



DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND
WASHINGTON, D C 20362

IN REPLY REFER TO
NAVSEAINST 3960.5
Ser 902/70
31 May 1984

NAVSEA INSTRUCTION 3960.5

From: Commander, Naval Sea Systems Command
To: All Offices Reporting Directly to COMNAVSEA
Commander, Naval Electronic Systems Command
Commander, Naval Air Systems Command

Subj: POLICY ON SHIP TESTING

Ref: (a) NAVSEAINST 3960.28 of 10 Apr 81, Subj: Test and Evaluation
(b) COMNAVSEA ltr Ser 61X1/331 of 21 Mar 83, Subj: NAVSEA Policy for Surface Ship Certification Requirements

Encl: (1) Hierarchy of NAVSEA Publications on Ship Testing
(2) List of Current Ship Test and Evaluation Program Standards (STEPS)

1. Purpose. To publish NAVSEA's policies for ship test programs and to establish the hierarchy of publications by which NAVSEA will prescribe the practices to be followed in such programs.

2. Scope. This instruction applies to all naval ships materially supported by the Commander, Naval Sea Systems Command and systems installed in such ships. Ship test programs both for industrial availabilities (construction, conversion, modernization, overhaul and selected restricted availabilities (SRAs)) and for operational periods are covered. Specifically excluded from the provisions of this instruction are Navy nuclear propulsion plants, for which the Deputy Commander for Nuclear Propulsion (SEA 08) establishes testing policies, and Development and Operational Test and Evaluation (DT&E and OT&E) events in ship acquisition programs, which are covered in reference (a).

3. Background. In response to the growing complexity of new ships, NAVSEA reaffirmed in recent years the doctrine of total ship testing. This doctrine states that for a given shipyard availability or operational period, the test program is to be planned and conducted as a single, integrated program, vice as a federation of individual system test programs. Many efforts have been initiated within NAVSEA to support this doctrine, from which certain basic policies have evolved. This instruction publicizes those policies in order to set the framework for future initiatives.

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4. Policies

a. The test requirements during and immediately following a shipyard availability shall be developed with the objective of confirming that the ship is materially capable of performing its mission during the next operating cycle without recourse to an unplanned availability. Test requirements must be tailored to the work package to be accomplished during the industrial period. In some cases, equipment not being overhauled or repaired will need to be tested to the extent necessary to verify that it will support integrated system performance during the ship's next operating cycle.

b. The growing interdependence of shipboard systems mandates that the test procedures for a shipyard availability be treated as part of a total ship Integrated Test Package (ITP). Although the test procedures themselves are developed by many separate government and industry organizations, NAVSEA must provide the direction to ensure tests conducted on a ship form a cohesive and effective whole. In evaluating test problems that arise as well as in assessing the readiness for and the success of sea trials, test results shall be analyzed and reported from the perspective of the total ship's ability to perform its mission, and not solely on an individual system's ability to support the next testing evolution such as propulsion system light-off examination or combat system ship qualification trials.

c. Special certification requirements shall be minimized. When possible, the responsibility for conducting testing to support certifications shall be assigned to the shipyard or local Supervisor of Shipbuilding (SUPSHIP). Test procedures that support certifications shall be developed and treated as part of the ship's Integrated Test Package, even if organizations outside of the shipyard will actually be conducting some of the tests and even if the tests are to be scheduled during a time frame separate from tests to be conducted by shipyard personnel. The continuity of the test program must be maintained if it is to remain integrated and is to be both efficient and effective. Because of the proliferation of certification requirements for surface ship systems NAVSEA has instituted a special review process, described in reference (b). A special review process for submarine requirements is not necessary because the unique performance requirements of installed systems has fostered the necessary degree of control.

d. Testing performed immediately after the industrial period shall be planned and conducted as an extension of the prior testing to support bringing the ship and its systems from a state of material completion to one of operational readiness. While the industrial period is complete for schedule purposes after the ship leaves the shipyard, it must be recognized that the ship's performance is not fully verified

until it has completed the operability tests that must be done at sea. NAVSEA shall maintain continuity and traceability between the test requirements it imposes during the industrial period and those conducted during the post industrial period.

e. Test requirements prepared by NAVSEA, NAVELEX and NAVAIR for use by the ship during its operational periods shall form a cohesive, effective total ship testing effort. Testing shall be consistent with and traceable to industrial test requirements. (Where possible, the actual testing techniques will be the same.) Any installations of and alterations to shipboard systems during operational periods must be accompanied by (1) the conduct of testing to verify that the installation or alteration was properly made and that the system performs properly in all modes and with all interfacing systems and (2) the provision of Planned Maintenance System (PMS) test procedures to allow ship's force to adequately monitor system readiness. This policy applies not only to permanent alterations, but also temporary alterations such as those installed for Operational Test and Evaluation conducted by the Commander, Operational Test and Evaluation Force.

f. In order to ensure that NAVSEA is consistent in the ship test program requirements it invokes, and that the totality of such requirements is readily identifiable by other activities, a hierarchy of publications is established herein. In the future, as NAVSEA develops practices to implement these policies on individual types of systems, they will be publicized through a **series of** Ship Test and Evaluation Program Standards (STEPS). STEPS, and their place in the overall hierarchy of publications on ship test program management requirements, are described in enclosure (1). Enclosure (2) is a list of currently approved STEPS: it will be updated (by a change to this instruction) simultaneous with the issuance of each new STEPS.

5. Action

a. Within NAVSEA, Ship Acquisition Program Managers (**SHAPMs**) and Ship Logistics Managers (**SLMs**) have primary responsibility for ensuring an effective and efficient test program for each ship industrial period under their cognizance.

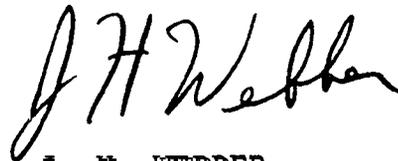
b. Shipborne system managers in SEA 05, SEA 06, NAVELEX and NAVAIR shall develop, validate and maintain adequate test requirements and procedures and shall participate through each phase of the ship test program to ensure that the tests reflect unity and cohesion at the total ship level throughout the life of the ship.

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c. NAVSEA technical codes who develop general practices to be used in implementing the policies of this instruction shall obtain from SEA 902 direction on preparing a STEPS to publicize the practices.

d. SEA 91 and SEA 92 shall control ship certification requirements addressed in paragraph 4c.

e. SEA 902 shall maintain the policies of this instruction, and shall manage the STEPS publication process.



J. H. WEBBER
Vice Commander

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Hierarchy of NAVSEA Publications on Ship Testing

The following is the hierarchy of publications by which NAVSEA will communicate the policies and the management requirements for ship test programs.

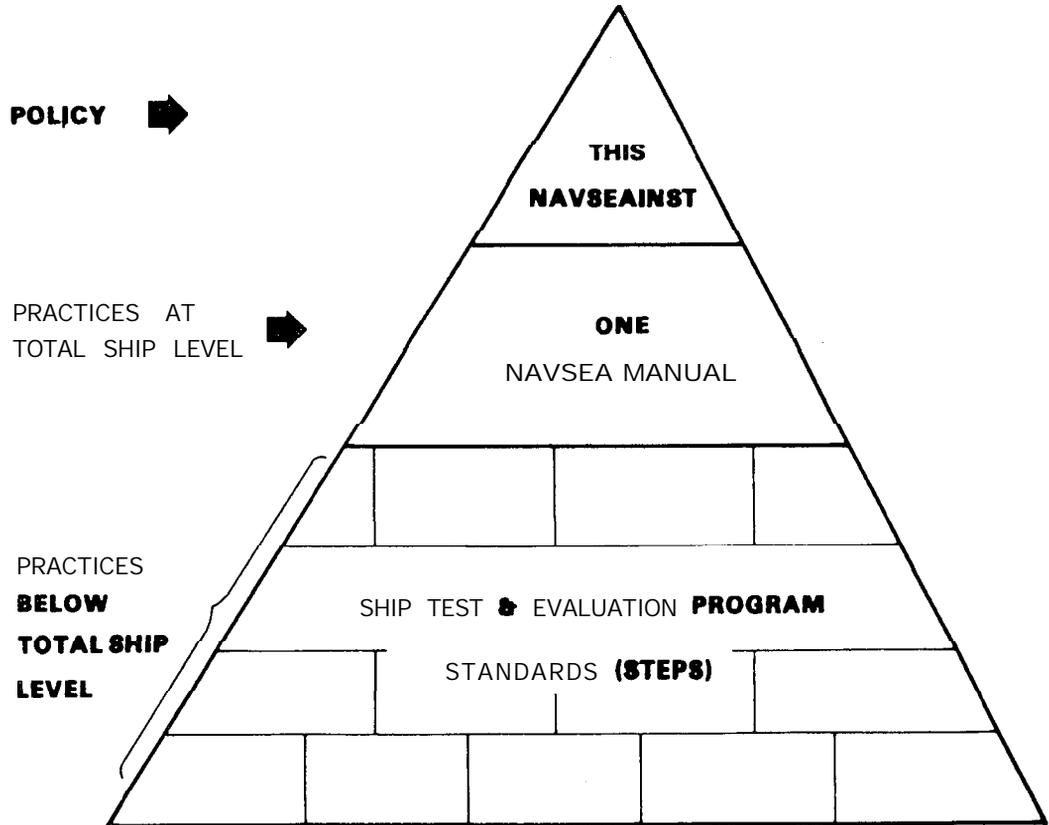


FIGURE 1. HIERARCHY OF NAVSEA MANAGEMENT PUBLICATIONS ON SHIP TESTING

The three levels of documents are as follows:

- a. **This** instruction will become the single statement of NAVSEA policies regarding the testing of ships. Attachment (A), a list of current NAVSEA publications on ship testing, describes two NAVSEA

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instructions on this subject which will eventually be cancelled. The policy portions of those two instructions will be incorporated into an update of this instruction.

b. There will be a single NAVSEA manual on the subject of ship testing. There are currently four NAVSEA manuals (described in Attachment (A)) that prescribe practices to be used in various ship test programs. Their contents will be combined into the single manual.

c. As NAVSEA develops the practices to implement these policies on selected systems or groups of systems, and if it becomes necessary for NAVSEA to codify them, they will be publicized through a series of Ship Test and Evaluation Program Standards (STEPS). STEPS will be developed by the NAVSEA codes having technical cognizance of the practices, and will be issued by the cognizant Deputy Commander. Before issuance, they will be rigorously reviewed for visible support of the policies contained herein. SEA 90 will ensure that such standards are consistent, so that the test program practices imposed on the shipyards, ships and the Fleet are unified and contribute to a total ship test program. Enclosure (2) to this instruction is a list of currently approved STEPS. Enclosure (2) will be updated (by a change to this instruction) simultaneous with the issuance of each new STEPS. Copies of current STEPS may be obtained from:

Commander, Naval Sea Systems Command (SEA 902)
Washington, D.C. 20362
Phone Commercial: 202-692-0448 or 0411
Autovon: 222-0448 or 0411

Enclosure (1)

Current NAVSEA Directives and Manuals on
Ship Test Program Management Practices

This enclosure lists the four major NAVSEA Manuals and two NAVSEA Instructions that prescribe practices to be followed in managing ship test programs. A NAVSEA manual on ship testing is being prepared that combines these four manuals into a single document, as described below. This consolidated manual is planned for issuance in June 1985. At that time, the two instructions will be cancelled and their contents incorporated into this instruction.

1. Industrial and Post Industrial Periods.

a. NAVSEAINST 3960.4 of 21 June 1983, Subj: Total Ship Test Program for Ship Production. This instruction publishes the doctrine of total ship testing for ship acquisition programs and requires that the Ship Construction Tests and Trials Manual, lb below, be implemented in all ship acquisition programs. It also assigns responsibilities within NAVSEA for maintaining these policies and practices. NAVSEAINST 3960.4 will be cancelled and its contents incorporated into a revision of this instruction when the new consolidated manual is issued.

b. NAVSEA 0900-LP-095-2010, Total Ship Test Program for Ship Production Ship Construction Tests and Trials Manual, dated April 1977. This manual prescribes the practices to be used in planning and conducting a total ship test program during new construction of all surface ships and submarines. This manual describes the Navy test organization and how it interfaces with the shipbuilder. It defines the seven stages of testing and publishes the format for test outlines and test procedures.

c. NAVSEA T9093-AB-TRQ-010/SURF COMB, Combat System Test and Certification Manual for Surface Combatant Ships, dated April 1981. The contents of this manual are similar to lb above: however, it applies only to surface combatant ships and it applies to ship overhauls vice new construction. (The portions of this manual that are common with those of lb above are being combined with it into the new consolidated manual. The portions the Combat System T&C Manual that are unique to combat systems will be issued in individual STEPS.)

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d. NAVSEA 0941-LP-053-6010, 1200 PSI Propulsion Plant Test and Certification Manual, dated April 1977. The contents of this manual are similar to lb above: however, it applies only to 1200 PSI propulsion plants. (The portions of this manual that are common with those of lb are being combined with it into the new consolidated manual. The portions of the 1200 PSI Propulsion Plant T&C Manual that are unique to 1200 PSI plants will be issued in individual STEPS.)

2. Operational Periods

a. NAVSEAINST 9094.3 of 17 March 1976, Subj: Total Ship Test Program for Active Fleet Ships. This instruction establishes the policy of providing a system level test package, as part of the Planned Maintenance System (PMS), for each surface combatant ship for determining its condition of material readiness. It specifies use of the manual cited as 2b below. NAVSEAINST 9094.3 will be cancelled and its contents incorporated into a revision of this instruction when the consolidated manual is issued.

b. NAVSEA 0900-LP-085-0010, Total Ship Test Program: Test Procedures Development Plan for Active Fleet Surface Ships, dated April 1976. This manual describes the program by which NAVSEA is providing surface combatant ships a complete system level Planned Maintenance System (PMS) test package for determining their condition of material readiness during operational periods. The contents of this manual will be included in the new consolidated manual.

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List of Current Ship Test and Evaluation Program Standards (STEPS)

STEPS NO	TITLE	DATE	CONTACT AND PHONE NO.
1.	Combat System Level Tests for Ships, procedures for	5/7/84	SEA 61X1 202-692-3388

Enclosure (2)