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Energy Savings in Combat Damage Repair

Direct Digital Manufacturing of Aircraft Components in Combat Theatre



Technology / Capability Overview:

SRF (Stretch Roll Forming) is a forming technique developed for, one off, structural part manufacturing. Currently, producing ribs, stringers, cord and frames for aircraft.

- Small foot print *Forming Cell* fits in ISO container
- Raw Materials are standard extrusions or sheet metal
- Powered by 220 field electrical generator



SRF is an equivalent process to standard aircraft part making processes. It is a flight critical part manufacturing process.

Relevance to Combatant Command or other Need:

Combatant Command: USOUTHCOM, USTRANSCOM

Category: Power and Energy

- Expedited shipping of structural parts for high value combat assets requires a large fossil fuel foot print. Damage to vehicle structures is difficult to predict. This makes in theatre spare inventory economics difficult and costly. This is often managed by Blue-Streak expedited manufacture and shipping of spares. Both are costly activities.
- Fieldable advanced manufacturing will reduce fossil fuel use by improving the supply chain efficacy for combat commands. With the added benefit increasing in theater asset readiness.

Past Performance of Technology and Company:

- Fairmount Tech (FT) is a University based Research and Engineering company
- SRF is a Patented Forming Technology developed by FT
- Our Technology focus is on Manufacturing of low volume metallic components for aerospace and defense industries using SRF.
- Awarded two Phase II SBIR contracts by DLA MANTEC
 - SRF for extrusion forming technology
 - ExMach a tool-less CNC machining process for SRF formed parts
- FT is AS9100c Certified manufacturer of aircraft parts.
- Commercial Customers include Textron Aviation

Maturity / Scalability / Cost / Schedule

TRL: 6 per AF TRL check list

- SRF is making parts for aircraft. The next step is insertion into a service branch to develop specific machine capabilities needed for its asset mix and operational environment.
- SRF will be used by the industrial base for reduced cost
- DoD uses include organic depot manufacturing and theatre repair.
- A second Phase II award followed by a Phase III contract for machine delivery will cost less than \$2.5 mil. With multiple branch support letters Phase II funding by DoD MANTEC is likely.
- Estimated timeline 24 months