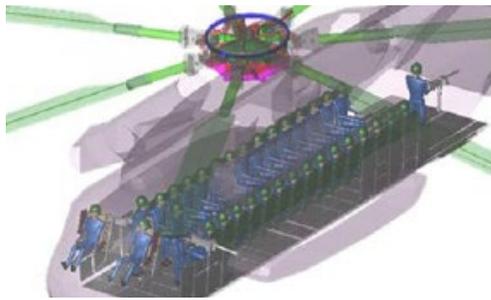




# SURVICE

ENGINEERING COMPANY

## AIRCRAFT ARMOR DESIGN AND OPTIMIZATION FOR CREW PROTECTION



### BACKGROUND

The SURVICE Engineering Company is a small business that specializes in applying a systems engineering approach in support of the design, development, testing, and fielding of systems that are safe, survivable, and effective. While weight remains a major issue for aircraft, armor continues to be a vulnerability reduction solution incorporated into many military systems for the protection of the crew and occupants. As the threat continues to change, however, so do armor designs. Today's armor packages must not only protect, but they must also be lightweight, cost effective, and easily integrated. SURVICE's specialized engineers and analysts can provide a wide array of aircraft armor solutions, from armor design and optimization to conducting independent analysis for armor supplier selection.

### ARMOR CAPABILITIES

SURVICE leverages three decades of combat survivability experience, coupled with a unique blend of DoD, military vehicle manufacturer, and armor supplier relationships, to provide our customers with extensive armor knowledge and capabilities.

We apply modeling and simulation, validated by test, for designing and optimizing aircraft armor configurations. Working in conjunction with vehicle manufacturers, our personnel are able to provide guidance and evaluation from concept through final design.

SURVICE provides:

- Guidance for understanding current and future armor trends.
- Armor design and optimization based on capabilities and location of panels.
- Percent protection, survival, and effectiveness studies.
- Specification compliance evaluation.
- A liaison between manufacturers and armor suppliers.

### RECENT EXAMPLES OF EXPERIENCE

#### T-6 ARMOR OPTIMIZATION

- Worked with the manufacturer to design and develop an initial armor package.
- Eliminated unnecessary panels by calculating the protection contribution for each panel.
- Performed several excursion runs to understand the relationship between location, protection, and weight.
- Provided guidance on armor trends and assisted in selecting an armor supplier to provide an adequate package.

#### RAH-66 SEAT ARMOR OPTIMIZATION

- Independently evaluated six manufacturer armor configurations.
- Determined percent protection for each configuration and selected the best design based on the results.

#### HLR ARMOR EVALUATION

- Incorporated an initial cabin layout and armor design into the target description.
- Calculated the survival percentage for 35 occupants for spec compliance guidance.

#### S-92 CABIN ARMOR OPTIMIZATION

- Incorporated several armor concepts into the existing S-92 target description and calculated the survival percentages for each occupant.
- Worked with the manufacturer to develop an optimized configuration that met specification requirements and allowed ease of integration.

