

Field Manual
No. 3-21.38

Headquarters
Department of the Army
Washington, DC, 25 April 2006

Pathfinder Operations

Contents

	Page
PREFACE.....	viii
Chapter 1 INTRODUCTION.....	1-1
Employment.....	1-1
Capabilities.....	1-2
Limitations.....	1-2
Equipment.....	1-2
Communications Security.....	1-5
Training.....	1-5
Chapter 2 PLANS, ORGANIZATION, CONDUCT, AND THREAT.....	2-1
Section I. PLANS.....	2-1
Warning Order.....	2-1
Initial Preparations.....	2-1
Coordination.....	2-2
Linkup with Supported Unit.....	2-4
Final Preparations.....	2-4
Section II. ORGANIZATION FOR COMBAT.....	2-4
Insertion.....	2-4
Overland Movement.....	2-5
Stay-Behind Operation.....	2-6
Section III. CONDUCT OF OPERATIONS.....	2-6
Daylight Assault.....	2-6
Night Assault.....	2-6
Extraction.....	2-6
Staging Areas.....	2-7
Artillery Displacement.....	2-7
Support of Ground Operations.....	2-7
Support of Air Force.....	2-7
Mixed Operations.....	2-7
Radio Communications.....	2-8

Distribution Restriction: Approved for public release; distribution is unlimited.

*This publication supersedes FM 3-21.38, 1 October 2002.

	Terminal Guidance by Supported Units.....	2-9
	Section IV. HIGH-THREAT ENVIRONMENT	2-9
	Control and Navigation	2-9
	Tactical Instrument Flights.....	2-9
	Air Routes	2-10
Chapter 3	AIR TRAFFIC CONTROL.....	3-1
	Section I. PATHFINDER AIR TRAFFIC	3-1
	Safety	3-1
	Voice Control	3-1
	Formats.....	3-2
	Numbers	3-3
	Phrases and Terms	3-4
	Section II. LANDINGS	3-6
	Traffic Patterns.....	3-6
	Methods of Entry.....	3-6
	Traffic Pattern Legs	3-8
	Advisory Service	3-8
	Spacing Techniques	3-9
	Final Landing Instructions.....	3-10
	Taxiing Aircraft.....	3-10
	Minimum Aircraft Separation Requirements.....	3-11
	Section III. GROUND-TO-AIR COMMUNICATIONS	3-12
	Electronic Warfare Environment.....	3-12
	Ground-to-Air Transmissions.....	3-13
Chapter 4	HELICOPTER LANDING ZONES.....	4-1
	Section I. SELECTION OF LANDING SITES	4-1
	Considerations.....	4-1
	Alternate Sites.....	4-10
	Section II. ORGANIZATION AND DUTIES	4-10
	Control Center	4-10
	Landing Site Party	4-12
	Section III. LANDING SITE OPERATIONS.....	4-13
	Communications	4-13
	Flight Formations.....	4-14
	Landing Zone and Obstacle Markings.....	4-14
	Air Assaults.....	4-14
	Intercept Headings.....	4-23
	Section IV. LANDING ZONE OPERATIONS	4-23
	Communications Checkpoint.....	4-23
	Air Control Points.....	4-25
	Section V. NIGHT OPERATIONS.....	4-25
	Tactical Landing Lights	4-26
	External Loads	4-28
	Multihelicopter Operations.....	4-28
	Night Vision Goggles	4-28

	Section VI. ENVIRONMENTAL CONSIDERATIONS.....	4-29
	Pilot Input	4-29
	Cold Weather	4-29
	Jungle.....	4-32
	Desert.....	4-33
	Mountains.....	4-34
	Section VII. APPROACH PATH CONSIDERATIONS.....	4-35
	Vertical Air Currents	4-36
	Escape Routes.....	4-36
	Terrain Contour and Obstacles.....	4-36
	Position of the Sun.....	4-36
Chapter 5	EXTERNAL LOADS.....	5-1
	Landing Points.....	5-1
	Types of Loads.....	5-1
	Unit Responsibilities.....	5-2
	Equipment	5-2
	Service Life of Aerial-Delivery Slings	5-10
	Aircraft Load Limitations.....	5-15
	Standard Weights.....	5-18
	Air Items Required For Common Standard Loads.....	5-19
	Slingload Theory	5-20
	Hookup and Release Procedures.....	5-21
	Slingload Inspection Record	5-29
Chapter 6	DROP ZONES.....	6-1
	Section I. SELECTION FACTORS	6-1
	Airdrop Airspeeds.....	6-1
	Drop Altitude.....	6-2
	Type of Load	6-3
	Methods of Delivery.....	6-4
	Obstacles	6-6
	Access.....	6-8
	Size	6-9
	Approach and Departure Routes	6-18
	Section II. DROP ZONE SUPPORT TEAM	6-18
	Organization	6-18
	Missions	6-18
	Equipment Familiarization.....	6-18
	Coordination.....	6-24
	Support Requirements	6-25
	Duties of the Leader	6-27
	Control Center.....	6-29
	Signals.....	6-29
	Determination of Release Point Location.....	6-31
	Ground-Marked Release System.....	6-32
	Army Verbally Initiated Release System.....	6-37
	Air Force Verbally Initiated Release System.....	6-40

	Air Force Computed Air Release Point.....	6-40
	Assault Zone Availability Report.....	6-46
	AF IMT 3823, Drop Zone Survey.....	6-46
	AF IMT 4304, Drop Zone/Landing Zone Control Log.....	6-53
Appendix A	CLOSE AIR SUPPORT AND CLOSE COMBAT ATTACK.....	A-1
	Definitions.....	A-1
	Purpose.....	A-1
	Types of Aircraft.....	A-2
	Target Types.....	A-3
	Weapons Effects.....	A-3
	Aircraft Weapons Types.....	A-4
	Risk Estimated Distances.....	A-5
	Target to Weapons.....	A-5
Appendix B	OPERATIONAL FORMATS.....	B-1
	Planning Format.....	B-1
	Landing Zone and Drop Zone Control Records.....	B-2
	Troop-Leading Procedures.....	B-5
Appendix C	ARMY HELICOPTER SPECIFICATIONS.....	C-1
	Observation Helicopters.....	C-2
	Attack Helicopters.....	C-4
	Utility Helicopters.....	C-8
	Cargo Helicopters.....	C-12
Appendix D	DIGITIZATION SUPPLEMENT.....	D-1
	Definition.....	D-1
	Purpose, Advantages, and Capabilities.....	D-1
Appendix E	AIR FORCE INSTRUCTION.....	E-1
	Airdrop Airspeeds.....	E-1
	Drop Zone Size.....	E-2
	Ground Marked Release System.....	E-3
	Point of Impact.....	E-4
GLOSSARY.....		Glossary-1
REFERENCES.....		References-1
INDEX.....		Index-1