

After locating the subject you want, load the appropriate file, then use the thumbnails on the left to move quickly to the page you want. When you click on the thumbnail, the chapter-page number is on the bottom of the page. Return to download page for other files.

CONTENTS

CHAPTER 1 - GENERAL DESCRIPTION OF THE TURRET

	Page
Purpose	1-1
Ship class	1-1
Emplacement data	1-1
Turret arrangements and differences	1-1
Components	1-1
Structural assembly	1-3
Ordnance installations	1-9
Ordnance designs	1-12
Auxiliary installations	1-18
Communications	1-23
Illumination	1-27
Gas ejector supply	1-29

CHAPTER 2 - TURRET OPERATION

Introduction	2-1
Station activities and turret control methods	2-1
Firing cycle	2-1
Personnel organization	2-1
Crew stations	2-3
Personnel duties	2-3
Turret officer	2-3
Turret captain	2-3
Computer operators	2-3
Talker	2-4
Rangefinder operator	2-4
Rangefinder pointer	2-5
Rangefinder trainer	2-5
Sight trainers (right and left)	2-5
Sight pointer (right and left)	2-5
Sight setters (right and left)	2-6
Gun captains	2-6
Cradle operator	2-7
Rammer operator	2-7
Primermen	2-8
Powder hoist operators	2-8
Gun layers	2-8
Gun train operator	2-8
Projectile hoist operators (each level)	2-9
Projectile ring operators (each level)	2-9
Shellmen (each level)	2-10
Electricians (each level)	2-11
Petty officer in charge (projectile handling deck)	2-11
Lower powder door operators	2-12
Powdermen	2-13
Petty officer in charge (powder handling room)	2-13
Preparation for operation	2-14
Manning stations	2-14
Starting operations	2-14
Ordnance equipment preparations and starting operations	2-16
Firing operations	2-21
First round	2-21
Gun laying, firing	2-22
Loading	2-25

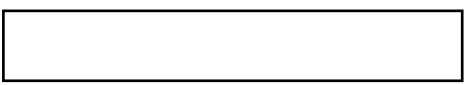
Sighting	2-25
Range estimating	2-26
Gun casualty operation	2-26
Misfire operation	2-26
Manual projectile extraction	2-29
Securing operations	2-29
Stopping equipment	2-29
Conditioning for stowing	2-30
Securing	2-31
Stowing ammunition	2-33
Stowage procedure	2-33

CHAPTER 3 - GUN ASSEMBLIES

General description	3-1
Components	3-2
Assembly arrangement	3-2
Assembly difference	3-2
Data	3-3
Detail description	3-4
Gun	3-4
Breech mechanism	3-5
Salvo latch	3-12
Firing lock	3-12
Gas ejector	3-15
Yoke	3-16
Operation	3-17
General	3-17
Firing operation	3-17
Non-firing operation	3-17A
Instructions	3-17L
General maintenance	3-17L
Preservation and service care	3-18
Operating and maintenance instructions	3-20
Backing out precautions	3-21
Adjustments	3-21
Disassembly and assembly	3-22
General instructions	3-22
Regunning procedure	3-22
Breech mechanism	3-24
Firing lock	3-25
Mason valve	3-25
Foster valve	3-25

CHAPTER 4 - SLIDES

General description	4-1
Components	4-2
Design features	4-2
Design differences	4-2
Access arrangements	4-2
Detailed description	4-2
Deck lug	4-2
Slide	4-4
Operation	4-10A
Slide operation when gun is fired	4-10A
Instructions	4-10A
General instructions	4-10A
General slide servicing instructions	4-12
Servicing instructions for slide recoil and counterrecoil systems	4-12
General note	4-15



	Page
Routine tests of the slide	4-15
Adjustments	4-16
Disassembly and assembly	4-16
General instructions	4-16

CHAPTER 5 - ELEVATING GEAR

General description	5-1
Design differences	5-1
Power drive	5-2
Oscillating bearing assembly	5-10
Elevating gear controls	5-10
Receiver-regulator	5-14
Operation	5-22
General - hand and automatic control . .	5-22
Starting	5-22
Stopping	5-22
Hand control, servo operation	5-22
Receiver-regulator control, servo operation	5-26
Instructions	5-28
General instructions	5-28
Operating precautions	5-28
General servicing instruction	5-29
Operating trouble diagnosis	5-30
Adjustments	5-34
Disassembly and assembly	5-41
Disassembly of the speed reducer	5-41
Disassembly of the A-end pump	5-41
Removal and disassembly of the servo piston	5-41
Disassembly and assembly of the control mechanism	5-42
Disassembly and assembly of the supercharge and servo pumps	5-42
Disassembly and assembly of the B-end . .	5-42
Removal and replacement of synchros . .	5-42
Removal and replacement of valves in the receiver-regulator	5-43
Removal and replacement of the hydraulic vibrators	5-43
Replacement limits of parts reassembled	5-43

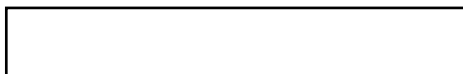
CHAPTER 6 - TRAINING GEAR

General description	6-1
Components	6-1
Component locations	6-1
Functional arrangements	6-1
Design data	6-3
Detail description	6-3
Power drive	6-3
Training worm, wormwheel, and pinion assembly	6-8
Training gear controls	6-9
Receiver-regulator	6-11
Firing stop mechanism	6-19
Operation	6-20
General - hand and automatic control . .	6-20
Starting	6-21
Stopping	6-21
Hand control, servo operation	6-21
Receiver-regulator control, servo operation	6-22

Instructions	6-23
General instructions	6-23
Operating precautions	6-23
General servicing instructions	6-24
Operating trouble diagnosis	6-26
Adjustments	6-27
General	6-27
Main relief valve	6-27
Adjustment of control screw limit	6-28
Adjustment of transmission limit stops . .	6-28
Adjustment of constant horsepower device	6-29
B-end synchronization	6-29
Adjustment of B-end brake	6-29
Adjustment of synchro electrical zero . .	6-30
Zeroing the parallax computer	6-31
Setting the checking dials	6-31
Setting the synchros	6-31
Zeroing the valve block	6-31
Replacement installation of receiver-regulator initial settings and adjustments	6-32
Disassembly and assembly	6-34
General	6-34
Replacement of synchros	6-36
Removal of synchro cranks	6-36
Disassembly of the receiver-regulator main block assembly	6-36
Receiver-regulator gear train	6-36
Receiver-regulator pressure reducer . .	6-37
Receiver-regulator valves	6-37

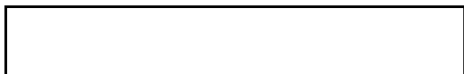
CHAPTER 7 - PROJECTILE RINGS

General description	7-1
Turret stowage	7-1
Stowing projectiles	7-2
Stowage handling	7-2
Serving the rings and securing projectiles	7-3
Projectile stowage quantities	7-4
Projectile stowage data	7-4
Power drive	7-4
Detail description	7-6
Power drive	7-6
Projectile rings	7-14
Projectile ring controls and interlocks . .	7-17
Operation	7-18
General	7-18
Starting	7-18
Stopping	7-18
Circuit operations	7-24
Instructions	7-26
General instructions	7-26
General servicing instructions	7-26
Operating precautions	7-27
Adjustments	7-27
Operating trouble diagnosis	7-29
Disassembly and assembly	7-31
General instructions	7-31
A-end disassembly	7-31
A-end assembly	7-34
B-end disassembly	7-34
B-end assembly	7-35



	Page		Page
Auxiliary pump disassembly	7-35	Removal and disassembly of hydraulic cylinder	9-36
Auxiliary pump assembly	7-35		
CHAPTER 8 - PARBUCKLING GEAR		CHAPTER 10 - RAMMER	
General description	8-1	General description	10-1
Purpose	8-1	Type	10-1
Type	8-1	Design features	10-1
Components	8-1	Components	10-1
Locations	8-2	Component locations	10-1
Mounting arrangements	8-2	Functional arrangements	10-2
Design features	8-2	Design differences	10-2
Arrangement of drive shaft system	8-2	Performance data	10-2
Number of gypsy heads	8-3	Detailed description	10-2
Slip clutch	8-3	Power drive	10-2
Data	8-3	A-end assembly	10-3
Detailed description	8-3	Main valves	10-4
Power drive	8-3	Auxiliary pump (supercharge pump)	10-5
Controls	8-6	B-end (hydraulic motor)	10-6
Operation	8-6	Rammer	10-9
General	8-6	Controls	10-10
Parbuckling	8-6	Operation	10-15
Projectile ring movement	8-7	General	10-15
Instructions	8-7	Starting	10-15
General instructions	8-7	Stopping	10-15
Operating precautions	8-7	Circuit operations	10-15
Adjustments	8-8	Instructions	10-19
Disassembly and assembly	8-8	General maintenance	10-19
General	8-8	Operating precautions	10-20
Disassembly of gear box units	8-8	Hydraulic equipment servicing	10-21
CHAPTER 9 - PROJECTILE HOIST		Operating trouble diagnosis	10-21
General description	9-1	Adjustments	10-22
Type	9-1	Disassembly and assembly	10-23
Purpose	9-1	General instructions	10-23
Components	9-1	Rammer chain removal	10-23
Component locations	9-1	Disassembly of the A-end	10-24
Component locations	9-1	Assembly of the A-end	10-24
Functional arrangement	9-1	Disassembly of the B-end	10-25
Design differences	9-1	Assembly of the B-end	10-25
Design data	9-3	CHAPTER 11 - POWDER HOIST	
Detailed description	9-3	General description	11-1
Power drive	9-3	Turret installation	11-1
Hoist components	9-9	Components	11-1
Cradle assembly components	9-12	Component location	11-1
Hoist reversal system	9-12A	Functional arrangements	11-1
Controls and interlocks	9-14	Design features	11-1
Operation	9-19	Design differences	11-3
General	9-19	Data	11-3
Starting	9-20A	Detailed description	11-3
Stopping	9-20A	Power drive	11-3
Serving projectiles	9-21	Powder hoist trunk	11-7
Filling hoist	9-21	Trunk lower door assembly	11-8
Hydraulic action	9-21	Trunk upper door assembly	11-9
Hoist action	9-25	Powder car	11-10A
Instructions	9-27	Controls and interlocks	11-13
General maintenance	9-27	Operation	11-17
Installation instructions	9-30	General	11-17
Operating precautions	9-30	Starting	11-17
Hydraulic equipment servicing	9-30	Stopping	11-17
Operating trouble diagnosis	9-31	Servo electrical control	11-17
Adjustments	9-32	Servo mechanical control	11-19
Disassembly and assembly	9-36		
General instructions	9-36		
Main pump	9-36		

	Page		Page
Interlock system operation	11-20	CHAPTER 14 - RANGEFINDER MOUNT ASSEMBLIES	
Manual mechanical control	11-23	General description	14-1
Failure in the hydraulic system	11-25	Components	14-1
Oil filter removal during system operation	11-25	Functional arrangements	14-1
Buffers and overtravel action	11-25	Limits of movement	14-1
System vents	11-25	Stand and stabilizer emplacements	14-1
Instructions	11-25	Detailed description	14-1
General instructions	11-25	Stand	14-1
Operating precautions	11-25	Stabilizer	14-5
Speed limitations during manual control operation	11-25	Controls and interlocks	14-8
General servicing instructions	11-25	Operation	14-9
Operating trouble diagnosis	11-26	General	14-9
Adjustments	11-29	Manual control	14-9
Disassembly and assembly	11-36	Automatic control	14-9
General instructions	11-36	Instructions	14-9
A-end group	11-37	General maintenance	14-9
B-end group	11-42	Adjustment of stabilizing unit	14-10
Valve assemblies and control linkage	11-46	Disassembly and assembly	14-10
Piping disassembly and installation	11-48	General instructions	14-10
Method of changing power equipment from right hand to left hand	11-48	CHAPTER 15 - TURRET ELECTRICAL INSTALLATIONS	
General	11-48	General description	15-1
B-end changeover	11-48	Electrical systems	15-1
A-end changeover	11-49	Turret structural arrangements	15-1
Control linkage changeover	11-49	Detailed description	15-3
Safety car stop device cylinder changeover	11-49	Power system	15-3
CHAPTER 12 - FIRE CONTROL		Fire control system	15-17
Ship fire control system	12-1	Safety interlock arrangement	15-28B
General description	12-1	Interior communications system	15-37
Turret fire control circuits	12-1	Lighting system	15-45
Turret fire control station equipment	12-6	Magazine sprinkling system (electric)	15-45
CHAPTER 13 - SIGHT ASSEMBLIES		Turret ventilating equipment	15-48
General description	13-1	Instructions	15-50
Type	13-1	General	15-50
General arrangement of sight stations and components	13-1	Trouble analysis	15-50
Functional arrangements	13-2	Maintenance	15-51
Local control instruments	13-3	CHAPTER 16 - TURRET AUXILIARY INSTALLATIONS	
Detailed description	13-3	Introduction	16-1
Sight	13-3	General	16-1
Instruments	13-8	Description	16-1
Operation	13-10	Power supply	16-1
Personnel, stations	13-10	Illumination supply	16-1
LOCAL control	13-10	Ventilating system	16-1
PRIMARY and SECONDARY control sight operation	13-10	Sprinkling system	16-4
Alternative sight operations	13-10	CHAPTER 17 - HYDRAULIC EQUIPMENT INSTRUCTIONS	
Operation of the sight station differentials	13-10	General	17-1
Instructions	13-10	Purpose of instructions	17-1
General maintenance	13-10	Installation instructions	17-1
Operating precautions	13-11	Initial installation	17-1
Installation care	13-11	Overhauled installation	17-1
Adjustments	13-12	Special fitting, cleanliness	17-1
Disassembly and assembly	13-15	Spare hydraulic equipment	17-2
General instructions	13-15	Partial installations	17-2
		Threading pipe	17-2



	Page
Flanged pipe fitting	17-2
Flared pipe fitting	17-2
Cleaning pipe	17-3
Making pipe connections	17-3
Pipe connection test	17-4
Shaping and securing pipes	17-4
Filling hydraulic drive systems	17-4
Procedure for initial period of operation	17-4
Maintenance instructions	17-5
General	17-5
Daily exercise	17-5
Hydraulic fluid	17-5
Hydraulic system service maintenance	17-6
Precautions for hydraulic system dis- mantling and servicing	17-7
 CHAPTER 18 - LUBRICATION INSTRUCTIONS	
General instructions and information	18-1
Turret lubrication facilities	18-1
Selection of lubricants	18-1
Adulterants	18-1
Principles of good lubricating practice	18-2
Function	18-2
Frequency	18-2
Distribution	18-2
Lubrication of antifriction bearings	18-2
Excessive lubrication	18-3
Cleanliness	18-3
Preservation	18-3
Substitution	18-3
Temperature variations	18-3
Detailed lubrication features	18-4
 CHAPTER 19 - TOOLS AND ACCESSORIES	
General description	19-1
Special equipment	19-1
Standard equipment	19-1
Identities	19-1
Types	19-1
Instructions	19-1
General	19-1
Operating precautions	19-2
Storing	19-2
List of tools and accessories	19-3

APPENDIX 1 - GENERAL TURRET DATA

Ship data	A1-1
Main battery data	A1-1
Main battery director positions	A1-1

APPENDIX 2 - ORDNANCE DATA

Internal ballistics	A2-1
External ballistics	A2-1
Range tables	A2-1
Weight pounds, each turret	A2-1
Ammunition data	A2-1
Projectile stowage	A2-1
Gun data	A2-1

APPENDIX 3 - INDEX OF ASSEMBLIES

16-inch Turret Assembly No. 84	A3-1
16-inch Turret Assembly No. 85	A3-1
16-inch Turret Assembly No. 86	A3-2
16-inch Turret Assembly No. 87	A3-2
16-inch Turret Assembly No. 88	A3-3
16-inch Turret Assembly No. 89	A3-3
16-inch Turret Assembly No. 90	A3-4
16-inch Turret Assembly No. 91	A3-4
16-inch Turret Assembly No. 92	A3-5
16-inch Turret Assembly No. 93	A3-5
16-inch Turret Assembly No. 94	A3-6
16-inch Turret Assembly No. 95	A3-6

APPENDIX 4 - SAFETY PRECAUTIONS

Extracts from NavOrd Instructions 5100.1	A4-1
Service of guns, including ammunition supply	A4-1
Turret general precautions	A4-4
Ordnance equipment precautions	A4-4
Preparation precautions	A4-5
Firing precautions	A4-5
Misfire precautions	A4-5
Stowing precautions	A4-5
Miscellaneous precautions	A4-5

INDEX	Index 1
-----------------	---------