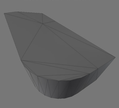
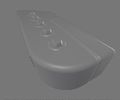
NORMALS

MESHES

LOWPOLY MESH



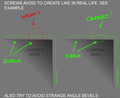
HIGHPOLY MESH



TRY TO AVOID TURBOSMOOTH OR SMOOTH ESPECIALLY WHEN YOU ARE BAKING HARD SURFACE MODEL, IT MIGHT CREATE STRANGE ARTEFACT.

IF YOU WANT TO BAKE BEVEL IN THE NORMAL, INSTEAD OF TURBOSMOOTHING EVERYTHING JUST APPLY A BEVEL MODIFIER IN THE HIGHPOLY.

IF YOU WANT TO CREATE PLANAR DETAILS LIKE SCREWS AVOID TO CREATE LIKE IN REAL LIFE. SEE EXAMPLE:



FOR EACH SMOOTHING GROUP YOU HAVE TO USE AN UV SHELL OTHERWISE YOU WILL GET WRONG BAKED BEVEL.

KEEP YOUR UV SHELL AS STRAIGHT AS YOU CAN IN ORDER TO HAVE CLEAN NORMALS AND NOT TO HAVE PROBLEM WITH PIXELS GRID.

IF YOU HAVE OVERLAPPING UVS, KEEP THE UV SHELL THAT YOU WANT TO BAKE IN THE FIRST UDIM (BETWEEN 1 AND 1.999) NOW THE OTHERS IN ANOTHER UDIM (BETWEEN 2 AND 2.999) OR MORE IF YOU NEED.

IF YOU HAVE PROBLEMS WITH BAKED GAPS FROM HP OVER LOWPOLY TRY UNWRAPPOLY BY PLACING FEW EDGES ALONG THOSE GAPS.

DON'T FORGET TO KEEP PADDING BETWEEN ALL THE UV SHELLS OTHERWISE YOU WILL GET BLEEDING CAUSED BY NORMALS GOING OVER OTHER UV.

THIS IS THE MIN PADDING FOR EACH RESOLUTION HOWEVER I WOULD RELY ON THOSE WHEN YOU SET THE OSAATION IN THE BAKE SETTING AND I WOULD SET THE PADDING BETWEEN UV A BIT WIDER.

128 = 2px | 256 = 2px | 512 = 4px | 1024 = 8px | 2048 = 16px

ALSO TRY TO AVOID STRANGE ANGLE BEVELS OTHERWISE THE RESULT WILL HAVE SOME ARTEFACTS.

IF YOU NEED THE BEVEL IN THOSE STRANGE ANGLE I WOULD JUST BEVEL DIRECTLY THE LOWPOLY.

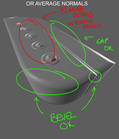
BAKE NORMAL MAP

WITH CAGE
OR AVERAGE NORMALS

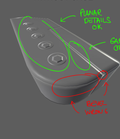
WITHOUT CAGE

PROBLEMS

WITH CAGE
OR AVERAGE NORMALS



WITHOUT CAGE



WHY?

WITH CAGE
OR AVERAGE NORMALS

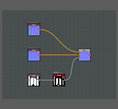
WITHOUT CAGE

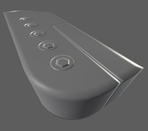
SOLUTION #1

WITH CAGE
OR AVERAGE NORMALS

MASK

WITHOUT CAGE





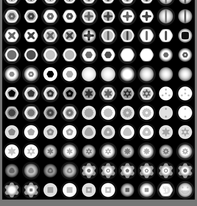
SOLUTION #2

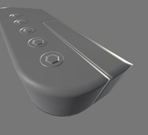
AFTER YOU MADE SURE THAT UVS ARE GOOD AND YOU ARE GOOD TO GO, DUPLICATE YOUR LOWPOLY MESH AND ADD DIVISION, YOU DON'T WANT TO SMOOTH THE MESH. JUST MAKE IT MORE DENSE. (TESSELATE)

USE THAT DENSE LOW POLY FOR THE BAKING PROCESS AND APPLY THE BAKED NORMAL MAP TO YOU ACTUAL LOW POLY

FASTEST WAY

THE FASTEST WAY TO GET NICE BEVEL AND GOOD PLANAR DETAILS IS TO BAKE JUST THE BEVEL WITH THE HIGHPOLY MESH AND STAMP ALL THE PLANAR DETAILS LIKE SCREWS GAPS, ETC DIRECTLY IN THE TEXTURE. THERE ARE PLENTY OF HIGHTMAP OF SCREW ON THE INTERNET, OR YOU CAN STILL CREATE THEM WITH YOUR MESHES.





ON TOP OF BEING THE FASTEST WAY,
IT IS ALSO THE MOST EFFICENT WAY. YOU CAN EASILY CHANGE OR REMOVE THESE SCREWS:

SCREW BAKED WITH HP

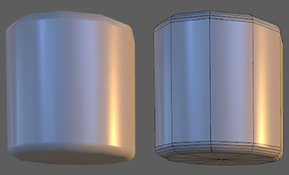
YOU HAVE TO CHANGE THE SCREW IN THE HIGHPOLY MESH, RE-BAKE ALL THE MAPS AND UPDATE ALL THE TEXTURES AND EXPORT.

SCREW STAMPED WITH PAINTER

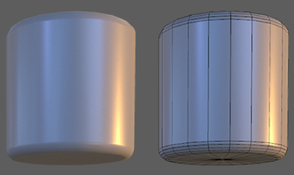
YOU HAVE TO CHANGE JUST THE LAYER WHERE YOU DID PAINT THAT SCREW AND EXPORT

CYLINDERS

HIGPOLY A



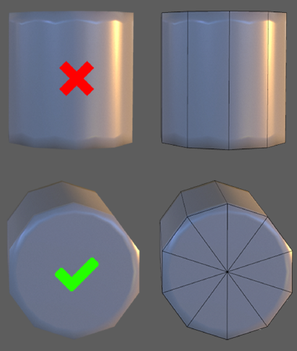
HIGPOLY B



LOWPOLY (always the same)

BAKED NORMAL HP A

BAKED NORMAL HP B

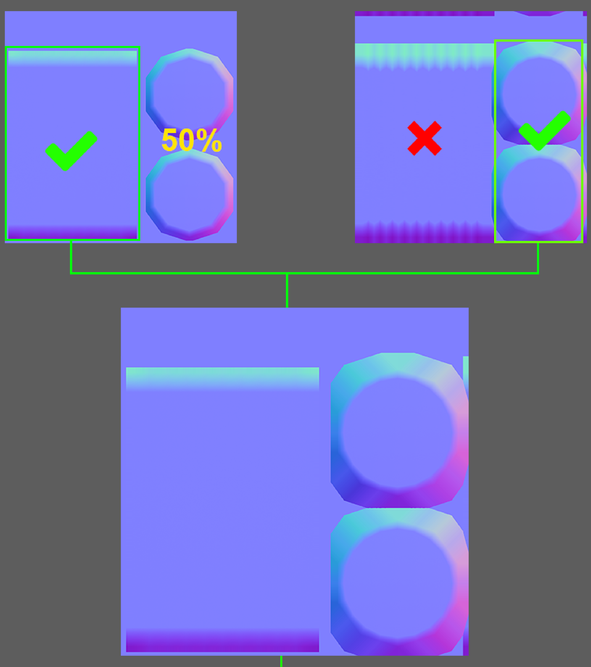


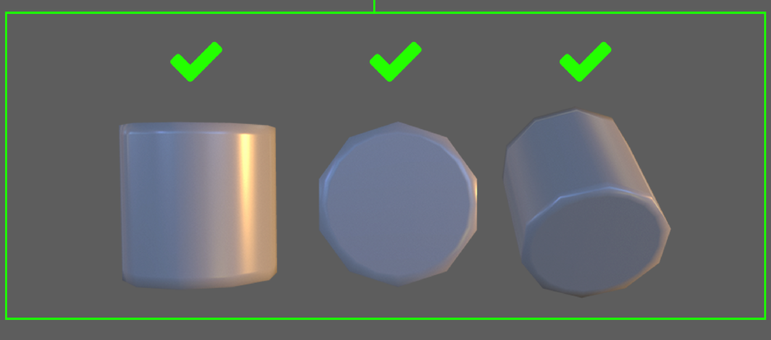
50%

WINNER!!!
SPEED/QUALITY

LOSER
YOU CAN STILL USE IT IF YOU SEE JUST THE CAP AND NOT THE SIDE

HOWEVER IF WE HAVE TIME WE CAN ACHIEVE EVEN A BETTER RESULT BY MIXING THE PREVIOUS ONES





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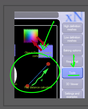
SETTINGS

BEVEL WISE | PLANAR DETAILS WISE

xN

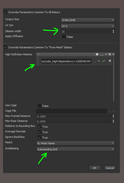
xNORMAL DOESN'T GENERATE A CAGE/SMOOTH GROUP AUTOMATICALLY. SO YOU HAVE TO CREATE IT IN ORDER TO BAKE GOOD-LOOKING BEVELS.

JUST BAKE WITHOUT CAGE IN ORDER TO GET THE PLANAR DETAILS. TWEAK "MAXIMUN FRONTAL RAY DISTANCE" AND "MAXIMUM REAR RAY DISTANCE" TO GET THE RESULT YOU ARE LOOKING FOR.

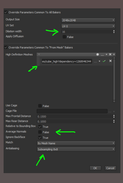


xNORMAL HAS ASO A TOOL TO CALCULATE THE RAY DISTANCE THAT YOU NEED TO GET DETAILS FROM HP TO LP. HOWEVER DON'T TRUST TOO MUCH THIS TOOL

S



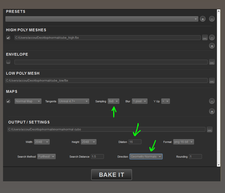
DESIGNER AND PAINTER HAVE THE SAME SETTINGS. FOR THIS EXAMPLE LET'S USE DESIGNER. HERE IF YOU DO NOT HAVE A COMPLEX LOWPOLY YOU CAN TRY TO BAKE WITHOUT THE CAGE. IF YOU SEE THAT YOU DON'T GET DETAILS, PLAY WITH "MAX FRONTAL DISTANCE" AND MAX REAR DISTANCE.
MATCH BY NAME IS REALLY USEFULL WHEN YOU HAVE DIFFERENT LOWPOLYS IN THE SAME FILE. BY RENAMING CORRECTLY EITHER LOWPOLY AND HIGPOLY (EG CUBE_LOW AND CUBE_HIGH) YOU WILL NOT NEED TO EXPLODE THE MODEL IN ORDER TO BAKE EACH PART SEPARATELY, AVOIDING STRANGE ARTEFACTS.



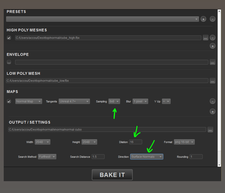
WHEN YOU WANT TO BAKE THE PLANAR DETAILS JUST REMOVE THE CAGE AND DISABLE "AVARAGE NORMAL".

FOR BOTH BAKE, DON'T FORGET TO PUT THE DILATATION BASE ON YOUR BAKE RESOLUTION.

Substance



FOR THE BEVEL WISE RESULT, JUST USE AN ENVELOPE/CAGE OR IF YOUR LOWPOLY IS NOT COMPLEX,TRY WITHOUT AN ENVELOPE.



FOR THE PLANAR DETAILS YOU JUST NEED TO CHANGE DIRECTION TO "SURFACE NORMALS"

M

MARMOSET 3 WILL BE ABLE TO BAKE. JUST KEEP ENABLE SMOOTHCAGE. AND PLAY WITH MIN OFFSET AND MAX OFFSET IF YOU DON'T GET THE RIGHT BEVEL

FOR THE PLANAR DETAILS, SAME SETTINGS JUST WITHOUT THE SMOOTH CAGE.

K

JUST USE THE DEFAULT SETTINGS FOR THE NORMAL BAKE. IF YOU DON'T GET DETAILS, SET SEARCH RANGE TO MANUAL AND TWEAK THE SLIDER RANGE AND PUSH.

KNALD UFORTUNATELY SEEMS THAT IT CAN'T BAKE THE NORMALS WITHOUT A CAGE OR AN ENVELOPE -EITHER AUTOMATICALLY OR MANUALLY GENERATED.

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