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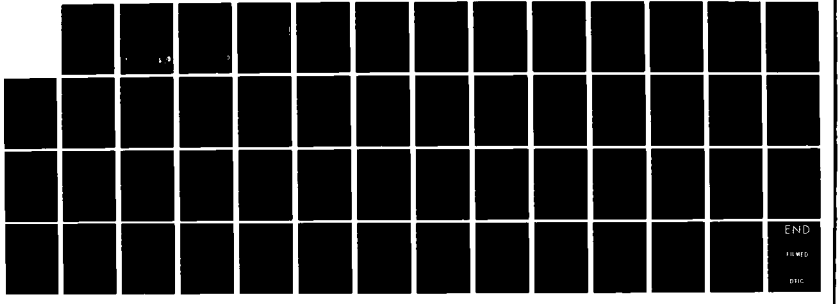

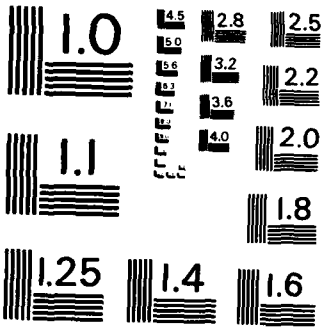

PROPOSED NAVSEA INSTRUCTION 4105.1A INTEGRATED LOGISTIC SUPPORT (ILS) POLICY, RESPONSIBILITIES, AND PLANNING

KETRON, INC.
Suite 500, 1725 Jefferson Davis Highway
Arlington, Virginia 22202

FINAL REPORT

Prepared for:
DAVID TAYLOR NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER
Bethesda, Maryland 20084-5000

Approved for public release;
distribution is unlimited

October 1985

DTNSRDC-CMLD-CR-02-85

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19. ABSTRACT (Continue on reverse if necessary and identify by block number)
This instruction establishes NAVSEA ILS policy, assigns responsibility for ILS actions and products, and establishes standard requirements for preparation and revisions to ILSPs. It applies to total ship and system/equipment acquisitions, modernization, conversion, and modification programs under the cognizance of NAVSEASYSCOM.

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Proposed NAVSEA Instruction 4105.1A

From: Commander, Naval Sea Systems Command
To: All Offices Reporting Directly to COMNAVSEASYSCOM

Subj: INTEGRATED LOGISTIC SUPPORT (ILS) POLICY, RESPONSIBILITIES, AND PLANNING (SECNAVINST 5216.5C, p. 2-6, para. 13b)

Ref: (a) DoD Directive (DoDD) 5000.1, dtd 29 Mar 82
(b) DoD Instruction 5000.2, dtd 8 Mar 83
(c) DoDD 5000.39, dtd 19 Nov 83
(d) OPNAVINST 5000.49A (DRAFT)
(e) SECNAVINST 5000.1B, dtd 8 Apr 83
(f) MIL-STD-1388-1A, dtd 11 Apr 83
(g) MIL-STD-1388-2A, dtd 20 Jul 84
(h) NAVSEAINST 5400.1B, CH. 16, dtd 18 Jul 84
(i) NAVSEA Notice 4105, dtd 7 Jul 83
(j) NAVSEA Notice 4700, dtd 30 Apr 84
(k) TECH SPEC 9090-700

Encl: (1) NAVSEA ILS Policy, Oversight, and Support Responsibilities
(2) ILS Requirements By Life Cycle Phase
(3) Integrated Logistics Support Plan (ILSP) Outline by Life Cycle Phase

1. Purpose. To establish NAVSEA ILS policy in accordance with references (a) through (e), assign responsibility for ILS actions and products, and establish standard requirements for preparation and revisions to ILSPs. (NSI 4105.1, CH. 2, p. 1)

2. Cancellation. NAVSEAINST 4105.1, CH. 2, of 1 February 1980 is superseded and cancelled. (NSI 4105.1, CH. 2, p. 1)

3. Scope. This instruction applies to total ship and system/equipment acquisitions, modernization, conversion, and modification programs under the cognizance of NAVSEASYSCOM. (NSI 4105.1, CH. 2, p. 1)

4. Background

a. One of the considerations in the acquisition and deployment of ships/weapons systems is ILS. ILS can be defined as a disciplined, unified, and interactive approach to the management and technical activities necessary to: (1) integrate support considerations into system and equipment design; (2) develop support requirements that are related consistently to readiness objectives, to design, and to each other; (3) acquire the required support; and (4) provide the required support during the operational phase at minimum cost. (DoDD 5000.39, p. 2-2, para. 2)

b. Logistics is a major consideration in the acquisition and deployment of ships/weapons systems. (NSI 4105.1, CH. 2, p. 3, para. a)

c. Logistic supportability shall be a design requirement as important as cost, schedule, and performance, and established as required by reference (c). (SECNAVINST 5000.1B, p. 2, para. 8) Logistic supportability shall be considered early in the formulation of the acquisition strategy and in its implementation. (DoD 5000.1, p. 7, para. 9)

d. The basic objective of ILS is to assure that accurate and adequate logistic support is delivered to the Fleet in a timely manner at the lowest life cycle cost (LCC). (NSI 4105.1, CH. 2, p. 3, para. a)

e. Fleet readiness is directly related to the achievement of Operational Availability (A_o) established by the Chief of Naval Operations (CNO). (OPNAVINST 5000.49A, p. 1, para. 3a)

f. Fleet readiness is determined to a significant degree by the A_o of individual weapon systems and equipments. Acquisition programs must proceed with an active ILS program to achieve the established A_o. Farsighted and detailed ILS planning during a weapon system's design and development significantly increases the probability of meeting A_o, thereby improving Fleet readiness. (OPNAVINST 5000.49A, p. 3, para. 7)

g. Acquisition programs shall include an ILS program that begins at program initiation and continues for the life of the system. (DoDD 5000.39, p. 2, para. E1a) Development of an ILS program during acquisition/modification activity involves an orderly and thorough planning and implementation process that begins concurrently with initiation of the project itself. (NSI 4105.1, CH. 2, p. 3, para. a)

h. The early development of an ILS program is crucial for successful program execution. Early ILS program activity shall focus on designing desirable support characteristics into systems and on determining support requirements. (DoDD 5000.39, p. 2, para. E1)

i. Early ILS planning shall be based on:

(1) System operational and maintenance concepts (encompassing all locations of operations), readiness objectives, and affordability constraints identified at program initiation). (DoDD 5000.39, p. 3, para. 2a)

(2) Alternative strategies, design options, and their relative risks and payoffs in meeting system readiness objectives. (DoDD 5000.39, p. 3, para. 2a)

(3) Realistic estimates of system and subsystem R&M characteristics. (DoD Directive 5000.39, p. 3, para 2a3)

(4) Documented Logistic Support Analyses (LSA) to link design and ILS requirements to system readiness thresholds and to define detailed support element requirements. (DoDD 5000.39, p. 4, para 2a4)

j. The cornerstone of ILS is LSA. LSA is defined as the selective application of scientific and engineering efforts undertaken during the acquisition process, as part of the systems engineering process, to assist in:

(1) Causing support considerations to influence design;

(2) Defining support requirements that are related optimally to design and to each other;

(3) Acquiring the required support; and

(4) Providing the required support during the operational phase at minimum cost. (DoDD 5000.39, p. 2-2, para. 3)

k. LSA shall be used throughout the acquisition cycle to assess and alter system design and to establish and update support element requirements. MIL-STD-1388-1A shall be tailored appropriately and applied in each acquisition program. LSA documentation shall be maintained to serve as the definitive source of data for ILS resource requirements determination. Redundant data bases for each ILS element shall be avoided. (DoDD 5000.39, p. 4, para. 2c)

l. LSA is a systems engineering process conducted in accordance with reference (f). It includes actions taken to define, analyze, and quantify logistic support requirements during system development. A principle objective of LSA is to influence and change the design process so that the final system is easily and economically supportable. The ILS element "design interface" refers to this process. The LSA is conducted on an iterative basis trhoughout the acquisition cycle as tradeoffs, test, and evaluation lead to successive design ideas. During design, the analysis is oriented toward assisting the design engineer in incorporating logistic requirements into hardware design. The goal is to create an optimum system or equipment end item that meets specifications and is cost effective over its planned life cycle. Logistic deficiencies identified as the design evolves become considerations in tradeoff studies. As the project progresses and designs become fixed, the LSA process concentrates on providing detailed descriptions of specific resources required to support a system throughout its life cycle by providing timely, valid data for all areas of ILS. This data is used to plan, acquire, and position support resources (personnel, funding, and material) to ensure deployed systems meet their readiness requirements. (OPNAVINST 5000.49A, DRAFT, encl. (1), p. 1-1)

m. The LSA tasks described in reference (f) must be accomplished during any support planning process. The detail and extent to which they are applied will vary. The tasks may be performed by the project manager, ILS manager, contractor, or government field activity. Task results may be documented in reports, test plans, Navy Training Plans, and in data delivered under many support-related Data Item Descriptions. The use of the LSA approach to organizing support data should not be more expensive than ILS data provided by other means; if this is the case, either duplicative effort in the LSA or insufficient ILS product under the other means should be suspected. Therefore, it is Navy policy that the approach described in reference (f) be used for all acquisitions. For ACAT I and II systems, early support planning must show evidence of the use of operations research and systems analysis principles. LCC and support tradeoff studies are required to determine cost drivers in both acquisition and support, through system disposal. (OPNAVINST 5000.49A, DRAFT, encl. (1), p. 1-1)

n. The below listed minimum <u>products</u> must be procured by the project manager or cognizant SYSCOM authority and delivered to the Fleet or receiving authority (i.e., ICP, IMA, etc.) prior to systems introduction. It is the project manager's responsibility to see that these products are procured and available, regardless of what activity, functional code, etc., actually does the procurement. The project manager is ultimately responsible for the support products for all levels of maintenance for the system or equipment. (OPNAVINST 5000.49A, DRAFT, encl. (1), p. 2-1)

o. Minimum ILS products:

(1) Maintenance Plan;

(2) Maintenance Manuals, verified to be in accordance with the Maintenance Plan, for all levels of maintenance;

(3) Operator/User Manuals (Hardware and Software);

(4) Interim or Initial Spare Parts;

(5) Provisioning Technical Documentation;

(6) Support Equipment (SE) as shown in the Maintenance Plan, for all levels of maintenance;

(7) Navy Training Plan (NTP), approved by OP-01;

(8) Training curricula, materials, and facilities as described in the NTP;

(9) ILSP/OSS/PPSP. (OPNAVINST 5000.49A, DRAFT, encl. (1), p. 1-1)

p. Acquisition programs which fail to meet these minimum standards are not to be introduced into the Fleet without approval of the Chief of Naval Material (ACAT IV programs) or the Chief of Naval Operations (ACAT II and III programs). ACAT I programs are under the control of the Under Secretary of Defense for Research and Engineering via the DSARC, which will assess ILS planning for these systems. (OPNAVINST 5000.49A, DRAFT, encl. (1), p. 1-1)

q. The ILSP for Full Scale Development (FSD) and thereafter must contain a Gantt chart showing, at a minimum, tasks shown in Table 1.1 of reference (d) and performing activity for each, and the products listed above with dates for their development and delivery. (OPNAVINST 5000.49A, DRAFT, encl. (1), p. 1-1)

r. Table 1.2 of reference (d) shows mandatory ILSP contents by program ACAT. (This table is meant to serve as a checklist of requirements; actual organization of the plan may vary so long as the required contents are included.) The differences in requirements by ACAT in Tables 1.1 and 1.2 of reference (d) recognize the differences in management resources available to manage programs of varying scope, and indicate Navy policy to provide the greatest resources to largest programs. (OPNAVINST 5000.49A, DRAFT, encl. (1), p. 1-1)

5. ILS Policy

a. All components of the Naval Sea Systems Command shall support the continuing development and implementation of the ILS program. This includes responsibility for apprising the cognizant acquisition manager of any logistic support deficiencies or excesses determined in their review of acquisition planning and procurement documents. (NSI 4105.1, CH. 2, p. 3, para. 6a) Enclosure (1) depicts NAVSEA ILS Support Responsibility by code.

b. The acquisition manager is responsible and accountable for ILS planning and execution for his programs. This includes the designation of an ILS Manager for each acquisition. (NSI 4105.1, CH. 2, p. 3, para. 6b)

c. The term "ILS Manager" is a functional title which is reserved for the individual who holds primary responsibility for the logistics program, both planning and implementation, for a given system or equipment. In the case where one organization has oversight responsibility and another performs the actual planning, the title "ILS Manager" shall reside with the office providing the actual planning and implementation. For organizations which use a matrix management approach, the term "ILS Manager" shall apply to the individual who holds integration responsibility for the work of other parts of the matrix. The terms "Assistant Program Manager for Logistics" (APML) and "ILS Manager" are considered synonymous for the purpose of this instruction. An ILS manager must perform more work on the system as a whole than any other single individual; in this sense, supervisory personnel are not ILS managers for the

systems their subordinates are managing. The subordinates themselves are the ILS managers (ILSMs). (OPNAVINST 5000.49A, p. 8, para D1)

d. For ACAT I and II projects, a qualified ILSM must be designated to assist the project manager prior to the development of an acquisition strategy. Because the majority of the logistics planning effort is expended for a new system prior to Navy Support Date, the number of systems assigned to a given individual for management during that time must be limited in order to assure adequate management time for each acquisition. (OPNAVINST 5000.49A, DRAFT, pp. 8-9, para. D2)

e. ILS programs shall be structured to meet established goals for operational readiness (i.e., peacetime and wartime employment) within constraints established for cost, schedule, performance, manpower, and other logistic elements, and to continue to provide that support at the lowest effective cost over the life cycle of each system and equipment. (SECNAVINST 5000.39, 1981, p. 2, para. 4)

f. All proposed procurement decisions that omit, delete, waive, curtail or delay support requirements previously determined to be essential to logistically support the end item must be approved by SEA 90. The procurement decisions referred to are those reflected in such documents as Procurement Requests (PR), Advance Procurement Plans (APP), Request for Proposals/Quotations (RFP/RFQ), Contract Modifications, Ship Project Directives (SPD), Engineering Change Proposals (ECP), and alteration documents for the Fleet Modernization Program (FMP). Acquisition managers who desire to proceed with such a procurement decision must forward their position as well as the position of the Acquisition and Logistic Directorate (SEA 90) to SEA 00 for decision. (NAVSEAINST 5400.1B, pp. 90/1-99/19 and NSI 4105.1, p. 3, para. 6e)

g. The primary responsibility for defining specific logistic support requirements planning for acquisition and finally executing the plan is assigned to Acquisition Managers, whether formalized as a project manager or identified as a project engineer in a functional organization. Functional codes, shore activities or others may be asked by Acquisition Managers to act as ILS agents in the development and execution of various portions of the ILS program. (NSI 4105.1, CH. 2, p. 1, para 5c)

h. The project manager shall establish and maintain an ILS program which is adequately funded to implement the requirements of this instruction. The program shall relate support to system readiness/availability objectives, system and equipment design, support acquisition and operating cost, and acquisition strategy. (OPNAVINST 5000.49A, encl. (5), p. 2-1)

i. The project manager shall address support in determining contract structure and type and competition. As a normal course of action, source selection criteria and contract performance clauses

shall be used to provide contractors the incentive to deliver systems that meet R&M and support objectives. Source selection evaluation criteria for competitive programs shall include a separate evaluation factor (separate from schedule, cost, and performance) for readiness and support, weighted to ensure a positive effect on contractor selection and contract award. To the maximum extent practical, ILS contract requirements shall be identified under definite contract line items. If extended contractor support is planned, development and production contract requirements shall include delivery of data needed for an effective strategy for follow-on procurement of support.

j. The project manager shall specifically address the following issues throughout the acquisition phases by:

(1) Including in solicitations requests for design and support approaches to minimize manpower and training requirements.

(2) Providing contractors with manpower and training data (including data from fielded systems) in sufficient detail for design tradeoffs and requirements determination, and ensuring that these data include cost factors reflecting total billet costs, not simply salaries. (These cost factors are available from the Navy Personnel Research and Development Center, San Diego, California.)

(3) Including in solicitations requests for design and support approaches which minimize new spare and repair parts requirements through the Parts Control Program.

(4) Structuring contractor incentives, when appropriate, to reward successful development approaches and maintainable design based on operational demonstration late in development or early in production. (OPNAVINST 5000.49A, p. 2-1)

k. The project manager shall develop an ILSP by Milestone I and keep it current throughout acquisition. The ILSP shall integrate logistics aspects of the program. Positive controls shall be established to integrate schedules and to identify interdependencies among ILS elements, design activities, and deployment plans. The ILSP shall document availability and support objectives and demonstrated achievements, operating concepts and deployment requirements (including transportability), support concepts and plans, ILS element requirements, schedule, funding requirements, and responsibilities for ILS activity planned for each program phase. For multi-service programs for which Navy is the lead service, the ILSP shall address the support requirements of all participating services. (OPNAVINST 5000.49A, p. 2-1)

l. The project manager shall furnish contractors with appropriate government data, such as a baseline operating scenario and maintenance concepts, system readiness objectives, and support costs on current systems to use as a basis for contractor ILS planning and analyses. (OPNAVINST 5000.49A, p. 2-1)

m. The project manager shall maintain current ILS management information (including detailed schedule, LSA documentation, and status of progress toward support-related thresholds) to support ILS planning and management decisions. (OPNAVINST 5000.49A, p. 2-1)

n. The project manager shall maintain visibility of all essential resource requirements to assets, the extent to which budgeted and programmed resources are or will be available to meet these requirements, and the effect of any shortfalls on support schedules and attainment of readiness objectives. The program manager shall have an explicit coordinating role in programming, budgeting, and budget execution affecting system readiness. Traceability of changes in support budgets and support-related objectives and thresholds (including changes in definition) shall be maintained in CMC, SYSCOM, and NAVMAT PM management information systems. Standard data elements shall be used as the framework for cost estimating and reporting. (OPNAVINST 5000.49A, p. 2-1)

o. The project manager shall, by the production decision point, develop plans for follow-on readiness assessment, beginning with initial deployment and continuing until the system design and support configuration are mature. These plans shall include milestones, responsibilities, and acquisition strategies for making system design and support resource improvements needed to meet system readiness objectives. (OPNAVINST 5000.49A, p. 2-1)

p. The project manager shall ensure that by the production decision point, plans shall include resource requirements, milestones, responsibilities, and strategies for making software design and support improvements needed to meet system readiness and effectiveness goals following deployment. (OPNAVINST 5000.49A, p. 2-1)

q. The project manager shall develop plans to determine cost-effective means of providing Post Production Support (PPS). PPS review shall be held sufficiently in advance of production phaseout to ensure that plans, resources, and responsibilities are established for effective PPS to meet readiness objectives. The plans should be available by the production decision point and updated periodically in the production phase. (OPNAVINST 5000.49A, p. 2-1)

r. The project manager, ILS manager, and ILS project personnel must be involved from the earliest stages of the acquisition cycle. Therefore, it is mandatory that the ILS manager participate in all design reviews. Certification by the ILS manager as to the adequacy of support considerations in the design process is required for design reviews for ACAT I through IV projects. Presentations to support boards and acquisition boards such as CNO Executive Boards (CEBs), Acquisition Review Boards (ARBs), and Department of the Navy Acquisition Review Councils (DNSARCs) shall contain explicit treatment of support cost tradeoffs, the status of ILS certification, and

other logistics planning considerations in appraisals of project technical development. From project initiation through Milestone III, the NAVMAT and SYSCOM-level review processes shall serve as the primary means of ILS evaluation and certification. OPEVAL results shall supersede these earlier assessments with verified results of the ILS project's effectiveness. (OPNAVINST 5000.49A, pp. 11-12, para F2)

s. Following OPEVAL, the Logistics Review Group or SYSCOM-level review board shall issue a certification that support is adequate, or shall withhold the certification until specific deficiencies are corrected. When certification has been achieved, the Operations Support Plan (OSP) will be issued detailing this approved support. The OSP will then be presented to the cognizant Type Commander(s) for his formal acceptance of the support project for the system. Copies of the Operations Support Summary (OSS) will be used as check-off documents for individual installation acceptance procedures. Thus, positive control and responsibility for ILS products passes clearly from the developer PM to the Fleet user. Follow-on ILS for systems engineering change proposals shall be handled in a similar manner. In planning and executing ILS programs, special attention is to be given to the efficiency with which individual sites, units, and ships establish operational and support capability. Such site activation and Fleet introduction efforts are necessary to ensure that the ILS program functions in a well coordinated way. The goal is to ensure not only that the ILS program delivers the required support, but that it does so in a way that increases the ability of the individual site, ship, or unit to establish its initial operational and support capability efficiently. (OPNAVINST 5000.49A, pp. 11-12, para F3)

t. The primary management tool for defining the process for logistic support and for coordinating all related activity is the project ILSP. The project ILSP is intended to be a plan .... that is, it is to be focused primarily on the future. Summaries of past events, decisions reached, and products already developed can be included only to the extent that they provide the guidance and/or constraints necessary for coordinated development and delivery of logistic support by the various participants in the individual ILS program to occur. ILS documents which do not answer the questions WHAT, WHO, WHEN, and HOW will not be approved for issue. Historical and logistic summary type documents will not be issued as ILSPs. (NSI 4105.1, CH. 2, p. 3, para. 5b)

u. The ILSP is the primary management tool for defining and coordinating the following:

(1) WHAT ILS objectives and tasks are to be achieve.

(2) WHO is responsible for accomplishment of each task.

(3) WHEN each task is to be completed.

(4) HOW tasks are to be coordinated and accomplished.

(5) EXTENT of FUNDING required for all planned activity.

(6) VALIDATION and VERIFICATION of accuracy and adequacy of logistic support.

(NSI 4105.1, CH. 2, pp. 3-4, para. 5c)

v. ILSPs shall be developed for each new ship and system/equipment acquisition. ILSPs shall also be developed, when appropriate, for modifications/alterations. (NSI 4105.1, p. 3, para. 6d)

w. ILSPs shall be prepared as unclassified documents. If classified information is necessary, reference the classified document (specific location) in the ILSP. (NSI 4105.1, p. 3, para. 7c)

x. An ILSP will document the total ILS project and must contain descriptions of the products to be produced, by what activity, and in what timeframe. The use of Gantt charts is mandatory for all projects. (OPNAVINST 5000.49A, DRAFT, p. 6, para B1)

y. The ILSP shall examine the ten ILS elements required by references (c) and (d):

(1) Maintenance Planning. The process conducted to evolve and establish maintenance concepts and requirements for the lifetime of a material system.

(2) Manpower and Personnel. The identification and acquisition of military and civilian personnel with the skills and grades required to operate and support a material system over its lifetime at peacetime and wartime rates.

(3) Supply Support. All management actions, procedures, and techniques used to determine requirements to acquire, catalog, receive, store, transfer, issue, and dispose of secondary items. This includes provisioning for initial support as well as replenishment supply support.

(4) Support Equipment. All equipment (mobile or fixed) required to support the operation and maintenance of a material system. This includes associated multi-use end items, ground-handling and maintenance equipment, tools, metrology and calibration equipment, test equipment, and automatic test equipment. It includes the acquisition of logistics support for the support and test equipment itself.

(5) Technical Data. Recorded information, regardless of form or character (such as manuals and drawings), of a scientific or technical nature. Computer programs and related software are not technical data; documentation of computer programs and related software are. Also excluded are financial data or other information related to contract administration.

(6) Training and Training Support. The processes, procedures, techniques, training devices, and equipment used to train civilian and active duty and reserve military personnel to operate and support a material system. This includes individual and crew training; new equipment training; initial, formal, and on-the-job training; and logistics support planning for training equipment and training device acquisitions installations.

(7) Computer Resource Support. The facilities, hardware, software documentation, manpower, and personnel needed to operate and support embedded computer systems.

(8) Facilities. The permanent or semipermanent real property assets required to support the material system, including conducting studies to define types of facilities or facility improvements, locations, space needs, environmental requirements, and equipment.

(9) Packaging, Handling, Storage, and Transportation. The resources, processes, procedures, design considerations, and methods to ensure that all system, equipment, and support items are preserved, packaged, handled and transported properly, including environmental considerations, equipment preservation requirements for short-term and long-term storage, and transportability.

(10) Design Interface. The relationship of logistic-related design parameters, such as R&M, to readiness and support resource requirements. These logistic-related design parameters are expressed in operational terms rather than as inherent values and specifically relate to system readiness objectives and support costs of the material system. Design Interface seeks to make designers more conscious of how the equipment will make demands on the logistics system, rather than simply discussing inherent R&M values (i.e., Mean Time Between Maintenance Actions rather than Mean Time Between Failure). It also seeks to provide product specifications which use terms measuring demands on the logistics system as a measure of system performance rather than inherent technical factors of design. (OPNAVINST 5000.49A, DRAFT, encl. 7, pp. 7-1, 7-2)

z. The most crucial aspect of ILSP preparation and ultimate successful program execution is the proper depiction of major program events and milestones. Figure 1 below (from TECH-SPEC 9090-700, p. 6-2) lists major program events by program phase.

Figure 1.

PROGRAM		PROGRAM MANAGER:		
PHASE	MAJOR PROGRAM EVENT	SCHED. DATE	ACTUAL DATE	REMARKS
CONCEPTUAL PHASE PROGRAM) INITIATION)	*1. INITIATION DOCUMENTATION (JMSNS, OR)			
	2. PROGRAM SPONSOR AUTHORITY TO START			
	*3. MILESTONE I PROGRAM DOCUMENTATION (SCP, NDCP, TEMP)			
	*4. MILESTONE DECISION TO PROCEED TO DEMONSTRATION AND VALIDATION (D&V)PHASE (DSARC, DNSARC, CEB/ARC/ SCIB, SPR, ARB)			
DEMONSTRATION AND VALIDATION (D&V) PHASE	1. START MILESTONE I, D&V PHASE			
	*2. MILESTONE II PROGRAM DOCUMENTATION (DCP, NDCP, IPS, TEMP)			
	*3. MILESTONE DECISION TO PROCEEED TO FULL SCALE DEVELOPMENT (FSD) PHASE			
FULL SCALE DEVELOPMENT (FSD) PHASE	1. START MILESTONE II, FSD PHASE			
	*2. MILESTONE III PROGRAM DOCUMENTATION (DCP, NDCP, IPS, TEMP)			
	3. TECHNICAL EVALUATION (TECHEVAL)			
	4. CERTIFICATION TO PROCEED TO OPERATIONAL EVALUATION (OPEVAL)			
	5. OPEVAL			
	6. OPEVAL REPORT			
	7. FOLLOW-ON TEST AND EVALUATION (FOT&E)			
	*8. MILESTONE DECISION APPROVAL FOR PRODUCTION (AFP) PACKAGE			
	9. ACQUISITION REVIEW BOARD (ARB)			
PRODUCTION/ DEPLOYMENT (P/D) PHASE	1. START MILESTONE III, PRODUCTION/DEPLOYMENT PHASE			
	2. PRODUCTION CONTRACT AWARD			
	3. FIRST PRODUCTION DELIVERY (SCHOOL)			
	4. FIRST PRODUCTION DELIVERY (SHIP)			
	5. INITIAL OPERATIONAL CAPABILITY (IOC)			
	6. NAVY SUPPORT DATE (NSD)			

(Ref: DoDI 5000.2 and OPNAVINST 5000.42B)

aa. Enclosure (2) outlines ILS requirements by life cycle phase and enclosure (3) lists milestones by program phase to be addressed in an ILSP. References (d) and (k) contain detailed guidance on ILSP milestones.

bb. When preparing ILSPs, follow these recommendations:

(1) List all action events (detailed) leading up to and including the final action.

(2) Correlate each action event with the text and cite the applicable paragraph number.

(3) Identify clearly each responsible NAVSEA code, Field Activity, or other party.

(4) Make sure that all timeframes are realistic and occur in proper sequence.

(NAVSEA Memo from SEA 043, 04331/DCH, 4105, Ser 1, dtd 29 Jan 82, Subj: ILSPs; lessons learned, encl. (1), p. 1, para. 1)

cc. The ILSP must be continuously updated and kept current as changes occur and approved prior to Approval for Production (AFP). A formal ILSP for the FSD Phase shall be submitted for approval between Milestones I and II. A formal ILSP for the Production Phase shall be submitted for approval between Milestones II and III, and an updated Production Phase ILSP, including the Deployment Phase, must be submitted after Milestone III. (NAVSEA ILS Training Course Book, p. 28)

dd. ILSP review and approval cycle shall be as follows:

(1) The ILS Manager shall coordinate the review of the ILSPs with SEA 90 and shall assure all review comments are incorporated/resolved. Copies of the ILSP shall be provided to SEA 90L for the NAVSEA coordinated review. Note: Additional copies of one each will be required for "Lo-Mix" and "Gas Turbine" involvement. (NSI 4105.1, CH. 2, pp. 4-5, and ref. h)

(2) SEA 90L shall perform a quality assessment of ILSPs and shall coordinate the technical review of those elements assigned to NAVSEA and Ship Acquisition Project Managers (SHAPM) and Platform Directorates. The quality assessment will be based on adherence to policy and procedures, subject matter coverage, and identification of funding requirements and/or sources of implementing funds. (NSI 4105.1, CH. 2, pp. 4-5, and ref. h)

(3) Reviews shall be completed and comments provided to the ILS manager in a target time of twenty working days after SEA 90L receipt of the ILSP. Review time is variable depending on complexity and quality of the ILSP. Urgent processing should be

requested of SEA 90L where major program milestones do not allow for slippage of ILSP issuance date. Communication and coordination with review codes prior to submittal for formal review and timely submission of ILSPs will normally obviate the necessity for urgent processing. (NSI 4105.1, CH. 2, pp. 4-5, and ref. h)

(4) The ILS Manager shall provide copies of the corrected ILSP (quantity determined by SEA 90L) along with Logistic Resource Funding information (if not included in the ILSP) and the master reproducible signature sheet to SEA 90L for review prior to SEA 90 signature. SEA 90L shall be advised of any unresolved comments at this time. (NSI 4105.1, CH. 2, pp. 4-5, and ref. h)

(5) The Deputy Commander for Surface Ships (SEA 91) and the Deputy Commander for Submarines (SEA 92) shall be the approval authority for ILSPs for ship acquisitions. Their route sheet concurrence shall also be obtained for equipment ILSPs destined for installation aboard their ships/submarines via Ship Alteration (SHIPALT). (NSI 4105.1, p. 5, para 7d(5))

(6) ILSP review and approval provisions are as follows (NAVSEA Memo 04/RC, 4105, Ser 38, dtd 2 Feb 82, pp. 1-2):

(a) ILSPs for acquisitions under the direct management of a designated PMS will be approved by the project manager. Delegation below the project manager is not authorized.

(b) ILSPs for acquisitions not under the management of a designated PMS will be approved by the cognizant Deputy Commander or his deputy. Delegation below this level is not authorized.

(c) To enhance the development of ILSPs and the integration of all ILS elements and related programs, each designated NAVSEA Logistic Element Manager (LEM) and manager of a related program should review and approve their applicable sections of the ILSP prior to final approval. Coordinating this review is the responsibility of the acquisition manager preparing the ILSP.

ee. During the development of the ILSP, all organizations which participate in the ILS project shall be afforded the opportunity to comment and express agreement or disagreement on its contents. Type Commander review and comment is required for all ILSPs published within thirty months prior to first Fleet installation. After staffing for comment and concurrence, ILSPs will be signed at the level indicated in the table below and will be considered binding documents on all parties listed within them as having active responsibilities. (OPNAVINST 5000.49A, DRAFT, pp. 6-7, para. 3)

Acquisition Category	ILSP Signature Authority
I	Cognizant SYSCOM ILS Directorate Head
II	Cognizant SYSCOM ILS Directorate Head
III	Cognizant SYSCOM ILS Directorate Head
IV	Division Director Level Supervisor of Cognizant Logistics Manager

ff. Each SYSCOM shall maintain a numbering system for ILSPs produced by the SYSCOM and its field activities. The system shall be constructed in such a way that approval status can be ascertained by the number and a prefix, suffix, or other notation. In addition to the approval level cited above, if accelerated acquisition strategies are selected, the Defense Acquisition Executive's approval shall be required for the specific support elements to be delivered with the system and those to be provided subsequently. Thus, approval of an ILSP to cover this circumstance requires approval as listed below: (OPNAVINST 5000.49A, DRAFT, pp. 6-7, para. 3)

Acquisition Category	Approval Authority (DSARC or NSARC Chair)
I	Under Secretary of Defense, Research and Engineering
IIS	Assistant Secretary of the Navy, Shipbuilding and Logistics
IIC and III	Chief of Naval Operations
IV	Chief of Naval Material

gg. After completion of operational testing, the ILSP shall be revised to indicate what actions will be taken to correct logistics deficiencies discovered during the test period. Type Commander review and comment on this ILSP during the staffing process will form the basis for a final approved ILSP for the project as it is to be fielded, and for the Operational Support Summary. (OPNAVINST 5000.49A, DRAFT, pp. 6-7, para. 3)

hh. Identification and control of the ILSP shall be as follows (NSI 4105.1, CH. 2, pp. 5-6, and ref. h):

(1) Numbers (NAVSEA ILSP-XXXX) will be issued and controlled by SEA 904. Numbers shall appear on the cover page of the ILSP and on all pages within the plan. The cognizant code shall provide letters to the basic ILSP number to identify the "Life Cycle Phase", e.g., ILSP-XXXX-FSD ("Full Scale Development" Phase in systems/equipments). The basic number (NAVSEA ILSP-XXXX), once assigned, shall remain the same throughout all "Life Cycle Phases," only the letters identifing the particular phase will change.

(2) An official record copy of each NAVSEA ILSP will be retained by SEA 90L.

(3) ILSPs will be stocked and distributed by the preparing activity. Cost information (Logistics Resource Funding) will be distributed at the discretion of the acquisition/program manager.

(4) ILSPs shall be in a three-ring loose-leaf binder format to facilitate changes and udpates.

ii. A revision (identified as "Revision A," "Revision B," etc.) to the basic plan is warranted when the magnitude of the update to the plan is such that the change procedures would not be feasible, e.g., a substantial rewrite of the plan incorporating numerous changes. All proposed revisions shall be forwarded to SEA 90L for route sheet concurrence. The proposed revision together with route sheet concurrence of functional and other codes impacted by the changes. Formal issuance and distribution of the revised plan is the same as for a new plan. (NSI 4105.1, CH. 2, pp. 5-6, and ref. h)

jj. Formal issuance of changes will be at the discretion of acquisition/ILS managers. If changes are required, they will be accompanied by a cover letter containing clear instructions for incorporation of the change. Distribution is the same as for the basic plan. A list of effective pages will identify all changes and the new or revised pages shall match the format of the basic plan and show the change number and date on the bottom of each revised page. Unchanged pages will not show any change number. When a page is revised, capital letters, i.e., "A" for addition, "D" for deletion, and "R" for revision/change, shall be used in accordance with SECNAVINST 5215.1C, Subj: Directives Issuance System, and located in the margin next to the paragraph/sentence that is affected by the change. When additional pages are required, they may be numbered A, B, C, etc. Update or changes to milestones will not require a change number or SEA 90 review. (NSI 4105.1, CH. 2, pp. 5-6, and ref. h)

kk. An Integrated Logistic Support Management Team (ILSMT) shall be organized for all acquisitions that go through the formal acquisition phase; and for other systems/equipment when in the jugdment of the ILS manager such action is warranted. (NAVMATINST 4000.20B, p. 8, para. 8)

ll. The ILSMT is a team chaired by the ILS manager and comprised of logistic element managers and Fleet and industrial activities whose purpose is to establish, update, implement, and evaluate the ILSP and monitor the actions generated by the plan. This team is supplemented by members of industry when the contract has been awarded. (NAVMATINST 4000.20B, p. 52)

mm. The ILS manager chairs the ILSMT which is a management tool he employs in planning and managing the acquisition of integrated logistic support for the system or equipment being acquired. (NAVMATINST 4000.20B, p. 4, para. 2)

6. NAVSEA ILS Responsibilities by Code. (Source: NSI 4105.1, pp. 6-11 and ref h, pp. 90/1 through 90/19)

a. SEA 90. The Acquisition and Logistics Directorate, SEA 90, is NAVSEA's principal ILS body (GW). SEA 90 is responsible for logistics for ships, ship systems, weapons, and combat systems acquisition for the Navy. (NAVSEAINST 5400.1B, CH. 16, pp. 90-3 and 90-4, para. g)

b. SEA 90 is also the command focal point for the development and promulgation of acquisition policies, for ensuring that logistic support requirements are properly planned, programmed, and budgeted, and for monitoring overall acquisition and logistic mission effectiveness and efficiency. (NAVSEAINST 5400.1B, CH. 16, p. 90-4, para. j and k)

c. Three principal logistic codes within SEA 90 are SEA 90L, the Assistant Deputy Commander for Logistics, SEA 904, the Logistics Policy and Appraisal Division, and SEA 905, the Outfitting and Supply Support Division.

d. SEA 90L is tasked with the primary oversight responsibilities for Directorate Logistics; SEA 904 develops the uniform logistic support policies for ships, weapons, and equipment planned for or curently in use by the Navy; and SEA 905 is involved with Integrated Logistic Overhaul (ILO) policy. (NAVSEAINST 5400.1B, CH. 16, pp. 90-17, 90-18, 90-19)

e. SEA 904 is responsible for the following (NAVSEAINST 5400.1B, CH. 16, p. 90-18):

(1) Refine Logistic Support Analysis (LSA) procedures and methodologies for ships and ship systems.

(2) Ensure adequate ILS planning via logistic audits.

(3) Appraise logistic planning prior to major milestone decisions.

(4) Review ILSPs and issue control number of NAVSEA ILSP documents.

(5) Advise program managers on ILS matters.

f. SEA 003, Research and Technology (R&T) Corporate Office, serves as COMNAVSEA's key advisor on R&T matters, including the technical base program and some advance ILS planning. (p. II-3, 00-1, 00-13, 00-14 of ref. h)

g. SEA 004, Reliability and Maintainability (R&M) Office, develops and promulgates NAVSEA R&M and quality engineering policy and procedures. (pp. 00-14, 00-15 of ref. h)

h. SEA 05, the Ship Design and Engineering Directorate, has been assigned cognizance over Ships Maintenance and Material Management, the Naval Material Command Metrication Program, and the development of integrated naval ship designs. SEA 05 acts as NAVSEA's focal point for specifications and standards, data management, technical manuals and publications, and also administers the Fleet Modernization Program for ship systems. (pp. 05-3, 05-4 of ref. h)

i. SEA 05L, the Logistics and Material Management Support Office, is the key logistic code in SEA 05. SEA 05L is tasked to provide logistic support to Ship Logistics Managers (SLMs), Ship Acquisition Managers, and Life Cycle Managers (LCMs). SEA 05L is also intimately involved in many NAVSEA Manpower, Personnel, and Training (MP&T) support programs, especially as the SEA 05 and SEA 06 point of contact with SEA 90 on material management matters. (pp. 05-8 thru 05-10 of ref. h)

j. SEA 05M, the Material and Assurance Engineering Office, has some ILS responsibility in the areas of ships, technical manuals, general specifications for ships, General Overhaul Specifications for Surface Ships (GOSS), and other handbooks. SEA 05M also conducts total ship R&M design analyses. (pp. 05-10, 05-11 of ref. h)

k. SEA 55, the Hull Engineering Group, oversees NAVSEA specifications, data management, engineering drawings, technical manuals, and the DoD Standardization Program. (p. 05-25 of ref. h)

l. SEA 56, the Machinery Group, furnishes life cycle engineering and management for assigned hull, mechanical, propulsion, auxiliary, and electrical (HM&E) ship systems. (pp. 05-55, 05-56 of ref. h)

m. SEA 56L acts as SEA 56's code for the planning and execution for all ILS elements. (p. 05-57 of ref. h)

n. SEA 56G, the Maintenance Management Program Office, has cognizance over the Planned Maintenance System (PMS). (p. 05-67 of ref. h)

o. SEA 06, the Weapon and Combat Systems Directorate, furnishes life cycle engineering and management for all ship combat system elements and administers the FMP for combat systems. SEA 06 has been assigned cognizance over Nuclear Weapons Security. (pp. 06-3, 06-4A of ref. h)

p. SEA 06C, the Programs Support Office, has ILS related responsibilities in the areas of NAVSEA Maintenance and Micro-miniature (2M) Electronic Repair, the Support and Test Equipment Engineering Program (STEEP), Quality Assurance, and manages NAVSEA's Command Test, Monitoring, and Diagnostic Equipment (TMDE) and Metrology and Calibration (METCAL) programs, including Automatic Test Equipment (ATE). (pp. 06-9, 06-10 of ref. h)

q. SEA 06L, the Assistant for Material Management, develops SEA 06 material management policies and provides material management assistance to specific programs as directed. (p. 06-12A of ref. h.)

r. SEA 61, the Combat Systems Engineering Group, develops and maintains life cycle combat systems documentation, life cycle engineering management and combat support systems/equipment, develops the combat systems portion of the FMP, and ensures the development of combat system ILS programs. (pp. 06-15, 06-16 of ref. h)

s. SEA 61W, Class Combat Systems Engineering Office, guides and acts as approval authority for programs relative to test and evaluation and logistic support of surface combat systems in new construction, modernization and conversion, and the FMP for implementation of combat system modifications or improvements. (p. 06-19 of ref. h)

t. SEA 61Z, the Combat Support Systems and Equipment Subgroup, acts as Group Data Manager for Acquisition. (p. 06-39)

u. SEA 61Z4, the Technical Support and Material Management Division, establishes group practices for combat support systems in the areas of ILS, configuration management, and technical data management. (p. 06/40 of ref. h)

v. SEA 62C, Surface Warfare System (SWS) Logistics Engineering and Technical Support Office, furnishes functional engineering and program management support to SWS and equipment life cycle managers in the application and management of engineering logistic support disciplines. SEA 62C also establishes and implements engineering and logistic support discipline practices for configuration and data management and supply support. (p. 06/43 of ref h)

w. SEA 62XL, Assistant for ILS/Restoration for the Surveillance Systems Subgroup, provides ILS functional support. (p. 06-54 of ref h)

x. SEA 62YL, Assistant for ILS for the Surface Gun Systems Subgroup, furnishes policy guidance to gun systems program ILS managers, and manages ILSP development for gun systems lacking ILS personnel. (p. 06/57 of ref. h)

y. SEA 62ZL, Assistant for ILS to the Surface-to-Air Missile Systems Subgroup, furnishes ILS support to subgroup life cycle engineers and division logistic managers. (p. 06-61 of ref h)

z. SEA 62Z2, the Medium Range Missile Systems Division, provides ILS of TARTAR and STANDARD medium range weapons systems. (p. 06-62 of ref h)

aa. SEA 63Z2, the Torpedo Division, provides overall management of the acquisition and ILS of torpedoes and associated SE. (p. 06-82 of ref h)

bb. SEA 641, the Logistics Support Division for the Ammunition Systems Group, directs and supports SEA 06 shore activities in areas such as mission, facilities, manpower and management information systems. (p. 06-91 of ref h)

cc. SEA 07, the Industrial and Facility Management Directorate, exercises management control of Naval shipyards and the SUBSHIPS. (pp. 07-03 - 07-05 of ref h)

dd. SEA 070, the Facilities and Equipment Division, acts as the command focal point for NAVSEA's Military Construction Program, and develops facilities and equipment plans and programs in accordance with life cycle manager ILS requirements. (pp. 07-12, 07-13 of ref h)

ee. SEA 071, the Industrial Resources Planning Division, coordinates the selection of Designated Overhaul Points (DOPs) and potential DOPs. (p. 07-14 of ref h)

ff. SEA 075, the Intermediate Maintenance Authority (IMA) Support Division, prepares IMA maintenance capability requirements for new construction and the FMP, and develops/manages training services needed to support IMA requirements. (p. 07-17 of ref h)

gg. SEA 91, the Surface Ships Directorate, manages the transition of management responsibilities of surface ships from the Ship Acquisition Program Manager (SHAPM) to the Ship Logistic Divisions (SLDs); acts as the point of contact in NAVSEA for acquisition, modernization, and maintenance of surface ships and assigned programs; assists SEA 90 in the development and assessment of command logistics and acquisition policies; and serves as the Lead Systems Command code for the FMP. (pp. 91-3, 91-4 of ref h)

hh. SEA 91A, Assistant Deputy Commander for Surface Ships Logistic Management, assists SEA 91 with surface ship logistics management, and ensures implementation of command policies on the FMP and ILS. (p. 91-5 of ref h)

ii. SEA 91AD, the Plans and Programs Office, develops, maintains, and operates the Navy's Ship Alteration Management Information System (SAMIS). (p. 91-7 of ref h)

jj. SEA 91AI, the Shipboard Nontactical ADP Program (SNAP) Systems Logistic Office, is responsible for Surface Ships Logistic Management for all technical and logistic matters relative to SNAP. (pp. 91-8, 91-9 of ref h)

kk. SEA 91L, Assistant for Logistics for the Surface Ships Directorate, serves as SEA 91's focal point for R&M, ILS, configuration management, quality assurance, standardization, and life cycle management, and assists SEA 91 in the preparation of logistic and assurance policies relating to the acquisition and modernization of assigned surface ships. (p. 91-12 of ref h)

ll. SEA 911, the Amphibious and Combat Support Ship Logistic Division, develops and manages programs for the conversion, overhaul, repair, maintenance, and logistic support for assigned ships, boats, and programs, including promulgating ILS requirements and configuration management procedures for assigned ships. (pp. 91-14, 91-15 of ref h)

mm. SEA 912, the Aircraft Carrier Ship Logistic Division, establishes ILS requirements and configuration management procedures for assigned ships. (pp. 91-15, 91-17 of ref h)

nn. SEA 913, the Surface Combatant Ship Logistic Division, establishes ILS requirements and configuration management plans for designated ships. (pp. 91-17, 91-18 of ref h)

oo. SEA 914, the Gas Turbine Surface Combatant Ship Logistic Division, outlines ILS requirements and configuration management procedures for assigned vessels. (pp. 91-19, 91-20 of ref h)

pp. SEA 92, the Submarine Directorate, oversees the transition of management responsibilities of assigned submarines from the SHAPMs to the Submarine Logistic Division, serves as NAVSEA point of contact for acquisition, modernization, and maintenance of designated submarines and programs, and aids SEA 00 in the preparation and appraisal of command acquisition and logistics policies. (pp. 92-3, 92-4 of ref h)

qq. SEA 92L, Assistant for Engineering and Logistics for Submarines, acts as the staff focal point for R&M, ILS, and configuration management matters. (pp. 92-7, 92-8 of ref h)

rr. SEA 921, Submarine Logistic Division, establishes ILS requirements and configuration management procedures for designated submarines. (pp. 92-8 thru 92-10 of ref h)

NAVSEA ILS POLICY, OVERSIGHT, AND SUPPORT RESPONSIBILITY
(Source: D. Hassel handout dtd 10 Sept 84
from NAVSEA ILS Training Course)

	Code
Command Policy and Oversight - Deputy Commander for Acquisition and Logistics	SEA 90
Overall Logistic Policy and Planning - Assistant Deputy Commander for Logistics	SEA 90L
ILS Policy, Planning, and Integration - Logistics Policy and Appraisal Division	SEA 904

SEA 904 Responsibilities (NSI 5400.1B, CH. 16, 18 Jul 84, p. 90/18)

a. Develop uniform and balanced command logistics support policies for ships, weapons, and equipment planned for or in use in the Navy.

b. Develop procedures and methodology for conduct of Logistic Support Analyses (LSA) for ships and ship systems.

c. Develop and maintain policies for ensuring ILS adequacy of alteration installations aboard Fleet units. Conduct logistic audits of alteration installations to ensure that alterations are fully supported logistically. Conduct periodic assessments of new alterations prior to issue to ensure adequacy of ILS planning.

d. Conduct appraisal of logistic planning by acquisition managers prior to major milestone decisions.

e. Conduct review of command developed Integrated Logistics Support Plans (ILSPs) and make recommendations on approval.

f. Review logistic planning for AFP and for proceeding to OPEVAL and provide recommendations on approval.

g. Provide special advisory service on ILS matters to acquisition managers including review of program documentation and providing guidance to ensure proper logistic planning.

h. Act as functional manager for NAVSEA ILS interns under NAVMAT Civilian Logistics Intern Program.

i. Manage the NAVSEA ILS training program.

Enclosure (1)

	Code
Ship Equipment Configuration Accounting System (SECAS) and Integrated Logistics Overhaul (ILO) Policy	SEA 9051
Supply Support and Operational Availability (A_O)	SEA 9052
FMP Funding	SEA 018
MP&TS (except AEGIS)	SEA 05L1B
Direct Fleet Support (DFS)	SEA 05L42
CETS	SEA 05L43
Mobile Technical Unit (MOTU)	SEA 05L43A
Transportation	SEA 05L213
Reliability, Maintainability, and Quality Assurance for Ships, Ship Systems, and Equipments	SEA 05MR
System Safety Programs for Hull, Mechanical, and Electrical (HM&E) and New Ship Designs	SEA 55X2
PHS&T for HM&E Equipments Only	SEA 05M3
Planned Maintenance Systems (PMS), Maintenance Data System (MDS), and RCM	SEA 56G
Technical Logistics Data, Technical Manuals, Drawings, and Technical Repair Standards	SEA 55Z4
ILS for Ship Design	SEA 55W53
Human Engineering	SEA 55W54
Ship Manning (except CG47 and DDG51 Class Ships), Ship Manning Documents, Levels of Automation, Manpower Requirement Survivability, and Operation Status Books (OSBs)	SEA 55W52
Pollution Abatement	SEA 56YP
Explosive Safety	SEA 06H
ATE, SPTE, Metrology and Calibration, GPETE/SPETE, Mini-/Microminature (2M) Repair, STEEP	SEA 06C1C
Reliability, Maintainability, and Quality Assurance for Combat Systems	SEA 06C3

	Code
TRIDENT S&TE	SEA 06C12
PHS&T for all Systems and Equipment except HM&E	SEA 62C2
Facilities; Acquisition of Land, Building/Structures, Utilities, SE; Installation of Utilities and SE; Construction of Buildings and Structures (Note: ordnance station facilities, not Naval shipyard facilities)	SEA 641
Intra/Inter Servicing; Depot New Starts and DOPs; Depot Facilities; and Depot Level Repairables Maintenance Management	SEA 0715
Fleet "I" Level Maintenance Activities	SEA 075
Facilities; Acquisition of Land, Building/Structures, Utilities, SE; Installation of Utilities and SE; Construction of Building and Structures (Note: Naval shipyard facilities, not ordnance station facilities)	SEA 070B
Surface Ship Installations (except C647 and DDG51 Class Ships)	SEA 91L
FMP Installation/Schedule for Submarine/Platform Installations	SEA 921L
TRIDENT ILSPs, Policy, and Requirements for Operational Phase; TRIDENT ADP and Computer Resources; TRIDENT Configuration Management, Modernization, and FMP Relevant Matters	SEA 921B3
Ships/Systems/Equipment Plans Containing Engineering Operational Sequencing System (EOSS); Steam Propulsion Equipments	PMS 301
TRIDENT ILSPs, Policy and Requirements for Acquisition	PMS 396-3
TRIDENT Technical Logistics Data (TLD); TRIDENT Training; and TRIDENT Facilities and Manpower	PMS 3963
Platform Installations for SCN Funded CG47 and DDG51 Class Ships	PMS 400F1
Manpower, Personnel, and Training Support for AEGIS Combat System and CG47 and DDG 51 Ship Manning	PMS 400F2
Computer Resources; Tactical Computers, Related Peripherals, and Display Systems/Equipments; Computer Software	PMS 4084

	Code
TRIDENT Maintenance Planning	PERA SS
TRIDENT Supply Support	SPCC
TRIDENT PHS&T	NAVSUP 0321C

ILS REQUIREMENTS BY LIFE CYCLE PHASE

1.0 Activities Accomplished By Program Initiation

1.1 Systems/Equipments. In response to higher authority, operational requirement or threat, a mission analysis will identify projected deficiencies in operational readiness, mission success, maintenance manning, and logistic support of baseline systems/equipment. The relative need to resolve these deficiencies will be indicated. To the extent possible, analysis will determine whether deficiencies are due to item design, or factors essentially independent of item design. (NSI 4105.1, encl (2), p. 2)

1.2 Ships. The initial requirements for a ship type and a concise statement of operational needs are defined through threat analyses, force studies, etc., and promulgated by OPNAV. The requirements form the basis for the Naval Material Command to initiate feasibility studies to define various alternative configuration baselines to satisfy the operational needs of the ship. Various maintenance and manning strategies are postulated for each baseline and documented as part of the feasibility studies. (NSI 4105.1, encl (2), p. 2)

1.3 Requirements

1.3.1 Although no formal ILSP is required, the following information shall be submitted to SEA 90: (NSI 4105.1, CH. 2, enc. 2, p. 2)

a. Title of program and category of the Acquisition (ACAT I-IV);

b. Name, code, and telephone number of designated project and ILS manager.

c. Major program event schedule, including SARC review dates;

d. Identification of mission, operational requirements, plan for use, manning limitations, maintenance/supply support concepts and logistic/operational/funding constraints, if known, and copy of available requirement documents (MENs, OR, DP, CHARTER, Acquisition Strategy Plan, etc.).

1.3.2 Support resource constraints have been identified in the Justification for Major System New Start. If appropriate, these constraints shall be based on analysis of systems currently in the mission area.

1.3.3 Explicit and visible plans and resources have been identified for: (DoDD 5000.39, encl. 3, p. 3-1)

a. Analysis of support costs and readiness drivers of current fielded systems and identification of readiness and support cost targets for improvement.

b. Development of alternative operational and support concepts and evaluation of their implications on support resources (such as manpower quantities by skills or aptitude level, training concept, and training resources).

c. Assessment of ILS program requirements, resource impact, and risk reduction measures for alternative acquisition strategy options, including accelerated acquisition strategies.

d. Integrating readiness-related requirements into both the ILS section and other appropriate sections of the Statement of Work (SOW) (such as the "technical" section).

1.3.4 The project shall have stated ILS objectives. (OPNAVINST 5000.49A, encl. 6, p. 6-1, para. 1b)

1.3.5 A qualified full-time ILS manager has been assigned to the program, and estimates of ILS staffing requirements made. (OPNAVINST 5000.49A, encl. 6, p. 6-1, para. 1b)

2.0 Activities Accomplished During Concept Exploration

2.1 Systems/Equipments. In this period, alternative system concept studies will be performed to investigate operational effectiveness and logistic support problems of current systems. If there is no direct predecessor, logistic support concepts and baseline, values will be obtained from systems that perform similar missions or systems that employed similar technology. Tentative design goals will be traded with each other, and with alternative operating and support concepts, manning policies, etc., to optimize the overall approach. (NSI 4105.1, CH. 2, encl. 2, p. 3)

2.2 Ships. The objective during the conceptual phase is to define a ship's technical and configuration baseline for DSARC I milestone. At the end of this phase, the ship's weight, arrangements, manning, cost (Class "D" estimate), and major subsystems are defined. Also, a Top Level Requirements (TLR) document is drafted as prescribed by OPNAVINST 9010.300. The TLR outlines the ship's mission, operational constraints, plan for use, maintenance, supply support, and manning concepts. (NSI 4105.1, CH. 2, encl. 2, p. 4)

2.3 Requirements

2.3.1 During this phase, the following documents shall be submitted for SEA 90 review prior to start of the Advanced Development/Preliminary Design Phase: (NSI 4105.1, CH. 2, encl. 2, pp. 3-4)

a. Acquisition Plan (approved or draft);

b. DCP/NDCP with logistics annex, draft TLR, or other comparable requirements documents;

c. An ILSP outline for the Demonstration and Validation Phase (not applicable for ships) with estimated schedules for identification/development of:

(1) Support related parameters such as reliability and maintainability BIT, operational and support cost drivers, and targets, system and subsystem readiness goals, operational support and affordability goals;

(2) Tradeoff studies planned;

(3) Logistics criteria for contractor source selection;

(4) Logistic support problems with existing similar systems/equipment;

(5) Specific logistic support optimization models to be employed in later life cycle phases;

(6) Participation of CNET, NAVSUP, NAVFAC, NAVPERS, BUMED, etc...

(7) Updated Design Project/Acquisition/ILS Management Team (ILSMT) members;

(8) Updated or approved requirements documents (i.e., OR/DP/(N)DCP; and

(9) Target costs by appropriation for each element through the expected life of the system. Identify the number of shipboard units of funding will support.

2.3.2 A baseline operational scenario (or scenarios) has been defined for recommended system alternatives with adequate detail for support planning purposes. System readiness objectives and tentative thresholds have been established. (DoDD 5000.39, encl. 3, p. 3-1)

2.3.3 A baseline support concept has been developed and integrated with system design criteria, and the use of contractor support is considered. A tentative schedule for phased transition from contractor to organic support (if applicable) is developed. (DoDD 5000.39, encl. 3, p. 3-1)

2.3.4 An ILSP has been drafted and milestones developed for each ILS element. (DoDD 5000.39, encl. 3, p. 3-1)

2.3.5 Contractors have been provided detailed descriptions of current and projected manpower, skills and training resources, and shortfalls. Information provided includes specific data on current maintenance and operator performance (including error rates) and realistic manpower cost on fielded systems similar to the proposed system. (DoDD 5000.39, encl. 3, p. 3-1)

2.3.6 The support resource implications of alternative operational and support concepts have been evaluated. Projected logistic resource requirements have been identified and are consistent with programmed resources. (DoDD 5000.39, encl. 3, pp. 3-1 to 3-2)

2.3.7 Support cost drivers for current systems have been identified and targets for improvement on the new system have been established. (DoDD 5000.39, encl. 3, pp. 3-1 to 3-2)

2.3.8 Initial system transportability requirements are specified in accordance with DoD Directive 3224.1 and are assessed against the capabilities of existing transportation assets and the impact on strategic deployment. These requirements have been approved by appropriate Military Service transportation agents. (DoDD 5000.39, encl. 3, pp. 3-1 to 3-2)

2.3.9 Logistics and R&M parameters, including testability, that are critical to the measurement and attainment of system readiness and support cost have been identified. Estimates of achievable values for these parameters have been compared to current systems. Milestones for developing critical support elements have been established. (DoDD 5000.39, encl. 3, pp. 3-1 to 3-2)

2.3.10 Major items of support-related hardware and software (such as automated test stations and simulators) requiring development have been identified. (DoDD 5000.39, encl. 3, pp. 3-1 to 3-2)

2.3.11 Logistics considerations have been integrated in SOW, specifications, requests for proposals, source selection evaluation criteria, and contracts. (DoDD 5000.39, encl. 3, pp. 3-1 to 3-2)

2.3.12 Preliminary facilities requirements have been identified and properly programmed for construction. (DoDD 5000.39, encl. 3, pp. 3-1 to 3-2)

2.3.13 For accelerated acquisition strategies, additional resources (including test articles) and management actions have been identified to control logistic risks and properly execute the ILS development program. (DoDD 5000.39, encl. 3, pp. 3-1 to 3-2)

2.3.14 Explicit plans have been written, and the resources identified are adequate for: (DoDD 5000.39, encl. 3, pp. 3-1 to 3-2)

a. Conducting tradeoffs among system design characteristics, manpower skill and aptitude levels, and support concepts to meet peacetime readiness and wartime employment objectives (including unit and strategic mobility). Analyses are planned to set firm goals and thresholds for selected parameters by Milestone II. (DoDD 5000.39, encl. 3, pp. 3-1 to 3-2)

b. Identification of international logistics considerations for programs that may involve other nations. (DoDD 5000.39, encl. 3, pp. 3-1 to 3-2)

3.0 Activities Accomplished During Demonstration and Validation (Milestone I)

3.1 Systems/Equipments. Activity during this phase is directed to the further development of items identified in the outline of the ILSP for the previous phase. Typical accomplishments of this phase are: (NSI 4105.1, CH. 2, encl. 2, p. 4)

3.1.1 A consistent set of goals and test thresholds for operational availability, manpower, R&M, built-in test, and other support parameters, as applicable, have been established.

3.1.2 The sensitivity of manpower and other support resource requirements to key changes in design, performance, R&M, utilization rate, and alternative design configuration have been analyzed.

3.1.3 Test and evaluation plans identify support related thresholds.

3.1.4 Tradeoffs have been conducted among hardware characteristics, support concepts, and support resource requirements. Estimates of these support requirements have been determined, including comparison to a contemporary baseline system.

3.1.5 Requirements for unique skills or specialties which are in short supply have been identified.

3.1.6 Support considerations to be included in contract source slection criteria are identified.

3.1.7 Proposed contract requirements clearly define requirements via a logistic support system specification, including data requirements and Statement of Work.

3.2 Ships. The objective of this phase is to produce the functional baseline of the ship for DSARC II. At the end of preliminary design, an engineering description of the ship is completed to the level required for a Class "C" cost estimate. (NSI 4105.1, CH. 2, encl. 2, p. 4)

3.3 Requirements

3.3.1 A formal ILSP (ILSP-XXXX-FSD) for the Full Scale Development Phase including planned LSA effort and funding data is to be submitted to SEA 90 for review and approval (not applicable to ships). (NSI 4105.1, CH. 2, encl. 2, p. 4)

3.3.2 A baseline support concept, including a maintenance concept backed up by documented analyses, has been established. (DoDD 5000.39, encl (3), p. 3-2)

3.3.3 A consistent set of objectives and thresholds for readiness, R&M (including built-in test, if applicable), and other logistic parameters have been established and presented in comparison to a contemporary baseline system.

3.3.4 Both technical thresholds (to be verified by DT&E) and operational thresholds (to be verified by OT&E) shall be established for R&M, inherent availability, and operational availability. (DoDD 5000.39, encl. 3, top of page 3)

3.3.5 The sensitivity of manpower and other support resource requirements to changes in key parameters (including R&M and utilization rate) and the associated impact on system readiness and supportability have been analyzed. Logistics risk areas have been identified. (DoDD 5000.39, encl. 3, p. 3-3)

3.3.6 Contractors have been provided realistic manpower costs for use in tradeoffs. Data provided shall include the personnel cost of filling manpower requirements as well as any additional costs of replacing or adding experienced technicians if necessary. (DoDD 5000.39, encl. 3, p. 3-3)

3.3.7 Tradeoffs have been conducted to determine the best balance among hardware characteristics, support concepts, and support resource requirements. Changes to established requirements for support resources (such as unique skills or specialties) that are new or in short supply have been identified. (DoDD 5000.39, encl. 3, p. 3-3)

3.3.8 North Atlantic Treaty Organization (NATO) standardization and interoperability requirements are reflected in ILS planning. (DoDD 5000.39, encl. 3, p. 3-3)

3.3.9 ILS considerations are given appropriate weight in requests for proposal source selection criteria and contract provisions. Contract requirements clearly define a baseline operational scenario, baseline maintenance concepts, U.S. Government peacetime readiness and wartime deployment objectives, and phased support schedule objectives. ILS program and data requirements are tailored to meet these objectives. (DoDD 5000.39, encl. 3, p. 3-3)

3.3.10 T&E plans are adequate to develop a data base for quantitatively assessing achievement of support-related thresholds, adequacy of support plans and resources, and impact on cost and readiness objectives. Responsibility has been assigned and sufficient test assets have been programmed and budgeted for making both DT&E and OT&E independent assessments. (DoDD 5000.39, encl. 3, p. 3-3)

3.3.11 Support acquisition funding profiles are presented in comparison with similar programs. (DoDD 5000.39, encl. 3, p. 3-3)

3.3.12 A preliminary list of candidate items is developed for contractor support during initial deployment. (DoDD 5000.39, encl. 3, p. 3-3)

3.3.13 Facilities design is begun and will be completed and ready for contract award in the year that facilities will be authorized and funds appropriated. (DoDD 5000.39, encl. 3, p. 3-3)

3.3.14 Clearly defined systems engineering procedures (such as the reliability-centered maintenance approach) have been implemented to influence the evolving system design, to define automated diagnostics requirements, and to determine ILS element requirements. (DoDD 5000.39, encl. 3, p. 3-3)

3.3.15 There are explicit and visible plans, adequate resources, and contract requirements for: (DoDD 5000.39, encl. 3, pp. 3-3 to 3-4)

a. Detailed analyses and tradeoffs of design R&M, manpower quantities, skill and aptitude requirements, training resources, energy, and other support requirements to meet program goals.

b. Identification of detailed ILS element requirements, consistent with support-related objectives and thresholds.

c. Development of ILS elements, including a maintenance plan, on a schedule that corresponds with contractor or government support transition objectives.

d. Effective and economical use of contractor support.

e. T&E of the adequacy of planned MPT support concepts and resources and R&M (including testability) and other design characteristics affecting support, such as static and dynamic transportability, to meet system readiness and utilization objectives.

f. Tracking and control of subsystem support costs and ILS schedules.

g. International logistic considerations for programs involving other nations.

h. Optimum use of standard parts and components (DoD Instruction 4120.19).

i. Identification of design characteristics (such as perishability of technology) and industrial base needs necessary to effect orderly and cost-effective PPS.

j. Identification of system support and readiness analysis responsibilities for follow-on phases.

4.0 Activities Accomplished During Full Scale Development (Milestone II)

4.1 Systems/Equipments. Activity in this period is directed to the implementation of the ILSP for this phase and leads to the demonstrable achievement of the following objectives and requirements: (NSI 4105.1, CH. 2, encl. 2, pp. 5-6)

a. Analysis, test and evaluation results, and independent reviews have affirmed the adequacy of the maintenance concept and planned manpower and other support resources to meet goals for peacetime readiness and wartime utilization.

b. Spares investment levels have been explicitly related to readiness objectives and are based on realistic estimates of demand rates and system utilization.

c. Parameters used in determining support resource requirements are traceable to program goals and thresholds and have been compared at the detail level with contemporary systems.

d. Determination, acquisition and positioning of all logistic support for its verification as to adequacy, through TECH/OP Evaluations and the establishment of a Navy Support Date (NSD) for the production model.

e. A preliminary manning document and supporting analysis (including comparison by work center to a baseline system) are available, and manpower requirements can be met from projected service assets.

f. Support investment funding profiles are traceable to those presented at Milestone II, and the impact of any changes upon readiness goals or support capability objectives has been assessed.

g. A Logistic Support Analysis (LSA) effort has been implemented which forms the basis for identification of the logistic support resources for each of the ILS elements and the integration of those resource requirements in accordance with MIL-STD-1388-1A tailored to the needs of the acquisition. This effort includes the top down breakdown structure of items requiring support and the LSA candidates selected.

h. Correction of deficiencies in logistic support resulting from design mods and uncovered in test and development.

i. A logistic support system specification including approved Data items, Statements of Work, and other contractual or procurement information relating to logistics aspects of the proposed production contract.

j. Planning for development and approval of a Navy Training Plan four years prior to initial operating capability.

k. A Level of Repair (LOR) Analysis effort has been implemented consisting of non-economic or economic iterative evaluations used to establish the maintenance level at which an item will be repaired, replaced or discarded in accordance with MIL-STD-1390.

4.2 Ship. During the Contract Design Phase, the functional baseline documents that were developed during the preliminary design are translated into ship specifications and other contractual documentation. The purpose is to provide a suitable bid package to contract for the detail design and construction of the lead ship. A formal ILSP, which will define the tasks, procedures, and responsibilities for developing and acquiring the logistic resources during the Detail Design and Construction Phases, is developed. Also, during this phase the contractual ILS requirements for the shipbuilder and naval participating managers and activities are defined. (NSI 4105.1, CH. 2, encl. 2, p. 6)

4.3 Requirements

4.3.1 System/equipment programs must submit a formal ILSP (ILSP-XXXX-P/D) prior to the start of the Production Phase for SEA 90 review and approval. This ILSP is to include a complete funding matrix. (NSI 4105.1, CH. 2, encl. 2, p. 6)

4.3.2 For ships, a formal ILSP (ILSP-XXXX-P) covering the Detail Design and Construction Phase logistic support activity is to be developed and submitted to SEA 90 for review and approval, prior to the start of that phase. (NSI 4105.1, CH. 2, encl. 2, p. 6)

4.3.3 R&M testing has been acceptable. Analyses, T&E results, and independent reviews have affirmed the adequacy of the maintenance plan and planned support resources to meet objectives for peacetime readiness and wartime employment. (DoDD 5000.39, encl. 3, pp. 3-4)

4.3.4 Parameters used in determining support resource requirements are traceable to program objectives and thresholds. Spares investment levels have been related explicitly to system readiness objectives and are based on realistic estimates of demand rates and system utilization. (DoDD 5000.39, encl. 3, pp. 3-4)

4.3.5 Support acquisition funding profiles are traceable to those presented at Milestone II, and the impact of any changes upon readiness objectives or support capability objectives has been assessed. (DoDD 5000.39, encl. 3, p. 3-4)

4.3.6 A preliminary manpower document and supporting analysis are available, and manpower requirements from DoD component projections can be met. (DoDD 5000.39, encl. 3, p. 3-4)

4.3.7 Plans have been developed and responsibilities assigned for follow-on readiness assessments beginning with system deployment. (DoDD 5000.39, encl. 3, p. 3-5)

4.3.8 Software and related computer support plans have been developed and reflect procedures, requirements, milestones, and responsibilities for maintaining and maturing software and related support of embedded computer systems after the system is fielded. (DoDD 5000.39, encl. 3, p. 3-5)

4.3.9 Plans have been developed for cost-effective PPS, including strategy for continued system and logistics engineering and management identification of requirements, acquisition strategies, and milestone reviews, to ensure that readiness objectives are met and sustained. (DoDD 5000.39, encl. 3, p. 3-5)

4.3.10 The development status and production leadtimes of ILS elements are commensurate with support capability objectives and deployment needs. (DoDD 5000.39, encl. 3, p. 3-5)

4.3.11 The ILSP provides for smooth transition of support responsibility from contractor to in-house support (if applicable). (DoDD 5000.39, encl. 3, p. 3-5)

4.3.12 NATO standardization and interoperability requirements are reflected in ILS planning. (DoDD 5000.39, encl. 3, p. 3-5)

4.3.13 Contract requirements are consistent with ILSPs and support-related objectives and thresholds. (DoDD 5000.39, encl. 3, p. 3-5)

4.3.14 Facility construction will be completed in time to support scheduled deployment. (DoDD 5000.39, encl. 3, p. 3-5)

4.3.15 Transportability approval has been given by the appropriate transportability agent, and strategic mobility requirements have been met. (DoDD 5000.39, encl. 3, p. 3-5)

4.3.16 Independent reviews by the DoD Component training command and users have affirmed the adequacy of training plans, and timely delivery of training equipment is planned to support scheduled deployment. (DoDD 5000.39, encl. 3, p. 3-5)

4.3.17 There are explicit plans and adequate resources for:

a. Validation and delivery of ILS elements to meet deployment needs. (DoDD 5000.39, encl. 3, p. 3-5)

b. Post-deployment review, evaluation and analysis of support capability, O&S cost, and manpower in relation to system readiness objectives. (DoDD 5000.39, encl. 3, p. 3-5)

c. Maturation of supportability and correction of deficiencies by changes to production design and planning. (DoDD 5000.39, encl. 3, p. 3-5)

d. Adjustments to support resources based on field R&M and readiness experience. (DoDD 5000.39, encl. 3, p. 3-5)

e. Identification of projected obsolescence dates, planned modifications, and life extension programs. (DoDD 5000.39, encl. 3, p. 3-5)

f. Evaluation of alternative PPS concepts and related strategies, including buy-out, sustained production, competitive industrial base maintenance, and organic versus contractor support. (DoDD 5000.39, encl. 3, p. 3-5)

5.0 Activities Accomplished During Production and Deployment (Milestone III)

5.1 Systems/Equipments.

5.1.1 Production phase ILS effort is directed to the acquisition, implementation/delivery of the required logistic support prior to the operational deployment of the system/equipment, as described in the ILSP, and includes a continuation of the joint contractor/government efforts to identify and refine specific support resources required for installation, checkout and operation. The LSAR is produced, validated, verified, and used as the basis for checking completeness and accuracy of the ILS element products. This phase often overlaps the Deployment/Operation Phase, thus making it feasible and desirable to combine these two phases in a single ILSP (ILSP-XXXX-P/D). (NSI 4105.1, CH. 2, encl. 2, p. 6)

5.1.2 The Production/Deployment Phase ILSP (ILSP-XXXX-P/D) shall cover the following deployment related planning: (DoDD 5000.39, encl 3, p. 3-7)

(a) The procedure for monitoring corrective actions initiated, and the planning for determining and revising logistic support requirements resulting from ECPs, ship alterations/modernizations/conversion, overhauls, logistic shortfalls, etc.

(b) The feedback system(s) being used, including the monitoring and user activities involved, the data to be obtained and criteria being applied to evaluate the data.

5.2 Ships.

5.2.1 This phase includes the detail design of the ship and its installed systems and the construction of the ship. The Detail Design and Construction Phases are not distinct phases, but are overlapping. The shipbuilder completes the design of those aspects of the ship which require construction first and then progressively completes the design and construction of the ship. (NSI 4105.1, CH. 2, encl. 2, p. 7)

During this phase, the ILSP is implemented to acquire the ship and shore logistic resources that are necessary to maintain and support the ship for its life cycle.

5.2.2 The Follow Ship Construction Phase begins with the award of the production contract following DSARC IIIA program approval. During this phase, emphasis is placed on producing and testing the new class of ships, incorporating into the construction of the remaining ships the design changes resulting from Production Acceptance Testing and from the first deployed ships' experiences; and planning for an orderly transfer of management responsibility from the Ship Acquisition Project Manager (SHAPM) to the Ship Logistics Manager (SLM)/Platform Directorate. (NSI 4105.1, CH. 2, encl. 2, p. 7)

ILS planning is a continuation of the joint contractor/government efforts to identify and refine specific support resources required for installation, checkout, and operation. It involves the definition of logistics evaluations and acceptance requirements, identification of logistics requirements to support change modifications (ECPs, SHIPALTS, etc.), and development of transition plans to accommodate the transfer from contractor to Navy support and from SHAPM to SLM management. A major activity is the development of a draft Ship Class Maintenance Plan which describes the maintenance strategy, tasks, procedures, responsibilities, and resources required to maintain and support the class of ships during deployment. (NSI 4105.1, CH. 2, encl. 2, p. 7)

5.2.3 The Deployment/Operations Phase begins with the acceptance by the Fleet of the first operating unit. Since there is usually an overlap between construction and the Deployment/Operations Phase, the SLM provides to the CNO, the TYCOM, and others, as appropriate, notification of transfer of management responsibility for each ship produced, commissioned, and accepted. At this point, ship and shore based oriented logistic support should be available and functioning as part of the overall ship class support system and should be capable of providing the operational availability (A_o) and mission success prescribed by CNO in the TLR. (NSI 4105.1, CH. 2, encl. 2, pp 7-8)

5.3 Requirements

5.3.1 For systems/equipments, the ILSP (XXXX-P/D) submitted prior to the start of the Production/Deployment Phase and approved by SEA 90 is to be maintained and updated as necessary throughout the phase. A copy of each update is to be furnished for SEA 90L records. (NSI 4105.1, CH. 2, encl. 2, p. 8)

5.3.2 For ships, the ILSP that was prepared during the Contract Design Phase is periodically updated to keep it current during the Detail Design and Construction Phase. Prior to the Follow Ship Construction Phase, a revised ILSP (XXXX-P(FS)) is to be submitted for SEA 90 review. (NSI 4105.1, CH. 2, encl. 2, p. 8)

5.3.3 R&M testing has been acceptable. Analyses, T&E results, and independent reviews have affirmed the adequacy of the maintenance plan and planned support resources to meet objectives for peacetime readiness and wartime employment. (DoDD 500.39, enc. 3, pp. 3-4 to 3-5)

5.3.4 Parameters used in determining support resource requirements are traceable to program objectives and thresholds. Spares investment levels have been related explicitly to system readiness objectives and are based on realistic estimates of demand rates and system utilization.

5.3.5 Support acquisition funding profiles are traceable to those presented at Milestone II, and the impact of any changes upon readiness objectives or support capability objectives has been assessed. (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.6 A preliminary manpower document and supporting analysis are available, and manpower requirement from DoD component projections can be met. (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.7 Plans have been developed and responsibilities assigned for follow-on readiness assessments beginning with system deployment. (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.8 Software and related computer support plans have been developed and reflect procedures, requirements, milestones, and responsibilities for maintaining and maturing software and related support of embedded computer systems after the system is fielded. (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.9 Plans have been developed for cost-effective PPS, including strategy for continued system and logistics engineering and management identification of requirements, acquisition strategies, and milestone reviews, to ensure that readiness objectives are met and sustained. (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.10 The development status and production leadtimes of ILS elements are commensurate with support capability objectives and deployment needs. (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.11 The ILSP provides for smooth transition of support responsibility from contractor to in-house support (if applicable). (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.12 NATO standardization and interoperability requirements are reflected in ILS planning. (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.13 Contract requirements are consistent with ILSPs and support-related objectives and thresholds. (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.14 Facility construction will be completed in time to support scheduled deployment. (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.15 Transportability approval has been given by the appropriate transportability agent, and strategic mobility requirements have been met. (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.16 Independent reviews by the DoD component training command and users have affirmed the adequacy of training plans, and timely delivery of training equipment is planned to support scheduled deployment. (DoDD 5000.39, encl 3, pp. 3-4 to 3-5)

5.3.17 There are explicit plans and adequate resources for:

a. Validation and delivery of ILS elements to meet deployment needs.

b. Post-deployment review, evaluation and analysis of support capability, O&S cost, and manpower in relation to system readiness objectives.

c. Maturation of supportability and correction of deficiencies by changes to production design and planning.

d. Adjustments to support resources based on field R&M and readiness experience.

e. Identification of projected obsolescence dates, planned modifications, and life extension programs.

f. Evaluation of alternative PPS concepts and related strategies, including buy-out, sustained production, competitive industrial base maintenance, and organic versus contractor support. (DoDD 5000.39, pp. 3-4)

6.0 Activities to be Accomplished After Deployment and During Post-Production Support

The activities described in 5.3.17 above shall be carried out, and a continuing analysis of readiness measures shall serve as the basis for identification of problem areas. (OPNAVINST 5000.49A, encl. 6, p. 6-6)

INTEGRATED LOGISTICS SUPPORT PLAN (ILSP) OUTLINE
(All Life Cycle Phases)

NOTE: This outline is intended for use in the preparation of ILSPs for ships systems/equipments in accordance with the requirements of reference (k), with prime emphasis on Full Scale Development and Production Phases. The outline includes a brief description of each section/paragraph. Because each successive life cycle phase is dependent on the prior phase, the products or results of each phase must be used to define and support the following phase. Therefore, the acquisition manager and ILS manager must plan the current phase in a manner that will ensure a smooth transition into the next phase. (Additional guidance for the preparation of ILSPs was distributed by NAVSEA memo 04/RC, 4105, Ser 38, dtd 2 February 1982, Subj: ILSPs; review and approval of, and in references (c) and (d) to this instruction).

Front Matter (NSI 4105.1, CH .2, encl. 3, p. 1)

- Front Cover
- Distribution, including preparing activity, name, and telephone number
- Signature Sheet
- Record of Changes
- Table of Contents, Figures, Tables, etc.
- List of Terms and Acronyms
- List of Applicable Documents (as needed)

1.0 INTRODUCTION (Program Purpose, Scope, Highlights, Background, Constraints)

The introduction shall be written to provide each participant in the program with a brief synopsis of the systems/equipment program scope in terms of the purpose of the systems/equipment, end use application, unique characteristics or constraints applicable to this life cycle phase (or phases if concurrent phases are involved), and how the systems/equipment will be introduced into the Fleet, i.e., Fleet Modernization Program, Engineering or Field Change or New Construction Program. The introduction shall state what gave rise to the need for this capability, whether it supplants existing systems, and what the expected improvements are in performance, cost, Reliability and Maintainability (R&M), or Operational Availability (A_o). (NSI 4105.1, CH. 2, encl. 3, p. 4)

2.0 SYSTEM/EQUIPMENT DESCRIPTION, DELIVERY, AND EFFECTIVENESS FACTORS, PLANNING AND SCHEDULES FOR PROCUREMENT, INSTALLATION PLAN (Physical/Functional Description, Delivery, Installation and Checkout)

Systems/equipment descriptions and operational factors shall be provided to the extent that they are required for that phase in the ILS planning, including environmental impact considerations. The systems/equipment descriptions provided for the early life cycle phases will be refined and expanded for each succeeding phase. Information relevant to the systems/equipment procurement plan, deliveries and installation/checkout planning and schedules shall be provided. (NSI 4105.1, CH. 2, encl. 3, p. 4)

3.0 SUPPORT INTEGRATION

The program management structure and integration effort of support planning shall be described and responsible assigned participants shall be displayed, with emphasis on their ILS interfaces and responsibilities both internal and external to NAVSEA. Management controls and coordination methods shall also be described. (NSI 4105.1, CH. 2, encl. 3, p. 4)

3.1 Management Integration

3.1.1 ILSP Administration. Describe how the ILSP is administered during the applicable program phase. As a minimum, the procedure for updating/revising the ILSP and milestones therein shall be described. (NSI 4105.1, CH. 2, encl. 3, p. 4)

3.1.2 ILS Team. Identify the team members, their expertise, responsibility to the ILS manager, and frequency of meetings. The organization functions, responsibilities and interfaces of all participating -- contractor, acquisition manager and logistic element manager personnel are also included. (NSI 4105.1, CH. 2, encl. 3, p. 4)

3.1.3 Communications. Discuss communications among the program personnel and other participating organizations. This includes a description of the ILS management team meetings, their frequency, methods of communication, reporting, distribution of action items, follow-up procedures, and any interfaces with internal NAVSEA ILS management information system. Include schedules for ILS program review and appraisal at the acquisition manager, NAVSEA and NAVMAT levels, as applicable. (NSI 4105.1, CH. 2, encl. 3, p. 5)

3.1.4 Related Programs. The intent and purpose of the following section is to identify the significant interfaces of these separate programs with the ILS program. It is not intended that these related programs be covered in their entirety within the context of the ILSP.

Guidance on the type of interfaces which should exist is as follows: (NSI 4105.1, CH. 2, encl. 3, p. 5)

3.1.4.1 Standardization. One of the most effective means of constraining the logistic cost impact and logistic burden of adding new equipments in the Fleet is the use of standardization concepts throughout the development cycle. The cost payoffs of this planning are realized through invoking standardization controls, in the development and production contracts, such as design selection lists, validated drawings, Government Furnished Equipment (GFE), and procurement prerogatives such as multiyear contracts and option clauses in single year procurements. This section addresses the standard component/parts lists, provision of lead yard procurement documents to follow-on yards, Standard Electronic Module Program, Government and Industry Data Exchange Program (GIDEP), and other standard parts programs as applicable. (NSI 4105.1, CH. 2, encl. 3, p. 5)

3.1.4.2 Quality Assurance. Quality Assurance (QA) requirements shall be applied to hardware, computer software, and logistic support data to the extent required during each life cycle phase. Of prime concern is the implementation of quality control on all ILS products. (NSI 4105.1, CH. 2, encl. 3, p. 5)

3.1.4.3 Configuration Management and Data. The accuracy and adequacy of logistic support is critically dependent on all aspects of configuration management. Configuration management is involved during each life cycle phase to the extent required to ensure that the system is adequately identified in accordance with current standards (MIL-STD-196C for electronics, MIL-STD-1661(OS) for ordnance, etc.), that a baseline configuration is established, audits/reviews are conducted to ensure that the identification documentation adequately and accurately describes the system/equipment/configuration changes thereto, that all changes to the system are accomplished through a formal review process and assigned one of the official alteration system numbers, and that ships' equipment configuration status accounting records are accurately and currently maintained for all changes to the ships' configuration status. Provisions shall be made in the configuration management planning process to ensure that the logistic support community's requirements are satisfied. Interfaces with the Navy-wide data programs such as 3M, Ship Equipment Configuration Accounting System (SECAS), and Ships Technical Publication System (STEPS) are also described in this section. (NSI 4105.1, CH. 2, encl. 3, pp. 5-6)

3.1.4.4 Safety requirements shall be identified early in the program for incorporation into the logistic technical data such as PMS, Technical Manuals, Training, and Reliability Centered Maintenance (RCM) analyses, and in sufficient time to permit design, development and support of any required safety or life support devices. (NSI 4105.1, CH. 2, encl. 3, p. 6)

3.1.4.5 Acquisition Management Plan and Source Selection. In order to ensure that the objectives of the ILS planning process are achieved, it is of paramount importance that the ILS concepts and constraints, to the extent that they can be defined in each successive life cycle phase, are incorporated into the acquisition management planning and source selection process. This is achieved by establishing source criteria and appropriate weighing factors. The Acquisition Plan, Source Selection Plan, and Request for Proposal are the key documents. (NSI 4105.1, CH. 2, encl. 3, p. 6)

3.1.4.6 Engineering Operational Sequencing System (EOSS) (for non-nuclear surface ships only). EOSS was established to provide a single consolidated source of information relative to shipboard engineering plant operation and casualty control. Indicate that EOSS supersedes all existing operational information and conflicting technical directives
for the systems and equipment covered. EOSS is the basic guide in the conduct of propulsion plant evolutions and drills and will be developed, installed, and maintained on all non-nuclear powered operational surface ships. In addition, this paragraph indicates the purpose, format, scope, style, technical accuracy, level of detail, and intended usage of EOSS in accordance with the requirements and procedures of OPNAVINST 9200.3, NAVSEAINST 4790.7 and the EOSS Development Manual of 26 July 1978. Development of EOSS can be done through tasking and funding of SEA ?. When the developing activity is the contractor, review functions are performed by NAVSEA. (NSI 4105.1, CH. 2, encl. 3, p. 6)

3.1.4.7 Environmental Impact Assessment (EIA). The ILSP shall provide planning for an initial and continuing evaluation of the impact of any action of a current or proposed program at significant decision points to determine its effect upon the quality of human environment or potential for environmental controversy. OPNAVINST 5240.3E applies. (NSI 4105.1, CH. 2, encl. 3, p. 6)

Program managers shall ensure that EIAs are developed early in the program development stage and submitted to SEA ? for review.

3.1.5 ILSP Milestones. Milestones are the key portion of any ILSP. They shall be established to facilitate: (1) ensuring that the ILS program objectives are achieved in a logical and realistic manner; (2) to permit status of the program to be readily determined at any point in time; and (3) for necessary changes to be accomplished in a timely manner. They answer the basic planning questions of WHAT is to be done, WHO is to do it, WHEN it must be done, and HOW it will be done (orderly sequence). Reference (k) shall be used. (NSI 4105.1, CH. 2, encl. 3, p. 7)

3.1.5.1 Summary: Major Program and ILS Events (Chronological). Summary milestones shall relate significant ILS events to major program milestones, thus ensuring that acquisition management planning and ILS planning are coordinated and that they augment each other during each life cycle phase. (NSI 4105.1, CH. 2, encl. 3, p. 7)

3.1.5.2 ILS Element Detailed Milestones (chronological within element only). Descriptive ILS element milestones establish the ILS program structure, identify required actions, identify interaction among related or dependent activities, provide the basis for accomplishment, facilitate monitoring, and identify potential and actual slippages. (NSI 4105.1, CH. 2, encl. 3, p. 7)

3.1.5.3 ILS Milestones (chronological order irrespective of elements). The ILS milestones shall be arrayed in chronological sequence (without regard to specific elements) in order that dependent, related or interfacing actions among the elements and overall ILS program milestones can be more easily identified. In this way, inconsistencies and critical issues can be surfaced and corrected during the planning process. (NSI 4105.1, CH. 2, encl. 3, p. 7)

3.2 Data Integration. The data integration process shall consider the phase-to-phase evolution and expansion of the data elements required to define life cycle support requirements; it shall also optimize development and utilization of the data produced within each phase. The data integration function shall consider: extent of analyses and development of each data element; the impact and tradeoff relationships of the data to each of the ILS functional and interface areas; the multi-use application of each data element; the scheduling of each data element in order to most adequately satisfy program requirements; and the progressive evolution of more specific data as the system/equipment progresses from phase to phase. (NSI 4105.1, CH. 2, encl. 3, p. 7)

3.2.1 Logistic Support Analysis (LSA) Program Management (including LSA program scoping). For the LSA process to be implemented on a cost effective basis for the life cycle and for each system/equipment, program phase requires that the acquisition manager and ILS manager determine the scope of LSA program effort and implementation requirements. (NSI 4105.1, CH. 2, encl. 3, p. 8)

The scope of LSA program effort is dependent on the following considerations: (1) extent of system definition; (2) all or portions of the system/equipment which have previously been supported either by the Navy or other DoD activities; (3) prior LSA records conformance to the current maintenance and support concepts; (4) LSA data developed on a timely basis in order that it may be used to support

other data requirements such as technical manuals, training plans, provisioning, etc.; and (5) data elements required in addition to those provided in MIL-STD-1388-1A and -2A. (NSI 4105.1, CH. 2, encl. 3, p. 8)

The implementation of LSA shall consider, determine, and plan on: (1) whether the data base needs to be automated; (2) how it will be processed; (3) who will develop and prepare the quality assurance requirements; (4) who will validate; (5) who will verify; (6) who are the users; and (7) how changes will be identified and accomplished. (NSI 4105.1, CH. 2, encl. 3, p. 8)

Government furnished LSA to contractors: The Government is responsible for providing certain information and guidance to the contractor as a baseline for his analysis effort. This baseline starts with the maintenance and logistic requirements that the government has imposed as part of the contract. These requirements include such elements as the Mean-Time-To-Repair (MTTR) and the Mean-Time-Between-Failure (MTBF) that the end item and the major systems must exhibit, once deployed. (NSI 4105.1, CH. 2, encl. 3, p. 8)

Along with the maintenance and logistic requirements, the Government must also provide the logistic support concept that is desired for the item being developed. Questions such as,

- Will standard military support equipment be utilized?
- Should the item design be constrained to existing skills and facilities?

must be provided to the contractor as part of the Government's planning effort. (NSI 4105.1, CH. 2, encl. 3, p. 8)

Other baseline information which must be furnished to the contractor before the LSA can begin are lists of standard and support equipment, identification of user and maintenance units, the maintenance personnel available in the unit, and the detailed information regarding their training. (NSI 4105.1, CH. 2, encl. 3, p. 8)

3.2.2 Maintenance Task Analysis (MTA). The heart of the LSA process is the definition of all required preventive and corrective maintenance tasks, expected frequency, level, time, skills, parts, maintenance task sequence, and configuration data. MTA requirements as provided by MIL-STD-1388-1A, Worksheets C and D, or equivalent must be incorporated into contract requirements. The acquisition/ILS manager must ensure, through contract provisions, that the technical content and format of the LSA data are consistent with MIL-STD-1388-1A to facilitate verification, storage, and retrieval by the Navy. (NSI 4105.1, CH. 2, encl. 3, p. 9)

3.2.3 Inputs to LSA. The amount and types of input data to the LSA shall be planned and are dependent on the degree that the system/equipment is defined. Input data includes, as a minimum, operational requirements; special constraints; long range maintenance, supply and personnel policies; facilities criteria; existing skills; maintenance support concepts; reliability, maintainability and availability requirements; usage and inventory data; transportation data, existing training capabilities, and other maintenance concepts as specified in higher level requirements documents. (NSI 4105.1, CH. 2, encl. 3, p. 9)

3.2.4 LSA Outputs to Logistic (ILS) Elements. A critical consideration in the application of LSA is the utilization of the LSA data base by the contractor in the preparation of the various logistic element data products as well as its adequacy for use by Government activities in determining and establishing logistic support requirements. (NSI 4105.1, CH. 2, encl. 3, p. 9)

The acquisition manager and ILS manager shall determine how and when the LSA outputs are to be used and incorporate these requirements into contractual documents. (NSI 4105.1, CH. 2, encl. 3, p. 9)

3.2.5 LSA In Solicitation, Procurement Requests (PRs), Contracts, Proposal Evaluation. This section of the ILSP will provide for the planning, scheduling, and resources which are required in order to incorporate LSA into the acquisition process. Thus, the needs which were established by the preceding LSA related sections of the plan will be defined in the appropriate PRs and contracts. (NSI 4105.1, CH. 2, encl. 3, p. 9)

3.2.6 LSA Validation and Verification. An extremely important aspect of the LSA process is the validation and verification of the worksheets and records. The Navy and the contractor shall ensure that correct and consistent data are incorporated into the data base. (NSI 4105.1, CH. 2, encl. 3, p. 9)

3.2.7 Tailoring or Exceptions to LSA. The requirements for the LSA shall be tailored to suit the specific characteristics of the system/equipment and described in the ILSP. The scope and level of detail shall be consistent with the stage of development; i.e., planning information during the early phases and detailed data during the Production phase. The rationale for not performing an LSA shall be given in this paragraph and include a description of the program that will satisfy the requirements of MIL-STD-1388-1A and -2A. (NSI 4105.1, CH. 2, encl. 3, p. 10)

3.2.8 Level of Repair (LOR) Analysis Program Management and Scope. Describes the Level of Repair Analysis decision process, its scope, and implementation requirements. The rationale for not performing an LOR and the alternative selected to satisfy MIL-STD-1390B require-

ments shall be cited as applicable. The scope of the LOR program effort shall be tailored according to the life cycle phase and reflect the following considerations: (1) conceptual effort, i.e., broad criteria (technical, logistic, military, economic, etc.), are established during the initial phase of the hardware system's life cycle; (2) the interrelationship and delineation of ILS, LSA, and LOR as well as the ILS system concept are derived from the ILS planning policy; (3) equipment preliminary design in which engineering drawings are developed along with preliminary technical, logistic, military, and economic data. The preliminary data, i.e., MTBF, unit cost, support equipment and personnel requirements, etc., are then the substance of the LSA data elements; (4) which will provide some of the data necessary to perform an LOR analysis; (5) preempting factors such as safety, repair feasibility, mission success, and others delineated by the Chief of Naval Material, which would necessitate the performance of a non-economic analysis. (NSI 4105.1, CH. 2, encl. 3, p. 10)

3.2.9 LOR Implementation. The implementation of the LOR shall be described in terms of the following: (NSI 4105.1, CH. 2, encl. 3, p. 10)

(a) Inputs to LOR based on the maintenance concept, logistic support constraints, equipment design, LSA data elements, and pre-empting factors.

(b) LOR outputs to logistic elements which describe the utilization of the LOR data base by the contractor and other government agencies.

(c) LOR in solicitation PRs contracts, proposal evaluation -- the planning, scheduling, and resources required to incorporate LOR in the acquisition process.

(d) Validation and verification of the LOR Program Plan, LOR Analysis Report, LOR Status Report, and LOR Summary Reports to ensure that correct and consistent data are incorporated into the data base.

4.0 ILS ELEMENTS

The planning necessary to determine, acquire, and position the logistic support required for this program is to be described for each applicable element, i.e., who does what, when, how, where and why (where needed). (NSI 4105.1, CH. 2, encl. 3, p. 11)

4.1 Maintenance Planning. The process conducted to evolve and establish maintenance concepts and requirements for the lifetime of a material system. (OPNAVINST 5000.49A, encl. 7, p. 7-1)

4.2 Manpower and Personnel. The identification and acquisition of military and civilian personnel with the skills and grades required to operate and support a material system over its lifetime at peacetime and wartime rates. (OPNAVINST 5000.49A, encl. 7, p. 7-1)

4.3 Supply Support. All management actions, procedures, and techniques used to determine requirements to acquire, catalog, receive, store, transfer, issue, and dispose of secondary items. This includes provisioning for initial support as well as replenishment supply support. (OPNAVINST 5000.49A, encl. 7, p. 7-2)

4.4 Support Equipment. All equipment (mobile or fixed) required to support the operation and maintenance of a material system. This includes associated multi-use end items, ground-handling and maintenance equipment, tools, metrology and calibration equipment, test equipment, and automatic test equipment. It includes the acquisition of logistics support for the support and test equipment itself. (OPNAVINST 5000.49A, encl. 7, p. 7-2)

4.5 Technical Data. Recorded information regardless of form or character (such as manuals and drawings) of a scientific or technical nature. Computer programs and related software are not technical data; documentation of computer programs and related software are. Also excluded are financial data or other information related to contract administration. (OPNAVINST 5000.49A, encl. 7, p. 7-2)

4.6 Training and Training Support. The processes, procedures, techniques, training devices, and equipment used to train civilian and active duty and reserve military personnel to operate and support a material system. This includes individual and crew training; new equipment training; initial, formal, and on-the-job training; and logistics support planning for training equipment and training device acquisitions and installations. (OPNAVINST 5000.49A, encl. 7, p. 7-2)

4.7 Computer Resource Support. The facilities, hardware, software documentation, manpower, and personnel needed to operate and support embedded computer systems. (OPNAVINST 5000.49A, encl. 7, p. 7-3)

4.8 Facilities. The permanent or semipermanent real property assets required to support the material system, including conducting studies to define types of facilities or facility improvements, locations, space needs, environmental requirements, and equipment. (OPNAVINST 5000.49A, encl. 7, p. 7-3)

4.9 Packaging, Handling, Storage, and Transportation. The resources, processes, procedures, design considerations, and methods to ensure that all system, equipment, and support items are

preserved, packaged, handled, and transported properly, including environmental considerations, equipment preservation requirements for short-term and long-term storage, and transportability. (OPNAVINST 5000.49A, encl. 7, p. 7-3)

4.10 Design Interface. The relationship of logistics-related design parameters, such as R&M, to readiness and support resource requirements. These logistics-related design parameters are expressed in operational terms rather than as inherent values, and specifically relate to system readiness objectives and support costs of the material system. Design interface seeks to make designers more conscious of how the equipment will make demands on the logistics system, rather than simply discussing inherent R&M values (i.e., Mean Time Between Maintenance actions rather than Mean Time Between Failure). It also seeks to provide product specifications which use terms measuring demands on the logistics system as a measure of system performance rather than inherent technical factors of design. (OPNAVINST 5000.49A, encl. 7, p. 7-3)

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