

Contents.

	Page
Preface.....	iii
Nomenclature.....	5
Chapter 1. GENESIS AND SUSTENANCE; The Birth and Life of an Explosion.....	13
1.1. Introduction.....	13
1.2. Mechanics of Explosions.....	15
1.3. Gasdynamics of Explosions.....	19
1.4. Technological Significance.....	47
1.5. Future Prospects.....	56
References.....	65
Chapter 2. EVOLUTION OF GASDYNAMICS OF EXPLO- SIONS ; The Dynamics of Exothermic Processes.....	67
2.1. Introduction.....	67
2.2. Decaying Wave Systems.....	70
2.3. Amplifying Wave Systems.....	75
2.4. Sustained Wave Systems.....	77
2.5. Recent Theoretical Advances.....	79
2.6. Summary and Conclusions.....	80
References.....	83

Chapter 3. GASDYNAMIC DISCONTINUITIES ; The Most Prominent Effects of Explosions.....	93
3.1. Introduction.....	93
3.2. Mechanical Conditions.....	95
3.3. The Hugoniot Curve.....	99
3.4. The Chapman-Jouguet Condition.....	100
3.5. Parametric Forms of the Hugoniot Equations.....	104
3.6. The Change of State Across a Discontinuity.....	109
3.7. Oblique Discontinuity.....	113
3.8. Simple Wave.....	116
3.9. The Prandtl-Meyer Expansion.....	119
3.10. Wave Interactions.....	124
3.11. Wave Intersections.....	138
3.12. Interactions between Intersections.....	146
References.....	159
Chapter 4. BLAST WAVES ; The Flow Fields of Explosions.....	161
4.1. Introduction.....	161
4.2. Conservations Principles.....	166
4.3. Blast Wave Transformation.....	168
4.4. Conservation Equations in Non-Dimensional Form.....	173

4.5. Equation of State.....	177
4.6. Eulerian Space Profiles.....	179
4.7. Eulerian Time Profiles.....	186
4.8. Lagrangian Time Profiles.....	191
4.9. Boundary Conditions and Integral Relations.....	197
4.10. Self-Similar Flow Fields.....	202
References.....	217