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# FUNDAMENTALS OF SHAPED CHARGES

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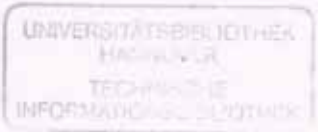
**W. P. WALTERS**  
U.S. Army Ballistic Research Laboratory  
Aberdeen Proving Ground, Maryland

**J. A. ZUKAS**  
Computational Mechanics Associates  
Towson, Maryland



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## PREFACE

This book originated from a series of short courses, sponsored by Computational Mechanics Associates, taught on this subject over the last four years. The voluminous notes developed for these courses became the core of this book.

It is our intent that this book provide an introduction to the basic aspects of shaped charges. We did not aim to provide exhaustive coverage of the subject. This would be an impossible task since much of the literature in this field is either classified or proprietary, insofar as specific items of hardware are concerned. What was obvious to us, from the first course onward, was the existence of a need for a basic text in this area. Thus, this book is not intended to be a "design handbook." We consistently stress the fundamental principles that must be understood before leaping into hardware design. This book will not tell the reader how to design or improve a specific hardware device. It does stress the principles and ideas that must be mastered to achieve such objectives.

The authors assume a basic background in the sciences, such as would be obtained in a first degree science or engineering curriculum in the United States. We assume also the ability to fluently convert between English and metric units as we mix both throughout the book, primarily for the sake of convenience.

Also, we deviated from the norm by relegating many figures and illustrations to the final chapter, our picture book of shaped charges. Those interested only in a brief introduction to the shaped charge field, without mathematical concepts and the like, should read Chapters 1-3 and 14. Other chapters may then be selected at will, depending on individual interest.

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vi PREFACE

The authors are grateful to their many colleagues over the years, at the Ballistic Research Laboratory and elsewhere, who gave unselfishly of their time while allowing us to profit from their knowledge and experience. We also thank those who were instrumental in expediting this material for publication. Special thanks are due to B. Dale Trott, who provided an excellent review and critique of portions of the text; Steven Segletes, who generated Figures 12-19 of Chapter 5; and Manfred Held, Ben Pernick, and Chris Weickert, who generously provided considerable data and illustrations. Special thanks is also due to Dr. Pei Chi Chou, who co-authored (with WPW) in the open literature some of the material discussed in Chapters 8 and 9.

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W. P. WALTERS  
J. A. ZUKAS

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