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BRIDGING THE CRITERIA GAP OPERATIONAL STATIONS BOOK (OSB)

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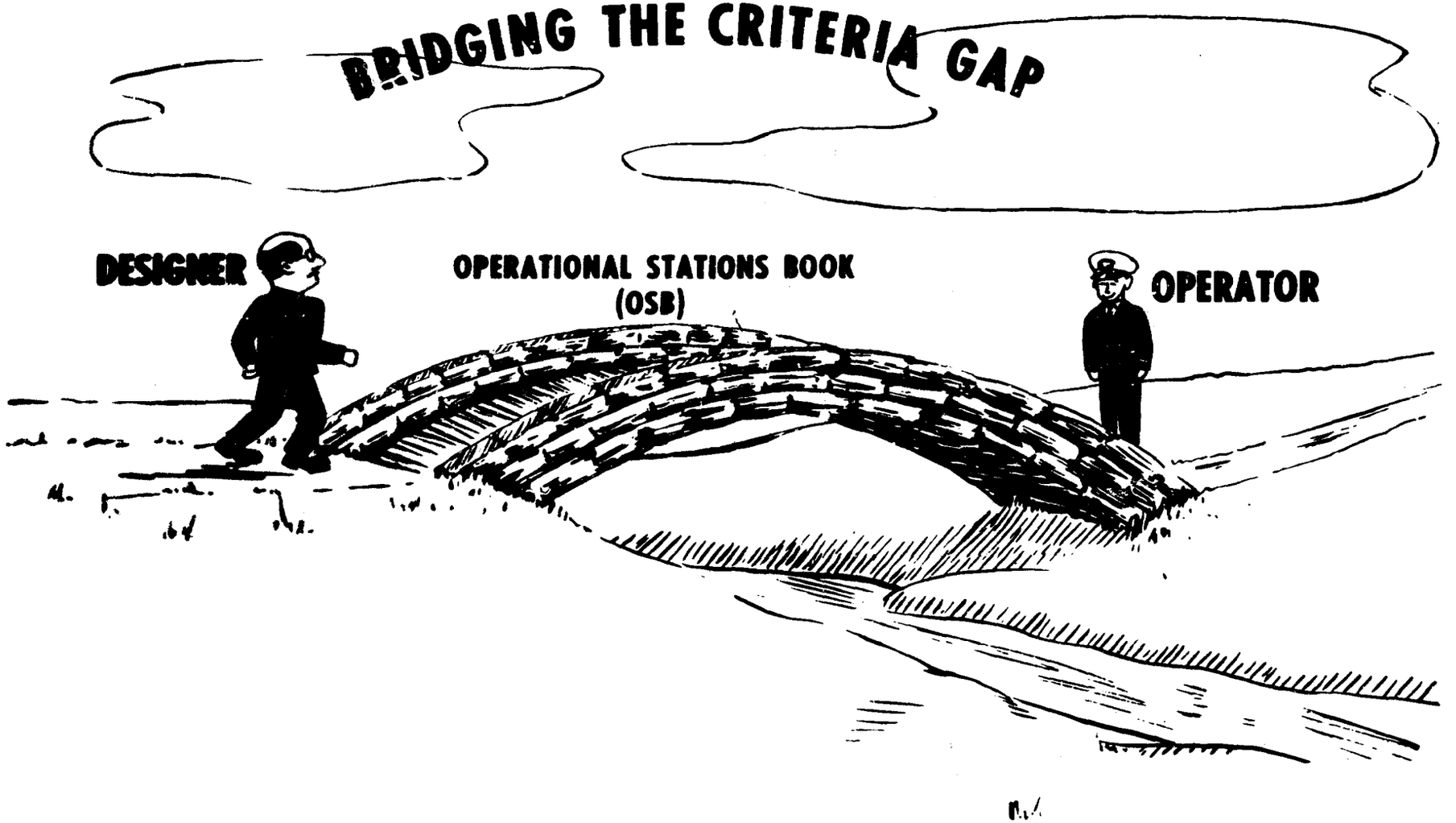

BRIDGING THE CRITERIA GAP
DESIGNER
OPERATIONAL STATIONS BOOK
(OSB)
OPERATOR

BRIDGING THE CRITERIA GAP

By LCDR William S. Louchheim, Jr., USN

The "Operational Stations Book" or for short "OSB" is a tool which provides the communication media between "designer" and "operator". The OSB is written in a language understandable by the end-user and also follows a format which fulfills the operator's documentation requirements. Since the make up of an OSB is provided for in a specification, it is the intent to present mainly the philosophy and background for the OSB.

Previously lack of this type of documentation led to a break in continuity of information between designer and operator. The designer develops a new installation using a rationale of which a large part is operationally oriented. During the design development, spaces within a ship are allocated to carry out particular shipboard functions, equipments are selected and arranged in a particular configuration. The decisions which lead the designer through this development stage are based on the rationale which the designer has determined would provide optimum usage of the spaces within the parameters and constraints imposed on him. This rationale includes visualization of an operational scheme of usage which in the past has not been documented or presented to the operator. This void or lack of information is "The Criteria Gap."

In filling this gap, the Operational Stations Book also assists in developing certain operational documentation which must be eventually compiled by the operating forces. For new construction or new installations the operator is normally provided with operating documentation (Figure 1). This includes information on lighting off, aligning, operating and securing equipments.

Also in the documentation package may be found maintenance publications covering routine, preventative, and corrective maintenance procedures (Figure 2). This category would include such information as equipment and systems quality checks and tests. However, with all the publications provided to the ship, there has been a lack of operational documentation (Figure 3) which would provide the method in which the man and machines fit and operate together as a coordinated system.

Definitions

Before going into identifying and Bridging the Criteria Gap, some of the terminology is defined in the context that it will be used:

Design – That part of the design of manned systems in which operational requirements must be considered.

Designer – The man who must provide the guidance documentation to the shipyard indicating equipment and its location.

Operator – The ultimate user of a shipboard system. The man who must take the ship to sea.

Rationale – The background of information which influences the equipment selection and/or its arrangements.

Optimized – Referring to a solution which is considered to be as good as any other solution. Where several solutions may do the job equally well, any of these solutions would be considered as an optimized solution. "Optimized" configurations and/or procedures are those which are as good or better than other configurations or procedures.

Parameters – Guidance factors which delineate the envelope or boundaries of the study or system under consideration.

Constraints – Two basic types of constraints may be considered:

(a) Those guidance factors which impose restrictions within the parameters or upon the system under consideration. This includes such restrictions as those which require use of approved doctrine or off-the-shelf equipments.

(b) Those restrictions which limit the analytical techniques to be used or govern the methods used by the designer in development of the installation. This would include a requirement to provide only operational techniques for a system already in existence.

Criteria – Those factors which are used to compare alternatives to each other. A common base upon which an evaluations can be made.

Competent Authority – Those commands or persons who affect the decision process by their position in the hierarchy or by their expertise in the field being considered.

Requirements for the OSB

Ship designs are based on an accumulation of technical information and operational guidance. A compilation of this type of data is assembled and incorporated into what might be called a historical library or Design Data Base. In Figure 4 this data base is shown. The size of the blocks representing the various types of information is not proportional to the amounts of information, but is only used to visually depict the points presented. Since the basic concern is involved in the operational information and its documentation, this area of the figure has been greatly expanded.

In this representation the basic operational information is developed from the CNO approved sources such as Naval Warfare Publications (NWP's), Naval Warfare Information Publications (NWIP's), Ship Characteristics, approved mock-ups, directives or letters. The remaining areas of operational information are based on

past practices. That information which appears to bear a "stamp" of approval, but no source of approval can be located, is labeled "Pseudo Approved." Within the data base, "Confusion" refers to that information which can only be explained or identified by a limited group of people because it is immersed in a cloud of the "expert's language" or "security." "Security" confusion covers both protection by classification and responsibility of cognizants. How many times have we heard, "That's not your cog."? The last section of operational data is based on "Tradition." Without getting involved in further explanations, these last three areas of information might be called the "That's the way its always been" data.

The remaining part of the design data base is the technical information which will not be discussed to any great extent here. Modification to the data within the Design Data Base is accomplished by the input of new or revised information. Technical information is supplied by the appropriate technical authorities. Operational information is modified by "Competent Authority" or "Systematic Analysis." These two types of modifiers cannot be completely separated. "Competent Authority" represents the "operators" and "Systematic Analysis" is that source of information which, through analytical techniques, incorporates operational functions. Basically, the latter inputs are a result of some form of systems analysis and, in many cases, the product of a Design Work Study. It is not the intent to discuss which source or what combination of sources represent the best information. It should be pointed out that a Design Work Study provides a systematic approach which lends itself to optimizing the design based on functional requirements and, at the same time, can provide the documented rationale to support the conclusions.

In Figure 4 the operational inputs enter into that area of the Design Data Base called "Approved." This indicates the ideal method of modifying the data base and does not preclude that the other parts of the data base might be modified in the same manner that they were established. Using the design data base with the parameters and constraints imposed on the designer, a ship or installation design is developed into a design package.

In order not to get involved in the construction of a ship or the installation of a system, let us skip to the other end of the spectrum, both in time and the personnel involved. Now, we can look at the point in time when a new ship or new installation is presented to the operator. Figure 5 represents some of the information required for operating the ship, the Operating Data Base. Again in this figure it can be seen that the block representing "Technical Information" is reduced in size only for illustrative purposes. The technical information is provided in equipment manuals, system documentation, the Ship's Information Book and other publications.

In the operational areas, there are various sources of guidance from competent authority which can be located in Naval Warfare Publications (NWP's), Naval Warfare Information Publications (NWIP's), Operation Orders and other directives. Looking at our confused friends in Figure 3, we may be able to locate their problem. The technical publications touch on the operational aspects of the systems, but do not delineate the operational procedures within the various interconnecting systems. The operator must now establish his operational procedures. Through the usual process of detailing work within a command, the problem of developing the Ship's Organization Manual, CIC Doctrine, Gunnery Doctrine, Casualty Control Manual and other operational procedures are passed along to either a new junior officer or an officer who has

carried out similar type duties on another ship. The new officer must extract most of the information from his recent studies. Therefore, the documentation he develops is based purely on the textbook approach. The experienced officer may approach the problem from the other extreme, a solution based on the concept of, "That's the way we used to do it." Either method usually ignores the operational information which was used in the design development of the system.

Looking at both the Design Data Base and the Operating Data Base together as shown in Figure 6, we see that the technical information and higher level operational information has passed on to the Operating Data Base. The other operational information, the design criteria, and how it was incorporated into the design in order to optimize the procedures within installation never bridged what has been called "The Criteria Gap." This gap is not only between personnel (designer and operator) but is also a gap in time (between the time of the design and the time of use). During this period, activities ensue which may modify the original design without benefit of this original design concept. These activities include computer program development, operational training of ship's crew, modifications to arrangements precipitated by changes in equipment or development of the hull structures. Here is the need for documenting the approved design and carrying this documentation through the installation period to the end user.

Objective of the OSB

The Operational Stations Book has been developed to carry through the operational criteria upon which the design was based and, at the same time, provide operational documentation in a format directly usable by the operator. Basically, the objective of the Operational Stations Book is to carry forward the guidance

and analysis which optimized the installation configuration by describing how the man operates within the system. In order to fulfill this objective, the OSB is required to meet the following requirements:

- Define the operational (rather than technical) system.
- Describe the optimal system usage as developed through analytical techniques.
- Present the system usage and procedures necessary to operate the system under all modes of operation including casualty conditions and special evolutions.
- Describe the rationale leading to the system concept.
- Present the qualifications and training required to operate the system.
- Provide information not readily available from other sources.
- Provide a simple system for reporting deficiencies for consideration in future designs.

Preparation

It might be well to point out the two basic types of OSB's, their cycle of preparation and completion, and how this cycle falls into the ship's building and installation cycle. If we look at Figure 7, it can be seen that the "Preliminary OSB" is completed at the same time as the ship or installation designs are completed. The Preliminary OSB is a complete OSB for use during ship construction (installation), computer programming, personnel manning analyses and the like. Preliminary OSB's bridge the gap between completing the design and completion of the ship. There may be a predesign mock-up which is a reduced scale mock-up used by the Ship's Characteristics Board to inspect shipboard spaces before the plans are firm. When there is a predesign mock-up, an outline of the applicable parts of the Preliminary OSB is provided in order to present the rationale and to indicate the proposed operational procedures upon which the design was based.

The Preliminary OSB is usually slated for wide distribution so that it can be used for guidance and as a basis for comments to be incorporated into the Final OSB. The Final OSB is a revision of the Preliminary OSB and is prepared at that time in the building (installation) cycle when the equipment and arrangements are firm. At this time it is possible to incorporate new or revised information based on the computer program, personnel data, training requirements and the like. An outline of the Final OSB can be used in presentation of the applicable full-scale mock-ups in the same manner as the outline of the Preliminary OSB was used for presentation of the pre-design mock-ups.

It has been pointed out that the Final OSB is normally developed from the Preliminary OSB which was prepared during the original analyses incorporated into the design. A Final OSB can also be prepared when a system is already in existence and no previous analysis or Preliminary OSB is available. Without getting involved in the work study methods, this type of Final OSB can be developed optimizing the procedures used in an already existing configuration.

Figure 7 indicates the completion of the Final OSB in time to be available for both presentation to the crew and the commands which will be involved in training the crew. This leads to the important step in the OSB preparation called the "indoctrination phase." Those who are most familiar with the OSB and the procedures presented, carry the Final OSB to the user, adjudicate any discrepancies and present the rationale which led to those procedures delineated in the OSB. Indoctrination services by personnel knowledgeable in the preparation of the OSB, in work study techniques, in shipboard operational procedures and systems are furnished by the contractor when the Final OSB is completed. The indoctrination services are not

only provided to the ship concerned, but also to training school instructors prior to training the ship's personnel and to underway training personnel who will be concerned with the ship's personnel during shakedown, type or refresher training.

History and Present Status

Prior to presenting the actual content and format of the OSB, let us look briefly at how the OSB developed into its present configuration and what the current progress is in producing OSB's.

In past years there was another "OSB," an "Operation Stations Booklet" which was issued to new construction ships. The content of this booklet was limited mainly to command and control spaces. Basically, it provided only an arrangement sketch and the functions of each piece of equipment. In early 1966 it became evident that this document and its format was not fulfilling its function and was of little usefulness to the fleet. In general, the OSB needed a face lifting. At this point in time it was also apparent that some documentation was needed to fill "The Criteria Gap." In order to meet both of these requirements, a memorandum was circulated in March 1966 with a proposal for modifying the OSB; the initials were to remain the same, but the name and contents were to be changed to "protect the innocent (operator)."

During June and July of 1966, various offices within what is now Naval Ship System Command and the Ship Engineering Center met to lay out the detailed requirements for an OSB and its proposed format. Discussions were also held with various representatives of the Office of the Chief of Naval Operations and various contractors who would be involved in producing OSB's. Following many meetings and exchanges of correspondence, the March memorandum was modified by a memorandum in July 1966, and preparation of the Amphibious Force Flagship

(AGC-19 Class) OSB covering the Command and Control Spaces was commenced in conformance with this latest directive. The AGC-19 Class OSB went through many modifications during its development. Many of the changes to this prototype OSB were reflected in changes to the requirements of the memoranda.

Near the end of 1966 a draft of an OSB was prepared for a newly conceived Command and Control System for Mine Countermeasures Ships (MCS). During the preparation of this OSB it became evident that there was a requirement for the two types of OSB's, the "Preliminary" and the "Final." As indicated earlier, the former was required as an interim document to be used prior to the completion of the actual installation. The latter, updated with current information, would be used for actual shipboard operations.

To provide guidance for OSB preparation, it was necessary to provide specifications. Detailed specifications were prepared and included in the contracts for two new ships, DLGN 36 and USS NIMITZ (CVAN 68). From those specifications and various inputs, the memoranda of March and July 1966 were superseded by a complete rewrite and modification in the early part of 1967. April 1967 brought about a proposed General Specification covering the Final OSB which awaited the reprinting of the 9020-5 section of the General Specifications for Ships. By including the preparation requirements for the Preliminary OSB and further refinements, a proposed military specification was completed and circulated in August 1967. With the modification incorporating the review recommendations, the Military Specification, MIL-O-24312 (SHIPS), dated 1 September 1967, now provides the present requirements for OSB's, including the preparation procedures and format.

Since the present concept for the OSB is new, the first documents conforming to the "new look" are in the final stages of preparation. Even so it can be seen in Figure 8 that quite a few are currently being developed or planned.

As can be seen by the variety of spaces covered in the contemplated OSB's, this type of documentation can be used in many types of operational situations. Although the size, mission, and task of the ship influences the choice of shipboard spaces and areas which are to be included in an OSB, the following spaces should be considered:

- Pilot House (including auxiliary and exposed conning stations)
- Flag and Commanding Officer's Tactical Plots
- Combat Information Center and associated areas
- Flag Command and Control Complex
- Machinery Monitoring and Control Stations
- Damage Control Stations
- Spaces in which special evolutions are carried such as:
  Aircraft Operation and Control Complex
  Aircraft Handling Control stations
  Landing Force or other specialized command areas
  Ammunition Handling areas
  Deck Operations (such as handling of mine countermeasures, replenishment, rescue or salvage equipments).

Any manned shipboard spaces could be incorporated into an OSB. To assemble a book covering the manned spaces on a ship, each part of the OSB could be provided by the office responsible in accordance with a standard specification. One office would be required to coordinate the entire book. The guide for a standard format is available as the "Military Specification for Preparation of the OSB," MIL-O-24312(SHIPS), which has been developed from experience gained in the implementation of the "General Specification." A central office for coordinating,

assembling and controlling the OSB's could be designated; possibly, the office of the NAVSEC Work Study Coordinator. With the ability to fulfill these two requirements, it is believed that we are ready to "Bridge the Criteria Gap."

Contents and Format

To maintain the OSB in a useful and readily usable form, the Military Specification places several constraints on the contents and format:

- The contents are required to be meaningful, useful and informative, but at the same time simple and readable for operating personnel.
- The size of the OSB is to be kept to a minimum.
- Classified material is to be avoided if at all possible.
- The contents are to be limited to information required for the user (operator) to understand and carry out the required functions of the system.
- Only major pieces of equipment are to be included.
- Equipment operating and maintenance instructions contained in technical manuals are not to be included.

The OSB is required to be in a form so that changes which do not affect the ship's functional operations, will not require revision to the OSB. To avoid the requirement for minor revisions, the following are not to be included in the OSB:

- Specific military designation for equipment or system nomenclatures (general terms are to be used).
- Course numbers for service schools or correspondence courses.
- Specific characteristics of the ship, system, or equipment.
- Listings of such items as equipment, systems, or armaments.

The format and layout are specified to provide for ease of use so that the OSB may be directly promulgated as ship's doctrine. In order to do this, the specification provides a specific format which is similar to the Ship's Organization Book and Battle Manual. The OSB is to be in a loose leaf (three ring) form so that parts may

be separated from the basic publication for use by individual operators. The information in the OSB is to be printed on the pages in such a manner to provide for ease of removal of the matter pertaining to a space, a functional area or an individual position.

The specification requires that the OSB be organized to contain the following parts:

- Cover page
- Title page
- Distribution list
- List of effective pages
- Table of contents
- List of figures
- Foreword
- Introduction
- Informative chapters
- Appendices
- User activity comment sheets

The "Foreword" is the same for any OSB and explains the basic philosophy and requirements. This standard "Foreword" is presented in Figure 9.

The introduction answers the question, "Why this particular OSB represents an optimum solution?" The answer must include the following:

- A short explanation of the design philosophy used to develop the system.
- A brief description of the design criteria which optimized the configuration, the manning and the procedures.
- A statement indicating that the arrangement and/or operational procedures were developed using analytical techniques, and that any changes to the arrangement might severly hamper the effectiveness and the efficiency of the system.

- An explanation as to why the configuration and the operational procedures in the OSB benefit the man, including a statement to the effect that the man was given prime consideration throughout the development of the procedures presented.

The informative chapters (Figure 10) are the meat of the OSB. Besides being in a format for promulgation as ship's procedures, the layout is such that each chapter, section and position description are in the same pattern. This permits each adaptation and familiarization from space to space and ship to ship.

Chapter 1 includes general information on the overall operational concepts of the ship including:

- Missions and tasks.
- General characteristics which were developed in the design of the ship and which are not covered in subsequent chapters.
- Operational concepts of the ship indicating the major functions to be performed and the inter-relationship of the areas to be covered in subsequent chapters.

Each of the following chapters in the OSB covers a specific physical area (space) on the ship. Modularized (functional) areas within a space are presented in sections of the chapters. The general description of the space within a chapter and the description of the functional area in each section (Figure 11) contains the following for the team of personnel within the space or area:

- General functions.
- Duties and responsibilities describing any variation for special evolutions or conditions.
- Team training required.
- List of functional areas or positions within the space (Figure 12) indicating the section or article in the chapter in which the area or the position is described.

- Tools required such as communications circuits;
- Diagram (Figure 13) showing:
  Major equipments
  Manning
  Major flow of information
- A Matrix (Figure 14) indicating which positions are manned during each evolution.

After the general description of the area is presented, each position within the area is described (Figure 15) by the following information:

- Name of position
- Station location
- Evolutions when manned
- General training requirements including:
  Schools or courses required
  Reference publications for study
  Previous qualifications in other positions required
- Tools required in the position for carrying out duties such as:
  Publications
  Communications (external and/or internal)
  Special devices.

The final part of each description presents the duties and responsibilities of the man at that position (Figure 16) including a description of the operating procedures for the position and any variation for casualities, special evolutions or conditions. For Command and Control spaces, at least one alternate method (position) is required to be indicated for a major casualty to the equipment at the position described. The description is to be thorough enough to cover the operational concepts, preparation of equipment (tuning and watch standing routines), reports and information sent and received including, where applicable, transmission methods (type of system and circuit nomenclature) and terminal equipment (handset, earphones, keyset, speaker, etc.). The description must be simple, concise, readable, and not repeat information which is readily available through other publications or the previous training of the man. Specifically, operating instructions for equipment (covered in technical

manuals), procedures for communicating (covered in previous training) and responsibilities of such persons as the Commanding Officer or the Officer of the Deck (covered in current regulations and directives) are not to be specified.

Having completed the basic part of the OSB, it is also important to look at one more handy tool, the "appendices" (Figure 17). Where applicable, appendices may be provided to present summations to clarify or assist ship personnel, such as:

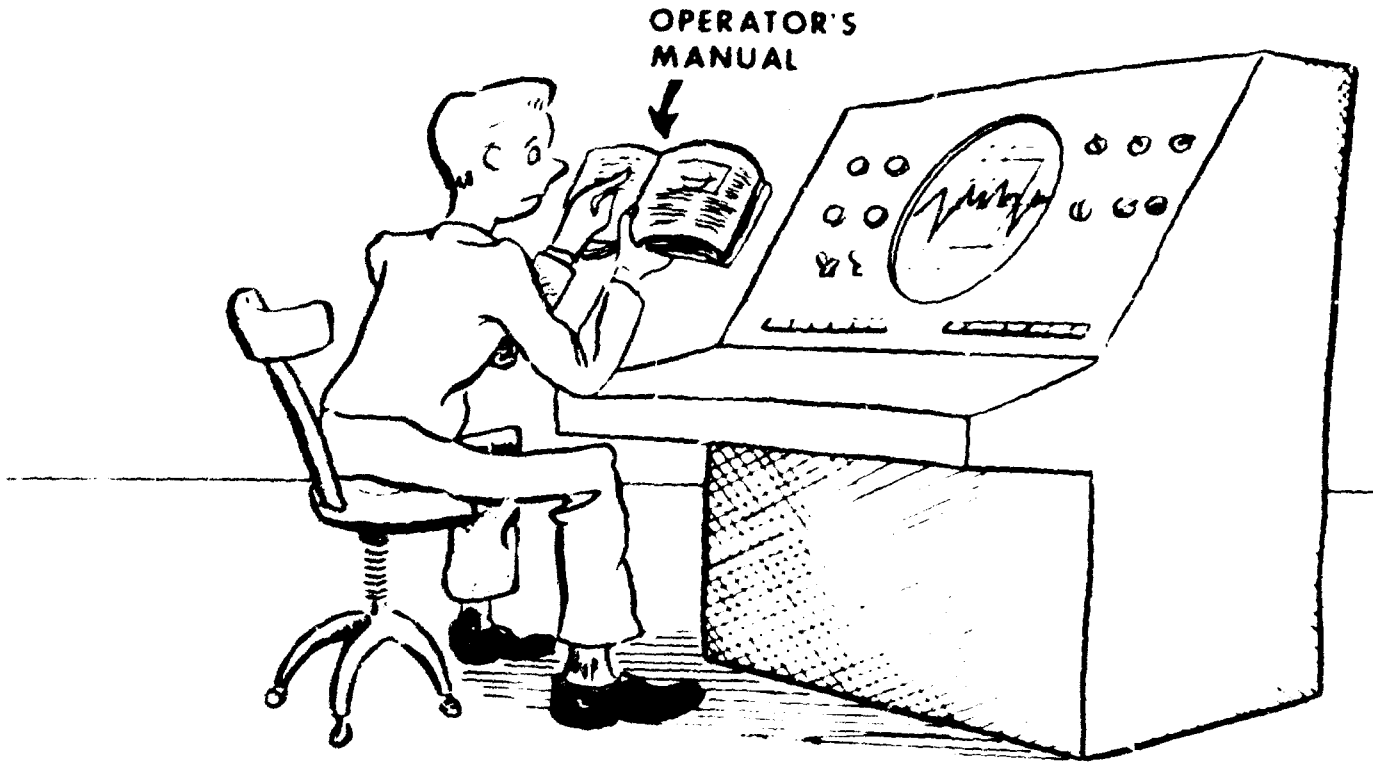
- Internal communications including a position versus circuit matrix
- External communications and circuit usage
- Centralization of classified information in order to keep it separated from the remainder of the OSB
- Check-off lists for evolutions such as casualty control
- Summation of special tools.

The last page of the OSB is the "User Activity Comment Sheet" as depicted in Figure 18. Here one more gap is closed. This is the loop bringing the operator's comments back to the designer in a form which is easy to use and submit. User Activity Comment Sheets are provided to report deficiencies in the OSB or the concepts presented and are forwarded directly to the Work Study Coordinator of the Naval Ship Engineering Center.

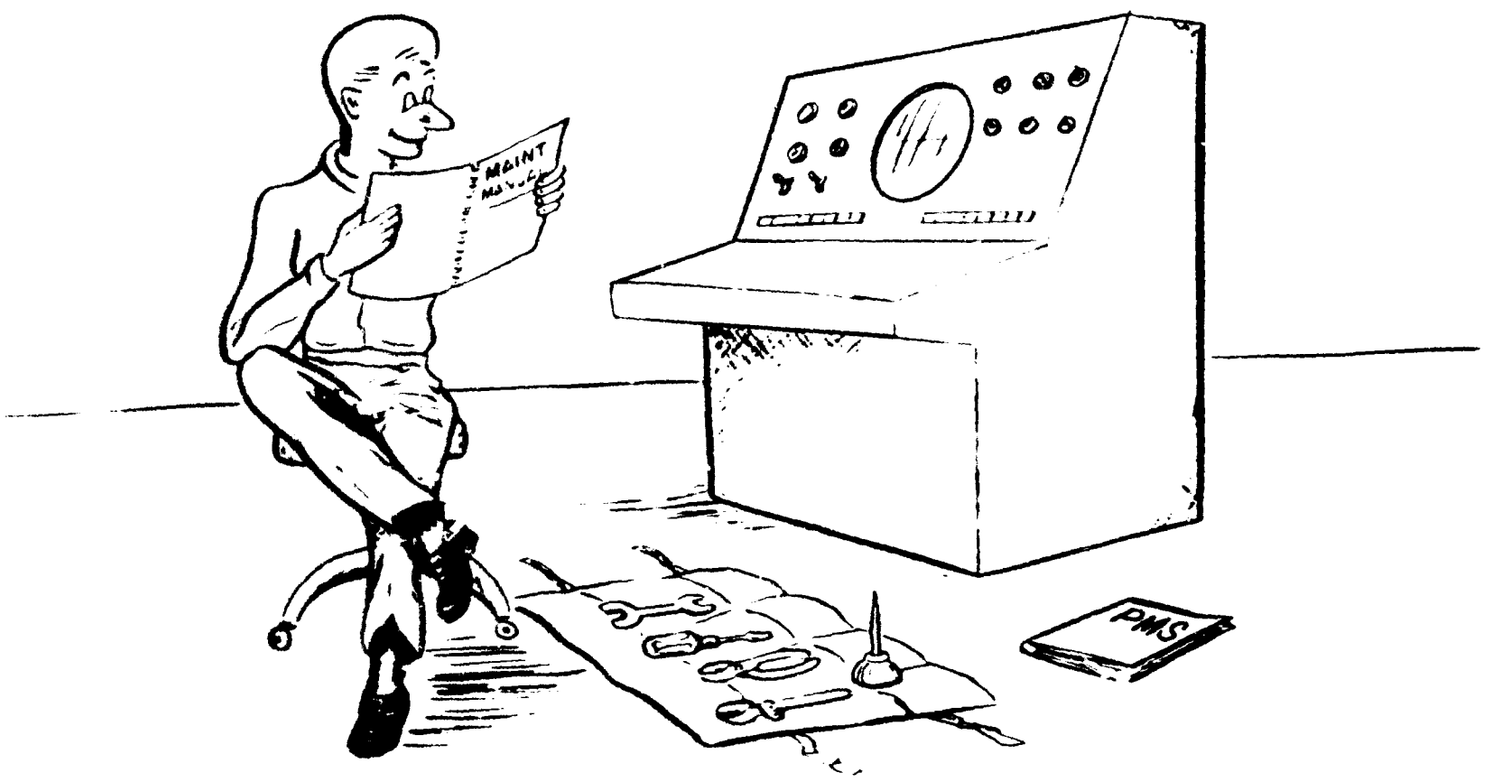
Summary

Now that we have reached the end of an OSB, we have also reached the end of this presentation. In summary, there has been an attempt not only to indicate what an Operational Stations Book looks like, but also how it fulfulls the operator's requirement for such documentation. In brief, the OSB brings the Designer and Operator together bridging "The Criteria Gap" and providing a publication in a directly usable format presenting the system procedures required to provide the maximum effectiveness of both man and machine in the modern day shipboard systems.

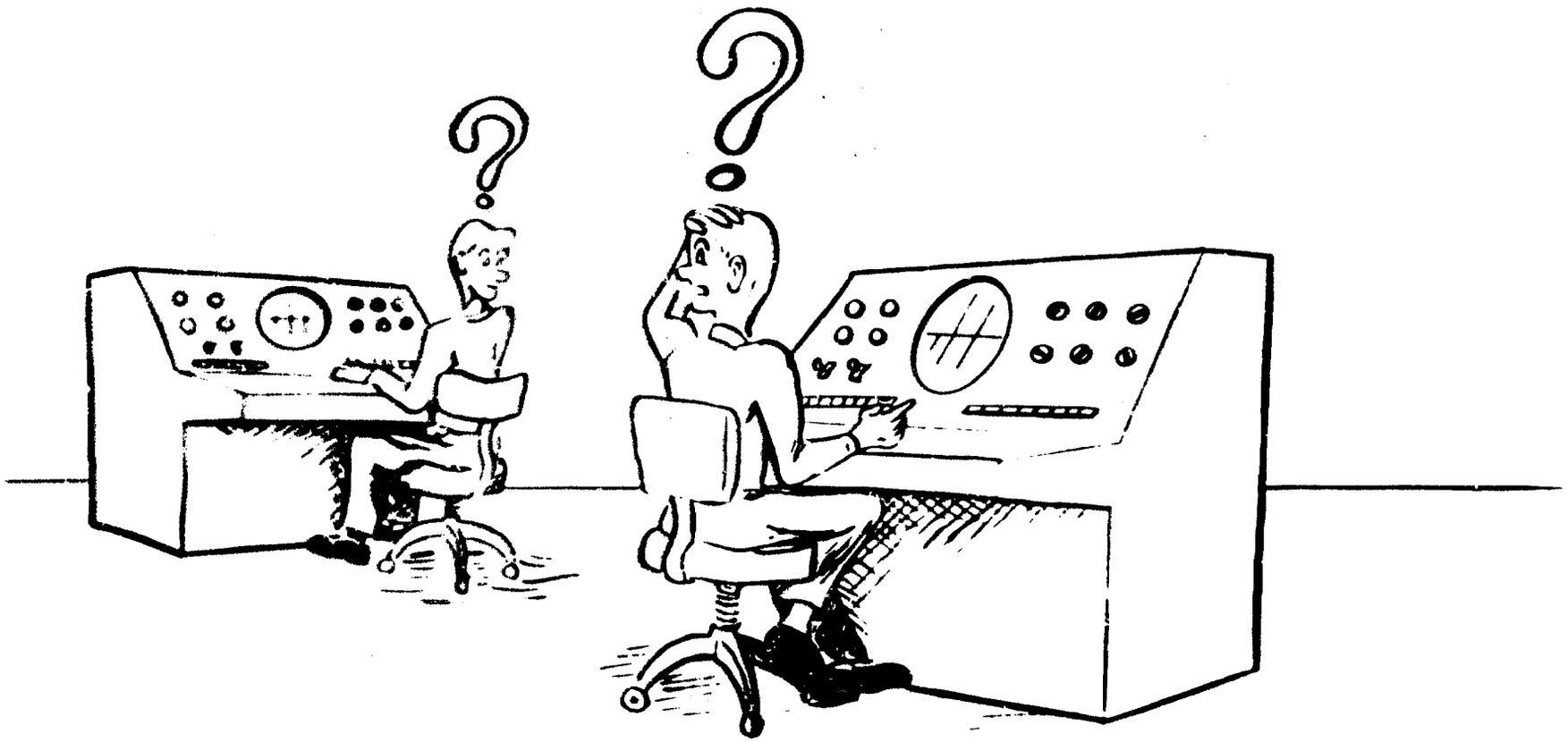
OPERATING DOCUMENTATION



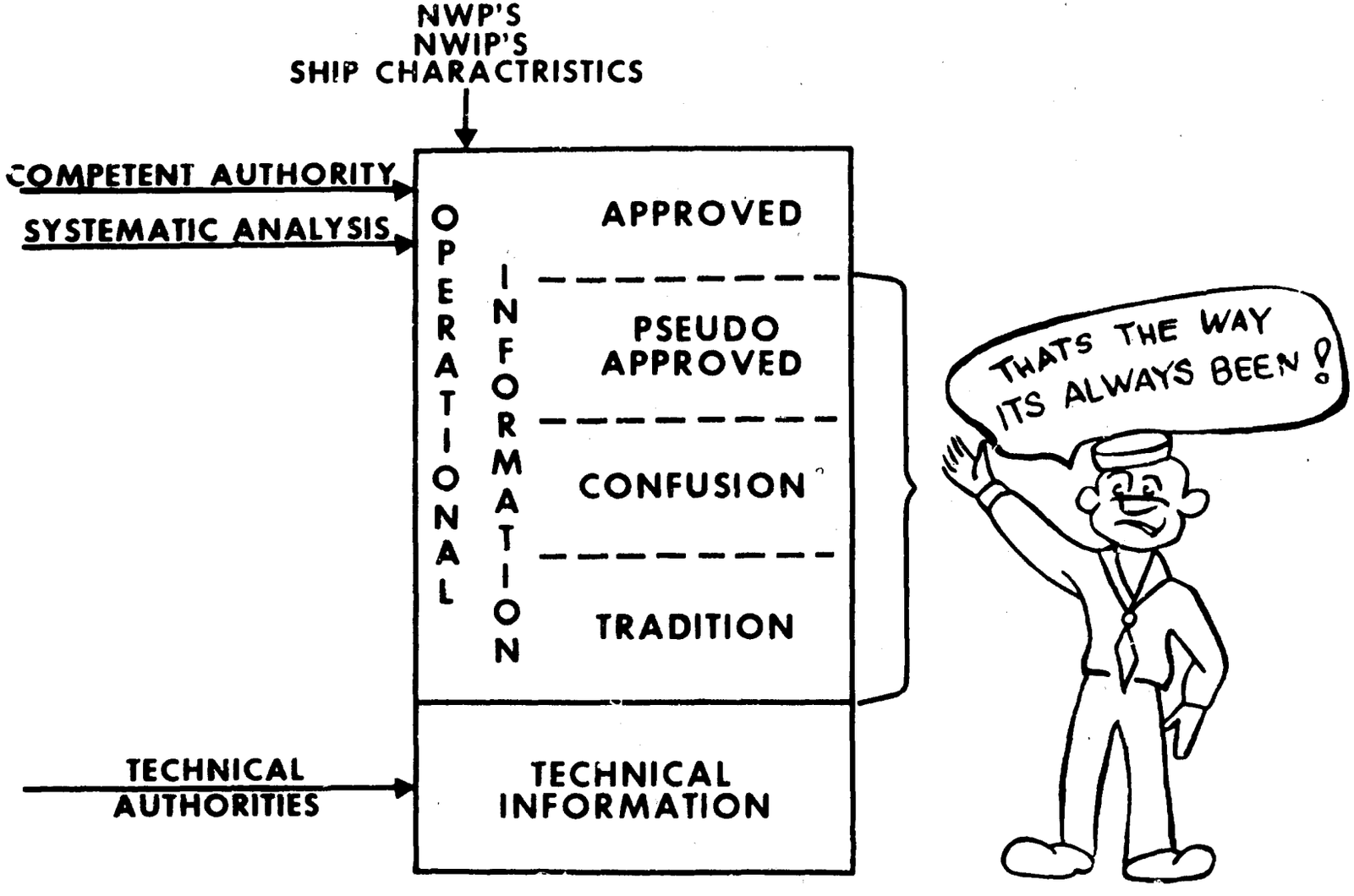
MAINTENANCE DOCUMENTATION



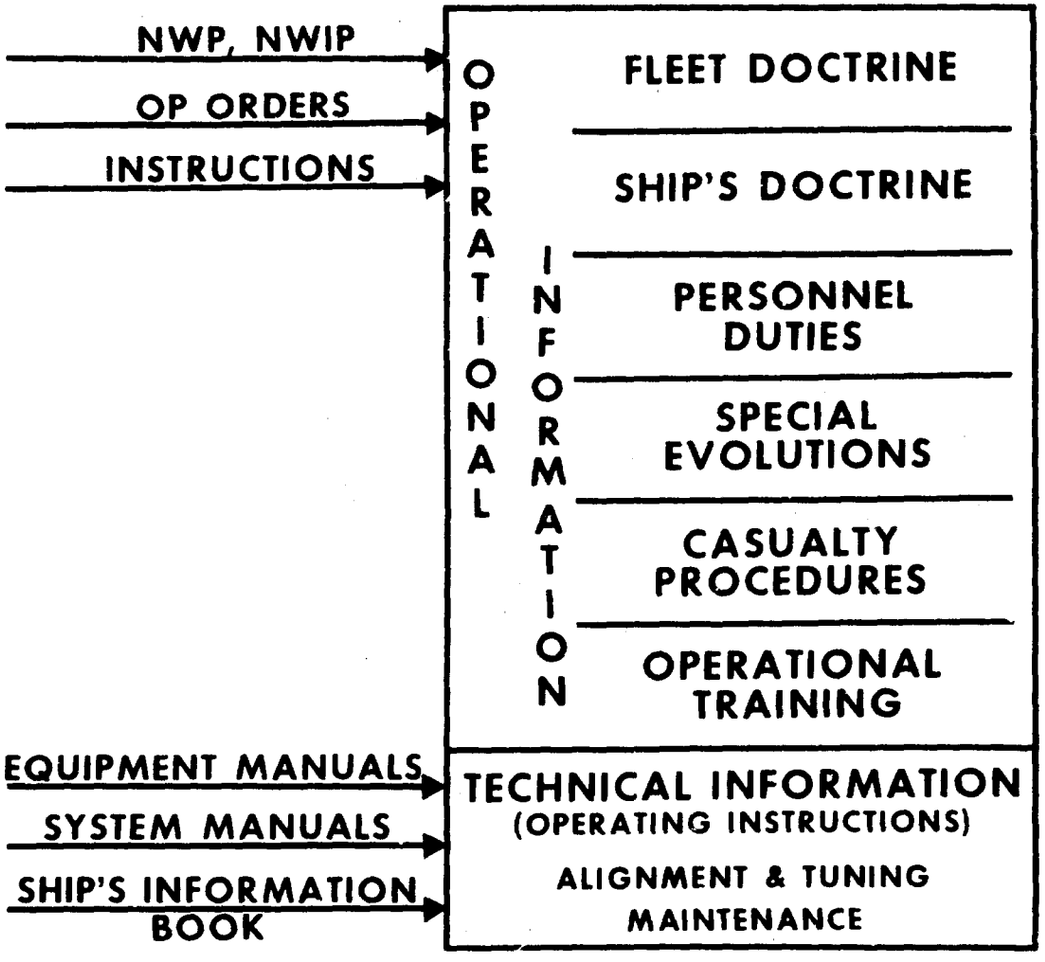
OPERATIONAL DOCUMENTATION



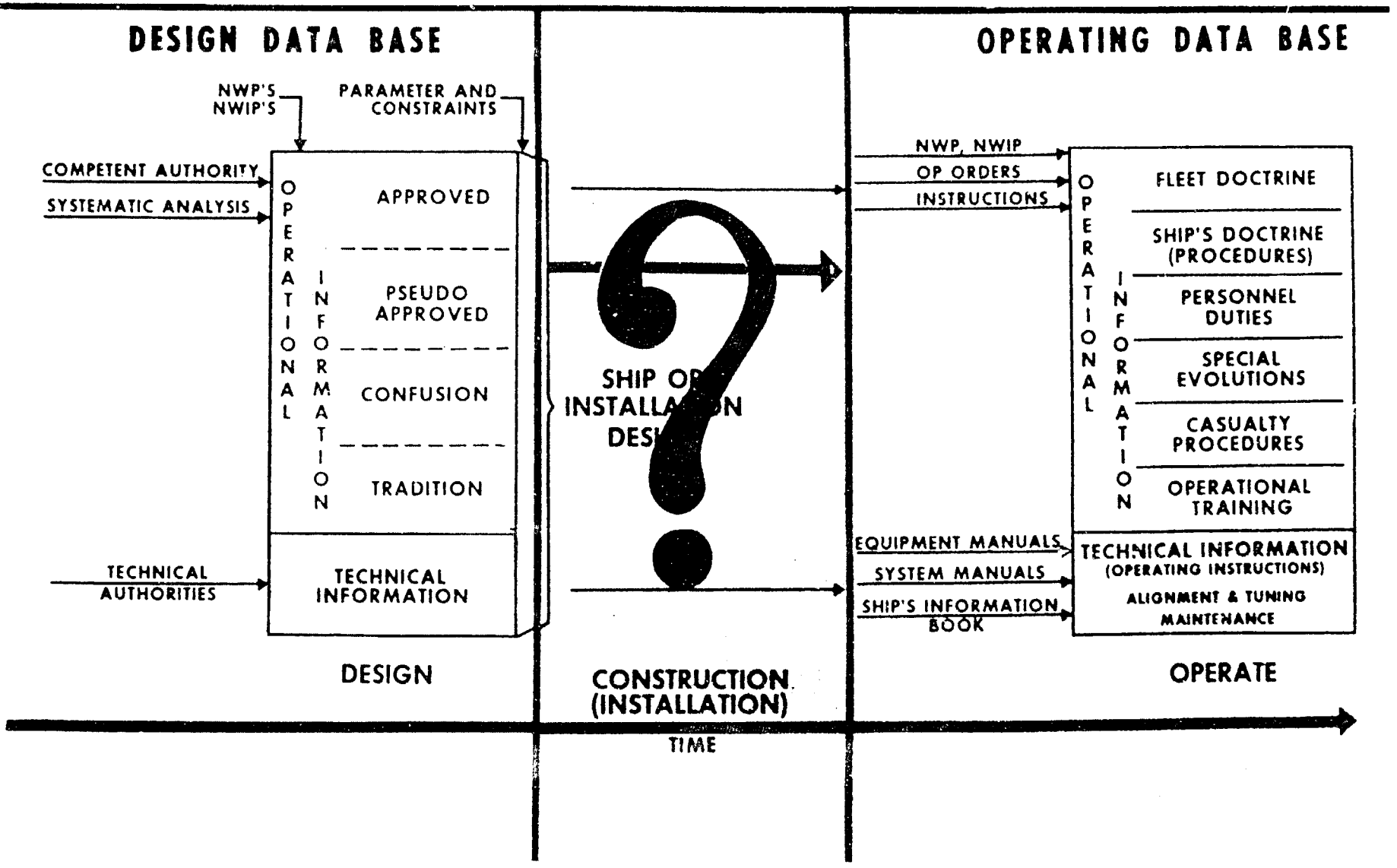
DESIGN DATA BASE



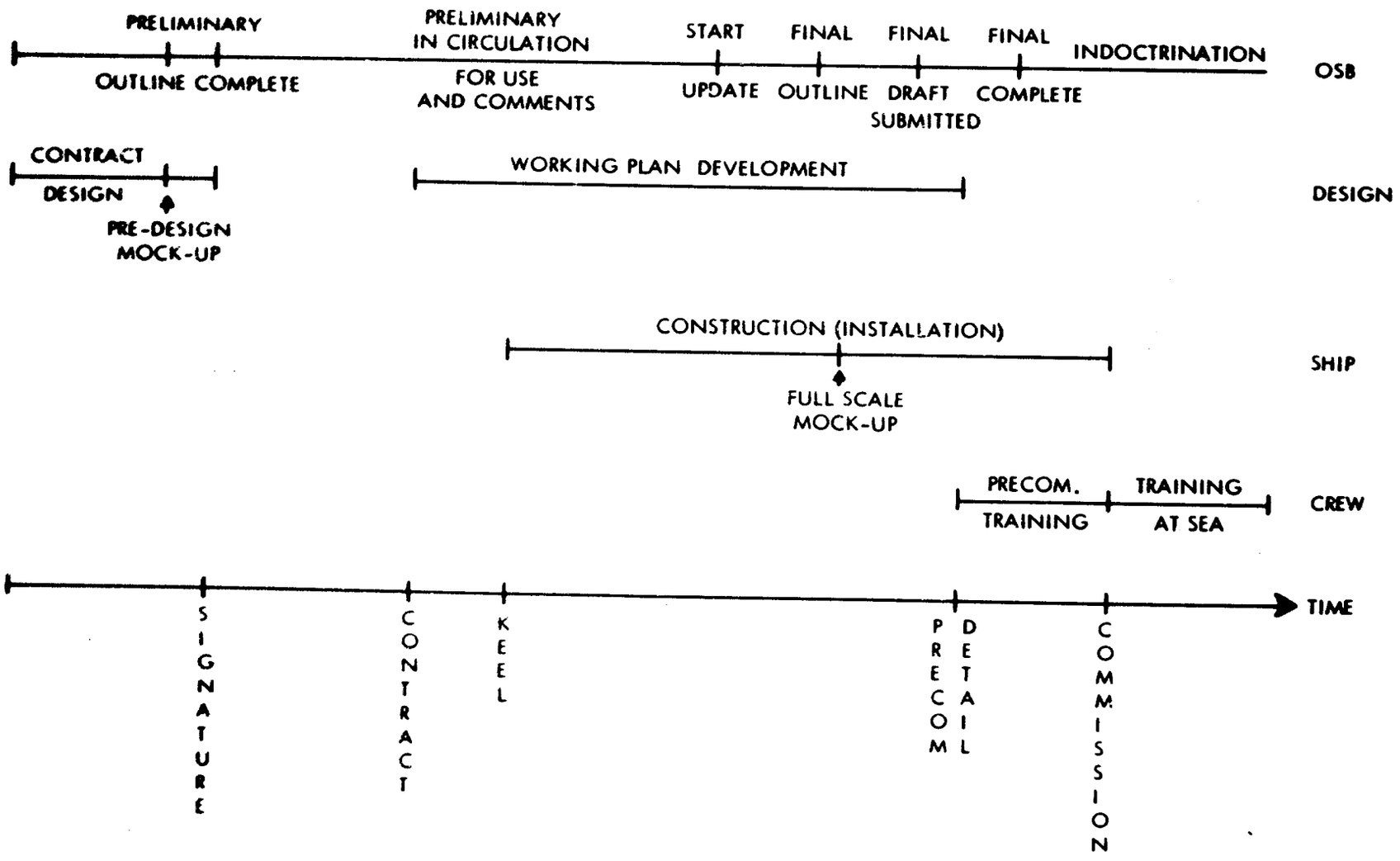
OPERATING DATA BASE



THE CRITERIA GAP



OSB PREPARATION CYCLE



STATUS OF OSB'S

SHIP	SPACES	STATUS
AGC 19 CLASS	PILOT HOUSE FLAG COMMAND LANDING FORCE COMMAND FLAG PLOT & FLAG BRIDGE SACC MILITARY OPERATIONS AIR OPERATIONS CIC COMPLEX	PRELIMINARY IN PRINTING & TO BE DISTRIBUTED
MCS	MINESWEEPING CONTROL	PRELIMINARY BEING REVISED FOR DECEMBER DISTRIBUTION

STATUS OF OSB'S
(CONTINUED)

SHIP	SPACES	STATUS
DLGN 36	PILOT HOUSE	BUILDER TO PROVIDE FINAL DURING CONSTRUCTION
	CIC COMPLEX	
	COMMUNICATION COMPLEX	
	ENGINEERING COMPLEX	
	DAMAGE CONTROL CENTERS	
	AMMUNITION HANDLING AREAS	
	MOORING AND ANCHORING STATIONS	
	REPLENISHMENT AND FUELING STATIONS	
	STEERING GEAR ROOMS	

STATUS OF OSB'S
(CONTINUED)

SHIP	SPACES	STATUS
NIMITZ (CVAN 68)	PILOT HOUSE	BUILDER TO PROVIDE FINAL DURING CONSTRUCTION
	TACTICAL OPERATIONS PLOT	
	CIC COMPLEX	
	COMMUNICATIONS COMPLEX	
	AIRCRAFT OPERATION & CONTROL COMPLEX	
	AIRCRAFT HANDLING COMPLEX	
	ENGINEERING COMPLEX	
	DAMAGE CONTROL CENTERS	
	AMMUNITION HANDLING AREAS	
	SELECTED LOGISTIC AND SERVICE AREAS	

SHIP	SPACES	STATUS
WASP (CVS 18)	COMMUNICATION COMPLEX	FINAL AWAITING FUNDING
WASP (CVS 18)	PILOT HOUSE	FINAL OSB'S AWAITING COMPLETION OF ASW COMMAND & CONTROL OPERATIONAL EVALUATION AND FUNDS
	CIC COMPLEX	
	ASCAC	
VOGE (DE 1047)	PILOT HOUSE	
KOELSCH (DE 1049)	CIC COMPLEX	

STATUS OF OSB'S
(CONTINUED)

SHIP	SPACES	STATUS
DE 1052 CLASS	PILOT HOUSE	
	CIC COMPLEX	FINAL PROPOSED
	COMMUNICATIONS COMPLEX	
	SONAR CONTROL AREA	
	ASROC CONTROL AREA	
	TORPEDO CONTROL AREA	PENDING
	WEAPONS CONTROL COMPLEX	
	WEAPONS STATIONS	

STATUS OF OSB'S

(CONTINUED)

SHIP	SPACES	STATUS
JOHN F. KENNEDY (CVA 67)	PILOT HOUSE	FINAL PROPOSED
	FLAG AND TACTICAL PLOTS	
	CIC COMPLEX	
	COMMUNICATIONS COMPLEX	
	AIRCRAFT OPERATION & CONTROL COMPLEX	
	OTHER SPACES	PENDING
FORRESTAL (CVA 59)	PILOT HOUSE	PENDING
	CIC COMPLEX	
	AIRCRAFT CONTROL COMPLEX	
CVA TYPES	ECM COMPLEX	PENDING
FY 66 MSO	PILOT HOUSE	PENDING
	CIC COMPLEX	
	MACHINERY COMPLEX	
	FANTAIL	

STATUS OF OBS'S

(CONTINUED)

COMMUNICATION COMPLEXES

PRELIMINARY IN USE
FINAL IN PREPARATION

FORRESTAL (CVA 59)
RANGER (CVA 61)
CONSTELLATION (CVA 64)
DALE (DLG 19)

FINAL IN PREPARATION

INDEPENDENCE (CVA 62)
KITTY HAWK (CVA 63)
OKLAHOMA CITY (CLG-5)
PROTEUS (AS 19)
RICHMOND K TURNER (DLG 20)
HALSEY (DLG 23)

PROPOSED

NAVARRO (APA 215)
FRANCIS MARION (APA 249)
MAHAN (DLG 11)
DAHLGREN (DLG 12)
SAMPSON (DDG 10)
JOSEPH STRAUSS (DDG 16)
BYRD (DDG 23)
WADDELL (DDG 24)
JOHN W WEEKS (DD 701)
HUGH PURVIS (DD 709)
VESOLE (DD 878)
LA SALLE (LPD 3)
IWO JIMA (LPH 2)
GUAM (LPH 9)
POINT DEFIANCE (LSD 31)
PLYMOUTH ROCK (LSD 29)

PENDING

ALL SHIPS PROPOSED FOR COMMUNICATIONS AFLOAT WORK STUDY.

EXTRACT FROM AGC 19 CLASS OSB

FOREWORD

The purpose of the Operational Stations Book (OSB) is to describe the operational relationships and procedures which takes into account the design philosophy utilized in space allocations and arrangements in this ship. This book provides the personnel with station manning requirements, responsibilities and operational procedures.

The basic organization and procedures for spaces may be based on this book. The format has been prepared in such a manner that this book may be promulgated as doctrine for the spaces included.

The book is written to be used by all personnel concerned with the training, planning and operation of these spaces. It is intended to be used by ship's personnel for instruction, information, and ready reference for the operation of the stations contained herein.

Operational concepts, rather than technical treatment has been emphasized. This book is not intended to duplicate technical information covered by equipment manuals or similar publications. Other guidance information can be obtained by referring to the Ship Information Book, Booklet of General Plans, Shipyard Plans, Technical Manuals, Naval Warfare Publications (NWP), and Naval Warfare Information Publications (NWIP).

Appendices A and B are used to summarize the internal and external communication circuits used in the command and control spaces.

User Activity Comment Sheets (affixed at the rear of this book) are provided to report any possible deficiencies in this book or in the concepts presented. It is not desired that typographical errors be reported. Additional sheets may be reproduced locally. Comments should be forwarded directly to the Work Study Coordinator, Naval Ship Engineering Center (SEC 61 2B), Department of the Navy, Washington, D.C. 20360.

EXTRACT FROM AGC 19 CLASS OSB

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EXTRACT OF USS RANGER OSB

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EXTRACT FROM AGC 19 CLASS OSB

CHAPTER 5

SUPPORTING ARMS COORDINATION CENTER

5001. General

The Supporting Arms Coordination Center (SACC) coordinates naval gunfire, close air support and artillery. It integrates the firing plans of the supporting arms to ensure their employment in support of the amphibious naval operations and of the landing force scheme of maneuver. In doing so the fires of aircraft, naval gunfire and artillery are coordinated to maximize their effectiveness and to provide the highest requisite degree of safety.

5002. Duties and Responsibilities

1. Ensure effective fire support to all components participating in the amphibious operation.
2. Catalogue all targets.
3. Maintain and update target files.
4. Direct supporting arms components:
   (a) Naval Gunfire
   (b) Close Air Support
   (c) Artillery
5. Select weapons and arms to be used on targets.
6. Coordinate mission assignment for safety and avoidance of mutual interference.
7. Assess target damage.
8. Control execution of Naval Gunfire Support Plan.
9. Direct assignment of gunfire support ships.
10. Direct assignment of close air support tactical target assignments.
11. Maintain pre-assigned target lists.
12. Maintain records of unassigned naval gunfire batteries and strike aircraft.
13. Coordinate supporting arms between:
   (a) naval gunfire
   (b) close air support
   (c) artillery
14. Display data on:
   (a) fire support ships
   (b) strike aircraft

(c) artillery
(d) target locations
(e) aircraft and helicopter operating area

Although no formal team training is required, the Supporting Arms Coordinator and the Landing Force Fire Support Coordinator should avail themselves of the opportunities provided, especially during rehearsals of amphibious operation, to assure that there is a smooth flow of information between the supporting arms components of naval gunfire, close air support, and artillery.

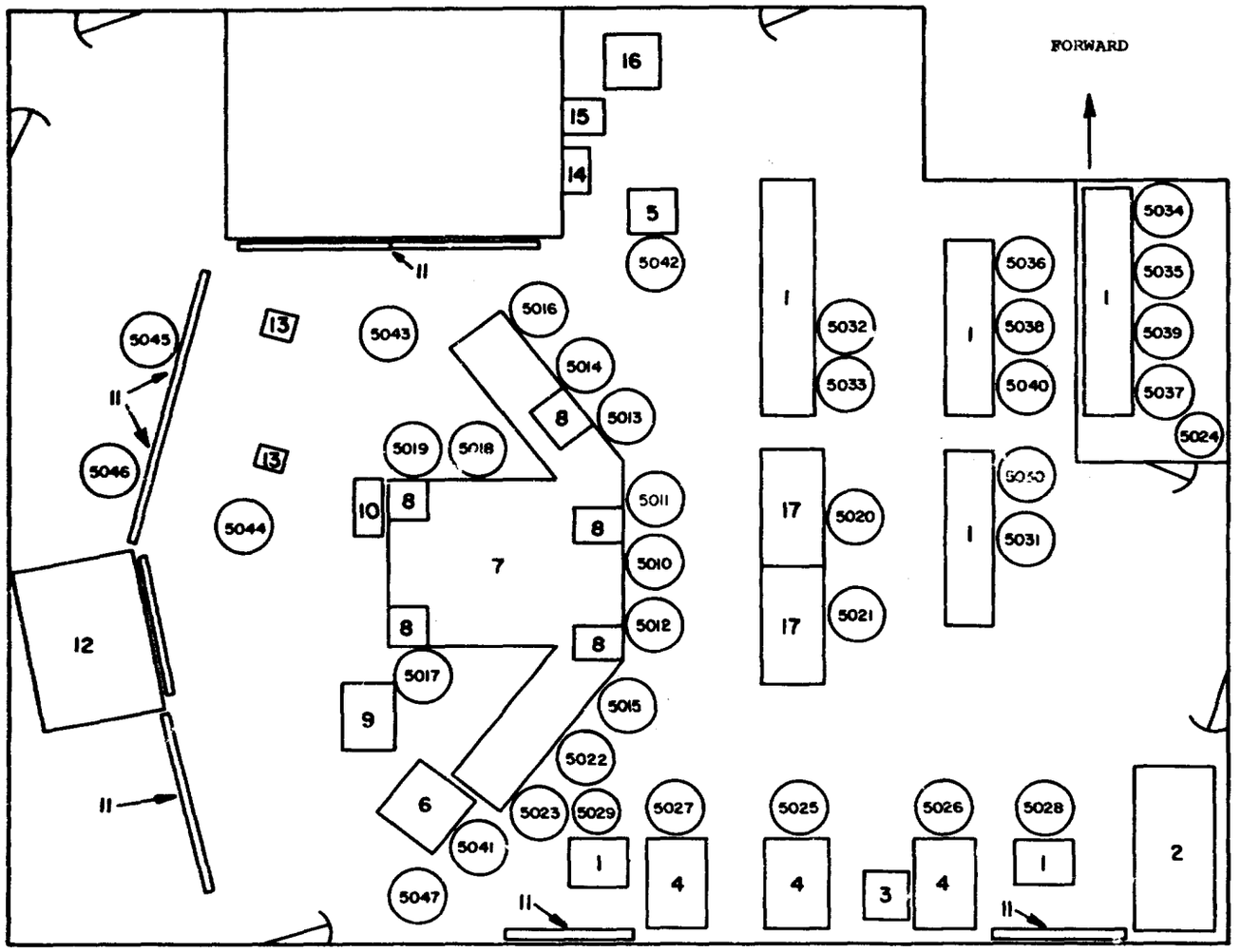
5004. Operator Positions

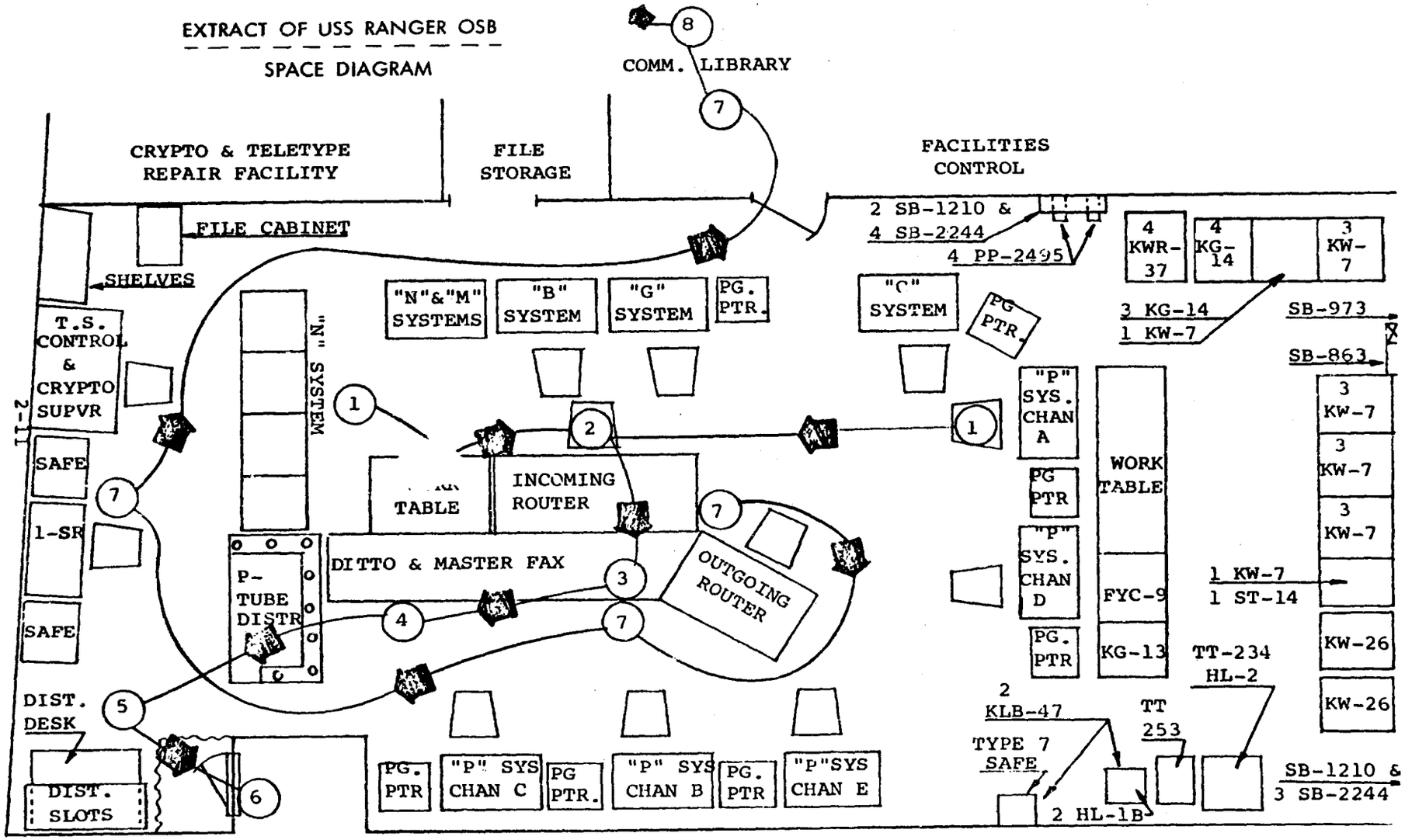
The positions required to conduct the activities of this center are as follows:

Supporting Arms Coordinator	5010
LF Fire Support Coordinator	5011
Air Support Controller	5012
Naval Gunfire Support Officer	5013
LF Naval Gunfire Support Officer	5014
LF Air Officer	5015
Ass't LF Artillery Officer	5016
Air Intelligence Officer	5017
Target Information Officer	5018
Target Intelligence Officer	5019
Gunfire Support Officer	5020
Ass't LF Gunfire Support Officer	5021
Tactical Air Command Net Officer	5022
Helo Control Net Officer	5023
Filter Officer	5024
Ass't Air Support Controller	5025
Close Air Support Controller #1	5026
Close Air Support Controller #2	5027
Tactical Air Request Net Controller No. 1	5028
Tactical Air Request Net Controller No. 2	5029
Artillery Command/Fire Direction Net Operator	5030
LF Naval Gunfire Support Net Operator	5031

EXTRACT FROM AGC 19 CLASS OSB

SPACE DIAGRAM





Space Layout and Typical Incoming Message Flow

Figure 2-2

EXTRACT FROM AGC 19 CLASS OSB

MANNING MATRIX

LEGEND
X: MANNED
O: OPTIONAL
(as required by operations)
-: NOT MANNED

OPERATIONAL STATIONS	DEGREE OF READINESS CONDITION NO. 1	CONDITION NO. 1A	CONDITION NO. 3	SPECIAL SEA DETAIL	STATION NUMBER
SUPPORTING ARMS COORDINATOR	O	X	O	—	5010
LF FIRE SUPPORT COORDINATOR	O	X	O	—	5011
AIR SUPPORT CONTROLLER	O	X	O	—	5012
NAVAL GUNFIRE CONTROL OFFICER	O	X	O	—	5013
LF NAVAL GUNFIRE SUPPORT OFFICER	O	X	O	—	5014
LF AIR OFFICER	O	X	O	—	5015
ASS'T LF ARTILLERY OFFICER	O	X	O	—	5016
AIR INTELLIGENCE OFFICER	O	X	O	—	5017
TARGET INFORMATION OFFICER	O	X	O	—	5018
TARGET INTELLIGENCE OFFICER	O	X	O	—	5019
GUNFIRE SUPPORT OFFICER	O	X	O	—	5020
ASS'T LF GUNFIRE SUPPORT OFFICER	O	X	O	—	5021
TACTICAL AIR COMMAND NET OFFICER	O	X	O	—	5022
HELO CONTROL NET OFFICER	O	X	O	—	5023
FILTER OFFICER	O	X	O	—	5024
ASS'T AIR SUPPORT CONTROLLER	O	X	O	—	5025
CLOSE AIR SUPPORT CONTROLLER NO. 1	O	X	O	—	5026
CLOSE AIR SUPPORT CONTROLLER NO. 2	O	X	O	—	5027
TACTICAL AIR REQUEST NET CONTROLLER NO. 1	O	X	O	—	5028
TACTICAL AIR REQUEST NET CONTROLLER NO. 2	O	X	O	—	5029
ARTILLERY COMMAND/FIRE DIRECTION NET OPERATOR	O	X	O	—	5030
LF NAVAL GUNFIRE SUPPORT NET OPERATOR	O	X	O	—	5031
NGF CONTROL NET CONTROLLER NO. 1	O	X	O	—	5032
NGF CONTROL NET CONTROLLER NO. 2	O	X	O	—	5033
NGF CONTROL NET NO. 1 MONITOR (FILTER ROOM)	O	X	O	—	5034
NGF CONTROL NET NO. 2 MONITOR (FILTER ROOM)	O	X	O	—	5035
AIR REPORTING CONTROL NET CONTROL	O	X	O	—	5036
AIR REPORTING CONTROL NET MONITOR (FILTER ROOM)	O	X	O	—	5037
NGF RIO NET CONTROLLER	O	X	O	—	5038
NGF RIO NET MONITOR (FILTER ROOM)	O	X	O	—	5039
UDT COMMAND NET CONTROLLER	O	O	O	—	5040
LARGE SCREEN DISPLAY CONSOLE OPERATOR	O	X	O	—	5041
TELETYPE OPERATOR	O	X	O	—	5042
RECORDER (TARGET INFORMATION AND INTELLIGENCE)	O	X	O	—	5043
TELEVISION CAMERA OPERATOR/MONITOR	O	X	O	—	5044
STATUS BOARD PLOTTER (FRIENDLY)	O	X	O	—	5045
STATUS BOARD PLOTTER (ENEMY)	O	X	O	—	5046
STATUS BOARD KEEPER	O	X	O	—	5047
MESSENGER (2)	O	X	—	—	5048-49

SUPPORTING ARMS COORDINATION CENTER

Figure 5-2 Manning Requirements

(REVERSE BLANK)

EXTRACT FROM AGC 19 CLASS OSB

POSITION DESCRIPTION

5022. TACTICAL AIR COMMAND NET OFFICER

A. STATION: Supporting Arms Coordination Table

B. MANNED:
1. Condition 1 (Optional)
2. Condition 1A
3. Condition 3 (Optional)

C. TRAINING:
1. Qualified as:
   a. Close Air Support Controller
2. Courses in:
   a. Amphibious operations
   b. Air intercept control
3. Have a working knowledge of the following documents:
   a. NWIP 22-2 - Supporting Arms in Amphibious Operations
   b. NWP 41 - Naval Air Operating Procedures
   c. FMFM 7-3 - Air Support

D. COMMUNICATIONS:
External Radio Circuits:
Tactical Air Command
Internal:
1. Face to face relationship with:
   a. Air Support Controller
   b. LF Air Office
   c. Air Intelligence Officer

E. DUTIES AND RESPONSIBILITIES:

1. Acts as net controller if no Tactical Air Control Center is functioning.

2. Maintains communications with Tactical Air Direction Center(s), supporting carriers, air bases, and the Tactical Air Control Center (if functioning).

3. Advises Air Support Controller of all air operations information affecting the tactical situation.

2410 BROADCAST OPERATOR

1. Station. This position is manned in the Message Processing Center adjacent to the Message Processing Area.

2. Manning.

a. During Light and Average Traffic conditions (see Article 2106) this position is manned by one man.

b. During Heavy Traffic conditions (see Article 2106) this position is manned by two men.

3. Training.

a. This position requires a striker who is a graduate of Class A Radioman School or has equivalent training and is knowledgeable in teletype equipment nomenclature and operation and broadcast procedures.

4. Communications.

a. This position requires intercommunication facilities with the CRYPTO and FACILITIES CONTROL OPERATORS.

5. Duties and Responsibilities.

a. The BROADCAST OPERATOR is responsible to the MESSAGE PROCESSING CENTER SUPERVISOR for:

(1) Continuous monitoring of the Broadcast for circuit and message quality.
(2) Proper maintenance of Broadcast Files and Continuity Logs.
(3) Timely and proper delivery to the INCOMING ROUTER of messages received on the Broadcast for commands/units on the effective guard list.

b. BROADCAST OPERATORS require the following to permit accomplishment of their tasks:

(1) Current guard list.
(2) Broadcast File binders.

(3) Continuity Log.
(4) Equipment failure report blanks.
(5) Equipment Operating Instructions.

c. Specific Task Accomplishment.

1 Receive message on incoming page printer and reperforator.

1 Checks message addresses against current guard list.

2 Remove copies from page printer.

3 Affixes service cross information on page copies to be processed.

4 File page copy in Broadcast File. (Carbon copy of message to be processed, original if message of no interest.)

5 Account for message of no interest by marking through broadcast number on Continuity Log.

6 Accounts for message to be processed by circling the broadcast number on the Continuity Log.

7 Discard duplicate copy and tape in burn bag for message of no interest.

8 Remove tape from reperforator for message to be processed, except MILSTRIP, and attach to duplicate page copy.

2 Pass duplicate copy of MILSTRIP message to INCOMING ROUTER for logging only.

3 Pass tape of MILSTRIP message to 1-SR OPERATOR.

4 Pass duplicate copy and tape of other messages to be processed to INCOMING ROUTER.

EXTRACT FROM AGC 19 CLASS OSB

SAMPLE OF APPENDIX

APPENDIX B

EXTERNAL COMMUNICATIONS

B-1000 General

During the assault phase of the amphibious operation, the AGC will require on a continuous basis an instantaneous interchange of a wealth of information with other ships and with shore stations. This information must be exchanged primarily by radio circuits which range from automatically controlled data links to hand-keyed CW transmissions. This appendix will name the radio circuit and the type of information exchanged, and is a summary (as pertains to AGC command and control modules) of circuits and their usage from Navy and Marine Corps Publications.

B-1001 External Communications Circuits

These circuits are grouped herein generally according to their basic usage and are enumerated in the paragraphs which follow. Figure B-1 is a matrix of ship/staff operational stations versus radio circuits.

1. Task Force Tactical Primary (PriTac)
   Circuit utilized for maneuvering the force and for reporting vital information concerning the immediate safety of ships. Circuit controlled by the Force Commander.

2. Task Force Tactical Secondary (SecTac)
   Similar to Task Force Tactical Primary and used when UHF range is insufficient or if PriTac is a casualty. Circuit controlled by the Force Commander.

3. Task Force Commanders Conference
   Voice circuit between the Commanders involved in the amphibious operation. Commander Landing Force guards when ashore.

4. TG/TU SAU Tactical A, B, C
   Circuit used to maneuver Surface Attack Units (Task Group/Task Unit) and for reporting vital information concerning the safety of the ships. TG/TU Commander controls this circuit.

5. East Attack Group
   Tactical command circuit used by Commander of the East Attack Group.

USER ACTIVITY COMMENT SHEET
For Operation Station ok (OSB)

NAVSHIPS _____
(print number)

INSTRUCTIONS

This sheet is provided for obtaining information on the use of the OSB, and should be filled out by personnel involved in the use of this OSB.

Comments and the return of this form will be appreciated

Fold on dotted lines on reverse side, staple in corner, and mail to Work Study Coordinator, Naval Ship Engineering Center.

(SEC 6102B), Department of the Navy, Washington, D.C. 20360.

It is desired that comments be concise and provide any known references. If possible, each comment should be accompanied by a recommended solution. Recommendations for modifications of references may also be included.

SUBMITTED BY (print Name and Activity):	DATE:

COMMENTS ARE ON: Functional Areas:	OSB Chapter:	OSB Page:

CHECK, or SPECIFY as appropriate:

THESE COMMENTS PERTAIN TO:

- ☐ Book layout or usage.
- ☐ Operational procedures.
- ☐ Manning.
- ☐ Arrangement of equipment.
- ☐ Other _____

THIS OSB IS:

- ☐ Extremely useful.
- ☐ Useful.
- ☐ Of some Assistance.
- ☐ Just more paperwork.

THIS OSB IS USED AS:

- ☐ Reference document.
- ☐ Published as Ship's Doctrine.
- ☐ Training Document
- ☐ Not used.
- ☐ Other _____

COMMENTS: (If classified data is included, comply with OPNAV INSTRUCTION 5510.1)

USE ADDITIONAL SHEETS IF NECESSARY 90205

MIL-O-24312(SHIPS)
1 September 1967

MILITARY SPECIFICATION

OPERATIONAL STATIONS BOOK (OSB),

PREPARATION OF

1. SCOPE

1.1 Scope.- This document describes the requirements for the preparation of Operational Stations Book (OSB). The finished document is to be used to integrate the man into the operational system. It shall reflect the result of any Design Work Study used to optimize arrangements and it shall present the most effective and efficient methods of station operation.

1.2 Types.- Operational Stations Book shall be of the following types, as specified (see 6.1):

(a) Preliminary (see 3.9)
(b) Final (see 3.10)

1.3 OSB objective.- The objective of the OSB shall be to describe how the man operates within the systems. Systems are developed and optimized through use of analytical techniques. The OSB provides the communication medium indicating the specific manning and operational procedures on which the design was based in order to maintain the effectiveness and the efficiency of the arrangement and the system. The OSB shall fulfill the following requirements:

(a) Define the operational (rather than technical) system.
(b) Present the optimal system usage as developed through analytical techniques.
(c) Present the system usage and procedures necessary to operate the system under all modes of operation including casualty conditions and special evolutions applicable to that system.
(d) Describe the rationale leading to the system concept.
(e) Describe the qualifications and training required to operate the system.
(f) Provide a source of information not readily available from other sources.
(g) Provide a simple system for reporting deficiencies for consideration in future designs.

FSC TMSS

1.4 Spaces.- The OSB shall define and fulfill the OSB objective, indicated in 1.3, for the spaces prescribed (see 6.1).

1.4.1 Although the size, mission, and task of the ship will be used to determine which shipboard spaces and areas shall be included in the OSB, the spaces which are listed below are typical of those which may be considered for inclusion in the OSB:

(a) Pilot house (including auxiliary and exposed conning stations).
(b) Chart room.
(c) Bridge wings.
(d) CO Tactical Plot.
(e) Flag Command and Control Complex.
(f) CIC Complex.
(g) Communications Complex.
(h) Machinery monitoring and control stations.
(i) Damage control stations.
(j) Spaces in which special evolutions are carried out such as:
    (1) Aircraft operation control.
    (2) Aircraft handling control.
    (3) Landing force command.
    (4) Ammunition handling.
    (5) Deck operations (such as handling of mine countermeasures equipments, replenishment, beaching equipments, rescue or salvage equipments).

2. APPLICABLE DOCUMENTS

2.1 The following document of the issue in effect on the date of invitation for bids or the request for proposals forms a part of this specification, to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-M-15071 - Manuals, Equipment and Systems

(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.)

3. REQUIREMENTS

3.1 Preparation.- The OSB shall be prepared utilizing personnel who are:

(a) Knowledgeable in shipboard operational procedures, and
(b) Knowledgeable in work study techniques.

3.2 Number and identification.- The OSB numbering system and method of identification shall be as specified in 3.2.1 through 3.2.8.

3.2.1 OSB number.- A publication number shall be assigned when the OSB is submitted for approval.

3.2.2 Chapters.- Chapters shall be numbered in sequence with Arabic numerals from 1 through 99. If more than one chapter is used, chapter number "1" shall be the general chapter and higher numbered chapters shall represent a specific physical space.

3.2.3 Sections.- Sections shall be used where two or more functional areas are described. Sections shall be numbered in sequence with Arabic numerals 1 through 9. Within chapters other than Chapter 1, Section 1 shall be the general section and higher numbered sections shall represent a specific functional area. Where only one functional area is to be described section numbering shall not be used.

3.2.4 Paragraphs.- Paragraphs shall be numbered in sequence with Arabic numerals 01 through 99. In functional areas, paragraphs numbered "01 through 09" shall be reserved for general information and paragraphs numbered "10 through 99" shall represent a position within an area.

3.2.5 Article numbers.- Article numbers appropriately titled, shall be used to identify position descriptions and other paragraphs within the text as appropriate. The number assigned to a particular article indicates the chapter, section (in the absence of a section, zero shall be used in the section position of the article number), and paragraph in which the article is contained. Subparagraphs are given after the decimal point. For instance, the number 7401.2a (1) indicates chapter 7, section 4, paragraph 01, subparagraph 2a(1). To cite several articles in a series, reference shall be made by linking articles with a dash (example Articles 7711-7715). An appendix may have a number of articles and sections, just as a chapter does, and follows the same numbering system but with a capital letter designator preceding the numbers (example, A-7710-2).

3.2.6 Appendices.- Appendices shall be identified in alphabetical order with a capitalized English letter.

3.2.7 Illustrations and tables.- Illustrations and tables shall be identified by use of "Figure" numbers which shall be Arabic numerals. The number indicates the chapter in which the illustration or table appears (example, Figure 1-3 would be the third figure in Chapter 1).

3.2.8 Page identification.- Small Roman numerals shall be used in numbering the material preceding Chapter 1. The pages of the OSB shall be numbered in a separate series for each chapter. The pages of a chapter shall be numbered in sequence with Arabic numerals from 1. Each page shall be preceded by the number of the chapter (example, 7-15). The pages of an appendix shall be numbered in sequence with Arabic numerals preceded by the letter designating the appendix (example, A-5). The index is numbered in sequence with Arabic numerals preceded by the English letter I (example, I-4), or it shall be numbered Index-4 if there is an Appendix I.

3.3 Contents.- OSB's shall be meaningful, useful, and informative, but simple and readable for levels specified for operatint instructions in MIL-M-15071. The size of the OSB shall be kept to a minimum. The contents shall be limited to information required for the user (operator) to understand and carryout the required functions of the system. Only major functional pieces of equipment will be included. Equipment operating instructions contained in technical manuals shall not be included.

3.4 Format and layout.- Format and layout shall provide for ease of use so that the OSB may be directly promulgated as ship's doctrine. The OSB shall be in a loose leaf (three-ring) form so that parts may be separate from the basic publication for use by individual operators. The OSB shall be delivered with a plastic or hard cardboard cover, and secured by means of "post binders", (see 3.8). The information shall be printed on front and back of sheets. Each section shall start on the front of a new sheet. Each position description (watch station) occupying less than two pages shall be printed on the front and back of the same sheet. More than one position occupying less than one page shall be printed on the front or back of a sheet. The OSB shall be in a form so that changes which do not effect the ships functional operations, will not require revision to the OSB. To avoid the requirement for minor revisions the following shall "not" be included in the OSB:

(a) Specific military designation for equipment or system nomenclature (use of general terms is intended).
(b) Course numbers for service schools or correspondence courses.
(c) Specific characteristics of ship, system, or equipment.
(d) Listing of items such as equipment, systems, or armaments.

3.5 Organization.- The OSB shall contain data specified below, arranged in the order specified. Data requirements not contained herein shall comply with MIL-M-15071.

Cover.
Title page.
Distribution list.
List of effective pages.
Table of contents.
List of figures.
Foreword.
Introduction.
Informative chapters.
Appendices.
User activity comment sheets.

3.5.1 Front matter.- Front matter shall comply with MIL-M-15071, except as follows:

3.5.1.1 Distribution list.- This list shall indicate the specific commands for distribution of the Final OSB (see 3.9.5 and 3.10.5).

3.5.1.2 Table of contents.- The table of contents shall list all primary divisions (chapters, sections and articles) appendices with their titles and corresponding page numbers.

3.5.1.3 List of figures.- The list of figures shall contain complete listing of figures with titles and page numbers.

3.5.1.4 Foreword.- The following is a standard "Foreword" to be used in the OSB:

"The purpose of the Operational Stations Book (OSB) is to describe the operational relationships and procedures which takes into account the design philosophy utilized in space allocations and arrangements in this ship. This book provides the personnel with station manning requirements, responsibilities and operational procedures.

The basic organization and procedures for spaces may be based on this book. The format has been prepared in such a manner that this book may be promulgated as doctrine for the spaces included.

The book is written to be used by all personnel concerned with the training, planning and operation of these spaces. It is intended to be used by ship's personnel for instruction, information, and ready reference for the operation of the stations contained herein.

Operational concepts, rather than technical treatment have been emphasized. This book is not intended to duplicate technical information covered by equipment manuals or similar publications. Other guidance information can be obtained by referring to the Ship Information Book, Booklet of General Plans, Shipyard Plans, Technical Manuals, Naval Warfare Publications (NWP), and Naval Warfare Information Publication (NWIP).

Appendices (if included) are used to summarize such areas as the external or internal communications circuits used in operating the spaces described in this book.

User Activity Comment Sheets (affixed at the rear of this book) are provided to report any possible deficiencies in this book or in the concepts presented. It is not desired that typographical errors be reported. Additional sheets may be reproduced locally. Comments should be forwarded directly to the Work Study Coordinator, Naval Ship Engineering Center (SEC 6102B), Department of the Navy, Washington, D.C. 20360."

3.5.1.5 Introduction.- This section shall answer the question, "Why does this particular OSB represent an optimum solution?". This section shall include the following:

(a) A short explanation of the design philosophy used to develop the operational system.
(b) A brief description of the design criteria which optimized the procedures and minimized the manning within the configuration.
(c) A statement indicating that the procedures were developed within the arrangement according to analytical techniques, and any changes in the arrangement might severely hamper the effectiveness and the efficiency of the system.
(d) An explanation as to why this configuration with the operational procedures contained in the OSB benefits the man. A statement shall be included to the effect that the man was given prime consideration throughout the development of the procedures presented.

3.5.2 Informative chapters.- Preceding each chapter, there shall be a chapter title page which shall include a list of the sections and the primary articles therein with titles and page numbers.

3.5.2.1 Chapter 1 (general information).- Where the OSB covers several major systems this chapter shall include general information on the overall operational concepts of the ship; to include:

(a) Missions and tasks (if this can be published as unclassified information);

(b) General characteristics which were developed by workstudy techniques in the design layout of the ship, and which are not covered in subsequent chapters, such as the relationship of areas to each other;
(c) Operational concepts of the ship indicating the major functions to be performed and the inter-relationship of the area to be covered in subsequent chapters.

3.5.2.2 Other chapters.- Each of the following chapters in the OSB shall cover a specific physical area (space) on the ship. Modularized (functional) area within a space shall be presented in sections of the chapter. For those spaces which are not described by use of functional areas, all information will be in the chapter without section numbering. The information described in "Section 1" of a chapter will be presented in the general articles and the remaining information will be presented in the other articles as described for "Other Sections".

3.5.2.2.1 Section 1-General Section (Articles--101 through --199).- This section shall provide general information on the space, including:

(a) General functions within the overall space;
(b) Duties and responsibilities within the space, describing any variation for special evolutions or conditions;
(c) Team training required for the personnel manning the space, in general terms unless specific requirements are furnished by the Government (in all cases specific course numbers should be avoided).
(d) List of functional areas within the space (indicating the section of the chapter in the area described);
(e) Diagram of the space showing areas (labeling functional areas by name and referencing the applicable OSB section number);
(f) Where applicable, a matrix indicating which areas are manned under each operational condition or evolution.

3.5.2.2.2 Other sections (covering modular areas).-

3.5.2.2.2.1 General articles (---01 through ---09) containing:

(a) General functions within the area;
(b) Duties and responsibilities within the area describing any variations for special evolution or conditions;
(c) Team training required for the module, in general terms unless specific requirements are furnished by the Government;

(d) List (see NOTE) of positions within the area (indicating the article in which the position is described);
(e) Tools required in the area, such as communications circuits;
(f) Diagram (see NOTE) of the area showing:
Major equipments;
Positions manned during evolutions with maximum manning (labeled by the article describing the position);
Major flow of information indicated by a line with an arrow (labeled with the method of transmission and circuit, if applicable) (see 3.8.2)
(g) Matrix (see NOTE) (Position by name and article number versus evolutions) indicating which positions are manned during each evolution. An "X" or an Arabic number shall be used to indicate manning (or the number of men at) each position. Personnel rates shall be substituted for the "X" (or Arabic number) when furnished or authorized by the Government.

NOTE: If space and clarity permit, the List Diagram, and Matrix, may be included in the General Section of the applicable Chapter.

3.5.2.2.2.2 Other articles (---10 through ---99) shall provide a description of each position. Each position description shall include:

(a) Name of position;
(b) Station;
(c) When manned;
(d) General training requirements for the position shall be indicated unless specific requirements are furnished by the Government. Training requirements for the position shall include:
(1) Schools or course description (not titles or numbers);
(2) Reference publications for study (NWP's and NWIP's may be included, but reference to specific manuals or instructions, by the exact title or number shall be avoided).
(3) Qualifications in other positions or jobs;
(e) Tools required in the position for carrying out duties, including:
(1) Publications;
(2) Communications (external and internal);
(3) Special devices.

Where a selection of tools is available, the tools may be referenced to those indicated for the module or to other positions in the module.

(f) Duties and responsibilities of the position, including a description of the operating procedures for the position, any variation for casualties, special evolutions or conditions. For command and control spaces at least one alternate method (position) shall be indicated for a major casualty to the equipment at the position described. The description shall be thorough enough to cover the operational concepts, preparation of equipment (turning watch standing routines), reports, and information sent and received including, where applicable, transmission methods (type of system and circuit nomenclature) and terminal equipment (handset, earphones, keyset, speaker, etc.). The description shall be simple, concise, readable and not repeat information which is readily available through other publications or the previous training of the man. Specifically, operating instructions for equipment (covered in technical manuals), procedures for communicating (covered in previous training) and responsibilities of such positions as Commanding Officer or OOD (covered in current regulations and directives) shall not be specified. Duties which are applicable to the operational concepts of the system shall be specified. The description of the work performed for specific operations may be shown in chart or tabulated form (see 3.8.2)

3.5.3 Appendices.- Where applicable, appendices shall be provided to present summations to clarify or assist ship personnel, including (see 6.1):

(a) Internal communications including a position versus circuit matrix;
(b) External communications and circuit usage;
(c) Check-off list for evolutions such as casualty control;
(d) Special tools (if a separate complete listing would be useful).
(e) Separation of classified information from remainder of text (see 3.7)

3.5.4 User activity comment sheets.- User activity comment sheets shall be provided to report deficiencies in the OSB. At least three sheets shall be provided by attachment as the last three sheets in the OSB. The front of the comment sheets shall be as specified on figure 1. The printed portion of the sheet should be reduced as much as possible to leave maximum space for written comments. The rear of the sheet shall have a format which can be folded in thirds, stapled, and mailed. It shall be preaddressed to Work Study Coordinator, Naval Ship Engineering Center (SEC 6102B), Department of the Navy, Washington, D.C. 20360, including "franking".

3.6 Indoctrination services.- The Contractor shall furnish engineering type indoctrination service for a number of man-days to be specified by NAVSHIPS. The services shall be provided by personnel knowledgeable in the preparation of the OSB; in shipboard operational procedures; in shipboard systems; and in work study techniques. The indoctrination services shall be provided to the following:

(a) Applicable ship's personnel.
(b) Navy training school instructors prior to training applicable ship's personnel.
(c) Underway training personnel who will be concerned with the applicable ship's personnel during shakedown, type, or refresher training.

The contractor shall provide these services upon the request of the Supervisor who will designate a suitable location for the indoctrination (see 6.1)

3.7 Security classification.- Wherever possible, the OSB shall be void of all classified material. Information classified higher than "Confidential" shall not be included in the OSB. Confidential material shall be kept to a minimum and if possible assembled in an appendix or other appropriate division of OSB, for ease of identification, removal and possible separate distribution.

3.7.1 Security markings.- Where material in the OSB must be classified, each classified page shall be identified at the upper left and lower right corners. Unclassified pages shall not be marked. In addition to page identification, all classified data shall be identified by a letter enclosed in parentheses; (C) for Confidential, positioned as specified in MIL-M-15071.

3.7.2 Security note.- A note shall be provided in the front of the OSB, stating that the OSB shall be unclassified when the classified pages, indicated by number, have been removed.

3.8 Production.- Production details shall comply with MIL-M-15071 except specified in 3.8.1 through 3.8.3.

3.8.1 Symbology.- When symbology is used it shall conform with accepted Design Work Study symbols. Solid symbols will indicate mandatory operations. Dotted symbols will indicate optional operations. Lines connecting through symbols indicate mandatory sequence. Lines alongside and touching symbol shall indicate optional sequence. If operations are numbered, mandatory sequence operations shall have increasing Arabic numbers. Optional sequence operations shall be lettered in order starting at "A".

3.8.2 Layout.- Layout shall be on an 8 inch by 10-1/2 inch page. Foldouts shall be kept to a minimum to eliminate or minimize the size of any foldout, reduced scale drawings or documentation shall be used whenever practicable (see 3.4).

3.8.3 Binding.- The book shall be drilled or punched for 3 hole post type binding (see 3.4).

3.9 Preliminary OSB.-

3.9.1 Preliminary OSB.- A Preliminary OSB shall be developed during a work study and be used to obtain approval and provide guidance prior to issuance of the Final OSB. An outline of the general chapter and the general sections of other applicable chapters shall be prepared for presentation of pre-design mock-ups or contract plans. This outline shall indicate rationale for arrangement or any recommendations.

3.9.2 Coordination.- The "Outline" of and the "Preliminary OSB" shall be coordinated by the applicable design code. NAVSEC Work Study Coordinator shall provide overall coordination and technical assistance.

3.9.3 Review and approval.- Four manuscript copies of the Preliminary OSB and four copies of any changes thereto, shall be submitted to the Work Study Coordinator, Naval Ship Engineering Center for review and approval. The initial submission shall be forwarded prior to signature of the contract plans or upon completion of the work study (as applicable) (see 6.1). Included with the submittal will be a recommended covering letter to forward the Preliminary OSB for review, comment and recommended changes.

3.9.4 Quantity.- Fifty copies of the applicable outline of the Preliminary OSB, shall be available for presentation of the Pre-Design Mock-Up or submission of the contract plans to CNO for approval (whichever is applicable). Sufficient number of copies of the finished Preliminary OSB shall be prepared to provide the quantity necessary for distribution (see 3.9.5 and 6.1).

3.9.5 Distribution.- The distribution list for the Preliminary OSB shall only appear in the covering letter for the Preliminary OSB. The Distribution List within the OSB shall be the distribution for the final OSB. (see 3.10.5) The following is the normal distribution for Preliminary OSB's: List with Specific Commands to be included in recommended covering letter for distributing the Preliminary OSB for review comments and recommended final distribution (see 6.1)

Activity	Copies
CNO	20
Area Fleet Commanders	2 each
Fleet Training Commanders	10 each*
Applicable Type Commanders	10 each*
Applicable Functional and Area Commanders	2 each
Other Services (as designated)	2 each
Fleet Computer Programing Center (if applicable)	2 each
Bureau of Naval Personnel	10*
Chief of Naval Material	2
Naval Ship Systems Command	5
Other Naval Systems Commands (if applicable)	10 each
Naval Ship Engineering Center (for distribution and stock)	40
Applicable Naval Laboratories	2 each
Builders (for information, with contract package)	2 each

*For further distribution as desired to subordinate or associate command such as training activities, laboratories or personnel research activities.

3.9.6 Completion.- The Preliminary OSB shall be available at the time of signature of contract plans or completion of the study (as applicable) (see 6.1).

3.10 Final OSB.-

3.10.1 Final OSB.- A Final OSB shall be developed during the final stage of construction (installation). An outline of the general chapter and the general sections of other applicable chapters shall be prepared for spaces which require full scale mock-ups. This outline shall indicate the rationale for arrangements or any recommendations.

3.10.1.1 Preparation of Final OSB.- In development of a Final OSB, previously developed documentation shall be utilized. Where a "Ship and System Operational Manning and Maintenance Data Document: (SSOMMDD) or a "Preliminary Operational Station Book" has been prepared, these documents shall be employed to develop the Final OSB. Recommended future changes to equipment configurations (incidental to OSB preparation) shall be submitted to NAVSHIPS.

3.10.1.2 Preparation if an applicable OSB is available.- The following shall be considered when modifying the Preliminary OSB in order to develop the Final OSB:

(a) The rationale supporting the original arrangement.
(b) Modification of equipments.
(c) Characteristic changes.
(d) Computer programming changes.
(e) Comments on the Preliminary OSB.
(f) Revised or new data provided on personnel.
(g) Revised or new data provided on training requirements.

3.10.1.3 Preparation if an applicable Preliminary OSB is not available.- The OSB shall be developed using analytical techniques. A work study will be conducted but shall be constrained and limited by a given set of equipments and a fixed arrangement. The study will ensure optimization of procedures presented in the OSB without modifying the existing equipment configurations.

3.10.2 Coordination.- The "Outline" of and the "Final OSB" shall be coordinated by the applicable Project Manager. The applicable design code and the Work Study Coordinator will provide technical assistance.

3.10.3 Review and approval.- Four manuscript copies of the OSB and four copies of any changes thereto, shall be submitted to the Work Study Coordinator, Naval Ship Engineering Center for review and approval. For new construction or conversion ships, the initial submission shall be approximately one year prior to the completion of the ship. For all other ships the initial submission shall be at a time to be specified by NAVSHIPS (see 6.1).

3.10.4 Quantity.- Fifty copies of an outline of the general chapter and the general sections of applicable chapters which pertain to spaces which require full scale mock-ups, shall be available for presentation at the full scale mock-up. A sufficient quantity of the Final OSB shall provide the requirements for distribution (see 3.10.5 and 6.1).

3.10.5 Distribution.- A distribution list which includes specific commands for distribution of the Final OSB shall be presented within both the Preliminary and Final OSB. Final OSB's shall normally be distributed as follows (see 6.1):

Activity	Copies
CNO	10
Area and Numbered Fleet Commanders	2 each
Fleet Training Commanders	2 each
Applicable Type Commanders	2 each
Associated Type Commanders	2 each
Applicable Functional and Area Commanders	2 each
Other Services (as designated)	2 each
Fleet Computer Programing Center (if applicable)	2
Bureau of Naval Personnel	5
Chief of Naval Material	2
Naval Ship Systems Command	5
Other Naval Systems Command	5 each
Naval Ship Engineering Center	10
Applicable Naval Laboratories	2 each
Ship in Class	25 each
Naval Shipyards	2 each
Applicable Bupers Training Schools	2 each
Fleet Training Schools	2 each
Applicable Type Training Schools	5 each
Fleet Training Groups	2 each
Officer-in Charge, Fleet Work Study Group	2 each
Commanding Officer U.S. Naval Supply Depot, 5801 Tabor Avenue Philadelphia, Pa.	100 plus 25 for each applicable ship with similar installation due for commissioning (completion) within the next two years.

3.10.6 Completion.- The Final OSB is to provide guidance for training activities and operational personnel. It shall be available to the ship's personnel six months prior to commissioning, for new construction or at a time to be specified by NAVSHIPS for all other ships. Just prior to being made available to the ship's personnel, the OSB shall be updated to contain the latest information (see 6.1).

4. QUALITY ASSURANCE PROVISIONS

4.1 The supplier is responsible for developing a quality assurance program in accordance with MIL-M-15071.

4.2 Validation.- Validation shall be in accordance with MIL-M-15071 except that the manning and operational procedures shall be demonstrated in the proper space aboard the ship. Validation may be accomplished with indoctrination services (see 3.6).

5. PREPARATION FOR DELIVERY

5.1 Packaging, packing and marking.- Packaging, packing and marking requirements shall be in accordance with MIL-M-15071.

6. NOTES

6.1 Ordering data.- Procurement documents should specified the following:

(a) Title, number and date of this specification.
(b) Type and title of OSB (see 1.2).
(c) List of spaces (see 1.4).
(d) List of specific appendices required (see 3.5.3).
(e) Number of man-days indoctrination services required (see 3.6).
(f) Time for submission drafts (see 3.9.3 and 3.10.3).
(g) Quantity of OSB's and outlines or both (see 3.9.4 and 3.10.4).
(h) Distribution, if other than specified (see 3.9.5 and 3.10.5).
(i) Time for completion (see 3.9.6 and 3.10.6).

Preparing activity:
Navy - SH
(Project TMSS-N002)

Figure 1 - Comment sheet

USER ACTIVITY COMMENT SHEET
For Operational Stations Book (OSB) _____ (print publication number)

INSTRUCTIONS

This sheet is provided for obtaining information on the use of the OSB, and should be filled out by personnel involved in the use of this OSB.

Comments and the return of this form will be appreciated.

Fold on dotted lines on reverse side, staple in corner, and mail to Work Study Coordinator, Naval Ship Engineering Center (SEC 6102B), Department of the Navy, Washington, D. C. 20360

It is desired that comments be concise and provide any known references. If possible, each comment should be accompanied by a recommended solution.

SUBMITTED BY (print Name and Activity):	DATE:

COMMENTS ARE ON: Functional Areas:	OSB Chapter:	OSB Page:

CHECK, or SPECIFY as appropriate:

THESE COMMENTS PERTAIN TO:	THIS OSB IS:	THIS OSB IS USED AS:
☐ Book layout or usage.	☐ Extremely useful	☐ Reference document.
☐ Operational procedures.	☐ Useful	☐ Published as Ship's Doctrine
☐ Manning.	☐ Of some assistance	☐ Training document.
☐ Arrangement of equipment.	☐ Just more paperwork.	☐ Not used.
☐ Other_____		☐ Other_____

COMMENTS: (if classified data is included, comply with OPNAV INSTRUCTION 5510.1)

SPECIFICATION ANALYSIS SHEET

Form Approved
Budget Bureau No. 119-R004

INSTRUCTIONS

This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity *(as indicated on reverse hereof)*.

SPECIFICATION

ORGANIZATION *(Of submitter)* | CITY AND STATE

CONTRACT NO. | QUANTITY OF ITEMS PROCURED | DOLLAR AMOUNT
$

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES.

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID

3. IS THE SPECIFICATION RESTRICTIVE?

☐ YES ☐ NO IF "YES", IN WHAT WAY?

4. REMARKS *(Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)*

SUBMITTED BY *(Printed or typed name and activity)* | DATE

DD FORM 1 APR 63 1426 (NAVSHIPS OVPRT 13-66) REPLACES NAVSHIPS FORM 4063, WHICH IS OBSOLETE 0506806