

Aircraft wiring harnesses require precision stripping of its insulation. If any of the conductors are nicked by the blade during the wire strip, the entire harness has to be pulled out of the airframe and replaced!



IDEAL industries challenged the DiMonte Group with creating a new design to replace the hand-held wire strippers they have been supplying to aerospace for the previous 50 years. The following presentation demonstrates our design and development processes along with our capabilities to help a customer solve a complex design issue.

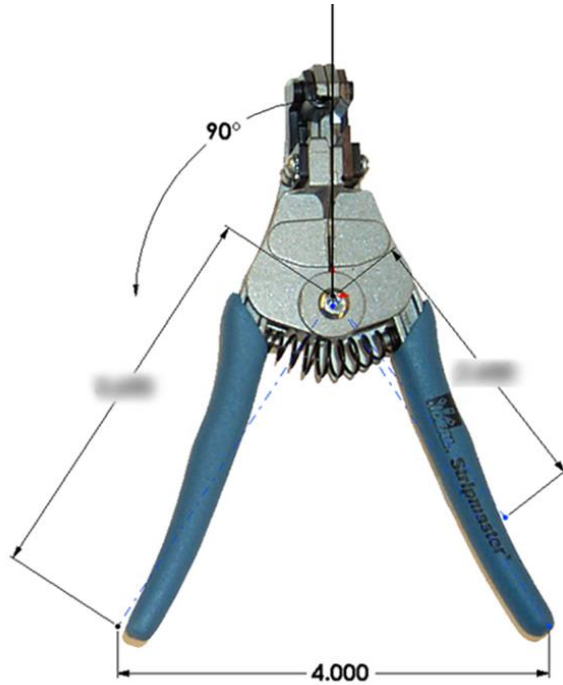


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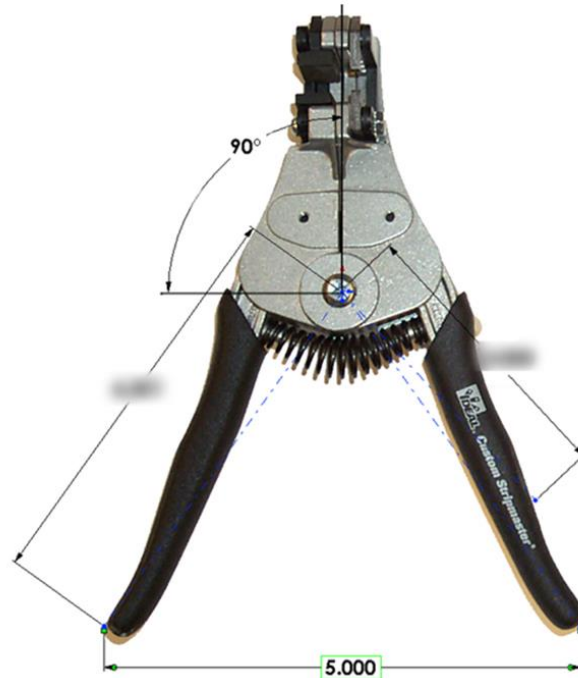
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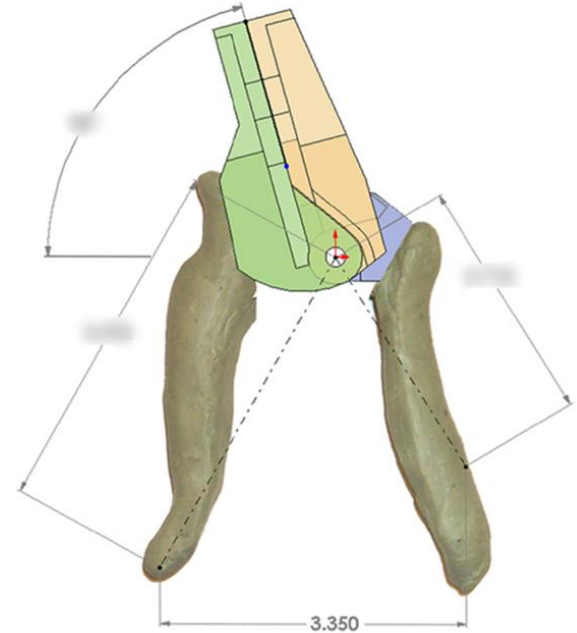
# Rigorously analyze, understand, and explore the problem



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# Field Research and Observation



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# Mechanical ideation

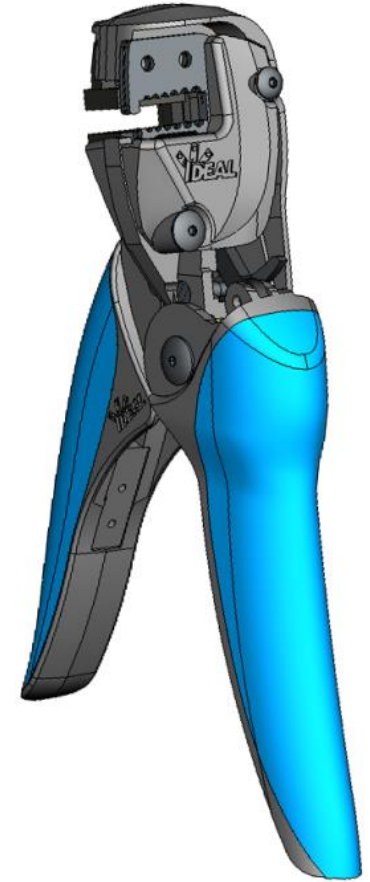
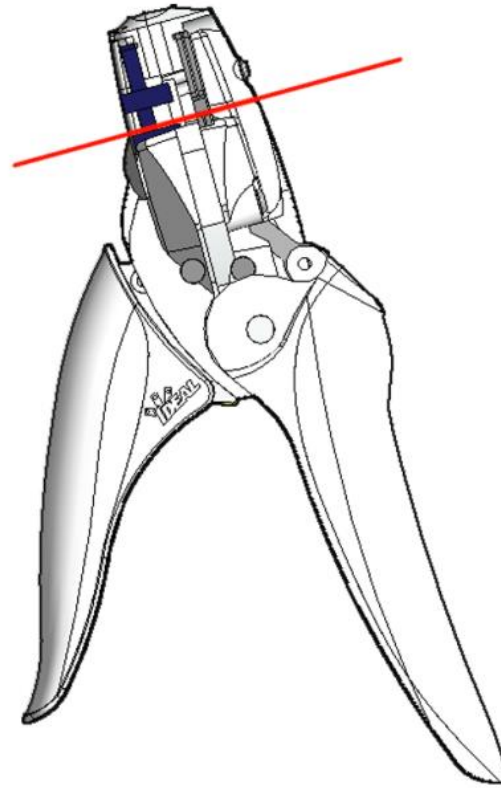


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# Human Factors Analysis

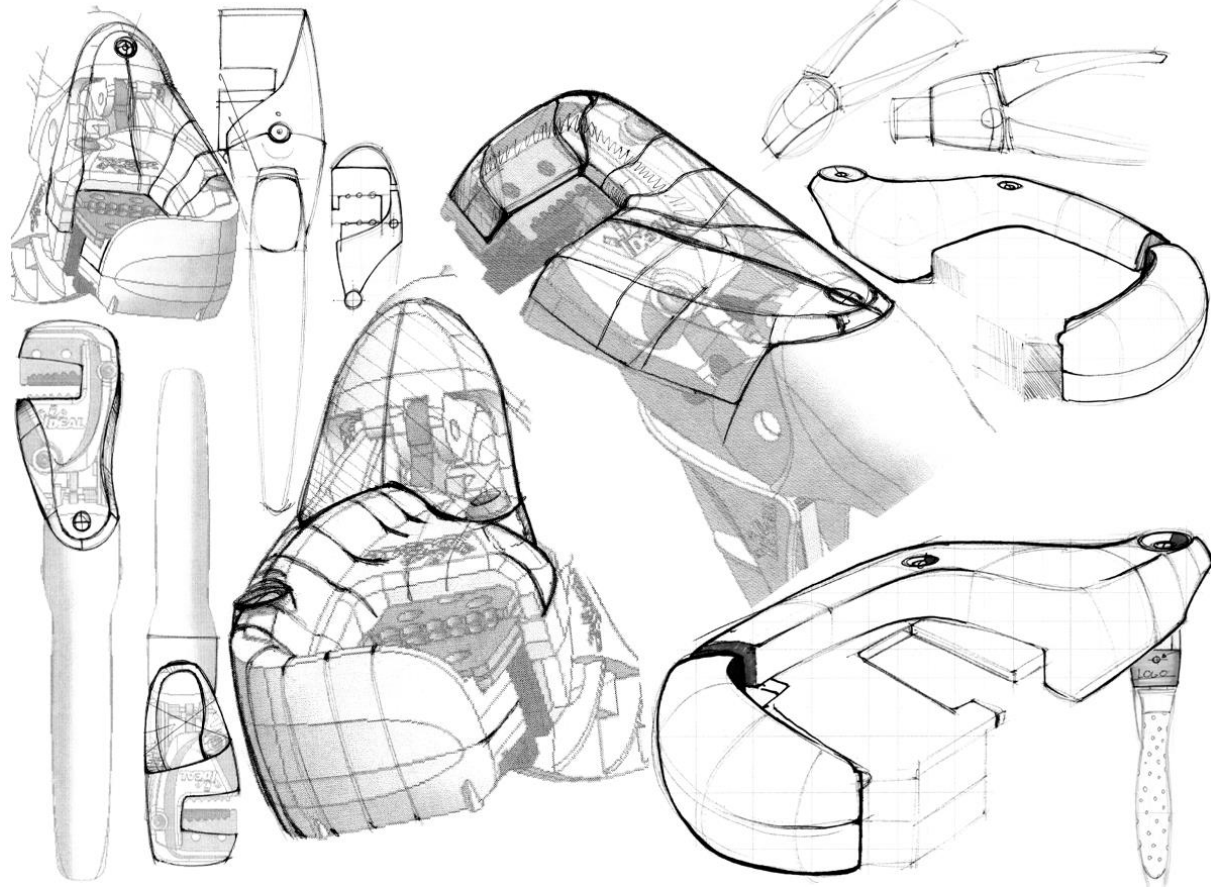
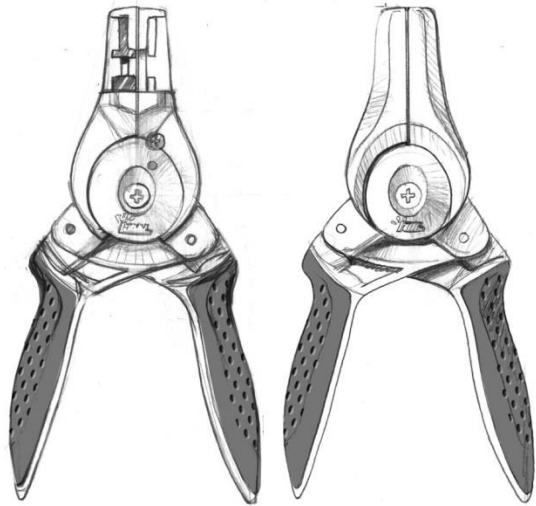


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# Sketch Development Brand ID

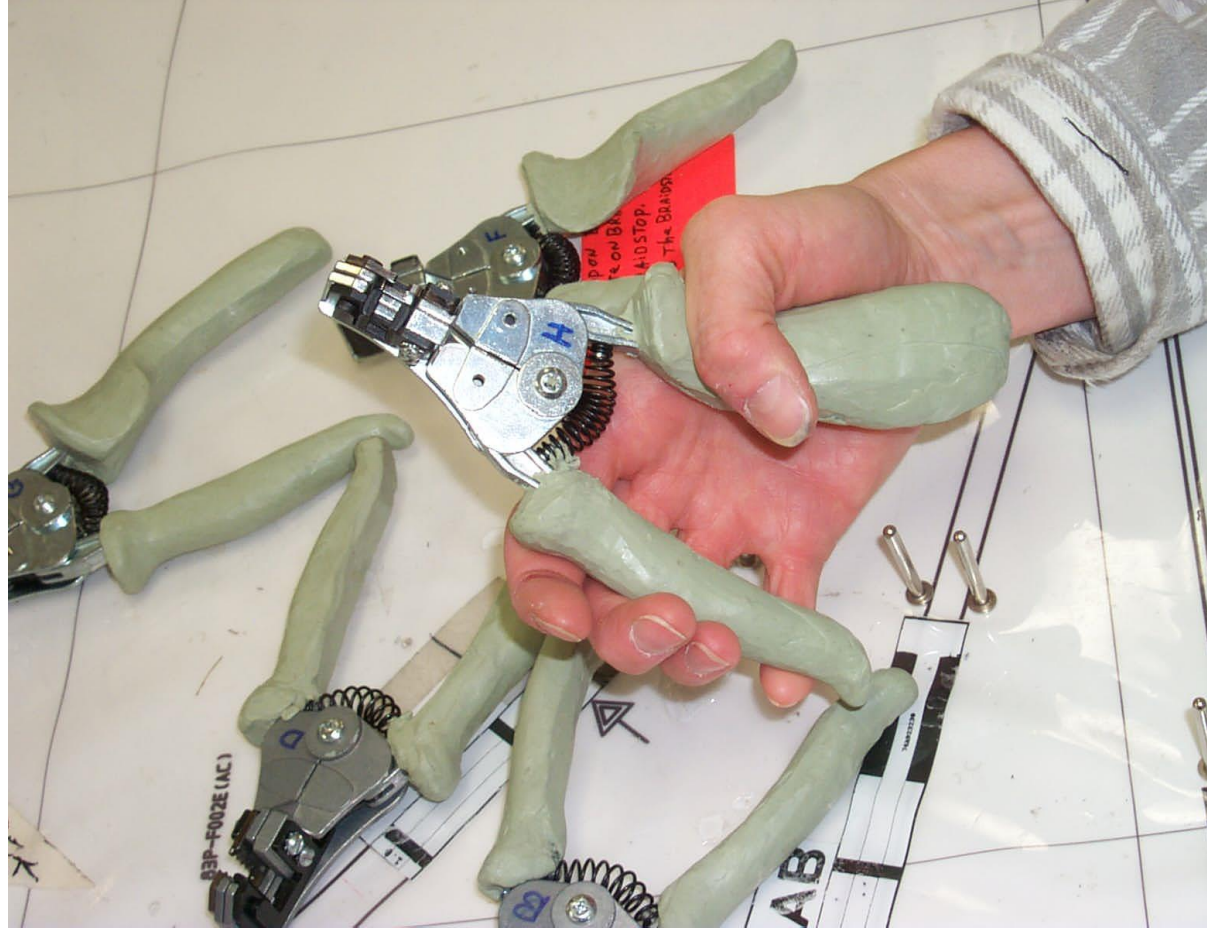


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# 3D Form Development

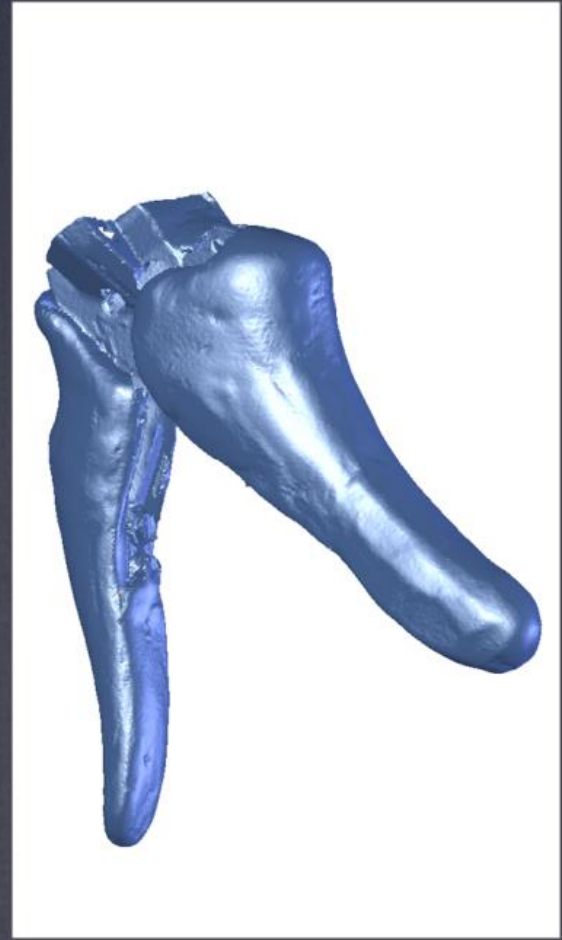


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# 3D scanning



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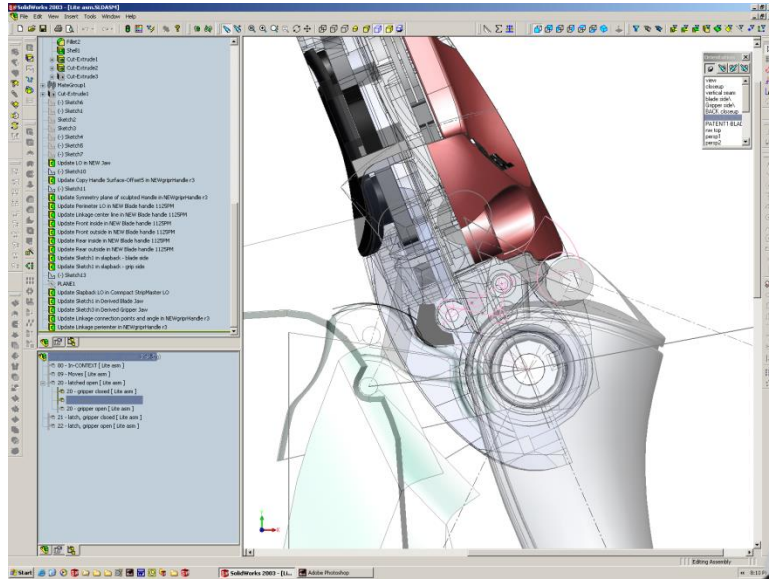
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# 3D CAD

## Ready for manufacture database

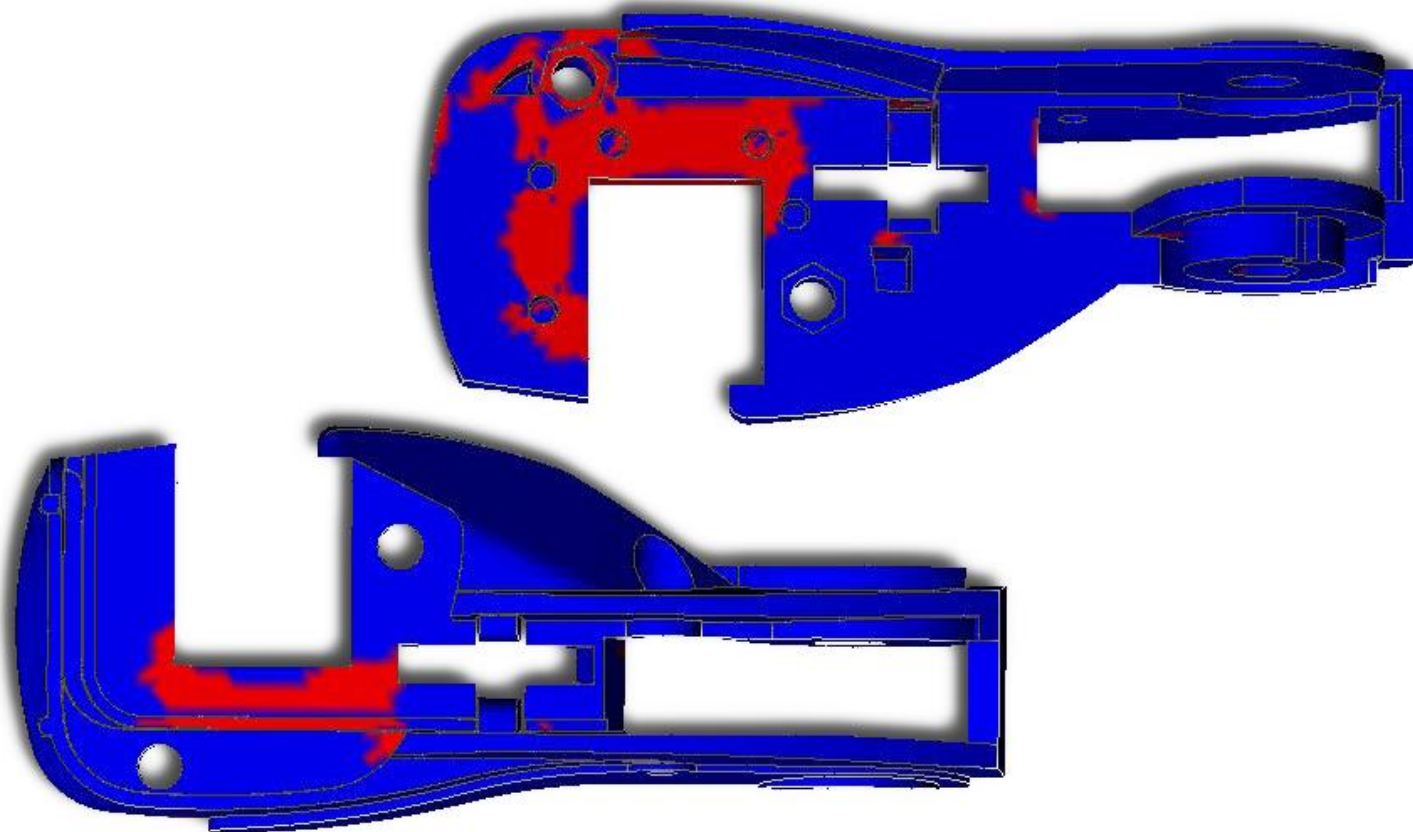


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FEA



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# Prototyping

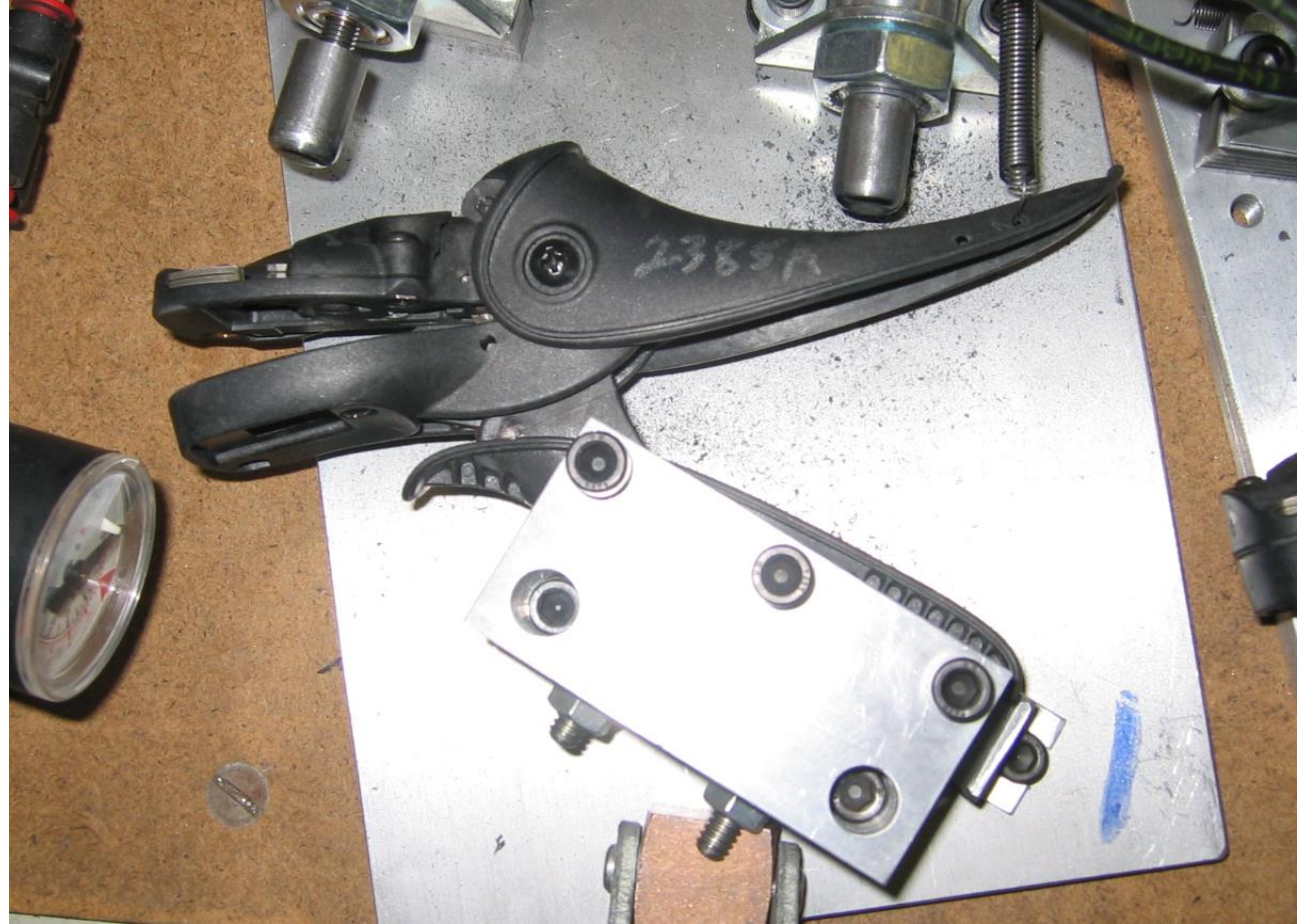


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# Cycle testing



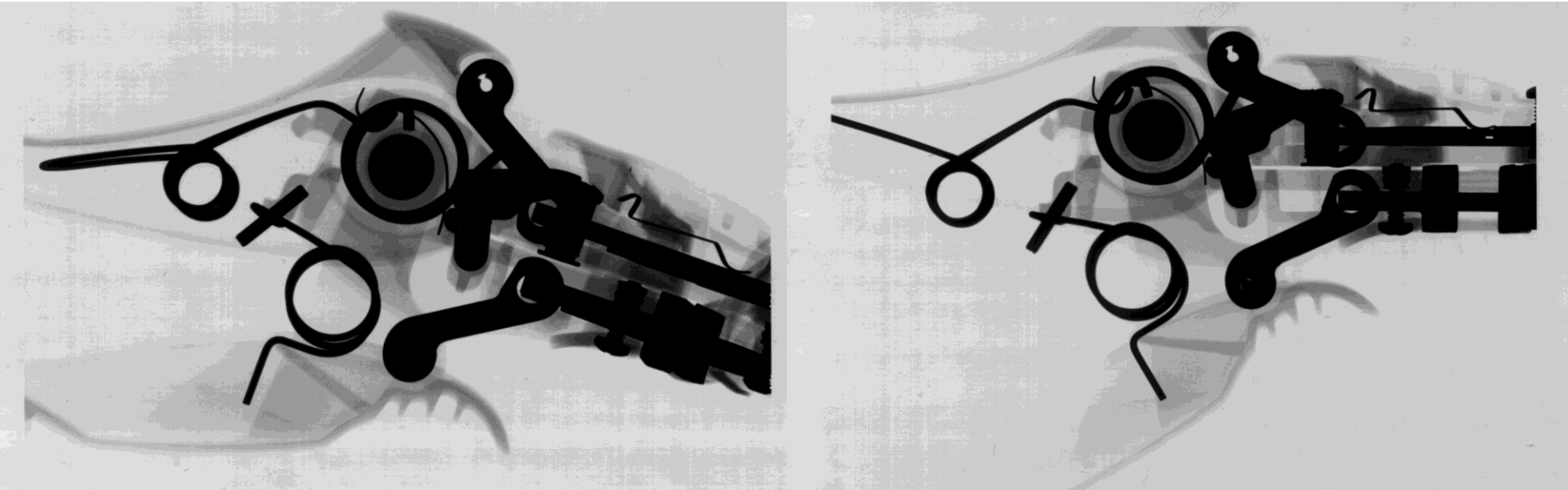
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# Analyze and refine design

Note: X-Rays were taken to evaluate internal mechanism performance

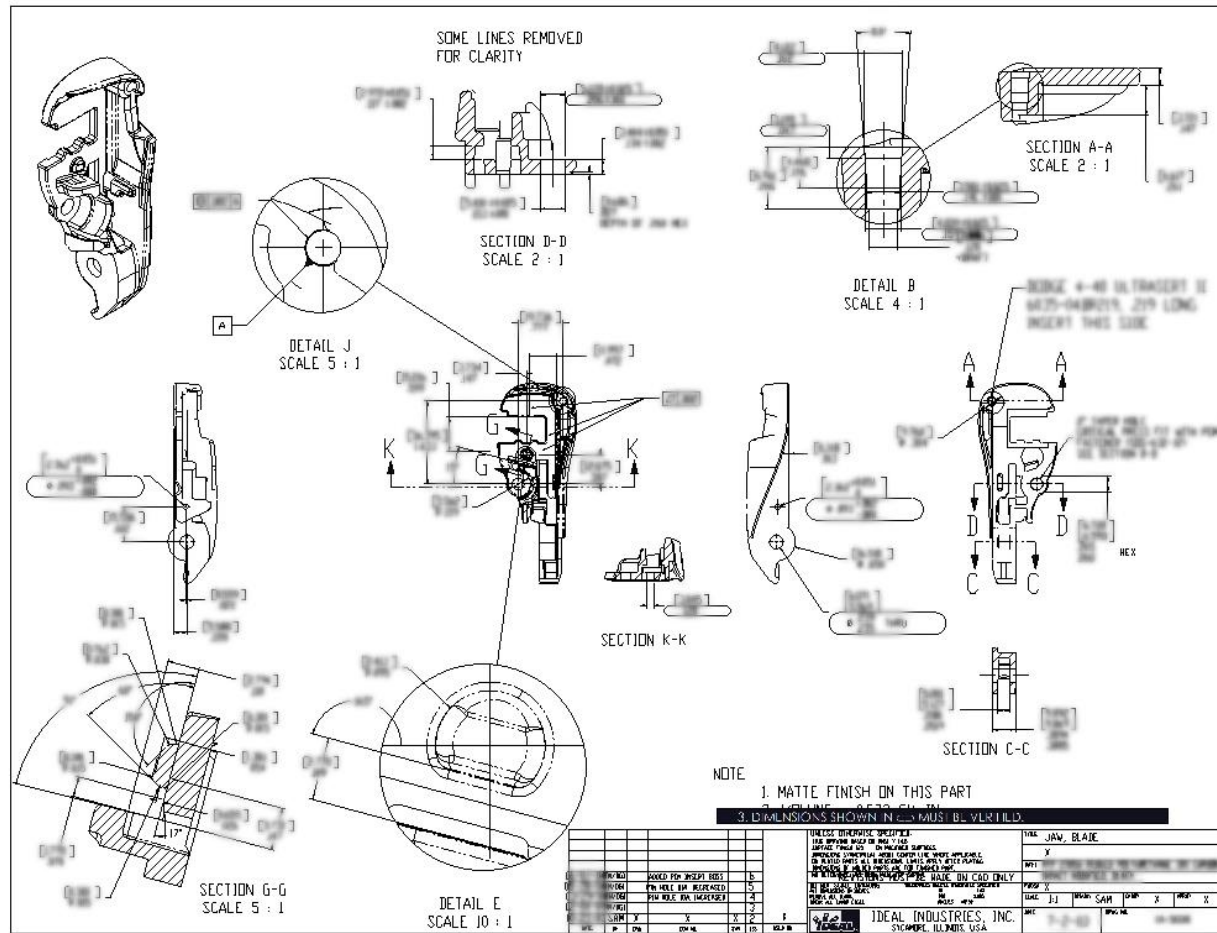


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# Production documentation



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# Production release and support



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Through field research and a rigorous analysis of the problem, we created a new wire stripper that:

- Provided a straighter pull to minimize the risk of nicking the conductor
- Eliminated the harmful wrist angle required by the operator to sight the wire in the correct spot on the blade
- Eliminated redundant spring forces from the mechanism to minimize repetitive motion injuries
- Used FEA to replace the frame material and reduce the weight of the tool
- Optimized the handle width to accommodate a greater variety of hand sizes
- Increased mechanical advantage to reduce the force needed for larger gauge wire
- Improved handle ergonomics to eliminate pressure points
- Created a unique blade retention system that recalibrated the blades with every strip, eliminating the trips to the tool shed required for the previous stripper



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