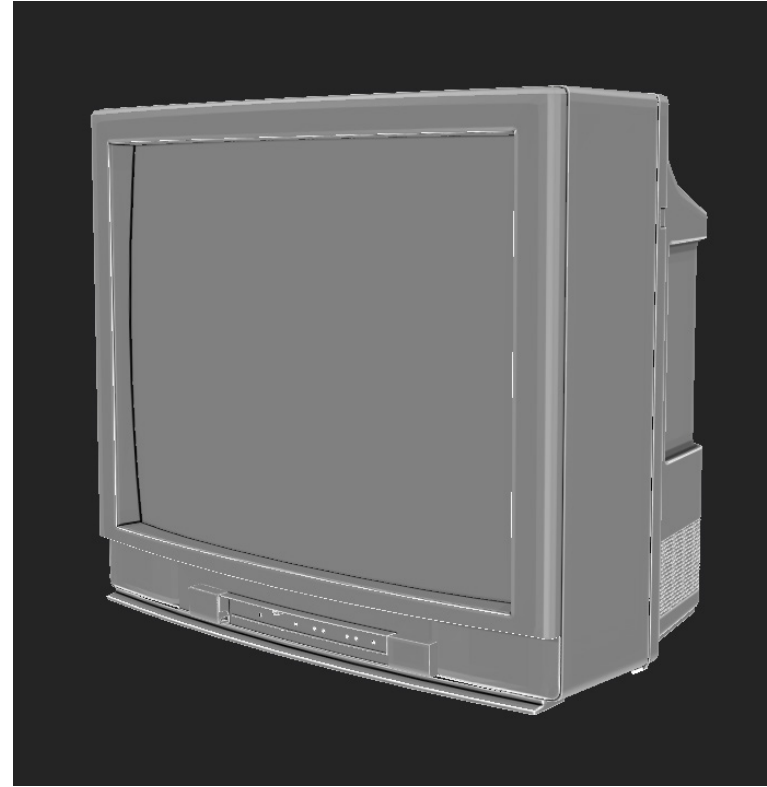


## UV UNWRAPPING



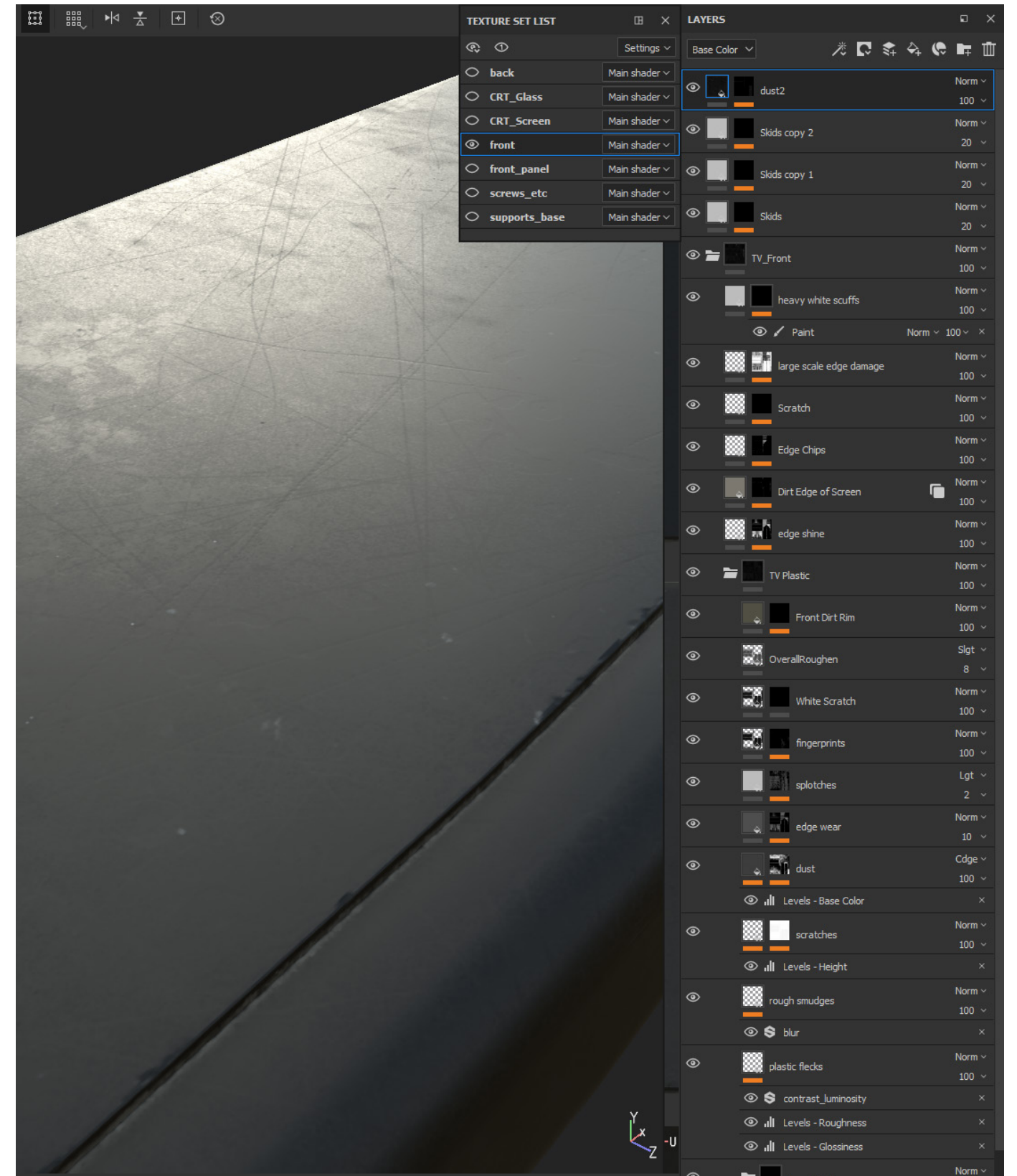
All UVs were unwrapped in Maya manually at the mid-poly level to avoid artifacts when baking from the high-poly in Substance Painter. Each separate piece had its own texture set.

## MAP BAKING



All mesh maps were baked in Substance Painter- normals, occlusion, curvature, thickness, world space normals, and position. Due to substance's gpu based baking the speed of baking was fast enough to create all maps even if they did not get used in the texturing process.

## TEXTURING - CRT FRONT

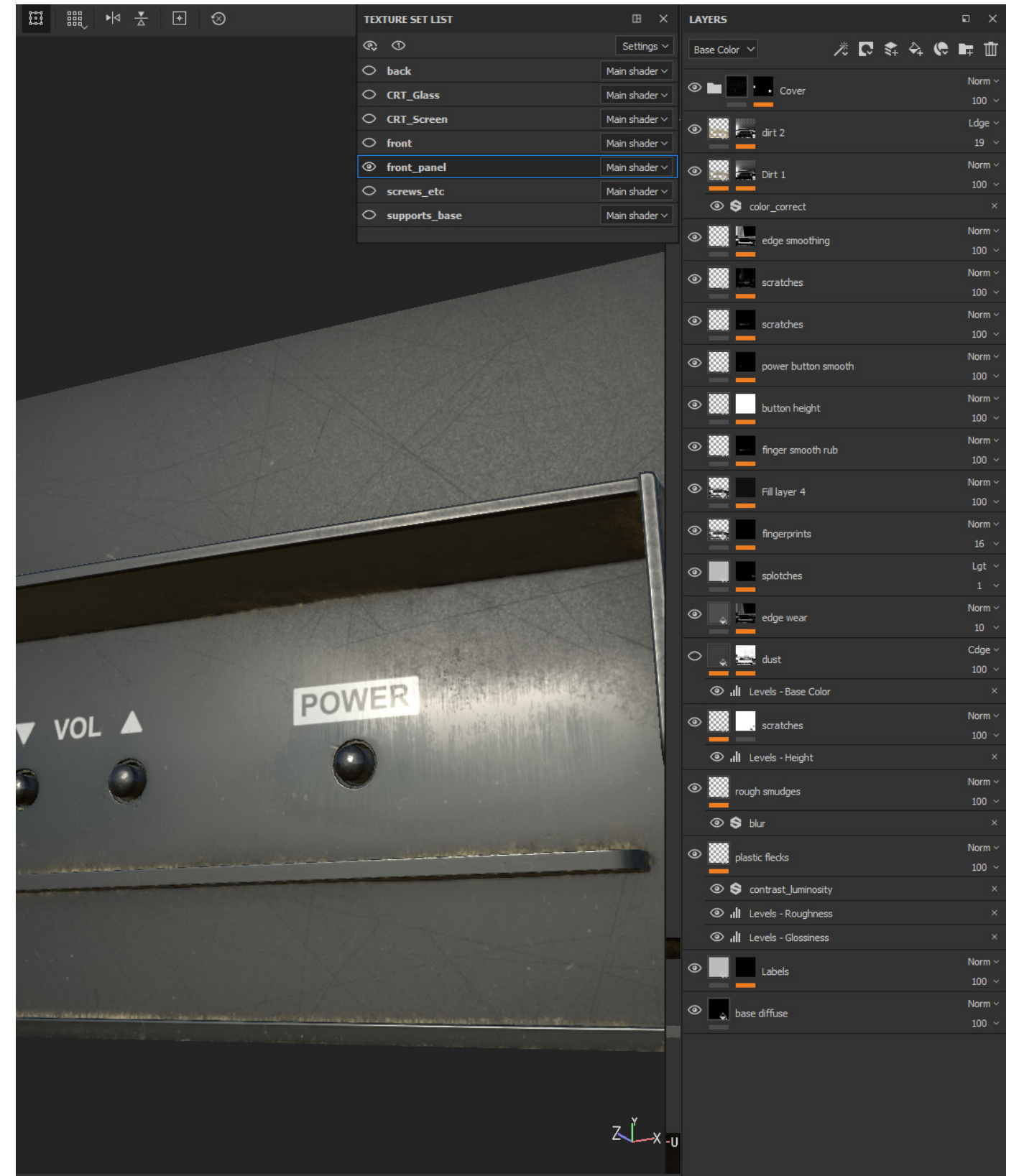
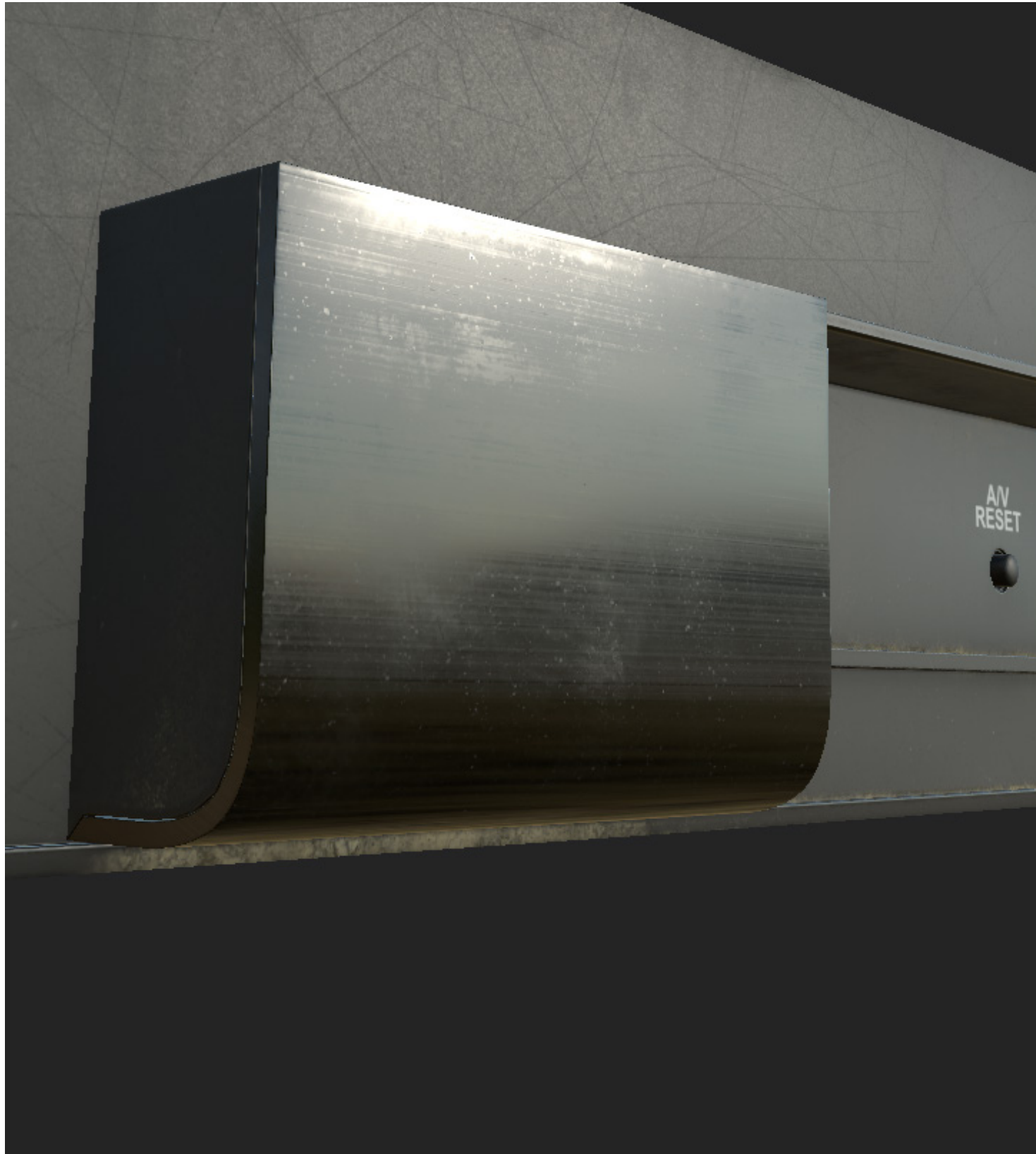


A metalness workflow was chosen due to the simplicity with texture creation and minimal variation in material present on the television, as well as the decent amount of VRAM that can be saved.

Each piece of the television was created as a separate texture set. To keep base plastics the same across sets, smart materials were created and adjusted to fit the size of each object. When possible, triplanar mapping was applied to keep consistent world-space texture sizes.



## TEXTURING - CRT PANEL

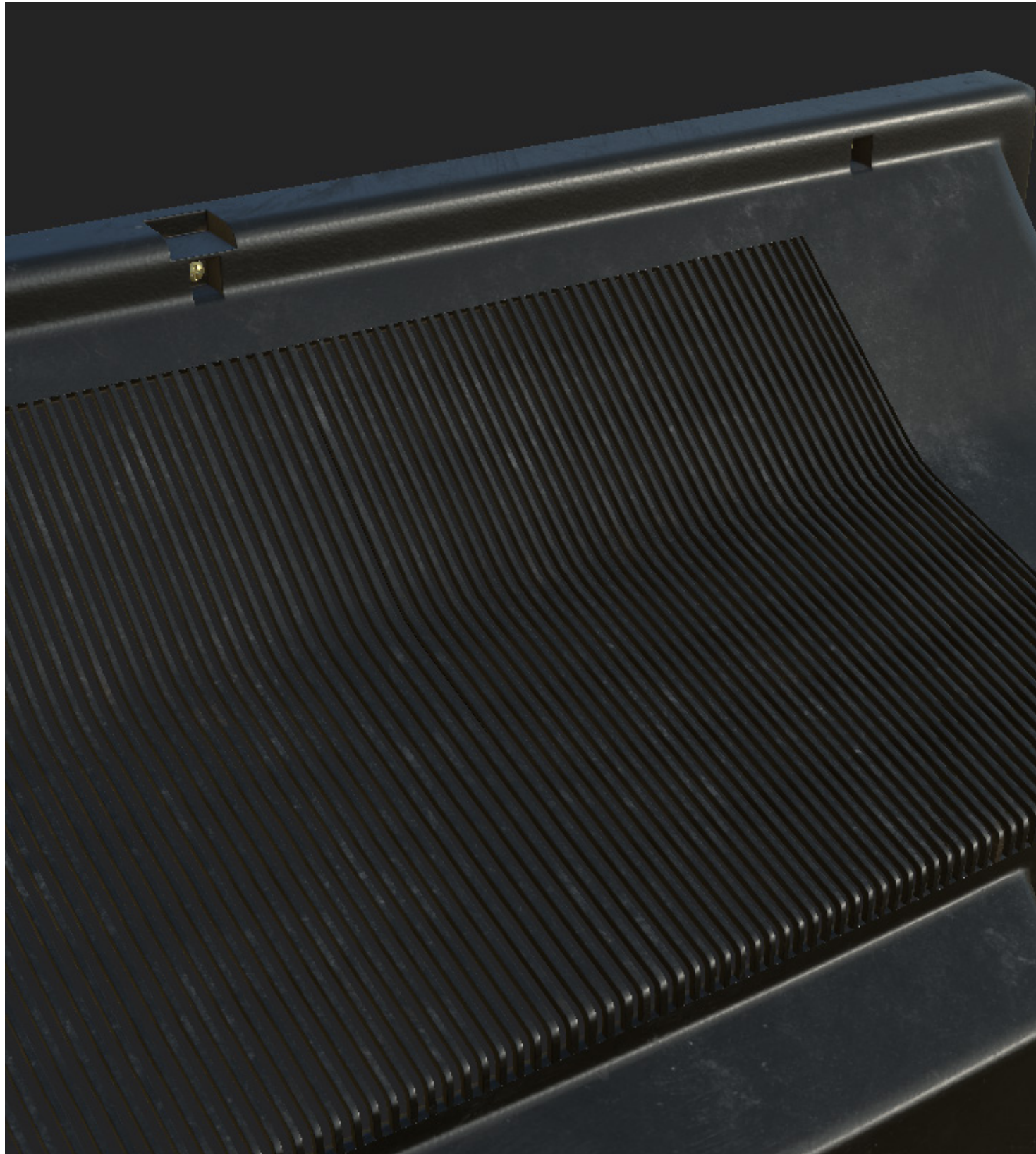


The front panel of the television had the plastic worn down in specific spots due to finger grease and friction over the course of many years. A thin layer of dust sat around the rims, and many surface scratches showed the overall wear and tear of the television.

Many layers of textures from various sources (Quixel, Poliigon, Substance) were used to create a variety of fingerprints, smudges, scuffs, scratches, and more on top of the plastic base. Each texture affected the roughness and color differently.



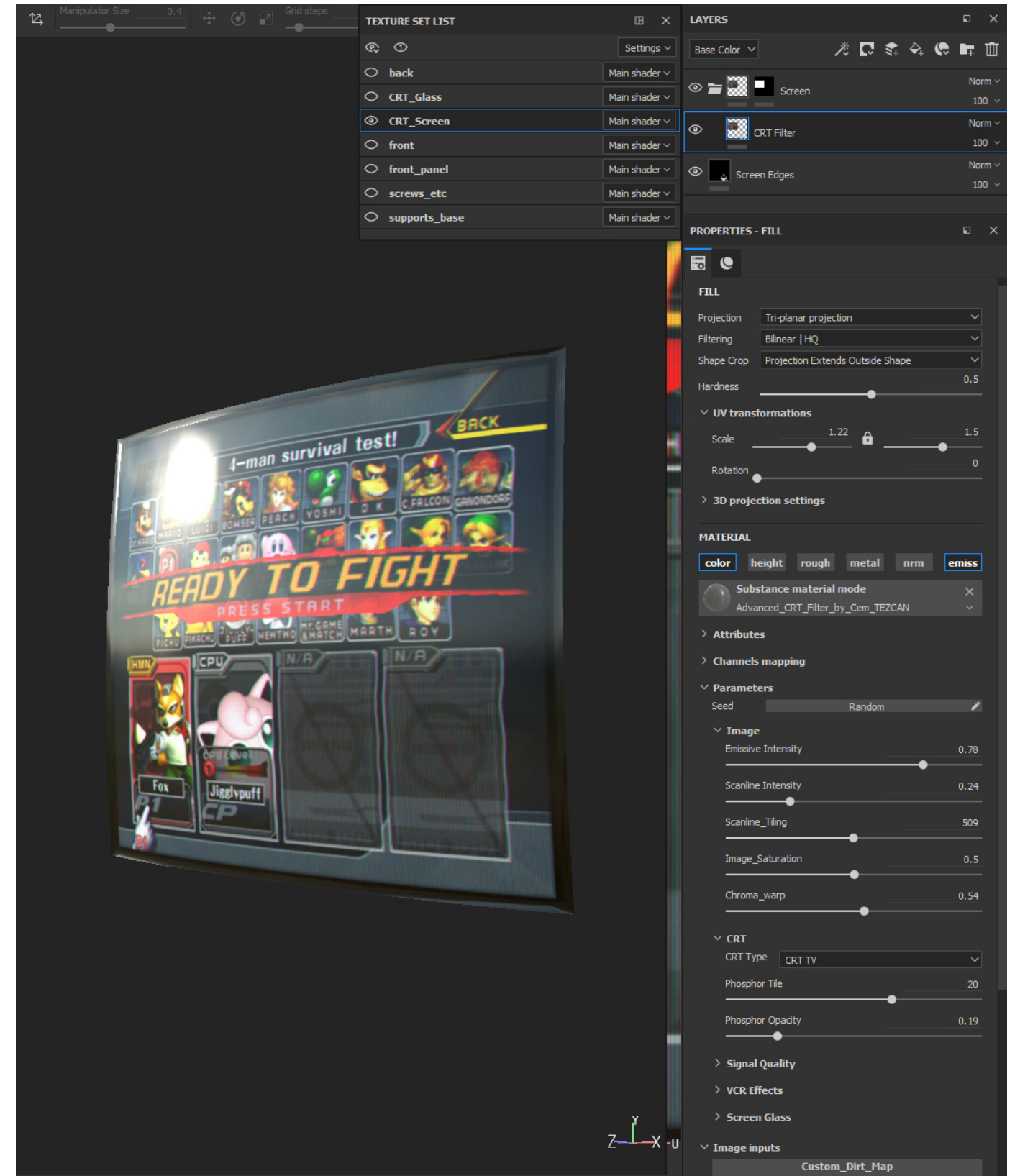
## TEXTURING - CRT BACK



The back of the CRT was textured with the stickers from the TV so the asset can be used in the future from any angle needed. The inset areas were done with height maps and added to the curvature using anchors and micro height channels in other layers.



## TEXTURING - CRT SCREEN



A layer of thin glass sits in front of the emissive phosphor coated glass. The thin glass' roughness layer was textured in painter, and the phosphor coated glass material was downloaded from gumroad and modified to have the proper tiling and intensity. In Redshift, the emission layer was also used as a mask to add a subtle blue glow that old CRTs tend to have.



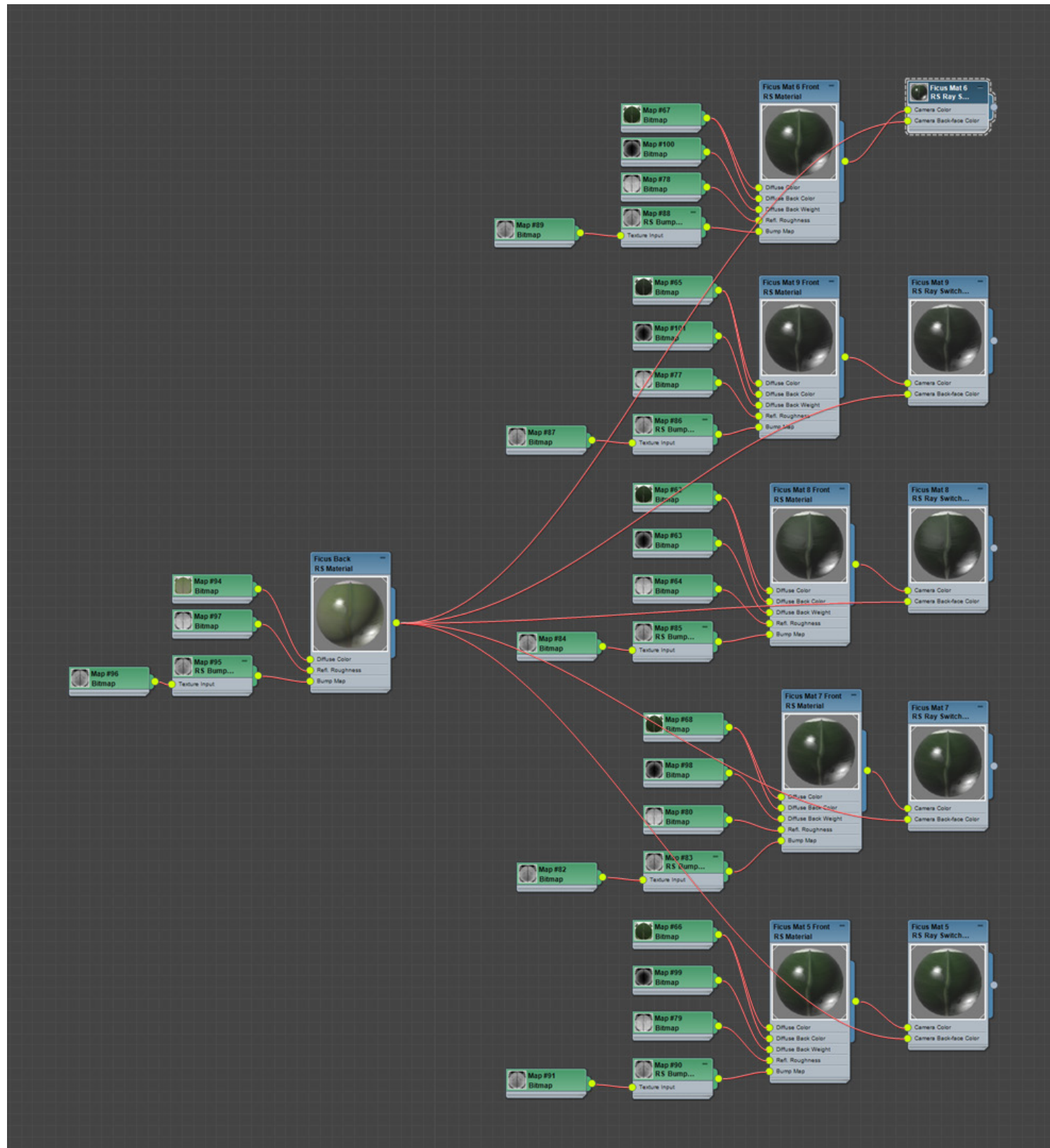
## BACKGROUND ASSETS



Background assets were collected from various sources to add life to the scene. An old table, ficus plant, and lamp were chosen. The gamecube controller asset was downloaded from turbosquid and retextured from scratch in Redshift, and the surrounding wall and floor textures were obtained from Quixel Megascans.



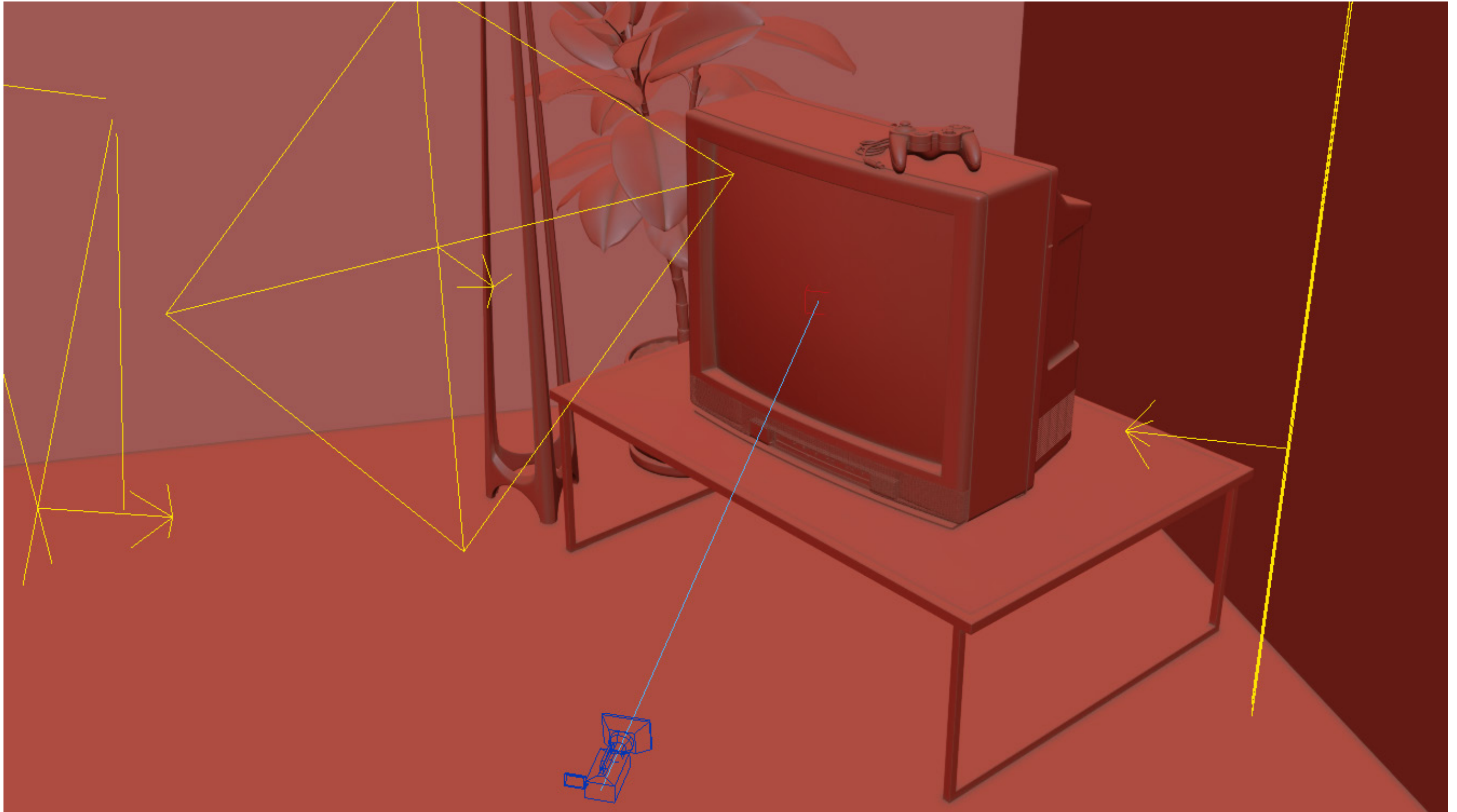
## BACKGROUND ASSET TEXTURING



As some of the background assets were not PBR compatible, they had to be updated to work with Redshift. Gamma corrections were applied where needed, ray switches used for plants, and other necessary modifications were made.



## SCENE ASSEMBLY



The scene was assembled to look like the corner of an old 90s basement with poor lighting. An HDRI that only affects specular is used for reflections, and two lights help illuminate the form of the television. A weak rim light also brightens the side of the TV, and the light from the lamp casts a strong glow over the entire scene.

All post work was done in camera with the exception of sharpening and noise added in camera RAW.



FINAL RENDER

