Deck will notify the Commanding Officer. The gas alarm on this vessel is the sounding of the Gas Alarm followed by the word "Gas Attack" repeated several times. The sounding of this alarm is ordered by the Officer of the Deck or Captain. It will never be sounded:

(1) Before or during an air attack.
(2) During a gun engagement.

After an air attack during which vesicant spray has been received, the gas alarm will be sounded if the location and extent of the contamination is such that the fumes are about to permeate the ship generally.

C - PROTECTION AGAINST CHEMICAL ATTACK.

The object of protection against chemical attack is to prevent harmful contact of the agent with personnel without interfering with the normal functioning of the body or decreasing efficiency in the discharge of duty. This can be accomplished by protecting each individual seperately or by protecting a group of individuals collectively.

1. Collective Protection: Collective defense consists of closing all topside openings before the chemicals can permeate to the interior of the ship. Collective defense is the primary and preferable means of defense. It is expected that, normally, the ship will go to General Quarters and set condition "ABLE" when indications of a probable air attack has been received. Consequently the maximum fumetight integrity of the ship will have been accomplished prior to attack. However in the event that condition "ABLE" has not been set prior to the delivery of the attack, and a vesicant is received on the ship, the additional closures must be made and ventilation stopped as practicable until affected areas have been decontaminated.

   a. The following actions will be immediately carried out in the event of a surprise gas attack.

      (1) All personnel, man stations - personnel protection against chemicals will not be allowed to interfere with gunnery duties.
      (2) Electricians mates at destribution boards in forward and after engine rooms open switches to all ventilation blower motors. (Switches may also be opened in Fire Control Room, Navigation Bridge.)

(3) The following groups will make necessary closures.

(a) Repair I: All topside (Z) doors, all ports, battle ports and hatches, all "Z" and "W" fittings in the ventilation system, all ventilation and cowls on the Main Deck and above. Repair I is also responsible for all "Z" and "W" doors, hatches and ventilation fittings below decks forward of frame 60.

(b) Repair II: All "Z" and "W" doors, hatches and ventilation fittings below decks from frame 60 to 142.

(c) Repair III: All Z and W doors, hatches, and ventilation fittings aft of frame 142.

b. Battle Stations which cannot be sealed against gas.

(1) Certain below deck battle stations such as engineering spaces cannot be completely sealed against gas and as a result if gas penetrates these spaces, individual protection must be relied upon. (Contamination of the machinery spaces will take place due to suction of the forced draft blowers on weather decks.)

(2) Under no circumstances should the air to diesels be shut off. This includes the forward and after fire pump rooms and the Emergency Generator Room. The hatch covers to the trunks of the forward and after fire pump rooms should never be closed during General Quarters when the Emergency Diesel Pumps will be in operation.

c. Collective Defense Procedure After Attack Develops or Subsides.

(1) If the attack does not mature or if it turns out to be a non-persistent chemical attack, all normal ventilation will be resumed immediately except that to spaces collectively protected. Top side stations such as the pilot house will be opened up if this promotes efficient normal operations.

(2) If a vesicant attack has been received investigation will be made to determine, the extent,

(3) Collective protection will be secured when "All Clear" is given.

(4) Normal conditions will be resumed throughout the ship as decontamination progresses and general conditions permit.

2. Individual Protection: Individual defense consists of the various types of protective equipment which are available to all personnel. This protective equipment consists of gas masks, protective jumpers and trousers, gloves, socks and overshoes. Recourse to individual protection is only made when collective protection fails or is not available, since it inflicts a definite loss of efficiency. It is to be kept in mind that before casualties can exist as a result of gas attack the following conditions must exist (a) gas must be present in sufficient concentration, (b) personnel must be exposed to gas for a certain period of time. Collective defense takes care of "A". Individual defense takes care of "B".

a. Topside Personnel:

(1) Every man shall have his gas mask slung in the proper position, ready for use when he is topside on battle station, if this does not interfere with the man's activities, otherwise the mask will be laid or hung within reach.

(2) Impregnated clothing will be located in well labeled lockers at various points on topside within easy reach of all topside personnel.

(3) Except in emergencies gas masks will not be donned without specific orders from the Commanding Officer (i.e. gas masks will be donned in battle by each man when his sight is so affected by tear gas that he can discharge his duties better with mask on than with it off.)

(4) Masks will not be donned by topside personnel whose duties are such that they cannot be efficiently performed when the mask is worn until the air attack has been repulsed and its immediate renewal is improbable (with the exception previously stated in (3)).

(5) After an air attack during which vesicant spray has been received, the gas alarm will be sounded if the location and extent of the contamination is such that the fumes are about to permeate the ship generally. When the gas alarm is sounded all hands will don gas masks immediately and will put on protective clothing as quickly as consistent with discharge of their duties.

(6) Insofar as it is impractical to don impregnated clothing during the period of an attack, this step must be taken previous to entering a zone where vesicant attack seems probable or during a lull when outside information indicates that an attack is forthcoming. This command must come from the Commanding Officer.

b. Below Decks Personnel.

(1) Every man should have his gas mask slung ready for use.

(2) Gas masks will not be donned until the command is given by the Commanding Officer specifically mentioning below decks personnel.

(3) In the case of fire-rooms, diesel rooms, etc., gas masks will have to be resorted to, if as is probable, the source of air is contaminated, until decontamination of affected areas has been effected.

D - DECONTAMINATION.

Decontamination is the term applied to the process of removing or destroying chemical agents from either personnel or material. It may be used in connection with either a persistent vesicant agent such as mustard or with a semi-persistent vesicant harrassing agent such as tear gas (CN). Generally, however, "decontamination" refers only to vesicants.

1. Decontamination of Material.

a. Decontamination parties are responsible for the isolation and decontamination of contaminated areas. Local decontamination should be taken care of by personnel operating therein.

(1) Navigation Equipment - "N" Division.
(2) Communication Equipment - "N" Division.
(3) Ordnance Material - 1st and 2nd Division.
(4) Engine Room Space - Engineering Department.

b. On this ship the Damage Control Repair Parties will also act as the Decontamination Parties. The repair party lockers are located as follows:

(1) Repair 1 - Main Deck, port side, frames 6-16.
(2) Repair 2 - 3rd deck, frame 110 C/L.
(3) Repair 3 - 2nd deck, frames 228-233.
(4) Repair 4 - 3rd deck, frames 160-162.

c. For purposes of decontamination during gas attack each repair party shall have an eight man squad specially trained for decontamination. Each repair party shall also have the following equipment.

ITEM	NO.
1. Tetrachlorethane	6 five gallon cans.
2. R. H. 195	2 five gallon jars.
3. Spray Pumpers	1
4. Impregnated Clothing	12 complete suits.
5. Rubber Shoes	12 pairs.
6. Rubber Gloves	2 pairs.
7. Swabs	6
8. Brooms	6
9. Buckets	6
10. Gas Masks (spare)	5

d. Decontaminating Instructions.

(1) Decontamination will start as soon as practicable under the direction of the Repair Parties. Areas around the motor room blower blower intakes and engine room ventilation closures will be decontaminated first followed by other vent closures. Following this, work will proceed in all contaminated areas from the top, down.

(2) The topside area where a vesicant spray has fallen will be segregated and abandoned if and when consistent with the proper manning of the batteries and control stations. Ventilation fans taking air from weather vents in the area should be stopped if their operation is not positively necessary. Decontamination will be carried out in accordance with instructions given in this bill. Decontamination is effective and necessary only in areas where spray has landed. Surrounding areas and compartments in which a concentration of fumes only has built up, need only be opened up and given good ventilation to make them pure.

(3) The best and only satisfactory way of cleaning a compartment which has been contaminated with tear gas is to open it up and provide as much ventilation as possible.

(4) For material decontamination the Bureau of Ships provides a compound and the necessary solvent. This solution may be used for decontamination of mustard, lewisite and ethyldichloricine. The solvent for RH -195 is acetylene tetrachloride (tetrachlorethane). When decontamination becomes necessary RH - 195 should be dissolved in acetylene tetrachloride in the proportion of one pound of powder to ten pounds of solvent or one quart of RH-195 to three quarts of solvent. Mixing may be accomplished in any open vessel such as a gun tub. It is desirable that mixing be done in the open. If mixing is done in a compartment care should be taken to provide good ventilation to carry off the fumes of acetylene tetrachloride. This solution will decontaminate a heavily contaminated area to the extent of 15 square yards per gallon of solution. For a moderately contaminated area it will be effective over a total of 30 square yards and for a lightly contaminated area it will be effective over a much larger area. It is desirable that rubber gloves be worn during the mixing of this solution and handling of it.

(5) This liquid solution should then be transferred to the hand-operated spray provided. It is desirable that the solution be strained through several layers

of cheese cloth. This prevents any undissolved particles of RH-195 from clogging up the spray nozzles during operation. Fill the hand-operated spray pumps to the level of the central clip which is at the "full" level. The pump will then contain three gallons of solution, sufficient for about 45 square yards of heavily contaminated areas.

(6) Decontamination should start at the upper limit of the area involved on vertical surfaces and work downward. This will permit the solution to run downward over lower contaminated areas thereby getting the fullest possible benefit of the solution. The areas should not be wetted-down before the decontamination process begins, as visual inspection is desirable to insure a complete coverage of the area with solution. The clean-up should also start at the edges of the contaminated areas, either vertical or flat. The solution should be vigerously scrubbed on all surfaces. On metal and painted surfaces, the scrubbing should be continued for about five minutes. For wooden areas, scrubbing should be continued for 30 minutes. After the entire area has been so treated, the solution and mustard destroyed or dissolved into the solution may be washed down with the hose, completely freeing the area for normal use.

(7) If canvas is heavily contaminated with mustard it should be burned or weighted and thrown overboard.

(8) Wire and manila hawser can be decontaminated. However the manila will lose up to 50% of its strength. For this reason heavily contaminated manila should be thrown overboard. In the case of manila on a reel the outer layer of manila line should be cut off and burned or otherwise destroyed. Similarly any small lines or halyards should probably be destroyed rather than treated.

(9) RH-195 is also affective on linoleum. However more scrubbing is required on linoleum than on a painted structure.

(10) No decontamination should be necessary in hot machinery spaces as the temperature and humidity

will break down any mustard vapor penetrating to such locations. Protective equipment should be worn if mustard vapors are present, as determined by sniff test, but no longer.

(11) Where shoes have been worn on a mustardized area they must be demustardized. The heaviest contamination will be on the soles. Dust the shoes liberally with RH-195, let stand for one hour and remove excess powder by brushing. Repeat the treatment and then expose the shoes to the sun. In case the shoes are exposed to large drops of mustard, they should be destroyed.

(12) Men passing from a contaminated to a non-contaminated part of the ship should dust their shoes in troughs containing RH-195. It is better, however, that the shoes be removed when men have reached a non-contaminated area. Rubber overshoes which have been contaminated with liquid vesicants should be destroyed.

(13) All gas masks which become contaminated with liquid mustard should be destroyed.

(14) Where a compartment may have been contaminated by CN, brought on board or a small charge in a high explosive shell, ventilation is wholly effective. Mechanical ventilation of the space involved should be so operated as to exhaust the fumes directly to the weather.

2. Decontamination of Personnel.

a. Unless a man on whom vesicant spray lands is wearing protective clothing he should be decontaminated within 10 minutes after contamination. Hence, contaminated men not wearing protective clothing should be removed immediately if consistent with the requirements of the situation.

b. If a man wearing protective clothing is hit by vesicant spray, he need not be decontaminated immediately, but should be decontaminated as soon as his services can be spared.

c. Men who have been subject to tear gas need not be relieved from their stations, nor will any first aid treatment be necessary. The lacrimatory effect of tear gas disappears shortly after the mask is donned.

d. If battle conditions at the time of exposure compel continuous manning of guns and stations, then decontamination should be accomplished at the earliest possible moment. This means that a prodedure for self-decontamination must be followed. That procedure is here outlined.

(1) Procedure for Self-decontamination for Liquid Mustard. Instantly on contamination each man will carry out all of the self-decontamination procedures exactly and consecutively in the following order:

(a) Liquid mustard vaporizes from the skin, clothing, equipresent, and any other objects. Therefore turn the face away and breath as little as possible until the eyes and face are decontaminated and the mask is in place as directed in (h).

(b) When eye-shields are not worn wash out the eyes at once. Hold the lids open with fingers and pour water slowly from canteen or other uncontaminated source into one eye and then into the other. This must be done immediately after exposure; a delay of two minutes may result in blindness. Irrigate for at least 30 seconds and no longer than two minutes. If uncontaminated water is not available, use urine.

(c) When eye-shields are worn, irrigation of eyes is not necessary.

(d) Blot, not rub, all visible liquids on the skin with the paper absorbent provided with the ointment, or any other suitable equipment.

(e) Decontaminate hands by covering and rubbing for 20 - 30 seconds with ointment, protective S-461.

(f) Decontaminate face, neck and ears by covering and rubbing for 20 - 30 seconds with ointment S-461. Avoid getting into the eyes as irritation will result.

(g) Discard the eye-shield worn.

(h) Put on the gas mask after the face, neck and ears have been decontaminated. The mask must be on the face within 3 to 4 minutes at the latest after exposure.

(i) Continue decontamination by covering all untreated exposed skin with the ointment, whether or not actual contamination can be seen.

(j) If tactical conditions permit, remove contaminated clothing. Dispose of clothing in such a way that it cannot serve as a source of poisonous fumes. These cause serious eye and skin damage.

(k) If clothing has been removed, spread ointment on areas of skin which may be contaminated.

(l) If not possible to remove clothing, cover contaminated areas of clothing with ointment protective.

(m) As soon as tactical conditions permit, remove all ointment, protective S-461 and bathe with soap and water.

(2) Procedure for Self-decontamination for Liquid Lewisite.

(a) Ointment BAL is used as the specific decontaminant and substitutes ointment, protective S-461, referred to.

(b) When eye shields are not worn pull open the lids and squeeze ointment BAL directly into the injured eye or eyes and gently massage the lids. If the eye cannot be opened because of pain, the ointment BAL should be applied to the closed lids and as well as possible rub into the slit between them. As soon as the pain lessens and the lids can be pulled apart, squeeqe additional ointment BAL into the eyes.

(c) Ointment BAL must remain on the skin for at least five minutes, after which it may be removed, when conditions permit.

(3) Procedure of Self-decontamination for Liquid Nitrogen Mustard.

(a) Self-decontamination is the same as described for liquid mustard.

(b) Wash the ointment off at the earliest possible moment, since ointment, protective S-461 dissolves, but does not effectively neutralize the nitrogen mustards.

e. When relieved contaminated personnel should immediately get to the windward of the contaminated area and remove their outer clothing and overshoes (if worn). Ordinary clothing should be thrown overboard. Protective clothing should be preserved and decontaminated (below decks personnel should proceed to the weather decks and discard contaminated clothing). Personnel should then proceed to the principal gas decontamination station on the main deck between frames 189-200, remove the remainder of their clothing and proceed through the Decontamination Room Showers. It is not expected that gas casualties will be excessive and this decontamination room being located aft and specially equipped will be used unless orders to the contrary are given. An alternate decontamination station for topside personnel, forward is provided and a below decks decontamination station is also provided. In an emergency any troop shower room can be used as a decontamination station by below-deck personnel.

f. Decontamination Stations.

(1) The principal Decontamination Station is the delousing chamber on the main deck between frames 189 and 200.

(2) The alternate gas decontamination station for topside personnel is the troop officers' shower, main deck, frame 81-84.

(3) The below decks gas decontamination station is the crew's shower, 3rd deck, frame 88-94.

g. Personnel Manning Decontamination Stations.

(1) The principal gas decontamination station is to be manned by the topside first aid patrol with the assistance of additional corpsmen withdrawn from below deck.

(2) The below decks decontamination station will be manned by personnel from the after Battle Dressing Station.

(3) The alternate topside decontamination station forward will be manned by personnel from the forward Battle Dressing Station.
(NOTE - All members of the medical department and litter bearers shall have a complete set of permeable protective clothing, gas mask, a protective impermeable apron, and impermeable protective rubber gloves at their battle stations. These complete outfits should be put on before handling or treating contaminated personnel.)

h. Gas Decontamination Locker Equipment (to be kept in lockers near each decontamination station).

ITEM	NUMBER
Adhesive Plaster, 2" x 5 yards	2
Applicators, sterile (12)	1
Bleach Paste, gallon	1
Boric Acid, saturation solution, gallon	1
Brushes, nail, non-sterile	6
Cotton, absorbent, 1 pound roll	1
Dressings, Battle small	24
Dressings, Battle cellulose, 11x11	1
Dressings, cotton pad, 6x8 (12's)	2
Dressings, gauze, 4x4 (12's)	4
Dressings, triangular, muslin sling	4
Ferric Hydrate paste, tin pail for	1
Ferric Sulphate Solution, pint	1
Gauze, roll - 25 yards	2
Gloves, rubber	2
Irregating can, tubes and dropper	1
Milk of Magnesia, pint	2
Mineral Oil with dropper, 200 cc	1
Petroleum, white, can	4
Sodium Bicarbonate, 1% solution, gallon	1

ITEM	NUMBER
Sodium Hydroxide, 5% solution, pint	1
Spoon, large	1
Tannic Acid Jelly, tubes	10
Tincture of Iodine, 3½%, 200 c.c.	1
Tincture of Green Soap, gallon	1
Tongue Depressor (6's)	1
Protective Ointment, S-461 for Mustard, 3 oz.	At least one for each member of ship's company, plus spares.
Bal Ointment, for Lewisite, ½ oz.	

NOTE: If lewisite treatment is needed mix Ferric Sulphate solution part, with Milk of Magnesia, 5 parts and apply.

For additional information see Chapter 8 (Repair Party Organization) and Chapter 29 (First Aid Instructions).

WEATHER DECK CLOSURES

SUPPLY VENTILATION SYSTEM

COVER No.	DESCRIPTION OPENING	TYPE & SIZE COVER LID	COMPTS. SUPPLIED (TO)	NATURAL OR FORCE DRAFT	BLOWER MOTOR SYSTEM	FAN ROOM	CLASSIFICATION	DIV. RESP.
04-85 C/L	Gooseneck	3-(76"x61") (Canvas)	A-0301-M A-0302-M A-0304-M A-0201-LC A-0101-M A-0103-M A-104-L	Force Draft	01-88-1	No. 2	Z	R-1
03-97-(P)			B-201-L A-305-L A-405-L A-504-A A-610-AE	Force Draft	1-95	No. 6	Z	R-1
02-93-(S)	Hole in Bulkhead	16"x16" Fire Damper	A-0201-LC	Force Draft	02-95	Propellor	Z	R-1
02-106-1	Hole in Bulkhead	(73"x71") (Canvas)	B-1	Force Draft	02-104-1	No. 1A	Z	R-1
02-106-2	Hole in Bulkhead	(73"x71") (Canvas)	B-1	Force Draft	02-104-2	No. 1A	Z	R-1
02-107-(P)	Louver Panels	2-(61"x51") (Canvas)	B-0201-M B-0202-M B-0203-M B-0204-M B-0205-M B-0206-M	Force Draft	01-108	No. 3	Z	R-1
02-120-(S)	Exhaust Hood	45" Dia. Canvas	B-201-L	Force Draft	2-122	No. 8	Z	R-1
02-124-C/L	Louver Panels	2-(76"x61") 1-(102"x76") (Canvas)	B-201-L B-301-L B-401-L B-405-L B-304-L	Force Draft	2-120 2-123-1 2-124-2	No. 8	Z	R-1

WEATHER DECK CLOSURES

SUPPLY VENTILATION SYSTEM

COVER No.	DESCRIPTION OPENING	TYPE & SIZE COVER LID	COMPTS. SUPPLIED (TO)	NATURAL OR FORCE DRAFT	BLOWER MOTOR SYSTEM	FAN ROOM	CLASSI-FICATION	DIV. RESP.
02-136-1	Hole in blkhd.	71" x 89" (Canvas)	B-2	Force Draft	02-133-1	No. 1B	Z	R-1
02-136-2	Hole in blkhd.	71" x 73" (Canvas)	B-2	Force Draft	02-133-2		Z	R-1
02-136-3	Hole in blkhd.	86" x 77" (Canvas)	C-0101-M C-0102-M A-104-L	Force Draft	01-133-1	No. 4	Z	R-1
01-2-(S)	Cowl	12" Dia. (Wood Plug)	A-201-A A-301-A	Natural			Z	R-1
01-3-(P)	Cowl	15" Dia. (Wood Plug)	A-201-A A-301-A	Natural			Z	R-1
01-9-(S)	Cowl	7" Dia. (Wood Plug)	A-101-A	Natural			Z	R-1
01-18-(S)	Cowl	7" Dia. (Wood Plug)	A-101-A	Natural			Z	R-1
01-73-1	Louver Panels	2-(61"x51") (Canvas)	A-404-L A-503-A A-504-A	Force Draft	2-77-1 2-74-1	No. 7	Z	R-1
01-73-2	Louver Panels	2-(102"x84") (82"x76") (Canvas)	A-104-L B-201-L A-304-L	Force Draft	2-74-2	No. 7	Z	R-1
01-142-(S)	Louver Panel	4-(76"x71") (Canvas)	C-301-L B-401-L B-201-L A-104-L	Force Draft	2-146-1 2-146-3	No. 9	Z	R-1
01-143-(P)	Louver Panels	2-(61"x51") 1-(61"x75")	A-104-L B-201-L C-301-L B-615-A	Force Draft	2-145 2-146-2	No. 9	Z	R-1
1-43-(P)	Hole in blkhd.	84" x 36" (Canvas)	B-201-L A-302-L A-303-L A-402-L A-403-L	Force Draft	1-39 1-40 1-37-2 1-42-1	No. 5	Z	R-1

WEATHER DECK CLOSURES

SUPPLY VENTILATION SYSTEM

COVER NO.	DESCRIPTION OPENING	TYPE & SIZE COVER LID	COMPTS. SUPPLIED (TO)	NATURAL OR FORCE DRAFT	BLOWER MOTOR SYSTEM	FAN ROOM	CLASSI-FICATION	DIV. RESP.
1-153-(P)	Light excluding hood.	12" x 8" Metal	Radar Room	Force Draft	1-153-2	Propeller	Z	R-1
1-165-(S)	Hood on blkhd.	46" x 36" (Canvas)	C-901-E C-902-E	Force Draft	5-165-1 5-165-2	Aft engine room.	Z	R-1
1-166-1	Hole in blkhd. Louver Panel	46" x 36" (Canvas)	B-201-L C-304-L C-403-L C-501-A	Force Draft	2-168-1	No. 10	Z	R-1
1-166-2	Hole in blkhd.	46" x 36" (Canvas)	B-201-L A-402-L	Force Draft	2-168-2	No. 10	Z	R-1
1-188-(S)	Hood on blkhd.	24" x 20" (Metal)	C-101-L	Force Draft	1-192	C-101-L	Z	R-1
1-191-1	Louver Panel.	3-(32"x55") (Canvas)	C-305-L C-404-L C-502-A	Force Draft	2-192-1	No. 11	Z	R-1
1-191-2	Louver Panel	2-(123"x102") 2-(102"x41")	B-201-L A-201-L C-201-M C-305-L C-306-L C-405-L	Force Draft	2-192-2 2-194-2	No. 11	Z	R-1
1-218-1	Cowl	8" Dia. (Wood Plug)	C-406-E	Natural			Z	R-1
1-218-2	Cowl	8" Dia. (Wood Plug)	C-406-E	Natural			Z	R-1

WEATHER DECK CLOSURES, VENTILATION SYSTEM

EXHAUST

COVER NO.	DESCRIPTION OPENING	TYPE & SIZE COVER	COMPTS. EXHAUSTED	NATURAL OR FORCED DRAFT	BLOWER MOTOR SYSTEM	FAN ROOM	CLASS.	DIV.
04-89-(P)	Exhaust Hood	34" Dia. (Canvas)	A-0201-LC A-0103-L A-104-L	Force Draft	01-89	No. 2	Z	R-1
03-92-(S)	Light excluding Hood.	16" x 11" (Metal)	A-0301-C	Force Draft	03-91	Propeller	Z	R-1
03-97-(S)	Gooseneck	5" Dia. (Metal)	A-0201-LC	Natural			Z	R-1
02-101-1	Light excluding Hood.	9" x 7" (Metal)	B-0201-M	Natural			Z	R-1
02-101-2	Light excluding Hood.	9" x 7" (Metal)	B-0202-M	Natural			Z	R-1
02-115-(S)	3 Sided Hood	90"x 24" (Canvas)	A-0103-L A-104-L	Natural			Z	R-1
02-118-1	Light excluding hood.	11"x7" (Metal)	B-0203-M	Natural			Z	R-1
02-118-2	Light Excluding Hood.	11" x 7" (Metal)	B-0204-M	Natural			Z	R-1
01-9-(P)	Gooseneck	7" Dia. (Metal)	A-101-A	Natural			Z	R-1
01-19-(S)	Gooseneck	7" Dia. (Metal)	A-101-A	Natural			Z	R-1
01-65-(S)	R & S Proof Vent	15" Dia. (Metal)	A-104-L	Natural			Z	R-1
01-68-1	R & S Proof Vent	24" Dia. (Metal)	A-104-L	Natural			Z	R-1
01-68-2	R & S Proof Vent	24" Dia (Metal)	A-104-L	Natural			Z	R-1
01-68-3	Coaming	8" Dia. (Metal)	A-0102-M	Natural			Z	R-1
01-68-4	Coaming	8" Dia. (Metal)	A-0103-M	Natural			Z	R-1
01-71-(P)	R & S Proof Vent	15" Dia. (Metal)	A-104-L	Natural			Z	R-1

WEATHER DECK CLOSURES

EXHAUST VENTILATION SYSTEM

COVER NO.	DESCRIPTION OPENING	TYPE & SIZE COVER LID	COMPTS. EXHAUSTED	NATURAL OR FORCE DRAFT	BLOWER MOTOR SYSTEM	FAN ROOM	CLASS.	DIV. RESP.
01-77-1	Hole in blkhd.	48" x 30" (Canvas)	B-201-L A-304-L A-404-L A-405-L	Force Draft	2-77-1	No. 7	Z	R-1
01-77-2	Hole in Blkhd.	33" x 30" (Canvas)	B-201-L A-304-L A-504-L A-610-AE	Force Draft	2-77-2	No. 7	Z	R-1
01-147-(P)	Double Hood	2-(42"x30") (Fire Damp)	B-201-L A-104-L C-301-L	Force Draft	2-148-2 2-148-1	No. 9	Z	R-1
01-149-(P)	R & S Proof Vent	15" Dia. (Metal)	A-104-L B-201-L C-301-L C-401-L	Natural			Z	R-1
01-156-(S)	Hole in Trunk	18" x 12" (Metal)	A-104-L B-201-L C-301-L C-401-L	Natural			Z	R-1
01-164-1	Light Excluding Hood.	11" x 7" Metal	C-0101-M	Natural			Z	R-1
01-164-2	Light excluding Hood.	11" x 7" (Metal)	C-0102-M	Natural			Z	R-1
01-166-2	R & S Proof Vent	48" x 33" (Metal)	B-201-L C-304-L C-402-L C-403-L C-501-A	Force Draft	2-168-2	No. 10	Z	R-1
01-166-1	R & S Proof Vent	53" x 24" (Metal)	B-201-L C-304-L C-402-L C-403-L C-501-A	Force Draft	2-167-1	No. 10	Z	R-1

WEATHER DECK CLOSURES

EXHAUST VENTILATION SYSTEM

COVER NO.	DESCRIPTION OPENING	TYPE & SIZE COVER LID	COMPTS. EXHAUSTED	NATURAL OR FORCE DRAFT	BLOWER MOTOR SYSTEM	FAN ROOM	CLASS.	DIV. RESP.
01-170-1	Light excluding Hood	9" x 7" (Metal)	C-0101-M	Natural			Z	R-1
01-170-2	Light excluding Hood	9" x 7" (Metal)	C-0102-M	Natural			Z	R-1
1-19-(P)	Light excluding Hood	18" x 12" (Metal)	A-101-A	Natural			Z	R-1
1-22-(S)	Hood on Trunk	15" x 7" (Metal)	A-601-A	Natural			Z	R-1
1-33-(P)	Booseneck	8" Dia. (Metal)	A-602-E	Natural			Z	R-1
1-35-(S)	R & S Proof Vent	24" Dia. (Metal)	B-201-L	Natural			Z	R-1
1-41(S)	R & S Proof Vent	2'6"x3'11" (Metal)	B-204-L A-302-L A-303-L A-402-L A-403-L	Force Draft	1-37-1 1-42-2	No. 5	Z	R-1
1-43-1	Struct'l. Box	9" x 7" (Metal)	A-103-M	Natural			Z	R-1
1-43-2	Struct'l. Box	9" x 7" (Metal)	A-102-M	Natural			Z	R-1
1-55-1	R & S Proof Vent	24" Dia. (Metal)	B-201-L	Natural			Z	R-1
1-55-2	R & S Proof Vent	24" Dia. (Metal)	B-201-L	Natural			Z	R-1
1-57-1	Hood on Blkhd	18" x 16" Fire Damper	A-104-E Resist Rm.	Force Draft	1-58-1	Propeller	Z	R-1
1-57-2	Hood on blkhd	18½" x 13" (Fire Damper)	A-104-L Radar Room	Force Draft	1-58-2	Propeller	Z	R-1
1-57-3	Hood on blkhd	16" x 12" (Fire Damper)	A-104-E Resist Rm.	Force Draft	1-58-3	Propeller	Z	R-1
1-58-(S)	R & S Proof Vent	24" Dia. (Metal)	A-503-A A-605-A	Natural			Z	R-1

WEATHER DECK CLOSURES

EXHAUST VENTILATION SYSTEM

COVER NO.	DESCRIPTION OPENING	TYPE & SIZE COVER LID	COMPTS. EXHAUSTED	NATURAL OR FORCE DRAFT	BLOWER MOTOR SYSTEM	FAN ROOM	CLASS.	DIV. RESP.
1-155(S)	R & S Proof Vent	15" Dia. (Metal)	A-104-L B-201-L C-301-L C-401-L	Natural			Z	R-1
1-156-(P)	Hole in Trunk	18" x 12" (Metal)	A-104-L B-201-L C-301-L C-401-L	Natural			Z	R-1
1-169-1	R & S Proof Vent	20" Dia (Metal)	B-201-L C-304-L C-403-L C-501-A	Natural			Z	R-1
1-169-2	R & S Proof Vent	20" Dia. (Metal)	B-201-L C-304-L	Natural			Z	R-1
1-176-1	R & S Proof Vent	20" Dia. (Metal)	B-201-L C-304-L C-403-L C-501-A	Natural			Z	R-1
1-176-2	R & S Proof Vent	20" Dia. (Metal)	B-201-L B-304-L	Natural			Z	R-1
1-181-1	R & S Proof Vent	20" Dia. (Metal)	B-201-L C-201-L C-305-L	Natural			Z	R-1
1-181-2	R & S Proof Vent	20" Dia. (Metal)	B-201-L C-305-L C-404-L C-502-L	Natural			Z	R-1
1-187-1	R & S Proof Vent	20" Dia. Metal	B-201-L C-305-L C-404-L C-502-A	Natural			Z	R-1
1-187-2	R & S Proof Vent	20" Dia. (Metal)	B-201-L C-305-L	Natural			Z	R-1

WEATHER DECK CLOSURES

EXHAUST VENTILATION SYSTEM

COVER NO.	DESCRIPTION OPENING	TYPE & SIZE COVER LID	COMPTS. EXHAUSTED	NATURAL OR FORCE DRAFT	BLOWER MOTOR SYSTEM	FAN ROOM	CLASS.	DIV. RESP.
1-193-(S)	Hood on blkhd.	72" x 28" (Fire Damp)	B-201-L C-305-L C-306-L C-307-L C-404-L	Force Draft	2-194-1	No. 11	Z	R-1
1-196(P)	Gooseneck	9" Dia. (Metal)	C-504-E	Natural			Z	R-1
1-201-1	R & S Proof Vent	24" Dia. (Metal)	B-201-L C-306-L C-405-L	Natural			Z	R-1
1-201-2	R & S Proof Vent	24" Dia. (Metal)	C-101-L C-306-L C-405-L C-503-L	Natural			Z	R-1
1-201-3	Light excluding Hood	11" x 1'11" (Metal)	C-101-L Decontamination Rm.	Force Draft	01-92	Dryers	Z	R-1
2-232-(S)	Gooseneck	12" Dia. (Metal)	C-406-E	Natural			Z	R-1

CHAPTER 18

PARAVANE BILL

CARE, RESPONSIBILITY AND GENERAL INFORMATION

1. The stowage, care and use of paravanes shall, in general, be in accordance with the information and instructions contained in the "Paravane Handbook" (chapter 31, Bureau of Ships Manual, when issued) with such modifications or deviations as may be found necessary due to structural and tactical characteristics of this vessel.

2. The Chief Boatswain, under the First Lieutenant, is responsible for the stowage, rigging and streaming of paravanes. During the actual rigging, streaming, and recovery of paravanes, he will be the immediate officer in charge, under the general supervision of the First Lieutenant.

3. The Chief Carpenter is responsible to the First Lieutenant for the upkeep and overhaul of the paravanes and setting of the depth mechanisms. He is responsible for stowage of the machanisms when they are removed from the paravane body and struck below.

4. The First Division will rig and tend the starboard paravane; the Second Division will rig and tend the port paravane. Division officers will personally supervise and observe the rigging and tending of their respective paravanes, and will furnish men as indicated by this bill and as requested by the Chief Boatswain.

EQUIPMENT

1. Paravanes and equipment are provided as shown in the following list, in accordance with Group S24, Hull Allowance List.

ITEM	ALLOWANCE
HOOKS, easing out	3
PARAVANES, type "D"	4
PARAVANES, planes for; 16 knots	4
PARAVANES, planes for; 22 knots	4

PARAVANE BILL CON'T

ITEM	ALLOWANCE
PARAVANES, tool and spare parts	1
STOPPERS, Carpenter complete 5/8" dia. wire	2
STOPPERS, chain for uphaul and downhaul	2
SHACKLES, 3/4"	4
FALLS, backhauls, 2½" sisal, 180' length	2
FALLS, 7" wood blocks	2
FALLS, 7" wood blocks, bucket	2
CHAIN, uphaul and downhaul, 3/4" close link chain, complete shackles and swivels	1
CHAIN, backhaul, complete; 1 shackle 3/4" close link 20' length and 12' length (4)	2 (sets)
CHAIN, towing, close link 1" complete with fitting 2' length (4)	2 (sets)
SLIDING, shoe	1
ROPE, backhaul, 58" 6x37 Galvanized wire, thimble each end, 180' length	4
ROPE, wire, inhaul, with open socket one end 5/8" 6x37 galvanized wire, 400' length	4
ROPE, tripping with thimble in one end, other end siezed.	3
ROPE, easing out, with thimble in one end other end siezed.	3
PREVENTER STAY, with thimbles both end 1" "D" 6x19 galvanized wire.	2
BRIDLES, inhaul complete 1" "D" 6x37 galvanized wire.	2
ROPE, tow, HGPS galvanized 3x37, 11/16 "D" inboard 210' end fitted with socket thimble, outboard end of (4) four seized only, (includes 6 spares, (2) spares with cutter spanners).	8
STOPPERS, for wire tow rope, 600' - 1" "C" (ratline tarred).	1 (coil)
ROPE, uphaul and downhaul tailing with thimble in one end, other end seized, changed H.G.P.S. 3/4" "D" 6x37, about 150'	2

STATIONS AND CIRCUITS MANNED

OFFICERS	STATIONS and DUTIES
First Lieutenant	General supervision.
Chief Boatswain	Immediate supervision of rigging and streaming operations.
Chief Carpenter	In charge of air testing, checking mechanism, etc.
1st Division Officer	Starboard side forecastle, in charge of rigging and tending starboard paravane.
2nd Division Officer	Port side forecastle, in charge of rigging and tending port paravane.
1st Div. Jr. Officer	Starboard side forecastle, assist.
2nd Div. Jr. Officer	Port side forecastle, assist.

"R" DIVISION

(1) 1 yeoman or yeoman striker to man 1JV phones in eyes of the ship.

(2) Artificers as necessary for air testing, etc.,

1st DIVISION

(1) One seaman at winches #1 and #3 (starboard)
(2) One seaman (with knife) at each marlin stopper.
(3) One coxswain and three seamen at each boom guy (starboard).
(4) One man to tend tail line.
(5) One coxswain and one seaman at easing out wire (starboard).
(6) One BM and four seamen at starboard paravane to steady it over the side.

2nd DIVISION

Same details as first division except that winchmen will man #2 and #4 winches and other men will be on port paravane.

Prior to rigging, the Chief Carpenter will have the "R" Division Artificers apply an air test pressure to both streaming and standby paravanes, the test pressure and the time to be in accordance with the instructions in the Paravane Handbook. The depth mechanism will also be checked for proper depth setting.

(NOTE) Paravanes should be set to run about 15 feet below the keel, provided the depth of water is at least two fathoms more than the depth setting. In any case where paravanes have to be used in less than 9 fathoms, they shall be set to run at 15 feet less than the shallowest portion of the water except that under no circumstances shall paravanes be set for less than 5 feet below the draft of the ship.

METHOD OF RIGGING AND STREAMING

Paravanes may be streamed either by letting go the inhaul wire from the Carpenters Stoppers, or streamed directly from the winch drums. The latter will generally be used aboard this vessel. Divisions will rig for their respective paravanes as follows;

1. Remove whip from winch drums and wind on 5/8" inhaul wire. (Besure wire is wound on in proper direction of rotation).
2. Rig towing chains and wire to sliding shoe, lead back to paravane cutter head and stop off with marlin at 6 to 10 foot intervals along bulwark (outboard).
3. Rig backhaul chains, wire and falls, lead back to bitts on Main Deck, Frame 55. Be sure backhauls are inboard of (under) the towing wires. The backhaul falls should be rigged inboard with a snatch block to insure easier handling and control of shoe.
4. Bend preventer stays onto booms.
5. Shackle bridle on to paravane and bend inhaul onto bridle.
6. 1st Division rig upheaul and downhaul tailing line on paravane-chain wildcat. Line to be wound on starboard anchor engine drum clockwise (facing inboard), led forward to drum of paravane wildcat, wound on counter-clockwise and led aft to port anchor engine drum and wound on clockwise (facing inboard).
7. Bend easing-out and tripping lines onto paravanes.
8. Hoist paravanes clear, swing booms out wing-and-wing and secure preventer stay forward, lower sliding shoe and cut tow wire stoppers as necessary. Ease off on backhauls (port and stbd.) evenly.
9. When shoe is in place, take up slack in backhauls and secure.
10. Lower paravanes until approximately 6 feet above the water. Use easing out line to prevent swinging into ship.
11. When "Let Go" is sounded, winchmen lower away <u>full speed</u> until paravanes are "watching" approximately abeam of the booms. Men on easing out line trip quick-release hooks. (Note: If paravanes broach after streaming, they must be recovered immediately.) <u>To Recover</u> Take up slack in inhaul line handsomely until paravane starts to travel inboard, then hoist full speed until clear. Swing forward and lower to deck.

TO RECOVER(Continue)

13. Hoist sliding shoe, take in slack on tow wire and backhaul from aft. Fake down tow wire on deck.

14. Unrig and stow gear. Be sure all unpainted metal parts are dried and coated with rust preventative before stowing below.

P A R T IV

GENERAL INSTRUCTIONS AND INFORMATION FOR DAMAGE CONTROL PERSONNEL

SHORING

The operation of shoring aboard ship is carried out for the purpose of relieving excess pressure from a bulkhead, dec, door or hatch, by means of a system of wood or metal braces or both. Heavy machinery and instruments may carry away or their bases weakened and require shoring. In this instance, a careful check must be made to assure that the deck above and/or below will stand the extra applied pressures. If the decks show signs of overloading, their load must be absorbed by a second system of shores to the next decks, above or below as the case may be.

Installing emergency patches over holes in hull plating, and backing with short braces must not be donfused with shoring. When temporary patches are braced, only sufficient pressure and braces are required to hold the patch in place. Whereas in shoring the entire bulkhead must be shored as described in the preceeding paragraph.

All structural members as originally installed, will stand flooding pressure if not damaged, and will allow only slight distortion. However, failures may occur from:

(1) Corrosion, caused by past neglect.
(2) Damage, resulting from the present casualty, either direct or by transfer through other members.

If one of the above conditions exist excessive pressure may be expected on those bulkheads or decks due to dynamic forces set up by the movement of a mass of loose water in an adjacent compartment as a ship makes way in a seaway. Under these conditions shoring of the bulkheads involved will be necessary. The judgement of the ship's personnel alone can determine this fact, by visual inspection.

Method of determining if shoring is necessary:

(1) If the bulkhead is panting.
(2) If riveted seams, bounding bars, etc., are leaking and appear weakened.
(3) If welded seams are leaking.
(4) If the strength members are cracked, distorted or otherwise damaged due to transfer of shock through other members, such as whip, etc.

Note: Usually a bulkhead that pants slightly will grow progressively worse over a period of time due to metal fatigue.

In all cases of shoring, full benefit should be taken of the frames, stiffners, etc. On the bulkhead, or deck, whether they are damaged or not. A frame broken in several places if

properly braced will afford a good stiffner.

Bulkheads, where possible, should always be shored to decks, using as backing any substantial obstructions such as stanchions, hatch coamings, or overhead beams. Bulkhead to bulkhead shoring may be used if the distance permits and if the supporting bulkhead will supply the need strength without injury to that member.

Decks may be shored to decks above, carrying the pressure to the under side of the main deck beams. The beam selected should be those directly below or as near as possible to vertical strength members.

In general, shoring should be backed by the heaviest and strongest objects at hand. Machinery bases, and boiler backs in firerooms are good examples.

If time and equipment permit, angle clips can be welded on bulkheads and decks to back up shoring. In applying wedges, care must be taken only to exert sufficient pressure to relieve the load on the weakened member. Too much movement back toward the original position may open the caulking in riveted seams, and rupture the welded seams around stiffeners and bounding bars. These may already have been distorted to the limit of their strength, and may crystalize during the reverse motion.

Through experience it has been found that shoring materials will exert their maximum strength if they are less that 30 times as long as their least width. 4" x 4" timbers should never exceed 10 feet in length, and 6" x 6" timbers should not exceed 15 feet.

The best materials for shores and wedges are Douglas Fir and Yellow Pine. Material should be straight grained and if possible free of knots. If there are knots make sure they are well scattered and very small.

Other materials can be used for shores, such as hemlocks, spruce, hardwood, metal angles, and pipe, etc.

Hardwood however is not recommended except in emergencies. Hardwood wedges have the tendency to slip and will not expand or swell greatly when in contact with water.

All wedges should be cut with a coarse saw, and left rough on all sides so as to have a good holding surface.

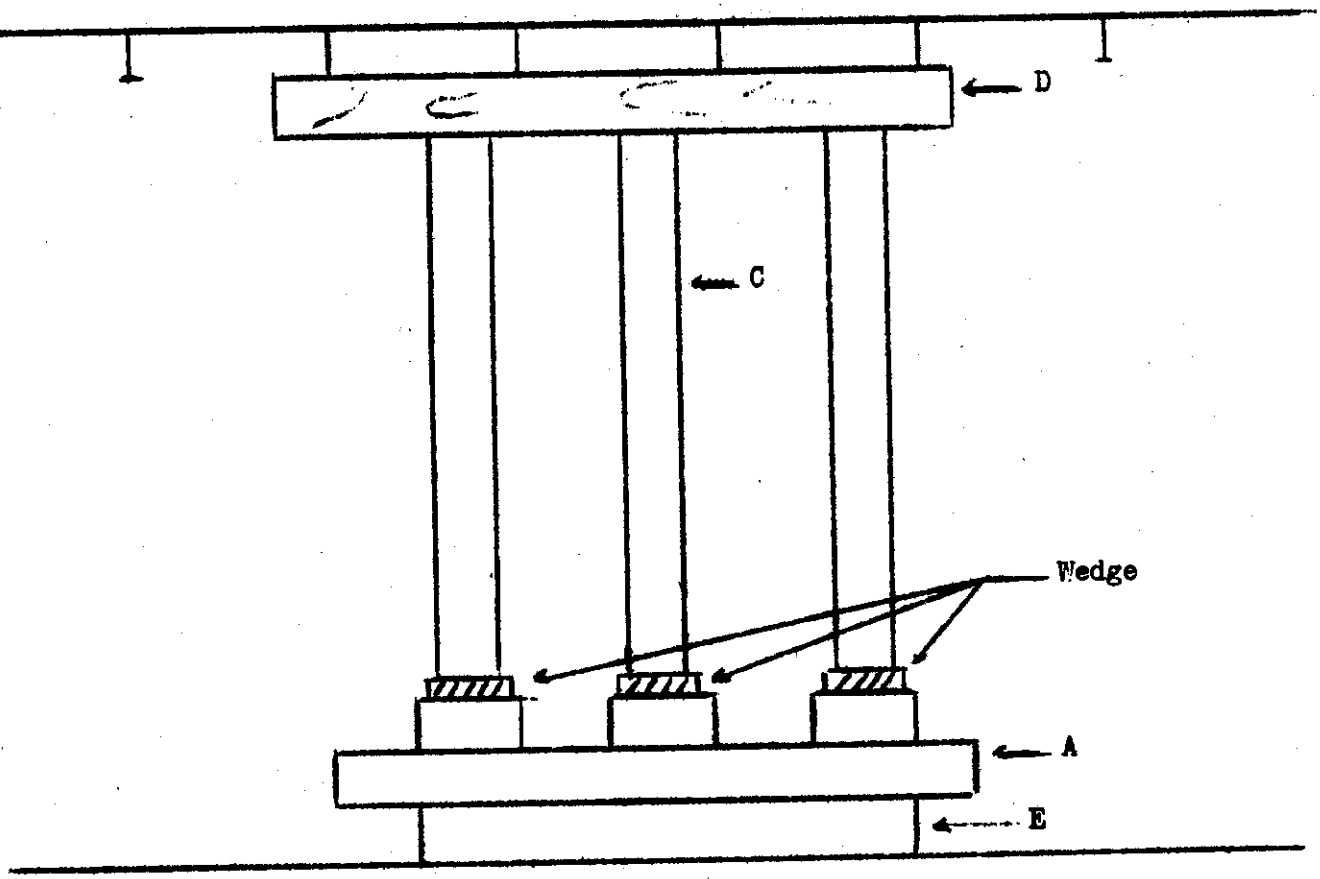
Wedges should be the same size as the shores you are using. An ideal wedge is about 12" long, 4 or 6 inches to a reasonably

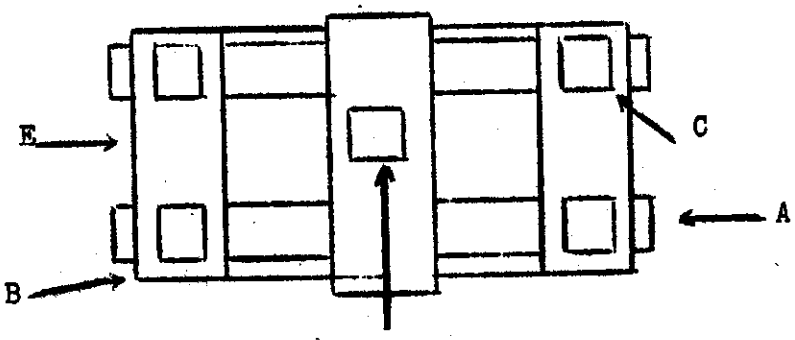
sharp point, (about 1/8").

Some points to remember in any event are:

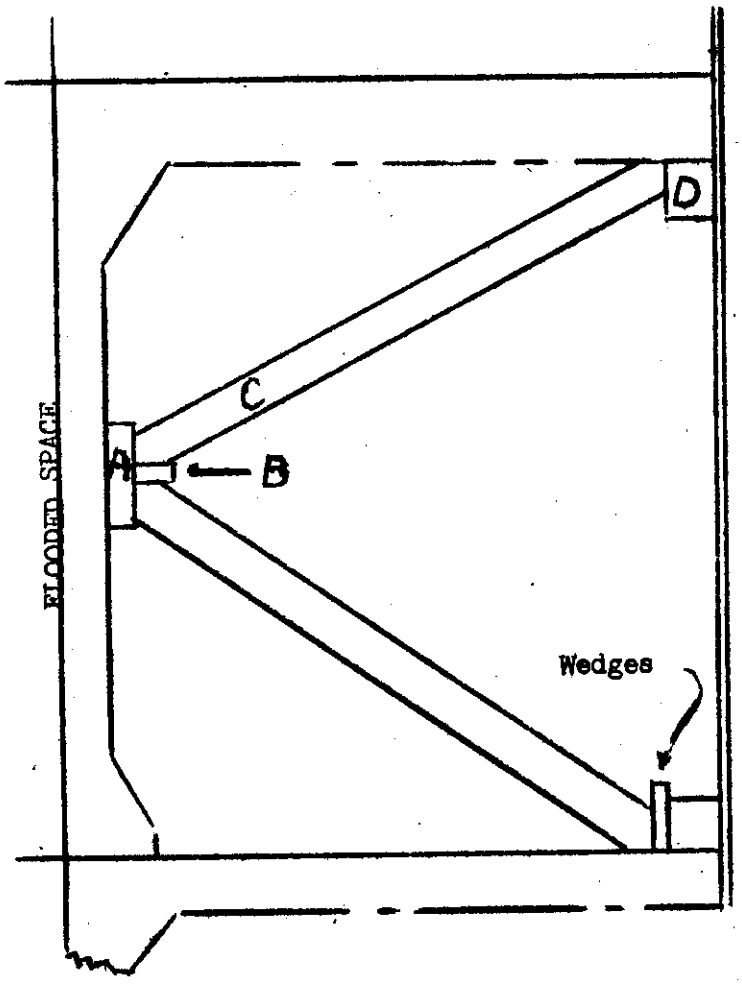
(1) Place the legs of the shoring structure (if possible) against the strong back at an angle of 45° to 90° to the strongback.
(2) Eliminate all feather or sharp ends on shores.
(3) Use as few wedges as possible to apply the required pressure, and install the shore system so that pressure will travel through entire system from wedging point.
(4) Make full use of ships strength member attached to the damaged area by bracing directly to them through a strongback.
(5) Apply only enough pressure on the wedges to relieve the excess pressure on the bulkhead and to make the shoring structure stable.
(6) Shore the entire bulkhead or deck where damaged.
(7) Investigate possibility of making temporary repairs to damaged members, with the shoring in place.
(8) Maintain a watch on the shoring.
(9) When in doubt shore and use sufficient shoring to be reliable.
(10) If there is any doubt that the damaged bulkhead and shoring may carry away later due to heavy seas or higher speeds even though the shoring is correctly done, do not hesitate to shore the next bulkhead aft, forward, or inboard as the case may be, so that if the entire structure carries away suddenly the possible damage to the adjoining bulkhead and the sudden rush of free water, will (if shored) greatly increase its change of holding.

METHOD V

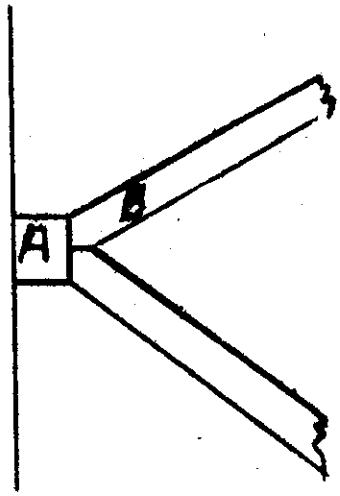




"A" Horizontal Shore
"B" Short strongback
"C" Vertical shore
"D" Overhead strongback
"E" Light constructed hatch
NOTE: Same system on door or vertical manhole cover.



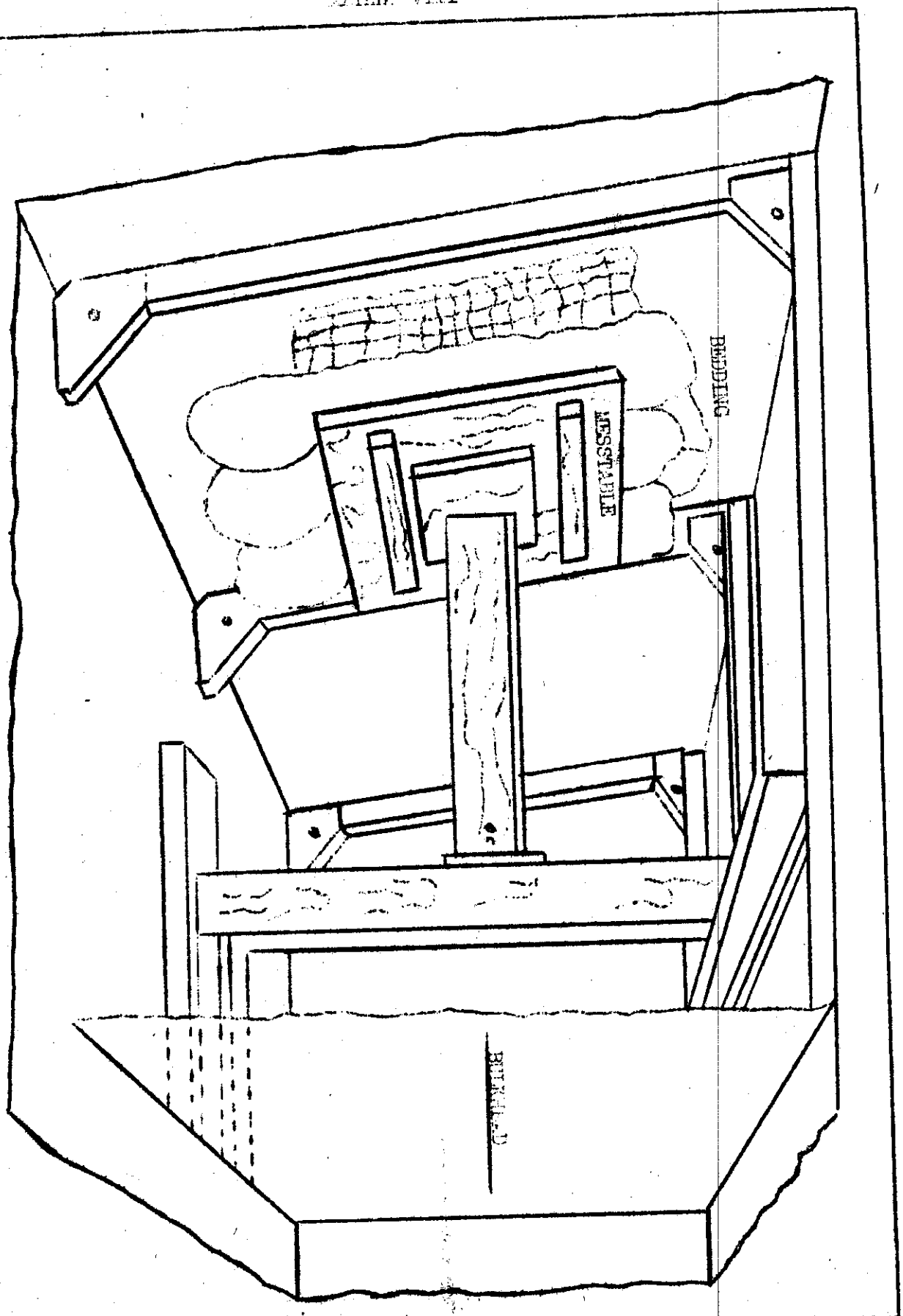
ELEVATION

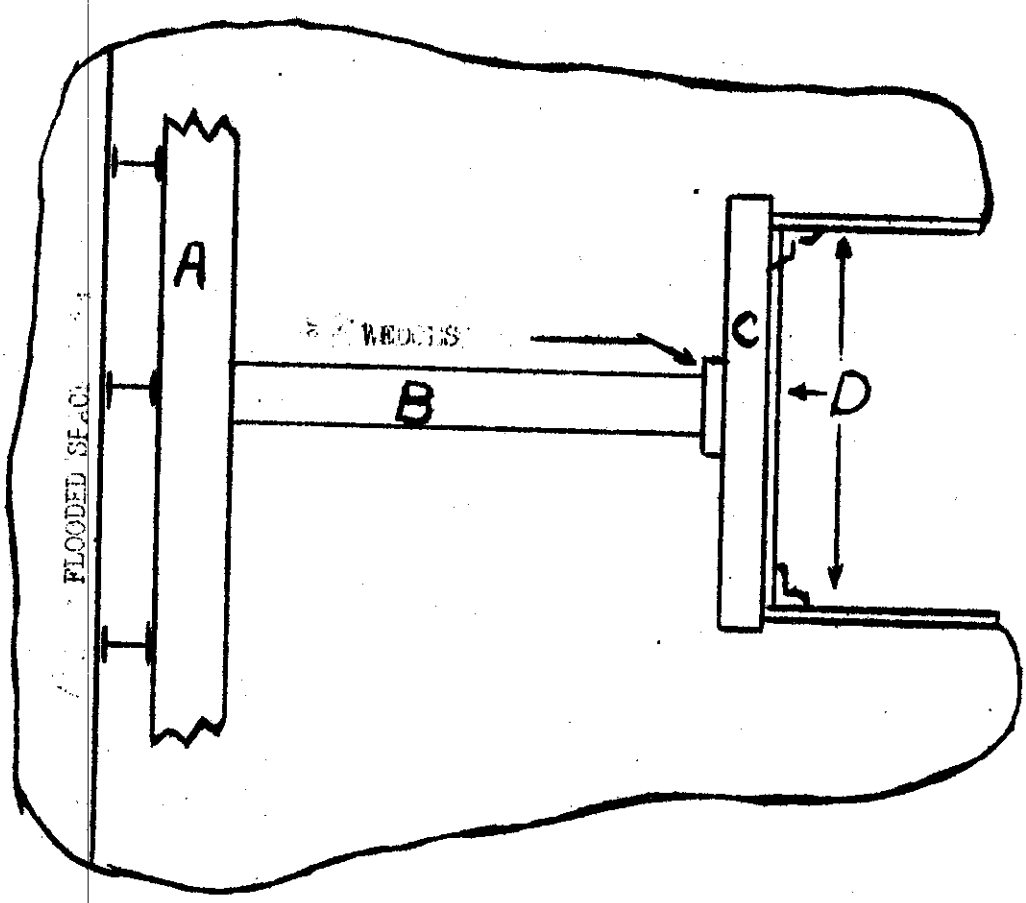


ALTERNATE METHO'

A - STRONGBACK
B - 2" x 4" SPREADER
C - SHORE
D - 4" x 4" ALONG BULKHEAD, FOR BACKING SHORE

ANLAGE VIII

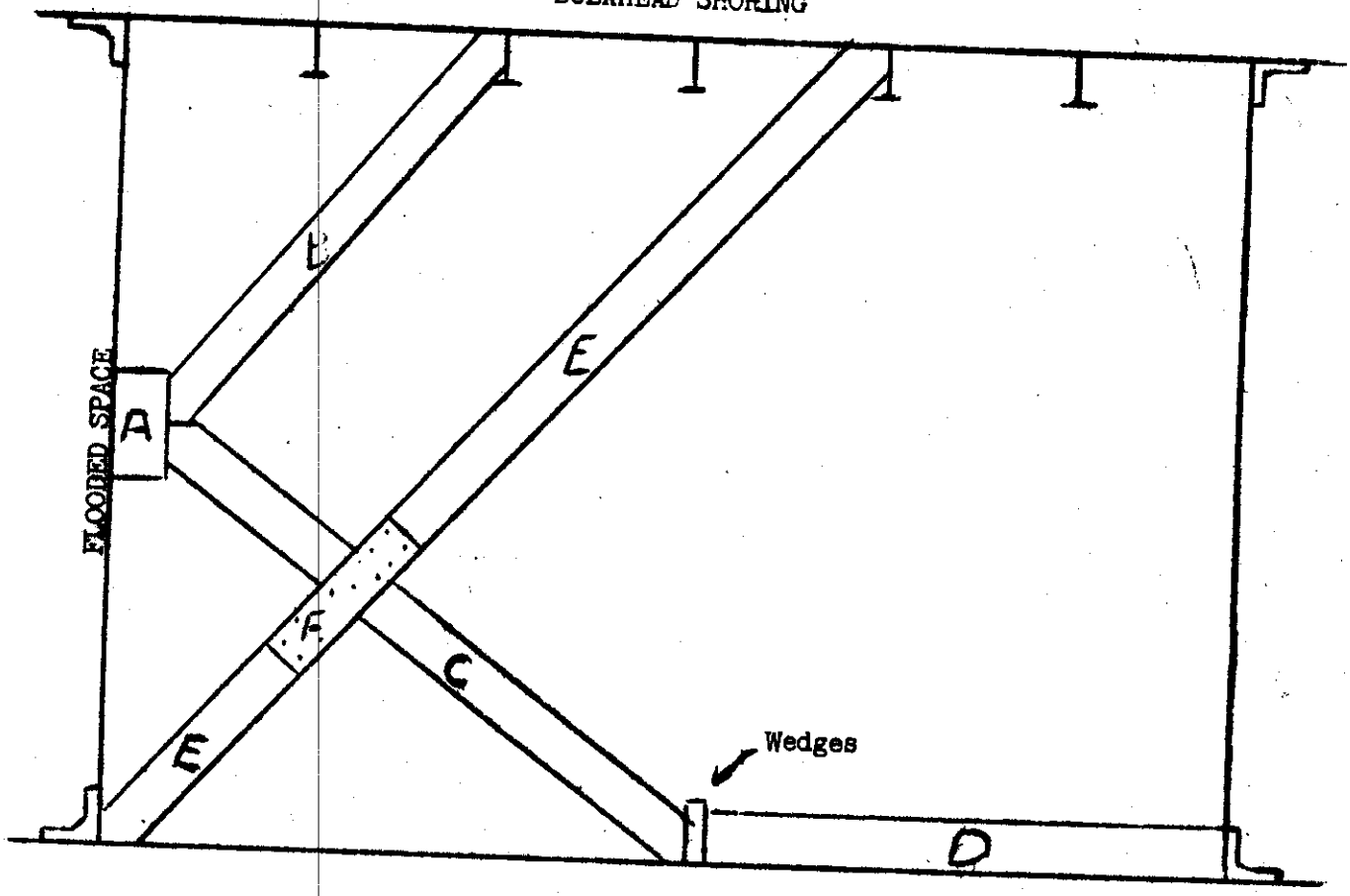




PLAN

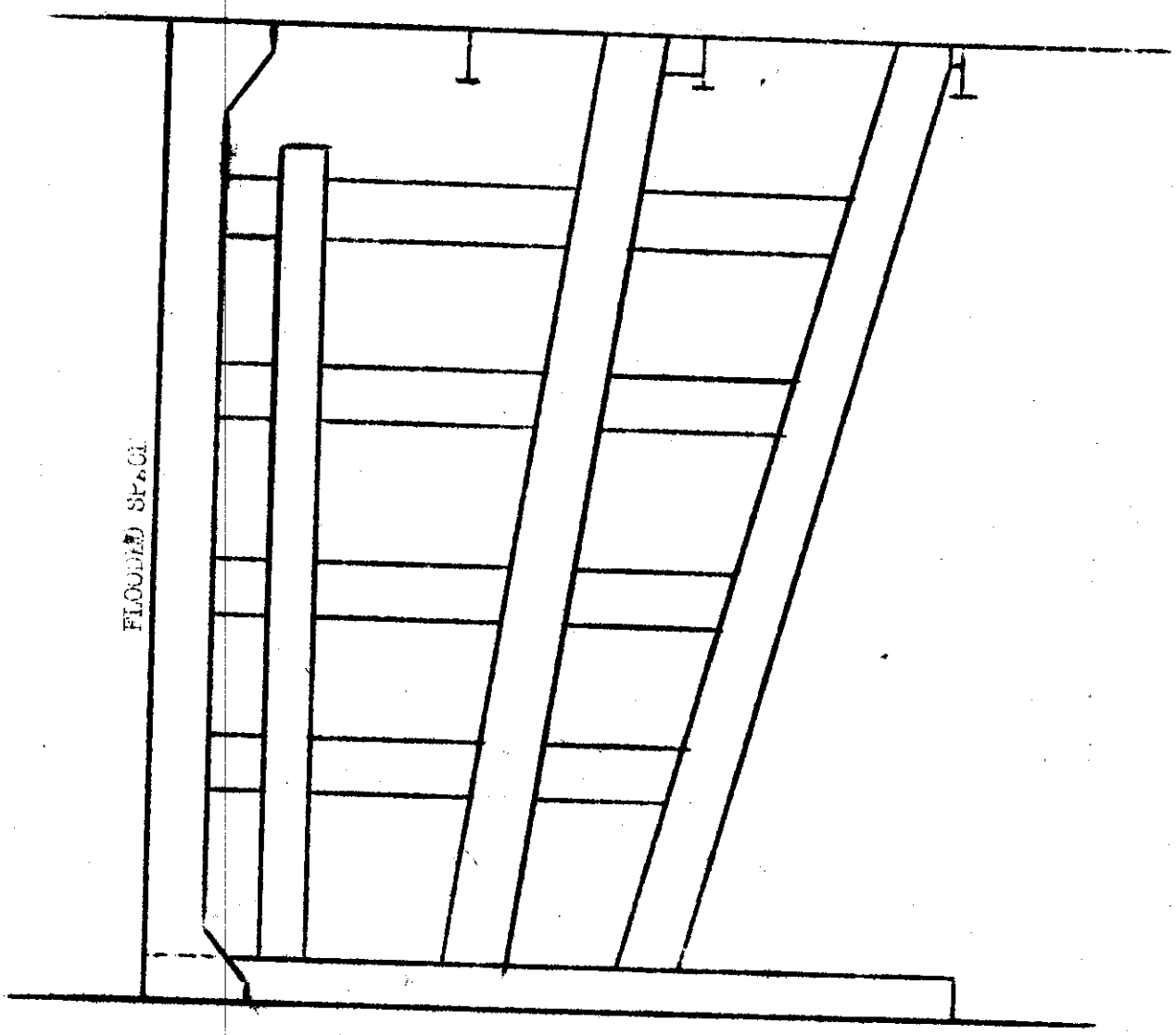
"A" STRONGBACK
"B" SHORE
"C" STRONGBACK (SHOULD EXTEND ACROSS ENTIRE WIDTH OF TRUNK "D"

BULKHEAD SHORING

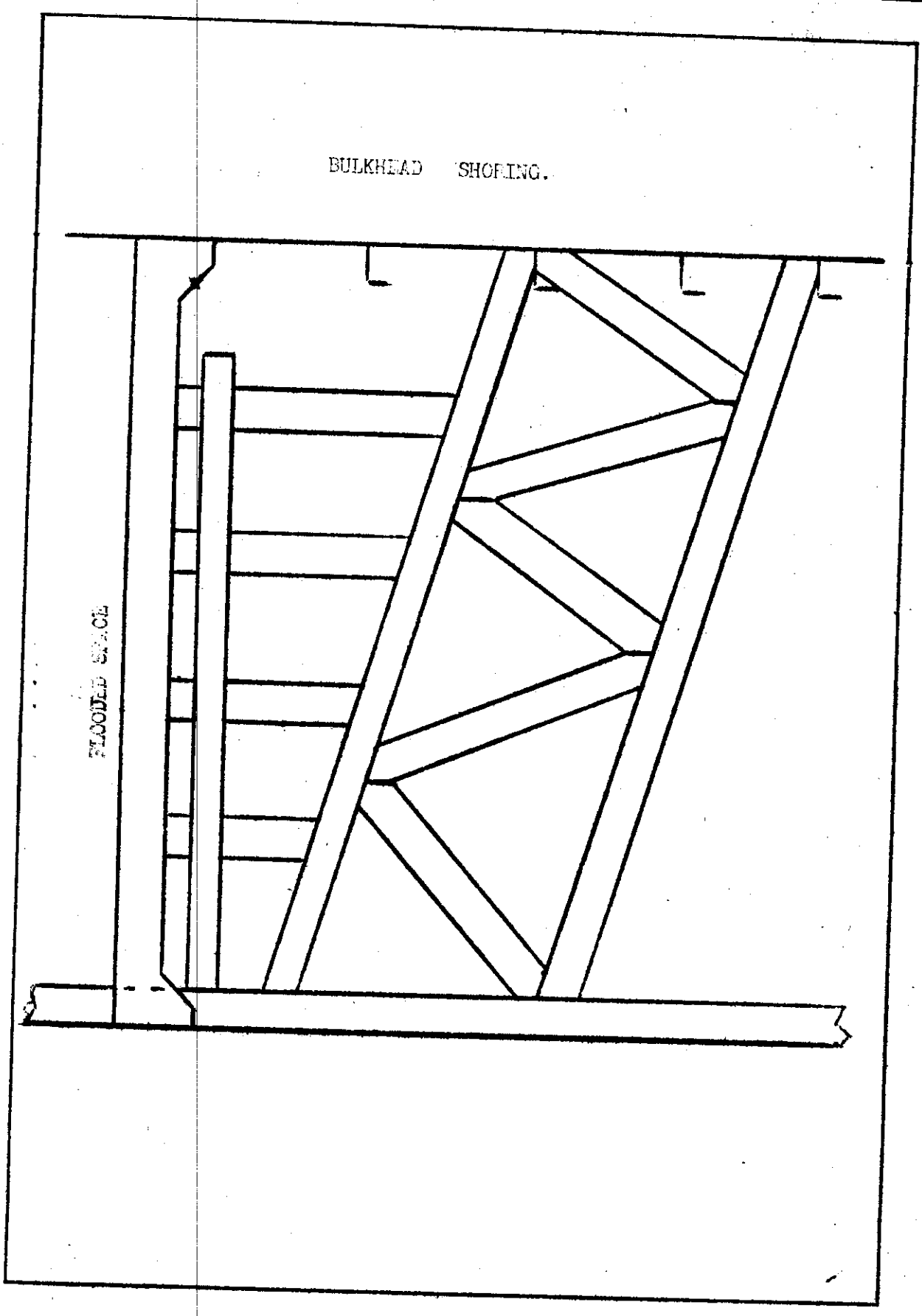


A- Strongback (should extend over 3 frames or more.
B- Shore to overhead frame.
C- Shore to deck.
D- Brace to back up "C".
E- Intercoastal shore to stiffen "C".
F- Cleat overlapping "C". Fish plating stiffeners "E".

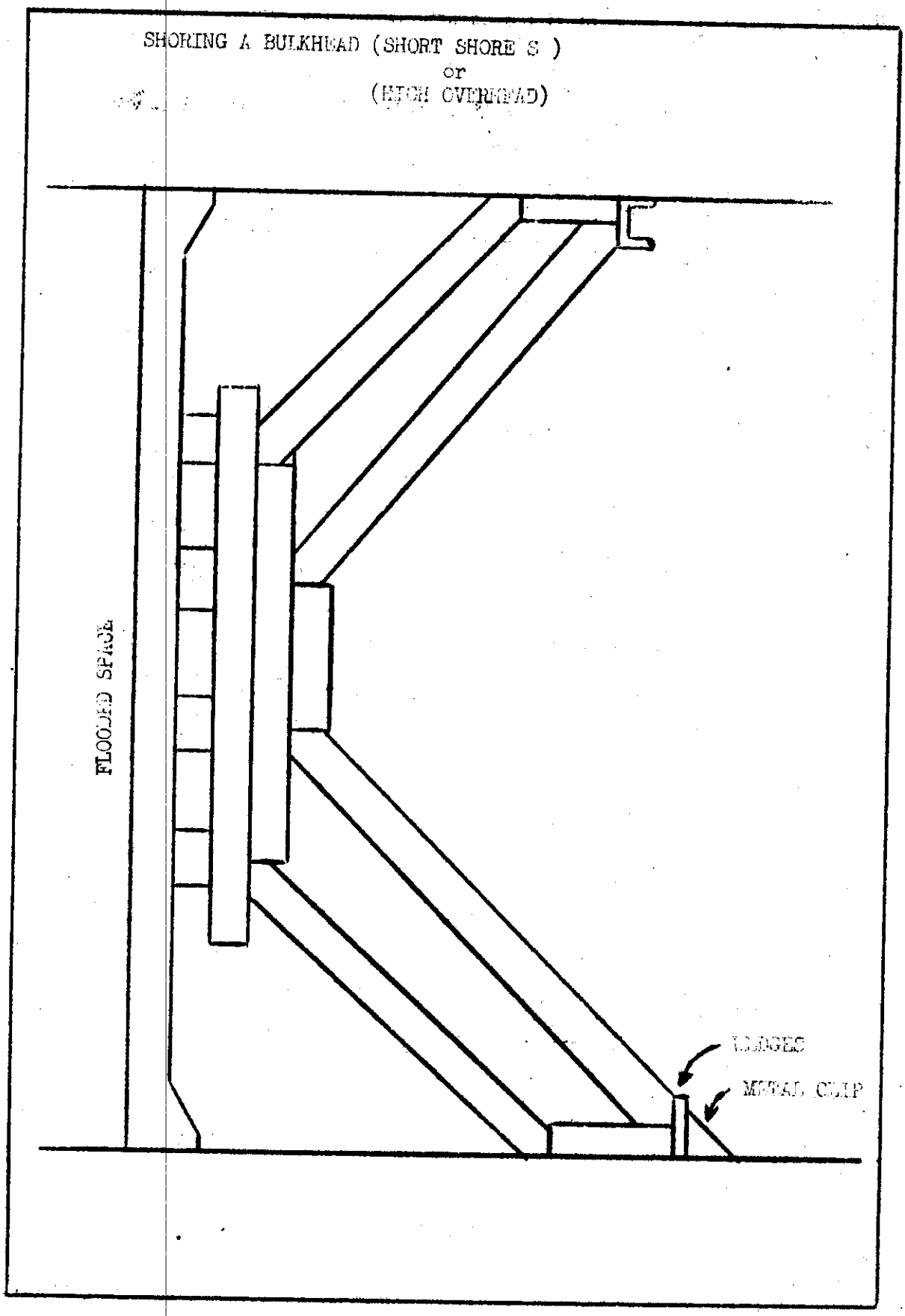
BULKHEAD SHORING



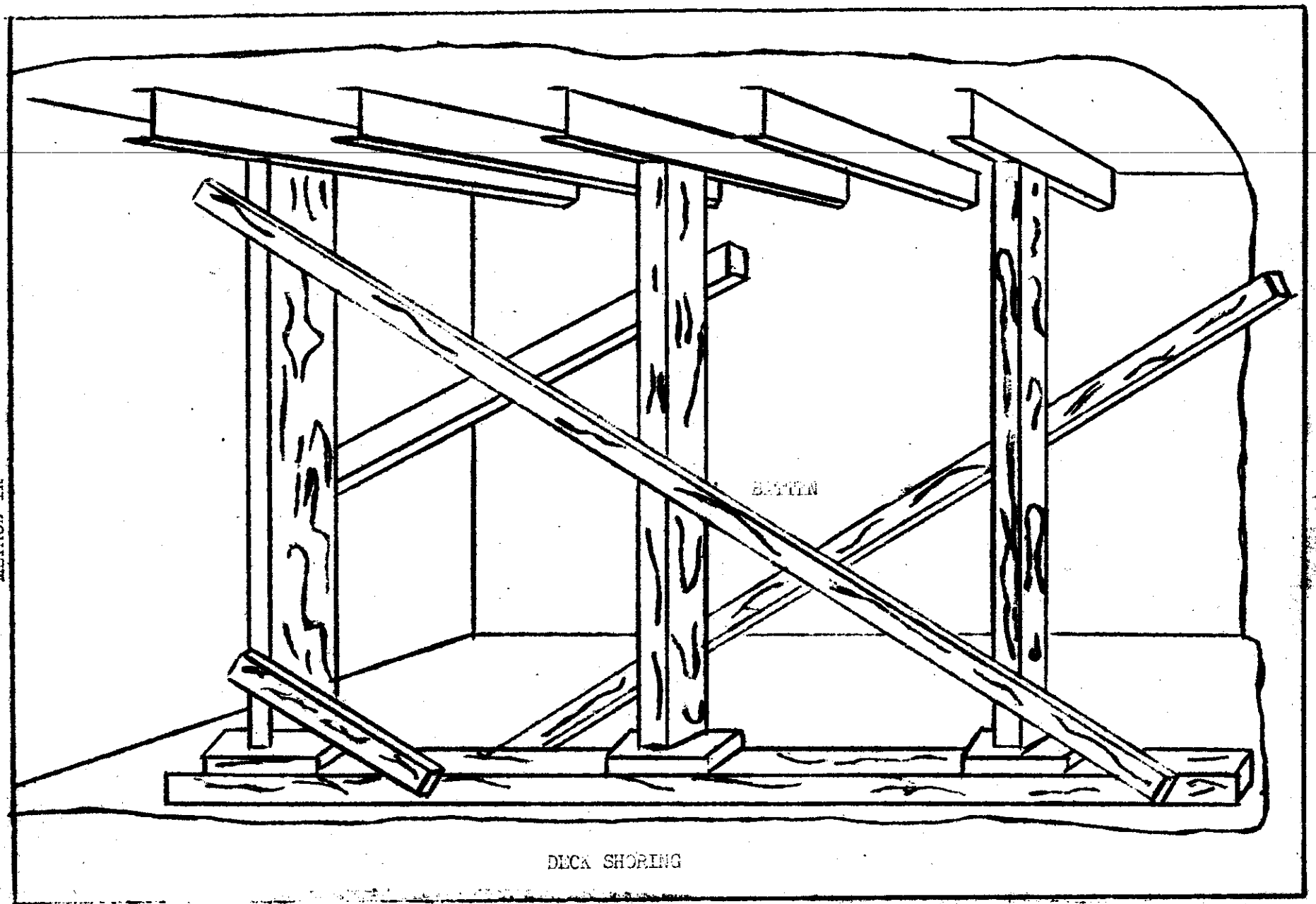
BULKHEAD SHORING.



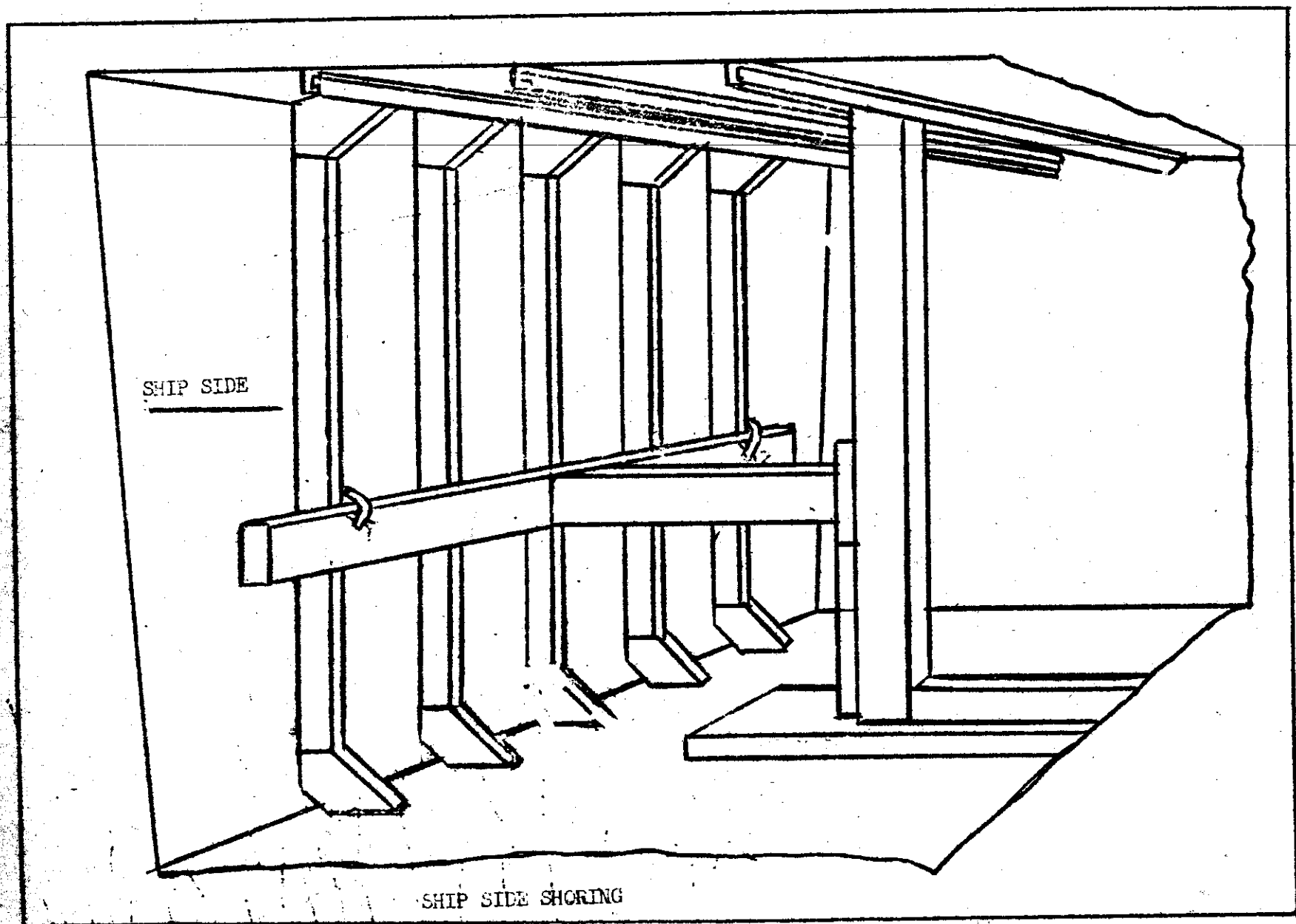
SHORING A BULKHEAD (SHORT SHORE S)
or
(HIGH OVERHEAD)



METHOD 1A

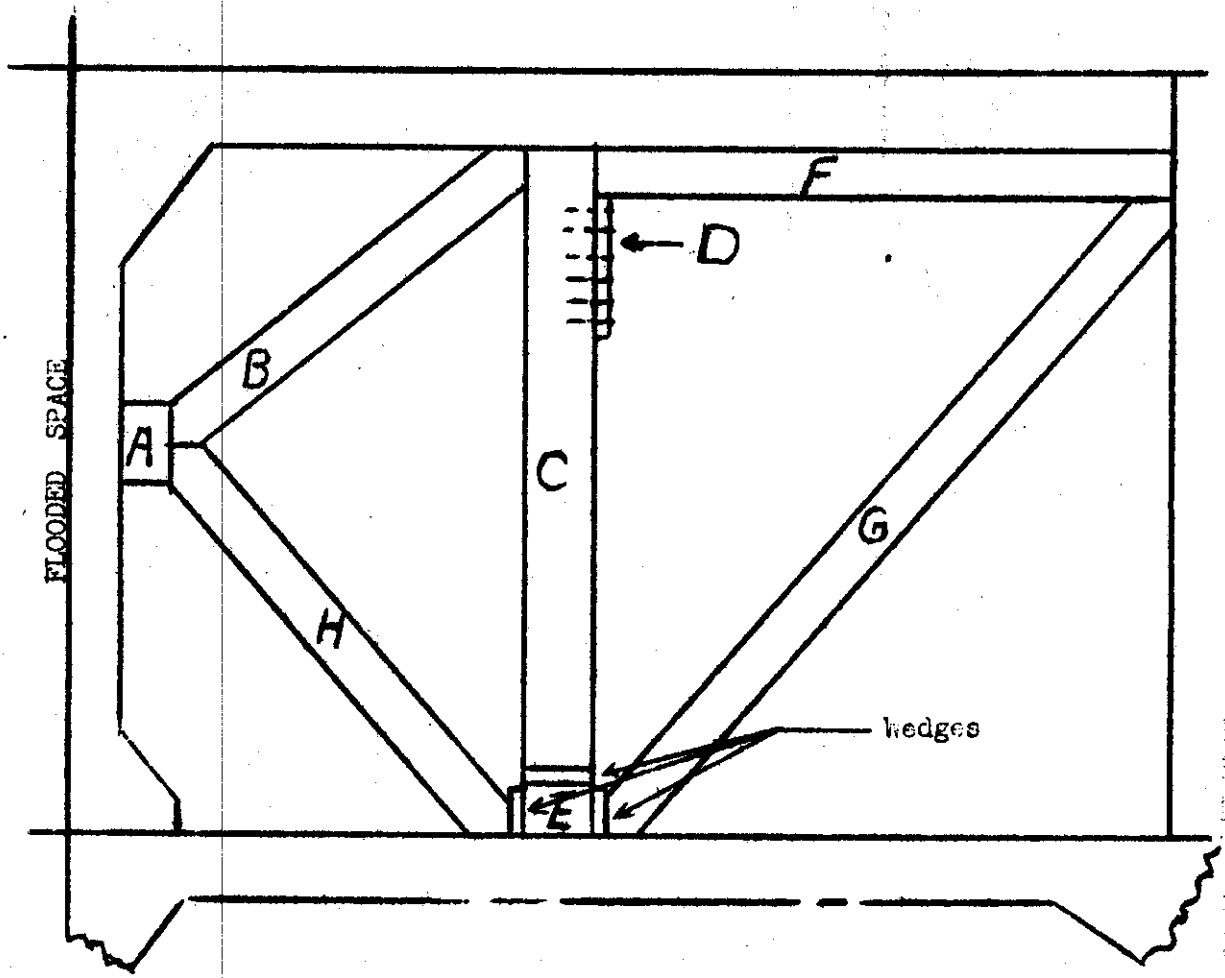


DECK SHORING



SHIP SIDE SHORING

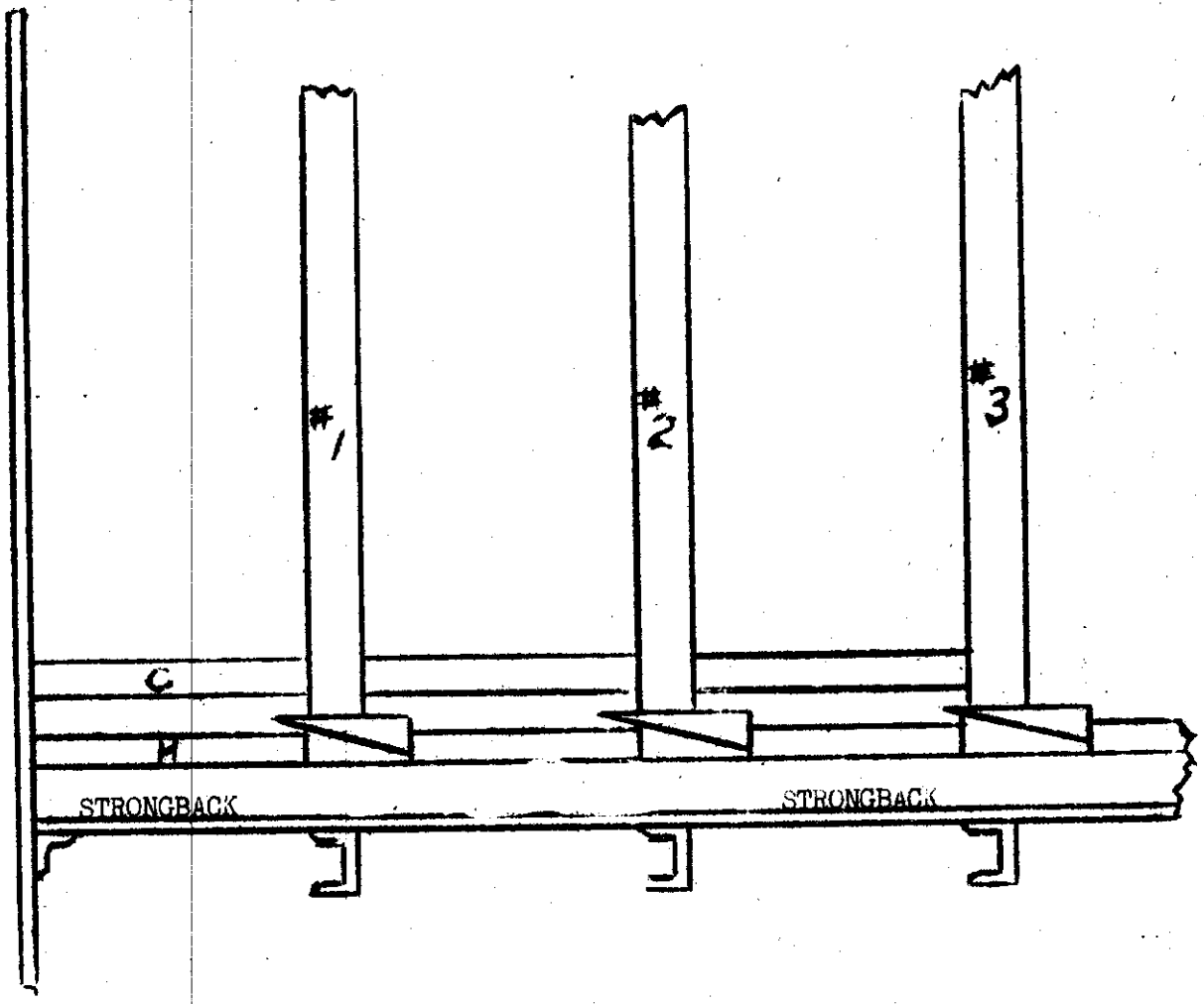
BULKHEAD SHORING



ELEVATION

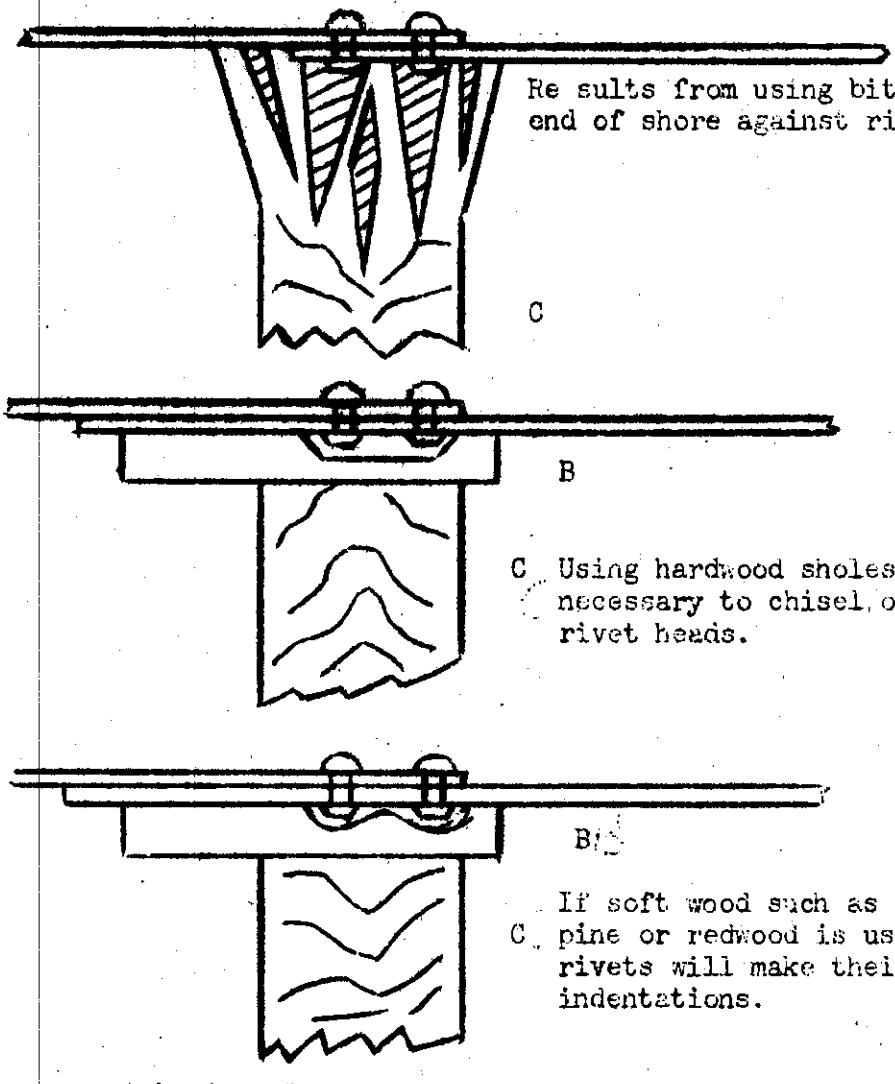
A- STRONGBACK 4" X6"
B- SHORE 4" X 4"
C- STRONGBACK 6" X 6"
D- CLEAT 2" X 4"
E- BASE FOR SHORES "G" AND "H",6" X 6"
F. BRACE TO BACK UP "B" THROUGH "C"

Problem of backing up wedges and uprights so shores will end up in an upright or vertical position, very good where oil is present.



C. These pieces may or may not be removed after the entire operation is completed

PROBLEM OF SHORING OVER A RIVETED SEAM OR JOINT



Results from using bitter end of shore against rivets.

C

B

C Using hardwood sholes it is necessary to chisel out for rivet heads.

B

C If soft wood such as white pine or redwood is used the rivets will make their own indentations.

When a shore must be installed ove rivets it is necessary to place sholes over the rivets to give a good bearing for the end of the shore. The above sketches show the results of proper treatment of this situation.

A-Filler shole
B-Shole over rivets
C-Shore

CHAPTER 20

INSTRUCTIONS TO TELEPHONE TALKERS

Telephones are the principal means of communication while underway during drills, during battle, or whenever the ship is engaged in any type of activity. Because telephone communication is so essential to the operation of the ship, men on the phones must carefully observe the following instructions.

I. Care of Telephones

Men wearing phones are responsible to see that their phones are:

(a) Properly stored when not in use.
  (1) Hang ear phones over breast plate.
  (2) Unplug the cord from the jack-box; make the cord up as you would a small line.
  (3) Place the coiled cord over the arm from the breast plate to the transmitter.
  (4) Take the neck strap and wrap it around the cord, head band and transmitter arm; then, secure to catch on breast-plate.
  (5) Place phones in the proper telephone box. See that the ear pieces and transmitter are not touched by the sides or top of the box.
  (6) Close the box. This is important, in that water or damp air will short the phones and rot the rubber cord.
  (7) Place cap on jack-boxes. Dampness, dirt, etc., will short out the jack-box or prevent tight connections.

(b) When in use:
  (1) Keep turns out of the cord.
  (2) See that plug is in the jack-box straight and that it is tight.
  (3) Watch your cord. Do not put strain on it; keep others from walking into or upon it. See that it does not become fouled.
  (4) In shifting phones, remove head-band and ear pieces, place band over arm from breast plate to transmitter, unhook neck band and hand the entire phone to the new talker. To put on the phones, holding the phone by the breast-plate, take neck strap and place around your neck, then hook to breast-plate. Put on head band, and adjust ear piece to fit.

NOTE: Never let the phones hang by the wires from the breast plate to the ear pieces. If your phones do not work properly, take them to the I.C. Room and draw a replacement pair. Do not leave unsatisfactory phones at your station.

II. The Talker:

Good telephones with a poor talker are often worse than no telephones at all. Any person knowing how to use a civilian telephone can operate any sound power phone.

(a) How to talk over the phones.

(1) Speak into the transmitter in a normal tone of voice. Do not shout or whisper into the phones. If you shout, others on the circuit will be blasted by your voices. Shouting also makes slurred noises over these phones. A whisper cannot be heard.

(2) Push the button on the top of the transmitter when talking into the transmitter. Do not touch this button at other times.

(3) Hold your mouth from 1½ to 2 inches from the transmitter when talking.

(b) General rules for talkers:

(1) After you have connected your phones, test your circuit using the proper test phrase, "All stations (name your station) testing". Make certain you have all stations, that you can hear them clearly and that they can hear you clearly.

(2) BE ALERT! Pay attention to what is said over your phones. If the message is not addressed to you, listen to it but do not repeat it unless the officer or man in charge of your station requests you to do so. Pay attention to the officers or man in charge of your station. Deliver the message he gives you to transmit word for word. In this connection, it is required that you watch the person in charge of your station at all times.

(3) Do not smoke while wearing phones. You can't smoke and work at the same time. A telephone talker is an important worker. Talking properly is your big job.

(4) Remember all talkers are a part of the Repair Party as well as talkers. They should be familiar with all the duties of the Repair Party. Familiarity with the duties and description of systems will help them to better understand the terms used in the telephone conversation.

(c) STANDARD PHRASES

The following phrases are standard and MUST be

CHAPTER 21

FIRST AID INSTRUCTIONS

PERSONNEL DAMAGE CONTROL! We may well think of First Aid by this name if we consider that the purpose of Damage Control is to maintain the ship in such a material condition that she may effectively carry out her mission, and that the purpose of First Aid is to treat men who are not seriously injured so they may return to their battle stations and continue to fight or operate the ship. Thus it can be seen that First Aid is a very definite and important phase of Damage Control. Men may accomplish deeds without ships, but certainly ships can accomplish nothing without men!

Learn all you can about First Aid, and encourage your shipmates to do the same. Remember, the first aid training of the man at your elbow may mean the difference between life and death to you!

Pertinent information relative to the Medical Department of this vessel in battle may be found in Part II, chapters 8 and 9, and Part III, chapter 22.

INSTRUCTIONS FOR THE CARE OF WOUNDED DURING BATTLE

First aid or emergency treatment is that treatment of the sick or injured before regular medical or surgical attention can be given. First aid measures should be applied at the spot where the injured are found whenever possible. They should be simple and effective. Considerable harm results from doing the wrong thing. The right thing to do is usually easier and requires only a little knowledge.

Remember to be cool headed, avoid crowds around injured men, handle the injured gently and reassure them, chase hysterical and excited bystanders away.

1. Life saving measures, (high spots of first aid).
   a. Stop hemorrage.
   b. Treat shock.
   c. Artificial respiration.
   d. Proper transportation.
2. Secondary measures (to prevent pain and latter complications which might lead to loss of life or serious disability).
   a. Emergency treatment for fractures.
   b. Emergency treatment for burns.
   c. Emergency treatment for internal injuries.
   d. Emergency treatment for injuries of head, neck and spine.

3. Compartation of modern ships places such care of the wounded during a Naval battle almost entirely in the hands of the crew. It is not practicable to carry a sufficient number of Medical Officers or Hospital Corpsmen to care for any but the most serious cases. Furthermore, to receive such care, such cases must be transported to one of two collecting stations. It is more than likely that in action no cases will reach the Medical Officer until the ship is no longer under fire. Hence, it is highly important that all hands be familiar with the principles of first aid as outlined on the preceding page.

HEMORRAGE

SYMPTONS - Visible bleeding whose rate of speed can be measured in drops per minute.

TREATMENT - Patient to lie down, keep quiet until bleeding has stopped. Elevate the affected part. Complete rest. No stimulants. Give morphine if necessary for pain and restlessness. Use pressure compresses. Digital pressure over pressure points.

TOURNIQUET - Exercise extreme caution in the use of a tourniquet. Use these only in cases of severe arterial bleeding or in those cases where hemorrage cannot be stopped by usual methods. In using a tourniquet, be sure that it is applied tight enough to stop the flow of arterial blood. Dangers in the use of a tourniquet are that if it is applied tight enough to stop the flow of arterial bleeding, it may cause pain and swelling of the limb. And, if left long enough may cause gangrene and death of the party. It is important that they be watched and loosened from time to time, at about twenty minute intervals. If on loosening the tourniquet, the bleeding starts again tighten it up; and if there is no appearance of bleeding, leave the loose tourniquet in place with an attendant instructed to tighten it if bleeding recurs.

SHOCK

Shock is treated first, and the cause is treated as the patient responds to the treatment. This is true in most cases except in cases of hemorrage, when you stop hemorrage first.

TREATMENT OF SHOCK - Prevent escape of body heat. Keep patient comfortably warm (coats, blankets, life jackets, etc.), may be used). Head down, morphine syrette for pain.

GENERAL PRINCIPLES IN TREATMENT OF WOUNDS

Keep encouraging the patient. Do not tell him how serious his injuries are. Keep the wound clean, avoid large amounts of antiseptic solutions as these are irritating to the tissues. Remove all foreign bodies carefully. Dust Sulfathiozole or Sulfanalimide powder in liberal amounts. Sterile pressure dressing over affected part.

FRACTURES

Everyone knows that a person suffering from a fracture needs delicate care. There are probably no other occasions calling for first aid treatment where your knowledge of what to do will accomplish so much in relieving pain as treatment of broken bones. Proper treatment of even such minor fractures as a broken finger or toe will do much in preventing suffering. The right kind of treatment os such a fracture as a broken leg or skull fracture may save a life or prevent the patient from becoming a cripple. The least your treatment will accomplish will be to make the patients recovery faster and more complete, and far less painful. There is one thing to keep in mind, THERE IS ALWAYS SOMETHING YOU CAN DO TO HELP A PERSON WHO HAS A FRACTURE. Just how much you can help depends chiefly on your own ingenuity and cool headedness.

SIGNS OF FRACTURE - Pain and tenderness at point of fracture, swelling and later discoloration, loss of motion either partial or complete, deformity.

TREATMENT - Splint them where they lie. If in doubt treat as a fracture, for even if those symptoms are not present there still may be a fracture. Make the victim as comfortable as possible without moving him. Do not let bystanders move patient. ASSUME THE WORST. Patient usually does not know how seriously he is injured. Do not let patient get up. Treat the patient for shock. Check bleeding if any.

BURNS

1st degree burns - Redness of skin.
2nd degree burns - Blisters of skin.
3rd degree burns - Deeper tissues may be scarred.

TREATMENT - Tear or cut away clothing from burned area, relieve pain with morphine syrette if needed, sterile boric acid ointment or 5% Sulfathiozole or Sulfanalimide ointment, sterile dressing.

2ND and 3RD DEGREE BURNS - Relieve pain, morphine syrettes, do not apply oils or greases. Treat for shock. Apply sterile Boric Acid Ointment or 5% Sulfathiozole or Sulfanalimide Ointment, bandage snugly, but do not apply too tight to obstruct the circulation. Do not use Tannic Acid especially on face, hands or feet.

EYE BURNS - Never use Tannic Acid or parafine wax treatment in burns in or around the eyes.

TREATMENT - Wet compresses of Boric Acid solution or saline solution.

ARTIFICIAL RESPIRATION

When used: When there is no sign of breathing, breathing is shallow, persons who have been submerged in water, persons who have inhaled gasses, persons who have suffered electric shock.

Method used: - Shaeffer Prone Pressure Method.

a. Place patient face downward with his head to the side on one forearm, and his face turned outward. The other arm extended overhead.
b. Make sure the air passages are clear (THIS IS IMPORTANT).
c. Get astride the patient on your knees and facing the patients head.
d. Rise to knees and press on patient's ribs with palms on small of back, the fingers on the ribs. Press about 3 seconds, release pressure and sit back for 2 seconds. Do this about 12 or 15 times each minute. Use only weight of body and do not squeeze.
e. Do not stop artificial respiration too soon.
f. Cover patient from waist to heels with blankets. After breathing is established treat as for shock.

TRANSPORTATION OF INJURED

In the excitement of battle, injured personnel are prone to stay on their feet until they drop. When a man is obviously injured, he should be made to lie down while receiving first aid. The following types of cases should remain lying down and wait transportation to the nearest collection station.