

Burnishing Techniques Strengthen Hip Implants

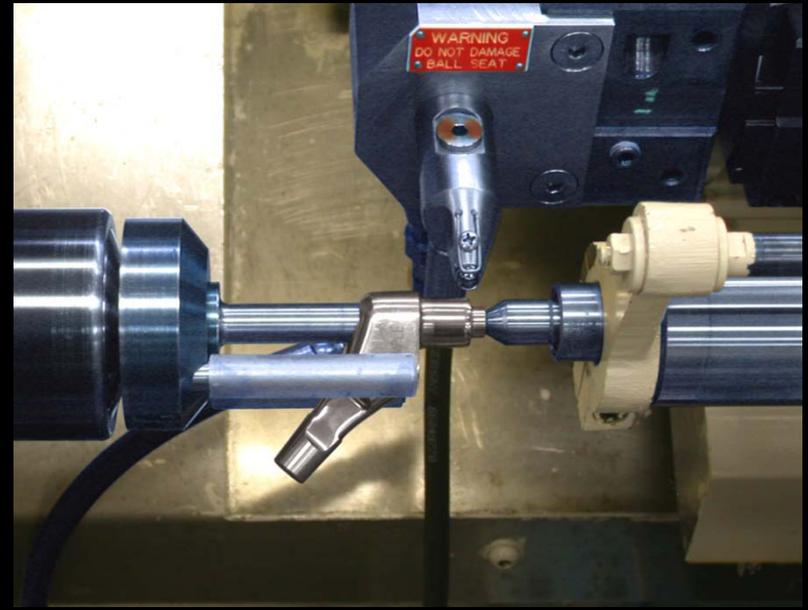


Glenn Research Center

**Lambda Research Inc.
Cincinnati, Ohio**

Originating Technology/NASA Contribution

- ◆ In the 1990s, NASA looked for new ways to extend the lifespan of engine components
- ◆ Lambda had developed the low plasticity burnishing (LPB) process, which increased damage tolerance and prevented cracking in engine components



Partnership

- ◆ Small Business Innovation Research (SBIR) contracts allowed Lambda to demonstrate the effectiveness of LPB for engine applications
- ◆ NASA funding led to additional government support, resulting in the introduction of LPB into commercial aircraft
- ◆ The process won an "R&D 100" Award

Product Outcome

- ◆ LPB can be applied to a wide range of metals and alloys and to components of varied shapes
- ◆ LPB eliminates fatigue failures in crucial aircraft engine components
- ◆ The process has been applied to more than 3,400 hip implants, improving fatigue strength by >40 percent and lifespan by >100 times