

MIL-STD-784B(SHIPS)
30 November 1966

SUPERSEDING
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17 JUNE 1965
(See 8.2)

MILITARY STANDARD

DAMAGE CONTROL BOOKS FOR
SURFACE SHIPS,
REVISION OF



FSC 7610

MIL-STD-784B(SHIPS)
30 November 1966

DEPARTMENT OF THE NAVY
NAVAL SHIPS ENGINEERING CENTER
WASHINGTON, D. C. 20360

Damage Control Books for Surface Ships, Revision of
MIL-STD-784B(SHIPS)

1. This standard has been approved by the Naval Ship Engineering Center and is mandatory for use by activities under the cognizance of the Naval Ship Systems Command, effective on date of issue.
2. Recommended corrections, additions, or deletions should be addressed to the Commander, Naval Ship Department of the Navy, Washington, D. C. 20360.

MIL-STD-784B(SHIPS)
30 November 1966

FOREWORD

1. This standard has been prepared to establish the requirements for revising damage control books (diagrams, text and tables) for surface ships.
2. The term "Industrial Manager" as used in this standard shall be understood to apply to the activity responsible for the overhaul or conversion, such as Supervisor of Shipbuilding or Commander of the Naval Shipyard.

CONTENTS

Paragraph		Page
1.	SCOPE	1
1.1	Scope	1
1.2	Classification	1
2.	REFERENCED DOCUMENTS	1
3.	DEFINITIONS	1
3.1	Ship's Master Copy Damage Control Book	1
3.2	Ship's Master Copy Plastics	1
3.3	Set of plastic diagrams	1
3.4	Drafting plastic sheet	1
3.5	Sensitized plastic sheet	2
3.6	Plastic positive sheet	2
3.7	Plastic negative sheet	2
3.8	Composite halftone plastic positive sheet	2
3.9	Composite halftone plastic negative sheet	2
3.10	Non-reproducible	2
3.11	Reverse reading	2
3.12	Direct reading	2
3.13	Opaquing	2
3.14	Klrtype	2
3.15	Color guide print	2
3.16	Screen	2
3.17	Lithographic copies	2
3.18	Halftone prints	2
3.19	Composite print	2
4.	GENERAL REQUIREMENTS	2
4.1	Revisions of damage control book	2
4.2	Review and checking	3
4.3	Material	3
4.3.1	Plastic sheet material	3
4.3.2	Size of plastic sheets	3
4.3.3	Ink	3
4.3.4	Removal of ink work from plastics	3
4.3.5	Removal of photographic image from plastics	3
4.3.6	Cleaning surfaces of plastics	3
4.4	Class 1 requirements for revision of "Ship's Master Copy Plastics" for diagrams to be lithographed in color	3
4.4.1	Material for revision	3
4.4.2	Procedure for revising "Ship's Master Copy Plastics"	3
4.4.2.1	Care of "Ship's Master Copy Plastics"	3
4.4.2.2	General	3
4.4.2.3	Change in ship's classification or number	3
4.4.2.4	Addition of new systems	4
4.4.2.5	Drafting	4
4.4.2.6	Opaquing	4
4.4.2.7	Klrtype	4
4.4.2.8	Revision date	4
4.4.3	Firemain segregation diagrams	4
4.4.4	Replacement of revised "Ship's Master Copy Plastics"	4
4.4.5	Contact black line prints (reproduction)	4
4.4.6	Color guides	4
4.4.7	Distribution of class 1 plastics and prints	4
4.5	Class 2 requirements for revision of lithographed copies of damage control diagrams	5
4.5.1	Material for revision	5
4.5.2	Procedure for revising lithographed copies of diagrams	5
4.5.2.1	General	5
4.5.2.2	Change in ship's classification or number	5
4.5.2.3	Additions and changes to existing system	5

MIL-STD-784B(SHIPS)

30 November 1966

Paragraph	Page	
4.5.2.4	Addition of new systems	5
4.5.2.5	Deletions	5
4.5.2.6	Marginal notes	6
4.5.2.7	Relocation of existing information	6
4.5.2.8	Subdivision changes	6
4.5.2.9	Changes in shading	6
4.5.2.10	Complicated changes	6
4.5.2.11	System base changes (grey and black diagram common to all systems)	6
4.5.2.12	Revision date	6
4.5.3	Firemain segregation diagrams	6
4.5.4	Distribution of class 2 marked up lithographed diagrams	6
4.6	Class 3 requirements for revision of damage control book text associated with class 1 or class 2 requirements	7
4.6.1	Material for revision	7
4.6.2	Procedure for revising text	7
4.6.2.1	General	7
4.6.2.2	Change in ship's classification or number	7
4.6.2.3	Additions and modifications of systems	7
4.6.2.4	Title page	7
4.6.2.5	Table of contents	7
4.6.2.6	Record page	7
4.6.2.7	List of diagrams	7
4.6.2.8	Closure classifications	8
4.6.2.9	Controllers and power panels for ventilation fans, listing	8
4.6.2.10	Stability and loading section	8
4.6.3	Book format requirements	8
4.6.3.1	Typewritten manuscript	8
4.6.3.2	Format for text and tables	8
4.6.3.2.1	Additions to text and list of fittings	8
4.6.3.2.2	Changes to text and list of fittings	8
4.6.3.2.3	Footnotes in list of fittings	8
4.6.3.2.4	Numbering and identification of manuscript	8
4.6.4	Preparation of complete new text	8
4.6.5	Distribution of class 3 text	8
4.7	Class 4 requirements for revision of "Ship's Master Copy Plastics" for reproduction in halftone	9
4.7.1	Material for revision	9
4.7.2	Procedure for revising "Ship's Master Copy Plastics"	9
4.7.2.1	Care of "Ship's Master Copy Plastics"	9
4.7.2.2	General	9
4.7.2.3	Change in ship's classification or number	9
4.7.2.4	Addition of new systems	9
4.7.2.5	Drafting	9
4.7.2.6	Opaquing	9
4.7.2.7	Klrtype	9
4.7.2.8	Revision date	10
4.7.3	Firemain segregation diagrams	10
4.7.4	Replacement of revised "Ship's Master Copy Plastics"	10
4.7.5	Processing and reproduction	10
4.7.6	Folding and punching	10
4.7.7	Binders	10
4.7.8	Distribution of class 4 diagrams	10
4.8	Class 5 requirements for revision of damage control book text associated with class 4 requirements	10
4.8.1	Material for revision	10
4.8.2	Procedure for revising text	10
4.8.2.1	General	10
4.8.2.2	Change in ship's classification or number	11

Paragraph		Page
4.8.2.3	Additions and modifications of systems	11
4.8.2.4	Title page	11
4.8.2.5	Table of contents	11
4.8.2.6	Record page	11
4.8.2.7	List of diagrams	11
4.8.2.8	Closure classifications	11
4.8.2.9	Controllers and power panels for ventilation fans, listing	11
4.8.2.10	Stability and loading section	11
4.8.3	Book format requirements	11
4.8.3.1	Typewritten manuscript	11
4.8.3.2	Format for text and tables	11
4.8.3.2.1	Additions to text and list of fittings	11
4.8.3.2.2	For changes due to relocation or deletions	12
4.8.3.2.3	Footnotes in the list of fittings	12
4.8.3.2.4	Numbering and identification of manuscript	12
4.8.4	Preparation of complete new text	12
4.8.5	Processing and reproduction of class 5 text	12
4.8.5.1	Punching	12
4.8.6	Distribution	12
5.	DELIVERY TIME REQUIREMENTS	12
5.1	Conversions	12
5.2	Overhauls	12
6.	QUALITY ASSURANCE PROVISIONS	13
6.1	Responsibility for inspection	13
6.2	Examination	13
7.	PREPARATION FOR DELIVERY	13
7.1	Packaging	13
7.2	Packing	13
7.3	Shipping	13
7.3.1	Classified material	13
7.3.2	Registered mail	13
7.3.3	Shipping security regulations	13
7.4	Marking	13
7.4.1	Classified material	13
7.4.2	Unclassified material	13
8.	NOTES	14
8.1	Ordering data	14

MIL-STD-784B(SHIPS)
30 November 1966

1. SCOPE

1.1 Scope. - This standard covers requirements for the revision of damage control books (diagrams, text and tables).

1.2 Classification. - The requirements covered by this standard shall be of the following classes (see 8. 1):

Class 1 - Revision of "Ship's Master Copy Plastics" for diagrams to be lithographed in color (see 4. 4).

Class 2 - Revision of lithographed copies of damage control diagrams (see 4. 5).

Class 3 - Revision of damage control book text associated with class 1 or class 2 requirements (see 4. 6).

Class 4 - Revision of "Ship's Master Copy Plastics" for reproduction in halftone (see 4. 7).

Class 5 - Revision of damage control book text associated with class 4 requirements (see 4. 8).

2. REFERENCED DOCUMENTS

2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this standard to the extent specified herein:

STANDARDS

MILITARY

MIL-STD-771 - Damage Control Books for Auxiliary and Miscellaneous Small Ships, Preparation of.

MIL-STD-772 - Damage Control Books for Warships and Miscellaneous Large Ships, Preparation of.

PUBLICATIONS

MILITARY

NAVSHIPS 0901-900-1000 - Naval Ships Technical Manual - Publications and Plans.

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. - The following document forms a part of this standard to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

POST OFFICE DEPARTMENT

Postal Manual Regulations.

(Applications for copies should be addressed to the Post Office Department, Washington, D. C.)

3. DEFINITIONS

3.1 Ship's master copy damage control book. - The copy, set aside by the Commanding Officer, that must be kept up to date for all changes by the ship's force or Naval bases, and tenders, and subsequently revised by the overhauling activity.

3.2 Ship's master copy plastics. - The plastic positives of the damage control diagrams for an individual ship. These plastics are kept current to suit changes made by the overhauling activity.

3.3 Set of plastic diagrams. - A set of plastics for all required diagrams.

3.4 Drafting plastic sheet. - An unsensitized translucent plastic sheet with a toothed surface which is receptive to ink. This material is used for drafting and overlays.

MIL-STD-784B(SHIPS)
30 November 1966

3.5 Sensitized plastic sheet. - A plastic sheet which is coated with an emulsion sensitized to light.

3.6 Plastic positive sheet. - A black, or blue, image of the original matter with a clear background on a sheet that was exposed by contact with a negative. The image on the emulsion side is direct reading. The material is used for the following:

- (a) For non-reproducible images (blue line). -
 - (1) On diagrams to be lithographed in color for bulkhead and deck shading, and solid tint areas for flooding effect and liquid loading diagrams.
 - (2) On halftone diagrams for shading and liquid loading patterns.
- (b) For reproducible images (black line). -
 - (1) For all final diagrams.

3.7 Plastic negative sheet. - A sensitized plastic sheet exposed by contact with a positive. This material is used for making all duplicate positives. The image on the emulsion side is reverse reading.

3.8 Composite halftone plastic positive sheet. - A sensitized plastic sheet exposed by contact with two or more negatives prior to developing.

3.9 Composite halftone plastic negative sheet. - A combination of clear and dotted images with a black background on a plastic sheet that was exposed by contact with a composite halftone plastic positive. This material is used for reproducing final halftone prints.

3.10 Non-reproducible. - An image, on plastic, that will not reproduce. Non-reproducible plastics of ship's structure provide guidelines for preparation of systems, shadings, flooding effect and liquid loading. When a negative is made, only the inked lines and applied Klrtype will reproduce.

3.11 Reverse reading. - Reverse reading applies to reading from right to left, as observed in a mirror, on the emulsion side of a plastic negative. Plastic negatives shall always be reverse reading.

3.12 Direct reading. - Direct reading applies to reading from left to right on the emulsion side of a plastic positive. Plastic positives shall always be direct reading.

3.13 Opaquing. - All hand work on a negative to remove spots or unwanted images. This is done by the use of black paper, photographic opaque or India ink to fill in areas on a negative so that they will not be reproduced on a positive.

3.14 Klrtype. - A special name adopted for material having names, numbers, and symbols printed on an acetate sheet. The sheet shall be backed by an adhesive that will not be affected by heat, will not deteriorate with age, and will permit easy removal of the images.

3.15 Color guide print. - A color guide print is a contact print made from an individual plastic negative and hand colored to indicate the required colors for lithography.

3.16 Screen. - A plastic positive composed of vignettted dots. This is used for preparing composite system base and bulkhead shading positives only for halftone diagrams.

3.17 Lithographic copies. - Damage control diagrams reproduced in color from press plates. An individual press plate is made for each color except for green on liquid loading diagram which is obtained by overprinting blue and yellow.

3.18 Halftone prints. - Damage control diagrams reproduced by contact from a composite plastic negative. The two or three shades of gray are obtained from the negative which is composed of vignettted dots of different value.

3.19 Composite print. - A blue or black line print made by contact from two or more negatives.

4. GENERAL REQUIREMENTS

4.1 Revisions of damage control book. - Revisions of damage control plastics, or lithographed copies, and associated text shall comply with the requirements specified herein. In addition, the requirements of

MIL-STD-784B(SHIPS)
30 November 1966

MIL-STD-771 and MIL-STD-772 apply only to the systems, components, and circuits contained therein that are part of the ship's installations.

4.2 Review and checking. - The overhauling activity is responsible for the revision of the damage control diagrams and associated text, and shall review and check the material for completeness, technical accuracy, legibility, reproducibility, and for conformance to requirements of the Naval Ship Engineering Center.

4.3 Material. -

4.3.1 Plastic sheet material. - Plastic sheet material shall be in accordance with MIL-STD-771 or MIL-STD-772.

4.3.2 Size of plastic sheets. - The size of plastic sheets shall be in accordance with MIL-STD-771 or MIL-STD-772.

4.3.3 Ink. - Ink used on plastics shall be in accordance with MIL-STD-771 or MIL-STD-772.

4.3.4 Removal of ink work from plastics. - The work on plastics shall be removed by applying a moist cotton swab and scraping the ink with great care so as not to remove the matte surface. Electric eraser is not recommended.

4.3.5 Removal of photographic image from plastics. - Removal of photographic image from plastics shall be accomplished with a line eradicator as follows:

- (a) Use a bleach solution. This solution will leave a ghost image and stain.
- (b) Use a solution that will remove the ghost image and stain left by the bleach solution.

Images shall not be removed from the plastics by scraping or the use of an electric eraser.

4.3.6 Cleaning surfaces of plastics. - Plastics shall be cleaned with a nontoxic and nonflammable fluid equal to "FREON TF".

4.4 Class 1 requirements for revision of "Ship's Master Copy Plastics" for diagrams to be lithographed in color. -

4.4.1 Material for revision. - Class 1 "Ship's Master Copy Plastics" shall be requested, via the Industrial Manager, from the Naval Ship Engineering Center. The "Ship's Master Copy" lithos, and one other set, shall be requested from the ship by the overhauling activity. If these lithos are not available, or if the latest copies are not available, lithographed copies shall be obtained by the overhauling activity, via the Industrial Manager, in accordance with Naval Ships Technical Manual, NAVSHIPS 0901-900-1000. All of the diagrams in the set shall be for the same ship. The "Ship's Master Copy" lithos are for changes noted by the ship's force. The other copy is for checking and working purposes.

4.4.2 Procedure for revising "Ship's Master Copy Plastics". -

4.4.2.1 Care of "Ship's Master Copy Plastics". - The "Ship's Master Copy Plastics" shall be handled with extreme care during their revisions.

4.4.2.2 General. - The "Ship's Master Copy Plastics" shall be revised to suit overhaul changes from working plans, shipalts, and work requests. All changes made by the ship's force on the "Ship's Master Copy" lithos shall be included on the plastics. The changes shall reflect the work accomplished in the ship. If a shipboard check is required (see 8.1) to bring a diagram or diagrams in agreement with the installations in the ship, the plastics shall be revised accordingly.

4.4.2.3 Change in ship's classification or number. - When the classification or ship's number is changed, the upper identifying title block on the diagram shall be changed in accordance with the following:

(a) Before change in classification:

AX103	36LG*
AX100 Class	10MG*

*Size and Style of Klrtype

MIL-STD-784B(SHIPS)
30 November 1966

(b) After change in classification:

PCE 95	36LG*
(EX-AX103)	10MG*
AX100 Class	10MG*

*Size and Style of Klrtype

4.4.2.4 Addition of new systems. - Weight of line, valves, symbols, and so forth, for a new system added to the diagrams shall be in accordance with MIL-STD-772.

4.4.2.5 Drafting. - The contractor shall perform all necessary drafting. All line work shall be drawn with pen and ink; no freehand shall be permitted. The width of the lines shall be in accordance with MIL-STD-772. When there is any discrepancy between the standard widths specified and those existing on the plastics, the width of the lines shall match those on the diagram. Any new system added to the plastics shall be in conformance with MIL-STD-772.

4.4.2.6 Opaquing. - In the event that extensive changes are necessary to the plastics, a negative may be prepared and the affected areas opaqued in lieu of removing the image from the positive. A new plastic positive will then have to be prepared and revised.

4.4.2.7 Klrtype. - All names, numbers and symbols shall be in Klrtype; no freehand permitted. Klrtype shall be in conformance with MIL-STD-772. When there is any discrepancy between the Klrtype specified and that existing on the plastics, Klrtype shall match that on the diagrams. Klrtype shall be applied carefully to plastic positives and burnished firmly to prevent falling off during landing and shipping of plastics.

4.4.2.8 Revision date. - The revision date (year only), including the overhauling activity name, shall be entered on each overhaul block of the damage control diagram plastic positives. The year of the overhaul date shall correspond to the date of the revision on the text.

4.4.3 Firemain segregation diagrams. - Firemain segregation diagram lithos shall be checked and revised to suit the firemain system diagram. The diagrams shall be in complete agreement. Revised firemain segregation diagrams shall be forwarded to the Naval Ship Engineering Center with the revised text (see 4.6.5). In the event that changes to the firemain segregation diagrams are extensive, new plastics shall be prepared in accordance with MIL-STD-772.

4.4.4 Replacement of revised "Ship's Master Copy Plastics". - Upon completion of the revisions, a new set of "Ship's Master Copy Plastics", without Klrtype, shall be prepared from the negatives. All plastic positives and negatives shall be made emulsion to emulsion. Upon completion, the original plastics with Klrtype shall be destroyed.

4.4.5 Contact black line prints (reproduction). - Upon completion of the revisions, black line prints shall be furnished as follows from the negatives:

- (a) Two sets of individual prints of all plastics, excluding shadings.
- (b) Six sets of composite prints of system diagrams only, excluding shadings.

4.4.6 Color guides. - One of the sets of individual prints, and one of the sets of composite prints, shall be hand colored in colors specified in MIL-STD-772.

4.4.7 Distribution of class 1 plastics and prints. - The Industrial Manager shall distribute class 1 plastics and prints, as follows, prior to the departure of the ship:

- (a) To the Commander, Philadelphia Naval Shipyard (code 243)
 - (1) Ship's master copy plastics.
 - (2) One set of colored (color guide) individual prints.
 - (3) One set of uncolored individual prints.

- (b) To the Naval Ship Engineering Center
 - (1) One set of colored composite prints including flooding effect/liquid loading diagram for review.
 - (2) A copy of the letter forwarding the material to the ship (see 4.6.5).
- (c) To the ship:
 - (1) One set of colored composite prints.
 - (2) *Four sets of uncolored composite prints.*
 - (3) The letter forwarding the above material shall state that the material is "for interim use" and that the existing material on the ship shall not be destroyed pending receipt of re-printed material from the Naval Ship Engineering Center.

4.5 Class 2 requirements for revision of lithographed copies of damage control diagrams. -

4.5.1 Material for revision. - Class 2 "Ship's Master Copy" lithos (including firemain segregation diagrams) and two duplicate sets shall be requested from the ship by the overhauling activity. If these lithos are not available, or if the latest copies are not available, lithographed copies shall be obtained by the overhauling activity, via the Industrial Manager, in accordance with Naval Ships Technical Manual NAVSHIPS 0901-900-1000. All diagrams in the set shall be for the same ship.

4.5.2 Procedure for revising lithographed copies of diagrams. -

4.5.2.1 General. - The "Ship's Master Copy" and one of the duplicate sets shall be revised to suit overhaul changes from working plans, shipalts and work requests. The third set of lithos is for checking and working purposes. All changes made by the ship's force on the "Ship's Master Copy" lithos shall be included. The changes shall reflect the work accomplished in the ship. If a shipboard check is required (see 8.1) to bring a diagram or diagrams in agreement with the installations in the ship, the lithos shall be revised accordingly.

4.5.2.2 Change in ship's classification or number. - When the classification or ship's number is changed, the upper identifying title block on the diagram shall be changed in accordance with the following:

(a) Before change in classification:

AX103
AX100 Class

(b) After change in classification:

PCE95
(EX-AX103)
AX100 Class

4.5.2.3 Additions and changes to existing system. - Additions and changes to an existing system will be shown in the required color to suit the system. They shall be indicated in the correct position. Each addition or change shall be indicated by circling the areas affected with a heavy line in black ink. An indicator line from the circled areas on the upper half of the diagram shall be drawn at a 60 degree angle towards the upper right hand end of the diagram. An indicator line from the circled areas on the lower half of the diagram shall be drawn at a 60 degree angle towards the lower right hand end of the diagram. The words "add" or "change" shall be written at the border end of this indicator line. Both the indicator line and the note shall be in the black ink.

4.5.2.4 Addition of new systems. - Weight of line, symbols, color, and so forth, for a new system added to the lithographed copies shall be in accordance with MIL-STD-772.

4.5.2.5 Deletions. - Deletions shall be indicated by crossing out the deleted matter with red ink. No erasures shall be made, nor is it necessary to make any notes on the diagram to indicate that the matter is to be deleted except that small isolated deletions shall be circled.

MIL-STD-784B(SHIPS)

30 November 1966

4.5.2.6 Marginal notes. -Where space is limited, minor changes such as compartment or fitting numbers or type of valve, may be shown by an indicator line with a note.

4.5.2.7 Relocation of existing information. -Relocation of lettering, numbers or fittings to clear changes or corrections being made, will not be required.

4.5.2.8 Subdivision changes. -Subdivision changes, including bulkhead and deck shading where shown, are required only on the subdivision diagrams. There shall be a note on the system diagram referring to the subdivision diagram for changes. In some cases, it may be necessary to show the subdivision change on a system diagram due to a change in the system (see 4.5.2.12).

4.5.2.9 Changes in shading. -Wherever shading has been added or deleted, it shall be so indicated on the subdivision diagrams by coloring the deletions in "red", the additions to bulkhead shading in "blue", and to deck shading in "green". A note shall be added explaining the colors.

4.5.2.10 Complicated changes. -Changes or corrections which are too complicated to be shown by deletions and additions shall be drawn on tracing cloth overlay in the proper colors and in the exact size, with reference marks (positions of unchanged work) for each color to enable the fitting of the supplementary tracings to each of the plastic sheets. The supplementary tracing shall cover as small an area as is consistent with clarity and be located either by fitting temporarily in the proper place on the diagram with transparent tape or marking clearly for identification purposes. Permanent fastening to the diagram is not desirable. Where tracing cloth overlays are applied to the diagrams, they shall portray the new and old that applies. All data below the overlays shall be considered as deleted.

4.5.2.11 System base changes (grey and black diagram common to all systems). -In all cases where subdivision changes affect the location or designation of a part of a system, such subdivision changes shall also be shown on the system base. This may also require changing system lines and symbols from solid to dotted or from dotted to solid should the system be hidden or revealed by the subdivision change. Such changes should be reflected in the text.

4.5.2.12 Revision date. -The revision date (year only), including the overhaul activity name, shall be entered on each overhaul block of the damage control diagrams on both the "Master Copy," which will be forwarded to the Naval Ship Engineering Center, and the duplicate copy to be returned to the ship. The year in the overhaul block shall correspond to the date of revision on the text. In some instances, where the previously revised diagrams were not reprinted, the new overhauling activity shall add its name and the year of the overhaul above those marked previously.

4.5.3 Firemain segregation diagrams. -Firemain segregation diagram lithos shall be checked and revised to suit the firemain system diagram. The diagrams shall be in complete agreement. Revised firemain segregation diagrams shall be forwarded to the Naval Ship Engineering Center with the revised text (see 4.6.5). In the event that changes to the segregation diagrams are extensive, new plastics shall be prepared in accordance with MIL-STD-722.

4.5.4 Distribution of class 2 marked up lithographed diagrams. -The Industrial Manager shall distribute class 2 marked up revised lithos, as follows, prior to the departure of the ship:

- (a) To the Commander, Philadelphia Naval Shipyard (code 243)
 - (1) Diagrams 25 inches by 38 inches or smaller - A complete set whether or not changes are shown on all diagrams.
 - (2) Diagrams larger than 25 inches by 38 inches - All diagrams having extensive changes: subdivision diagrams whenever one or more system diagrams are forwarded. System diagrams with minor changes should be returned to the ship.
- (b) To Naval Ship Engineering Center
 - (1) A copy of the letter forwarding the material to the ship (see 4.6.5).
 - (2) Revised flooding effect/liquid loading diagram for review.

(c) To the ship:

- (1) Diagrams 25 inches by 38 inches or smaller - Set of marked up "Ship's Master Copy" lithographed diagrams.
- (2) Diagrams larger than 25 inches by 38 inches - Set of marked up "Ship's Master Copy" lithographed diagrams.
- (3) The remaining diagrams of the "Ship's Master Copy" set of lithos, having minor changes, which were not forwarded to the Naval Ship Engineering Center.
- (4) The letter forwarding the above material shall state that the material is "for interim use" and that the existing material on the ship shall not be destroyed pending receipt of re-printed material from the Naval Ship Engineering Center.

4.6 Class 3 requirements for revision of damage control book text associated with class 1 or class 2 requirements. -

4.6.1 Material for revision. - The "Ship's Master Copy" text, valve lists and tables shall be requested from the ship by the overhauling activity. If this text is not available, or if the latest copy is not available, copies shall be obtained by the overhauling activity, via the Industrial Manager, in accordance with Naval Ships Technical Manual, NAVSHIPS 0901-900-1000. All pages shall be in agreement with the listing on the "Record" page.

4.6.2 Procedure for revising text. -

4.6.2.1 General. - The text shall be revised in red ink to suit overhaul changes from working plans, shipalts, and work requests. All changes made by the ship's force on the "Ship's Master Copy" text shall be included. The changes shall reflect the work accomplished in the ship. If a shipboard check is required (see 8.1) to bring the text in agreement with the installations in the ship, the text shall be revised accordingly. All pages having changes, or addition of new pages, including the "Title" page, "Table of Contents", "Record" page, and "List of Diagrams" shall be typed.

4.6.2.2 Change in ship's classification or number. - When the classification or ship's number is changed, all pages of the text shall be retyped and shall have the new ship's number. Only the cover page of the text shall indicate the old classification or number in addition to the new, as follows:

PCE 95
(EX-AX103)
AX100 Class

4.6.2.3 Additions and modifications of systems. - Any addition of a new system, or modification to an existing system, should be described, and the valves listed, in accordance with MIL-STD-772.

4.6.2.4 Title page. - The "Title" page shall be revised to indicate whether the text is "partial" or "complete"; for example, "Partial Revision." Under this shall be the date of the overhaul and it shall correspond with the overhaul date on the diagrams and the other text pages.

4.6.2.5 Table of Contents. - The "Table of Contents" shall be revised to reflect changes made in the book.

4.6.2.6 Record page. - The "Record" page shall be revised as follows:

- (a) **For a partial text.** - The existing record of revised pages shall remain. A new column, headed by the year, date of the overhaul, and corresponding to the date on the diagrams, shall be filled in by typing the notations for new, revised, and void pages in the blank column under the date. The date at the heading shall be indicated at the head of each corresponding column of the "Record" pages even though no changes are listed in that column.
- (b) **For a complete new text.** - A new "Record" page shall be prepared with all previous records of revision omitted. The column shall be headed by a date corresponding with the overhaul date on the diagrams and the text pages.

4.6.2.7 List of diagrams. - The "List of Diagrams" page shall indicate the overhaul date (year only) of the diagrams.

MIL-STD-784B(SHIPS)
30 November 1966

4.6.2.8 Closure classification. -Damage control closure classification of all fittings shall be included on the typewritten copy of the text.

4.6.2.9 Controllers and power panels for ventilation fans, listing. -When a damage control book contains both a text listing of "Controllers and Power Panels for Ventilation Fans," and a "Vital Damage Control Electrical Equipment and Power Supply Chart," the text listing is void and shall not be revised. These pages shall be noted as "V" on the "Record" page and omitted from the listing in the Index.

4.6.2.10 Stability and loading section. -The stability and loading section, Part II(a) of the damage control book, shall be revised as necessary after inclining or accomplishment of shipalts that affect items of load.

4.6.3 Book format requirements. -

4.6.3.1 Typewritten manuscript. -The typewritten manuscript of the damage control book text and tables shall be prepared on standard forms in accordance with MIL-STD-772. No other forms are acceptable. A typewriter with pica size type only shall be used for typing the text and tables.

4.6.3.2 Format for text and tables. -The format for text and tables shall be in accordance with MIL-STD-772. When pages are being retyped due to the addition of one or two line items, typing within the 1-1/2 inch space is permissible to eliminate the addition of a new page with a suffix letter; such as II(e) 6A which would contain only a few lines.

4.6.3.2.1 Additions to text and list of fittings. -Where new items are added, the page or pages shall be typed so that the items are in numerical order. This may necessitate additional pages which shall have the same page number as the original plus a letter subscript.

4.6.3.2.2 Changes to text and list of fittings. -Where valves or fittings are changed due to subdivision changes, see 4.5.2.11. For changes due to relocations or deletions, the page or pages shall be typed so that the items are in numerical order.

4.6.3.2.3 Footnotes in list of fittings. -In the valve and fitting lists, all symbols referring to footnotes shall be shown in accordance with MIL-STD-772.

4.6.3.2.4 Numbering and identification of manuscript. -Page numbering and identification of manuscript shall be as follows:

- (a) Page number and ship number shall be typed in the blocks. The year of the overhaul, corresponding to the date on the diagrams, shall be typed below the ship number.
- (b) When a new page is added in a unit between odd and even numbered pages, for example, II(b) 13 and II(b) 14, the new page shall be assigned the same number as the odd numbered page in addition to a suffix letter, for example, II(b) 13, II(b) 13A, II(b) 14.
- (c) When new pages are added in a unit after the end of an even numbered page, the new pages shall be assigned the same number as the even numbered page in addition to a suffix letter, for example, II(b) 14, II(b) 14A, II(b) 14B.
- (d) When the last page of any unit ends on an odd number and that page has been assigned a double number, for example, II(d)17 & 18, the new page shall be assigned the number II(d)18 and the previous page assigned II(d)17 in lieu of II(d) 17 & 18. However, if the unit ends on an even numbered page, for example, II(d)18, the new page shall continue in the same sequence, for example, II(d)19.

4.6.4 Preparation of complete new text. -In the event a text is completely retyped, it shall be prepared in accordance with MIL-STD-772.

4.6.5 Distribution of class 3 text. -The Industrial Manager shall distribute class 3 text as follows prior to the departure of the ship:

- (a) Commander, Naval Shipyard, Philadelphia (Code 243)
 - (1) Typewritten offset master
 - (2) One reproduced set from the translucent bond

MIL-STD-784B(SHIPS)
30 November 1966

- (b) To the Naval Ship Engineering Center
 (1) To be forwarded for class 1 and class 2 diagrams with a copy of revised Section II(a) for review in the forwarding letter (see 4. 4. 7 and 4. 5. 4).
- (c) Ships:
 (1) Class 1 - Five copies of the text made from the translucent bond.
 (2) Class 2 - One copy of the text made from the translucent bond.
 (3) To be forwarded with class 1 or class 2 diagrams and included in the forwarding letter (see 4. 4. 7 and 4. 5. 4).
 (4) "Ship's Master Copy" bound.

4. 7 Class 4 requirements for revision of "Ship's Master Copy Plastics" for reproduction in halftone. -

4. 7. 1 Material for revision. - Class 4 "Ship's Master Copy Plastics" (positives and composite negatives) and the Planning Yard reproduced diagrams shall be requested, via the Industrial Manager, from the Planning Yard. The "Ship's Master Copy" damage control diagrams shall be requested from the ship by the overhauling activity. The "Ship's Master Copy" reproduced diagrams are for changes noted by the ship's force. The Planning Yard reproduced copy is for checking and working purposes. Old composite negatives shall be destroyed after new ones are completed.

4. 7. 2 Procedure for revising "Ship's Master Copy Plastics". -

4. 7. 2. 1 Care of "Ship's Master Copy Plastics". - The "Ship's Master Copy Plastics" shall be handled with extreme care during their revisions.

4. 7. 2. 2 General. - The "Ship's Master Copy Plastics" shall be revised to suit overhaul changes from working plans, shipalts, and work requests. All changes made by the ship's force on the "Ship's Master Copy" reproduced prints shall be included on the plastics. If a shipboard check is required (see 8. 1) to bring a diagram or diagrams in agreement with the installations in the ship, the plastics shall be revised accordingly.

4. 7. 2. 3 Change in ship's classification or number. - When the classification or ship's number is changed, the upper indentifying title block on the diagram shall be changed in accordance with the following:

(a) Before change in classification:

AX103	36LG*
AX103 Class	10MG*

(b) After change in classification:

PCE95	36LG*
(EX-AX103)	10MG*
AX100 Class	10MG*

*Size and style of Klrtype

4. 7. 2. 4 Addition of new systems. - Weight of line, valves, symbols, etc. , for a new system added to the diagrams, shall be in accordance with MIL-STD-771.

4. 7. 2. 5 Drafting. - The contractor shall perform all necessary drafting. All line work shall be drawn with pen and ink; no freehand shall be permitted. The width of the lines shall be in accordance with MIL-STD-771. When there is any discrepancy between the standard widths specified and those existing on the plastics, the width of the lines shall match those on the diagram. Any new system added to the plastics shall be in conformance with MIL-STD-771.

4. 7. 2. 6 Opaquing. - In the event that extensive changes are necessary to the plastics, a negative may be prepared and the affected areas opaqued in lieu of removing the image from the positive. A new positive will then have to be prepared and revised.

4. 7. 2. 7 Klrtype. - All names, numbers and symbols shall be in Klrtype; no freehand is permitted. Klrtype shall be in conformance with MIL-STD-771. When there is any discrepancy between the Klrtype

MIL-STD-784B(SHIPS)

30 November 1966

specified, and that existing on the plastics, Klrtype shall match that on the diagram. Klrtype shall be applied carefully to plastic positives and burnished firmly to prevent falling off during handling and shipping of plastics.

4.7.2.8 Revision date. - The revision date (year only), including the overhauling activity name, shall be entered on each overhaul block of the damage control diagram plastic positives. The year of the overhaul date shall correspond to the date of the revision on the text.

4.7.3 Firemain segregation diagrams. - Firemain segregation diagram plastics shall be checked and revised to suit the firemain system diagram. The diagrams shall be in complete agreement. Revised firemain segregation diagrams shall be reproduced and distributed with the text (see 4.8.5 and 4.8.6). In the event that changes to the firemain segregation diagrams are extensive, new plastics shall be prepared in accordance with MIL-STD-771.

4.7.4 Replacement of revised "Ship's Master Copy Plastics". - Upon completion of the revisions, a new set of "Ship's Master Copy Plastics", without Klrtype, shall be prepared from the negatives for the Planning Yard. All plastic positives and negatives shall be made emulsion to emulsion. Upon completion, the original plastics with Klrtype shall be destroyed.

4.7.5 Processing and reproduction. - Processing and reproduction of the diagrams shall conform to MIL-STD-771.

4.7.6 Folding and punching. - Diagrams shall be folded and punched in accordance with MIL-STD-771.

4.7.7 Binders. - Binders shall be furnished for damage control books when revised from a class, another ship for an individual ship, or when the classification of the ship changes. The binders shall be in accordance with MIL-STD-771.

4.7.8 Distribution of class 4 diagrams. - The revised plastics, and complete sets of reproduced diagrams, shall be distributed by the Industrial Manager as follows:

- (a) **Ship:**
 - (1) Two sets plus one set for each repair station and each unit patrol station.
 - (2) "Ship's Master Copy" binder (if bound).
 - (3) Laminated copies.
- (b) **Planning Yard:**
 - (1) Planning Yard copy of the damage control book with a new set of diagrams inserted.
 - (2) "Ship's Master Copy" plastic positives.
 - (3) Composite negatives.
- (c) **Laminating of diagrams.** - Diagrams shall be laminated in accordance with MIL-STD-771:
 - (1) One copy of each diagram for each repair station and each unit patrol station.
 - (2) One copy for Damage Control Assistant.
- (d) **Naval Ship Engineering Center:**
 - (1) One complete set of folded diagrams including liquid loading diagram, for review.
 - (2) Copy of transmittal forwarding diagrams to ship.
 - (3) Copy of transmittal forwarding diagrams and "Ship's Master Copy Plastics" to Planning Yard.
 - (4) 13 copies of liquid loading diagram.

4.8 Class 5 requirements for revision of damage control book text associated with class 4 requirements. -

4.8.1 Material for revision. - The Planning Yard copy of the text, valve lists and tables shall be requested, via the Industrial Manager, from the Planning Yard. The "Ship's Master Copy" text shall be requested from the ship by the overhauling activity. All pages shall be in agreement with the listing on the "Record" page.

4.8.2 Procedure for revising text. -

4.8.2.1 General. - The text shall be revised to suit overhaul changes, from working plans, shipalts, and work requests. All changes made by the ship's force on the "Ship's Master Copy" text shall be included.

The changes shall reflect the work accomplished in the ship. If a shipboard check is required (see 8.1) to bring the text in agreement with the installations in the ship, the text shall be revised accordingly. All pages having changes, or addition of new pages, including the "Title" page, "Table of Contents", "Record" page, and "List of Diagrams" shall be typed.

4.8.2.2 Change in ship's classification or number. - When the classification or ship's number is changed, all pages of the text shall be retyped and shall have the new ship's number. Only the cover page of the text shall indicate the old classification or number in addition to the new, as follows:

PCE 95
(EX-AX103)
AX100 Class

4.8.2.3 Additions and modifications of system. - Any addition of a new system, or modification to an existing system, should be described and the valves listed in conformance with MIL-STD-771.

4.8.2.4 Title page. - The "Title" page shall be revised to indicate whether the text is "partial" or "complete"; for example, "Partial Revision." Under this shall be the date of the overhaul and it shall correspond with the overhaul date on the diagrams and the other text pages.

4.8.2.5 Table of contents. - The "Table of Contents" shall be revised to reflect changes made in the book.

4.8.2.6 Record page. - The "Record" page shall be revised as follows:

- (a) For a partial text. - The existing record of revised pages shall remain. A new column, headed by the year, date of the overhaul, and corresponding to the date on the diagrams, shall be filled in by typing the notations for new, revised, and void pages in the blank column under the date. The date at the heading shall be indicated at the head of each corresponding column of the "Record" pages even though no changes are listed in that column.
- (b) For a complete new text. - A new "Record" page shall be prepared with all previous records of revision omitted. The column shall be headed by a date corresponding with the overhaul date on the diagrams and the text pages.

4.8.2.7 List of diagrams. - The "List of Diagrams" page shall indicate the overhaul date (year only) of the diagrams.

4.8.2.8 Closure classifications. - Damage control closure classification of all fittings shall be included on the typewritten copy of the text.

4.8.2.9 Controllers and power panels for ventilation fans, listing. - When a damage control book contains both a text listing of "Controllers and Power Panels for Ventilation Fans," and a "Vital Damage Control Electrical Equipment and Power Supply Chart", the text listing is void and shall not be revised. These pages shall be noted as "V" on the "Record" page and omitted from the listing in the Table of Contents.

4.8.2.10 Stability and loading section. - The stability and loading section, Part II(a) of the damage control book, shall be revised as necessary after inclining or accomplishment of shipalts that affect items of load.

4.8.3 Book format requirements. -

4.8.3.1 Typewritten manuscript. - The typewritten manuscript of the damage control book text and tables shall be prepared on standard forms in accordance with MIL-STD-771. No other forms are acceptable. A typewriter with pica size type only shall be used for typing the text and tables.

4.8.3.2 Format for text and tables. - The format for text and tables shall be in accordance with MIL-STD-771. When pages are being retyped, due to the addition of one or two line items, typing within the 1-1/2 inch space is permissible to eliminate the addition of a new page with a suffix letter, such as II(e) 6A which would contain only a few lines.

4.8.3.2.1 Additions to text and list of fittings. - Where new items are added, the page or pages shall be typed so that the items are in numerical order. This may necessitate additional pages which shall have the same page number as the original plus a letter subscript.

MIL-STD-784B(SHIPS)
30 November 1966

4.8.3.2.2 For changes due to relocations or deletions, - For changes due to relocations or deletions, the page or pages shall be typed so that the items are in numerical order.

4.8.3.2.3 Footnotes in the list of fittings, - In the valve and fitting lists, all symbols referring to footnotes shall be shown in accordance with MIL-STD-771.

4.8.3.2.4 Numbering and identification of manuscript. - Page numbering and identification of manuscript shall be as follows:

- (a) Page number and ship number shall be typed in the blocks. The year of the overhaul, corresponding to the date on the diagrams, shall be typed below the ship number.
- (b) New pages, added due to changes or additions, shall be assigned the same number as the previous page, but shall bear a suffix letter "A", etc. Where a page is added at the end of a section, it shall be assigned the next consecutive number.

4.8.4 Preparation of complete new text. - In the event a text is completely retyped, it shall be prepared in accordance with MIL-STD-771.

4.8.5 Processing and reproduction of class 5 text. - Processing and reproduction of the text shall conform with MIL-STD-771.

4.8.5.1 Punching. - The text shall be punched in accordance with MIL-STD-771.

4.8.6 Distribution. - The revised text shall be distributed by the Industrial Manager as follows:

- (a) Ship:
 - (1) Two sets plus one set for each repair station and each unit patrol station.
 - (2) Bound "Ship's Master Copy."
 - (3) Text shall be forwarded with the diagrams (see 4.7.8).
- (b) Planning Yard:
 - (1) Planning Yard copy of the damage control book with the new text inserted.
- (c) Naval Ship Engineering Center:
 - (1) One set of punched text including Section II(a), for review.
 - (2) Copy of transmittal forwarding text to ship.
 - (3) Copy of transmittal forwarding text to Planning Yard.
 - (4) 13 copies of Section II(a).

5. DELIVERY TIME REQUIREMENTS

5.1 Conversions. - Delivery time requirements for diagrams and text shall be as follows:

- (a) Class 1, 2, and 3 material:
 - (1) Class 1, 2, and 3 material shall be sent to the Naval Ship Engineering Center for lithography two months before the scheduled completion date of the work on the ship.
 - (2) The Naval Ship Engineering Center will have the above material lithographed and will furnish the ship with its standard allowance before refresher training.
 - (3) The Naval Ship Engineering Center will furnish the conversion activity with three unbound sets of the new lithographed diagrams and texts. Two of the sets shall be marked up for updating the material to the time of the completion of the work on the ship. One of the marked up sets shall be forwarded to the Naval Ship Engineering Center. The second marked up set shall be delivered to the ship for interim use. The third set is for the conversion activity's information and use.
- (b) Class 4 and 5 material:
 - (1) Class 4 and 5 material shall be distributed prior to the ship's departure.
 - (2) Copies for laminating shall be forwarded to the laminating contractor.

5.2 Overhauls. - Delivery time requirements for diagrams and text shall be as follows:

- (a) Class 1, 2 and 3 material must be completed prior to the ship's departure. If, for reason beyond control, it becomes impossible to meet the sailing date, the overhauling activity shall inform the Naval Ship Engineering Center immediately and indicate the earliest completion

MIL-STD-784B(SHIPS)
30 November 1966

date after departure. The overhaul of the ship will not be considered as completed until the revisions are made.

- (b) Class 4 and 5 material must be completed and new copies furnished the ship prior to departure. If, for reasons beyond control, it becomes impossible to meet the sailing date, the overhauling activity shall inform the Naval Ship Engineering Center immediately and indicate the earliest completion date after departure. The overhaul of the ship will not be considered as completed until the revisions are made.

6. QUALITY ASSURANCE PROVISIONS

6.1 Responsibility for inspection. - Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

6.2 Examination. - Revisions of the damage control diagrams and associated text shall be examined for completeness, technical accuracy, legibility, reproducibility, and for conformance to the requirements specified herein.

7. PREPARATION FOR DELIVERY

7.1 Packaging. - Damage control diagram plastics may be rolled or packaged flat. Lithographed copies of diagram may be folded or rolled. Damage control book text shall be packaged flat. Material shall be packaged in accordance with the supplier's commercial practice.

7.2 Packing. - Material shall be packed in containers of the type, size and kind commonly used for the purpose and in a manner which will insure acceptance by a common carrier and safe delivery at destination. Shipping containers shall comply with the carrier rules and regulations applicable to the mode of transportation.

7.3 Shipping. -

7.3.1 Classified material. - Classified material shall be packed in totally enclosed containers. All boxes or cartons containing classified material shall be sealed in such a manner that the contents of the container cannot be inspected without evidence of forcible opening. All containers, except registered mail packages, shall be strapped perpendicular and parallel to the length of the container. The intersection of the strapping shall be joined with sealed strapping seals so constructed and located that tampering would cause mutilation, readily detected by inspection.

7.3.2 Registered mail. - Registered mail packages containing classified material shall be limited to size and weight and securely bound in accordance with the Postal Manual Regulations.

7.3.3 Shipping security regulations. - Classified materials shall be shipped in accordance with the Departmental Security Regulations which are available in the Government Inspection Office.

7.4 Marking. -

7.4.1 Classified material. - When classified material is being shipped, marking shall be as specified by the cognizant activity concerned. Except for any markings indicating the nature of the classified material, its confidential classification shall not appear on the outside of the container.

7.4.2 Unclassified material. - Shipment marking information shall be provided on interior packages and exterior shipping containers in accordance with the contractor's practice including the following:

- (a) Nomenclature.
- (b) Contractor's name.

ML-STD-784B(SHIPS)
30 November 1966

8. NOTES

8.1 Ordering data. - Procurement documents should specify the following:

- (a) Title, number and date of this standard.
- (b) Class required (see 1.2).
- (c) Overhaul change information and partial shipboard check (see 4.4.2.2, 4.5.2.1, 4.7.2.2 and 4.8.2.1).
- (d) Overhaul change information and complete shipboard check (see 4.4.2.2, 4.5.2.1, 4.6.2.1, 4.7.2.2 and 4.8.2.1).
- (e) "The contractor is responsible for the delivery of the 'Ship's Master Copy' plastics and text in good condition at its destination. If damaged, it shall be replaced by the contractor at no cost to the Government. In this connection, the plastic negatives, used in making the 'Ship's Master Copy' positives, shall be retained until information is received from the Consignee that the material has been received in satisfactory condition."

8.2 CHANGES FROM PREVIOUS ISSUE. THE EXTENT OF CHANGES (DELETIONS, ADDITIONS, ETC.) PRECLUDE THE ANNOTATION OF THE INDIVIDUAL CHANGES FROM THE PREVIOUS ISSUE OF THIS DOCUMENT.

Preparing activity:
Navy - SH
(Project 7610-N040Sh)

