DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND
WASHINGTON, DC 20362-5101

IN REPLY REFER TO

NAVSEAINST 4490.1
OPR 91L/32
24 OCT 1986

NAVSEA INSTRUCTION 4490.1

From: Commander, Naval Sea Systems Command

Subj: SURFACE SHIP ADVANCED EQUIPMENT REPAIR PROGRAM (AERP (SURFACE))

Encl: (1) AERP (Surface) Equipment Candidate Nomination Form
       (2) AERP (Surface) Requisition Data Field Entries
       (3) Sample AERP (Surface) Message Requisition

1. Purpose. To assign responsibilities and prescribe procedures for an Advanced Equipment Repair Program.

2. Background. The combination of: (a) an increase of highly sophisticated combat systems; (b) a decrease in ship overhaul duration to increase ship availability; (c) an increase in the number of ships in a phased maintenance program; and (d) the large number of ships with overlapping availability schedules are making equipment refurbishment the critical path of many ship availabilities. AERP (Surface) plans to identify, budget, procure, and have available selected Hardware Systems Command (HSC) and Ships Parts Control Center (SPCC) managed equipments for use during Selected Restricted Availabilities (SRAs) or Phased Maintenance Availabilities (PMAs) as replacements for equipment requiring Class "B" overhaul or refurbishment. This equipment will permit exchange during an availability followed by off-ship, nonconcurrent equipment overhaul.

3. Scope. This instruction covers surface ship Hull, Mechanical and Electrical (HM&E) and Weapons System and Electronic depot level repairable equipment that historically experiences overhaul or refurbishment difficulties during SRAs or PMAs.

4. Exceptions. This instruction does not apply to: (a) reactor plant components in nuclear powered ships under the cognizance of Naval Sea Systems Command (SEA 08); (b) material procured for the Insurance Item Management Program (SEA 931).

5. Policy. The use of specifically identified components provided by AERP (Surface) is mandatory for accomplishing scheduled maintenance availabilities when equipment is identified as requiring overhaul or refurbishment. NAVSEA 91, after coordination with the applicable Type Commander (TYCOM), may approve exceptions when it is established that significant cost or schedule benefits will be achieved without compromising material readiness. Changeout equipment will always be of the same configuration as the equipment being offloaded, reducing both shipboard alterations and the need for Integrated Logistics Support (ILS) element modifications (see paragraph 6g).

S-187

ship during a later maintenance availability. This method of overhaul and maintenance, besides minimizing off-line overhaul and maintenance items, allows refurbishment of complex components under optimum conditions, thus providing higher quality assurance levels. AERP (Surface) provides the flexibility and speed-of-response required to ensure timely logistic support and engineering direction for complex maintenance planning.

f. AERP (Surface) will use existing maintenance procedures and facilities to accomplish equipment overhaul or refurbishment. Equipment assets will remain under the cognizance of the existing supply system equipment managers.

g. Equipment installed during changeout under AERP (Surface) will be of the same general configuration as the removed equipment. Upgraded equipment may be installed if the upgrade is included under a special alteration program, such as Ordnance Alteration (ORDALT), Machinery Alteration (MACHALT), or field change. Ship Alteration (SHIPALT) equipment will not be changed out under AERP (Surface). Equipment in the repair pipeline or in the RFI condition may require alterations to incorporate the equipment upgrade.

h. AERP (Surface) is applicable, where appropriate, to the policies and procedures which are employed by NAVSEA in support of shipboard equipment utilized as technical training equipment (TTE).

7. Criteria for Selection of Components of AERP (Surface). The AERP (Surface) program is primarily designed to support the equipment where proper technical equipment overhaul or refurbishment (including off-loading, packing, transportation and on-loading) approaches or exceeds the duration of the PMA or SRA. Following are the general criteria to be considered when selecting an AERP (Surface) candidate. Paragraphs 7a through 7e must apply; criteria in paragraphs 7f through 7i are not critical (i.e., an item not meeting all the criteria contained in paragraphs 7f through 7i will not be automatically excluded from AERP (Surface)).

a. The equipment must be a depot level repairable.

b. The equipment must not be supported by another material management program to the level required to fulfill changeout requirements.

c. The equipment is not scheduled for general (fleetwide) removal from service.

d. The original equipment is still in production, or technical documentation exists to ensure procured equipment has the same general configuration as the equipment.

e. An equipment overhaul contract vehicle would be available to support the material pipeline.

d. Subsequent to final approval, NAVSEA 91 will take the indicated action; i.e.:

(1) For items approved for AERP (Surface). Identify and provide new component quantities and costs by fiscal year for funding. Implement component into program when funding is available.

(2) For items not approved for AERP (Surface). NAVSEA 91 will return recommendation to requesting activity so stating.

9. AERP (Surface) Equipment Inventory Objective

a. An Inventory Objective (IO) will be determined for each selected item. The IO is that quantity of equipment assets that will provide an adequate repair cycle pipeline for ensuring RFI assets are available to meet anticipated changeouts. This IO quantity is that amount of material that will be managed under AERP (Surface).

$$\text{Inventory Objective (IO)} = \frac{\text{Equipment Population}}{\substack{\text{Mean Calendar Time} \\ \text{Between Overhaul} \\ \text{(MCTBO)}}} \times \substack{\text{Equipment} \\ \text{Turnaround} \\ \text{Time (TAT)}}$$

The components of the IO equation are:

(1) Equipment Population is the total quantity of a specific AERP (Surface) supported equipment installed on one or more ship classes; plus the quantity of TTE, if appropriate.

(2) MCTBO is the element which expresses, in months, the known or estimated average calendar time between condition-directed equipment changeouts or overhauls.

(3) TAT is the elapsed time, in months, from shipment of a not-ready-for-issue (NRFI) item from a removing or reporting activity to a Designated Overhaul Point (DOP) or Original Equipment Manufacturer (OEM) until its return in RFI condition to the supply system or reinstalling activity.

b. The IO will be computed by the equipment LCM annually after inclusion into AERP (Surface).

10. Requisitioning Procedures

a. All AERP (Surface) items will be requisitioned by the ship overhaul activity or the planning yard or agent immediately following approval of the SRA or PMA work package. The requisition will be prepared per Military Standard Requisitioning and Issue Procedures (MILSTRIP) using a message format containing the exception data necessary to ensure the exact item required is provided. See enclosure (2) for a description of data field entries.

(2) Material Refurbishment Funds. (O&MN) These funds finance the refurbishment of NRFI HSC 2/4/6-Cog AERP (Surface) assets. HSC Inventory Managers will initially budget funds for repair of their respective equipment.

(3) Navy Stock Fund. (NSF) This revolving fund is utilized by SPCC to procure new equipment and to repair NRFI equipment. After material procurement or repair, the fund is "reimbursed" by funded requisitions drawing down the material.

b. When an acceptable quantity of an equipment is available for changeout under AERP (Surface), NAVSEA 91 will inform the cognizant PERAs and TYCOMs. The TYCOMs will begin to authorize changeout tasks in Ship Alteration and Repair Packages (SARPs) or work packages. For 7-Cog material, material refurbishment funding will be provided through the buy-out of the NSF item at the net price, and for 2/4/6-Cog material, the HSC Inventory Managers will provide the budgeted funds to refurbish the removed NRFI asset in preparation for its eventual reinstallation on another ship. There will be no charge to the requisitioner when requisitioning 2/4/6-Cog material.

c. Note that the funding responsibility for removal, shipment, reinstallation and any required testing by the overhauling activity shall be borne by the activity (the customer) authorizing the work.

12. Responsibilities. The functions, assignments, and responsibilities assigned to all activities concerned with AERP (Surface) are identified below:

a. NAVSEA 91

(1) Program management, including program development, implementation, performance evaluation and coordination.

(2) AERP (Surface) procedures.

(3) POM/FYDP/Budget input coordination.

(4) Release approval for HSC 2/4/6-Cog items.

(5) Approve AERP (Surface) candidate recommendations, and approve removal of an item from AERP (Surface) if support is no longer required.

(6) Establish ship class priorities to achieve early full implementation on a small number of ship classes.

(7) Determine equipment funding priorities.

(8) Notify concerned activities that AERP (Surface) assets are available.

(9) Coordinate decision to divert AERP (Surface) assets from a scheduled availability to correct a CASREP (C-3 or C-4 only). The cognizant Ships Logistics Manager (SLM) will provide approval.

d. NAVSUP

(1) Coordinate Inventory Control Point (ICP) and stocking activity participation in the AERP (Surface) program.

(2) Support NSF AERP (Surface) budget requirements.

e. SEA 07 is responsible for coordinating industrial activity participation in the AERP (Surface) program.

f. Naval Shipyards (NAVSHIPYDs) and Supervisors of Shipbuilding, Conversion and Repair (SUPSHIPs)

(1) When a changeout is tasked in the SRA or PMA work package, requisition AERP (Surface) material per paragraph 10 of this instruction.

(2) Receive, store, and utilize the AERP (Surface) material as GFE for the scheduled SRA or PMA.

(3) Ensure AERP (Surface) material is inspected as soon as possible after receipt to verify the configuration.

(4) Provide equipment requisition status to the TYCOM, so a decision can be made if the equipment will not be available prior to the start of the SRA or PMA. Notify NAVSEA 91L and the associated PERA of the requisition status.

g. Hardware Systems Command Program Managers for Depot Maintenance (SEA 0715 and COMSPAWARSYSCOM) are responsible for coordinating DOP participation in the AERP (Surface) program including:

(1) Certification and designation of interim and permanent DOPs for all AERP (Surface) items.

(2) Requiring DOPs to report the "as found" condition of AERP (Surface) items undergoing overhaul.

h. Ship Logistics Managers (SLMs) (SEA 931/912/913/914/PMS 400F)

(1) Initiate AERP (Surface) candidate recommendations if equipment is needed to support a maintenance availability, and recommend removal of an item from AERP (Surface) if support is no longer required.

(2) Provide platform (Ship Class) engineering coordination, configuration control and liaison with HSC and ICP inventory managers for 2/4/6-Cog and 7-Cog items, respectively.

(3) Coordinate with PERAs to include AERP (Surface) changeouts in SRA and PMA task statements and planning documents.

(4) Approve decision to divert AERP (Surface) assets from a scheduled availability to correct a CASREP (C-3 or C-4 only).

(d)   Repair management of assets to ensure correctly-configured RFI equipment is available for changeout. Equipment overhaul or refurbishment will be in accordance with applicable repair specifications. Monitor the quality of the repairs.

(e)   Budget APA funds for AERP (Surface) procurement of 2/4/6-Cog items.

(f)   Budget available O&MN funds to maintain the optimal amount of AERP (Surface) equipment in RFI condition.

(g)   Provide material availability, identification, and configuration data to PERAs for inclusion in SARP work package material availability notifications.

(h)   Initiate action to catalog, recatalog and technical code all AERP (Surface) designated items as necessary; also obtain NSNs for new AERP (Surface) material.

(i)   Notify SEA 91 when a requisition for a 2/4/6-Cog AERP (Surface) asset is received.

(j)   Timely notification of material availability to requisitioning activity.

j.   SEA 06

(1)   Equipment Life Cycle Managers (LCMs):

(a)   Review AERP (Surface) candidates to preclude investment in components that are scheduled for general removal from service.

(b)   Equipment engineering coordination with HSC and ICP inventory managers in developing design specifications to ensure newly procured AERP (Surface) assets reflect the same configuration as installed equipment.

(c)   Approve procurement specifications and design specifications for AERP (Surface) items.

(d)   Ensure all ILS elements are applied to AERP (Surface) equipment when procured.

(e)   Item candidate recommendations, including item-by-item cost tradeoff analyses, assembly or next higher assembly tradeoff analyses, and criticality validation analyses.

(f)   MCTBO and TAT determinations and updates.

(g)   IO computations.

k. COMSPAWARSYSCOM (SPAWAR)

(1) Equipment Life Cycle Managers (LCMs):

(a) Review AERP (Surface) candidates to preclude investment in components that are scheduled for general removal from service.

(b) Equipment engineering coordination with HSC and ICP inventory managers in the development of design specifications to ensure newly procured AERP (Surface) assets reflect the same configuration as installed equipment.

(c) Approve procurement specifications and repair specifications for AERP (Surface) items.

(d) Ensure all ILS elements are applied to AERP (Surface) change-out equipment.

(e) Item candidate recommendations, including item-by-item cost tradeoff analyses, assembly or next higher assembly tradeoff analyses, and criticality validation analyses.

(f) MCTBO and TAT determinations and updates.

(g) IO computations.

(h) Maintain an AERP (Surface) Changeout History, including "As Found" Condition Reports from DOPs.

(i) Reserve AERP (Surface) material for use only during maintenance availabilities when equipment refurbishment TAT approaches or exceeds the scheduled ship availability duration.

(j) Participate in decision to divert AERP (Surface) assets from a scheduled availability to correct a CASREP (C-3 or C-4 only).

(k) Monitor the budget line for SPAWAR cognizance AERP (Surface) equipment to detect changes to the funding level. Tell SEA 91L of changes.

(2) Inventory Managers (IMs):

(a) Material support and configuration control liaison with LCMs and SLMs.

(b) Maintain the equipment configuration of AERP (Surface) assets to reflect the configuration for shipboard assets.

(c) Ensure that AERP (Surface) equipment shipped in response to a requisition matches both the requisition data and the configuration of the installed equipment.

(g) Budget NSF funds to maintain the optimal amount of AERP (Surface) equipment in RFI condition.

(h) Ensure procurement specifications for 7-Cog items are sufficient to maintain existing equipment configuration, through liaison with the cognizant inventory manager.

(2) <u>Inventory Managers (IMs)</u>:

(a) Material support and configuration control liaison with LCMs and SLMs, including assisting the LCMs with the development of design specifications to ensure newly procured equipment has the same configuration as the installed equipment.

(b) Maintain the equipment configuration of AERP (Surface) assets to reflect the configuration of shipboard assets.

(c) Ensure that AERP (Surface) equipment shipped in response to a requisition matches both the requisition data and the configuration of the installed equipment.

(d) Repair management of assets to ensure correctly-configured RFI equipment is available for changeout. Equipment overhaul or refurbishment will be in accordance with applicable repair specifications. Monitor the quality of repairs.

(e) Provide material availability, identification, and configuration data to PERAs for inclusion in SARP work package material availability notifications.

(f) Initiate action to catalog, recatalog and technical code all AERP (Surface) designated items as necessary, including obtaining NSNs for new AERP (Surface) material.

(g) Notify SPCC 0341 when a requisition for a 7-Cog AERP (Surface) asset is received.

(h) Timely notification of material availability to requisitioning activity.

(i) Notify SPCC 0341 when there is a procurement of an AERP (Surface) asset pending.

m. <u>Ship's Force</u> is responsible for the identification or verification of configuration of on-board equipment (including field changes/ORDALTS/MACHALTS), when required. See paragraph 12c(3).

AERP (SURFACE) EQUIPMENT CANDIDATE NOMINATION FORM

From: _____
To: Commander, Naval Sea Systems Command (SEA 91L)

Subj: AERP (SURFACE) EQUIPMENT CANDIDATE NOMINATION

Ref: (a) NAVSEAINST 4490.1 of 24 October 1986

1. The following information is provided for the analysis of the listed equip-
ment. This equipment is considered a valid AERP (Surface) candidate for the
reasons listed, and in accordance with paragraph 7 of reference (a).

2. Equipment Data

    Nomenclature:_____

    Equipment Allowance Parts List (APL) Number:_____

    Service Application or Next Higher Assembly Name:_____

    Manufacturer (with Federal Supply Code for Manufacturers (FSCM)):_____

    _____

    COG/NSN: _____Part Number:_____

    Source, Maintenance and Recoverability (SM&R) Code:_____

    DOP (Interim/Final):_____TAT:_____(mos.) MCTBO:_____(mos.)

    Unit Price ($):_____Net Price ($):_____

    Replace Price ($):_____Repair Price ($):_____

    Technical Repair Standard (TRS):_____Tech Manual #:_____

3. Overhaul Data

    Ship Class:_____Qty Hulls:_____Equip/Ship:_____

    SRA or PMA Cycle:_____SRA or PMA Duration:_____

    Allowed Off-ship Time:_____(mos.) Overhaul-in-place comparison:_____(mos.)

4. Comments (Use reverse if necessary)

    _____

AERP (SURFACE) REQUISITION DATA FIELD ENTRIES

Mandatory Data Field Entries are Denoted by a "*"

FIELD	CC	ENTRY	COMMENTS
Document Identifier	1-3	* AOE	Requisition with exception data
Routing Identifier	4-6	NNZ	Routing identifier of nearest NSC
Media & Status Code	7	S	"S" provides "100% supply status plus shipment status to requisitioner by AUTODIN." If the requisitioning activity is not equipped with AUTODIN gear, the activity's "normal" requisitioning Media & Status code will be used
NSN	8-22	4320010261871	NSN of AERP (Surface) item (spelled out in message)
Unit of Issue	23-24	EA	Unit of Issue of item
Quantity	25-29	00001	Quantity required (spelled out in message)
Document Number			
Service Code	30	N	"N" for shore activities
Requisitioner's UIC	31-35	00151	UIC of Planning activity/ Requisitioner
Julian Date	36-39	6147	Date of requisition
Serial Number	40-43	0001	Never duplicated on the same day
Demand Code	44	* R	"R" for recurring demand
Supplementary Address	45-50	YF1084	"Y" in CC45 indicates that the supp. add. is for local use – To be assigned by requisitioner per local guidelines

SAMPLE AERP (SURFACE) MESSAGE REQUISITION

JOINT MESSAGEFORM				SECURITY CLASSIFICATION UNCLASSIFIED				
PAGE	DTG/RELEASED TIME		PRECEDENCE	CLASS	SPECAT	LMF	CIC	ORIG/MSG ID(N)
	DATE-TIME	MONTH · YR	ACT · INFO					
01 · 01			RR ·	UUUU		TT	ZYUW	

ADMIN | MESSAGE HANDLING INSTRUCTIONS

```
      FROM: NAVSHIPYD PHILADELPHIA PA

        TO: NSC NORFOLK VA

      INFO COMNAVSURFLANT NORFOLK VA

           COMNAVSUPSYSCOM WASHINGTON DC

           COMNAVSEASYSCOM WASHINGTON DC

           SPCC MECHANICSBURG PA

           PERA PHILADELPHIA PA

UNCLAS //N04235//

SUBJ: AERP MILSTRIP REQN

1. SURFLANT FOR N43A, NAVSUP FOR 0321A1, SPCC FOR 0341,  ⎫
                                                          ⎬  *
PERA FOR 1820, NAVSEA FOR 91L, 913                        ⎭

2. AOE/NNZ/S/FOUR THREE TWO ZERO ZERO ONE ZERO TWO SIX ONE EIGHT

SEVEN ONE/EA/ZERO ZERO ZERO ZERO ONE/N00151/6147/0001/R/YF1084

A/K9/BLNK7H/6XP/15/BLNK/SG/19600.00

ALTHOUGH MATERIAL HAS AN ASSIGNED NSN, REQUIRED MATERIAL MUST MATCH

IDENTIFICATION DATA.  IDENTIFICATION DATA:  APL: 016210325, FSCM:

10613, PART NO: 99DSD-02 ADDITIONAL ADVICE CODE: 2B, "REQUESTED ITEM

ONLY WILL SUFFICE.  DO NOT SUBSTITUTE/INTERCHANGE."
```

* Note — Only one of the NAVSEA SLM codes will be listed as an information
addressee on the requisition message. They are identified as:

    SEA 912 — Aircraft Carriers
    SEA 913 — Surface Combatants (except gas turbine ships)
    SEA 914 — Surface Combatants (gas turbine ships)
    SEA 931 — Amphibious and Combat Support ships
    PMS 400F — AEGIS ships

The appropriate information addressee codes for the TYCOMS and PERAS are:

	ACTIVITY	INFORMATION ADDRESSEE CODE
TYCOMs	COMNAVSURFLANT NORFOLK VA	SURFLANT FOR N43A
	COMNAVSURFPAC SAN DIEGO CA	SURFPAC FOR N42
	COMNAVAIRPAC SAN DIEGO CA	AIRPAC FOR 732
	COMNAVAIRLANT NORFOLK VA	AIRLANT FOR 513.1
PERAs	PERA PHILADELPHIA PA	PERA FOR 1820
	PERA SAN FRANCISCO CA	PERA FOR 1840.1
	PERA NORFOLK VA	PERA FOR 1863
	PERA BREMERTON WA	PERA FOR 1842