



NeoMetrix
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Reverse Engineering Custom Guitar



Figure 1 – Guitar in use



Figure 2 – Laser Scanned Data



Figure 3 – Final Solid Model

Problem:

Custom made guitars are works of art created by hours of shaping and sanding by hand by a skilled luthier. However, creation of a 3D CAD model is required for mass production.

Traditional Method:

Trying to recreate the guitar from hand measurements or have a luthier duplicate the original may produce a nice guitar, but will it will not likely maintain the same sound quality or “feel” of the original.

NeoMetrix Solution:

- Original part (Figure 1) is Laser scanned in house using the Konica Minolta Range 7 scanner. (accuracy of .0015”)
- Scan Data is registered, merged, and aligned in Rapidform XOR to produce a polygon mesh (Figure 2).
- Mesh is used as a reference to create a parametric solid model in Rapidform XOR.

NeoMetrix Advantage:

- Feasible to obtain quality data previously unavailable by other means
- Final CAD model is parametric, and can thereby be easily updated or modified in customer CAD system.
- Feature based model consisting of trimmed surfaces provides for easier CAM programming, than other “rapid surfacing” techniques.