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LESCA/PC

A Linear Explosive Shaped Charge Analysis for PC

Linear shaped charge (LSC) components are required in aerospace systems to perform such functions as rocket stage separation, parachute deployment, parachute system release, flight termination and destruct and disablement functions. Complex tradeoffs between charge weight, explosive energy, space and performance must often be made. Therefore, it is essential that techniques for optimizing performance be developed.

Simple modeling codes are commonly used to make engineering estimates of conical shaped charge (CSC) performance. These codes implement a series of analytical approximations to estimate liner collapse, jet formation, jet breakup and jet penetration. The codes are often quite successful in predicting performance parameters and are used for guidance during charge design studies. The theory of modeling for LSC components has received much less attention.

LESCA/PC presents extensions to standard CSC models for liner collapse, jet formation and penetration, which are appropriate for the case of linear shaped charge, and documents the implementation of the new models in specific linear shaped charge modeling code.

LESCA/PC is a modeling code developed at Sandia National Laboratories (SNL) for the purpose of assisting in the design of linear shaped charge components. The code, **LESCA/PC**, has much the same structure as the conical shaped charge modeling code (The PC version of SCAP is also available from our company) but differs in complexity due to the three-dimensional nature of the linear shaped charge collapse and penetration process.

The PC version 1.0 of **LESCA/PC** uses **UGL GRAPHICS/PC** of **Galaxy Advanced Engineering, Inc.** in conjunction with its drivers which is included in the package.

We at **Galaxy Advanced Engineering Inc. (GAE)**, have taken steps to develop the same capability of the code for PC users. Currently the code is running on IBM/PC or 100% compatibles with at least 640K RAM, a 286 processor and 287 math coprocessor under DOS Operating System.

LESCA/PC program is currently running under PC/DOS or MS/Windows95/98/2000/XP/ME and NT operating system. The program also can run under different operating system base upon customer request. **LESCA/PC** is capable of producing the plots optionally on the screen, a graphics printer, or a plotter. It uses **GAE** graphics subroutines called **Universal Graphics Library** and device drivers and fonts.

To order this code or **SCAP/PC**, please contact our company at (650) 740-3244