MAGAZINE SPRINKLING BILL

There is no separate magazine sprinkling system installed. Branches are led directly from the fire main on the third deck, with a cutout on each branch where it leaves the main. A branch is provided for each 5" magazine group below deck (one forward, frame 37-42 and one aft, frame 205-213) to each 5" handling room beneath the gun platforms and to each 1.10 and 20 MM clipping room. Riser cutouts that lead to magazine, handling room, and clipping rooms are classified "WILLIAM" and locked open.

In the vicinity of each magazine, handling room and clipping room is located a control fitting in a locked box for controlling sprinkling of that compartment. These control fittings are classified "X'RAY".

No magazine flooding is provided except by hose.

The location and pumps of each cutout valve, reach-rod, and other fittings concerned with magazine sprinkling is listed in the following tabulated list of fittings. Cutout valves on the risers or drops are also included in the master list of fire main valves as they are considered part of the fire main system as well as the magazine sprinkling system.

MAGAZINE SPRINKLING BILL (continued)

VALVES IN MAGAZINE SPRINKLING SYSTEMS

LOCATION	NUMBER	TYPE & SIZE	DISTANT OPERATION	FUNCTION	CLASS	DIV
40MM Clip. Room	03-90-2	3/8" Stop	Local	Clipping Room Test Valve	X	
40MM Clip. Room	03-90-4	1½" Gate	03-91-2 Lock Box Weather Dk.	Cutout Valve to 40MM Clip. Room	X	
20MM Clip. Rm.	02-105-1	2" Stop	02-106-1 Lock Box.	Cutout Valve to Clipping Room	X	
20MM Clip. Rm.	02-105-2	2" Stop	02-106-2	Cutout Valve to 20MM Clip. Rm.	X	
20MM Clip. Rm.	02-105-3	3/8"Stop	Local	Test Valve	X	
20MM Clip. Rm.	02-105-4	3/8"Stop	Local	Test Valve	X	
20MM Clip. Rm.	02-105-5	2" Gate	Local	Cutout Valve to Sprink. System	W	
20MM Clip. Rm.	02-105-6	2" Gate	Local	Cutout Valve to Sprink. System	W	
20MM Clip Rm.	02-115-2	2" Stop	02-114-2 Lock Box	Cutout Valve to Sprink. System 20MM Clipping Room.	X	
20MM Clip. Rm.	02-115-1	2" Stop	02-114-1 Lock Box	Cutout Valve to Sprink. System 20MM Clipping Room.	X	
20MM Clip. Rm.	02-115-3	3/8"Stop	Local	Test Valve.	X	
20MM Clip. Rm.	02-115-4	3/8"Stop	Local	Test Valve.	X	
20MM Clip. Rm.	02-115-5	2" Gate	Local	Cutout Valve to 20MM Sprink. System.	W	
20MM Clip. Rm.	02-115-6	2" Gate	Local	Cutout Valve to Sprink. System	W	
20MM Clip. Rm.	02-119-2	3/8"Stop	Local	Riser Drain	X	
20MM Clip. Rm.	02-119-4	2" Gate	Local	Cutout Valve to 20MM Sprink. System.	W	
20MM Clip. Rm.	02-134-1	2" Gate	Local	Cutout Valve to 20MM Sprink. System.	W	
20MM Clip. Rm.	02-134-2	2" Stop	02-133-2	Cutout Valve to Sprink. System	X	
20MM Clip. Rm.	02-134-3	3/8"Stop	Local	Test Valve	X	
20MM Clip. Rm.	02-134-4	3/8"Stop	Local	Test Valve	X	
20MM Clip. Rm.	02-134-5	2" Gate	Local	Cutout Valve to Sprink. System	W	

MAGAZINE SPRINKLING BILL (continued)

VALVES IN MAGAZINE SPRINKLING SYSTEMS

LOCATION	NUMBER	TYPE & SIZE	DISTANT OPERATION	FUNCTION	CLASS	DIV
20MM Clip. Rm.	02-134-6	2" Gate	Local	Cutout Valve to Sprink. System	W	
20MM Clip. Rm.	01-67-1	1½" Stop	01-68-1 Lock Box.	Cutout Valve to 20MM Clip. Rm.	X	
20MM Clip. Rm.	01-67-2	1½" Stop	01-68-2 Lock Box.	Cutout Valve to 20MM Clip. Rm.	X	
20MM Clip. Rm.	01-67-3	3/8"Stop	Local	Test Valve	X	
20MM Clip. Rm.	01-67-4	3/8"Stop	Local	Test Valve	X	
20MM Clip. Rm.	01-67-5	1½" Gate	Local	Cutout Valve to Sprink. System	W	
20MM Clip. Rm.	01-67-6	1½" Gate	Local	Cutout Valve to Sprink. System	W	
40MM Clip. Rm.	01-166-1	2" Gate	Local	Cooling System to 40MM Starboard Mount.		
40MM Clip. Rm.	01-166-2	2" Gate	Local	Cooling System to 40MM Port Mount.		
40MM Clip. Rm.	01-168-1	2" Stop	01-167-1 Lock Box	Cutout Valve to 40MM Clip. Room	X	
40MM Clip. Rm.	01-168-2	2" Stop	01-167 Lock Box	Cutout Valve to 40MM Clip. Room	X	
40MM Clip. Rm.	01-168-3	3/8"Stop	Local	Test Valve	X	
40MM Clip. Rm.	01-168-4	3/8"Stop	Local	Test Valve	X	
40MM Clip. Rm.	01-168-5	2" Gate	Local	Cutout Valve to Starboard Sprinkling System.	W	
40MM Clip. Rm.	01-168-6	2"Gate	Local	Cutout Valve to Port Clip. Rm.	W	
Handling Rm.	1-44-1	2" Stop	1-45-1 Lock Box	Cutout Valve Handling Room Sprinkling System.	X	
Handling Rm.	1-44-2	2" Stop	1-45-2 Lock Box	Cutout Valve Handling Room.	X	
Handling Rm.	1-44-3	3/8"Stop	Local	Handling Room Test Valve	X	
Handling Rm.	1-44-4	3/8"Stop	Local	Test Valve	X	
Handling Rm.	1-44-5	2 " Gate	Local	Cutout Valve to Handling Room Sprinkling System.	W	

MAGAZINE SPRINKLING BILL (continued)

VALVES IN MAGAZINE SPRINKLING SYSTEMS

LOCATION	NUMBER	TYPE & SIZE	DISTANT OPERATION	FUNCTION	CLASS	DIV
Handling Rm.	1-44-6	2" Gate	Local	Cutout Valve to Handling Room Sprinkling System.	X	
Handling Rm.	1-210-2	2½"Stop	1-211-2 Lock Box.	Cutout Valve to Handling Room Sprinkling System.	X	
Handling Rm.	1-210-4	3/8"Stop	Local	Test Valve	X	
Handling Rm.	1-210-6	2½" Gate	Local	Cutout Valve to Handling Room Sprinkling System	W	
*Troop's W.C. and W.R.	3-33-2	3½" Gate	Local	Cutout Valve to Sprink. System 5" Mag. & Small Arms Magazine.	W	
*Troop's Berth.	3-43-2	2" Gate	Local	Cutout Valve Handling Room Sprinkling System.	W	
*Crew's Berth.	3-94-2	3½" Gate	Local	Cutout Valve to Sprink. System 40MM Clipping Room.	W	
*Crew's Berth.	3-98-1	3½" Gate	Local	Cutout Valve to Sprink. System 20MM &40MM Magazine.	W	
Troop's Berth.	3-64-1	3/8"Stop	Local	Riser Drain	X	
Troop's Berth.	3-64-2	3/8"Stop	Local	Riser Drain	X	
*Troop's Berth.	3-64-3	1½"Gate	Local	Cutout Valve to 20MM Clip. Rm. "A".	W	
*Troop's Berth.	3-64-4	1½" Gate	Local	Cutout Valve to 20MM Clip. Rm. "A".	W	
F. E. R.	3-103-1 in B-1	3/8"Stop	Local	Riser Drain	X	
F. E. R.	3-103-2 in B-1	3/8"Stop	Local	Riser Drain	X	
*F. E. R.	3-103-3	2" Gate	Local	Cutout Valve to Clip. Rm. 20MM	W	
* F. E. R.	3-103-4	2" Gate	Local	Cutout Valve to Clip. Rm. 20MM	W	
Crew's Berth.	3-119-1	3/8"Stop	Local	Riser Drain	X	
T.O. Mess	3-119-2	3/8"Stop	Local	Riser Drain	X	
*Crew's Berth.	3-119-3	2" Gate	Local	Cutout Valve to 20MM Clip. Rm.	W	
*T.O. Mess	3-119-4	2" Gate	Local	Cutout Valve to 20MM Clip. Rm.	W	

MAGAZINE SPRINKLING BILL (continued)

VALVES IN MAGAZINE SPRINKLING SYSTEMS

LOCATION	NUMBER	TYPE & SIZE	DISTANT OPERATION	FUNCTION	CLASS	DIV
*Passage Way	3-134-3	2" Gate	Local	Cutout Valve to 20MM Clip. Rm	W	
*Galley	3-134-2	2" Gate	Local	Cutout Valve to 20MM Clip. Rm	W	
*Passage	3-143-3	3/8"Stop	Local	Test Valve	X	
Galley	3-134-4	3/8"Stop	Local	Test Valve	X	
*Laundry	3-161-1	2½"Gate	Local	Cutout Valve to Sprink. Sys. 40MM Clipping Room.	W	
*Mess Attend. Berth.	3-161-2	2½" Gate	Local	Cutout Valve to Sprinkling System 40MMClipping Room.	W	
Laundry	3-161-3	3/8"Stop	Local	Riser Drain.	X	
Mess Attend. Berth.	3-161-4	3/8"Stop	Local	Riser Drain.	X	
Troop's W.C. & W.R.	3-210-3	3/8"Stop	Local	Test Valve.	X	
Troop's W.C. & W.R.	3-211-C/L	3/8"Stop	Local	Test Valve	X	
*Troop's W.C. & W.R.	3-211-C/L	3"Gate	Local	Cutout Valve to Magazine Sprink. System & Powder Room.	W	
*Troop's W.C. & W.R.	3-211-1	2½" Gate	Local	Cutout Valve to Aft Handling Room.	W	
No. 3 Mag.	5-210-2	3" Stop	2-209-2 Lock Box	Cutout Valve to Sprink. System	X	
No. 3 Mag.	5-210-4	3/8"Stop	Local	Magazine Test Valve	X	
No. 3 Mag.	5-209-2	3" Gate	Local	Cutout Valve to Sprinkling System & Powder Room.	W	
No. 3 Mag.	5-207-2	2½"Check		5" Magazine Sprink.		
No. 3 Mag.	5-205-2	2½"Check		5" Powder Room.		
Small Arms Magazine.	5-35	1½"Swing Check		Small Arms Ammunition		
No. 1 Mag.	6-36	2" Check		5" Powder Room.		
No. 1 Mag.	6-39	2½"Check		5" Magazine Sprink. System.		
No. 1 Mag.	6-40-2	3½"Stop	2-40-2	Cutout Valve Mag. Sprink. Syst.	X	

MAGAZINE SPRINKLING BILL (continued)

VALVES IN MAGAZINE SPRINKLING SYSTEMS

LOCATION	NUMBER	TYPE & SIZE	DISTANT OPERATION	FUNCTION	CLASS	DIV
No. 1 Mag.	6-40-4	3/8"Stop	Local	Test Valve	X	
No. 1 Mag.	6-40-6	3½"Gate	Local	Cutout Valve Magazine Sprinkling System.	W	
No. 2 Mag.	6-97-1	2½"Stop	Lock Box	Cutout Valve to No. 2 Mag.	X	
No. 2 Mag.	6-97-3	3/8"Stop	Local	Test Valve	X	
No. 2 Mag.	6-97-5	2" Gate	Local	Cutout Valve to Mag. Sprink. System.	W	

FLUSHING BILL

1. The flushing system consists of the piping furnishing flushing water to all heads and water-closets throughout the ship, salt water showers in troop spaces, as well as syphon-pressure to the sewage tanks and bilge eductors. (For information on sewage tanks and bilge eductors see preceeding part of this chapter under heading "Drainage Bill"). The flushing system also supplies cooling water to the propellor-shaft bearings.

2. Water for the flushing system is supplied by the fire pumps in the machinery compartments - two in the forward machinery space and two in the after machinery space. Except for the fact that both systems are supplied by the same pumps, the flushing system is entirely independent of the fire main. The two systems are separated at the pump by means of a U-shaped fitting, each system having a cut-out valve on the discharge side of the pump.

3. The flushing main is of 5" diameter iron pipe, and runs just under the second deck fore-and-aft, on the starboard side, paralleling the fire-main on that side. Branches, risers, and drops are led to the various heads, salt-water showers, and other spaces throughout the ship. A cutout valve with local operation is provided for each principal branch where it leaves the main.

4. Current Damage Control instructions are to classify main valves in the flushing system "Zebra" (closed in action). However, due to the large number of troops and other passengers carried aboard who are confined below decks during protracted periods at General Quarters and the impracticability of preventing the use of troop heads at such time, the system has, in general, been classified "W". It is considered that in this case, the sanitary considerations imposed are more serious and important than the comparatively slight degree of water tight integrity gained by securing the system in battle.

FLUSHING BILL

VALVES IN FLUSHING SYSTEM

LOCATION	NUMBER	TYPE & SIZE	DISTANT OPERATION	FUNCTION	CLASS	DIV
Frame 19 - Port	2-19-0	2½" Stop	Local	Troop W. C.	W	
Frame 27 - Stbd	2-27-1	2"Stop	Local	Troop W. C.	W	
Frame 27 - Port	2-27-2	2" Stop	Local	Troop W. C.	W	
Frame 28 - Stbd	2-28-3	1¼"Stop	Local	Troop W. C.	W	
Frame 28 - Port	2-28-4	1¼"Stop	Local	Troop W. C.	W	
Frame 12 - Port	3-12-0	1½"Stop	Local	To Bilge Eductor.	X	
Frame 103 - Stbd Mach. Casing.	3-103-1	3" Stop	Local	To Bridge, Boat and Prom. Deck.	W	
Frame 104 - Port	3-104-2	5" Stop	Local	Cut Off for Aft part of ship.	W	
Frame 123 - Stbd	3-123-3	1¼"Stop	Local	To Sewage Tank with Eductor	W	
Frame 125 - Stbd	3-125-5	2" Stop	Local	Sewage Tank	W	
Frame 134 - Port	3-134-6	2" Stop	Local	To Ward #5 and Troop Officers' W. C.	W	
Frame 143 - Stbd	3-143-7	2" Stop	Local	To Ward #3 W. C. and Quiet Room.	W	
Frame 158 - Port	3-158-8	2" Stop	Local	To Motor Room.	X	
Frame 161 - Port	3-161-10	2"Stop	Local	To Motor Room.	X	
Frame 161 - Port	3-161-12	2"Stop	Local	N.C.O. W.C., Ward #1 and Insane Ward.	W	
Frame 215 - Port Steering Gear Platform.	3-215-14	1¼"Stop	Local	To Eductor	X	
Fwd. Eng. Room	6-110-1	5"Stop	Local	Main System Cut Off from Pump.	W	
Fwd. Eng. Room	6-110-3	5"Stop	Local	Main System Cut Off from Pump.	W	
Aft. Eng. Room	6-130-2	5"Stop	Local	Main Cut Off from Pump	W	

CHAPTER 13

COMPRESSED AIR BILL

The compressed air system of this vessel comprises one Ship's service system and two combustion control air systems. Due to the type armament installed no gas ejection air is considered necessary, and none is installed.

The ship's service air is supplied by two stage motor driven Ingersoll-Rand compressor, designed to deliver 150 CFM at 150 lbs. pr. sq. in. gages. This compressor employs a 5" L.P. cylinder and a 4" high pressure cylinder with a 5" stroke. The compressor is driven by a 50 H.P. Wagner-Elect. Corp. A.C., 3 phase motor at 1750 R.P.M. The motor requires 60 amps current at 440 volts.

The principle uses of the S.S. Air System include air for:

Compartment testing
Burner tip cleaning
Hydro-pneumatic fresh water tanks
Pneumatic tools
Orstat Gas Analizer
Laundry equipment
Galley equipment
Emergency Comb. Contr.
Pneumatic operated valves

The combustion control air is supplied by two separate systems each supplied by an Ingersoll-Rand two stage motor driven compressor. The motor was manufactured by Wagner Elect. Corp. and requires 4.2 amps at 440 V. to make 1750 R.P.M. capable of 3 H.P. The compressor supplies air at 6 p.s.i. One complete unit is located in each main machinery space while each comb. cont. air system is independent, each is cross connected with the ship's service system, so that in event of failure of either comb. contr. compressors that comb. contr. system may be supplied from the S.S. air system through a 150# to 60# regulating valve.

VALVES IN COMPRESSES AIR SYSTEM

LOCATION	NUMBER	TYPE & SIZE	DIST. OPR.	FUNCTION	CLASS
Fr. 57 Prom. Dk.(P)	1-57-1	3/4" Stop	None	C.O. for air outlet	X
Fr. 93 Br. Dk. (P)	02-93-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 98 Boat Dk. (P)	01-98-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 98 Prom Dk. (P)	1-98-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 98 A	2-98-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 98 B (P)	3-98-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 98 C	4-98-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 99 (B-1) Hold	5-99-1		"	Air Hose conn.	X
Fr. 99 (B-1) C	4-99-1	1/4" Stop	"	C.O. to Burner Tip Cleanine Line.	X
Fr. 100 (B-1)	4-100-1	1/4" Stop	"	C.O. to Orstat Gas Analizer	X
Fr. 102	4-102-1	1/2" Stop	"	C.O. to Comb. Centr. Sys.	W
Fr. 104 A Deck	2-104-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 105 A Deck	2-105-1	1/2" Stop	"	C.O. to F.W. Press Tank	W
Fr. 100 A Deck	2-100-1	1/2" Stop	"	C.O. to air operated valves manifold.	W
Fr. 106 D Deck (P)	5-106-1	1/2" Relief	"	Relief on air receiver 165#	
Fr. 106D (P)	5-106-2	3/8" Stop	"	Air receiver drain	X
Fr. 107 D (P)	5-107-1	2" Stop	"	C.O. to air receiver	X
Fr. 107 D (P)	5-107-2	2" Stop	"	C.O. from air receiver	X
Fr. 109 D (P)	5-107-2	2½" Stop	"	By pass air rec.	X
Fr. 109 D (P)	4-109-1	3/4" Stop	"	Air outlet	X
Fr. 110 C (P)	4-110-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 111 D (P)	4-111-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 129 C Dk. (S)	5-129-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 130 C Dk. (S)	4-130-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 131 C Dk. (S)	5-131-1	1/2" Stop	"	C.O. to aft Comb. Contr.	W
Fr. 131 C Dk. (S)	5-131-1	1/4" Stop	"	C.O. to Orstat gas analizer	X
Fr. 133 D Dk. (S)	5-133-2	3/4" Stop	"	C.O. for air outlet	X
Fr. 136 A Dk.	2-136-1	3/4" Stop	"	C.O. to F.W. Press. Tank	W
Fr. 139	4-139-2	3/4" Stop	"	C.O. air outlet	X
Fr. 140	4-140-1	1/4" Stop	"	C.O. to burner tip cleaning line.	X
Fr. 142	5-142-1	3/4" Stop	"	C.O. air outlet	X
Fr. 161 P M.R.	5-161-2	3/4" Stop	"	C.O. for air outlet	X
Fr. 161 P M.R.	5-161-4	3/4" Stop	"	C.O. for air outlet	X
Fr. 161 S M.R.	5-161-1	3/4" Stop	"	C.O. for air outlet	X
Fr. 161 S M.R.	5-161-3	3/4" Stop	"	C.O. for air outlet	X
Fr. 165 (S)	5-165-1	1/2" Stop	"	To air operated valves	W
Fr. 168	3-168-1	3/4" Stop	"	Cut-out	X
Fr. 169 B Dk.	3-169-1	1" Reducer	"	Reducer 150" to 70#	
Fr. 166 Prom. (S)	1-166-1	3/4" Stop	C.O.	air outlet	X
Fr. 171 B Dk.	3-171-1	1/4" Stop	"	#77 Relief	
Fr. 174 B Dk.	3-174-1	1/4" Stop	"	C.O. to Laundry Press	X

CHAPTER 14

FUEL OIL AND BALLAST BILL.

The Fuel Oil and Ballast Bill is composed of the proper sequence of emptying fuel tanks and of ballasting them so as to create the smallest possible momement which will effect the initial stability of the ship. Secondly, and of great importance to the Engineering Department, this bill serves to supply free oil to the burner manifold line at all times and to eliminate the possibilities of entrained water after the tanks have been ballasted. The fuel oil capacity of the ship at 97% is 26,102 Bbl.

There are 34 tanks in all which include:

4 Settling tanks:
- #14 P 670.5 Bbl. Cap.
- #14 S 670.5 Bbl. Cap.
- #17 P 670.5 Bbl. Cap.
- #17 S 670.5 Bbl. Cap.

3 Overflow Tanks:
- #15 S 1076.4 Bbl. Cap.
- #15 P 714.7 Bbl. Cap.
- #21 C 1062.1 Bbl. Cap.

27 Stowage Tanks:

1	C	626.9	6	P	719
2	P	555.7	6	C	901.6
2	S	555.7	6	S	719
3	C	1020.8	7	P	564.4
3	P	625.4	7	C	799.1
3	S	625.4	7	S	564.4
4	P	665.0	8	P	415
4	C	1120.0	8	C	912.6
4	S	665.0	8	S	415
5	P	599.1	9	P	438
5	C	798.6	9	S	486.8
5	S	599.1			
18	P	1074.0			
18	S	1074.0			
22	C	1955.7			
23	C	1021.5			

This type ship must necessarily depends on the low tanks to give it stability. From the above table of tank capacities it can be readily seen that a sequence of emptying and ballasting these tanks must be strictly adhered to to prevent list or trim on the ship.

a. The settling tanks are used for service suction tanks. Each settler is fitted with a high & low suction. The low suction will normally be used, then should the presence of water be noted the high suction may be cut in immediately to provide free oil until such time as the water may be removed from the tank by use of fuel oil transfer pump employing the low suction & discharging to the oil & water separating tank. By this time the service suction will be shifted to another settler known to contain free oil.

b. The sequence of tanks filled during fueling ship require topping off the settlers first, then filling the stowage tanks. After all other tanks are filled & secured the overflow tanks will be filled to 95% capacity. Before pumping oil to the settling tanks from any tank that has been ballasted, sufficient oil must be pumped to the Oil & Water separator tank to insure that no water is present.

The first tank to be used will be 15 S followd by 15 (P). When 15 S is being emptied the port settlers will be used. Keeping 15 P & S as over flow tanks followed by:

Empty	18 P	Ballast	Empty	5 S	Ballast
Empty	18 S	Ballast	Empty	4 C	Ballast
Empty	7 C	Balla st	Empty	4 P	Ballast
Empty	7 P	Ballast	Empty	4 S	Ballast
Empty	7 S	Ballast	Empty	3 C	Ballast
Empty	6 C	Ballast	Empty	3 P	Ballast
Empty	6 P	Ballast	Empty	3 S	Ballast
Empty	6 S	Ballast	Empty	2 P	Ballast
Empty	5 C	Ballast	Empty	2 S	Ballast
Empty	5 P	Ballast	Empty	1 C	Ballast

After #1 Center is ballasted, the oil from #15 P & 15 S will be pumped to the Oil & Water separator tank, and these two overflow tanks ballasted to 95% capacity.

The next tank used to replenish the settlers will be #21 (Overflow) tank. After this tank is emptied it will remain so, and act as the overflow tank for #8 & 9 tanks until these tanks have been emptied & ballasted. After #21 tank is emptied the remaining tanks will be emtied and ballasted in the following order:

#9 S
#9 P
#8 C
#8 S
#8 P

When 8 P is completely ballasted any oil present in #21 tank will be pumped to the Oil & Water separator Tank then #21 tank will be ballasted to capacity. The #22 C tank will then be emptied and ballasted followed by #23 which will be emptied then ballasted. Before this tank is used the ship, under normal conditions, will be refueled.

The fueling operation employs the ~~same~~ above schedule in the reverse order. ~~All ballast should be pumped overboard by the day prior to arrival in port, at least 50 miles off shore.~~

The first tanks to be filled will be #14 P, #14 S, #17 P, #17 S

CHAPTER 15

MISCELLANEOUS DAMAGE CONTROL GEAR BILL

1. The object of this bill is to provide a complete list of all damage control gear on board, such as tools, diving equipment, fire fighting apparatus etc., the location and distribution of this equipment throughout the ship, and operating instructions where necessary. Supplementary information may be obtained by reference to Part IV of this book, and Fire Fighting Manual (NAVSHIP 688).

2. Damage Control Equipment has been provided by the Allowance List on the basis of two (2) repair parties. In as much as the Damage Control organization ofthis vessel sets up four (4) repair parties (see chapter 8), the equipment has been divided as evenly as possible with due regard for the stowage space provided in the Construction of the Ship, and the area of Cognizance of each party. Repair IV is essentially a pool of engineering ratings to provide reliefs for engineering stations manned at General Quarters, but sufficient equipment is provided to Make this group effective as a repair and fire fighting party.

3. Repair Lockers are Located as follows:

Repair I (Deck) - Main deck, port side under forecastle head frame 6-16.

Repair II (midship) 3rd deck, Frame 112 C/L

Repair III (Aft) 2nd deck, Frame 228-232 C/L

Repair IV (Eng.) - 3rd deck. C/L Frame 160-162.

In addition to the repair lockers, two (2) fire party lockers are provided, one F'd. on the main deck Frame 12-16, port side, the other on the main deck aft, Frame 166-168 port. These lockers are equipped to provide fire-fighting and fire-and-rescue gear when in port or at such other times when it may not be feasible or practicable to man repair party lockers as the forward fire locker is adjacent to the forward repair party locker, both these spaces will be opened and manned by Repair I during General Quarters. Certain fire fighting equipment assigned to Repair I is stowed in the Fire Party locker in order to make it readily available under conditions other than General Quarters. Deep diving gear, due to the extreme care necessary in upkeep and stowage, is not distributed among the repair lockers, but is stowed in the diving locker, located on the main deck, port gallery, frame 155.

MISCELLANEOUS DAMAGE CONTROL GEAR BILL (CONTINUED)

Location and distribution of equipment is indicated in the following lists.

TOOLS AND EQUIPMENT FOR EACH OF THE REPAIR PARTY LOCKERS

ITEM	ARTICLE	FWD	AFT	MID
1.	Fireaxes	3	3	2
2.	Steel Bar chisel (1" Hex-36")	1	1	
3.	Crowbars	2	1	1
4.	Cold Chisels	2	1	1
5.	Hot Chisels	2	1	1
6.	Cape Chisel	2	1	1
7.	Machinist, round nose chisel	1	1	
8.	24" Bolt Clipper (for cutting lock)	4	4	2
9.	Bolt Clipper (36")	1	1	
10.	Hand Pipe Cutter	1	1	
11.	Electric Drill (½")	1	1	
12.	Ball Peen Machinist Hammer	2	1	1
13.	Mauls (5#)	2	1	1
14.	Handled Blacksmith Punch	1	1	
15.	Sounding Rods	3	3	2
16.	Panel Hack Saws (18")	2	1	1
17.	Sledge	1	1	
18.	Stillson Pipe Wrench (14")	1	1	
19.	Stillson Pipe Wrench (36")	1	1	
20.	Screw Monkey Wrench (15")	1	1	
21.	Screw Monkey Wrench (21")	1	1	
	GENERAL EQUIPMENT			
22.	Adapters (various sizes)	7	7	6
23.	Wood Blocks (7" Dbl rig)	1	2	1
24.	Wood Blocks (7"Sgl rig)	1	2	1
25.	Manila 2½" Falls (50 Fathoms each)	1	2	1
26.	Chain Hoists (1-Ton Capacity each)	1	2	1
27.	Ratchet Lever Jacks	1	1	
28.	Emergency Cutting Outfit	1	1	
29.	Damage Control Books	2	2	2
30.	Sound Power Telephone Headsets	2	1	1
31.	Length (25' each) 1½" Firehose Jumper.	4	4	4
32.	Male Pipe Thread Adapters-1" (1½"Male Hose Thread)	3	3	2
33.	Male Pipe Thread Adapters-2"(1½"Male Hose Thread)	6	6	4

TOOLS AND EQUIPMENT FOR EACH OF THE REPAIR PARTY LOCKERS

ITEM	ARTICLE	FWD	AFT	MID
34.	Male Pipe Thread Adapters-2½" (1½" Male Hose Thread)	3	3	2
35.	Standard Pipe Couplings (1")	3	3	2
36.	Standard Pile Couplings (2½")	3	3	2
37.	Standard Pipe Couplings (2")	6	6	4
38.	Master Keys to Storerooms & Locked Compartments.	1	1	
39.	Short Nipples (1½")	4	4	4
40.	Submersible Pump	1	1	
41.	Suction Hose (2"-10' Long)	1	1	
42.	Swivel Adapter	1	1	
43.	Kit Nails	1	1	
44.	Kit Bolts, Nuts, Washers, Screws, Machine Screws, etc.		1	
45.	Soft, Conical, Wooden Plugs (Taper 3"/ft)	1		
	D. d. L.			
	8" 5" 12"	10	10	10
	6" 3-3/4" 9"	30	20	20
	43/4" 2½" 9"	100	100	50
	3½" 2" 6"	100	100	100
	2½" 1" 6"	100	100	100
	1½" ½" 4"	100	100	50
46.	Soft Wood Plugs-Wedge Shape (Taper 3"/ft) for Stopping Leaks.			
	W. T. L.			
	3" 3" 12"	30	30	20
	6" 3" 12"	30	30	20
	2" 2" 8"	30	30	20
	4" 2" 8"	40	30	20
47.	Shores (Repair 1) 6" x 6" x 14'	40		
	Shores (Repair 1) 4" x 4" x 12'	40		
	Shores (Repair 1) 2" x 10" x 14'	40		
	Shores (Repair 1) 2" x 4" x 12'	40		
48.	Hard Wood Wedges for shoring			
	W. L.			
	2" 12"	60	40	20
	3" 12"	30	20	10
	3" 18"	30	20	10
	4" 18"	30	20	10

MISCELLANEOUS DAMAGE CONTROL GEAR BILL (Continued)

ITEM	ARTICLE	FWD	AFT	MID
49.	Lengths Copper Tubing (36'/lengths)	7	7	6
50.	Steel Wedges (6" long)	4	4	4
51.	Steel Wedges (10" long)	4	4	4
	ELECTRICAL EQUIPMENT			
52.	Electric Cable Cutters	1	1	
53.	Type GICF 14 Conductor 100' Elec.Cable.	1	1	
54.	Type SCOP 23000 - 50' Electric Cable	1	1	
55.	Type SCOP 60,000 - 50' Electric Cable	1	1	
56.	Type SCOP 153,000 - 50' Elec. Cable	1	1	
57.	Type SCOP 200,000 - 50' Elc. Cable	1	1	
58.	Type CCP 40,000 CM Cable Connectors	8	8	4
59.	Type CCP 75,000 CM Cable Connectors	5	5	2
60.	Type CCP 150,000 CM Cable Connectors	5	5	2
61.	Type CCP 250,000 CM Cable Connectors	3	3	2
62.	Electric - 2 cell Flashlight	20	20	10
63.	Portable Electric Lanterns	7	7	6
64.	Portable Hand Lanterns	3	3	2
65.	Portable Electric Flood Lanterns (sealed beam)	2	1	1
66.	Portable W.T. Lights (100' Leads)	3	3	2
67.	Marlin Bells (1#)	2	1	1
68.	Electrical Repair Kits	2	1	1
69.	Portable oxyacetylene Emergency cutting apparatus with spare oxygen and acetylene cylinders.			

TOOLS AND EQUIPMENT FOR EACH OF THE REPAIR LOCKERS

FIRE FIGHTING EQUIPMENT	Fwd Fire Locker	Aft Fire Locker	Fwd Repair Locker	Aft Repair Locker
Adapters, Flange(2½" female) (3" flange)	1	1		1
Adapters, Flange(2½" male) (3" flange)	1	1		1
Adapters, Flange(2½" female) (3½"flange)	1	1		1
Adapters, Flange(2½" male) (3½"flange)	1	1		1
Adapters, Flange(2½" female) (4" flange)	1	1		1
Adapters, Flange(2½" male) (4" flange)	1	1		1
Adapters, Flange(2½" female) (5" flange)	1	1		1
Adapters, Flange(2½" male) (5" flange)	1	1		1
Adapters, Flange(2½" female) (6" flange)	1	1		1
Adapters, Flange(2½" male) (6" flange)	1	1		1
Boots, rubber, fire-fighting	4	4	4	4
Breathing apparatus, Navy Oxygen Rescue	2	2	1	2
Breathing apparatus, Navy (Patrol Type)	1	1	1	1
Canisters, Chemical (for AandAl Patrol)	19	15	12	20
Couplings, double female (2½")	5	3		2
Couplings, double female (1½")	4	2		2
Couplings, double male (2½")	1	1		
Couplings, double male (1½")	1	1		
Couplings, reducer (2½" to 1½")	4	3	2	3
Couplings, increaser (1½" to 2½")	3	1		1
Couplings, double female (2½" to 2" for Handy Billy)	3	1		1
Couplings, double female (1½" to 2" for Handy Billy)	3	1		1
Extinguishers, Portable, 15 pound CO2	15	20	10	20
Foam Charges, Mechanical type V	10	5	10	10
Fog Spray heads, for improvised sprinklers	13	7		5
Asbestos Gloves	10 (Pr	5 (Pr	5 (Pr	5 (Pr
Hose and Horn CO2 spare for portable CO2 Extinguisher.	2	1		1
Hose, Cotton, rubber lined, 1½" 50' lengths	10	2	8	8
Hose, Cotton, rubber lined, 2½" 50' lengths	2	1		1
Life-lines, steel wire	2	1	1	1
Nozzles-all purpose (2½") 3 position with 12" applicator.	1	1		

TOOLS AND EQUIPMENT FOR EACH OF THE REPAIR LOCKERS

FIRE FIGHTING EQUIPMENT	Fwd. Fire Locker	Aft. Fire Locker	Fwd. Dam. Locker	Aft. Dam. Locker
Nozzles all purpose (1-1½") 3 position with 4' applicator	3	2		1
Nozzles, Mechanical foam (NPO) with pick up tube	2	2	2	2
Spanner-wrench, hose (2½")	1			1
Spanner-wrench, hose (1½")	3	2		1
Suits Asbestos	4	3	1	2
Washers; hose, leather (1½")	26	15	10	15
Washers, hose, leather (2½")	4	4		
Washers, 2½" all purpose nozzle, rubber	2	2		
Washers, 12¼" all purpose nozzle, rubber V shaped	8	5	5	5
Wye-Gates (2½" x 1½" x 1½")	1	1	1	1

15 pound CO^2 Extinguishers

COMPARTMENT	DECK	FR.	P/S
Fire Pump Room	2nd Plat.	34	P
Refrig. Space	2nd Plat.	78	S
Refrig. Mech. Space	2nd Plat.	93	P
Motor Room	2nd Plat.	161	S
Motor Room	Hold	161	P
Dry Room	1st Plat.	73	P
Refrigerator	1st Plat.	78	S
Pass. Issue Room	1st Plat.	169	P
Issue Room	1st Plat.	180	S
S. D. Room	1st Plat.	180	S
Paint Oil Lockers	1st Plat.	195½	S
Fire Pump Room	1st Plat.	196½	P
Troops Berthing	4th	33	S.
Troops Berthing	4th	60	S
Troops Berthing	4th	73	P
Crews Berthing	4th	84	C/L
Engr's Paint Room	4th	99½	P
Troops Berthing	4th	98	S

ENGINEERING REPAIR PARTY TOOLS

1 Hammer 8 pounds
1 Hammer 12 pounds
2 24" Stillson Wrenches
1 36" Stillson Wrench
2 Screw jacks
Several Steel Wedges
One ton chain fall
½ ton chain fall
Cold Chisels
Pliers
JA lanterns
Chisel bars
Pinch bars
14" & 16" screw drivers
Flashlights
Open end Wrenches
Hammers - 1½ pounds

This repair party will also be provided with fire-fighting gear which is available after the forward, midship, and after damage control lockers and the two fire party lockers have been supplied.

Each Repair party locker will be provided with the following Decontamination Equipment.

ITEM	No.
Tetrachlorethane	6 - 5 Gallon Cans
RH 195	2 - 5 Gallon Jars
Spray Pumps	1
Impregnated Clothing	12 Complete
Rubber Shoes	12 Pair
Swabs	6
Rubber Gloves	2 Pairs
Brooms	6
Buckets	6
G-s Masks (Spare)	5

PORTABLE SUBSMERSIBLE PUMPS

(Complete with check valve and strainer), switch and cable, hose suction and adapters.

PORTABLE SUBSMERSIBLE PUMPS

COMPARTMENT	DECK	FR.	P/S
Fwd Repair Locker	Main	12	P
Passageway	3rd	144	S
Passageway	3rd	144	S
Aft Repair Locker	2nd	232	C/L

P-500 Pump (Johnson Pump) and Strainer

COMPARTMENT	DECK	FR.	P/S
Weather Deck	Main	55	S
Weather Deck	Boat	75	P
Weather Deck	Boat	148	C/L
Weather Deck	Main	166	S

PORTABLE ELECTRIC HAND LANTERNS

COMPARTMENT	DECK	FR.	P/S
#1 Engine Room	Hold	108	P
#1 Generator Flat	1st Plat.	108	C/L
Troop Officer's Mess	3rd	125	C/L
Exam. and Dressing Room	Main	150	S
Steering Engine Room	1st Plat.	225	C/L
CPO Quarters	3rd	144	S
Crew Berthing	3rd	103	S
Crew Berthing	3rd	103	S
Crew Berthing	3rd	86	P
Crew Berthing	3rd	106	P
Wheelhouse	Nav.Bridge	81	C/L
Chart Room	Nav.Bridge	83	C/L
Emergency Generator Room	Bridge Deck	86	P
Radio Room	Bridge Deck	86	S
Plotting Room	Bridge Deck	86	S
Operating Room	Main Deck	148	P
Stbd. Motor Room	1st Plat.	161	S
Port Motor Room	1st Plat.	161	P
#2 Generator Flat	1st Plat.	134	C/L
#2 Boiler Room	Hold	135	S
#2 Evaporator Room	1st Plat.	134	S
#2 Engine Room	Hold	134	C/L
#1 Evaporator Room	1st Plat.	108	S
#1 Boiler Room	Hold	105	P.

DUPLEX PRESSURE PROPORTIONER NOZZLE AND PICK-UP TUBE

COMPARTMENT	DECK	FR.	P/S
Stairwell	2nd	86	S
Stairwell	3rd	109	S
Passageway	3rd	128	P
Troop Berthing	3rd	195	P

AERO - FOAM CANISTER

No.	COMPARTMENT	DECK	FR.	P/S
10	Fwd. Repair Locker	Main	58-60	P
10	Port Light Lock	Main	58-60	P
10	Stbd. Light Lock	Main	58-60	P
10	Aft. Repair Locker	2nd	230	P
10	Stairwell	2nd	84	P
10	Stairwell	2nd	86	S
10	Stairwell	3rd	108-109	S
10	Troop Berthing	3rd	195-196	P

15 pound CO^2 Extinguishers

COMPARTMENT	DECK	FR.	P/S
Passage Elec. Shop	4th	110	P
Troops Galley	4th	112	S
Troops Galley	4th	128	P
Troops Berthing	4th	134½	P
Engr's Work Shop	4th	123	S
Troops Berthing	4th	158	S
Troops Berthing	4th	161	S
Troops Berthing	4th	177	P
Troops Berthing	4th	189	P
Troops Berthing	4th	205	C/L
Steering Room	4th	213	P
Steering Room	4th	215	S
Boatswain Stores	3rd	13	S
Troops W.C. & W.R.	3rd	22	P
Troops Berthing	3rd	42	P
Troops Berthing	3rd	78	P
Crews Berthing	3rd	88	P
Crews Berthing	3rd	88	S
Passage	3rd	106½	S
Crews Berthing	3rd	108½	P
Passage	3rd	128	P
Passage	3rd	131	S
Officers Galley	3rd	134	P
Passage	3rd	165½	P
Passage	3rd	149½	S
Troops Berthing	3rd	169	S
Troops Berthing	3rd	189	P
Hatch Space	3rd	205	P
Troops Shower	3rd	209	S
Troops W.C.	3rd	213	P
Boatswain Stores	2nd	18	S
Troops W.R. & W.C.	2nd	35½	S
Troops Berthing	2nd	73	P
Troops Berthing	2nd	84	C/L
Troops Berthing	2nd	55	S
Passage	2nd	85	P
Office Space	2nd	87	S
Passage	2nd	111½	S
Passage	2nd	128	P

CO^2 FIRE EXTINGUISHER'S (continued)

COMPARTMENT	DECK	FR.	P/S
Mess Hall	2nd	143½	C/L
Passage	2nd	157	S
Passage	2nd	160	P
N.C.O. Quarters	2nd	170	S
Troops Berthing	2nd	180	S
Troops Berthing	2nd	204	S
Crews Wash Room	2nd	220	P
Boatswain Stores	Main	7	S
Carpenter Shop	Main	18	P
Passage	Main	87½	P
Passage	Main	86½	S
Passage	Main	104	S
Passage	Main	104	P
Passage	Main	149	S
Passage	Main	145	P
Handling Room	Main	208	P
Passage	Boat	127	S
Passage	Boat	103	P
Passage	Boat	80½	S
Radio Room	Brge.	90	S
Emer. Diesel Room	Brge.	85	P
Trash Burning Room	Brge.	85	P
Wheel House	NaBr.	77	P
B-1 Fwd Engine Room	Hold	103	P
B-1 Fwd Engine Room	Hold	109	S
B-1 Fwd Engine Room	1st Plat.	111	S
B-1 Fwd Engine Room	1st Plat.	100	S
B-1 Fwd Engine Room	1st Plat.	106	S
B-2 Aft Engine Room	Hold	131	P
B-2 Aft Engine Room	Hold	136	S
B-2 Aft Engine Room	1st Plat	134	S
B-2 Aft Engine Room	1st Plat.	140	P
B-2 Aft Engine Room	1st Plat.	129	P

DIVING GEAR

Two (2) complete deep-sea diving outfits are provided by the allowance list, each outfit consisting of the following list of items. Both outfits are stowed in the diving locker, main (gallery) deck, port side, Frame 155.

ITEM	No. Per Outfit
Belts, Weighted	1
Book, Divers Log	1
Box, Spare parts	1
Cement, rubber	PLS
Chest, Helmet	1
Chest, outfit	2
Cloth, rubber patching	1
Coupling, Air hose, female	1
Coupling Air hose, make	1
Coupling, Air hose, double female	1
Coupling, Air hose, double male	1
Cuffs, rubber	2 (pr)
Cushions, helmet	No.1
Drawers, under woolen (size 36)	3 (pr)
Drawers, under woolen (size 38)	3 (pr)
Drawers, under woolen (size 40)	3 (pr)
Dresses, diving No. 1	1
Dresses, diving No. 2	1
Dresses, diving No. 3	1
Faceplates, complete	1
Gaskets, face plates, spare	1
Gaskets, helmet, leather spare	2
Gaskets, non-return Valve seat, rubber	6
Glasses, Helmet, face	1
Glasses, Helmet, side	1
Glasses, Helmet, top	1
Glasses, diver's-tender, combination	2 (pr)
Gloves, woolen	2 (pr)
Helmets, complete	1
Hose, air, high pressure, 3ft lengths	1
Knives and Cases	1

DIVING GEAR

ITEM	No. Per Outfit
Ladder, Iron, Galvanized	1
Light, with 200' Cable	1
Manifolds	1
Nuts, Wing, Breast plate, Large	2
Nuts, Wing, Breast plate, Small	4
Oil, Neatsfoot	1 (qt)
Reducer, type "S"	2
Reducer, type "T"	1
Separator, oil	1
Shoes Weighted	1 (pr)
Socks, woolen	3 (pr)
Spring, regulating escape Valves, primary and secondary spares	No.2
Straps, leather with buckle (for diving gloves)	2 (pr)
Studs, Breast plate, short	4
Studs, Breast plate, long	2
Telephone outfit, complete as follows	
(a) Amplifiers	1
(b) Tranceivers	
(c) Cable combination telephone and life-line, complete with connection in 200' lengths.	1
(d) Spare parts for amplifier and tranceiver.	1
(e) Boxes, jacks, for helmet gooseneck including spares.	2
(f) Connections, double, female spares	1
(g) Washers, leather for cable	12
(h) Packing for couplings	1 (lb)
Trousers, overalls	2
Tubing, rubber, electric	1
Undershirts, woolen, size 38	3
Undershirts, woolen, size 42	3
Undershirts, woolen, size 44	3
Valves, air control	1
Valves, regulation escape	1
Valves, safety, air, non-return	1
Washers, copper, clamp joints	6

DIVING GEAR (continued)

ITEM	No. Per Outfit
Washers, leather, air hose spare	12
Weights, cast iron 100 pounds	1
Wrench, single open and air hose	2
Wrench, spanner, safety valve	
Wrenches, "T" helmet	2
Wrench, life line and telephone coupling	1

Two (2) shallow water diving outfits are provided by the allowance list, each outfit consisting of items in accordance with the following list. One outfit is stowed at Repair II (midship repair) the other in Repair III (after repair).

ITEM	No.
Box	1
Diving Manual	1
Face, mask	1
Hose, oxygen, complete with couplings	56
Pump, shallow water	1
Sneakers, rubber, size 8	1
Sneakers, rubber, size 10	1

OPERATION INSTRUCTIONS FOR 15 POUND SQUEEZE-GRIP CO2 EXTINGUISHER

1. Carry the extinguisher in an upright position and approach the fire as closely as the heat permits.
2. Remove the locking pin from the valve.
3. Grasp the horn handle. (It is insulated to protect against frostbite).
4. Squeeze the release lever, thus opening the valve and releasing the carbon dioxide and at the same time direct the flow toward the base of the fire. (The maximum effective range for 15 pound extinguisher is 5 feet from the outer end of the horn.)
5. Release the lever to close the valve as soon as conditions permit, and continue to open or close it as it may be necessary.
6. When continuous operation is desired or when the valve is to remain open for recharge, the D-yoke ring on the carrying handle is slipped over the operating handle, when the latter is depressed (the D-yoke ring permits continuous operation).

OPERATION OF DUPLEX PRESSURE PROPORTIONER

The duplex pressure proportioner is an installed or portable duplex cylinder for holding mechanical foam solution and adding it to a water stream at the time of fire. In order to provide a continuous flow of the chemical-bearing stream to the fire, the cylinders whether installed or portable have an upper and lower chamber. One of these 10 gallon chambers is refilled while the other is in use. For the operation of the pressure proportioner, water under pressure 75-100 pounds is admitted to a manifold at the top of the cylinder and a portion is released into the main part of the cylinder where it exerts a pressure on the foam solution. As a result of the pressure, the solution is forced up through a narrow tube that leads from the bottom of the cylinder to the top, and it allows just the proper amount of the solution (6%) to feed into the stream leaving the cylinder from the pressure proportioner, the chemical bearing stream is conveyed into a

OPERATION INSTRUCTION FOR 15 POUND SQUEEZE GRIP CO2 EXTINGUISHER

hose to the mechanical foam nozzle, a specially designed nozzle that entrains air through an aspirating cage.

TO OPERATE DUPLEX PRESSURE PROPORTIONERS

1. If the proportioner is portable locate it to the windward side of the fire at a convenient distance.

2. Connect sufficient 50 foot lengths of 1½" hose from the source of water supply and connect the line to the inlet connection on the duplex pressure proportioner (female swivel connection). The length of this hose does not matter if it permits 75-100 pounds pressure at the proportioner.

3. Connect the discharge hose 1½ inch to the male outlet of the duplex pressure proportioner (the use of over 100' of 1½" hose is not recommended).

4. Connect the mechanical foam nozzle to the end of the discharge line. (The pick-up tube can be removed if desired and the hole can be closed with the sealing plug although this makes little operational difference).

5. Man the nozzle (a nozzle man and a man to assist him take a position so that they can deposit the foam over the fire with a minimum of velocity).

6. Open water valve on pressure proportioner.

7. Keep proportioner valve in vertical position (water then passes through proportioner without picking up foam liquid).

8. Turn on the water at source of supply and wait until pressure gage on proportioner registers 75 pounds or more.

9. Through proportioner valve to right or left (upper or lower compartment) and start timer.

10. When timer rings, throw proportioner valve to opposite position or other compartment, and reset timer.

11. To refill compartment, remove drain cap and place foam cap and refill compartment. Open two (2) cans of liquid, using spike which is built into under side of fill cap to puncture a hole in each can to admit

TO OPERATE DUPLEX PRESSURE PROPORTIONER

air. Pour both cans (10 gallons) into compartment and fill cap.

12. Repeat same process as long as foam is desired.

PICK-UP TUBE (FOR MECHANICAL FOAM)

To operate the pick-up tube on mechanical foam nozzle.

1. Screw hose end of the pick-up tube into the butt of the nozzle (care must be taken to make a tight seal).
2. Man mechanical foam nozzle.
3. Turn on water at source of supply.
4. Insert the metal-pipe end of the pick-up tube into a container of mechanical foam solution, push it to bottom and hold it down firmly.
5. When the container is nearly empty (estimated at about a minute and a half after the pick-up tube has been inserted) take out the pick-up tube and insert it into another container.

S TYPE SUCTION PROPORTIONER (FOR MECHANICAL FOAM)

The S type suction proportioner consists of a suction chamber on the suction side of an I.C.E. driven pump. (The gasoline handy-billy) and a pick-up tube. When the pick-up tube is inserted into a container of mechanical foam liquid and the pump's operated, the foam liquid is drawn into the suction chamber and forced into the water stream. It is carried through a 1½" hose to a mechanical foam nozzle.

TO OPERATE S TYPE SUCTION PROPORTIONER

1. Man the mechanical foam nozzle.
2. Start the pump.
3. Insert the metal-pipe end of the pick-up tube

TO OPERATE S TYPE SUCTION PROPORTIONER

into a container of mechanical foam solution, and push it to the bottom and hold it down firmly.

4. See that the cock on the S type suction proportioner is in the position marked "Prime or Water", and see that it remains in this position until the pump is primed and the water pressure reaches a hundred pounds or more. Then turn the cock to "foam" position; and set the pointer to the mark of the estimated lift from the level of the water supply to the pump.

5. When the container is nearly empty (estimated at about 1½ minutes after the pick-up tube has been inserted) turn the cock on the S shaped chamber back to the position marked "Prime or Water", and insert the pick-up tube into another container. Then turn the cock back to the position marked "foam" (This procedure averts the possibility of the pump taking in air, and in consequence, losing suction).

6. Before stowing the equipment, flush all channels thoroughly with fresh water and clean all screws.

PORTABLE OXYACETYLENE CUTTING APPARATUS

In each apparatus the complete equipment is installed in a metal carrying case, ready for instant use. The equipment consists of the following items.

A cylinder of oxygen, on which are a cylinder pressure gage, a working pressure gage, and a regulator; a smaller cylinder of acetylene, with similar gages and regulator, a cutting torch, with two (2) regulator valves, a high-pressure lever type valve, and cutting tip, and two (2) 25 foot sections of gas hose. A spark lighter, gloves, and a wrench are auxiliary equipment. The welding and cutting outfit has in addition a welding tip.

PORTABLE OXYACETYLENE CUTTING APPARATUS

TO OPERATE

The procedure for operating the portable oxyacetylene cutting apparatus is the same in principle as it is for the nonportable apparatus.

1. Before opening the cylinder valves, see that the oxygen and acetylene regulators are in the "closed position". This can be accomplished by turning out the regulating screws counterclockwise until they turn freely and do not engage the daphragm in the regulator body. The oxygen cylinder valve should then be opened fully. The acetylene cylinder should be open one full turn. Gas should not be turned on at the cylinder valve unless the regulator screws are completely disengaged from the diaphragm as described above. If this precaution is not taken the diaphragm in the regulator may blow out.

2. The acetylened is turned on at the cylinder valve by turning the regulating screw clockwise on the acetylene regulator until the delivery pressure gage indicates approximately 5 pounds of pressure between the regulators and the torch. When pressure has been released, the torch valves should be closed.

Grease or oil must not be used on the oxygen cylinder, valves, regulator, hose, or fittings of an oxyacetylene apparatus.

Grease or oil in contact with oxygen will cause an explosion.

TYPE "A" BREATHING APPARATUS

1. Before donning the apparatus unfasten and straighten all harness straps.

2. With one hand grasp the apparatus by the central casting between the sections of the breathing bag and immediately below the timer. With the other hand grasp the harness straps and put the head through the opening made by the crossing of the straps.

3. Continue to hold the apparatus by the central castings with one hand, and with the other reach around to the rear and grasp the free end of the harness strap that passes over the shoulder on the opposite side. Bring this end under the armpit and snap it into the ring on one of the top corners of the body plate. Repeat this procedure for the other strap.

4. If necessary, adjust the height of the apparatus on the body by means of the metal slides on the harness straps. The height should be such that when the face-piece is put on, the breathing tubes will have enough play in them to permit free movement of the head, and the timer dial will be at a satisfactory distance from the eyes.

5. Attach the waist-strap ends to the small rings at the bottom corners of the body plate, and adjust it to hold the apparatus snugly against the body.

6. Place a fresh canistor of chemicals in the apparatus. The procedure is as follows: Remove the metal tear-off cap from the top of the canister by pulling the metal tab across the cap and then pulling off the cap. The removal of this cap will reveal the metal-foil seal below. The canister is now ready. On the apparatus, open the latch ring guard and then insert a finger into the circular ring on the canister clamp latch beneath, and pull forward on the bottom of the ring. The clamp latch will spring forward, with one hand, grasp the canister by the bottom and, keeping the bulged side out, shove it forcibly upward into its receptacle. (The sealing disc in the canister is broken in this operation, and the canister pushes against and opens a valve that establishes a connection with the interior of the apparatus). Close down the

TYPE "A" BREATHING APPARATUS

clamp latch and secure the latch-ring guard.

7. Adjust the straps of the facepiece to an approximate fit. Pull out the headband straps, especially the lower, or cheek straps, so that the ends are at buckles; blow into the mask to remove dust; insert the chin well into the lower part of the facepiece, and pull the headbands back over the head. To get a firm and comfortable fit against the face at all points, adjust the head bands as follows: (a) See that the straps lie flat against the head; (b) tighten the lower, or neckstraps; (c) tighten the side straps but do not touch the forehead or front straps; (d) place both hands on the headband pad and push it toward the neck; (e) repeat (b) and (c); (f) tighten the forehead, or front straps; (g) test for tightness of the facepiece by pinching both breating tubes and inhaling. With the facepiece in position, the wearer is cutoff from the outside air, and since he has only the air in his lungs, he must draw more air in to the apparatus at once through a starter valve, which is set just below the facepiece. When the breathing bag is full, the excess air will pass out through the relief valve, which is located on the left-hand section of the bag, This escaped air, however, will have performed an indispensable function: chiefly because of its moisture content, it will have helped to start the chemical in the cannister reacting).

8. Pinch both breathing tubes tightly, and inhale. (If the facepiece callapses, it is air tight. If it does not, further adjustment is necessary.

9. Pinch both breathing tubes tightly, and at the same time open the starter valve, and take a deep breath. Release pressure on the breathing tubes and the starter valve, and exhale. Do this 15 times, until the breathing bag is fully inflated. The wearer will hear a slight hiss of air escaping through the vent hole in the cap on the relief valve housing. In the event that the relief valve does not operate rapidly enough, relieve the excess pressure when necessary by pulling aside the facepiece. If the cannister

TYPE "A" BREATHING APPARATUS

has not begun to warm up, (evidence of insufficient chemical activity) inhale and exhale a few more times. In most cases the 15 breaths are minimum number absolutely necessary to get the proper chemical activity.

10. Turn the pointer on the timer dial clockwise to number 57. (This gives a three-minute margin for safety). As the apparatus is used, the pointer will return to zero, at which point the warning bell will ring.

11. When the warning bell rings, return immediately to fresh air. (The wearer of type "A" could replace the spent canister with a new one while in toxic air, but the wearer of the patrol type, type "A"-1, or the oxygen cylinder type must return to fresh air.)

12. To remove a spent canister, spread the legs apart; lean the upper part of the body with the apparatus slightly forward; pull up the latch guard cover and release the canister latch clamp, allowing the canister to fall on the deck. (Precaution must be taken to handle the canister only with suitable protection on the hands, since it will be very hot.) Do not allow any liquid to enter the opening of the canister, and do not hold the face over the canister opening. Oxygen in contact with oil is explosive. Because of the high oxygen content and the high temperature of the chemicals in the canister, they will cause combustion of inflammable material on contact, especially if such material is moist. (Expended or damaged canister should be punctured in several places and thrown over the stern of the ship as soon after use as practicable. This disposal should not be made, however, if any oil or gasoline is evident upon the surface of the surrounndings water, inasmuch as a canister dropped into water so contaminated will explode and the heat of explosion may be sufficient to ignite the oil or gasoline.

TO USE TYPE A-1 BREATHING APPARATUS

The Navy oxygen rescue breathing apparatus, type A-1, is a modification of type A. The canister mechanism is like that in the patrol type, a description of which follows. The breathing bag is worn in front, as it is in type A, but it is in a single unit. The wearer of type A-1, the patrol type, or the oxygen cylinder type breathing apparatus cannot change canisters in toxic air.

TO USE THE PATROL-TYPE BREATHING APPARATUS

1. Before donning the apparatus, see that the end of the belt strap is out of the bolt buckle, and that the shoulder strap on this buckle side of the apparatus is not snapped on to the body plate; and see that the colors (red, green and yellow) match on all the tube connections having those colors for identification.

2. Put the arms through the armholes; snap the unattached shoulder strap onto the body plate; insert the belt end in the buckle.

3. Adjust the height of the apparatus on the body by means of the metal slides on the shoulder straps. This height should be such that when the facepiece is put on, the breathing tubes will have enough play in them to permit free movement of the head, and the timer dial will be at the proper distance from the eyes. Adjust the belt strap to a comfortable fit.

4. Place a canister of chemical in the apparatus. The procedure is as follows: Remove the metal tear-off cap from the top of the canister by pulling the metal tab across the cap and then pulling off the cap. The removal of this cap will reveal the metal-foil seal below. The canister is now ready but the seal for the moment is unbroken. On the apparatus, turn the hand wheel counterclockwise, to down position. This wheel is used to turn a screw through a supporting bail, or yoke, for the purpose of pushing the canister into place in the canister guard and holding it there.

TO USE THE PATROL-TYPE BREATHING APPARATUS

With the screw turned down completely to clear the bottoms of the canister guard, pull the bail forward until an unobstructed passage is made for the insertion of the canister. With the free hand, grasp the canister by the bottom and, keeping the bulged side out, pushing it as fast as it will go into the canister guard. (It will be stoped just short of making contact at the top of the chamber by a "canister stop", which is on the upper left side of the chamber, and to be released later by hand). Swing the bail back into place, and lock the canister firmly, but not too tightly, into the chamber by turning the hand wheel clockwise. The apparatus is now ready for patrol, or standby service; the wearer still breathes outside air as the facepiece is not being worn at the time.

5. To put the breathing apparatus into actual service operation, as in a gas-filled compartment, relieve pressure on the canister by turning the hand wheel counterclockwise just enough to permit ordinary hand pressure to release the canister stop, and thus clear the way to the top of the chamber. Turn the hand wheel clockwise until a tight contact is made with the canister tip against the recess in the plunger housing, where a gasket assures a leakproof seal. (It is at this time that the metal-foil seal is punctured).

6. Adjust the straps of the face-piece to an approximate fit. Pull out the handband straps, especially the lower, or cheek straps, so that the ends are at buckles; blow out the duts; insert the chin well into the lower part of the facepiece, and pull the headbands back over the head. To get a firm and comfortable fit against the face at all points, adjust the headband as follows: (a) See that the straps lie flat against the head: (b) tighten the lower, or neck straps; (c) tighten the side straps, but do not touch the forehead, or front, straps; (d) place both hands on the headband pad and push it towards the neck; (e) repeat operations (b) and (c);

TO USE THE PATROL-TYPE BREATHING APPARATUS

(f) tighten the forehead, or front, straps; (g) test for tightness of the facepiece by pinching both breathing tubes and inhaling. (With the facepiece in position, the wearer is cut off from the outside air, and he has only the air in his lungs. He must draw more air into the apparatus at once through the starter valve).

7. Pinch the two (2) breathing tubes firmly, in order to close them temporarily, and at the same time open the starter valve (set just below the facepiece) and take a deep breath; release pressure on both the breathing tubes and the starter valve, and exhale. (This exhaled air goes into the apparatus). Do this 15 times. Any excess air will escape through the relief valve, which is located on the union breathing-tube casting just above the canister chamber. The wearer is then entirely dependent on the air within the system, that is to say, in the apparatus and in his lungs. (Precaution must always be taken to fill the apparatus in the way with air enough to keep a constant supply of breatheable air flowing to the lungs, a process that cannot proceed without air enough to form a reserve in the breathing bag and to actuate the chemicals in the canister).

8. Turn the pointer on the timer dial clockwise to number 57. (This gives a 3 minute margin for safety). As the apparatus is used, the pointer will return to zero, at which point a warning bell will ring.

9. When the warning bell rings, return immediately to fresh air.

10. To remove a spent canister, spread the legs apart; lean the upper part of the body with apparatus slightly forward; turn the handwheel on the bail counterclockwise all the way down; with a quick, forward motion, swing the bail outward. The canister will drop out. (Precaution must be taken to handle the canister only with suitable protection of the hands, since it will be very hot). Do not allow any liquid to enter the opening of the canister, and do

TO USE THE PATROL-TYPE BREATHING APPARATUS

not hold the face over the canister opening. Because of the high oxygen content and the temperature of the chemicals in the canister, they will cause combustion, especially if such material is moist. (Expended or damaged canisters should be punctured in several places and thrown over the stern of the ship as soon after use as practicable. This disposal should not be made, however, if any oil or gasoline is evident upon the surface of the surrounding water, inasmuch as a canister dropped into water so contaminated will explode and burn with sufficient heat to ignite the oil or gasoline).

TO TEST TYPES A A-1 and the PATROL TYPE OF BREATHING APPARATUS

The Navy oxygen rescue breathing (type A and type A-1 and the Navy breathing apparatus (patrol type) (as is true of all breathing devices) should be tested at regular and frequent intervals. The test procedure is simple and can be accomplished in a few minutes. The tests should be made while the apparatus is in the damage control locker and, if time permits, again before the apparatus us used.

To test these breathing devices it is not necessary that they be worn; the test may be made by placing the apparatus on the deck or a bench in such a way that the breathing bags may be easily inflated and observed. The facepiece should be tested for leaks by the wearer each time the apparatus is worn, a process that takes a few seconds.

1. Place the apparatus on the deck or a bench and insert a canister. (A partly exhausted canister may be used, or the test may be made without a canister in the type A, inasmuch as the valve controlling the passageway to the canister closes when the canister is removed, and the system is then self-contained, if this valve is operating properly).

TO TEST TYPES A A-1 and the PATROL TYPE OF BREATHING APPARATUS

2. Put on the facepiece, and inhale from the atmosphere and exhale into the apparatus (the same procedure as is followed when the apparatus is being filled with air for use); repeat inhalations and exhalations until the relief valve on the breathing bag begins to let out excess air.

3. Grasp both breathing tubes so that they are closed to the passage of air; and remove the facepiece, twist the breathing tubes several times to insure the sealing of the tubes.

4. With both breathing tubes still closed by pressure, see whether there is and noticeable progressive decrease in the size of the inflated breathing bags. Any such decrease occurring within a half minute or so would indicate leakage. If leakage is indicated, it must be corrected before the apparatus is worn again. Check all connections, using soap suds to discover leaks, if necessary.

5. Test the facepiece by putting it on and properly adjusting it. Grasp both breathing tubes, but do not open the starter valve. Then inhale. If there is no leak, the face piece should collapse against the face, and it should be impossible for the wearer to breathe. Locate all leaks and repair them before the apparatus is used.

6. Examine speaking diaphragm through perforated disc for holes; but do not remove perforated disc unless it becomes necessary to replace a damage or defective diaphragm.

7. See whether the rubber cap (on type A and the patrol type) is firmly in place over the relief valve, on the breathing bag and properly lined up. (Some relief valves on later models are designed for use without a rubber cap).

TO DISINFECT TYPES A A-1 and the PATROL TYPE OF BREATHING APPARATUS

1. Remove the canister and clean the apparatus. (Do not stow the apparatus with the canister in it.)

2. Sterilize the facepiece by rubbing on Navy standard disinfectant; and hang the apparatus up to drain and dry for about 15 minutes. Remove the canister before the disinfection the facepiece. Stow the apparatus preferably in a cool, dry place.

CAUTION: It has been found that the mica disc in the facepiece exhalation valve will stick to the valve seat, when saliva has not been cleaned out of the facepiece after use. It is absolutely necessary to wash out these valves and dry them completely after every period of use. This can easily be done without disassembling the facepiece.

The type A and type A-1 facepiece cannot be used on the patrol type and vice versa, since the flow-directional valves in the facepieces are assembled at different angles, as can be seen on the flow diagram sketches. The apparatus will not function with the wrong facepieces. The patrol type facepiece can easily be distinguished by the colored couplings nuts.

THE LIFE LINE

The Navy provides a steel-wire life line for the fire fighter. It is a 50 foot length of 3/8-inch woven steel wire, equipped at each end with a stout hook that is closed with a snap catch. The line has a maximum of pliability, and it will slide freely around obstructions.

The uses of the life line are manifold; and while most of them are precautionary rescue is often effected with the life line as means of hauling an injured person to safety. Fire fighters who wear the type A, type A-1 or oxygen cylinder type breathing apparatus and enter hazardous enclosures have, if necessary, a life line snapped onto the ring provided for this purpose in the harness of the apparatus. Similarly, all fire fighters who undertake tasks involving more than ordinary risks have a life line for emergencies. The line is manned

THE LIFE LINE

by fellow fire fighters who stands by ready to haul away on signal or when he believes his charge is in trouble. He must be careful to prevent snagging of the line, by paying it off the coil in his hand as the line is extended. For hauling a stricken person to safety and for lowering a rescue party into a compartment, and for various other uses, the steel wire life line is indispensable.

THE ASBESTOS SUIT

While asbestos will not burn, it will conduct heat. And therefore the asbestos suit affords protection against flame for very brief intervels only. The length of time the suit can be worn depends upon conditions under which it is used. Complete clothing should be worn under the suit to provide additional body protection. Furthermore, if the asbestos suit becomes wet, as would be more than likely in fire fighting, the wearer might be scalded, unless he withdrew from the heated area before the water turned to steam. Continued wetting would keep the wearer cool, but this procedure is seldom advisable, in view of the fact that the suit would become water-soaked, and reduce the wearer's freedom of movement, already restricted by the cumbersome suit. For these reasons, the uses of the asbestos suit in fire fighting are limited.

Notwithstanding its limitations, the asbestos suit is invaluable in certain situations. With it on, a fire fighter can move quickly through flame to affect a rescue, or for some other urgen task that can be accomplished quickly, one that would not be possible otherwise. The wearer should immediately return to a safe, cool area if subject to any severe discomfort such as difficulty in breathing, extreme heat, or blistering. As an additional precaution, a life line should be used.

Made in a single unit, the Navy asbestos suit pro-

THE ASBESTOS SUIT

vides a complete cover for the fire fighter, and one that he can get into quickly. It consists of coat, trousers, boots, gloves, and a hood into which is inserted a micarats helmet form to protect the top of the head and lend support to the vision port. The hood is attached to the suit at the back of the neck; it is brought over the head of the wearer and the "apron of the hood is held fast across the chest with snap fasteners. A "V" shaped opening rounded at the top, is cut in the "apron" to admit the tube of a rescue breathing apparatus. The rounded opening is covered with a flap.

When a breathing apparatus is not used, this flap is closed.

Access to the asbestos suit is effected through a zipper opening that extends down the front from the neck to the waist. When a zipper is closed it is covered by a flap. A zipper on the outside seam of each leg facilitates the donning of the suit. A zipper on each forearm, just above the wrist, is for use when the wearer has occasion to release his hand and perform a task that would not be done properly with gloves on.

The asbestos suit may be worn with the Navy oxygen rescue breathing apparatus (type A or type A-1), the Navy rescue breathing apparatus (patrol type) or the Navy oxygen rescue breathing apparatus (oxygen cylinder type). Whatever the type, the breathing apparatus must always be worn over the asbestos suit. The hood of the suit has a circular opening to accommodate the short tube leading from the facepiece to the cross tube immediately below. When a breathing apparatus is used, the asbestos suit is put on first but the hood is not drawn over the head until the breathing apparatus is in place. When the breathing apparatus is in place and ready for use, the hood of the asbestos suit is drawn

THE ASBESTOS SUIT

over the head, and the apron is brought down between the body and the apparatus; and by means of a split opening it is adjusted around the short tube, leaving a starter valve exposed. The apron is then fastened by the snap fasteners across the chest.

TO USE THE ASBESTOS SUIT

1. Adjust the helmet-form in the hood.
2. Open all zippers and lay the suit out in a position to don, with the boots upright.
3. Fold suit down over leg parts and step into the boots.
4. Pull the suit on; but do not put hands into the gloves.
5. Close the zipper on the front of the suit and the zippers on the leg seams.
6. Pull the hood over the head and fasten the "apron" across the chest with the snap over fasteners.
7. Adjust the length of the trousers by means of the fasteners at the sides and back.
8. Put hands into the gloves and close the fore arm zippers.

HANDY-BILLY PUMP

PRELIMINARY INSTRUCTIONS

1. Do not run the engine until you are ready for pumping and all hose connections are made.
2. Be sure the connection on the suction side is tight between the water and the pump and that the strainer is well attached and COMPLETELY submerged in the water.
3. Use proper size gaskets on all hose connections. Improper size gaskets may cause failure to prime, or improper filling and weak fire stream after priming.

HANDY-BILLY PUMP

PRELIMINARY INSTRUCTIONS

4. Be sure that suction strainer rests in clear water, not in mud or gravel, as grit small pebbles are likely to be drawn into the pump with damaging results.

PUMP LUBRICATION

1. Fill pilot gear case of pump to oil level of upper plug in gear case with good grade of SAE-30 if available. In emergency ANY lubricating oil will serve.

2. Fill Pump Bearing Grease Cups with light cup grease and turn down snugly.

3. Turn Grease Cups three (3) full turns every ten hours of operation. ALWAYS squirt lubricating oil liberally over pump rotors (or impellers) through the discharge side of the pump before starting the engine. This pump is a high speed rotary type and should always be lubricated before starting.

FUEL MIXTURE

FUEL, GASOLINE; PREFERABLY any commercial, unleaded, "white gasoline. In emergency ANY gasoline that is available.

OIL: Navy Symbol No. 2190 (SAE)(30) PREFERRED, In emergency ANY lubricating oil that is available.

MIXTURE: Mix in separate container (other than gas tank) oil and gasoline in the following proportions:

1 PINT OIL TO 1 GALLON GASOLINE
Shake Thoroughly to Insure Uniform
Mixture Before Pouring in Gas Tank

NOTE: Proper lubrication of engine is dependent upon following the above instructions.

STARTING INSTRUCTIONS

1. Fill tank on pumper with fuel mixed in accordance with instructions.

HANDY BILLY PUMP

STARTING INSTRUCTIONS

2. Open Air Vent, small knurled cap on top of Gas Tank Filler Cap. Turn left to open.

3. Be sure the Gas Tank Cock under engine end of Gas Tank is open--handle down.

4. Be sure the Three-Way Fuel Cocks at the base of the engine is open--handle toward flywheel end of engine.

NOTE: Pumper is shipped with the cockwired in this position. If separate fuel tank is used connect fuel line at this cock. Turn handle at right angle to engine to use this auxiliary supply. This provision for separate fuel tank is made in the event pumper is going to be stationary and run for an extended period, thus eliminating periodic refilling of the self-mounted tank.

5. Open Carburetor Needle Valve two (2) full turns from closed position. Needle Valve opens in a counter-clockwise direction (to the left).

6. Move Carburetor Throttle Lever down to position marked "C" (Choke)--on the Carburetor Lever Quadrant.

7. IMPORTANT! Flood Carburetor by holding down Float Pin which projects through the cover of Carburetor Float Bowl. HOLD THIS PIN DOWN UNTIL FUEL OVERFLOWS.

8. STARTING CORD: This is located in holder inside Cylinder Side Cover on the right side of motor facing the Flywheel. Place knotted end of cord in notch in Starter Plate. Wrap cord around started Plate two (2) full turns.

9. STARTING: Place foot on rail of pump and pull smartly on Starting Cord. Motor should start on two or three attempts (repeating Operation 8 and 9 and also flooding Carburetor again).

10. WHEN MOTOR STARTS IMMEDIATELY raise Carburetor Lever to horizontal position "F" (Fast), marked on Carburetor Lever Quadrant.

11. Adjust Needle Valve, closing it approximately one complete turn to the right (clockwise).

HANDY-BILLY PUMP

STARTING INSTRUCTIONS

This will vary in individual motors; try turning it both to the right and to the left slowly until the motor runs most smoothly. After the motor is thoroughly warmed up check this adjustment again, balancing if necessary; otherwise leave alone.

NOTE: When Carburetor Needle Valve is properly set, the hand on the Water Pressure Gauge will stop oscillating and hold a steady position. This is a good indicator of most efficient running speed.

12. TO STOP MOTOR, press down on STOP BUTTON (red button on Timing Lever). Hold button down until motor stops turning.

13. TO START WARM MOTOR, proceed with Operations 7, 8, and 9, making no adjustment on Needle Valve, using Choke Lever only if necessary.

14. IF YOU FLOOD A WARM MOTOR, shut off Needle Valve on Carburetor, crank motor four or five times with Starting Cord. If motor starts, let it run until it stops and then open Needle Valve to original running position. This is approximately one turn from a closed position.

CARE OF PUMPER

The service obtained from the Pumper is dependent largely upon the care it is given. The following suggestions will assist in maintaining highest efficiency.

1. After use (pumping salt water) operate unit pumping fresh water for a few minutes if possible (to flush circulating system of salt water).

2. Wipe complete unit with oily rag. Squirt oil liberally over pump impellers, and replace thread protection caps.

3. Store in a dry place with uniform temperature when not in use to protect electrical parts from condensation.

4. Inspect spark plugs. Clean, and if necessary adjust gap of points. (Correct setting of gap is .025).

HANDY-BILLY PUMP

CARE OF PUMPER

5. Check breaker points (as instructed).
6. Be sure flywheel nut is secure. A loose flywheel nut can be the cause of extensive repairs if not tightened immediately.
7. Remove and clean screen from gas line nut connection at base of carburetor.
8. Check oil level of pump gear case, filling same to proper level (See Lubricating Instructions).
9. Pack grease cups on pump (See Lubricating Instructions)
10. Keep on-hand for emergency use--5 gallons of properly prepared fuel mixture (See Fuel Mixture Directions).
11. Be sure to shake can vigorously before pouring into pumper.
12. Make certain Starter Cord is replaced in its proper position.
13. Avoid rough handling. This is a precision built engine where maximum performance is accomplished through a minimum of weight.
14. Remove each spark plug and squirt small quantity of oil into each cylinder. Turn engine several times to thoroughly lubricate cylinder walls.
15. In general, the operator using the pumper last knows best what attention the pumper should have before stowing away. Proper attention at this time means quick starting and satisfactory operation when the next emergency arises.

CHAPTER 16

VOICE TUBE BILL

OBJECT: The object of this bill is to list the locations and descriptions of the voice tubes installed in the ship. Division responsibilities and closure classifications are not assigned because the voice tube closures are not watertight (with the exception of 04-80-C/L which is watertight, classified "X" and is the responsibility of "N" Division.

A list of voice tubes may be found on the following page.

LIST OF VOICE TUBES

VOICE TUBE NO.	FROM	TO	SIZE	LENGTH	FROM FRAME NO.	TO FRAME NO.
1.	Wheel House	Gyro Room	2"	20 Ft.	03-81-C/L N.W.T.	01-82-2 N.W.T.
2.	Wheel House	Bridge Wing P Bridge Wing S	2"	100 Ft.	03-82-1 N.W.T.	03-77-1 W.T. 03-77-2 W.T.
3.	Top of Wheel House	Gyro Room	2"	40 Ft.	04-82-C/L W.T.	01-81-2 N.W.T.
4.	Officers' Pantry	Officers' Galley	2"	65 Ft.	01-124-2 N.W.T.	3-136-2 N.W.T.
5.	Omitted as requested in U.S.M.C. letter S65 (EEPA.) Jan. 19, 1943.					
6.	Dumb Waiter	Dumb Waiter	2"	35 Ft.	(01-125-2)(1-125-2)	(3-125-2) N.W.T.
7.	WHEEL HOuse	Top of Wheel House.	2"	10 Ft.	03-78-C/L N.W.T.	04-78-C/L W.T.
8.	Top of Wheel House	Chart Room	2"	30 Ft.	04-80-C/L W.T.	03-82-1 N.W.T.
9.	Dumb Waiter	Dumb Waiter	2"	20 Ft.	2-113-1 N.W.T.	4-113-1 N.W.T.
10.	Dumb Waiter	Dumb Waiter	2"	20 Ft.	2-113-2 N.W.T.	4-113-2 N.W.T.
11.	Dumb Waiter	Dumb Waiter	2"	20 Ft.	2-126-2 N.W.T.	4-127-2 N.W.T.
12.	Dumb Waiter	Dumb Waiter	2"	20 Ft.	2-126-1 N.W.T.	4-127-1 N.W.T.

CHAPTER 17

GAS DEFENSE BILL

OBJECT: The object of gas defense on board this ship is to establish a procedure which will provide adequate protection to the ship's personnel from attack by chemicals. This makes necessary: Organization for the Detection and Dissemination of Information of Chemical Attack; Collective Protection Against Chemical Attack; Individual Protection Against Chemical Attack; Decontamination of Material; and Decontamination of Personnel.

A - CHEMICAL ATTACKS - General Description

1. Three forms of attack by chemical may be encountered:

   a. Vesicant spray from aircraft: Under present development airplane spray cannot be delivered accurately against a moving ship except from very low altitudes. Such an attack will therefore be most probable during low visibility, particularly at dawn or dusk. Also because of the delayed physcological effect of the chemicals used in sprays (four hours to several days), their employment is expected to be confined to pre-battle situations. Mustard is the chemical which will probably be used.

   b. Small quantities of chemicals in A.P. projectiles: Tear gas (CN) is the only known agent which is not rendered harmless by the explosion of the shell.

   c. Chemical bombs: The chances of encountering chemical bombs are considered remote because high explosive bombs of equal weight are considered more efficient weapons against a ship.

B - PROCEDURE.

1. Detection and descrimination of knowledge of the presence of poisonous gases:

   a. During material condition "ABLE" (when gas attack is most likely to occur). Repair I shall detail a "Gas Patrol" especially trained to detect gases. At strategic locations, vesicant detection paint and paper will be located to aid the gas patrol in the recognition of the presence and of the type of gas used and the area contaminated. The Officer of the