

# CONTENTS

Chapter	Page	Chapter	Page
1. General Aspects of Naval Airborne Ordnance .....	1	9. Airborne Underwater Ordnance .....	155
A. Introduction .....	1	A. Aircraft Torpedoes .....	155
B. Airborne Ordnance and Armament .....	13	B. Aircraft Mines .....	169
2. Naval Aircraft and their Armament .....	21	C. Safety Precautions .....	181
A. Naval Airplane as a Weapon .....	21	10. Pyrotechnics and Chemical Munitions .....	184
B. Naval Aircraft in World War II .....	23	A. Pyrotechnics .....	184
C. Present Naval Aircraft and Armament .....	31	B. Airborne Chemical Munitions .....	199
3. Aviation Ordnance Officer Ashore .....	40	C. Safety Precautions .....	206
A. Training .....	40	11. Aircraft Sights and Fire Control Systems .....	209
B. Billets and Duties .....	43	A. Types of Aircraft Fire Control .....	209
4. Aviation Ordnance Officer Afloat .....	51	B. Historical Developments .....	210
A. Organization and Responsibilities .....	51	C. Description of Sights and Fire Control Systems .....	214
B. Duties of the Aviation Ordnance Officer .....	55	12. Ordnance Handling and Release Equipment .....	227
5. Ammunition and Fuzes .....	66	A. Handling Equipment .....	227
A. Ammunition .....	66	B. Bomb Suspension, Arming, and Releasing Equipment .....	236
B. Fuzes .....	80	13. Ammunition Handling and Stowage Methods .....	244
C. Safety Precautions for Ammunition Handling .....	83	A. General Instructions .....	244
6. Automatic Weapons and Small Arms .....	87	B. Organization and Procedures Afloat .....	246
A. Introduction .....	87	C. Ammunition Ashore .....	248
B. 20-mm Automatic Gun M3 .....	88	D. Advanced Base Ammunition Handling .....	252
C. Other Components and Accessories .....	96	14. Aerial Gunnery Training and Equipment .....	258
D. 20-mm Aircraft Gun Mk 12 Mods 0, 2, and 3 .....	105	A. Introduction .....	258
E. Small Arms .....	110	B. Synthetic Gunnery Training .....	258
7. Naval Airborne Rockets .....	115	C. Training with Service Equipment .....	259
A. Introduction .....	115	D. Related Activities .....	270
B. Rocket Characteristics .....	115	15. Guided Missiles .....	271
C. General Information .....	127	A. Introduction .....	271
8. Bombs .....	131	B. Components, Guidance, and Control .....	272
A. Introduction .....	131	C. Some of the Navy's Missiles .....	280
B. Bomb Fuzes .....	134		
C. Service Bombs .....	141		
D. Safety Precautions in Handling Aircraft Bombs .....	153		

Chapter	Page	Chapter	Page
16. Research and Testing Activities	288	C. Identification	311
A. Naval Research Facilities	288	D. Material Procurement	314
B. Major Problems in Aviation Ordnance Research	292	E. Overhaul, Maintenance, and Salvage	318
17. Aviation Ordnance and Armament Supply	302	F. Ammunition Supply	320
A. Introduction	302	Appendix	
B. Navy Supply System	302	I. Safety Precautions	325
		Index	333

CONTENTS

Chapter	Page	Chapter	Page
1. General Aspects of Naval Airborne Ordnance	1	1. General Aspects of Naval Airborne Ordnance	1
A. Aircraft Torpedoes	1	A. Introduction	1
B. Aircraft Mines	1	B. Airborne Ordnance and Armament	15
C. Safety Precautions	181	2. Naval Aircraft and Their Armament	21
10. Pyrotechnics and Chemical Munitions	184	A. Naval Airplane as a Weapon	21
A. Pyrotechnics	184	B. Naval Aircraft in World War II	23
B. Airborne Chemical Munitions	199	C. Present Naval Aircraft and Armament	31
C. Safety Precautions	205	3. Aviation Ordnance Officer Ashore	40
11. Aircraft Sights and Fire Control Systems	208	A. Training	40
A. Types of Aircraft Fire Control	208	B. Sights and Dials	43
B. Historical Developments	210	4. Aviation Ordnance Officer Aboard	51
C. Description of Sights and Fire Control Systems	214	A. Organization and Responsibilities	51
12. Ordnance Handling and Release Equipment	227	B. Duties of the Aviation Ordnance Officer	55
A. Handling Equipment	227	5. Ammunition and Fuses	58
B. Bomb Suspension, Arming, and Releasing Equipment	238	A. Ammunition	58
13. Ammunition Handling and Storage Methods	244	B. Fuses	60
A. General Instructions	244	C. Safety Precautions for Ammunition Handling	63
B. Organization and Procedures	248	6. Automatic Weapons and Small Arms	67
C. Ammunition Ashore	248	A. Introduction	67
D. Advanced Base Ammunition Handling	252	B. 20 mm Automatic Gun M3	68
14. Aerial Gunnery Training and Equipment	258	C. Other Components and Accessories	70
A. Introduction	258	D. 30 mm Aircraft Gun MK 12	72
B. Synthetic Gunnery Training	258	E. Small Arms	73
C. Training with Services Equipment	259	7. Naval Airborne Rockets	75
D. Related Activities	270	A. Introduction	75
15. Guided Missiles	271	B. Rocket Characteristics	76
A. Introduction	271	C. General Information	77
B. Component Guidance and Control	273	8. Bombs	78
C. Some of the Navy's Missiles	280	A. Introduction	78
		B. Bomb Characteristics	79
		C. Safety Precautions in Handling Aircraft Bombs	83