DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20350

21 September 1976

MEMORANDUM FOR THE SECRETARY OF DEFENSE

Subj: PHM

Naval Sea Systems Command has been proceeding toward a target date of 22 September 1977 for award of the PHM contract. I intend to delay the decision on the award for approximately two weeks, within which time I will be able to have the proposed contract analyzed in more detail than has been possible to date by ASN Hidalgo.

The target date itself is not imposed upon us by any direction or statutory or regulatory requirement--it is a date of convenience. Nonetheless, the date is well known around the Department of Defense, as well as outside the Department, and our failure to make that date can be expected to occasion a number of inquiries from Congress and the press.

I do not intend, however, to delay our decision much beyond October 1, 1977, for a number of reasons:

1. Earlier this summer, the President forwarded a rescission message to the Congress concerning the PHM program. Once it became clear to us that the bill would not be cleared by the appropriate committee, the message was withdrawn. Section 1402 of Title 31 of the United States Code requires that, now that rescission has not been granted by the Congress, the funds be made available for obligation. Other provisions of Title 31 authorize the Comptroller General to report to the Congress if we do not comply with the obligation to make the funds available and--if he deems it appropriate--to bring suit against the Department if an appropriate Federal court.

2. Thirty days ago, the Department of Defense reported to the Congress concerning its planned award of the PHM contract. These reports are required under 10 U.S.C. section 139(b). Under that provision, the contract may not be awarded prior to 30 days after the date of our report to Congress or later than 90 days of our report. We have, thus, entered a 60-day "window" during which time we may make the award of the PHM contract. If we fail to do so within the next 60 days (i.e., before the expiration of 90 days since our report to Congress), no contract award may be made until a new report has been submitted and an addition 30 days has passed.

3. If contract signing is delayed significantly, escalation may increase the price that will have to be paid for these ships. I do not believe that the proposed delay of about two weeks will have this effect, but that cannot be stated with certainty. This is, however, a reason for not delaying the execution of contracts significantly more than this, and I shall make every effort to complete our contract review within that period.

W. Graham Clayton, Jr.

Copy to:
DEPSECDEF
CNO

cc: (blind)
UNSECNAV
ASN(MRA&L)
OGC
CNM

ROUTE SHEET AND OFFICE MEMO

NAVSEA 5216/30 (5-74) (Do Not Detach From Official Correspondence; Write/Print Legibly Or Type)

ORIGINATOR (Signature)	CODE	ROOM	TEL. EXT.	DATE
Sarah L Kennedy	0223		21600	8/1/77

• INDICATE ROUTING PURPOSE BY NUMBER(S): 1. ACTION 2. COMMENT 3. CONCUR 4. FILE 5. FORWARD 6. INFO 7. PREPARE REPLY 8. RETENTION 9. RETURN 10. SIGNATURE 11.

TO CODE	• PURPOSE	RELEASED DATE	RELEASED INITIALS	SUBJECT: PHM Position Paper
0223		8/1/77	JL	DATE AND SIGN COMMENTS WITH NAME, CODE AND TELEPHONE EXT. — DEADLINE DATE (Fill-in When Required)
PMS 303		8/1/77	SK	COMMENTS: This Position Paper was prepared
022				at the request of Mr. E. Bisiacchi,
				MAT 08 in a telephone conversation
				with Mr. R.G. Ross, SEA 0223, on 1 August
				1977.
(Last)				

FILE NO.

(Use Reverse Side If More Comment Space Is Required)

022(r)

Position Paper

Prep. by: Sarah K. Lamade
Code: SEA 0223 Ext.: 27600
Date: 1 August 1977

SUBJECT: PHM Production Contract

BACKGROUND: Agreement was reached on 24 February, 1977 with The Boeing Company on terms and conditions and a pricing structure for a five (5) ship PHM production contract. The pricing arrangement consisted of the following:

Target Cost:	$158,558,000.00	Sharing Ratio
Target Profit:	19,442,000.00(12.26%)	70/30 underrun
Target Price:	178,000,000.00	85/15 overrun

Ceiling: $219,224,000.00 (138.26%)

MAT 022 approved the Post-Negotiation Business Clearance on 7 March 1977.

Subsequent to approval of the Business Clearance, the President requested the Congress to recind PHM production funds. The drop dead date for recision was 22 July 1977, which passed without Congressional action.

CURRENT STATUS: Due to the lack of Congressional action, NAVSEA has initiated various actions in order to permit award of the production contract. A reprogramming action has been requested in an amount of $13.2 million, which is required for additional costs of government furnished equipment ($5.4 million) and contract escalation due to delay in award from February 1977 to September, 1977 ($7.8 million). Pending completion of the Congressional action on the reprogramming, release of the PHM funds has been requested no later than mid-August 1977, in order to permit award of the contract.

In addition to the actions outlined above, the Boeing Company was requested to reconfirm their price. This confirmation has been received.

The Contracts Directorate is preparing the contract for execution. Since the Federal Republic of Germany has formally announced that it will not proceed with the production program, the NATO related clauses are being removed from the contract. However, a clause will be inserted which will allow for reinstitution of these clauses, should the FRG reverse its decision.

The 506 Report, notifying Congress of our intent to award a production contract has been forwarded to NAVCOMP.

The NAVSEA Office of Counsel has advised that the Certificate of Current Cost or Pricing Data received from the Contractor on 24 February 1977, is sufficient for a September, 1977 award.

NAVSEA OIG, the Cost Estimating and Analysis Division performed a review of the production hours negotiated, and have advised that the quantity of hours are sufficient for a five ship stand alone program.

The AFPRO overhead analyst has advised that there should be no major increase in the Contractor's overhead rate.

PROBLEMS: 1. Obtain release of PHM production funds

2. Pass thirty day requirement for Congressional notification.

3. Obtain approval of ASN (M, RA & L) for construction of PHM's.

4. Issue Public Release Notice.

CONCLUSIONS: Subsequent to release of PHM production funds, and passing the minimum thirty day requirement for Congressional notification of the impending award, a contract could be awarded within less than one week.

Briefing Paper

Prep. by: Sarah K. Lamade
Code: SEA 0223 Ext: 27600
Date: 21 September 1977

SUBJECT: PHM Production Contract

APP: 146-76 approved by NAVMAT on 29 October 1976

Negotiation Authority: 10 U.S.C. 2304(a)(14) by NAVSEA D&F Number 76-460, approved by ASN(I&L) on 9 March 1976

Completion of Negotiation: 24 February 1977

Post Negotiation Business Clearance Approval: 7 March 1977
Supplemental Business Clearance Approval : 15 September 1977

Supplies/Delivery Dates:

Ship	Delivery Date	(Assume 30Sept77 award)
PHM 3	40 MAC	Feb 81
PHM 4	42 MAC	Apr 81
PHM 5	48 MAC	Oct 81
PHM 6(unweaponized test	51 MAC	Jan 82
PHM 2 vehicle)	53 MAC	Mar 82

Pricing Structure:

Target Cost:	$158,558,000.00	
Target Profit:	19,442,000.00	(12.26%)
Target Price:	$178,000,000.00	
Ceiling Price:	$219,224,000.00	(138.26%)

Sharing Ratio: 70/30 underrun
85/15 overrun

Pricing Risk:

A possible pricing risk exists due to the German election not to proceed with a production program and due to recently revised Jetfoil sales projections. This could adversely affect Boeing's overhead rate. The Navy position during negotiation was based on inclusion of 50% of the German business base hours in the overhead rate plus Boeing's commercial (Jetfoil) hydrofoil projected production hours. The original and revised Jetfoil sales plans are as follows:

	1977	78	79	80	81	
Original	4	3	6	10	13	= 36
Revised	3	3	4	8	10	= 28

A decrease of 25% of the original base (build 26) was estimated to have a $1.8 million dollar total increase.

On the positive side the Boeing Marine Division overhead structure is more variable than many firms, which provides the ability to control overhead. In addition, the impact of the lack of the German and Jetfoil base hours would not be felt until the out years of the program, which provides time to counteract the possible effects.

Escalation Clause:

Base Month: March 1976 for labor and material; 1976 for fringe benefit escalation.

Indexes: Material Index: Index for Steel Vessel
Labor Index: Average Hourly Earnings for Non-Supervisory Production Worker - Aircraft Industry SIC 3721

Fringe Benefit Index: Actual, allowable, average direct labor fringe benefit rate.

Other features: Standard

Unique Special Clauses:

1. Note B: The note in Section E acknowledges that the contract price includes installation, integration and testing of five (5) weapon suites of GFE, although Schedule A provides for only four. It provides for an equitable adjustment of the contract price if the Government elects not to provide a fifth weapons suite of GFE. The Government must notify the contractc of its intent by 30 September 1978. This note was included due to the SECDEF decision to deny the reprogramming request of $13.2, and the subsequent Navy election to delete one weapons suite of GFE in order to proceed with the program. Utilization of this clause was approved by NAVMAT on 15 September 1977.

2. Treatment of Certain Controverted Costs for Washington State and Local Taxes - this clause provides for a maximum potential liability on the part of the Government of $2,001,720.00, should Boeing receive a favorable decision from the ASBCA or the Courts, on a contested method of allocating certain taxes across the divisions of the Boeing Company. The ASBCA has ruled against the Contractor, and is currently reconsidering the case. In the opinion of legal counsel the Government should ultimately receive a favorable decision.

3. Transfer and Use of Residual Inventory - This clause transfers certain PHM-1 residual inventory for use on the production contract. The negotiated price included a credit for Boeing's use of this inventory.

4. NATO Design Stage Levy Clause - Several clauses establish Boeing's liabiltiy to reimburse the NATO Participatory Governments for non-recurring costs incurred during the design stage of the PHM Program. This is in accordance with the Memorandum of Understanding covering the design stage of the PHM.

[illegible] Marine Systems

[illegible], Washington 98124

A Division of The Boeing Company

September 23, 1977
B-1100-1000-105

To: Commander
Naval Sea Systems Command
Washington, D.C. 20362

Attention: S. E. Lasade - SEA-0223

Subject: Contract N00024-77-C-2051
Confirmation of Negotiated Contract

Reference: Boeing letter B-1100-1000-089 dated July 27, 1977

1. We have been requested to extend beyond September 30, 1977, the period of our commitment to the negotiated settlement of Contract N00024-77-C-2051 reached on February 24, 1977, in order to permit further review of the contract by the Assistant Secretary of the Navy-RDA.

2. Because of the extensive background of negotiation and review relative to the contract, we believe it should be possible to complete a management review of the contract in a matter of a few days. We will be immediately available to resolve any contractual issues that may arise as a result of the review. We understand that the review will begin on September 26, 1977. In view of the foregoing, we see no basis for extending our offer beyond September 30, 1977.

BOEING MARINE SYSTEMS
A Division of The Boeing Company

R. J. Tucker
Contracts Manager
FBM Programs

cc: AFPRO

Boeing Marine Systems (BMS) Proposal History

	Original BMS Proposal	AFPRO TAR DCAA Audit	BMS 2/8/77 Offer	BMS Final Formal Offer	Negotiated
Total MHs	3,433,430	2,954,448	3,420,930	2/22/77	
Deescalated L/OH $	101,055,755	79,213,701	97,326,051		
Deescalated Mat'l $	79,084,540	74,782,552	82,225,702		
Deescalated CAS 414	2,240,600	2,144,619	1,709,831		
TC	182,380,895	156,140,872	181,261,584	160,000,000	158,558,000
Profit	19,798,277		19,682,959	19,200,000	19,442,000
TP	202,179,182		200,944,543	179,200,000	178,000,000
CP	264,430,136		262,829,290	232,000,000	219,124,000
Profit %	10.8		10.8	12%	12.26
CP %	145%		145%	145%	138.25%
Sharing Above	90/10		90/10	90/10	85/15
Sharing Below	90/10		90/10	90/10	70/30

4860

PN 5389, 3 M
1 G W

DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
PERA (CRU-DES)
c/o PHILADELPHIA NAVAL SHIPYARD
PHILADELPHIA, PENNSYLVANIA 19112

IN REPLY REFER TO

Code 1860-0616 (CC)
PHM C1

17 MAR 1983

From: Officer in Charge, PERA (CRUDES)
To: Commander, Naval Sea Systems Command (PMS 389)
Commander, Naval Surface Force, U.S. Atlantic Fleet (N4, N42, N412, N7)
Commander, Patrol Combatant Missile Hydrofoil Squadron, Trumbo Point Annex, Naval Air Station, Key West, FL 33040
Officer in Charge Mobile Logistic Support Group, Trumbo Point Annex, Naval Air Station, Key West, FL 33040

Subj: PHM-5 CMP Validation, Boeing Supply Facility Inspection; Report of

Ref: (a) OIC, PERA (CRUDES) ltr Code 1860-3819 (CC) dtd 6 Dec 83
(b) PERA (CRUDES) - NAVSEA (PMS 389); meeting of 4 Jan 83
(c) OIC, PERA (CRUDES) ltr Code 1830.3-0525 (JFB) dtd 8 March 83

Encl: (1) PHM Class Availability Planning Schedule

1. During the period 5 Feb 83 through 17 Feb 83, PERA (CRUDES) personnel conducted an on-board verification of the equipment installed aboard USS ARIES (PHM 5) and compared that data to the configuration in the PHM Class Maintenance Plan (CMP). No major discrepancies were found between the CMP and ship's configuration. As a result, it is recommended that no future on board validations be undertaken on the remaining ships of the class (PHM 2,4,6).

2. PERA (CRUDES) also discussed IMAV/SRA Planning and the necessity for completion information to be submitted as soon as possible upon conclusion of an availability. COMPHMRON TWO agreed and assured PERA (CRUDES) that each ship would be briefed concerning the timely submission of completion data to the squadron 3M Coordinator. In turn, the 3M Coordinator will send a copy of completion information both to PERA (CRUDES) and SIMA Mayport for entry into the ship's CSMP. PERA (CRUDES) delivered the work package for IMAV #1 for the USS PEGASUS (PHM 1) which was explained and discussed with COMPHMRON TWO, and with PHMRON TWO MLSG. IMAV #1 is currently scheduled for 1 April 83 to 15 April 83. PERA (CRUDES) personnel will participate in the accomplishment of IMAV #1 to ensure its successful completion. Reference (a) addressed mandatory consumables needed by the MLSG for IMAV #1 and additional Boeing mandatory material needed for IMAV #1. It was resolved that the MLSG would provide all necessary consumable material, and that Boeing would obtain the additional mandatory material in time to support IMAV #1.

3. During this period, representatives of PERA and NAVSEA PMS 389 inspected the Boeing-managed supply facility at Key West (reference (b) pertains). It was found that Boeing has obtained all material needed for IMAV #1 for PHM-1. Boeing now has 31 out of 40 required line items for IMAV #2 and they indicated that all remaining mandatory material for IMAV #2 would be available prior to availability

start. NAVSEA PMS 389 and PERA (CRUDES) representatives inspected Boeing's storeroom and identified problems with material packing and storage. Some items were packed in bulk quantities when the required quantity for each availability was small. After issue of the first few items from the bulk storage, the remaining items could deteriorate prior to use. Additionally, the damp environment at the storage facility was beginning to cause corrosion on some metallic items. NAVSEA PMS 389 will work with Boeing to resolve these problems (reference (c) pertains).

4. PERA (CRUDES) presented a manning chart that showed the average and peak manpower requirements at the MLSG for IMAV #1 through IMAV #28. The chart showed manning requirements for both CMP tasks and anticipated corrective maintenance estimates. The manpower required for each CMP task included allowances for planning and estimating and supply personnel. The corrective maintenance estimates, taken from ASSIST-reported 3M data, included allowances for CASREP repairs. Manpower required for supervision and to support MLSG-accomplished PMS is not included. The average manpower required for each IMAV (CMP and corrective maintenance) is 75 men per day. The MLSG/Squadron indicated that an average of 23 men per day is required to accomplish PMS. The total required IMAV manning would become 75 + 23 or 98 men per day. Assuming 10% for supervision, the MLSG would have to commit 108 men per day for each IMAV. It is believed that initially this poses no problem, but when all ships are operational the manning situation at the MLSG should be carefully reviewed to ensure sufficient personnel are available to support CMP requirements.

5. PSA dates of PHM 2 and PHM 5 were rescheduled which caused the Availability Planning Schedule for the PHM Class to be revised. The revised schedule, agreed upon by COMPHMRON TWO and PERA (CRUDES) is forwarded as enclosure (1). This schedule has IMAVs overlapping in two places, PHM 1 IMAV #8 overlapping with PHM 6 IMAV #7 and PHM 3 IMAV #7 overlapping with PHM 4 IMAV #8. However, since this does not occur until May of 1985 and the schedule still continues to change, no action is currently required.

John Seraydarian

JOHN SERAYDARIAN
By direction

PHM CLASS - AVAILABILITY PLANNING SCHEDULE

	I1	I2	I3	I4	I5	I6	I7	SRA 1	I8	I9	I10	I11	I12	I13	I14	SRA 2
PHM 1	1 Apr 83	1 Jul 83	1 Oct 83	1 Jan 84	1 Apr 84	1 Jul 84	1 Oct 84	1 Jan 85	15 May 85	15 Aug 85	15 Nov 85	15 Feb 86	15 May 86	15 Aug 86	15 Nov 86	15 Dec 87
2	1 Feb 84	1May 84	1 Aug 84	1 Nov 84	1 Feb 85	1 May 85	1 Aug 85	1 Nov 86	15 Mar 86	15 Jun 86	15 Sep 86	15 Dec 86	15 Mar 87	15 Jun 87	15 Sep 87	15 Feb 87
3	1 Jun 83	1 Sep 83	1 Dec 83	1 Mar 84	1 Jun 84	1 Sep 84	1 Dec 84	1 Mar 85	15 Jul 85	15 Oct 85	15 Jan 86	15 Apr 86	15 Jul 86	15 Oct 86	15 Jan 87	15 Apr 87
4	15 Jun 83	15 Sep 83	15 Dec 83	15 Mar 84	15 Jun 84	15 Sep 84	15 Dec 84	15 Mar 85	1 Aug 85	1 Nov 85	1 Feb 86	1 May 86	1 Aug 86	1 Nov 86	1 Feb 87	1 May 87
5	15 Jul 83	15 Aug 83	15 Jan 84	15 Apr 84	15 Jul 84	15 Oct 84	15 Jan 85	15 Apr 85	1 Sep 85	1 Dec 85	1 Mar 86	1 Jun 86	1 Sep 86	1 Dec 86	1 Mar 87	1 Jun 87
6	15 Nov 83	15 Feb 84	15 May 84	15 Aug 84	15 Nov 84	15 Feb 85	15 May 85	15 Aug 85	1 Jan 86	1 Apr 86	1 Jul 86	1 Oct 86	1 Jan 87	1 Apr 87	1 Jul 87	1 Oct 87

Enclosure (1) to PERA (CRUDES) ltr Code 1860-0616 (CC)

SRD schedule need work!

ISA

Boeing Aerospace Operations, Inc.
P.O. Box 3999
Seattle, WA 98124-2499

17 July 1991
W-7800-AFH-881

Commander
Naval Sea Systems Command
Attn: Code PMS 330C1, S. Torres
Department of the Navy
Washington, D.C. 20362-5101

Subject: Class Advisories, Review for Applicability, ISEA Task TP #108

References: CDRL No. 013, Attachment B, ISEA Technical Problem List.

1. The purpose of this letter is to transmit BAO's comments and recommendations on PHM Class Advisory applicability resulting from the subject review.

2. The following are recommendations relating to the various Ship Advisories. Enclosure (1) is a tabular summary of these recommendations.

a. The following Advisories can be cancelled as the information has been incorporated in the SOOMM. 01-83, 12-83, 14-83, 10-84, 15-84, 18-84, 19-84, 04-85, 05-85, 04-86, 01-87 and 02-90.

b. Advisories 04-83, 07-83M1, 02-84, 03-84 and 02-86 can be cancelled if the requested data has been incorporated in the General Electric LM 2500 Technical Manuals.

c. Advisory 10-85 can be cancelled. PMS currently inspects for evidence of potential failure (MCR E 60/12, Q-3, dated 10/89).

d. Advisory 05-86 can be cancelled. A new coupling was installed eliminating the problem.

e. Advisory 02-87 can be cancelled. Required Signs and Stripes have been installed.

f. Advisory 03-83 can be cancelled. Drawings have been modified to correct problem.

g. Advisory 05-83M1 can be cancelled. Information has been incorporated in MIP E60/12-62.

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h. Advisory 06-85 can be cancelled. Information has been incorporated in PMS.

i. Advisory 03A-85 can be cancelled. Data requiring the use of B & B 3100 on both F/B Turbine and SSPU is in the SOOMM.

j. Advisories 04-84 and 13-84 have been incorporated in the SOOMM. They can be cancelled if the data is incorporated in the EOSS.

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k. Advisory 16-84 can be cancelled if data has been incorporated by NOSL.

l. Advisory 08-85 can be cancelled if EMI installation, testing and formal documentation addressing topside bonding and cabling of cables and waveguides has been completed. See NAVSEA Drawing 806-6215591, "Topside EMI Control Booklet for PHM Class Ships"

m. Advisory 03-87 can be cancelled if data has been incorporated in the CMP.

n. Advisories 15-83 and 05-87 can be cancelled pending incorporation of data into SOOMM and EOSS.

o. Advisory 10-83 can be cancelled upon issuance of detailed FPT/Economy test requirements.

p. Advisory 07-85 although it has no impact on technical publications should remain active as a safety reminder.

q. Advisory 09-85 should remain active until incorporation of S/A 127.

r. Advisory 01-88 should remain active until incorporation of S/A 129.

s. Advisories 06-83M1 and 02-85 should remain open indefinitely.

t. Advisory 02-88 could be cancelled if data is incorporated in the EOSS (MHFO/0005/0385).

u. Advisories 11-83, 13-83 and 06=84 can be cancelled pending to incorporation of data into SOOMM. NAVSEA tasking is required.

3. Enclosure (2)is the PHM Class Advisory Index updated from the 04/01/85 version. A copy of the file, ADVIND.WK1, is provided on the enclosed diskette. It was created on Lotus 123, Version 2.2, IBM compatible. Some data is missing in that it is not available within the text of the advisories. BAO ISEA can, if tasked, maintain this index.

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4. This completes Boeing ISEA action on Reference (c), Technical Problem 108. Technical focal point for the above is Mr. David Olling, phone (206) 477-4188.

A. F. Hixenbaugh
PHM Program Manager
Aircraft and Marine Operations-Seattle
Org. W-7800, M/S 6K-61
Phone (206) 393-3432

Enclosures: (1) Recommendation Summary
(2) PHM Class Advisory Index

cc: Supervisor of Shipbuilding
Conversion and Repair, USN
Attn: Code 415, G. M. Wing
7500 Sand Point Way N.E.
Seattle, WA 98115-5003

Commander
Naval Sea Systems Command
Attn: Code PMS 330C11, M. Arkwright
Department of the Navy
Washington, D.C. 20362-5101

Commander
Naval Surface Forces
U.S. Atlantic Fleet
Attn: Code N4125C, D. Wieland
Norfolk, VA 23511

Commanding Officer
COMPHMRON 2
Attn: Capt. Berning
Trumbo Point Annex
NAS Key West, FL 33040-6300

Boeing Aircraft & Marine Operations
Attn: P. E. Weston
P.O. Box 1009
Key West, FL 33041-1009

ADVISOR NUMBER	STATUS	BAO RECOMMENDATION/REASON
01-83		CANCEL, DATA INCORPORATED IN SOOMM
02-83	CANCELLED	
03-83		CANCEL, DWGS MODIFIED TO CORRECT PROBLEM
04-83		CANCEL IF DATA HAS BEEN INCORPORATED IN LM 2500 TECHNICAL MANUAL
05-83	CANCELLED	
05-83M1		CANCEL, DATA HAS BEEN INCORPORATED IN MIP E60/12-62
06-83	CANCELLED	
06-83M1		SHOULD REMAIN OPEN INDEFINATELY
07-83	CANCELLED	
07-83M1		CANCEL IF DATA HAS BEEN INCORPORATED IN LM 2500 TECHNICAL MANUAL
08-83	CANCELLED	
09-83	CANCELLED	
10-83		CAN BE CANCELLED ON RELEASE OF FPT/ECONOMY TRIALS REQUIREMENTS
11-83		CAN BE CANCELLED PENDING NAVSEA TASKING TO INCORPORATE DATA INTO SO
12-83		CANCEL, DATA INCORPORATED IN SOOMM
13-83		CAN BE CANCELLED PENDING NAVSEA TASKING TO INCORPORATE DATA INTO SO
14-83		CANCEL, DATA INCORPORATED IN SOOMM
15-83		CANCEL, DATA INCORPORATED IN SOOMM AND EOSS
16-83	CANCELLED	
17-83	CANCELLED	
18-83	CANCELLED	
01-84	CANCELLED	
02-84		CANCEL IF DATA HAS BEEN INCORPORATED IN LM 2500 TECHNICAL MANUAL
03-84		CANCEL IF DATA HAS BEEN INCORPORATED IN LM 2500 TECHNICAL MANUAL
04-84		DATA INCORPORATED IN SOOMM. CANCEL IF DATA IS INCORPORATED IN EEOS.
05-84	CANCELLED	
06-84		CAN BE CANCELLED PENDING NAVSEA TASKING TO INCORPORATE DATA INTO SO
07-84	CANCELLED	
08-84	CANCELLED	
09-84	CANCELLED	
10-84		CANCEL, DATA INCORPORATED IN SOOMM
11-84	CANCELLED	
12-84	CANCELLED	
13-84		DATA INCORPORATED IN SOOMM. CANCEL IF DATA IS INCORPORATED IN EEOS.
14-84	CANCELLED	
15-84		CANCEL, DATA INCORPORATED IN SOOMM
16-84		CAN BE CANCELLED IF DATA HAS BEEN INCORPORATED BY NOSL
17-84	CANCELLED	
18-84		CANCEL, DATA INCORPORATED IN SOOMM
19-84		CANCEL, DATA INCORPORATED IN SOOMM

ADVISOR NUMBER	STATUS	BAO RECOMMENDATION/REASON
20-84	CANCELLED	
21-84	CANCELLED	
22-84	CANCELLED	
01-85	CANCELLED	
02-85		SHOULD REMAIN OPEN INDEFINATELY
03-85	CANCELLED	
03A-85		CANCEL, DATA REQUIRING USE OF B&B 3100 IS IN SOOMM
04-85		CANCEL, DATA INCORPORATED IN SOOMM
05-85		CANCEL, DATA INCORPORATED IN SOOMM
06-85		CANCEL, DATA INCORPORATED IN PMS
07-85		SHOULD REMAIN OPEN INDEFINATELY AS A SAFETY ITEM
08-85		CAN BE CANCELLED, SEE PARA 2.L. IN LETTER
09-85		SHOULD REMAIN ACTIVE UNTIL INCORPORATION OF S/A 127
10-85		CANCEL, DATA INCORPORATED IN PMS
01-86	CANCELLED	
02-86		CANCEL IF DATA HAS BEEN INCORPORATED IN LM 2500 TECHNICAL MANUAL
03-86	CANCELLED	
04-86		CANCEL, DATA INCORPORATED IN SOOMM
05-86		CANCEL, A NEW COUPLING WAS INSTALLED ELIMINATING THE PROBLEM
01-87		CANCEL, DATA INCORPORATED IN SOOMM
02-87		CANCEL, REQUIRED SIGNS AND STRIPES HAVE BEEN INSTALLED
03-87		CAN BE CANCELLED, IF DATA HAS BEEN INCORPORATED IN EOSS
04-87	CANCELLED	
05-87		CAN BE CANCELLED, IF DATA HAS BEEN INCORPORATED IN SOOMM AND EOSS
01-88		SHOULD REMAIN ACTIVE UNTIL INCORPORATION OF S/A 129
02-88		CAN BE CANCELLED, IF DATA HAS BEEN INCORPORATED IN EOSS
01-90	CANCELLED	
02-90		CANCEL, DATA INCORPORATED IN SOOMM
01-91		REMAIN OPEN UNTIL RESOLVED

ID NUMBER	ORIGINATOR	TITLE	DATE/TIME GROUP	CLASS	STATUS
01-83	R. ZALEWSKI 914T	POTENTIAL HAZARDOUS INSTRUCTIONS FOR CHARGING A/C SYSTEMS	042109Z FEB 83	U	
	ACTION: CHANGE TECH MANUAL AS PER PARA 2. NAVSEA S9PHM-AC-SHP-030, PHM-3 CL, CHANGE 1, CHAPTER 14, SECTION VI, PAGE 14-97, PARA 6-7				
02-83	J. GOLDBERG 914H	INTERIM TECHNICAL MANUAL CHANGES	120513Z APR 83	U	CANCELLED
	ACTION: NONE				
03-83	J. GOLDBERG 914H	EXHAUST STACK RIVET REPLACEMENT	212307Z APR 83	U	
	ACTION: MODIFY PRODUCTION DWGS. TO CALL OUT MONEL RIVETS.				
04-83	G. SIPPEL 914T12	LM2500 MAIN FUEL CONTROL VARIABLE STATOR VANE (VSV) FEEDBACK SPRING	042053Z MAY 83	U	
	ACTION: PER PARA 4: VERIFY THAT TECHNICAL DIRECTIVE (TD) GAS TURBINE NO. 41 HAS BEEN ISSUED, NAVSEA S9234-AD-MMO-050/LM2500				
05-83	D. ROBINETTE	LM2500 ENGINE WATER WASH INTERVAL	041054Z JUN 83	U	CANCELLED
	ACTION: ACTION SUPERCEDED BY 05-83 MOD 1				
05-83M1	J. GOLDBERG 914H	LM2500 ENGINE WATER WASH INTERVAL - MOD 1	080323Z JUN 83	U	
	ACTION: VERIFY THAT REF B HAS BEEN CHANGED IN ACCORDANCE WITH PARA 3. REF B. MIP E60/12-62, MRC 62-4FDV-N				
06-83	D. ROBINETTE	MARINE GAS TURBINE (MGT) TECHNICAL PUBLICATIONS AND EQUIPMENT SERVICE RECORD/LOGBOOK MAINTENANCE	041053Z JUN 83	U	CANCELLED
	ACTION: SUPERCEDED BY 06-83 MOD 1				
06-83M1	J. GOLDBERG 914H	MARINE GAS TURBINE (MGT) TECHNICAL PUBLICATIONS AN EQUIPMENT SERVICE RECORD/LOGBOOK MAINT. - MOD 1	080325Z JUN 83	U	
	ACTION: ENSURE THAT EACH SHIP FULFILLS THE REQUIREMENTS OF PARAS 4, 5 AND 6.				
07-83	D. ROBINETTE	LM2500 GAS TURBINE VIBRATION LIMITS/ TROUBLESHOOTING ASSISTANCE	041052Z JUN 83	U	CANCELLED
	ACTION: SUPERCEDED BY 07-83 MOD 1				
07-83M1	J. GOLDBERG 914H	LM2500 GAS TURBINE VIBRATION LIMITS/ TROUBLESHOOTING ASSISTANCE - MOD 1	080325Z JUN 83	U	
	ACTION: SHIPS' FORCE SHALL COMPLY WITH PARAS 4 AND 5.				
08-83	J. GOLDBERG 914H	INTERIM TECHNICAL MANUAL CHANGES	061355Z JUN 83	U	CANCELLED
	ACTION: NONE				
09-83	J. GOLDBERG 914H	INTERIM TECHNICAL MANUAL CHANGES	300302Z JUN 83	U	CANCELLED
	ACTION: NONE				
10-83	G. SIPPEL 914T12	FULL POWER TRIAL REQUIREMENTS	231740Z AUG 83	U	
	ACTION: VERIFY THAT THE DETAILED PHM FPT/ECONOMY REQUIREMENTS HAVE BEEN ISSUED.				

ID NUMBER	ORIGINATOR	TITLE	DATE/TIME GROUP	CLASS	STATUS
11-83	J. EDWARDS 914T4	ELECTRICAL SYSTEMS' GROUND DETECTION LIGHTS	021956Z SEP 83	U	
	ACTION: VERIFY THAT THE TECHNICAL MANUAL HAS BEEN REVISED AND DISTRIBUTED TO INCLUDE THE ISOLATION PROCEDURES DESCRIBED HEREIN.				
12-83	J. EDWARDS 914T4	APPROVAL TO USE VICKERS HYDRAULIC PUMPS	191419Z SEP 83	U	
	ACTION: REVISE NAVSEA DWG. 516-4597061 TO SHOW PART NUMBERS FOR BOTH ABEX AND VICKERS HYDRAULIC PUMPS.				
13-83	J. EDWARDS 914T4	USE OF F-76 AND JP-5 FUEL MIXTURES FOR GAS TURBINE ENGINES	080445Z SEP 83	U	
	ACTION: MODIFY REF A TO INCLUDE THE PROVISIONS OF PARA 3.				
14-83	J. EDWARDS 914T4	APPROVED COOLANT FOR PHM MTU DIESEL ENGINES	150401Z OCT 83	U	
	ACTION: VERIFY THAT THE PHM SOOMM HAS BEEN UPDATED TO INCLUDE THE REQUIREMENTS OF PARAS 2 AND 3.				
15-83	J. EDWARDS 914T4	PROCEDURE TO PREVENT SALT WATER CONTAMINATION OF SSPU LUBE OIL SYSTEMS	190930Z NOV 83	U	
	ACTION: VERIFY THAT THE PHM SOOMM AND EOSS HAVE BEEN UPDATED TO INCLUDE THE PROCEDURE STATED IN PARA 3. STIPULATE THAT IT IS APPLICABLE TO PHM 3 SERIES ONLY.				
16-83	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	212129Z NOV 83	U	CANCELLED
	ACTION: NONE				
17-83	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	061855Z DEC 83	U	CANCELLED
	ACTION: NONE				
18-83	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	141831Z DEC 83	U	CANCELLED
	ACTION: NONE				
01-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	141831Z DEC 83	U	CANCELLED
	ACTION: NONE				
02-84	B. THOMPSON 56X32	INCORPORATION OF GTC NR 47	242145Z JAN 84	U	
	ACTION: VERIFY THAT REF A HAS BEEN AMENDED TO REFLECT THE PROCEDURES LISTED IN PARAS 2 AND 3. REF A. GTC NR. 47, NAVSEA S9234-EF-TEO-010/LM2500 GTC 47				
03-84	J. HARTRANFT 56X3	LM2500 RICH SHIFT TEST	242140Z JAN 84	U	
	ACTION: VERIFY THAT THE LM2500 MIPS HAVE BEEN UPGRADED TO INCLUDE A QUARTERLY RICH SHIFT TEST REQUIREMENT AS ADDRESSED IN PARA 2.				
04-84	J. EDWARDS 914T4	LOAD COMPRESSOR OPERATIONS	251900Z JAN 84	U	
	ACTION: VERIFY THAT THE EOSS PROCEDURES AND THE PHM SOOMM HAVE BEEN UPDATED TO INCLUDE THE CAUTION ADDRESSED IN PARA 2.				

ID NUMBER	ORIGINATOR	TITLE	DATE/TIME GROUP	CLASS	STATUS
05-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	262325Z JAN 84	U	CANCELLED
	ACTION: NONE				
06-84	J. EDWARDS 914T4	USE OF EMERGENCY SUBSTITUTE FUELS FOR PHM OPERAT	310459Z JAN 84	U	
	ACTION: NONE				
07-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	031455Z FEB 84	U	CANCELLED
	ACTION: NONE				
08-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	081619Z MAR 84	U	CANCELLED
	ACTION: NONE				
09-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	150717Z MAR 84	U	CANCELLED
	ACTION: NONE				
10-84	J. EDWARDS 914T4	HYDRAULIC TUBING CORROSION	162157Z MAR 84	U	
	ACTION: NONE				
11-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	041530Z APR 84	U	CANCELLED
	ACTION: NONE				
12-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	071501Z MAY 84	U	CANCELLED
	ACTION: NONE				
13-84	J. EDWARDS 914T4	PROHIBITION ON REMOVAL OF HULLBORNE GEARBOX DIPSTICK DURING OPERATION	071503Z MAY 84	U	
	ACTION: VERIFY THAT A CAUTION IN ACCORDANCE WITH REF B HAS BEEN INCLUDED IN THE EOSS. REF B. SOOMM ADVANCE CHANGE NOTICE (ACN) 8-B DTD 30 MAR 84.				
14-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	311742Z MAY 84	U	CANCELLED
	ACTION: NONE				
15-84	J. EDWARDS 914T4	NITROGEN CHARGING OF HYDRAULIC SERVICING UNIT	062123Z JUL 84	U	
	ACTION: VERIFY THAT THE SYSTEM TECHNICAL MANUALS HAVE BEEN CHANGED TO REFLECT THIS ADVISORY INFORMATION				
16-84	L. PRESSLEY 914T21	MK75 GUN MOUNT, GROUND FAULT HAZARD	062118Z JUL 84	U	
	ACTION: VERIFY THAT THE PROCEDURE STATED IN PARA 4 HAS BEEN INSERTED IN REF C REVISION D AND CLASS MAINTENANCE PLAN DOCUMENTATION REF C. SHIPBOARD INSTALLATION PROCEDURES SW314-AO-INS-010, 76MM62.				
17-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	261419Z JUL 84	U	CANCELLED
	ACTION: NONE				

ID NUMBER	ORIGINATOR	TITLE	DATE/TIME GROUP	CLASS	STATUS
18-84	J. EDWARDS 914T4	VAPOR COMPRESSOR DISTILLER	041435Z SEP 84	U	
	ACTION: VERIFY THAT EOSS PROCEDURE EV HAS BEEN UPDATED TO REFLECT THE PROCEDURE ADDDRESSED IN PARA 2.				
19-84	J. EDWARDS 914T4	USE OF PRE-HEATERS IN KEY WEST	172106Z AUG 84	U	
	ACTION: NONE				
20-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	022133Z OCT 84	U	CANCELLED
	ACTION: NONE				
21-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	131541Z DEC 84	U	CANCELLED
	ACTION: NONE				
22-84	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	202006Z DEC 84	U	CANCELLED
	ACTION: NONE				
01-85	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	192204Z MAR 85	U	CANCELLED
	ACTION: NONE				
02-85	J. EDWARDS 914T4	WEIGHT AND STABILITY	271445Z MAR 85	U	
	ACTION: NONE				
03-85	J. EDWARDS 914T4	GAS TURBINE WATERWASH DETERGENT UNAPPROVED PRODUCT IN SUPPLY	162230Z APR 85	U	SUPERSEDED BY 3A-85
	ACTION: NONE				
3A-85	J. EDWARDS 914T4	GAS TURBINE WATERWASH DETERGENT UNAPPROVED PRODUCT IN SUPPLY	161909Z MAY 85	U	
	ACTION: SUPERCEDES ADVISORY 03-85				
04-85	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	161910Z MAY 85	U	
	ACTION: NONE				
05-85	J. EDWARDS 914T4	PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	121928Z JUL 85	U	
	ACTION: NONE				
06-85	J. EDWARDS 914T4	LM2500 GAS TURBINE CORROSION AND SALT BUILDUP ON FRONT OF COMPRESSOR CASE	092149Z AUG 85	U	
	ACTION: WEEKLY INSPECTION FOR SALT BUILDUP ON THE COMPRESSOR CASE				
07-85	J. EDWARDS 914T4	LM2500 FIELD REPAIR OF HIGH PRESSURE FUEL LINES/MANIFOLDS	132027Z AUG 85	U	
	ACTION: NONE				

ID NUMBER	ORIGINATOR	TITLE	DATE/TIME GROUP	CLASS	STATUS
08-85	J. EDWARDS 914T4	EMI REDUCTION PLANS	132028Z AUG 85	U	
	ACTION: NONE				
09-85	J. EDWARDS 914T4	PHM SIMULTANEOUS SSPU SHUTDOWNS	132006Z SEP 85	U	
	ACTION: NONE				
10-85	J. EDWARDS 914T4	LM2500 MODULE FLEXIBLE HOSES WITH FIRE SLEEVES	082037Z NOV 85	U	
	ACTION: MAINTENANCE REQUIREMENT CARD E-60-12, Q-3 WILL BE DEVELOPED TO ADD QUARTERLY VISUAL INSPECTION OF ALL FIRE SLEEVES. TECH MANUAL S9234-AD-MMO-050/LM2500 WILL BE UPDATED IN ACCORDANCE WITH THIS ADVISORY				
01-86		LM-2500 POWER TURBINE CASING WEAR	102213Z JAN 86	U	CANCELLED BY 02-86
	ACTION: NONE				
02-86		LM-2500 POWER TURBINE CASING WEAR	102213Z JAN 86	U	SUPERCEDES 01-86
	ACTION: NONE				
03-86		PROPULSION SYSTEM OPERATION AFTER VIBRATION	031852Z JUN 86	U	CANCELLED BY 05-86
	ACTION: NONE				
04-86		PROMULGATION OF ADVANCE CHANGE NOTICE (ACN) TECHNICAL MANUAL CHANGES	040129Z JUL 86	U	
	ACTION: NONE				
05-86	J. EDWARDS 314T	PROPULSION SYSTEM OPERATION AFTER VIBRATION	152001Z SEP 86	U	SUPERCEDES 03-86
	ACTION: REPORT VIBRATION INCIDENTS TO 914/56X44				
01-87		INSTALLATION OF WIGGINS FITTINGS	251853Z SEP 87	U	
	ACTION: INSTALLERS TO ADHERE TO INSTALLATION REQUIREMENTS.				
02-87	J. EDWARDS 314T	PHM RADHAZ	191912Z OCT 87	U	
	ACTION:				
03-87		STRUT HYDRAULIC SWIVEL MOUNTING BOLTS (P/N BACB30SX8-10)	151600Z OCT 87	U	
	ACTION:				
04-87	J. EDWARDS 314T	INSPECTION OF FOILBORNE PROPULSOR SUPPORT STRUTS	281520Z OCT 87	U	CANCELLED BY 01-88
	ACTION:				
05-87		PROCEDURE TO PREVENT SALT WATER CONTAMINATION O SSPU LUBE OIL SYSTEMS IN PHM-1 SERIES	222004Z DEC 87	U	
	ACTION:				

ID NUMBER	ORIGINATOR	TITLE	DATE/TIME GROUP	CLASS	STATUS
01-88		INSPECTION OF FOILBORNE PROPULSOR SUPPORT STRUTS	2211720Z FEB 88	U	SUPERCEDES 04-87
	ACTION:				
02-88	B. JOHNSON 314T	FOILBORNE PROPULSION SYSTEM OPERATIONAL GUIDANCE (PHM-3 SERIES)		U	
	ACTION:				
01-90	B. JOHNSON 314T	MANEUVERING LIMITS FOR EMERGENCY FOILBORNE (F/B) OPERATIONS WITH ONE AUTOMATIC CONTROL SYSTEM (ACS) VERTICAL GYRO DISCONNECTED	250205Z JAN 90	U	CANCELLED
	ACTION:	OPERATORS OBSERVE ADVISORY GUIDELINES. INCORPORATE GUIDELINES IN SOOMM AND PHM OPERATIONAL NOTEBOOK.			
02-90	K. LEE 314T	EMERGENCY KING POST BEARING LUBRICATION	201951Z FEB 90	U	
	ACTION:	MANUAL LUBRICATION MAY BE USED ONLY IN AN EMERGENCY SITUATION			
01-91	D. HAMMER 330TE	AS-3872/SRC LIGHT WEIGHT COMMUNICATION ANTENNA (L TUNING PROBLEM IN THE AUTOMATIC MODE	251125Z JUN 91	U	
	ACTION:	RADIO OPERATORS TO USE MANUAL TUNING. IF NOT SUCCESSFUL, SELECT FREQUENCY OUTSIDE AFFECTED BAND.			

TABLE OF CONTENTS
STATUS SUMMARY OF VARIOUS BOEING LETTERS
25 Jan 93

Reference	Dated	CAI#	Status	Subject
PHM-MSC-85-037	29 Aug 85	0006	Complete	Aft Pod Support Tee Mod
2-3880-AFH-1221	11 Feb 87	0157	Complete	Bellows, Propulsor SW
2-3880-TFB-049	11 Jun 87	0295	ISA-Action	FWD Strut Downlock Link
W-2333-AFH-1265	15 Jun 87	0362	L2-action	ACS 4 Hz. Filter
PHM-MSC-87-015	18 Aug 87	None	Complete	Portable Fuel Filter
PHM-MSC-87-020	15 Sep 87	0229	Complete	Remove SW Inlet Webs
W-2330-RJF-069	15 Oct 87	None	Complete	COSAL QRL Report
W-2330-RJF-083	30 Oct 87	None	ISA Action	STR Housing Drawings
W-2330-RJF-221	18 May 88	0308	Complete	AC Fuel Pump Fittings
W-2330-RJF-234	01 Jun 88	0162	Complete	Hydraulic SW Pump
W-2330-RJF-237	07 Jun 88	0164	Complete	Delete 60 Hz Shore PWR
W-2330-RJF-238	09 Jun 88	0158	Complete	Trunnion Pin Rework DWG
W-2330-RJF-241	14 Jun 88	0048	Complete	PHM 1 Aft Port Pod Repair
PHM-MSC-88-020	21 Jun 88	None	Complete	H/B GRBX LO PRESS Dial
W-2330-RJF-262	22 Jul 88	0001	Complete	Green Thread Pipe Mod
W-2330-RJF-265	29 Jul 88	0425	Complete	SAR-YOKE STRG LOAD MOD
W-2332-TECH-113	03 Aug 88	None	Complete	17-4PH Subcontractor Qual
W-2330-RJF-270	09 Aug 88	0052	Complete	Kingpost Nut Torque
W-2332-RJF-272	11 Aug 88	None	~~BAO Action~~ Suspended	Window Wash Bene Sugg
W-2330-RJF-273	12 Aug 88	0190	Complete	ECS Chiller System Mods
W-2330-RJF-274	18 Aug 88	0271	Complete	F/B GRBX LO PRESS Warning
W-2330-RJF-307	30 Sep 88		Complete	F/B PROPULSOR SUPPORT MODS
W-2330-RJF-322	21 Oct 88	0134	Complete	ICK Voice Recorder Ground
W-2330-AFH-011	10 Feb 89	0085	L-Action	Noske-Kaiser PTD

* Listed as awaiting NAVSEA response in CDRL A013 for Dec 92

W-7860-CR493-007 05Apr93 None Complete Hurrican Preps
W-7800-PHMS93-078 10 May 93 None ~~Cancel~~ Suspended New Weld Wire

Reference	Dated	CAI#	Status	Subject
W-7800-RJF-359	15 Feb 89	0077	Complete	Condition Survey Report
W-7870-PAT-017	27 Feb 89	0084	C1 Action	Actuator Repairs
W-7830-LFA-007	17 Mar 89	None	Complete	Revised UT PROC NSS 8017A
W-7880-AFH-413	26 Apr 89	0112	Complete	ECS Chiller Mod Questions
W-7800-AFH-433	07 Jun 89	0159	Complete	R.O. DSTLR Discharge Mod
W-7800-AFH-440	19 Jun 89	0349	~~BAO action~~ Susp	PEGASUS King Post, Repl
W-7800-AFH-444*	23 Jun 89	0120	ISA Action	Inverted AS/390 Antenna
W-7800-AFH-455	03 Jul 89	0128	T-Action	SSPU Bleed Air Aftercoolers
W-7800-AFH-459	10 Jul 89	0121	T-Action	SSPU Exhaust Plenum Drain
W-7800-AFH-476	17 Aug 89	0445	~~T-Action~~ Suspended	PHM 1 AFT STRUT REINFORCE
W-7800-AFH-485	28 Aug 89	0147	SPAWAR	106K Wire Rope Antenna
W-7800-AFH-495	22 Sep 89	0353	T-Action	ACS Vertical Gyro Failure
W-7800-AFH-496	26 Sep 89	0145	Complete	Aft Strut Lock Out
W-7800-AFH-508*	09 Oct 89	0143	T ~~BAO~~ Action	Spare Static Inverter
W-7800-AFH-523	17 Nov 89	0160	TH action	Bow Thruster Removal
W-7800-AFH-533	21 Dec 89	0187	Complete	New ICK Voice Recorder
W-7800-AFH-534	21 Dec 89	None	Complete	FWD Pod Nose Cone Replace
W-7800-AFH-537*	05 Jan 90	0275	ISA Action	Trunnion Bearing Inspection
W-7800-AFH-544	18 Jan 90	0171	L1A Action	Actuator Load Test
W-7800-AFH-547	24 Jan 90	0172	Complete	FWD Strut Lock Out
W-7800-AFH-554	05 Feb 90	None	Complete	PHM-5 Performance Eval
W-7800-AFH-562	26 Feb 90	0276	Complete	Sea Water Overboard Bleed
W-7800-AFH-563	26 Feb 90	0280	Complete	Strut Sys Fastener Failures
W-7800-AFH-565	09 Mar 90	0192	On hold	Strut/Foil Plan ADRNs
W-7800-AFH-577	02 Apr 90	0201	Complete	FWD Pod Nose Cone DWGs
W-7800-AFH-588	18 Apr 90	None	Complete	PEGASUS F/B GRBX Repair

* Listed as awaiting NAVSEA response in CDRL A013 for Dec 92

Reference	Dated	CAI#	Status	Subject
W-7800-AFH-592	01 May 90	0203	T2 Action	R-2368/URR, INSTALL
W-7800-AFH-596	17 May 90	0208	~~Complete~~ Suspended	Hydraulic Flush Procedures
W-7800-AFH-604	08 Jun 90	0199	Complete	F/B Propulsor Monitoring
W-7800-AFH-612	19 Jun 90	0235	T-action	Ops Above Design Speed
W-7800-AFH-615	20 Jun 90	0274	~~T-action~~ Suspend	ACS Improvements
W-7800-AFH-655	16 Aug 90	None	Complete	PHM 5 Flooded Foil Voids
W-7800-AFH-659	24 Aug 90	0241	Complete	Power Trial Flow Meters
W-7800-AFH-682	22 Oct 90	0261	Complete	F/B Propulsor Spares
W-7800-AFH-689	01 Nov 90	None	Complete	ACS Self Test Discrepancy
W-7800-AFH-696	09 Nov 90	0300	Complete	Reach Rods For SW Valves
W-7800-AFH-697*	09 Nov 90	0151	C11 Action	ECS Condensation Probs
W-7800-AFH-698	09 Nov 90	0153	ISA action	Diesel Exhaust Extension
W-7800-AFH-699	09 Nov 90	0299	~~T-action~~ Susp	FWD Strut Energy Absorber
W-7800-AFH-700*	09 Nov 90	0299	Complete	FWD Strut Steering Stop
W-7800-AFH-714	03 Dec 90	0380	~~BAO-action~~ Suspended	New Chiller For ECS
W-7830-LFA-121	29 Jan 91	0315	Complete	PEGASUS Strut/Foil Insp.
W-7800-AFH-788	08 Mar 91	0074	Complete	Aft Trunnion Pin Life
W-7800-AFH-806	04 Apr 91	0392	Complete	Prop. Exit Bellows Liner
W-7800-AFH-811	15 Apr 91	None	C1 action	Range and Depth Spares
W-7010-91JSH-0107	07 May 91	0278	Complete	Mast Mounted Sight Study
W-7800-AFH-831	15 May 91	0389	~~BAO-action~~ Complete	ACS PCB Resistor Mount Mod
W-7800-AFH-841	28 May 91	0376	On Hold	PHM 1 NDT&I Plan ADRNs
W-7800-AFH-845	03 Jun 91	0363/4	T-action	UMI/INSURV Deficiencies
W-7800-AFH-851	17 Jun 91	0379	BAO action	Combine PHM1/3 NDT&I Plans
W-7800-AFH-854	19 Jun 91	0373	Complete	New ET Procedure
W-7800-AFH-864	28 Jun 91	None	Complete	PHM 1 Strut Energy Absorber

* Listed as awaiting NAVSEA response in CDRL A013 for Dec 92

Reference	Dated	CAI#	Status	Subject
W-7800-AFH-874	10 Jul 91	0251	Complete	Hull Profile Before Paint
W-7800-AFH-879	17 Jul 91	0040	T-action	AC Generator Cooling Air
W-7800-AFH-880	19 Jul 91	0153	T-action	SSPU Air Intake Improvement
W-7800-AFH-881	17 Jul 91	0388	T- action	Class Advisory Status
W-7800-AFH-887	25 Jul 91	None	Complete	GTM Fire Damper Doors
W-7800-AFH-890	05 Aug 91	None	Complete	NRFI F/B Propulsor Ser #6
W-7800-AFH-904	21 Jul 91	0410	Complete	Thordon Bearings
W-7800-AFH-906	21 Aug 91	0413	Complete	Thermistors For Pump Motors
W-7800-AFH-920	09 Sep 91	0416	~~TE action~~ Suspended	EM SPEED LOG, REPLACE
W-7800-AFH-945	09 Oct 91	0343	~~T-action~~ Suspended	Firefighting Improvements
W-7800-AFH-956	23 Oct 91	0426	Complete	IC Switchboard Advisory
W-7800-AFH-958	30 Oct 91	0436	T-action	Draft Gauge Improvement
W-7800-AFH-960	30 Oct 91	None	Complete	Actuator Rod End
W-7800-AFH-968	08 Nov 91	0424	Complete	RO Distiller Hazard
W-7800-AFH-970	13 Nov 91	0430	Complete	F/B Propulsor Link FDN Mod
W-7850-RGH-213	26 Nov 91	None	Complete	PHM Inactivation
W-7800-AFH-992	11 Dec 91	0314	~~TH action~~ Sus P	MK 75 Gun Mount Structure
W-7800-AFH-993	17 Dec 91	None	Complete	Flap Push Rods
W-7800-AFH-1000	20 Dec 91	None	Complete	New ISEA Tasks
W-7800-LFA-165	08 Jan 92	None	Complete	Weld Procedure Qual.
W-7800-AFH-1014	13 Jan 92	0442	T-action	Lube Aft Trunnion Bearing
W-7800-AFH-1018	17 Jan 92	None	Complete	Deck Coating, Non-Skid
W-7800-AFH-1020	23 Jan 92	None	Complete	FWD Strut Well Hatch, Repl.
W-7800-AFH-1033	13 Feb 92	0444	BAO action	Heavy Weight Take-Off Trial
W-7800-AFH-1041	18 Feb 92	0305	ISA BAO action	DC GEN EXCITATION CKT
W-7800-AFH-1045	19 Feb 92	0443	T-action	WASTE TANK #2, RELOC

* Listed as awaiting NAVSEA response in CDRL A013 for Dec 92

W-7800-PHM93-071 5 May 93 Suspended Flap Linkage Improvement

Reference	Dated	CAI#	Status	Subject
W-7800-AFH-1048	28 Feb 92	0381	Complete	Strut/Foil Crack Log
W-7800-AFH-1055	25 Feb 92	None	~~Complete~~ Suspended	PHM 4 ~~Aft Foil Incidence~~ Perf. Degradation
W-7870-TSS-360	06 Mar 92	None	T-action	PEGASUS Brow Proof Load
W-7800-AFH-1058	06 Mar 92	None	Complete	ACS UNREP Correction
W-7800-AFH-1065	28 May 92	None	Complete	PHM Life Beyond 2003
W-7800-AFH-1068	26 Mar 92	0393	Complete	Strut/Foil Paint Procedures
W-7800-AFH-1084	31 Mar 92	None	Complete	PHM 4 Foil Bolt Inspection
W-7800-AFG-1090	13 Apr 92	None	Complete	Salvage F/B Propulsor Stator
W-7800-AFH-1094	20 Apr 92	0447	~~ISA action~~ Suspended	DSRA Sea Trial Data Logger
W-7800-AFH-1104	05 May 92	0448	~~BAO action~~ Suspended	Surface Wave UT Procedure
W-7800-AFG-1113	12 May 92	0450	T-action	Boat Davit Changes
W-7800-AFH-1115	15 May 92	0452	T-action	Aft Strut Uplock Support Pads
W-7800-AFH-1117	28 May 92	0453	T-action	F/B Fault Isolation Tree
W-7800-AFH-1123	28 May 92	None	~~BAO action~~ Suspended	Bronze Flap Bearings
W-7800-AFH-1138	11 Jun 92	0118	~~BAO action~~ Compl	Potable Water Tank
W-7800-AFH-1139	15 Jun 92	0454	T-action	Hydraulic Reservoir Relief Valve
W-7800-AFH-1143	15 Jun 92	0244	T-action	Power Train Alignment
W-7800-AFH-1146	17 Jun 92	0455	Complete?	Anchor/Mooring Line
W-7800-AFH-1148	22 Jun 92	0168	Complete	Titanium SSPU LO Coolers
W-7800-AFH-1149	17 Jun 92	None	Complete	BMEE Voltage Booster (VR1)
W-7800-AFH-1153	24 Jun 92	0457	Complete	Demand Processing Status Rpt
W-7800-AFH-1155	26 Jun 92	None	Complete	SSPU Support Responsibility
W-7800-AFH-1162	08 Jul 92	0261	C1 action	F/B Gearbox #6 Inspection
W-7800-AFH-1165	02 Jul 92	0277	Complete	Anti-Icing Manifold Clamps
W-7010-92LKB-124	20 Jul 92	None	No action	Weight and Moment Report
W-7800-AFH-1176	22 Jul 92	0195	T-action	Hull Inspection Criteria
W-7800-PHM93-055	08 Apr 93	None	Suspended	T-Beam Mod

* Listed as awaiting NAVSEA response in CDRL A013 for Dec 92

W-7010-93FWC-057 4 May 93 None Suspended See -1055

W-7800-PHM93-048 15 Apr 93 0118 Compl See -1138

W-7800-PHM93-070 28 Apr 93 0448 Susp See -1104

W-7800-PHM93-092 [illegible] See -1094

Reference	Dated	CAI#	Status	Subject
W-7800-AFG-1177	24 Aug 92	0469	~~BAO action~~ Suspended	Wiggins Fittings Replacement
W-7800-AFH-1179	24 Jul 92	0459	~~BAO action~~ Suspended	SW Pressure Transducer
W-7800-AFH-1181	27 Jul 92	None	PERA action	H/B Propulsor Spares
W-7800-AFH-1188	28 Jul 92	None	Complete	PHM/PC Comparison
W-7860-EPY-048A	31 Jul 92	0463	~~T~~ BAO T-action	Magazine Deck Stuffing Tubes
W-7860-EPY-048B	31 Jul 92	0462	T-action	AN/URC-80 Rotary Cutout Switch
W-7800-AFH-1198	06 Aug 92	None	Complete	Explosion Suppression Test
W-7800-AFH-1211	25 Aug 92	None	ISA action	Inboard Elbow Paint Procedure
W-7800-AFH-1216	27 Aug 92	None	C1 action	PHM 4 S/A 90D Descrepancies
W-7800-AFH-1219	03 Sep 92	0468	T-action	Deck Hatch Cover Scuttles
W-7800-AFH-1225	09 Sep 92	0466	T-action	PHouse Seat Shoulder Harness
W-7800-AFH-1229	23 Sep 92	0471	T-action	SSPU LO Cooler Valve Operator
W-7800-AFH-1231	21 Sep 92	0465	ISA action	LM2500 Air Start Pressure Gage
W-7870-AFH-1238	23 Sep 92	0470	BAO action	Marotta 3-Way Hydraulic Valves
W-7800-AFH-1252	09 Oct 92	0479	~~T-action~~ Susp	Halon Sys Solenoid Replacement
W-7010-92LKB-172	15 Oct 92	0382	BAO action	MOD TO SMALL ARMS STOWAGE
W-7800-AFH-1257	28 Oct 92	0474	BAO action	Sea Water Pump Failures
W-7800-AFH-1270	30 Oct 92	None	Complete	R.O. Distiller Parts SMIC Codes
W-7800-AFH-1279	11 Nov 92	0458	~~T-action~~ Complete	Fuel Oil Purifier Drain Piping Mod
W-7800-AFH-1283	16 Nov 92	None	BAO action	PHM 4 Hull Form Data Set
W-7800-AFH-1297	25 Nov 92	0453	~~BAO action~~ Suspended	PHM 4 Trim Trials
W-7800-AFH-1303	03 Dec 92	None	BAO action	Scrapped Stators, F/B Propulsor
W-7800-AFH-1307	09 Dec 92	0478	~~T-action~~ Suspended	STC Static Converter
W-7800-AFH-1309	10 Dec 92	None	DTRC action	Harpoon Missile Removal Effect
W-7800-AFH-1310	10 Dec 92	0477	T-action	Nose Cone Inspection Advisory
W-7800-PHM93-007	11 Jan 93	0476	T-action	Plastic Pipe Patching Kit
W-7800-PHM93-038	10 Feb	None	Suspend	New UT Procedure

* Listed as awaiting NAVSEA response in CDRL A013 for Dec 92

7800-PHM93-036 09 MAR 93 0460 Susp F/B Propulsor Bleed PP Mod

Reference	Dated	CAI#	Status	Subject
H-7520-PHM-228	21 Dec 83	0445	N/A	See W-7800-AFH-476
H-2150-GZP-1125	18 Apr 86	0006	Complete	See PHM-MSC-85-037
H-2800-RJF-250	06 Sep 85	0295	N/A	See 2-3880-TFB-049
H-2150-GZP-1125	18 Apr 86	0006	N/A	See PHM-MSC-85-037
W-2330-RJF-137	22 Jan 88	0271	N/A	See W-2330-RJF-274
W-2330-RJF-173	17 Mar 88	0074	N/A	See W-7800-AFH-788
W-2330-RJF-280	06 Sep 88	0048	N/A	See W-2330-RJF-241
W-2330-RJF-286	21 Sep 88	0052	N/A	See W-2330-RJF-270
W-2330-RJF-347	23 Dec 92		Complete	See W-2330-AFH-949
W-7800-RJF-352	06 Jan 89	0356	N/A	See W-7800-AFH-788
W-7800-AFH-471	03 Aug 89	0146	N/A	See W-7800-AFH-440
W-7800-AFH-479	01 Sep 89	0143	N/A	See W-7800-AFH-508
W-7800-AFH-148	15 Sep 89	0006	N/A	See PHM-MSC-85-037
W-7800-AFH-503	29 Sep 89	0146	N/A	See W-7800-AFH-440
W-7800-AFH-594	03 May 90	0031	N/A	See W-2330-RJF-265
W-7800-AFH-529	13 Dec 89	0160	N/A	See W-7800-AFH-523
W-7800-AFH-616	22 Jun 90	0171	N/A	See W-7800-AFH-544
W-7800-AFH-630	10 Jul 90	0052	N/A	See W-7800-AFH-270
W-7800-AFH-647	14 Aug 90	0192	N/A	See W-7800-AFH-565
W-7800-AFH-662	31 Aug 90	None	Complete	See W-7800-AFH-655
W-7800-AFH-704	12 Nov 90	0158	N/A	See W-2330-RJF-238
W-7800-AFH-693	07 Nov 90	0271	N/A	See W-2330-RJF-274
W-7800-AFH-812	16 Apr 91	0372	N/A	See W-7800-AFH-714
W-7800-AFH-824	01 May 91	0280	N/A	See W-7800-AFH-563
W-7800-AFH-828	13 May 91	0158	N/A	See W-2330-RJF-238
W-7800-AFH-830	14 May 91	0201	N/A	See W-7800-AFH-577
W-7800-AFH-838	24 May 91	0299	N/A	See W-7800-AFH-699
W-7800-pitm93-045	19 Mar 93	None	N/A	See " -1123
Pitm93-030	19 MAR 93	0389	Complete	See " -831
-049	25 Mar 93	0416	Suspended	See " -920

Reference	Dated	CAI#	Status	Subject
W-7800-AFH-844	03 Jun 91	0182	N/A	See W-7800-AFH-612
W-7800-AFH-849	12 Jun 91	0274	N/A	See W-7800-AFH-615
W-7800-AFH-850	17 Jun 91	0380	N/A	See W-7800-AFH-714
W-7800-AFH-853	17 Jun 91	0052	Complete	See W-2330-RJF-270
W-7800-AFH-855	18 Jun 91	0271	N/A	See W-7800-AFH-274
W-7800-AFH-863	28 Jun 91	0208	N/A	See W-7800-AFH-596
W-7800-AFH-871	09 Jul 91	0153	N/A	See W-7800-AFH-698
W-7800-AFH-886	24 Jul 91	0416	N/A	See W-7800-AFH-920
W-7800-AFH-905	21 Aug 91	0274	N/A	See W-7800-AFH-615
W-7800-AFH-909	28 Aug 91	0295	N/A	See 2-3880-TFB-049
W-7800-AFH-940	24 Sep 91	0380	N/A	See W-7800-AFH-714
W-7800-AFH-947	11 Oct 91		Complete	See W-2330-AFH-949
W-7840-DLG-243	15 Oct 91	0160	N/A	See W-7800-AFH-523
W-7800-AFH-949	18 Oct 91		Complete	See W-2330-AFH-949
W-7800-AFH-971	18 Nov 91	0295	N/A	See 2-3880-TFB-049
W-7800-AFH-974	18 Nov 91	0428	N/A	See W-7800-AFH-714
W-7800-AFH-978	26 Nov 91	None	Complete	See W-7800-AFH-890
W-7800-AFH-988	04 Dec 91	0372	N/A	See W-7800-AFH-714
W-7800-AFH-1009	06 Jan 92	0373	N/A	See W-7800-AFH-854
W-7870-TSS-346	15 Jan 92	None	Complete	See W-7800-AFH-689
W-7800-AFH-1021	22 Jan 92	None	N/A	See W-7800-AFH-1018
W-7800-AFH-1022	27 Jan 92	0153	N/A	See W-7800-AFH-698
W-7800-AFH-1038	14 Feb 92	0416	N/A	See W-7800-AFH-920
W-7800-AFH-1040	18 Feb 92	0121	N/A	See W-7800-AFH-459
W-7800-AFH-1057	28 Feb 92	None	Complete	See W-7800-AFH-1000
W-7800-AFH-1059	03 Mar 92	0379	N/A	See W-7800-AFH-851
W-7800-AFH-1064	16 Mar 92	None	N/A	See W-7800-AFH-440

Reference	Dated	CAI#	Status	Subject
W-7800-AFH-1067	24 Mar 92	0305	N/A	See W-7800-AFH-1041
W-7800-AFH-1076	25 Mar 92	0052	N/A	See W-2330-RJF-270
W-7800-AFH-1071	24 Mar 92	None	N/A	See W-7800-AFH-904
W-7800-AFH-1077	26 Mar 92	0157	Complete	See 2-3880-AFH-1221
W-7800-AFH-1083	31 Mar 92	None	Complete	See W-7800-AFH-1000
W-7010-92TMM-048	20 Apr 92	0274	N/A	See W-7800-AFH-615
W-7010-92TMM-049	23 Apr 92	0425	N/A	See W-2330-RFH-265
W-7850-RGH-237	30 Apr 92	0426	N/A	See W-7800-AFH-956
W-7010-92TMM-056	04 May 92	0121	N/A	See W-7800-AFH-459
W-7010-92TMM-057	04 May 92	0416	N/A	See W-7800-AFH-920
W-7800-AFH-1106	05 May 92	0235	N/A	See W-7800-AFH-612
W-7010-92TMM-072	14 May 92	0295	N/A	See 2-3880-TFB-049
W-7840-DLG-323	28 May 92	0299	N/A	See W-7800-AFH-699
W-7800-AFH-1127	29 May 92	None	Complete	See W-7800-AFH-890
W-7800-AFH-1130	01 Jun 92	0424	N/A	See W-7800-AFH-968
W-7010-92JHS-109	11 Jun 92	0416	N/A	See W-7800-AFH-920
W-7010-92LKB-113	16 Jun 92	0074	N/A	See W-7800-AFH-788
W-7800-AFH-1144	16 Jun 92	0389	N/A	See W-7800-AFH-831
W-7800-AFH-1152	09 Oct 92	None	N/A	See W-7800-AFH-1252
W-7800-AFH-1159	29 Jun 92	0393	Complete	See W-7800-AFH-1068
W-7800-AFH-1161	30 Jun 92	None	N/A	See W-7800-AFH-1000
W-7800-AFH-1166	02 Jul 92	0416	N/A	See W-7800-AFH-920
W-7800-AFH-1167	09 Jul 92	0378	N/A	See W-7800-AFH-714
W-7800-AFH-1169	13 Jul 92	0305	N/A	See W-7800-AFH-1041
W-7860-EPY-047	28 Jul 92	0160	N/A	See W-7800-AFH-523
W-7800-AFH-1193	04 Aug 92	0052	N/A	See W-2330-RJF-270
W-7800-AFH-1195	06 Aug 92	0235	N/A	See W-7800-AFH-612

Reference	Dated	CAI#	Status	Subject
W-7800-AFH-1197	05 Aug 92	0410	Complete	See W-7800-AFH-904
W-7840-DLG-357	11 Aug 92	0314	N/A	See W-7800-AFH-992
W-7800-AFH-1200	12 Aug 92	0444	N/A	See W-7800-AFH-1033
W-7800-AFH-1174	15 Jul 92	0380	N/A	See W-7800-AFH-714
W-7800-AFH-1175	17 Jul 92	0447	N/A	See W-7800-AFH-1094
W-7800-AFH-1212	25 Aug 92	None	N/A	See W-7800-AFH-1000
W-7800-AFH-1215	27 Aug 92	0199	Complete	See W-7800-AFH-604
W-7800-AFH-1217	27 Aug 92	0413	Complete	See W-7800-AFH-906
W-7800-AFH-1218	31 Aug 92	0160	N/A	See W-7800-AFH-523
W-7800-AFH-1221	16 Sep 92	0380	N/A	See W-7800-AFH-714
W-7800-AFH-1222	03 Sep 92	0385	N/A	See W-7800-AFH-881
W-7800-AFH-1223	09 Sep 92	0459	N/A	See W-7800-AFH-1179
W-7800-AFH-1224	04 Sep 92	0379	N/A	See W-7800-AFH-851
W-7010-92LKB-158	21 Sep 92	0274	N/A	See W-7800-AFH-851
W-7840-DLG-372	22 Sep 92	0160	N/A	See W-7800-AFH-523
W-7010-92LKB-163	05 Oct 92	0436	N/A	See W-7800-AFH-1045
W-7800-AFH-1232	06 Oct 92	0436	N/A	See W-7800-AFH-958
W-7800-AFH-1152	09 Oct 92	None	N/A	See W-7800-AFH-1252
W-7010-92LKB-169	12 Oct 92	0343	N/A	See W-7800-AFH-945
W-7800-AFH-1255	13 Oct 92	0379	N/A	See W-7800-AFH-851
W-7800-AFH-1258	15 Oct 92	None	N/A	See W-7800-AFH-1149
W-7800-AFH-1260	21 Oct 92	0379	T-action	See W-7800-AFH-440
W-7010-92LKB-185	30 Oct 92	0128	N/A	See W-7800-AFH-455
W-7800-AFH-1272	04 Nov 92	0445	N/A	See W-7800-AFH-476
W-7800-AFH-1273	10 Nov 92	0277	Complete	See W-7800-AFH-1165
W-7800-AFH-1274	05 Nov 92	0084	N/A	See W-7870-PAT-017
W-7800-AFH-1284	11 Nov 92	0274	N/A	See W-7800-AFH-615

Reference	Dated	CAI#	Status	Subject
W-7870-AFH-1286	16 Nov 92	0470	N/A	See W-7800-AFH-1238
W-7800-AFH-1288	16 Nov 92	0380	N/A	See W-7800-AFH-714
W-7800-AFH-1290	16 Nov 92	0084	N/A	See W-7870-PAT-017
W-7800-AFH-1299	30 Nov 92	0153	N/A	See W-7800-AFH-698
W-7010-92LKB-214	15 Dec 92	0314	N/A	See W-7800-AFH-992
W-7840-DLG-385R	17 Dec 92	0160	N/A	See W-7800-AFH-523
W-7800-PHM93-001	05 Jan 93	None	Complete	See W-7800-AFH-1090
W-7010-93LKB-005	07 Jan 93	0343	N/A	See W-7800-AFH-945
W-7840-DLG-372R1	08 Jan 93	0160	N/A	See W-7800-AFH-945
W-7800-PHM93-004	11 Jan 93	0453	N/A	See W-7800-AFH-1297
W-7800-PHM93-008	11 Jan 93	0447	N/A	See W-7800-AFH-1094
-013	26 Jan 93	0143	N/A	See -508
-018	29 JAN 93	0447	N/A	See -1094
-015	27 JAN 93	0453	N/A	See -1297
W-7860-93381-002	01 Feb 93	0343	N/A	See -945
W-7010-93LKB-016	02 Feb 93	0314		See -992
W7800-PHM93-023	05 Feb 93	0469		See -1177
7800-PHM93-022	16 Feb 93	0459		See -1179
W-7800-PHM93-029	16 Feb 93	None	Compl	See -1090
W-7800-PHM93-025	10 Feb 93	Nm	N/A	See -1000
7800-033	22 Feb 93	0208	N/A	See -596
7800-034	25 Feb	None	Susp	See W-2332-RJF-27

STATUS SUMMARY OF VARIOUS BAO LETTERS
25 Jan 93

85-037 *Problem:* There is a class problem with minor cracking in the pod support Tee adjacent to the inboard foil attachment lug of the aft struts. Although the cracks are structurally non-critical, they allow cavity number four at the lower end of the strut to flood. There is also potential for these cracks to propagate to the foil attachment lug and/or the water duct.

Status: Complete. AER # 04/91 (Ser 314T/6405) was issued 28 May 91 authorizing chocks to be welded into one area where cracking has been consistent for the class. Other cracking will continue to be repaired on a case by case basis. If other areas become class problems, similar AERs will be issued to correct. The proposed cutting of grooves and rewelding with 314 stainless will not be approved by NAVSEA. The AER is in lieu of proposed SHIPALT P0062. This is CAI #0006. [01 Jun 91]

1221 *Problem:* BAO proposed to fit flexible neoprene bellows into the sea water bleed piping at the foilborne propulsor. This would eliminate danger of piping breakage due to stress from propulsor movement.

Status: Complete. Installation of the bellows was authorized for PHMs 2-6 by AER 02/90, Ser PMS314T/6316 of 28 Mar 90 after satisfactory trials in service. The TYCOM issued this as TYPHM 00023 via 4720 Ser N4213/07306 of 5 Jul 90. BAO ltr W-7800-AFH-1077 of 26 Mar 92 reported successful results of pressure testing three bellows to failure. Some ships experienced leakage around flange. COMPHMRON TWO ltr 4700 Ser N4/921 of 31 Dec 91 forwarded SHIPALT Request Ser MLSG/275 of 12 Dec 91. The proposed SHIPALT (P0138) would increase bolts through flange from 4 to 8. This proposal was disapproved by COMNAVSURFLANT ltr 02272 of 26 Mar 92. However, USS GEMINI (PHM 6) had already drilled the extra holes. Per BAO, leakage was due to failure to install a spacer (Item 13 on DWG 506-5332081). COMNAVSURFLANT 180448Z APR 92 asked NAVSEA whether to grant a permanent Departure From Specification (DFS) for PHM 6. This was CAI # 0157. CAI's 0065 and 0091 are related. [04 Apr 92]

TFB-049 *Problem:* BAO submitted a SAR "FWD Strut Down Lock Link Mod" for NAVSEA review and approval.

Status: ISA action. Prepare draft AER for spray shield mod. The FWD Strut Down Lock Link Mod was approved by AER 04/92, NAVSEA ltr 9041.A Ser PMS330/4352 of 12 Nov 92. The AER supersedes the completed SAR and J/CF. History: SIMA GUANTANAMO BAY CUBA msg 171717Z JUL 91 gives details of USS PEGASUS bulkhead damage below the water line due to misalignment of pin. BAO ltr W-7800-AFH-971 proposed a simplification of the original down lock structural support and added changes to the spray shield. Per telecon w/ Les Jackson 28 Apr 92, Squadron agrees with simplified down lock mod but doesn't want the spray shield mod. This is CAIs #0295 and #0429 (closed), and SHIPALT 156K (was P0035). [23 Dec 92]

1265 *Problem:* BAO proposed wear tolerances for strut/foil linkage pins, lugs, and bushings. Tolerances cannot be applied to the forward strut/foil unless a 4 Hz. notch filter is added to the ACS forward acceleration channel, increasing the phase margin in this loop.

Status: L-action. Issue tasking to PERA to establish requirement for measuring and recording wear at DSRA/SRAs. Letter in chop provided by ISA on 23 Jan 92. History: PMS330TH route sheet of 22 Dec 93 agreed with BAO recommendations in ltr W-7800-AFH-1180 of 24 Jul 92, which responded to SEA55W3 comments. Draft SAR for ACS Improvements includes this change, which will complete the unfinished aspects of the BAO recommendations. The proposed wear tolerances have not been incorporated into SOOMM or TRS for either the aft or fwd strut/foil.... original construction requirements are still in effect. The PHM 1 TRS for forward and aft strut/foil now reflect the SHIPALT 0002K configuration. Possible change to bronze bearings will have an positive effect on wear rate if accomplished. NAVSEA ltr 9560 Ser 314C/377 of 31 May 91 advised BAO that action was pending. BAO ltr W-7800-AFH-905 of 21 Aug 91 provides design cost estimate. This is CAI #0362 and part of SHIPALT 162K (was P0049). [25 Jan 93]]

87-015 *Problem:* BAO stated that if the service evaluation of the portable filter (P/N BR101P) is complete, the unit should either be purchased or returned to BAO.

Status: Complete. COMPHMRON TWO gave unit as is to BAO Key West per NAVSEA Ltr 9261 Ser 314C/473 of 25 Jun 90. BAO ltr W-7800-AFH-561 of 23 Feb 90 authorizes BAO Key West office to scrap the unit, responding to NAVSEA ltr 9261 Ser 314C1/258 of 29 Jan 90. SHIPALT 88K installed permanent filters on all PHMs. [21 Nov 90]

87-020 *Problem:* BAO recommended that the EPY be tasked to develop a SHIPALT to remove inlet lip blow-in door channel webs during scheduled SRAs.

Status: Complete. AER drawing 526-5332566 issued for AER 05/90, NAVSEA ltr Ser 314T/6505 of 1 Aug 90. Les Jackson confirmed by E-Mail 24 Jan 90 that ships are accomplishing this as they enter SRA by either MLSG or Assist Ship's funds. This was CAI #229. [09 Oct 92]]

069 *Problem:* BAO requested an updated copy of NAVSEA COSAL Quality Review Listing (P90UR1L) be provided by SPCC.

Status: Complete. Per telecon between B. Black of ISA for Marilyn Martin PMS330C12, and Phil Janosik of BAO on 17 May 90, the requested document is no longer needed. [25 May 90]

083 *Problem:* BAO recommended that PMS330C1 authorize new drawings for titanium seawater strainer housings.

Status: ISA action. Provide draft letter. Need to replace housings is unlikely. These housings don't wear out, spares were wanted as insurance against damage or loss. Due to scarce funds, will not develop drawings unless needed on an urgent basis if housing is damaged or lost. BAO issued LAR EPY/PHM-GEN-2 of 18 Jul 90 to resolve this problem. At that time, NAVSEA response of 21 Sep 90 concurred with need to develop drawings. There are four different configurations, all long lead items. The store has 10 spares of the -3 configuration, but no spares of -1, -2, or -4. Per Phil Janosik in 16 Oct 90 telecon, BAO engineers researched commercial catalogs, but found no satisfactory substitute available off the shelf. [13 Feb 92]

221 *Problem:* BAO submitted a SAR to authorize new inlet and outlet fittings for the AC Fuel Pumps on PHMs 1, 3, and 4. The fittings were authorized for the other PHMs after a LAR was issued against SHIPALT 063K.

Status: Complete. AER 03/91 Ser 314T/6329 of 01 Apr 91 was issued for the record. Per the Squadron, the fittings have already been installed in all PHMs. Per BAO, new part numbers are already incorporated into the AC Fuel Pump tech manual and into the APL. This is CAI #0308 and proposed SHIPALT P0057. [04 Apr 91]

234 *Problem:* BAO recommended a SHIPALT to replace one of the electrically driven sea water pumps with an hydraulically driven unit of the same rating and capacity. This will prevent complete loss of cooling water to the SSPU lube oil cooler if the AC electrical system power fails. Continued SSPU operation will allow troubleshooting. Another benefit is a 100 pound weight reduction.

Status: Complete. Per 314C1/422 of 24 May 90, no further action to be taken due to limited applicability and limited funds. This was CAI #0162. This has good safety-related credentials, not to mention the weight savings. However the situation it is designed for has only occurred once. [25 May 90]

237 *Problem:* BAO recommended deleting the 60 Hz Shore Power Kit.

Status: Complete. Per letter 314C1/427 of 24 May 90, no further action will be taken. This was CAI #0164. The alt is cheap and would save 166 lbs. The 60 Hz shore power capability has not been used in the past. However, E-Mail from squadron indicates that MLSG is refurbishing the console and cables, and is preparing to start using this capability. [25 May 90]

238 *Problem:* BAO requested NAVSEA review and approve forward retraction trunnion pin rework drawing SK-2332-0050.

Status: Complete. BAO issued the drawing with NAVSEA number 526-5332215 after the revised sketch was approved by NAVSEA ltr 9170 Ser 314C/532 of 08 May 91 (note: PERA needs to cite this drawing in TRS 5671-086-609 STRUTS & FOIL). BAO ltr W-7800-AFH-828 of 13 May 91 submitted corrected calculations requested by NAVSEA ltr 9170 Ser 314C/532 of 8 May 91. NAVSURFWARCEN, Carderock Division (formerly DTRCEN) fax of 25 Jan 91 approved the revised sketch submitted by BAO ltr W-7800-AFH-704 of 12 Nov 90. SEA 55Y13 memo dated 21 Mar 91 concurs with the revised sketch. NAVSEA ltr 314C1/463 of 15 Jun 90 conveyed NAVSURFWARCEN, Carderock Division and SEA 55Y1 comments to the original sketch. These are the comments addressed in the revision. Initially went to T-Shop as CAI #034 on 26 Oct 88; resubmitted as CAI #0158 on 3 Jan 90. [25 Jan 93]]

241 *Problem:* BAO recommended that NAVSEA initiate a TIA to accomplish aft port pod repair applicable to PHM 1 only.

Status: Complete. AER drawing 526-5332318 issued for AER 04/90, NAVSEA ltr Ser 314T/6464 of 20 Jun 90. TIA number, if assigned, is unknown. History: NAVSEA ltr 314/7143 of 13 Dec 88 asked TYCOM to notify NAVSEA of his intention the fund this as a D alt. TYCOM never replied. This is CAI #0048 and proposed SHIPALT P0068K. Phil Yarnell reviewed this, discussed his comments with BAO by phone on 30 Aug 88, and documented his comments in NAVSURFWARCEN, Carderock Division (formerly DTRCEN) ltr 9010 Ser 1233-88-104 of 15 Sep 88. BAO revised their sketches to incorporate NAV-SURFWARCEN, Carderock Division comments, resubmitting them as attachment to BAO ltr W-2330-RJF-280 of 6 Sep 88. [09 Oct 92]

88-020 *Problem:* BAO recommended a Title D SHIPALT to revise the face of the EOS console indicator for hullborne gearbox lubricating oil pressure. There is a mismatch between the sending unit and the gauge so that the reading is 80% of actual. This can show oil pressure dangerously low when actually it is still safe to operate.

Status: Complete. NAVSEA ltr 9260 Ser 314C/771 of 6 Nov 90 notified BAO that no action will be taken (the letter was actually released on 6 Dec 90). 330C12 rejected this idea because the recommended solution would have to be a custom made gauge face due to the metric units of measurement (kN/m2 x 100). Total cost is about $5K. There is no off-the-shelf gauge or sending unit available to save cost. Per e-mail from Squadron 19 Jul 90, this has not caused operational problems, and Ships Force can live with the discrepancy. Need to correct the problem, but low priority. The reading is consistently 80% of true, so divide by .8 to get the answer. [27 Aug 90]

262 *Problem:* BAO recommended a Title D SHIPALT to modify the green thread pipe seawater mains.

Status: Complete. NAVSEA ltr 4720 Ser 314C1/639 of 28 Aug 90 informed BAO that no action will be taken because the sea water bellows installation approved for PHMs take the strain off the pipes in question. The recommended piping changes are no longer needed. This is CAI #0001 and proposed SHIPALT 0101. TSR # TB8D702 to SEA 56Y23 refers. [11 Mar 91]

265 *Problem:* BAO submitted a SAR "YOKE STEERING LOAD REINF MOD" to improve the fatigue life of the steering structure of the yoke.

Status: Complete. The second SAR revision submitted by BAO ltr W-7010-92TMM-049 of 23 Apr 92 was approved at CCB of 25 Aug 92. This is SHIPALT 149K. History:

29 Jul 88	SAR submitted by BAO ltr W-2330-RJF-265. This SHIPALT is tracked as proposed SHIPALT P0067.
06 Sep 88	SAR issued to 314L1 via 314TB Route Sheet for ILS review
09 Sep 88	314L11 responds, "No ILS comments"
19 Oct 89	TSR T1139D459 issued to SEA 55D for SAR review
23 Oct 89	SEA 55D7 route sheet responding to TSR T1139D459 states SEA 55 will not sign SARs except those that they prepare in house. Also states that design details and supporting calculations will be needed to evaluate the SAR.
05 Apr 90	NAVSEA ltr 9170 Ser 314C1/362 requests that BAO provide design data and calculations to support the SAR.
03 May 90	Calculations submitted by BAO ltr W07800-AFH-594.
21 May 90	A J/CF by SEA 55Y13 is approved at CCB as SHIPALT PHM1-149D.
23 May 90	Memo from PMS314C1 to PMS314TB requesting and justifying change from D-Alt to K-Alt. This change was made.
29 May 90	CAI 0031 Route Sheet from PMS314 provides Boeing calcs to SEA 55D.
25 Jun 90	SEA 55Y13 response to TSR 1139D459 of 19 Oct 89 provided to PMS314 by route sheet (No copy in file... may have been lost in transit to PMS314).
24 Jul 90	E-Mail from COMPHMRON TWO confirms this S/A should be priority "A".
11 Feb 91	TSR #T121D030 issued to SEA 55D for review of calculations (per SEA 55Y13, this review was already provided on 25 Jun 90).

21 Feb 91	TSR #T121D042 issued to SEA 55Y15 for review of same SAR as sent 19 Oct 89 (per SEA 55Y13, this was already covered in their route sheet of 25 Jun 90).
06 Mar 91	SEA 55Y13 memo provides written corrections and comments to PMS314TC, responding to TSR T121D030 (and, presumably, T121D042).
27 Mar 91	Copy of 06 Mar 91 comments faxed to BAO
11 Apr 91	BAO faxes their response to SEA 55Y13 comments of 06 Mar 91 (BAO memo W-7840-DLG-171). Discussion ensues between PMS330C1 and SEA 55Y13 as to adequacy of the calculations. SEA 55Y13 agrees that the calculations support the need for the change by demonstrating inadequacy of existing structure. However, detail design for the new structure and corresponding calculations are not provided. PMS330C1 position per FMP practice is that this type of detail design is not done until SIDs are tasked. SEA 55Y13 will not sign the SAR without this info. PMS330C1 gives in and instructs BAO accordingly.
07 Nov 91	SAR resubmitted with full structural analysis and supporting calculations by BAO ltr W-7010-91JHS-0242 of 07 Nov 91 in response to SEA 55D7's request of 23 Oct 91.
09 Jan 92	Minor SEA 55Y13 comments on revised SAR forwarded to PMS330TH.
15 Apr 92	SEA 55Y13 comments forwarded to PMS330C11 requesting SAR revision.
23 Apr 92	Revised SAR submitted incorporating SEA 55Y13 comments of 09 Jan 92

This is CAI #0425 (superseding #0031), and SHIPALT 149K (superseding P0067). [02 Sep 92]

270 *Problem:* BAO requested direction on king post nut torque recommendations made following investigation of reported noisy and 'stick-slip' tendencies of king post bearings installed on PHM 2 during SRA-2.

Status: Complete. The new torque requirement is to remain unchanged. The Squadron requested that the 2,000 N-m torque requirement be upped to 7,000 N-m as a precaution in response to a PHM 4 CASREP (after a short period of operations, about 1/4" play developed in the KP bearing). BAO ltr W-78-AFH-1193 submitted 04 Aug 92 stated that torque requirement was unrelated to the incident and provides further justification for the 2,000 N-m figure. Letter also clarifies and expands the bearing installation procedure to provide positive verification that the bearings are properly seated before applying torque.

History: NAVSEA NAVGRAM 330/396 of 07 Apr 92 responded to COMPHMRON NAVGRAM Ser 00/170 of 09 Mar 92, which did not concur with recommended test of lowered nut torque. Draft in chop was reviewed and concurred in per BAO ltr W-7800-AFH-1076 of 25 Mar 92 and NAVSURFWARCENDIV CARDEROCK ltr 1233/678 of 03 Apr 92. NAVSEA ltr 9140 Ser 330C/256 of 14 Feb 92 approves reduction in king post nut torque on all PHMs for a four year trial period. DTRCEN (NAVSURFWARCEN, Carderock Division) ltr 9140 Ser 1233/423 of 31 May 91 and BAO ltr W-7800-AFH-853 of 17 Jun 91 were the basis for the approval. Next action is for SURFLANT to authorize the change and SUPSHIP JAX to start putting it into the bid specs. To make permanent later, need to change the TRSs and installation drawings. The BAO recommendation reviewed by NAVSURFWARCEN, Carderock Division was submitted via BAO ltr W-7800-AFH-630 of 10 Jul 90 (that the torque requirement be dropped from 15,000 N-m to 2,000 N-m). DTRCEN (NAVSURFWARCEN, Carderock Division) ltr 9140 Ser 1233-88-123 of 28 Oct 89 requested BAO reevaluate their initial recommendation while the PHM 5 bearings are

monitored in service for abnormal wear. NAVSEA informed SURFLANT in ltr PMS314C/772 of 2 Dec 88 that BAO had been tasked to reevaluate as NAVSURFWAR-CEN, Carderock Division suggested. The letter requested SURFLANT to monitor the PHM 5 bearings and to check the torque at the next IMAV. Meanwhile other installations have been per the drawing without deviation. Unfortunately, the PHM 5 trial was discontinued due to difficulty in confirming that the nut torque was being maintained in service (torque measurements are taken with the strut supported, i.e. no load on the nut). This is CAIs #0052 and 0404, and SPRAI 398.Q [02 Sep 92]

TECH 113 *Problem:* BAO proposed criteria to govern welding procedure qualification for 17-4PH and 15-5PH CRES weldments. These criteria would be used to ensure an adequate demonstration of subcontractor capability while providing for an expedited, cost effective qualification process.

Status: Complete. NAVSEA ltr 9074 Ser PMS314C/767 of 9 Dec 88 provided a point-by-point response to the BAO recommended criteria. [30 Sep 92]

272 *Problem:* BAO recommended that NAVSEA reject Beneficial Suggestion 87064 for a commercial pump-and-reservoir window wash system to replace the existing pressurized mil-spec system.

Suspended BAO ltr W-7800-PHM93-034 of 25-Feb-93 makes recomm for pump type S/S tank

Status: ~~BAO action.~~ Design evaluation tasked by TI #299. History: This is a reopening of an old issue. NAVSEA memo 5305 Ser 314C/408 of 21 Jun 89 rejected the suggestion and recommended improved maintenance for the existing system. There is some question however whether SEA91MA and SEA 00R3 followed up on the memo to inform the squadron. In reviewing the BenneSugg, SEA 56Y32 OK'd the idea in principle, but NAVSEA rejected it anyway, based on BAO's strong objections, based primarily on a Gen Spec requirement. [23 Dec 92]

273 *Problem:* BAO submitted a draft SHIPALT Proposal (SAP) "ECS CHILLER SYSTEM MODS" to replace the canceled SHIPALT 070K.

Status: Complete. SIDs complete. SAR approved at CCB on 23 Jul 91. History: SAR tasked by TI #300, NAVSEA ltr 314C1/376 of 18 Mar 91. CNO ltr 4720 Ser 321D3/1U587906 of 13 Feb 91 indicated intention to program for FY 93. The SAP prepared by BAO was reviewed and ready for CCB, but SEA 56Y31 prepared a J/CF, and this was approved instead. As promised by NAVSEA ltr 4720 Ser 314C/349 of 22 Feb 91, The Sea Water Overboard Discharge (proposed SHIPALT P0093) was added to the scope of work for 138K. There was discussion of adding the reach rods wanted by the squadron for certain seawater system valves to this SHIPALT, but the later decision was to cover the reach rods with SHIPALT PHM-1-0143K instead. SHIPALT 138K incorporates a relief valve to moderate the fireman water pressure, eliminating the need for proposed SHIPALT P0095 (CAI #0078, SHIPALT request submitted by PHM 3 ltr 4720 Ser PHM3/49 of 21 May 88 and endorsed by SURFLANT ltr 9000 Ser N4214/01880 of 15 Feb 89). Tasking for the SAR also included preparation of a procurement spec for a new ECS chiller; the first draft of the spec was submitted by BAO ltr W-7800-AFH-812 of 16 Apr 91. This is SHIPALT 138K and CAI #0190. [03 Dec 91]

274 *Problem:* BAO recommended a SHIPALT to install a 3-second time delay in the foilborne gearbox low lube oil pressure indication on the EOS console of PHM 1.

Status: Complete. AER drawing 211-5332317 issued for AER 05/91, NAVSEA ltr 330T/6524 of 19 Jul 91 (AER 05/91). TIA is 0032. This AER approved installation of a pressure switch to trigger the aux. lube oil pump as necessary during F/B engine idle to keep gearbox oil pressure above the warning light cut-in point, thus avoiding the nuisance of momentary low pressure indications. This change is based on BAO's revised design in ltr W-7800-AFH-855 of 18 Jun 91, and COMPHMRON's acceptance of the revised design by e-mail of 4 Jun 91. Meanwhile, COMNAVSEASYSCOM 051914Z APR 88 authorized interim PHM 1 operations. Note: This AER does not affect BAO ltr W 7800-AFH-693 of 7 Nov 90, which provided a graph of minimum oil pressure requirements forwarded to NAVSSES by NAVSEA ltr 9291 Ser 330C/693 of 08 Aug 91 for inclusion into the EOSS manual. History: The 3 sec. delay approach originally proposed to make the indications go away was abandoned due to Squadron objection. So was a subsequent idea for the auxiliary lube oil pump to be tied into the throttles such that the pump operates at all idle conditions. TI #168 for BAO to do design work on this problem was never passed on by SUPSHIP. This was CAI #0271 and proposed SHIPALT P0024. [09 Oct 92]

307 Problem: BAO submitted a SAR for F/B PROPULSOR SUPPORT MODS.

Status: Complete. This is SHIPALT PHM1-129K [21 Dec 92]

322 *Problem:* BAO recommended a "D" SHIPALT to provide a hard-wired keyline ground return path common to the Voice Recorder and the ICK System.

Status: Complete. NAVSEA ltr 4720 Ser 314T/6730 of 21 Dec 90 authorized elimination of the ICK voice recorder, making this problem OBE (see CAI #285). 330C11 is reviewing the list of AERs that have been TYCOM approved to set priorities and will task BAO accordingly. This was CAI #0134. [11 Mar 91]

011 *Problem:* SPCC rejected BAO's Provisioning Technical Documentation for the Noske-Kaiser Environmental Control System Circuit Card Assemblies.

Status: L-Shop action. No progress shown in many months. This is CAI #0085. See also CAI #0123. [25 Jul 90]

359 *Problem:* BAO submitted a survey report on PHM technical and logistics problems as reported by ships crews and the MLSG.

Status: Complete. Reviewed report and initiated actions as required to address the reported problems. NAVSEA ltr 9140 Ser PMS314C/502 of 23 Aug 89 requested TYCOM set priorities for those items requiring NAVSEA action. TYCOM's priority list was submitted via COMNAVSURFLANT ltr 0140 Ser N4125C/10263 of 18 Sep 89. This is CAI #0077. [28 Feb 92]

017 *Problem:* BAO presented a study to justify making SIMA Mayport the Designated Overhaul Point (DOP) for all PHM actuators. Several additional recommendations for providing additional test fixtures, procuring spares, upgrading procedures, etc. were provided in subsequent reports.

Status: C1 action. Reviewed BAO study and concluded that the recommended action is not justified based on the data presented. Letter to BAO provided by ISA judged unacceptable, but no corrective guidance given. BAO ltrs W-7800-AFH-1274 of 05 Nov 92 and W-7800-AFH-1290 of 16 Nov 92 provide additional recommendations for

documentation changes, spare parts procurement, etc. IMA manual for actuators published by BAO as #0910-LP-235-8800 of 30 Jun 89. This manual lists SIMA Mayport as the DOP for all actuators. This is CAI #0084 [17 Dec 92]

LFA-007 *Problem:* BAO submitted Rev. A of their Ultrasonic Testing (UT) Process Specification NSS 8017 for NAVSEA approval.

Status: Complete. Procedure was forwarded to SUPSHIP Seattle, approved via ltr 9074/PHM3 Ser 330-2027 of 28 Jun 89. [22 Mar 91]

413 *Problem:* BAO requested separate funding to provide detailed justification for SHIPALT Proposal ECS CHILLER SYSTEM MODS, which replaces the canceled SHIPALT 70K.

Status: Complete. Requirement was withdrawn when SAR for SHIPALT 118K was tasked. History: The extra data was wanted, given the failure of SHIPALT 070, and the desire to ensure the problem would be corrected the 2nd time around. NAVSEA ltr 4720 Ser 314C/686 of 12 Oct 90 informed BAO that the requested funding would not be provided until the SHIPALT Record is tasked. This is SHIPALT 138K [02 Sep 92]

433 *Problem:* BAO recommended an emergent SHIPALT for PHM 1 and PHM 6 to install separate hi-pressure relief for R. O. unit and brine discharge lines.

Status: Complete. This is SHIPALT 0136K. It will be installed on PHM 6 during the current availability. PHM 1 installation is programmed for FY 92. The SAR was signed by CAPT Vinroot on 22 Oct 90, and SIDs are in hand. J/CF was approved at CCB on 20 Apr 90. Safety issue. This corrects the SHIPALT 83K installations on PHMs 1 and 6 only. The other ships already have their R.O. units properly installed. This is CAI 0159. See also CAI 0117. [11 Mar 91]

440 *Problem:* BAO discussed the possibility of early and catastrophic failure in the USS PEGASUS (PHM 1) front strut and king post installed by SHIPALT 0002K. The letter also address several areas of the aft trunnion and upper strut which have short fatigue lives.

Status: ~~BAO action~~ Suspend Need to complete: ~~Submit~~ SHIPALT 160K SAR for review and approval. *History of SHIPALT development:* BAO ltr W-7800-AFH-471 of 03 Aug 89 recommended modifications to the PHM 1 strut to extend fatigue life. BAO provided a graph of PHM 1 king post fatigue life versus probability of failure in W-7800-AFH-503 of 29 Sep 89. A SEA 55Y13 route sheet of 09 Feb 90 commented on the graph in response to TSR T120D017, and endorsed king post replacement at 2100 F/B hrs. NAVSURFWARCEN, Carderock Division (formerly DTRCEN) comments on the graph were provided in ltr 9140 Ser 1233/298 of 9 Apr 90. BAO furnished draft S.O.W. with cost estimates on 7 May 91 for a program to design a king post replacement. Estimates were revised upward in BAO ltr W-7860-EPY-049 of 04 Aug 92. SURFLANT ltr 5000 Ser N422U/08183 of 1 Jul 91 endorsed the Squadron's SHIPALT request Ser N4/343 of 14 May 91 for the replacement. CCB of 25 Aug 92 approved the J/CF (signed by SEA 55Y13 on 17 Jul 92 in response to TSR TH2C0417 of 30 Jun 92). BAO has placed the king post on order per dwg 526-5332636. *History of inspection requirements:* DTRCEN ltr 3960 Ser 1233/742 of 29 Jul 92 endorsed the current 200 F/B hr. inspection interval for accessible areas of the king post as specified in the Strut/Foil NDT&I plan (DTRCEN had originally recommended a 50-100 hr. interval). BAO ltr W-7800-AFH-1064 of 16 Mar 92 proposed inspection requirements for the inaccessible king post surfaces to extend strut life until changeout (access holes for inspection must be cut into the upper section of the strut). The extra requirements were endorsed by

NAVSEA NAVGRAM Ser 330C/435 of 15 Apr 92. Per daily progress reports on the PHM 1 FY 92 DSRA, SURFLANT authorized the additional inspection. Per BAO telecon daily DSRA status report of 13 May 92, on-site rep reports no defects found. BAO ltr W-7800-AFH-1260 of 21 Oct 92 responded to SPRAI 448.A to reassess the 200 F/B hr. inspection requirement. This is CAI #0349 (superseding #0146, #0136, and #0122) and SHIPALT 160K (was P0047). This is SPR Action Item 398.O [23 Dec 92]

444 *Problem:* BAO recommended a SHIPALT to replace the SATCOM antenna, delete the inverted antenna, and install tunable filters.

Status: ISA action. Need draft letter disapproving proposed SHIPALT. SPAWAR response received recommending retention of the inverted antenna and investigation of MRC adequacy plus filter installation. This first came up as an action for BAO in the NAVSEA/BAO technical meeting held 22-23 Feb 89 at NAVSEA because the inverted AS-390/SRC antenna suffers frequent failures due to water intrusion. BAO was tasked to respond by TI 189.08. This is CAI #0120 and proposed SHIPALT P0114K. COMPHMRON 2 ltr 9000 Ser N5/221 of 28 Mar 91 included concurrence with P0114K. [21 Aug 91]

455 *Problem:* The existing SSPU Bleed Air Aftercoolers made by Minneapolis-Honeywell Regulator Co. are no longer available and need to be replaced. These are aftercooler/moisture condenser units used in the SSPU bleed air/ships service compressed air system. A functionally equivalent, but physically different unit, is available from ITT Standards.

Status: T-Action. Review/approve SAR submitted by BAO ltr W-7010-92LKB-185 of 30 Oct 92. This is SHIPALT 159K (formerly P0044K) and CAI #00128. [06 Jan 93]

459 *Problem:* BAO reported on their study of the SSPU residual drain system, recommending various improvements.

Status: T-Shop action. Review and approve SAR submitted by BAO ltr W-7010-92TMM-056 of 04 May 92. SAR is in review per TSR TP12C0391 of 16 Jun 92. J/CF was reviewed per TSR #T112-D109. BAO/56X32/Garrett technical meeting to iron out various conflicts and details took place week of 24 Feb 92. Garrett has reviewed the J/CF, as reported in memo 56X3/144 of 18 Apr 91. BAO ltr W-7800-AFH-1040 of 18 Feb 92 provides additional information. This is CAI #0121, SHIPALT 172K, and SPRAIs 228.E and 228.F. [25 Jun 92]

476 *Problem:* BAO proposed various structural modifications for USS PEGASUS only to extend the deficient fatigue life of critical components in the aft struts, including the trunnion pin.

Status: ~~T-Action~~ Suspended. Review and approve J/CF. BAO ltr W-7800-AFH-1272 of 04 Nov 92 confirms that the J/CF is OK as written and provides a cost/m-hr estimate for the SHIPALT. This is proposed SHIPALT P0136K and CAI #0445. [12 Dec 92]

479 *Problem:* See W-7800-AFH-508.

Status: N/A. The text of this letter is identical to that of W-7800-AFH-508. This is CAI #0143. [30 Nov 90]

485 *Problem:* BAO proposed troubleshooting to resolve SHIPALT PHM 1-106 wire rope communications antenna transmitting difficulty at 5 MHz.

Status: SPAWAR action. SPAWAR is awaiting NAVELEX Portsmouth findings on the Harris antenna coupler tested out on a PHM in mid-Jul 91. Pending NAVELEX's report, either a SHIPALT will be developed installing the new coupler, or a reconfiguration of the whip antennas will be required. If COMPHMRON TWO objects to whip antenna reconfiguration, they will have to live with the tuning issue problem, since no other technical resolution is available. If a SHIPALT will be developed in either installation of the new coupler or reconfiguration of the whip antennas, the installation of SHIPALT 106K will also be documented since no SHIPALT SIDs were developed prior to the AIT installation (per PMS 330C11). History: $10K provided by N00024-91-PD-41857 to identify suitable filters to correct the problems. This is SHIPALT 106K, which has never been officially installed (even though NAVELEX has already put this alt on all 6 PHMs in advance of being programmed). At Squadron's request at the Feb 91 SPR, SPAWAR dropped a tentative plan to modify SHIPALT 120K, eliminating the wire rope antenna altogether. COMSPAWARSYSCOM 261447Z Nov 90 requested SHIPALT funding to correct the problem. On advice of 314T2 responding to CAI #0147, NAVSEA letter 314C1/428 of 24 May 90 was issued to SPAWAR requesting POA&M for resolving the problem and documenting the installations. SPAWAR ltr Ser PMW 152-34C/429 of 29 Jun 90 furnished an Installation Control Drawing (ICD) and promised a POA&M for investigating high VSWR by 27 Jul 90. The ICD was given to Phil Janosik of BAO during the SPR in July 90. NOSC has completed their study per the POA&M. SPAWAR ltr 2300 Ser PMW-152-34C/691 of 21 Nov 90 stated that the LWCA antenna cannot be modified to correct the tuning problem and requested $10K to develop a SHIPALT which would reconfigure the HF antenna system using the whip antenna installed by SHIPALT 120K (R-2368A). SAR for 106K was approved as D-Alt, but Rev. 1 was issued 21 May 90 per CAI #207 changing this to a K Alt. NAVSEA ltr 314C1/405 of 11 May 90 informing BAO of status is now obsolete. [15 Aug 91]

495 *Problem:* BAO provided emergency guidelines for operating foilborne with one of the two vertical gyros failed. The letter also recommended three design improvements, including a two-stage auto-land procedure to reduce severity of impact. This was TI 189.11.

Status: T-action to approve PHM1-162K SAR submitted by BAO ltr W-7010-92TM-048 of 20 Apr 92, which includes this change. Note: The SAR also incorporates changes proposed by BAO ltrs W-7800-AFH-615 (CAI #0274) and W-2333-AFH-1265 (CAI #0362). This auto-land mod design work is authorized by NAVSEA ltr 314C/377 of 31 May 91, so BAO could be working on it (BAO ltr W-7800-AFH-905 provides design cost estimate). Action is especially important considering damage sustained by USS PEGASUS during auto-land. Two other design change proposals in this letter which would improve ability to operate with one failed vertical gyro are disapproved. Never received a response from SURFLANT to NAVSEA ltr 314C/642 of 1 Dec 89 requesting comment on two other proposed design changes. Class Advisory 01/90, COMNAVSEASYSCOM 250505 JAN 90, provided guidance for operating with one ACS vertical gyro disconnected. BAO has subsequently put this info into PHM 1 and PHM 3 SOOMMs. NAVSURFWARCEN, Carderock Division has put this info, plus design curves into the PHM Operational Notebook (Ser 1233/317 of 13 Jun 90). T-Shop has now canceled the Class Advisory via NAVGRAM Ser 314T/6319 of 19 Mar 91. The 2-Stage Auto-land action was CAI #0353, but is now part of CAI #0274 and SHIPALT 162K (formerly P0049). The Class Advisory was CAI #0139. Cancellation of the Advisory was CAI #0355. See also BAO ltr W-7800-AFH-615) [09 Oct 92]

496 *Problem:* BAO study recommends a change in the aft strut position sensing system to ensure that no "strut extended" indication occurs until both sides of the aft strut are down and locked. Inaccuracy of the present sensing system contributed to an incidence of strut jamming on PHM 6.

Status: Complete. NAVSEA ltr 314C1/410 of 16 May 90 to BAO states that per agreement with COMPHMRON TWO and COMNAVSURFLANT, no NAVSEA action is planned to develop this SHIPALT. This is CAI #0145. [25 May 90]

508 *Problem:* BAO recommended purchase of one spare Static Invertor, a 16 month lead time item.

Status: ~~BAO~~ T action. review W-7800-PHM93-013 of 26 Jan 93 Recommend maintenance actions, documentation changes, spare parts procurement, etc. to lessen potential impact of a failure. No funds available to procure a spare unit as a rotatable pool. NAVSEA ltr 314C/217 passed issue on to SURFLANT. BAO still considers this item open, and no response was ever received from SURFLANT. This is CAI #0143. [23 Dec 92]. — S/A P-0160 to replace

replacement units vice maint need ABR?

523 *Problem:* BAO recommended enlarging the opening in the top of the bow thruster tunnel to allow bow thruster removal into the machinery space without disassembly while the ship is in the water at pier-side.

Status: TH action. Issue AER. BAO memo W-7840-DLG-372R1 of 08 Jan 93 revised QA procedures on AER drawing 112-5332567 to conform with those provided by NAVSEA ltr 4720 Ser 330C1/866 of 30 Dec 92. An ASSIST report of all bow thruster maintenance actions and change outs was provided. BAO memo W-7840-DLG-372 of 22 Sep 92 was the first attempt to provide the QA procedure requested by NAVSEA at SPR splinter meeting of 17 Sep 92. BAO memo W-7840-DLG-385R of 17 Dec 92 provides clearances requested by John Stone at meeting of 08 Dec 92. BAO ltrs W-7800-AFH-1218 of 31 Aug 92 and W-7860-EPY-047 respond to comments in NAVSEA ltr 4720 Ser 330C1/492 of 21 May 92. History: NAVSEA ltr 9560 Ser 314C1/282 of 15 Feb 90 noted the merit of this proposed SHIPALT but stated that no further action would be taken due to lack of FMP funds. This was discussed at the Semiannual Program Review on 7 Feb 90 and confirmed by telecon w/ Les Jackson on 12 Feb 90. COMPHMRON 2 and PHMRON MLSG were satisfied with the in-water removal procedure provided by BAO ltr W-7800-AFH-529 of 13 Dec 89, and did not want to spend the funds for the proposed structural modification. However, the new MLSG regime wants this change because it will save 4 days prep time to do a change out, as conveyed in an MLSG SHIPALT request of 4 Oct 91. Also, although no one has mentioned it, the present technique of ballasting the ship to raise the bow risks damage to the ship. Additional technical info needed for the AER was provided by BAO ltr W-7840-DLG-243 of 15 Oct 91. This is CAI #0160 and proposed SHIPALT P0066K. [04 Jan 93]

533 *Problem:* BAO conducted a search of the market and recommended a new type of voice recorder for the ICK system as Task No. 54.

Status: Complete. AER 08/90 NAVSEA ltr 4720 Ser 314T/6730 of 21 Dec 90 authorized Squadron SHIPALT request N5/915 of 24 Oct 90 to eliminate the voice recorder entirely by connecting the ICK to the HYCATS recorder. This is CAI #0187. [24 Dec 90]

534 *Problem:* BAO presented three alternatives for a forward pod nose cone to replace that lost on PHM 3.

Status: Complete. A weldment was fabricated and installed per option #2. The original design was a casting. BAO ltr W-7800-AFH-830 states that drawings for nose cone and tail cone designs as weldments vice castings were released as 526-5332101 and 526-5332102. See also, files on BAO ltrs W-7800-AFH-577 of 2 Apr 90 and W-7800-AFH-563 of 26 Feb 90. AER 09/91 approves changes in fasteners to prevent loss of nose cone. [29 Dec 92]

537 *Problem:* BAO proposed a new CMP work item for Trunnion Bearing In Place Inspection. Wear in service could be monitored without disassembly and removal. If, however, bearing service life can be extended to at least 4 years, this procedure may not be needed. The bearings could be changed out routinely at the 4 year DSRA intervals.

Status: ISA action. Prepare letter stating that inspection is not needed and that work should be discontinued. PERA (SURFACE) has partially completed a draft Intermediate Maintenance Standard (IMS) to accomplish the in service monitoring. Next step would be for PERA to complete the IMS and submit it for NAVSEA approval. This item has had low priority at PERA due to the uncertainty as to whether it is needed and as to whether the Type Commander will pay for it. [23 Dec 92]

544 *Problem:* BAO recommended that NAVSEA provide a load test fixture for a hydrogen embrittlement test based on QQ-C-320 as well as 3 or 4 spare pistons to start a rotatable pool at Hydraulic Research Textron (HRT), the Designated Overhaul Point for Aft Flap and Forward Steering Actuators.

Status: L1A action. Need to coordinate a resolution. NAVSEA ltr 314C/340 of 16 May 90 to BAO advised BAO that no DOP funds are available and requested details/rationale for the load test. BAO ltr W-7800-AFH-616 provided additional info and noted that HRT declined to capitalize the item and recover costs on individual overhauls. NAVSEA might accept the other option (limit repair cycles) but will not agree to an arbitrary number based on aviation practice. The limit selected should be based on PHM experience. Contacted NAVSURF-WARCEN, Carderock Division for an opinion of the proposed test; no response yet. There is concern that this might not solve the problem, HRT's assurances notwithstanding. Currently there are no spares, but some are on order. However, this is a one year lead time item. This is CAI #0171. [13 Feb 91]

547 *Problem:* Forward strut lock-out during strut extension/retraction.

Status: Complete. Letter 314C1/410 of 16 May 90 to BAO states that no NAVSEA action will be taken per agreement with TYCOM and squadron. This is CAI #0172. [25 May 90]

554 *Problem:* BAO submitted a test plan for investigating the possible causes of degraded foilborne performance of USS ARIES (PHM 5).

Status: Complete. Tests were performed. Final report was issued via DTRCEN (NAV-SURFWARCEN, Carderock Division) ltr 3900 Ser 1233/346 of 25 Jul 90. Ltr 1233/709 of 29 May 92 provided results of a review of data received from the SQUADRON 20 May 92. Per ltr, need to do better job of recording info per IMS 9823-601-001A or data will not be meaningful. [09 Jun 92]

562 *Problem:* BAO proposed a SHIPALT to install a permanent sea water overboard bleed with manual shutoff for dockside operations.

Status: Complete. Added to the scope of work for SHIPALT 138K. History: SAR for SHIPALT 138K tasked to BAO by TI #300, NAVSEA ltr 314C1/376 of 18 Mar 91. Incorporation of bleed is per NAVSEA ltr Ser PMS314C/349 of 22 Feb 91. Note that T-Shop proposed a variant in BAO's design, substituting a water regulating valve for a manual valve. This change did not show up in the SAR as submitted. ISA provided mark up after CCB approval but before signature to correct the omission. Per Jerry Tonini on 7 Dec 90, the variant is OK with BAO. Need to verify this gets into the SIDs. FAX to Les Jackson on 6 Dec 90 asked for Squadron opinion of the design variant (no response received). Squadron comment received by SCLSIS e-mail on 19 Dec 90 noted that the original sketched design required too much operator intervention. They noted that this problem could be corrected if valve "A" (throttle valve) was replaced with a Water Regulating Valve, which would serve the same function automatically. This is CAI #0276 and proposed SHIPALT P0093K. [27 Sep 91]

563 *Problem:* BAO proposed a series of design and maintenance changes to eliminate recurring problems with strut/foil fastener failure.

Status: Complete. AER drawing 526-5332629 issued for AER 09/91, NAVSEA ltr 9075 Ser 330T/6839 of 17 Dec 91. History: BAO ltr W-7800-AFH-824 of 01 May 91 responds to SEA 55Y13 comments conveyed in NAVSEA ltr 4720 Ser 314C/388 of 9 Apr 91. Per Mike Malia in telecon to BCB/ISA on 06 Jun 91, NAVSURFWARCEN, Carderock Division concurs with the latest BAO ltr. ISA provided BAO's original ltr to PERA to review for possible impact on the planned purchase of fastener sets to have on hand during availabilities in case of need (there is no point in stocking up on fasteners that are about to be changed). In a postscript to this issue, BAO ltr W-7800-AFH-1310 of 10 Dec 92 noted that the AER had not yet been installed, which was a contributing factor in the loss of another nose cone (by PHM 2 in Nov 92); a new inspection requirement was recommended for the nose cone, to be done even after the AER is installed. This is CAI #0280 and SPRAI 384.AB. [29 Dec 92]

565 *Problem:* BAO requested approval for Advance Document Revision Notices (ADRNs) to the PHM 3 Strut/Foil NDT inspection plan. The changes state that an anti-fouling paint shall be applied to interior surfaces of pod and access covers.

Status: On hold pending NAVSEA response to proposed combination of PHM 1 and PHM 3 NDT&I plans into a single volume. See BAO ltr W-7800-AFH-851 of 17 Jun 91. Need to issue replacement ADRNs. NAVSEA ltr 9630 Ser 314C1/228 of 28 Jan 90 rejected ADRNs 4 & 5 because they specify Organotin based paint, prohibited in Florida. History: NAVSEA ltr 314C1/522 of 20 Jul 90 approved ADRN 1, disapproved ADRNs 2 & 3 (the two paint choices in ADRNs 2 & 3 are not EPA approved). BAO submitted replacement ADRNs 4 & 5 in ltr W-7800-AFH-647. This is CAI # 0192. [27 Sep 91]

577 *Problem:* BAO requested that NAVSEA task them to prepare drawings documenting the forward pod nose cone weldment installed on USS TAURUS (PHM 3). The weldment would replace the original casting design.

Status: Complete. BAO ltr W-7800-AFH-830 of 14 May 91 states that weldment designs were released for both nose cone and tail cone as 526-5332101 and 526-5332102. History: NAVSEA ltr 314C1/411 of 16 May 90 advised BAO to wait on drawings until a weldment completed one year in service. However, NAVSEA ltr Ser 415-4115 of 21 Dec 90 tasked BAO to go ahead with the drawings. This was CAI #0201. See also, files on

BAO ltrs W-7800-AFH-534 of 21 Dec 89 and W-7800-AFH-563 of 26 Feb 90. AER 09/91 approves fastener changes to prevent loss of nose cone. [29 Dec 92]

588 *Problem:* BAO requested authorization for Cincinnati Gear to cannibalize the failed USS PEGASUS (PHM 1) gearbox PN 201-5331415-2 for the accessory gear to expedite return to RFI status of the spare gearbox, PN 201-5331701-2.

Status: Complete. NAVSEA ltr 9240 Ser 314C1/390 of 25 Apr 90 authorized temporary use of accessory gear as requested, provided it was proved satisfactory by appropriate NDT. [25 Jul 90]

592 *Problem:* BAO recommended changes in SHIPALT PHM 1-120K.

Status: T-Shop action. CAI #0203. This radio upgrade is a prerequisite for Link 11. The SAR has been signed, but no ships have received the SHIPALT. BAO's last minute changes would substitute a different antenna and preselector, plus delete some equipment. The change will reduce weight impact by 227 lbs. and will improve both reliability and supportability. [3 Oct 90]

596 *Problem:* BAO made recommendations for improvement of current hydraulic flushing procedures, development of a system or procedure for flushing while underway (away from port), and installation of desiccant dryers in the hydraulic systems via SHIPALT 111D.

Status: ~~Complete~~ Suspended. NAVSEA ltr 330C1/346 of 09 Mar 92 tasked BAO ISEA to correct/develop documentation as TP #141. 1st stage reported in W-7800-Ltr 93-033 of 22 Feb 93 AER 07/91 Ser 330T/6733 of 07 Nov 91 issued to add quick disconnect fittings. AER drawing 516-5332310 was issued. Note: attachment to BAO's ltr asserts incorrectly on page 6, first paragraph that SHIPALT 111K does not provide a desiccant dryer for the air line serving the Forward Flap Servo Valve. Per Jerry Tonini telecon 27 Sep 91, 111K provides desiccant dryers at various locations as necessary, including at the servo valve cited; proceed with 111K as written. PMS314T memo of 31 May 91 responds respect to BAO rebuttal W-7840-DLG-178 of 30 Apr 91 addressing initial NAVSEA comments in 314t memo Ser 314T/6382 of 18 Apr 91. BAO ltr W-7800-AFH-863 of 28 Jun 91 responds to draft AER of 19 ~~Jun 91; the~~ 21 Sep 91 draft AER incorporates these comments. This is CAI #0208. [04 May 92]

604 *Problem:* BAO commented on the F/B Propulsor Monitoring System proposed by NAVSURF-WARCEN, Carderock Division (formerly DTRCEN).

Status: Complete. Approved by AER 02/92 Ser PMS330/3938 of 06 Jul 92, SURFLANT TIA #41. Prototype testing on PHM 2 approved by NAVSEA ltr 4720 Ser PMS314T/6715 of 17 Dec 90. This is CAI #0199 and SHIPALT 177K (was P0043 and P0107). History: Following is a list of NSWC Carderock (DTRCEN) correspondence and documentation this subject:

Ltr 1233/697 of 16 Apr 92
Ltr 1233/695 of 17 Apr 92
Ltr 1233/690 of 13 Apr 92
Ltr 1233/681 of 02 Apr 92 (Modal Survey Report)
Ltr 1233/664 of 10 Mar 92
Memo 1233/643 of 14 Jan 92
Memo 1233/617 of 14 Nov 92
Memo 1233/613 of 31 Oct 91

Memo 1233/604 of 16 Oct 91
Report DTRCEN/SD-91/19 SEP 91
Trip Report, Mike Malia (1233) of 20 Jul 91
Ltr 1233/494 of 05 Apr 91
Presentation, SPR Feb 91
Ltr 1233/417 of 21 Nov 90
Ltr 1233/415 of 19 Nov 90
Ltr 1233/407 of 01 Nov 90
Ltr 1233/395 of 21 Sep 90
Ltr 1233/378 of 14 Sep 90
Ltr 1233/375 of 07 Sep 90
Ltr 1233/343 of 14 Aug 90
Ltr 1233/291 of 12 Apr 90

[05 Aug 92]

612 *Problem:* BAO recommended that sea trials be conducted to validate predicted cavitation boundaries above design speed and establish safe top speed for each PHM.

Status: T-Shop action. Review revised procedure submitted by BAO ltr W-7800-AFH-1195 of 06 Aug 92 in response to comment provided by NAVSEA ltr 330C1 of 02 Jun 92. History: NAVSEA comments were on the original draft procedure submitted with BAO ltr W-7800-AFH-844 of 3 Jun 91 as tasked by TI 319 (NAVSEA ltr 314C1/355 of 26 Feb 91). NAVSURFWARCEN, Carderock Division provided comments by fax to NAVSEA on 20 Jun 91 and also discussed their concerns directly with BAO. This is CAI #0235. Notes: NAVSEA letter 9096 Ser 330C/641 of 15 Jun 91, the weight/moment report related SPR action item 382.A (CAI #0182), refers. BAO letter also restated the need for a 4 Hz. filter in the ACS. NAVSEA ltr 314C/377 of 31 May 91 responded that the filter recommendation is actively under review (as CAI #0362). The filter is included in the SAR for SHIPALT PHM1-62K ACS MODIFICATIONS [25 Jan 93]]

615 *Problem:* BAO submitted results of a study recommending improvements in the Automatic Control System (ACS).

Status: ~~Action~~ Suspended. Need to issue AERs and approve revised PHM1-162K SAR submitted by BAO ltr W-7010-92LKB-158 of 21 Sep 92 now under review per TSR TH2C0629 of 24 Nov 92 (original SAR submitted by BAO ltr W-7010-92TMM-048 of 20 Apr 92). SAR will accomplish various ACS improvements. J/CF was signed by SEA 56Z41 on 11 Dec 91. The first two AERs have been issued. They are AER 08/91, NAVSEA ltr 9274 Ser 330T/6801 of 20 Nov 91, which authorizes adding labels at the vertical gyro disconnect switches in the Pilot House overhead panel and in the ACS cabinet at the gyro mountings and AER 01/92, NAVSEA ltr Ser 330T/3877 of 08 Jun 92, which approves removal of kevlar armor from the ACS cabinet (applies to PHM 1 only). History: BAO ltr W-7800-AFH-905 of 21 Aug 91 provided design cost estimates. BAO memo W7850-PHMACS-046 of 20 Jun 91 is BAO's response to NAVSEA comments in 9560 Ser 314C/377 of 31 May 91. BAO ltr W-7800-AFH-849 of 12 Jun 91 providing notification requested in Para. 2.d.1 of the NAVSEA letter. Per BAO ltr W-7800-AFH-1284 of 11 Nov 92, accelerometers are now being modified by the manufacturer as they come in for repair. T-Shop route sheet of 22 Dec 92 concurred with need for a 4 Hz filter. This is CAI #0274 and SHIPALT 162K (was P0049). See also BAO ltr W-7800-AFH-495. [23 Dec 92]

655 *Problem:* BAO recommended draining strut/foil voids on PHM 5 to determine if this would account for high VCG indicated by calculations based on the inclining experiment performed in April 1990.

Status: Complete. Calculations were determined to be in error, per BAO ltr W-7800-AFH-662 of 31 Aug 90. No action to drain voids is required.

659 *Problem:* BAO provided data on Power Trial flow meters used during original sea trials.

Status: Complete. Elimination of OPNAVINST 9094.1A Economy Power Trial requirements for Gas Turbine Surface Combatant Ships (including PHMs) was requested by joint PMS330/PMS400 memo to SEA 56P, Ser 330/3658 of 12 Mar 92 (400F/0243 of 16 Mar 92). However, we are still getting economy trial reports as of Dec 92. Squadron stated in telecon 06 Mar 91 that they didn't want or need the fuel flow meters to conduct economy power trials. The E-MAT people have been satisfied with the current procedure, which is to run a four-hour trial, measuring fuel consumption by tank sounding. Planned purchase of a computerized data logger will include an option to add the flow meters (See W-7800-AFH-1094 of 20 Apr 92 and NAVSEA ltr 330C1/548 of 18 Jun 92). This is CAI #241. [25 Jan 93]

662 *Problem:* BAO stated that inclining experiment calculations for PHM 5 were in error. Thus BAO's previous recommendation to drain the strut and foil voids is withdrawn.

Status: Complete. No action required.

682 *Problem:* BAO provided a list of recommended spares for the foilborne propulsor and gearbox.

Status: Complete. PERA modified CMP. History: NAVSEA ltr 4700 Ser 314/4055 of 11 Jan 90 tasked PERA to plan for mid-life overhauls of propulsor and gearbox by accumulating spare parts to minimize turnaround time for the overhauls. The previous plan, which called for the Navy to procure an extra propulsor and gearbox for a rotatable pool has no chance of success in today's tight funding climate. [23 Dec 92]

689 *Problem:* BAO noted that the Maintenance Requirement Card (MRC) for the Strut/Foil Automatic Control System (ACS) self test needs corrections, also that SHIPALT 107D needs revision to add a line filter (this solves the problem with high diesel exhaust gas temperature after 107D is installed).

Status: Complete. No NAVSEA action required. Corrected MRC was forwarded to Squadron by Feedback Report Response W-7870-TSS-346 of 15 Jan 92. Reverse LAR EPY/PHM1-107D/PHM4-001 adds the line filter to SHIPALT 107D. [14 Feb 92]

696 *Problem:* BAO recommended addition of reach rods or other remote actuators to operate various valves in the sea water system that are presently difficult to access.

Status: Complete. SHIPALT PHM-1-0143K SAR signed 23 May 91 includes this change. This proposed SHIPALTs P029K, P0071 and CAI #0300. [07 Oct 91]

697 *Problem:* BAO recommended revisions to the SHIPALT 110 SAR to further combat persistent condensation problems with the Environmental Control System piping. The

revisions would replace metal valve stems and handles with fiberglass equivalents through out the system and would fill the void around the valve bodies and stems with insulation.

Status: PMS330C11 action. SHIPALT programming is on hold; need to get in programmed and task the SIDs. SAR is approved; do not revise. Need to issue LAR against the SHIPALT, and/or include requirement for valve handles, stems, and insulation in tasking for the SIDs. This is part of CAI #151. [14 Feb 92]

698 *Problem:* BAO requests tasking to develop a test procedure for installing a three foot extension onto the diesel exhaust. The test would verify that the extension would not affect engine performance.

Status: ISA action. Provide draft AER. Trial installation on PHM 2 was satisfactory, as reported by BAO ltr W-7800-AFH-1299 of 30 Nov 92. History: Trial requested by NAVSEA ltr 330C/446 of 18 May 92. Materials and procedures were provided per BAO ltr W-7800-AFH-1022 of 27 Jan 92. J/CF provided 07 Oct 91. NAVSEA ltr 4720 Ser PMS330C1/843 of 12 Nov 91 tasked the detail design work material procurement (for test installation) and test plan in response to BAO ltr W-7800-AFH-871 of 09 Jul 91. TI #319 issued via ltr 314C1/355 of 26 Feb 91 tasked procedure development to BAO ISEA. 314T1 agreed by route sheet of 21 Feb 91 that BAO should be tasked as requested. This is CAI #0153A and SPRAI 378.I. SHIPALT number PHM-1-170K was assigned at CCB of 04 Dec 91 (superseding P104K). [25 Jan 93]

699 *Problem:* BAO recommends fastener change for the forward strut secondary energy absorber. The change would allow the energy absorber to operate before failing the steering stop.

rcd 2/16/93 Faxed to BAO 2/24/93

Status: T-action to review new calculations and issue AER (draft furnished by ISA on 29 Jun 92). New calculations justify permanent removal of the center row of shear bolts and include USS PEGASUS. Additional info provided by W-7840-DLG-323 of 28 May 92. SAR received in Mar 92, but decision was to go with an AER. Have SEA 55Y13 agreement with BAO ltr W-7800-AFH-838 of 24 May 91, which modifies the original BAO proposal based on further analysis plus NAVSEA ltr 314C1/551 of 16 May 91. This is part of CAI #0299 and part of SHIPALT 155K (was P0031K). [07 Dec 92]

700 *Problem:* BAO recommends adding a lanyard to prevent loss of the forward strut steering stop.

Status: Complete. Cancel... no need to retain steering stop. This was agreed to by BAO, ISA, and NAVSEA (PMS330C11, PMS330TH) in a meeting of 08 Dec 92. History: a draft AER was provided 07 Aug 91. SEA 55Y13 provided a favorable response. BAO ltr W-7800-AFH-838 of 24 May 91 refers. This is part CAI #0299 and is part of SHIPALT 155K (was P0031K). [07 Jan 93]

714 *Problem:* BAO requested tasking to develop a procurement specification for a new Environmental Control System (ECS) chiller. The current ECS chiller unit compressors will no longer be manufactured.

Status: BAO action. Prepare SAR as directed by NAVSEA ltr Ser 330C1/819 of 21 Oct 92 and TI #383. T-Shop still has not approved J/CF. This is CAI #380. [07 Dec 92]

OSTJA reviewed 5 proposed AERs. Concerns w/ AERs to del pressure relieve v/v (P0148K) & inst isolation v/vs (P0145K). Posed tech object to Zinc Anodes (P0149K) Moist Ind (P0146K) Press Rlv valves (P0145K)

History (Specification): NAVSEA ltr 330C1/633 of 03 Aug 92 approved the revised procurement spec D312-80623-1B submitted by BAO ltr W-7800-AFH-1167 of 09 Jul 92 . NAVSEA ltr 9256 Ser 330C1/440 of 06 May 92 forwarded review comments to second draft procurement specification provided by BAO ltr W-7800-AFH-988 of 04 Dec 91 (CAI #0372) incorporating changes agreed to in meeting held at NAVSEA 26 Sep 91. First draft specification submitted in BAO ltr W-7800-AFH 812 of 16 Apr 91 and followed up by W-7800-AFH-850 of 17 Jun 91. The procedure was tasked by TI #300.

History (PIP): In case a new chiller could not be funded, BAO proposed a Product Improvement Plan in their ltr W-7800-AFH-974 of 18 Nov 91 (CAI #0428). A PIP kick-off meeting was held 11-12 Mar 92 at Key West; minutes published by NAVSEA ltr 330C/361 of 01 Apr 92; first status of BAO action items from the meeting given in W-7800-AFH-1120 of 14 May 92, follow up status in W-7800-AFH-1174 of 15 Jul 92.

History (Compressor). BAO procured six compressors from the new supplier for evaluation. These units are in Key West and are to be drawn from the store ahead of the old stock. COMPHMRON TWO 141410Z NOV 91 informed NAVSEA that the requisition for the six evaluation units was submitted. BAO ltr W-7800-AFH-940 of 24 Sep 91 predicted last spare compressor in stock will be issued in Nov 93. BAO tasked KECO with doing a post mortem on four failed units supplied by the Squadron. The report was completed and forwarded by W-7800-AFH-1174 of 15 Jul 92. NAVSEA ltr 300C1/660 of 18 Aug 92 provided comments to the KECO report.

History (SHIPALT development): SHIPALT request submitted via COMPHMRON TWO Ser N4/344 of 14 May 91, endorsed by COMCRUDESGRU 12 Ser N1-7/N4/565 of 04 Jun 91, also endorsed by COMNAVSURFLANT Ser N422A/10346 of 29 Aug 91. , NAVSEA ltr Ser 314C1/376 of 18 Mar 91, as part of the scope of work for preparing the SAR for PHM-1-0138K.

Per SPRAI 400.F, NAVSEA provided monthly status reports to ALCON up until the Feb 92 SPR:

#1	NAVSEA ltr	9256 Ser 330C/731 of 05 Sep 91
#2	"	" 9256 Ser 330C/774 of 12 Oct 91
#3	"	" 9256 Ser 330C/824 of 05 Nov 91
#4	"	" 9256 Ser 330C/1050 of 17 Dec 91
#5	"	" 9256 Ser 330C/234 of 23 Jan 92

This is BAO Technical Problem: #71. This is CAIs 0372, 0380, and 0428; SHIPALT PHM-1-161K (was P0048K); and SPRAI 400.B. [02 Sep 92]

LFA-121 *Problem:* BAO submitted update to the USS PEGASUS (PHM 1) Strut/Foil Inspection Plan based upon the corresponding document for the PHM 3 Series. The plan requires review and approval by NAVSEA.

Status: Complete. Interim approval subject to comments issued via NAVSEA ltr 4720 Ser 314C1/510 of 1 May 91. BAO response to comments provided by W-7800-AFH-851 of 17 Jun 91, which also recommended creating a combined PHM1/PHM3 plan. This is CAI #0315 and SPR action item 156.V. [13 Aug 91]

788 *Problem:* Aft trunnion pin life is less than originally predicted due to seawater incursion into the trunnion pin area. BAO recommended sealing the area and relocating the seawater overboard discharge.

Status: Complete. SAR submitted by W-7010-92LKB-113 of 16 Jun 92 was approved by CCB on 24 Nov 92. However, SAR does not cover PHM 1... need to add applicability or to cover PHM 1 by proposed SHIPALT P0136 (See W-7800-AFH-476 of 17 Aug 89). The SHIPALT is still needed, even though the Squadron has changed to "bare ball" trunnion bearings and has thus greatly extended the service life of the bearings. The reason it is still needed is to implement the trunnion area seal and the overboard discharge relocations. These two changes will keep the trunnion pins dry and triple their predicted flaw growth life (each titanium trunnion pin costs $100K +). The Squadron has not yet seen the trunnion pin problem because it has not yet affected their daily operations. It does however hold the potential for a catastrophic failure at worst, or frequent, costly inspections at best. Note that CAI #312 (PHM 1-P0051) sent a SAP for the seal and discharge actions only. These were later incorporated into the SAR for SHIPALT 167K (was P0081). This is CAI #074, superseding CAI #312, and duplicating CAI #0356. This is SHIPALT 167K (was P0081), AFT TRUNNION BEARING MODS [25 Jan 93]

806 *Problem:* BAO investigation shows that the F/B propulsor exit bellows liner is necessary to prevent compartment flooding in the event of a bellows rupture. Liners should be reinstalled on all ships from which they have been removed.

Status: Complete. BAO corrected installation drawing 201-466874B by issuing ADCN #26 of 13 Sep 91. NAVSEA 111154Z SEP 91 notifies Squadron to reinstall any flow liners that were removed. SOOMM correction is being accomplished as part of the tech manual upgrade task. Correction is to specify clearance when installing the liners. If insufficient clearance is allowed, the liner can rub and wear the bellows. History: PHMRON TWO MLSG requested authorization to remove the liners (111758Z APR 90) as a cause of bellows wear. SURFLANT 142210Z APR 90 authorized removal. This is CAI #0392. [12 Dec 91]

811 *Problem:* BAO submitted a recommended list of spare parts as candidates for a range and depth increase.

Status: C1 action. Need to provide list for FY 92. Be sure to include one set of strut/foil flap push rods per LAR EPY/PHM1/PUSHRODS of 20 Nov 91. The FY 91 list was and BAO ordered parts from the list as far as the funds would stretch per SUPSHIP Seattle ltr PHM/NC91-2202 Ser 415-1308 of 31 May 91. [10 Dec 91]

107 *Problem:* BAO submitted a feasibility study for adding the Mast Mounted Sight to PHMs and recommended a trial installation to evaluate the system in operations.

Status: Complete. No further NAVSEA action contemplated due to lack of funds to program installation. This is CAI #0278. [07 Dec 92]

831 *Problem:* For various Automatic Control System (ACS) Circuit Card Assemblies (CCAs), BAO proposed modifying resistor mounts to raise the resistors up off the Printed Circuit Board (PCB). This will eliminate heat damage to the PCBs.

Compl Evaluated. discuss chg'd. sat. report w-7800-PHM3-030 19 Mar 93

Status: ~~PHMRON TWO~~ action. Install modified CCA and monitor performance as a demonstration project. History: NAVSEA ltr 4720 Ser 330C1/346 of 09 Mar 92 approved additional testing using a larger, down-rated resistor. This did not pan out per BAO ltr W-7800-AFH-1144 of 16 Jun 92, which recommended going back to the fix proposed in BAO ltr W-7800-AFH-831. NAVSEA ltr 9202 Ser 330C1/598 of 17 Jul 92 gave BAO approval

to draw a CCB from CLS store stock and make the modification for an at sea demo. The mods were completed and the CCA provided to Key West. This is CAI #0389. [07 Dec 92]

841 *Problem:* BAO submitted ADRNs 6-10 to the USS PEGASUS (PHM 1) NDT&I Plan for review and approval.

Status: On hold pending review of the combined NDT&I plan tasked to BAO. This is CAI #0376. [23 Jan 93]]

845 *Problem:* BAO provided suggested responses to UMI INSURV reports on PHM 1 and PHM 4.

Status: T-Action. Need to prepare and issue letter response. Open since June 91. This is CAIs 0363 and 0364. [14 Feb 92]

851 *Problem:* BAO recommends that they be tasked to prepare a new Strut/Foil NDT&I Plan covering all 6 PHMs. The work would include incorporating all pending changes to the existing separate PHM 1 and PHM 3 plans.

Status: BAO action to combine the plans. Guidance on open issued provided by NAVSEA ltr 4730 Ser 330C1/869 of 30 Dec 92. Incorporate revised Table 5.1 provided by BAO ltr W-7800-AFH-1255 for non-dry-docking availabilities. When draft document submitted, T-Shop will need to adjudicate technical comments outstanding from issue of the revised PHM 1 plan (if any). When draft received, need to verify that the SHIPALT 104K info provided in BAO ltr W-7800-AFH-963 of 01 Nov 91 is reflected in the text. NAVSURF-WARCEN CARDEROCK (DTRCEN) ltr 1233/696 of 17 Apr 92 concurs with BAO position on the outstanding issues of NDT personnel qualification and use of visible vs. fluorescent PT materials. Need to include extra PHM 1 forward strut inspections recommended by BAO ltr W-7800-AFH-1064 of 16 Mar 92. This is CAI #0379. [30 Dec 92]

854 *Problem:* BAO recommended against adopting the eddy current test procedure developed by NAVSURFWARCEN, Carderock Division (formerly DTRCEN).

Status: Complete. ET disapproved as allowable inspection method for PHMs by NAVSEA ltr 3960 Ser 330C/236 of 27 Jan 92. History: DTRCEN (NAVSURFWARCEN, Carderock Division) ltr 3960 Ser 1233/570 of 03 Oct 91 answers technical questions arising from a splinter session at the Aug 91 SPR. DTRCEN (NAVSURFWARCEN, Carderock Division) ltr 3960 Ser 1233/547 of 23 Jul 91 responds to collected comments on the draft ET procedure submitted by ltr 1233/505 of 17 May 91. MLSG comments provided by ltr 5000 Ser MLSG/132 of 14 Jun 91. BAO ltr W-7800-AFH-1009 of 6 Jan 92 provided additional comments. This is CAIs #0373 and SPRAI 156.R. This relates to CAI #0395 and SPRAI 156.AP [14 Feb 92]

864 *Problem:* BAO provided details on repairs made to the forward strut energy absorber on USS PEGASUS (PHM 1).

Status: Complete. No NAVSEA action required. There is no assigned CAI action. [14 Aug 91]

874 *Problem:* BAO concurred with acceptability of inorganic blasting media for achieving a satisfactory hull surface profile prior to painting.

Status: Complete. NAVSEA standard item 09-32 was modified to reflect choice of blast media. NAVSEA ltr 330C/202 of 02 Jan 92 was a follow up to close out the SPRAI. This is CAI #0251 and SPRAI 369.F. [14 Feb 92]

879 *Problem:* BAO recommended a SHIPALT to add a check feature on the AC Generator cooling air exhaust duct to stop seawater intrusion damage to the generator.

Status: T-action. Review and approve the SAR submitted by BAO ltr W-7010-92TMM-030 of 04 Mar 92. J/CF furnished by ISA on 04 Oct 91 was ~~never reviewed or approved~~ assigned # @ SPCOB COMPHMRON TWO NAVGRAM Ser 01/698 of 23 Sep 91 received endorsing BAO's proposals to correct the problem (this amounts to a SHIPALT request). Note that installation of the exhaust hood upgrade for Generator #1 on USS PEGASUS will be accomplished as part of SHIPALT 079K programmed for the FY 92 DSRA. This is part of CAI #040, SHIPALT 169K (was P0103K), and SPRAI 378.I. [07 Dec 92]

880 *Problem:* BAO submitted recommendations for improvements to the SSPU combustion air intake. Improvements will reduce contamination of SSPU internals. Copy of study attached to letter.

Status: T-action. Review and approve new J/CF provided 16 Oct 91. J/CF went out on TSR TP12C0055 on 29 Jan 92. This is CAI #0153B and SHIPALT 171K (was P0106) This is SPRAI 378.I. [25 Jan 93]

881 *Problem:* BAO provided a recommendation for cancellation of various active class advisories based on correction of the subject problem or addition of necessary data to the SOOMMs.

Status: T action. Issue updated Class Advisory Status report. History: BAO ltr W-7800-AFH-1222 of 03 Sep 92 provides a basis for the update. NAVSEA ltr PMS330/3706 of 01 Apr 92 issued a long-overdue status and canceled several advisories. In connection with that effort, NAVSEA ltr Ser 330C1/835 of 04 Nov 91 to NAVSSES asked for status of advisories to be added to the EOSS Manual. Response was received by fax. This is CAI #0388. [30 Sep 92]

887 *Problem:* BAO provided rev D of assembly drawing 204-4597797 to show new fire damper doors in the Gas Turbine Module.

Status: Complete. Unnecessary per BAO to revise the various figures in the SOOMM showing the fire damper doors because the installation drawing 204-4597732 has been modified to correct the firing squib clearance problem. Thus the 180 deg. rotation of the firing squib accomplished by the Squadron on some or all of the ships appears to be unnecessary and nonconforming. Squadron notified by e-mail 27 Sep 91. Do not have copy of installation drawing to confirm. Per fax of 21 Aug 91, the assembly drawing was added to the PHM 1 Ships Drawing Index. There is no CAI number assigned. [27 Sep 91]

890 *Problem:* BAO responded to COMNAVSURFLANT message 100141Z Aug 90 stating that F/B Propulsor, Serial #6 was not ready for issue (NRFI) when received at the Squadron.

suspended completed. report on concept design w-7800/ PMM 93-049 25 Mar 93

Status: Complete. PMS330C1 turned this issue over to SUPSHIP Seattle to provide a response to COMNAVSURFLANT's message. W-7800-AFH-978 recommended a change in the thread class for the impeller shaft. W-7800-AFH-1127 of 29 May 92 reported that the drawing had been changed to reflect the new thread class requirement. [09 Jun 92]

904 *Problem:* BAO recommended trial replacement of propulsor cutless bearings with Thordon type bearings.

Status: Complete. Permanent configuration change for the H/B propulsor approved by NAVSEA ltr 9247 ser 330C1/595 of 17 Jul 92 as requested by BAO ltr W-7800-AFH-1071 of 24 Mar 92. Change acknowledged by BAO ltr W-7800-AFH-1197 of 05 Aug 92. History: Permanent change approved for F/B propulsor by NAVSEA ltr 330C1/204. COMNAVSEASYSCOM 041117Z OCT 91 authorized trial replacement of cutless bearings with Thordon bearings on PHM 4 H/B propulsors and, if necessary, F/B propulsor during DSRA. No CAI has been assigned. [02 Sep 92]

906 *Problem:* BAO reported on a study conducted in response to Squadron complaints that several supposedly Ready-For-Issue (RFI) motors would not work when installed without over-riding the thermistor-based overheat protection.

Status: Complete. NAVSEA ltr 9303 Ser 330C1/657 of 14 Aug 92 concurred with the BAO recommendations and approved incorporation of changes into the technical manual and SOOMMs. BAO ltr W-7800-AFH-1217 of 27 Aug 92 confirms intent to update SOOMMs. This is CAI #0413. [23 Dec 92]

920 *Problem:* BAO submitted test results and recommendations for EM Speed Log replacement with a commercial, supportable unit.

Status: T-action. Review and approve revised SAR submitted by W-7010-92JHS-109 of 11 Jun 92. History: Previous SAR submitted by W-7010-92TMM-057 of 04 May 92. NAVSEA ltr 330C1/346 of 09 Mar 92 tasked BAO via to complete Phase II of the testing and evaluation, which is to develop interfaces for shipboard electronics equipment requiring a speed log input. NAVSEA approval was acknowledged by BAO ltr W-7800-AFH-1166 of 02 Jul 92. BAO originally requested authorization to proceed with phase II in W-7800-AFH-1038 of 14 Feb 92. COMPHMRON TWO ltr 9420 Ser N5A/183 of 13 Mar 92 endorsed Phase II, recommending a TIA. COMPHMRON TWO ltr 9420 Ser N5/326 of 31 May 92 recommended Phase I as an AER, but there would be a problem with funding. SURFLANT ltr 9420 Ser N4125C/4373 of 29 Jun 92 turned down the AER idea, stating that a SHIPALT is the way to go. This is CAI #0416 and SHIPALT 178K. A J/CF was prepared but never signed. [02 Sep 92]

945 *Problem:* BAO recommended removing the Gas Turbine Room smoke detector without replacing it.

Suspended. Need to

Status: ~~T-action~~. Approve SAR submitted by BAO ltr W-7010-93LKB-0005 of 07 Jan 93. History: BAO submitted a ship check report via ltr W-7010-92LKB-169 of 04 Oct 92. CCB approved J/CF on 27 Oct 92 (the J/CF was prepared in Oct 91 and reviewed under TSR #TA2C0230 of 26 Feb 92). This change is safety-related and was initiated in response to a SEA56Y51 trip report of 15 Mar 88. The report was endorsed by a letter of 31 Aug 88 from the fleet Commodore requesting urgent action to develop a SHIPALT. A Fire Improvement study was completed Aug 91 as promised by NAVSEA ltr of 08 Aug 89 to

COMPHMRON TWO. This is CAI #0343 (was #0274), SHIPALT 163K (was P0050), and SPRAI 403.C. [25 Jan 93]]

956 *Problem:* One of the Target Acquisition Console TAC MK-105 cable assembly connections presents a shock hazard at the IC Switchboard. The hazard is not present if equipment is operating normally, but under the wrong set of circumstances, a short circuit could cause severe personnel injury and major equipment failure.

Status: Complete. Class Advisory 01/92 issued by COMNAVSEASYSCOM 171128Z APR 92, Ser 330/3759 provided instructions for rewiring to eliminate the hazard. USS HERCULES was first ship to install. Clarifications requested in USS HERCULES 231700Z APR 92. Response provided to COMPHMRON by BAO memo W-7850-RFH-237 of 30 Apr 92 and followed up by E-mail from ISA. USS HERCULES 252235Z APR 92 noted that installation complete. This is CAI #0426. [05 May 92]

958 *Problem:* BAO proposed improvements to make the internal draft gauges more reliable and user-friendly.

Status: T-action. Issue AER. Draft provided by ISA on 14 Oct 92. Detail design provided by BAO ltr W-7800-AFH-1232 of 06 Oct 92. For C1: SURFLANT wanted POA&M by mid-Jul 92. W-7800-AFH-1130 of 01 Jun 92 provides additional information. COMPHMRON TWO ltr N4/175 of 10 Mar 92 provides a SHIPALT Request. The request is endorsed by COMDESRON 12 ltr N41/107 of 17 Mar 92 and SURFLANT ltr N422B/3439 of 20 May 92. This is CAI #0436 and proposed SHIPALT P0135. [23 Dec 92]

960 *Problem:* BAO provided justification and sketches for using the rod end of the FWD retraction actuator P/N 312-80040-5 as an emergency replacement for P/N 312-80040-4 used in the aft retraction actuator.

Status: Complete. No NAVSEA action required. No CAI. [10 Dec 91]

968 *Problem:* Possible mechanical failure of pressure vessel in Reverse Osmosis Distiller.

Status: Complete. Class Advisory 02-92, COMNAVSEASYSCOM 171130Z JUL 92 was issued. Per COMPHMRON TWO e-mail of 06 May 92 15:37 EDT, replacement pressure vessels are not yet on all ships. SEA 05 Tech Manual markups mailed informally to BAO 06 May 92. This is CAI #0424. [05 Aug 92]

970 *Problem:* Need to incorporate fastener dimension changes for PHM 2 and PHM 6 which other PHMs received or are receiving per an LAR to SHIPALT 129K.

Status: Complete. AER 03/92 Ser PMS330/3951 of 06 Jul 92 was issued. This is CAI #0430. [05 Aug 92]

992 *Problem:* The MK 75 gun mount slip ring was found to be making contact with the Platform Deck during foilborne operations. Localized structural deformation and cracking was detected.

Suspended

Status: ~~T-Action~~: Need to approve SAR submitted by BAO ltr W-7010-92LKB-214 of 15 Dec 92. Meanwhile, cracked structure was cut out and replaced during the FY 92 DSRA as recommended by NAVSEA 131132Z JUL 92 to SURFLANT. As requested by E-mail from ISA to BAO on 29 Jun 92, the SAR includes a new tech manual requirement for

Ship check report submitted by W-7010-93LKB-016 of 02 Feb 93

USS PEGASUS Hull Inspection Plan. C1 will not fund NAVSURFWARCEN CARDEROCK recommendation for Finite Element Analysis in ltr Ser 1233/694 of 17 Apr 92. History: NAVORDSTA Louisville KY tech rep adjusted slip ring so it no longer contacts platform deck. Visible cracks were repaired, but many have since reappeared, along with new cracks and bulkhead distortion. Sheathing was removed to look for more cracks. Structural reinforcement of the critical areas was added to the scope of work for the SHIPALT "FWD STRUT DOWN LOCK FDN MOD. ASSIST Report 129 for Jan 92 shows crack locations. COMNAVSEASYSCOM 241132Z APR 92 recommended repair actions during PHM 1 FY 92 DSRA, pending installation of corrective SHIPALT. This is CAI #0314 and SHIPALT 165K [21 Jan 93]]

993 *Problem:* Flap Push rods have been removed and inverted on 5 PHMs. This is only a short term solution. Procurement lead time for the push rods is 52 weeks.

Status: Complete. PERA ltr 510/3275 of 31 Dec 91 add push rods to CMP equipment list for FY 92 buy. LAR EPY/PHM1/PUSHRODS of 20 Nov 91 refers. [18 Mar 92]

1000 *Problem:* BAO submitted draft SOW for additional ISEA tasks to be authorized by TI.

Status: Complete. NAVSEA ltr Ser 330C1/346 of 09 Mar 92 authorized the requested tasks plus others. BAO ltrs W-7800-AFH-1083 of 31 Mar 92 and W-7800-AFH-1057 of 28 Feb 92 provided estimates. ISEA tasks for FY 93 were tasked by TI 399, NAVSEA ltr 4720 Ser 330C1/201 of 07 Jan 93. [25 Jan 93]

LFA-165 *Problem:* Boeing submitted Astro Corp.'s titanium weld procedure qualification data SUPSHIP Seattle for approval.

Status: Complete. NAVSEA approval is required for Titanium weld procedure qualification; however, the documentation was properly submitted to SUPSHIP. After an initial review, SUPSHIP will forward the documents to NAVSEA. There was no CAI number assigned. [18 Mar 92]

1014 *Problem:* BAO provided recommendations for field lubrication of worn aft strut trunnion bearings.

Status: T-action. Need to review the recommendations. If approved, authorize BAO to modify the SOOMMs accordingly. [18 Mar 92]

1018 *Problem:* BAO provided impact of using the PRC III polyurethane nonskid deck coating instead of the epoxy type now in use.

Status: Complete. NAVSEA msg 241140Z JAN 92 transmitted NAVSEA's initial position permitting TYCOM option to use the PRC coating. BAO ltr W-7800-AFH-1021 of 22 Jan 92 provided additional info. Dale Sowell SEA 5141 attended the Feb 92 Semiannual Program Review, where he gave a presentation and answered questions. Decision was that the next two ships will get epoxy B nonskid coating. NAVSSES ltr 9634 Ser 044B/3087 of 19 Feb 92 proposed training in application of non-skid coatings. [04 May 92]

1020 *Problem:* The forward strut well hatch (123-5330387-33) is poor quality and should be replaced with a new design.

Status: Complete. Fax received 31 Mar 92 from W. Eveland. PMS330C1 authorization issued the same day. [04 May 92]

1033 *Problem:* BAO recommended Heavy Weight Take-Off Trials and submitted procedures for review.

Status: BAO action. Prepare ballast plan as tasked by TI 399. History: BAO ltr W-7800-AFH-1200 of 12 Aug 92 responded to NAVSEA comments, ltr 4720 Ser 330C1/599 of 17 Jul 92. NAVSURFWARCEN CARDEROCK gave the OK on the original draft procedure via ltr Ser 1233/680 of 03 Apr 92. Proposed SHIPALT initiated, "TAKEOFF FLAP BIAS SWITCH, INSTALL", P0139K. This is CAI #0444. [25 Jan 93]

1041 *Problem:* BAO submitted three alternatives for a switch to allow field flashing of the DC diesel generator. This would be in lieu of automatic flashing circuitry proposed for SHIPALT 157K. ISA prepare Ltr to Surf/Sadd c/ct is ready to go in ILO since Sept

Status: ~~BAO~~ action. Install a prototype circuit for evaluation, tentatively scheduled for PHM 4 during 25-26 Sep 92. Parts are on order as approved by NAVSEA fax on 28 Jul 92 in response to BAO ltr W-7800-AFH-1169 of 13 Jul 92. Intent is to issue an AER for the rest of the class if the prototype proves satisfactory. This is the approach promised in NAVSEA ltr 9311 Ser 330/3717 of 12 May 92. Decision was made not to issue a Class Advisory to install a manual push-button as a temporary measure. The reasoning is that so far only PHM 4 has the new configuration generator that requires flashing. Full instructions for installing and operating a manual switch are in BAO ltr W-7800-AFH-1067 ~~of 24 Mar~~ 92 in case of future need. This is CAI # 0305 and SHIPALT PHM-1-0157K. [02 Sep 92]

1045 *Problem:* BAO recommended that the waste tank #2 be relocated with their foundations one frame aft and that an access hole with cover be provided in the platform deck directly above the pump. This change would correct the current lack of proper access to the tank and pump for maintenance.

Status: T-action. Review and approve SAR submitted by BAO ltr W-7010-92LKB-163 of 05 Oct 92. SAR went to Tech Code for review under TSR #TP32C0622 OF 16 Nov 92. NAVSSES ltr 9593 Ser 042B/109 of 08 Apr 92 provided NAVSEA with comments on BAO's recommendations. This is CAI #0443 and proposed SHIPALT P0137K. [12 Dec 92]

1048 *Problem:* BAO reviewed the crack logs for PHM strut, foil, and pod. BAO concludes that most cracks were due to residual stress from construction, not fatigue. BAO recommends based on the review that the Navy continue the present policy to repair cracks as they are discovered.

Status: Complete. No T-Shop action required. This is CAI #0381, and SPRAI 398.V/W/X. [02 Jul 92]

TSS 360 *Problem:* BAO provided brow proof loading recommendations for USS PEGASUS.

Status: T-action. Review and comment. PHMRON concurs per E-mail 25 Mar 92, 08:18 EDT. [04 May 92]

1055 *Problem:* BAO recommended test for PHM 4 post availability sea trials to determine cause and impact of inability to adjust aft foil incidence angle to within the specified tolerance.

Suspended W-7010-93 FWC-057 4 May 93 recommended actions to improve performance

Status: ~~Complete~~. NAVSEA 111113Z MAR 92 confirmed that no operational limitations need to be placed on PHM 4 at this time, but that the recommended post DSRA trials tests should be performed. [18 Mar 92]

1058 *Problem:* BAO reported that problems with SHIPALT 062K ACS UNREP MOD installation on PHMs 2 and 6 were due to incorrect wiring and pin in receptacle on the A7 card.

Status: Complete. No NAVSEA action required. Reverse LARs issued to correct the problem on future installations. Problem: corrected on PHMs 2 and 6. [04 May 92]

1065 *Problem:* BAO provided an analysis of PHM life beyond the year 2003.

Status: Complete. No NAVSEA response required. Copies forwarded to 330TH and SEA 55Y13 for information. No CAI. [09 Jun 92]

1068 *Problem:* BAO recommended a different primer for painting the strut/foil system. The same top-coating would be retained.

Status: Complete . NAVSEA ltr Ser 330C1/659 of 23 Sep 91 approved and tasked a SOOMM revision to incorporate the revised repair procedure submitted by BAO ltr W-7800-AFH-1159 of 29 Jun 92 in response to SEA 5141 comments. This is CAI #0393 and SPRAI 156.AE. [30 Sep 92]

1084 *Problem:* BAO investigated need for a reduced inspection interval applicable to PHM 4 only for the foil attachment bolts. Conclusion was that class requirements are adequate despite slight dimensional variations from design configuration. An option for more thorough inspections at the 6-month IMAVs and 2-year SRAs was offered.

Status Complete. No NAVSEA action required unless requested by Squadron. [05 May 92]

1090 *Problem:* BAO proposed a plan to salvage stators previously designated as scrap. Three such stators are available, and at least one can be saved. Potential savings for this approach are $200K per stator and lead time reduction by 1 year.

Status Complete. 330C1 authorized BAO to proceed as proposed. Initial report was provided by BAO ltr 'W-7800-PHM93-001 of 05 Jan 93. No CAI number has been assigned. [25 Jan 93]

W-7800-PHM 93-018

1094 *Problem:* BAO recommended procurement of automatic recording equipment to monitor parameters during DSRA sea trials and ACS grooming. This would expedite the trials because the information is now collected and analyzed manually.

Suspended report W-7800-PHM93-004

Status: ~~ISA action~~. Prepare a draft AER. BAO conducted demonstration activities with trial logger installed on PHM 4. A report was provided by W-7800-PHM93-004 of 11 Jan 93. A proposal to install the connecting cables on all ships was provided by W-7800-PHM3-0008 of 11 Jan 93. History: DTRCEN ltr 3960 Ser 1233/011 of 30 Oct 92 noted that installation was planned for PHM 4 in Dec 92. BAO procured data logger and conduct a demonstration as approved by NAVSEA ltr 330C1/548 of 18 Jun 92. Per agreement in meeting of 03 Jun 92, original logger proposal will be expanded to allow additional measurements needed for propulsor performance eval per NAVSURFWARCENDIV CARDEROCK ltr 1233/507 of 17 Jul 91. Per BAO ltr W-7800-AFH-1175 of 17 Jul 92, the

logger shipped to NSWC Carderock per W-7800-PHM93-092 of 6 Jul 93

alternate logger suggested by DTRCEN is not suitable for this use. This is CAI #0447. [25 Jan 93]

1104 *Problem:* BAO reported favorable results of investigation into surface wave ultrasonic testing as a possible method for inspecting PHM struts and foils without removing paint.

Suspended report W-7800 PHM93-070 25 Apr-93

Status: ~~BAO action~~. Complete Phase II of the study, which entails development of a procedure for using this method. This is CAI #0448. [23 Dec 92]

1113 *Status:* BAO documented recommendations to correct the boat davit design in response to SEA 55W22 comments.

Status: T-action. Resolve winch issue. NAVSEA 081130Z MAY 92 identified the safety deficiencies to the Squadron. This is CAI #0450. [29 May 92]

1115 *Problem:* BAO recommended design improvements in the aft strut uplock support pads, based on failure analysis on pads from PHM 3. This is believed to be a class problem.

Status: T- action. Investigate problem for permanent solution. Damaged uplock pad was sent to NAVSEA by BAO for inspection. ~~For C1: Issue letter response, draft provided by ISA in shop~~. T-Shop reviewed two alternative designs and supporting calculations under TSR #TH2C0597. Initial review provided 25 Jun 92 to BAO. New calculations faxed in response on 07 Jul 92. This is CAI #0452. [25 Jan 93]

1117 *Problem:* BAO submitted draft fault isolation trees for troubleshooting F/B performance problems. The trees are intended for inclusion in the SOOMM.

Status: T-action. Review and approve. Already reviewed and endorsed by NAVSURFWARCENDIV CARDEROCK LTR 1233/730 OF 22 Jun 92. This is CAI #0453. [25 Jun 92]

1123 *Problem:* BAO recommended evaluation of bronze flap bearings to replace the chromium oxide coated CRES bearings and Teflon liners now in use.

Suspended No need by Details per W-7800-PHM93-045 of 19 Mar 93

Status: ~~BAO action~~. Procure set of flap bearings, install, and evaluate as approved by NAVSEA ltr 330C1/522 of 10 Jun 92. NAVSEA will decide whether to implement this as a class change upon receipt and review of a report on the results of the trial. No CAI until the report is received. If the new bearings are satisfactory, NAVSEA will consider changing out other similar bearings, especially in the flap control linkages (see W-2333-AFH-1265). [25 ~~Jun 92~~]

eval sat on Teflon. Need NAVSEA approval

1138 *Problem:* BAO submitted a proposal from the National Sanitation Foundation (NSF) to conduct testing which addresses potential health and water quality issues if coatings are eliminated from the potable water tanks.

compl. keep coating W-7800-PHM93-048 of 15 Apr-93

Status: ~~BAO action~~. NAVSEA ltr 9530 Ser 330C1/608 of 21 Jul 92 approved the proposed test procedure, provided one additional test is added. When test results are reported, they should be forwarded to NAVENVIRHLTHCEN, Norfolk VA. This is CAI #0118. [02 Sep 92]

1139 *Problem:* After investigating a rupture of a hydraulic tank in AMR 1, BAO concludes that the piping between the relief valve in AMR 1 and the Bilge Water Storage Tank should be revised to eliminate the over-pressure hazard.

Status: T action. Issue an AER (draft provided by ISA on 21 Jan 93). This is CAI #0454 and proposed SHIPALT P0156K. [25 Jan 93]

1143 *Problem:* BAO submitted draft SOOMM change pages showing the latest LM2500 power train alignment procedure.

Status: T-action. Review and comment on the procedure. [25 Jun 92]

1146 *Problem:* BAO clarified the requirement for anchor and mooring lines.

Status: Complete? T-Shop believed to have issued direction by Navy Message... nedd copy. This is CAI 0455. [25 Jan 93]

1148 *Problem:* BAO reported their conclusions that the existing SSPU lube oil coolers and the current 3-year inspect/repair/replace CMP task should be retained in lieu of converting to a titanium cooler.

Status: Complete. No further action on SSPU oil cooler required. This is CAI #0168 and proposed SHIPALT P0092. [02 Sep 92]

1149 *Problem:* BAO needs NAVSEA approval to draw a spare BMEE Voltage Booster (VR1) from the CLS store so that the manufacturer Avtech can investigate and correct the cause of overheating problems reported by an INSURV inspection on PHMs 5 and 6 in Feb 92.

Status: Complete. Design changes to improve heat dissipation are possible, but not practical, per BAO report W-7800-AFH-1258 of 15 Oct 92. History: BAO drew a spare unit from stock as approved by NAVSEA ltr 9314 Ser 330C1/609 of 22 Jul 92. The manufacturer provided recommendations based on study of the unit. The unit was subsequently returned to stock in the CLS store. [23 Dec 92]

1153 *Problem:* BAO requested guidance in how to generate Demand Processing Status Re[ports as required by the CDRL for their contract as modified by P0004 of 02 Dec 91

Status: Complete. NAVSEA ltr 330/2486 of 03 Aug 92 responded that the Demand Transaction Tape is no longer needed by NAVSEA PMS330 and requested that SUPSHIP Seattle eliminate the requirement. [30 Sep 92]

1155 *Problem:* BAO provided a list of SSPU equipment currently stocked in the CLS store and requested disposition. Also, BAO noted it would be inappropriate for BAO to assist Garrett in identifying a new starter.

Status: Complete. NAVSEA ltr 330C1/600 of 11 Aug 92 clarifies BAO's responsibilities for SSPU support in light of BAO's proposed new BOA direct with Garrett. [30 Sep 92]

1162 *Problem:* BAO reported that spare F/B Gearbox, Serial #006, P/N 44257-1 has been in storage since 15 Jul 86 with no active dehumidification system and with packaging integrity compromised. Recommended sending unit back to manufacturer to have seals changed, inspect for rust, check out, repackage and return.

Status: C1 action. Discuss with Squadron. [30 Sep 92]

1165 *Problem:* BAO recommended against changing the material specification for the LM2500 anti-icing manifold clamps to solve the corrosion problems. Instead, periodic inspection and replacement is suggested.

Status: Complete. Final report provided in BAO ltr W-7800-AFH-1273 of 10 Nov 92. No agreement in PMS330 to provide additional inspection requirements or expand stock levels. No further NAVSEA action contemplated. Squadron provided information informally about clamps breaking in service on 19 Oct 92. History: PMS330TH route sheet of 18 Aug 92 recommends against a CMP task and provides suggested stock levels. BAO fax to ISA of 26 Aug 92 provides new part numbers and demand history. This is SHIPALT PHM1-152K (formerly P0015), SPRAI 441.A, and CAI #0277 [23 Dec 92]

92LKB -124 *Problem:* BAO submitted the estimated Weight and Moment Report for PHM 6 after completion of FY 93 DSRA-4.

Status: Complete. No action required. [01 Oct 92]

1176 *Problem:* BAO submitted document D312-80093-4 of 01 Aug 92, PHM 2-6 Hull Structure Nondestructive Test and Inspection (NDT&I) Plan.

Status: T-action. Review and provide comments. SUPSHIP JAX has reviewed the documents and faxed their comments on 27 Aug 92. DTRCEN recommended approval with one correction in COMNAVSURFWARCENDIV CARDEROCK lt 3960 Ser 1233/031 of 30 Dec 92. DTRCEN's letter stated that SUPSHIP's comments were well taken but should not drive any revision to the plan. Note that USS PEGASUS will require a separate plan. Tasking for that document is included as part of the SAR for SHIPALT 165K, FWD STRUT DOWNLOCK FDN MOD (See BAO ltr W-7800-AFH-992 of 11 Dec 91). This is CAI #0195. History:

10 Oct 89	DTRCEN began to develop inspection and repair criteria for the aluminum hull in response to Lessons Learned item PEN-036. The existing hull inspection plan (BAO document D312-80093-3) provides extensive criteria for production phase, but is inadequate for use in executing CMP Task 1101001D, Underwater Hull Inspection, during the ships' service life.
07 Dec 89	DTRCEN memo Ser 173/M provides an initial report and preliminary recommendations.
05 Apr 90	DTRCEN ltr 3900 Ser 1233/290 issues recommended criteria.
11 May 90	NAVSEA TSR T120D093 issued to SEA 05M for review of the DTRCEN recommendations.
15 May 90	SEA 05M22 review response received. Requested justification for criteria.

23 Apr 90	DTRCEN ltr 3900 Ser 1233/302 trip reports related to discussion of proposed criteria with Runyan Machine and Boiler Works and with the PHM Squadron.
16 Jul 90	DTRCEN ltr 3900 Ser 1233/337 provided justification and response to comments requested by SEA 05M22.
24 Jan 91	NAVSEA ltr 4720 Ser 314C/221 published hull inspection criteria.
07 Feb 91	SPRAI # 369.I assigned to revise the published criteria. Per SUPSHIP JAX, the costs of conducting the inspection is prohibitive.
19 Feb 91	SUPSHIP JAX faxed estimate for inspection to demonstrate that criteria as published are not cost effective.
18 Mar 91	Draft revision of criteria provided by PMS314T to SEA 51422 and 55Y13 review.
22 Mar 91	SEA 51422 comments on draft revision received.
17 Apr 91	SEA 55Y13 comments on draft revision received.
21 May 91	NAVSEA ltr 4720 Ser 314C/566 published revised inspection criteria.
01 Aug 92	BAO submitted the Hull Inspection Plan for NAVSEA review.
27 Aug 92	SUPSHIP JAX comments faxed to NAVSEA
30 Dec 92	DTRCEN comments received via ltr 3960 Ser 1233/031 [21 Jan 93]]

1177 *Problem:* BAO provided a list of Wiggins fittings and recommended replacements plus identified all shipboard piping systems which use Wiggins fittings..

Status: Suspended ~~BAO action~~. Develop an AER (based on info W-7800-PHM93-023) to eliminate Wiggins fittings from the F/B Gearbox Lube Oil System as tasked by TI #399. History: NAVSEA ltr 330C/817 of 16 Oct 92 requested that the fleet review the list of piping systems using Wiggins fittings and identify those systems requiring elimination of these fittings. COMPHMRON TWO message 040005Z DEC 92 replied that only the F/B Gearbox Lube Oil system needed to be modified. This is proposed SHIPALT P0153 and CAIs 0467 (CAI # 0469 was cancelled). [25 Jan 93]

1179 *Problem:* BAO recommended a replacement for the existing sea water system pressure transducers, which are increasing in cost and may be unavailable in the future. The new transducer would not be a direct replacement. It would be necessary to replace all six transducers and the indicator at one time.

Status: Suspended \ BAO ltr W-7800-PHM93-022 16 Feb 93 ~~BAO action~~. Respond to comments in SEA 05J4 memo 9504 Ser 05J/204 of 17 Nov 92. These comments address mil-spec and commercial options provided by BAO ltr W-7800-AFH-1223 of 09 Sep 92 (TSR #TP#2C0608 of 03 Nov 92). History: info on a

DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND
WASHINGTON, D.C. 20362-5101

IN REPLY REFER TO

4770
OPR PMS330D4
Ser PMS330/2314
26 JAN 1993

MEMORANDUM

From: PMS330D
To: SEA 05X3

Subj: SHIP INACTIVATION REQUIREMENTS FOR GAS TURBINES

Ref: (a) S9086-BS-STM-000/CH-050

1. Reference (a), NSTM Chapter 050, Readiness and Care of Inactive Ships, does not address ship inactivation requirements for propulsion and auxiliary gas turbines. Initial planning for the potential inactivation of DD 963, DDG 993, FFG 7 and PHM 1 Class ships considered that the gas turbine engines would be removed and placed in the care of the engine manager. Otherwise, the engines would require periodic maintenance if left in place.

2. Request SEA 05X3 develop a section of NSTM 050 which provides detailed ship inactivation instructions for propulsion and auxiliary gas turbine engines. Guidance should cover both the removal of engines and preservation requirements if the engines are left in place, and be sufficient to ensure preservation over a period of 20 years. In the case of preservation in-place, identify the recurring maintenance which will be required of Inactive Fleet personnel. Refer to other NSTM Chapters, technical manuals and other documentation as necessary to avoid duplication of published instructions.

3. Secondly, request SEA 05X3 develop a section of NSTM 050 which provides detailed instructions for reactivation of ships, with respect to the gas turbine engines.

Bruce C. Howie

BRUCE C. HOWIE
BY DIRECTION

DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
WASHINGTON, DC 20362-5101

IN REPLY REFER TO

4920
OPR 38023.5
Ser 3802/3079

MAR 3 1 1993

From: Commander, Naval Sea Systems Command
To: Director, Navy International Programs Office (IPO-02)

Subj: LEASE AND SALE COSTS FOR PHM CLASS SHIPS

Ref: (a) Navy IPO letter 4920 Ser 02X1/3U000510 of 3 Mar 93

Encl: (1) Calculation Of Depreciation Charges for Leased Equipment (PHM 1)
(2) Price Computation Sale of PHM 1
(3) Calculation Of Depreciation Charges for Leased Equipment (PHM 2)
(4) Price Computation Sale of PHM 2
(5) Calculation Of Depreciation Charges for Leased Equipment (PHM 3)
(6) Price Computation Sale of PHM 3
(7) Calculation Of Depreciation Charges for Leased Equipment (PHM 4)
(8) Price Computation Sale of PHM 4
(9) Calculation Of Depreciation Charges for Leased Equipment (PHM 5)
(10) Price Computation Sale Of PHM 5
(11) Calculation Of Depreciation Charges for Leased Equipment (PHM 6)
(12) Price Computation Sale Of PHM 6
(13) Recommendation for PHM Overseas Transport
(14) PHMs Unique Material Acquisition Cost Summary
(15) Supply Condition Codes for PHM Class

1. As requested by reference (a), enclosures (1) through (12) provide depreciation charges for lease and sale cost of six potentially excess PHM ships. Reference (a) additionally requested cradle transportation and reactivation cost.

2. The fair values of the PHMs were computed in accordance with DoD 7290.3-M and DoD 4160.21-M. Enclosure (15) provides the justification for PHM's material condition, assigned federal condition codes and assigned percentage of original acquisition cost.

3. The stated intention is to transfer these ships to another country as hot ship transfer. Due to the short fused request and uniqueness of these ships, we are unable to establish valid cost estimates for reactivation at this time. We will provide this information under separate correspondence. Enclosure (13) provides three alternatives for transportation of PHMs and the associated costs.

Subj: LEASE AND SALE COSTS FOR PHM CLASS SHIPS

4. The original acquisition cost of PHM-unique parts stocked by the Mobile Logistics Support Group (MLSG), On Board Repair Parts (OBRPs), PHM-unique parts in the Contractor Logistic Support (CLS) store, military standard and other non PHM-unique parts, parts at SPCC, cradle and associated handling equipment, stationary cradles, and special tools to support the PHMs is $45,621,159.48, see enclosure (14). The fair value of the available PHM-unique support parts excluding line item B of enclosure (14) is $15,256,238.

5. The PHM Class is atypical of other U.S. Navy ship classes. All ships of the class are homeported in one location and supported by the squadron and the MLSG. With this single site homeport concept there is only one set of PHM-unique spare parts, tools and test equipment available. Therefore, we strongly recommend that PHMs be transferred to only a single country.

6. Training is another major concern. There are several local Squadron-conducted operator and maintenance training courses with associated curricula materials. Some of this training follows prerequisite CNET courses and some are totally unique to PHM. There is invaluable resident knowledge of ship operation, employment and maintenance management that resides solely within the PHM Squadron that can only be imparted with expert On-the-Job-Training (OJT). The ability to maintain training capability in these areas is essential to successful transfers; and the U.S. Navy must attempt to retain these capabilities through out the offer, inspection, negotiation, and physical transfer process. Therefore in order to assure successful transfers of these ships, we recommend that a reasonable cadre of resident training experts in PHM operation and maintenance be retained through March of 1994. Also, we need to identify, preserve and maintain all of the curricula materials and training aids that have been developed for these unique platforms over the years.

7. NAVSEA point of contact is Al Borzoo, PMS38023.5, (703) 602-8598.

Paul G. Gregory
By direction

Copy to:
Navy IPO (IPO-02X)

23 FEB 93

CALCULATION OF DEPRECIATION CHARGES FOR LEASED EQUIPMENT

SHIP NAME: USS PEGASUS HULL NO. PHM 1

STEP 1: Determine purpose of lease.

		YES	NO
a.	Cooperative research or development project	( )	(x)
b.	Military exercise	( )	(x)
c.	Electronics interface project	( )	(x)

(If "yes" is checked on items a., b., or c., depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 2: Determine service life.

a.	Date to be leased	JUL 93
b.	Date item first fielded or actual acquisition date of specific item (if known)	JUL 77
c.	Calculate age in months of item on lease date	192
d.	Number of months to be leased	60
e.	Estimated months of service life remaining at conclusion of lease	-12
f.	Total months of service life (c.+d.+e.)	240
g.	Calculate item c. as a percentage of item f.	80%

(If result of step 2.g. is 75 percent or more, depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 3: Determine cost of equipment leased.

a.	Original acquisition cost		$86,100,000
b.	Pro rata share nonrecurring R&D or production costs		1,000,000
c.	Capital improvements		
	(1) Major overhauls (in past 24 months)	2,760,162	
	(2) Modifications net of retirements		
	Total Cost		$89,860,162
	Less residual value		$200,000
	Amount subject to depreciation		$89,660,162

Designed Service Life: 20 years/240 months

ENCLOSURE(1)

STEP 4: Calculate monthly depreciation charge.

Divide results of Step 2.f. into results of Step 3
$ NO COST LEASE

Retirements represent serviceable components and weapons that are replaced by a modified version and that are returned to inventory upon removal. Normally, retired items are valued at standard inventory price, if repair is not necessary. If repair is required before the item may be reissued, the retirement items is valued at standard inventory price less estimated repair cost.

Residual value, defined by DODINST 7220.9-M is the amount that can be expected to be recovered from the asset's disposal when it is removed from service.

PRICE COMPUTATION
SALE OF PHM 1

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 5% of original cost.	$4,305,000
Nonrecurring cost recoupment charge (5% of NRC charge) (Note 1)	50,000
Overhaul in 24-month period preceding the sale.	2,760,162
Onboard repair parts at time of transfer (ESTIMATE)	112,760
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$7,267,922

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using the 5% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard repair parts, fuel lube oil and amount of small arms ammunition onboard the ship. Therefore, we used estimates.

ENCLOSURE(2)

23 FEB 93

CALCULATION OF DEPRECIATION CHARGES
FOR LEASED EQUIPMENT

SHIP NAME: USS HERCULES HULL NO. PHM 2

STEP 1: Determine purpose of lease.	YES	NO
a. Cooperative research or development project	( )	(x)
b. Military exercise	( )	(x)
c. Electronics interface project	( )	(x)

(If "yes" is checked on items a., b., or c., depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 2: Determine service life.	
a. Date to be leased	JAN 94
b. Date item first fielded or actual acquisition date of specific item (if known)	JAN 83
c. Calculate age in months of item on lease date	132
d. Number of months to be leased	60
e. Estimated months of service life remaining at conclusion of lease	48
f. Total months of service life (c.+d.+e.)	240
g. Calculate item c. as a percentage of item f.	55%

(If result of step 2.g. is 75 percent or more, depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 3: Determine cost of equipment leased.		
a. Original acquisition cost		$49,419,000
b. Pro rata share nonrecurring R&D or production costs		1,000,000
c. Capital improvements		
(1) Major overhauls (in past 24 months)	00.00	
(2) Modifications net of retirements		
Total Cost		$50,419,000
Less residual value		$200,000
Amount subject to depreciation		$50,219,000

Designed Service Life: 20 years/240 months

ENCLOSURE(3)

STEP 4: Calculate monthly depreciation charge.

Divide results of Step 2.f. into results of Step 3

$209,245.83

Retirements represent serviceable components and weapons that are replaced by a modified version and that are returned to inventory upon removal. Normally, retired items are valued at standard inventory price, if repair is not necessary. If repair is required before the item may be reissued, the retirement items is valued at standard inventory price less estimated repair cost.

Residual value, defined by DODINST 7220.9-M is the amount that can be expected to be recovered from the asset's disposal when it is removed from service.

PRICE COMPUTATION
SALE OF PHM 2

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 20% of original cost.	$9,883,800
Nonrecurring cost recoupment charge (20% of NRC charge) (Note 1)	200,000
Overhaul in 24-month period preceding the sale.	N/A
Spare parts onboard at time of transfer(ESTIMATE)	230,886
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$10,354,686

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using the 20% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard quantities of spare parts, small arms ammunition, and fuel and lube oil onboard the ship. Therefore, we used estimates.

ENCLOSURE(4)

23 FEB 93

CALCULATION OF DEPRECIATION CHARGES
FOR LEASED EQUIPMENT

SHIP NAME: USS TARUS HULL NO. PHM 3

STEP 1: Determine purpose of lease.	YES	NO
a. Cooperative research or development project	( )	(x)
b. Military exercise	( )	(x)
c. Electronics interface project	( )	(x)

(If "yes" is checked on items a., b., or c., depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 2: Determine service life.

a. Date to be leased	OCT 93
b. Date item first fielded or actual acquisition date of specific item (if known)	OCT 81
c. Calculate age in months of item on lease date	144
d. Number of months to be leased	60
e. Estimated months of service life remaining at conclusion of lease	36
f. Total months of service life (c.+d.+e.)	240
g. Calculate item c. as a percentage of item f.	60%

(If result of step 2.g. is 75 percent or more, depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 3: Determine cost of equipment leased.

a. Original acquisition cost		$113,230,000
b. Pro rata share nonrecurring R&D or production costs		1,000,000
c. Capital improvements		
(1) Major overhauls (in past 24 months)	1,483,551	
(2) Modifications net of retirements		
Total Cost		$115,713,551
Less residual value		$200,000
Amount subject to depreciation		$115,513,551

Designed Service Life: 20 years/240 months

ENCLOSURE(5)

STEP 4: Calculate monthly depreciation charge.

Divide results of Step 2.f. into results of Step 3 $481,306.46

Retirements represent serviceable components and weapons that are replaced by a modified version and that are returned to inventory upon removal. Normally, retired items are valued at standard inventory price, if repair is not necessary. If repair is required before the item may be reissued, the retirement items is valued at standard inventory price less estimated repair cost.

Residual value, defined by DODINST 7220.9-M is the amount that can be expected to be recovered from the asset's disposal when it is removed from service.

PRICE COMPUTATION
SALE OF PHM 3

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 30% of original cost.	$33,969,000
Nonrecurring cost recoupment charge (30% of NRC charge) (Note 1)	300,000
Overhaul in 24-month period preceding the sale.	1,483,551
Spare parts onboard at time of transfer(ESTIMATE)	230,886
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$36,023,437

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using the 30% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard quantities of spare parts, small arms ammunition, and fuel and lube oil onboard the ship. Therefore, we used estimates of spare parts, fuel oil and lube oil, and small arms ammunition.

ENCLOSURE(6)

23 FEB 93

CALCULATION OF DEPRECIATION CHARGES
FOR LEASED EQUIPMENT

SHIP NAME: USS ACQUILA HULL NO. PHM 4

STEP 1: Determine purpose of lease.

	YES	NO
a. Cooperative research or development project	( )	(x)
b. Military exercise	( )	(x)
c. Electronics interface project	( )	(x)

(If "yes" is checked on items a., b., or c., depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 2: Determine service life.

a. Date to be leased	JUN 93
b. Date item first fielded or actual acquisition date of specific item (if known)	JUN 82
c. Calculate age in months of item on lease date	132
d. Number of months to be leased	60
e. Estimated months of service life remaining at conclusion of lease	48
f. Total months of service life (c.+d.+e.)	240
g. Calculate item c. as a percentage of item f.	55%

(If result of step 2.g. is 75 percent or more, depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 3: Determine cost of equipment leased.

a. Original acquisition cost	$79,944,000
b. Pro rata share nonrecurring R&D or production costs	1,000,000
c. Capital improvements	
(1) Major overhauls (in past 24 months) 00.00	
(2) Modifications net of retirements	
Total Cost	$80,944,000
Less residual value	$200,000
Amount subject to depreciation	$80,744,000

Designed Service Life: 20 years/240 months

ENCLOSURE(7)

STEP 4: Calculate monthly depreciation charge.

Divide results of Step 2.f. into results of Step 3

$336,433.33

Retirements represent serviceable components and weapons that are replaced by a modified version and that are returned to inventory upon removal. Normally, retired items are valued at standard inventory price, if repair is not necessary. If repair is required before the item may be reissued, the retirement items is valued at standard inventory price less estimated repair cost.

Residual value, defined by DODINST 7220.9-M is the amount that can be expected to be recovered from the asset's disposal when it is removed from service.

PRICE COMPUTATION
SALE OF PHM 4

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 10% of original cost.	$7,994,400
Nonrecurring cost recoupment charge (10% of NRC charge) (Note 1)	100,000
Overhaul in 24-month period preceding the sale.	NA
Spare parts onboard at time of transfer(ESTIMATE)	230,886
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$8,365,286

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using the 10% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard quantities of spare parts, small arms ammunition, and fuel and lube oil onboard the ship. Therefore, we used estimates of spare parts, fuel oil and lube oil, and small arms ammunition.

ENCLOSURE(8)

23 FEB 93

CALCULATION OF DEPRECIATION CHARGES
FOR LEASED EQUIPMENT

SHIP NAME: USS ARIES HULL NO. PHM 5

STEP 1: Determine purpose of lease.	YES	NO
a. Cooperative research or development project	( )	(x)
b. Military exercise	( )	(x)
c. Electronics interface project	( )	(x)

(If "yes" is checked on items a., b., or c., depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 2: Determine service life.

a. Date to be leased	SEP 93
b. Date item first fielded or actual acquisition date of specific item (if known)	SEP 82
c. Calculate age in months of item on lease date	132
d. Number of months to be leased	60
e. Estimated months of service life remaining at conclusion of lease	48
f. Total months of service life (c.+d.+e.)	240
g. Calculate item c. as a percentage of item f.	55%

(If result of step 2.g. is 75 percent or more, depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 3: Determine cost of equipment leased.

a. Original acquisition cost		$71,820,000
b. Pro rata share nonrecurring R&D or production costs		1,000,000
c. Capital improvements		
(1) Major overhauls (in past 24 months)	1,537,207	
(2) Modifications net of retirements		
Total Cost		$74,357,207
Less residual value		$200,000
Amount subject to depreciation		$74,157,207

Designed Service Life: 20 years/240 months

ENCLOSURE(9)

STEP 4: Calculate monthly depreciation charge.

Divide results of Step 2.f. into results of Step 3
$308,988.36

Retirements represent serviceable components and weapons that are replaced by a modified version and that are returned to inventory upon removal. Normally, retired items are valued at standard inventory price, if repair is not necessary. If repair is required before the item may be reissued, the retirement items is valued at standard inventory price less estimated repair cost.

Residual value, defined by DODINST 7220.9-M is the amount that can be expected to be recovered from the asset's disposal when it is removed from service.

PRICE COMPUTATION
SALE OF PHM 5

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 20% of original cost.	$14,364,000
Nonrecurring cost recoupment charge (20% of NRC charge) (Note 1)	200,000
Overhaul in 24-month period preceding the sale.	1,537,207
Spare parts onboard at time of transfer(ESTIMATE)	230,886
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$16,372,093

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using 20% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard quantities of spare parts, small arms ammunition, and fuel and lube oil onboard the ship. Therefore, we used estimates of spare parts, fuel oil and lube oil, and small arms ammunition.

ENCLOSURE(10)

23 FEB 93

CALCULATION OF DEPRECIATION CHARGES
FOR LEASED EQUIPMENT

SHIP NAME: USS GEMINI HULL NO. PHM 6

STEP 1: Determine purpose of lease.	YES	NO
a. Cooperative research or development project	( )	(x)
b. Military exercise	( )	(x)
c. Electronics interface project	( )	(x)

(If "yes" is checked on items a., b., or c., depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 2: Determine service life.

a. Date to be leased	NOV 93
b. Date item first fielded or actual acquisition date of specific item (if known)	NOV 82
c. Calculate age in months of item on lease date	132
d. Number of months to be leased	60
e. Estimated months of service life remaining at conclusion of lease	48
f. Total months of service life (c.+d.+e.)	240
g. Calculate item c. as a percentage of item f.	55%

(If result of step 2.g. is 75 percent or more, depreciation is not applicable and it is not necessary to complete remaining steps.)

STEP 3: Determine cost of equipment leased.

a. Original acquisition cost		$66,161,000
b. Pro rata share nonrecurring R&D or production costs		1,000,000
c. Capital improvements		
(1) Major overhauls (in past 24 months)	0.0	
(2) Modifications net of retirements		
Total Cost		$67,161,000
Less residual value		$200,000
Amount subject to depreciation		$66,961,000

Designed Service Life: 20 years/240 months

ENCLOSURE(11)

STEP 4: Calculate monthly depreciation charge.

Divide results of Step 2.f. into results of Step 3

$279,004.16

Retirements represent serviceable components and weapons that are replaced by a modified version and that are returned to inventory upon removal. Normally, retired items are valued at standard inventory price, if repair is not necessary. If repair is required before the item may be reissued, the retirement items is valued at standard inventory price less estimated repair cost.

Residual value, defined by DODINST 7220.9-M is the amount that can be expected to be recovered from the asset's disposal when it is removed from service.

PRICE COMPUTATION
SALE OF PHM 6

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 20% of original cost.	$13,232,200
Nonrecurring cost recoupment charge (20% of NRC charge) (Note 1)	200,000
Overhaul in 24-month period preceding the sale.	N/A
Spare parts onboard at time of transfer (ESTIMATE)	230,886
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$13,703,086

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using the 20% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard quantities of spare parts, small arms ammunition, and fuel and lube oil onboard the ship. Therefore, we used estimates of spare parts, fuel oil and lube oil, and small arms ammunition.

ENCLOSURE(12)

Subject: Recommendations for PHM Overseas Transport

1. SUMMARY: This report discusses options for and estimated costs of transporting the six ship PHM squadron across the Atlantic, and provides EPY's recommendation for the best method. Selection criteria used for determining the best method considered safety of the PHM's (probability of damage during transport), loading and unloading procedures, preparation required for transportation, speed of delivery, and cost.

EPY recommends that the PHM's be transported by specialized Float-On/Float-Off (Flo/Flo) type heavy lift ships, such as the SUPER SERVANT or DOCK EXPRESS series vessels. This method provides the best protection from damage during transport, and minimal handling during loading and unloading which also reduces the possibility of damage. Flo/Flo ships are reasonably fast and relatively immune to weather caused slowdowns. The cost is very competitive with other methods evaluated. The Navy has also had experience with this type of load-out, having deployed numerous minesweepers from US ports to the Persian Gulf via Flo/Flo ships.

2. TRANSPORT OPTIONS: The three basic options available for PHM transoceanic transport are: on-deck carriage by self-supporting heavy lift ship or on-deck ship or barge carriage via tug towing, with load-out and off-load by shore or floating crane; direct towing of PHMs via ocean tug; deck carriage by Float-On/Float-Off ship.

a. On Deck Lift-On/Lift-Off Transport: Reference (a) discusses on-deck carriage of PHMs via heavy lift ship and/or cargo ship/barge loaded out using a shore or floating crane. Considerable effort was expended at that time studying lifting sling and spreader requirements, developing lifting gear testing requirements, etc.. Recent evolutions did not use any of the then-suggested lifting gear, trusting rather to the contractor. Experience with PHM 4 and PHM 5 has shown that it is feasible to lift a PHM using a floating crane, but it should be noted that PHM 5 incurred some hull damage when it was lifted.

ENCLOSURE(13)

The definition of "heavy lift" has changed so drastically in the past 20 years that some "standard" ships now have the capability of hoisting and transporting PHMs. The Maritime Prepositioning Ships (MPS) are capable of hoisting 160 LT loads - nearly PHM light ship weight. A stripped down PHM (struts off or engine and propulsor removed) could be carried by a MPS.

Deck carriage on heavy-lift ships offers good speed and reasonably good cargo protection during transport. Load-out on a barge as deck cargo is a variation of this, but doesn't offer any special advantages in this case, and would be considerably slower.

On balance, EPY recommends against any transport method that requires hoisting the ships. As a minimum, specialized or unusual lifting gear and/or cranes is required, which will increase planning requirements. At worst, the ships will be exposed to a higher probability of handling damage.

b. Ocean Towing: Ocean towing of the PHMs would be the simplest approach, requiring the least specialized gear and having the largest pool of qualified vessels available. REFERENCE (b) provides some background on EPY's recommended towing arrangements from Key West to Norfolk. Any ocean tow would be essentially the same thing, with the additional probability that tandem tows (two PHM's strung out on a single towline) would be used. Towing would be done with struts installed and in retracted position per REFERENCE (b). There is little chance of damage to the PHM in making up the tow. Towing is the slowest method of transport, and is somewhat more expensive on a total basis. A principal drawback to towing is the increased probability of damage due to tow line chafing on the PHM hull, and weather or wave damage caused by seas and winds that exceed PHM design towing conditions (approximately sea state 6 and 50 knot winds with struts up). EPY counsels against towing as a first choice, but would find it acceptable depending on time of year or route.

c. Float-On/Float-Off: Float-On/Float-Off (Flo/Flo) ships offer the advantages of speed and protection during transport offered by Lift-On/Lift-Off ships or "standard" ship loaded via shore or floating crane without the likelihood of loadout damage. No special hardware is required for loading, and only minimal gear for cargo chocking and securing. The possibility of damage or loss due to "Acts of God" is reduced from that of towing. Cost is competitive with towing or other methods.

Other advantages include a readily available world fleet, albeit foreign flagged, and US Navy experience loading out and transporting similar sized ships aboard Flo/Flo's (Wijsmuller's SUPER SERVANT carried MSO's (Ocean Minesweepers) to the Persian Gulf from Puget Sound - a very comparable operation to PHM). Depending on the carrier and class of Flo/Flo selected, the PHM squadron can be transported overseas on either one or two ships.

3. COSTS: Costs per mile are not available from most ocean carriers engaged in custom services, nor is it meaningful to try to "back out" costs by dividing a quoted rate by the estimated sea miles. Rather, cost varies depending on costs of fuel/supples en route, availability of new hires at point of destination, insurance for risky areas, etc.. The Navy should anticipate supplying cradles for the PHM's if they are carried on Flo/Flo type ships, although the carrier would supply all lashing gear, tie downs, and other necessaries. At the time of contract, it would be possible to direct the carrier to supply cradles as part of their scope of supply, provided the PHM's docking plans are available to the carrier. Sources contacted were asked to consider the three hypothetical situations:

a. Norfolk to Western Mediterranean

b. Norfolk to Persian Gulf

c. Norfolk to Singapore

Brief descriptions of each contractors' proposed transportation plan and their estimated fees follows:

TIDEWATER MARINE, Harvey, LA; Contact: Mr. Dave Fitzgerald, telephone: (504) 347-4057. Proposes ocean towing PHM's using tandem tow arrangement, two PHM's per tug in line astern, struts retracted, for a total of three tugs and associated towing gear.

COST ESTIMATE, SIX SHIP TOTAL:

a.	Norfolk to Western Mediterranean:	$840,000
b.	Norfolk to Persian Gulf	$1,920,000
c.	Norfolk to Singapore	$2,580,000

DOCK EXPRESS, Houston, TX; Contact: Ms. Lynna Tolliver, telephone: (713) 782-1171. Proposes Flo/Flo carriage aboard one DOCK EXPRESS ship on two sequential voyages. Three PHM's carried per trip.

COST ESTIMATE, SIX SHIP TOTAL:

a.	Norfolk to Western Mediterranean:	$750,000
b.	Norfolk to Persian Gulf	$1,500,000
c.	Norfolk to Singapore	$1,400,000

WIJSMULLER, Houston, TX; Contact: Mr. Jack Waddill, telephone: (713) 444-7200. Proposes Flo/Flo carriage aboard one of the SUPER SERVANT ships for all six PHM's simultaneously

COST ESTIMATE, SIX SHIP TOTAL:

a.	Norfolk to Western Mediterranean:	$1,050,000
b.	Norfolk to Persian Gulf	$1,925,000
c.	Norfolk to Singapore	$1,995,000

4. If any further assistance is required contact Christopher Fay at ORG W-7840, MS 6K-56, phone 206-393-3393.

PHMs Unique Material Aquisition Cost Summary			
Refer to ANNEX	**DESCRIPTION**	**See Note**	**Original Cost $**
A	PHM-unique parts stocked by the Mobile Logistics Support Group	1,2	1,673,229.20
B	Parts stocked on the ships as On-Board Repair Parts (OBRPs)	1,2	1,267,193.28
C	PHM-unique parts in the CLS store	1,2,3	26,004,638.00
D	Military standard and other non-PHM-unique parts in the CLS store	1,2,3	5,495,935.00
N/A	Carcasses of repairable machinery	7	0.00
E	PHM unique parts at SPCC, DLA, DISC, DESC, DGSC, & DCS	1,4	10,067,608.00
F	PHM wheeled haul out cradle and associated handling equipment at Truman Annex		255,000.00
N/A	Two stationary cradles located at SUPSHIP JAX procured in FY 85	5	30,000.00
G	Special Tools -- 1 full set, 1 partial set in 4 shipping and storage containers		827,556.00
N/A	Scrap parts and carcasses for AN/ALR-66 and MK 105 Target Acquisition Console	6	0.00
		TOTAL	**$45,621,159.48**

ENCLOSURE(4)

SUPPLY CONDITION CODES FOR PHM CLASS
18 MARCH 1993

PHM	NAME	CODE	%	JUSTIFICATION
1	USS PEGASUS	F-9	5	Unserviceable, repairable, poor condition. Requires major structural upgrade. Obsolete prototype design.
2	USS HERCULES	E-7	20	Unserviceable, repairable, good condition. Requires dry dock maintenance and new hull coating system.
3	USS TAURUS	A-5	30	Serviceable, used, fair condition. Two year's operation possible before dry dock maintenance.
4	USS AQUILA	B-6	10	Serviceable with qualification, used, poor condition. Permanent hull deformation and resulting performance loss.
5	USS ARIES	B-5	20	Serviceable with qualification, used, fair condition.
6	USS GEMINI	B-5	20	Serviceable with qualification, used, fair condition.

Note: All of the above require near term replacement of chilled water plant, Electronic Support Measures (ESM), and other key equipment. For PHM 1, two thirds of expected service life is used. For PHMs 2-6, one half of expected service life is used. Supply condition codes are established in accordance with DoD 7290.3M and DoD 4160.21-M.

ENCLOSURE(5)

PROPOSED AGENDA FOR 11 FEB 93 MTG WRT PHM INACTIVATION

ATTENDEES: OPNAV, SURFLANT, NAVSEA PMS330, NAVSEA DET Portsmouth, VA, Navy International Program Office, Boeing Aerospace Operations (BAO)

1. **INACTIVATION PROCESS:** GLEN CLARK, PMS 330D4

   a. Responsibilities
   b. Inactivation Decision
   c. Lay-up Categories
   d. General Procedures

2. **INACTIVATION PLAN & PROCEDURES:** RAE BAINES, NAVSEA DET PORTSMOUTH, VA

   a. Safe Stow Requirements
   b. Standard Inactivation Requirements
   c. NAVSEA DET/NISMF Briefings & Inspections
   d. Transfer of Ships to NISMF Portsmouth, VA

3. **POTENTIAL FMS/L:** Open Discussions — NEED SALES PKG

   a. Effect on Inactivation Plan
   b. Supportability Concerns — what eqpt stays on

4. **REQUIREMENTS FOR BOEING SUPPORT:** Open Discussion

   a. Long Term & Safe Stow Lay-up Procedures Needed for:

      (1) Propulsors & Control System
      (2) Strut & Hydrofoil System
      (3) Bow Thruster System

   b. Requirements for Land-borne Cradle Stowage

      (1) Cradle availability
      (2) Lift requirements

   c. Requirements for Water-borne Stowage

      (1) Outboard nesting concerns
      (2) Hydraulic oil leakage concerns for foils into water

ATTENDEE LIST
11 FEB 92

NAME	ACTIVITY	PHONE
BARNEY C. BLACK	ISA (PMS330)	(703) 824-0100
~~LCDR RICH COURRT~~	~~SUPERSHIP SEATTLE~~	(206) 526-3518
Wayne A. Eveland	Boeing	206 393 3405
Sergio L. Torres	PMS 330	703 602 7577
Michele Arkwright	PMS330	703-602-0595 602-7577
Marilyn Martin	PMS330C12	(703) [redacted]
CDR ~~Hal~~ SLENTZ-WHALEN	NAVY 180-02X	(703) 692-7803 / FAX 746-7166
LT MARY Logsdon	CNSL N431A31	804-444-5606 / FAX 445-1983
Glenna Wing	Supship Seattle	(206) 526-3298
Jon Cannon	Boeing	(206) 393-3425
TERRY TENNERY	~~BOEING~~	(206) 393-~~8800~~
JOE SCHOBERT	BOEING	(206) 393-3389
S. RAE RAINES	NAVSEA DET PORTS	(804) 485-6447
GLEN CLARK	PMS-330D	602-5383
CAPT DALE MITCHELL	OPNAV N431	(703) 695-6256
GEARY JENKINS	MDI (N865P54MAT)	(703) 697-5281
CDR BILL GARLAND	OPNAV (N865P2)	703-697-5281
James F. LYNCH	ISA/PMS330C1	703-578-2525
CAM MIXON	TEI / PMS 330C1	703-329-0102

RESPONSIBILITIES

- WARFARE SPONSOR (N86)
  - PROVIDE FUNDING FOR TOTAL INACTIVATION COSTS PLUS
  - FIRST YEAR MAINTENANCE COSTS (IF RETENTION ASSET) OR DISPOSAL COSTS (IF STRIKE/SCRAP SALE)
- PMS 330
  - BUDGET, FUND & CENTRALLY MANAGE INACT FUNDS
  - PROVIDE UNIQUE EQUIPMENT LAY-UP PROCEDURES
  - DEVELOP BALLASTING PLAN
  - IDENTIFY EQUIPMENT REMOVAL REQUIREMENTS
  - MONITOR PROGRESS OF INACTIVATION STAND-DOWN AVAIL

RESPONSIBILITIES

- **TYCOM**

  - **SCREEN MAJORITY OF INACT PLAN WORK TO SHIP'S FORCE**

  - **TASK INDUSTRIAL ASSISTANCE FOR EFFORTS BEYOND S/F CAPABILITY WITH NAVSEA FUNDING**

    E.G., BLANKING OF SEA CHESTS

    CLEANING/GAS FREEING OF CHT TANK & BILGES

    PROVIDING OFF-SHIP BERTHING

    TOWING PREPARATION

  - **ARRANGE ASHORE MESSING/BERTHING**

  - **ENSURE NO UNAUTHORIZED STRIPPING**

  - **ARRANGE/FUND TOW SERVICES**

RESPONSIBILITIES

- **NAVSEA DET PORTSMOUTH, VA:**
  - **DEVELOPS SHIP INACTIVATION PLAN**

    DOES NOT INCLUDE DEACTIVATION OF:

    MLSG VANS & EQUIPMENT

    SPECIAL TOOLS

    PHM UNIQUE CONTRACTOR LOGISTICS SUPPORT

LAY-UP CATEGORIES

- SAFE STOW
  - MINIMUM PREPARATION REQUIREMENTS OF NSTM CHAPTER 050, SECTIONS 7 & 9

- STANDARD INACTIVATION
  - SAFE STOW REQUIREMENTS PLUS

    LONG-TERM EQUIPMENT PRESERVATION

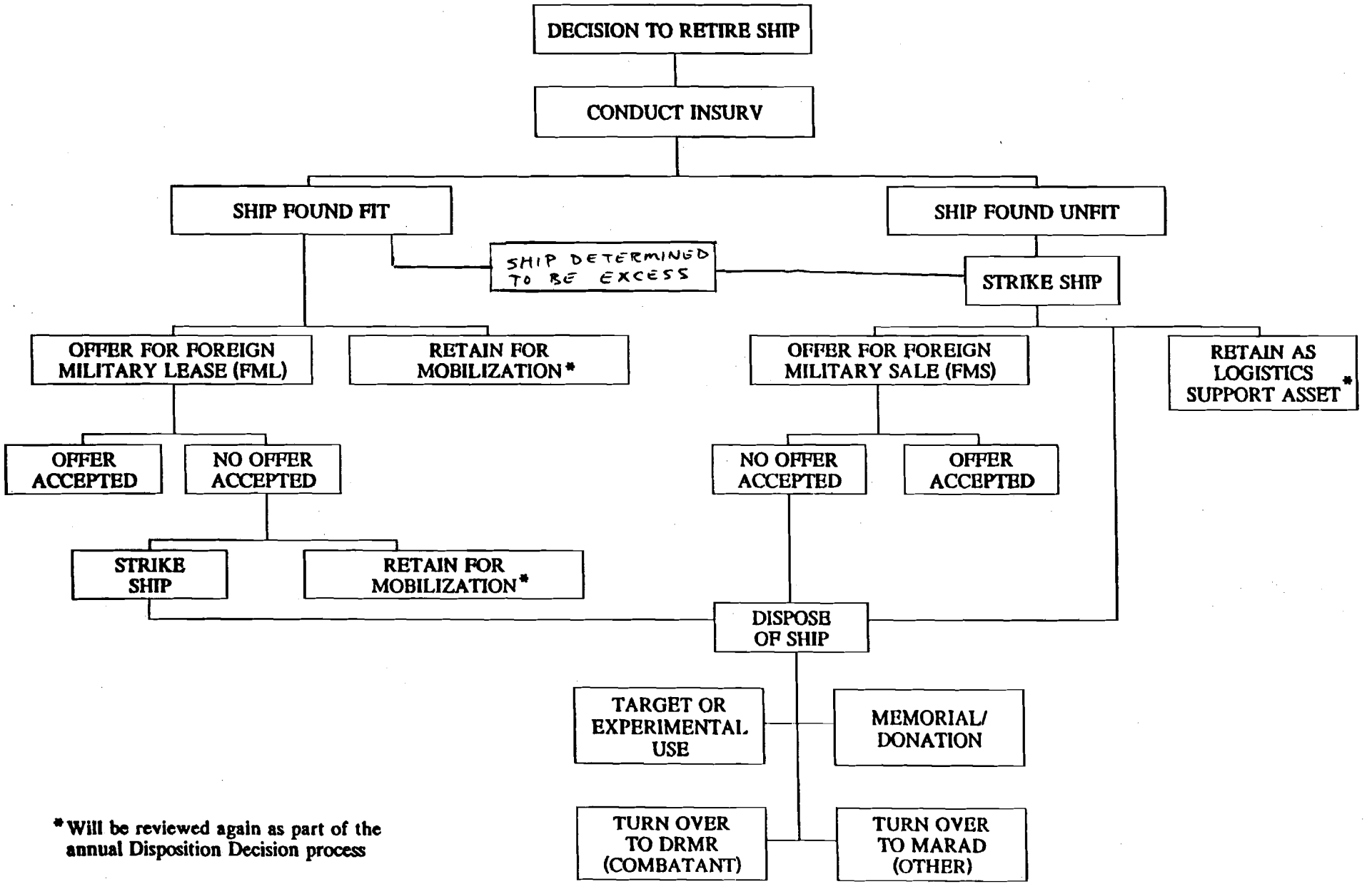
    DEHUMIDIFICATION & CATHODIC PROTECTION
  - NO DRYDOCKING OR EQUIPMENT OVERHAULS
  - NO OUTSTANDING C3/C4 CASREPS UNLESS WAIVED BY CNO

GENERAL PROCEDURES

- TYCOM/FLTCINC SCHEDULES STAND-DOWN AVAIL
- NAVSEA DET ISSUES INACTIVATION PLAN APPROX. 8 MONTHS BEFORE DECOM, CONDUCTS INACT BRIEF TO SHIP'S FORCE
- INACTIVATION CONDUCTED IN HOME PORT
- EQUIPMENT/SPARES REMOVAL DEPENDANT ON DISPOSITION
- TYCOM PROVIDES TOW TO NISMF PORTSMOUTH, VA OR MARAD JAMES RIVER

APPENDIX B

SHIP DISPOSITION DECISION MATRIX



*Will be reviewed again as part of the annual Disposition Decision process

APPENDIX C

MATERIAL DISPOSITION MATRIX

TYPE OF MATERIAL	TYPE OF SHIP TRANSACTION							
	RETENTION ASSETS		DISPOSAL ASSETS					
	RETAIN MOBIL.	HOLD FOR FML	FMS HOT SHI	HOLD FOR FMS	LOGISTIC ASSET	MEMORIAL	TARGET	SCRAP SALE
BENCH STOCKS (OSI's)	*A*	*E*	*A*	*E*	*E*	*E*	*E*	*E*
STOREROOM CONSUMABLES	*E*	*E*	*A*	*E*	*E*	*E*	*E*	*E*
REPAIR PARTS HM&E (INCL DLRs)	*A*	*A*	*A*	*A*	*D*	*D*	*D*	*D*
ELECTRONIC SPARES (INCL DLR's)	*A*	*A*	*A*	*A*	*D*	*D*	*D*	*D*
MAM's (INCL DLRs)	*A*	*A*	*A*	*A*	*D*	*D*	*D*	*D*
READY SVC SPARES (INCL DLRs)	*A*	*A*	*A*	*A*	*D*	*D*	*D*	*D*
CONSUMABLES & EQUIPAGE SUBJ. TO DETER.	*E*	*E*	*A*	*E*	*E*	*E*	*E*	*E*
EQUIPAGE NOT SUBJ. TO DETER.	*A*	*A*	*A*	*A*	*E*	*E*	*E*	*E*
INSTALLED EQUIPMENT	*B*	*B*	*A*	*B*	*C*	*C*	*C*	*C*
TEST EQUIPMENT	*A*	*A*	*A*	*A*	*D*	*D*	*D*	*D*
ADP HARD & SOFTWARE	*F*	*F*	*F*	*F*	*F*	*F*	*F*	*F*
MED/DENTAL SUPPLIES	*D*	*D*	*A*	*D*	*D*	*D*	*D*	*D*

DISPOSAL MATRIX KEY

A Retain onboard

B Cannibalization as authorized by NAVSEA DET Portsmouth, VA with concurrence of CNO (OP-43). Extremely unusual circumstances only. Replacement required.

C Canibalization as authorized by NAVSEA DET Portsmouth, VA to replace CASREP equipment on fleet unit. Replacement not required. During disposal process, first offered to program and inventory manager and then Fleet stripping.

D Offload for return to Supply System; material not required by Supply System will be offloaded to Defense Reutilization Marketing Office.

E TYCOM redistributes; remaining material will be offloaded for return to Supply System. Material not required by the Supply System will be offloaded to Defense Reutilization Marketing Office.

F SNAP equipment will be redistributed by SPAWAR.

PHM DISPOSITION MEETING COMMENTS - 2/3/93

- Boeing subcontract with Aerojet for work on 8 major propulsor pieces - inducers, impellers, and stators
- Develop layup procedures - waterborne vs. cradles
- Plan for Planning Yard stand down
- Retain ISEA capability for support of ships while still operational
- ISEA support INSURV Material Inspections of PHMs
- Discontinue work on SHIPALTs - SOOMMS, SIDs and SARs - get PHM 3 up-to-date and then quit
- DTRC to continue to collect data - ASSIST reports/ATAC
- CLS support will have to continue at least until stand down if not until decommissioning
- Don't originate any new range and depth requisitions
- Cancel work on new PHM 1 kingpost unless cancellation costs would up the price
- Stop ordering CMP items
- PERA to continue support until stand down
- Get proposals on chiller pump replacements for future information - six TECO pumps on order
- Fleet may ask to draw repair parts at no cost to support correction of casualties until stand down
- Marilyn has action on disposition of residual construction material
- Terminate work on PHM 1 gearbox - get teardown report and quote for repairs about the 15th of February - then don't spend anymore money
- PERA
  - Stop work on haul out facility - no procurement action
  - Don't make any CSMP task procurement assignments to Boeing
  - Jerry Byers - planning of execution of ??? IMAV ???

/

- NAVSSES
  - Discontinue work on frequency converters, gear box seals - turn over to MLSG
  - Discontinue work on On-Line Water Wash
  - Discontinue MACHALT work
  - Discontinue vibration monitoring
- SUPSHIP JAX provide inventory/status of special tools
- Need final configuration report (SUPSHIP JAX maintained) from the L-shop
- Cancel all Advance Planning Letters and Authorization Letters
- Letter already prepared for Boeing to advise them of situation
- Prepare memo to T-Shop regarding CAI items that they are to continue work on
- Tentatively cancel Program Review - hang on to reservations
- SUPSHIP JAX maintain Lessons Learned effort
- SEA 06 already advised to discontinue work on HYCATS and on SAR work

PHM 1 CLASS FY 93 OBLIGATION PHASING PLAN

		TI NO.	$ 1ST QTR	$ 2ND QTR	$ 3RD QTR	$ 4TH QTR	TOTAL PLNG EST.	NOTES
	09/28/92 - 12/30/92					$0	$0	
PHM-3	SARs		$0	$0	$0	$0	$0	
(FY 92)	SIDs		$0	$0	$0	$0	$0	
	SOOMMs	370	$63,750	$72,275	$36,500	$36,500	$209,025	
	4720s/BOMs		$0	$0	$0	$0	$0	
	SSRs	371	$50,000	$0	$0	$0	$50,000	
	LARs	372	$20,625	$0	$0	$0	$20,625	
	OSR		$0	$0	$0	$0	$0	
	03/08/93 - 06/05/93					$0	$0	
PHM-2	SARs		$0	$0	$0	$0	$0	
(FY 93)	SIDs		$0	$0	$0	$0	$0	
	SOOMMs	373	$115,000	$82,110	$36,000	$36,300	$269,410	
	4720s/BOMs		$0	$0	$0	$0	$0	
	SSRs	374	$38,500	$14,000	$14,500	$0	$67,000	CONT'D FROM FY 92
	LARs	392	$0	$10,625	$10,000	$0	$20,625	
	OSR	375	$27,500	$27,900	$0	$0	$55,400	
	10/14/93 - 12/17/93					$0	$0	
PHM-6	SARs		$0	$0	$0	$0	$0	
(FY 94)	SIDs		$0	$0	$0	$0	$0	
	SOOMMs	376	$95,000	$51,745	$25,000	$25,000	$196,745	SEE FOOTNOTE
	4720s/BOMs		$0	$0	$0	$0	$0	
	SSRs	377	$30,000	$24,000	$0	$0	$54,000	
	LARs	395	$0	$0	$0	$20,625	$20,625	
	OSR	393	$0	$0	$0	$29,400	$29,400	
	11/15/93 - 01/24/94					$0	$0	
PHM-5	SARs		$0	$0	$0	$0	$0	
(FY 94)	SIDs		$0	$0	$0	$0	$0	
	SOOMMs	378	$80,000	$40,000	$20,000	$19,500	$159,500	
	4720s/BOMs		$0	$0	$0	$0	$0	
	SSRs	394	$0	$0	$0	$30,000	$30,000	
	LARs		$0	$0	$0	$0	$0	
	OSR		$0	$0	$0	$0	$0	
	02/14/94 - 04/15/94					$0	$0	
PHM-4	SARs		$0	$0	$0	$0	$0	
(FY 94)	SIDs	379	$15,523	$0	$0	$0	$15,523	
	SOOMMs	380	$86,130	$51,000	$34,000	$25,500	$196,630	SEE FOOTNOTE
	4720s/BOMs		$0	$0	$0	$0	$0	
	SSRs		$0	$0	$0	$0	$0	
	LARs		$0	$0	$0	$0	$0	
	OSR		$0	$0	$0	$0	$0	
	05/04/94 - 08/05/94					$0	$0	
PHM-1	SARs		$0	$0	$0	$0	$0	
(FY 94)	SIDs	381	$62,200	$60,000	$0	$0	$122,200	CONT'D FROM FY92
	SOOMMs		$0	$0	$0	$0	$0	
	4720s/BOMs	382	$15,000	$10,000	$8,000	$5,200	$38,200	
	SSRs		$0	$0	$0	$0	$0	
	LARs		$0	$0	$0	$0	$0	
	OSR		$0	$0	$0	$0	$0	
	11/07/94 - 01/13/95							
PHM-3	SARs	383	$15,232	$10,232	$0	$0	$25,464	
(FY 95)	SIDs	384	$119,000	$54,000	$19,000	$11,602	$203,602	
	SOOMMs		$0	$0	$0	$0	$0	
	4720s/BOMs	385	$25,000	$10,000	$3,200	$0	$38,200	
	SSRs		$0	$0	$0	$0	$0	
	LARs		$0	$0	$0	$0	$0	
	OSR		$0	$0	$0	$0	$0	

		TI #	$ 1ST QTR	$ 2ND QTR	$ 3RD QTR	$ 4TH QTR	TOTAL PLNG EST.	NOTES
	04/15/95 - 07/18/95							
PHM-2	SARs	386	$20,735	$7,235	$6,735	$0	$34,705	
(FY 95)	SIDs	387	$100,000	$40,000	$25,000	$25,000	$190,000	CONT'D INTO FY94
	SOOMMs		$0	$0	$0	$0	$0	
	4720s/BOMs	388	$25,000	$10,000	$3,200	$0	$38,200	
	SSRs		$0	$0	$0	$0	$0	
	LARs		$0	$0	$0	$0	$0	
	OSR		$0	$0	$0	$0	$0	
	EPY MGMT	389	$360,000	$178,500	$100,000	$66,400	$704,900	
	PRINTING SEATTLE		$20,000	$20,000	$10,000	$0	$50,000	
	MDS	390	$34,700	$17,000	$10,000	$7,000	$68,700	
	PERA		$20,000	$6,660	$6,190	$6,000	$38,850	
	CSAM		$10,000	$5,000	$5,000	$0	$20,000	
	AER/OSR SPPT	391	$50,000	$25,000	$25,000	$0	$100,000	
	GRAND TOTALS		$1,498,895	$827,282	$397,325	$344,027	$3,067,529	

FOOTNOTE: On 3 Sep 1992, reduced bottom line total planning estimate from $3,125,268 to $3,067,529.
PHM 6 FY 94 2ND QTR SOOMMs reduced from $80,614 to $51,745.
PHM 4 FY 94 1ST QTR SOOMMs reduced from $115,000 to $86,130.

DOES NOT SHOW THE FOLLOWING ISEA TIs

(COPY OF EACH TI INCLUDED IN BOOK)

396
397
398
400
401
399

} WAYNE, EDELAND, BOA

PMS 330C1
THINGS TO ACCOMPLISH

1. Point Paper to OPNAV with recommendations on what to do with Ships

   - BAO Tech expertise/ISEA/EPY/sole source provided of equipment
   - Recommendations for disposition of ships
   - Unique systems
   - Contractual issues
   - Suppliers will dissipate

2. Develop list depicting base line condition of each ship.

3. List ISEA responsibilities and tasks to be cancelled.

4. Planning Yard responsibilities and tasks to be cancelled.

5. Supply Support Functions and those tasks to cancel.

   - CLS - stay open until all ships stand down
   - PHM-1 Gear Box tear-down report

6. BAO critical equipment status.

   - Discontinue reporting in A0013 this but continue supporting Squadron.

7. ECS chillers (S/A 138K)

   - Receive proposals only

8. Residual Material

   - Scrap (?)

9. PERA Support

- Retain IMAV only

10. Which NSWC Carderock Div Support to retains

- No more haystacks
- ASSIST

11. Which NAVSSES Support to retain

- STC - discontinue
- Oil Seals - turn over gear box seals and any guidance
- MACALTS - stop
- Vibration Analysis - stop

12. SUPSHIPS JAX Support

- Management of Special Tools
- Retain "Lessons Learned"
- Do inventory of special tools and other things relating to PHMs
- Final Report on each PHMs configuration ——— 4790 CK COSAL
- DSF 6000 - stop money
- Build cradles?

13. MLSG - ?
- Letter from OPNAV to CINCLANT — keep trailers for sale
  — cannibalization — NO

14. SUPSHIP Seattle - ?

15. BAO EPY functions - what will be disposition of SIDs, SADs, SAR, TPs, SSRs, SIBs, etc. drug vault — computer files

- BAO subcontract with AERO JET for work on 8 major propulsor prices (indicator, stators, impellers)

GENERAL MATERIAL MANAGEMENT ISSUES

Financial Procedures In CLS Contract

Do we continue to charge all customers for stock avail?

SURFLANT stock is for SRAs
CLS stock is for all
NAVSEA S/A stock ?

CDRL Requirements

A008 - Difference Listing

A015 - Purchase Order Index

B001 - Qtrly TIR Report

B004 - Qtrly SSL Report

Anticipate continuing to conduct IMAV tasks -

It will soon be time to process material forecast (thru 4/94).
Estimate: $ _____

What about JMLs that PERA has tasked via the HAAS contract?

Computer System for MLSG/COMPHMRON II -

Do we continue programming?

Do we abandon plans to implement system in Key West?

What do we do with hardware?

MATERIAL BUYING ISSUES

Major Procurements:

Chiller package - Out for quote
Do we continue? Do we need formal response?

PHM-1 K/P replacement - Out for quote
Quotes are due in soon, do we exercise?

A/C Generator (under CMP) - Contract in place
Do we notify to stop work? Major termination effort?
Fabrication schedule to begin soon.

Propulsor Package - See white paper for total picture

Strut & Foil material package -

PHM-1 F/B Gearbox repair -
Case is at foundry for analysis
Should have cost estimate on CGC soon

Contracting Work:

Will Requests for Consent forms be delayed/continue?

Blanket action on things that are currently out for quote -
open reqns vice stock to NAVSEA store?

Cancellation Requests:

If at no cost - will not be problem.
If cost involved - has to go via formal termination w/ sub-contractor.

Will there be a standard limit (FAR $5,000)?

Repairs at Vendors:

What if repair estimate to deliver post 4/94?

What level (operations) do we continue to plan stock for?

Do we consume DOP and not replace?
What does customer get charged?

Criteria for determining Termination candidates -
Need to know!!

Time for annual forward pricing agreements:

Do we proceed?

SPARES PROCESSING ISSUES

Provisioning:

Do we continue to submit packages for modified equipment? To SPCC & CDM?

Range & Depth Planning:

Do maintain present plan levels?

Do we continue to replace scrapped material?

Outstanding Procurement Questions:

Issues of not enough funding from Squadron for open repair/scrap orders?

NAVSEA Projects:

Speed Log effort -
Raytheon vice Martin Marietta?

A15 Card replacement - now have answer of A13.

Continued Squadron Operations -

Processing material orders - At what level?

Providing ROM estimates

CLS STORE ISSUES

Parts in Bin:

Will all material be handled the same way, ie. managed same regardless of owner?

Who will responsible for disposition of material

Parts at Vendors:

What material accountability of DOP will be required?

What about disposition of partially completed hardware? Handled by termination - require POC.

Tools at vendor:

What material accountability of tools will be required?

What about disposition of tooling?

Store Facility:

????

Packing up:

Inventory requirements

Packaging requirements

Material Transfers to USN

2/10/93

SCOMMS 95% DONE 1800 HRS LEFT - MAINLY BACKLOG
DONE BY APRIL 93 ← PHM 3.5/A
- COMPLETE IT (370)

SRDs - 25 DWGS UNCOMPLETED (371)
DUE APR 93

- COMPLETE IT

LARs - (372) DONE ALREADY

373 - cancel IT

374 - cancel
392 "
375 "
376 "
377 "
395 "
393 "
378 "
394 "
379 "
380 "
381 " (PARTIALLY COMP)
382 CANCEL
383 " (PART. COMP)
384 "
385 "
386 DONE ALREADY
387 CANCEL (PART COMP)
388 DONE

Attendees
Sergio Barney Michele Glenna Carm Wayne
Ian Carman Teney

EPY MGMNT - (389) reduce level somewhat - travel, mgmnt

(AI) PRINTING - SEATTLE
Glenna - id needed $ to print 500mms
hold off on PRM1 for now

MDS (390) - reduce somewhat ???
BAD advice

ADAs (391) CANCEL - part complete
NEED $ TO PACK UP & INDEX

(AI) Michele issue TI to change for pack up index

NO HAVE $1.5M on contract for EPY
about 1/3 expended to date - should be sufficient

(AI) BAO – in ea area – plan for minimum support needed when decommissioning

All FY 92 TIs are complete

(AI) DO FINAL REPORTS ON CDRL SDRLS

A013 – terminate critical mat'l report
→ delete S/A development

A012 continue! (financ report)

SUPPLY

(AI) propulsor ins. spares – go ahead, complete

(AI) stop ECS proposals

(AI) NAVSEA issue letter – give out parts w/o repl $

will discuss w/ SQDW: cease segregating parts by source of funding.

CDRL
A008 – keep/dump – SQDW decides
A015 – keep
B001 – ATOly demand data – ask SPCC
B004 – stock levels – ask SPCC?

→ CCAs, S/W, modems

COMPUTER system is IN (WANG)
MUSG/SAD to enter BAD system

Send the Hwre to KW, stop training effort dead

Chiller – stop

PHM1 K/P – stop

A/C GEN – 1 yr. delay – 200K – NO DECISION NEED

Propulsor – definately do insurance spares
others – discuss w/ SEADN – No Staff Funds

S/F MATL PKG – All orders placed, short 4T
ONE S/S Approx 90K
CMP F790 – Decision: GO ON WITH IT

PHM 1 G/B – get teardown report & stop

Cancellation costs

DOP stock? – consume, don't replace
will have to be picked up (residual)

Continue establishing this year's repair Bdts?

Annual fwd pricing agreements – renew
for next 6-9 months then drop?

Provisioning plugs —

R/D planning

Speed Log - stop it

A15 ACS Card Mods - Go - Mod A13

Processed store shut down

Need follow on mtg to discuss supply issues

ISEA

03 → continue
22 → CANC
23 → CANC
24 → CANC
30 → CANC
31 → CANC
37 → CANC
46 → CONTINUE ON A SHIP DO FINAL RPT
47 → CANC
48 → CANC
49 → CANC
51 → CANC
55 → CANC (pallet didn't fit plane)
59 → CANCL
62 → complete it - mostly done

70 - CANCÉ

72 - CANCEL - INTENT WAS DIC TO USE

73 - COMPLETE IT - ALMOST DONE

75 - CANCEL

83 - CANC

98 - CANCEL

99 - CANCEL

102 → CANCEL

104 → FINISH IT - $ IS SPENT

106 → COMPLETE IT - ALMOST DONE

112 → COMPL

117 → FINISH IT ALMOST DONE

127 → ON HOLD

132 → FINISH IT ALMOST DONE

139 → FINISH IT UP - FINAL RPT

141 " " " "

142 " " " "

143 → LOOK AT (BAD) GET BACK

157 → CANCEL

~~165~~

160 → complete it (scraped stators) contract was let

168 → CANC

170 → CANC

172 → CANCEL - ORDERS HAVE NOT BEEN PLACED JON TO LOOK INTO

173 → CANC

184 → FINISH IT. FY 91 FUNDS COMMITTED

185 → CANCEL - STOP WHERE YOU ARE

186 → SUSPEND — PROVIDE REPORT

187 → FINISH IT ALMOST DONE

188 → CANCEL

189 → CANCEL

190 → CANCEL

191 → CANCEL

193 → CANCEL H WT T/O

194 → ~~COMPLETED~~ FINAL REPORT CONTINUE Bendix Test set

197 → CANCEL (reopen issue if PHM3 not in 1st group to be decommissioned) Spread log - new XDCR

Sched

SCRUB - SPR

SD 3 - Jun/Jul 93

3 - .

Assist — Discuss w DTRCEA

Need

ISEA has about 43 working days worth of $ left
483K funded to date
bal less the 146K

CLS — funded for 1st 2 qtrs
last 2 qtrs not funded.

(AI) Glenna send letter — balance of
FY93 funding needed

2/11/93

STRIKE DISPOSITION LIKELY — IN CHOP (FINAL) AT OPNAV
PROCEED ON STRIKE ASSUMPTION

SAFE STOW REQ (RAY BAINES)

NAVSEADET T —
INACTIVATION PLAN
NOT INCL MISC VAN, SPECIAL TOOLS, UNIQUE SPT

PLAN ITSELF QUOTES CHAP 50 AS APPLICABLE

DISPOSITION — SAFE STOW REQMNTS
GAS TURBINES

WARFARE SPONSOR N86 FUND THE INACTIVATION COSTS
INC 1ST YR MAINT COSTS

SEP COMMISH DATE OK BUT
IF OCT — OPNAV CAN BUDGET
IF DEC — HOT XFR SAVES ALL COSTS

HOT XFR 10 WK PROCESS — CREW relieves crew

PHM1 — EFFECT ON DECOMM

SHIP

PMS 330
BUDGET MAG FUNDS
UNIQ EQT LAY UP PROG
DEVEL BALLASTING PLAN (FRESH WATER TANKS)
TO EQPT REMOVAL REQ
MONITOR PROGRESS OF INACTIVATION

NEW CRADLES — PART OF INACTIVATION COSTS
WAS NOT SUBM

ANY EQPT NOT TRANSFERABLE? RMV DURING INACTIVATION AVAIL.

TYCOM REP

- TASK (SCRN WORK). GET INDUSTRIAL ASSIST AS NEEDED — WAYSEA FUNDING
  - BLANK SEA CHEST
  - GAS/FREE CHT TANK/BILG
  - OFF-SHIP BERTHS
  - TOWING PREP
- ARR ASHORE MEES/BERTH
- NO UNAUTH STRIPPING — ENSURE
- ARRG/FUND TOW

ASSUMING INSURV WILL FIND ALL SHIPS TO BE FIT
NEED TO FIND SHIPS TO BE IN EXCESS

IF YOU WANT TO SELL THEM INSTEAD OF LEASING

LAY UP CATEGORIES

✓ SAFE STOW

O STD INACTIVATION

GEN PROC

TYCOM/FLTCINC — SCHED STAND DOWN

SEA DET ISSUE INACT PLAN/BRIEFING/DISP
(INACTIV DONE IN HOME PORT)

EQPT/SPARES DISP

TYCOM — TOW TO PORTSVA OR MARAD JAMES RIVER

MAINTAIN 3 SHIPS IN KEY WEST TILL FINAL INACTIVATION? CANNOT CHARGE SEA DET — TYCOM WILL HAVE TO PAY. MLSG HANDLES SECURITY / FIRE PROTECTION, NO ADD'L COST TO KEEP THEM.

MATL DIST — SEE CHART

SAFE STOW — EASIEST CATAGORY IF SEA CLEAN, DRY, SAFE

ALL HAZMAT OFF
ALL HOLES BLANKED OFF
BILGES CLEANED
REMOVE PCBS (MATCH EQPT LISTED COSAL)
CLEAN GAS FREE TANKS B4 TOW
DRAIN FLUIDS

490K FOR CONTRACTOR TO DO — ADVANTAGEOUS FOR MLSG TO DO MOST OR ALL.

OPNAV 8 (PD 4 REQD) IS DEC 93 DECOM DATE FOR COST SAVE

AFTERNOON CLS PARTS ISSUES 2/11/93

HANK BUCK SPCC
MARILYN
LT MARY LOGSDEN
CDR CLARK DLA
GLENNA
RICH COWART
JIM LYNCH

09 DLA
07 SPCC

DLA is interested in inventory reduction

MLSG STORES ← PHM UNIQUE NAVY STOCK

→ DRAW THEIR PHM UNIQ STOCK DOWN IS/ W/O BACKFIT

(AT) SPCC is getting a list of stock — BAO to review for critical

Need to tag trailers for stripping nonunique items

STORE OPN PROCEDURES

SRA stock —
CRDL — demand history report? NAH discontinue

PSR SUPPORT — NO MORE IMAMS

IMAV MATL is staged & paid for
(PMM unique mfg)

Keep APL changes going? (provisioning)
Keep it up

NO TYCOM FUNDING TO COMPLETE
REPAIRS IN PROGRESS

Boeing Aerospace Operations, Inc.
P.O. Box 3999
Seattle, WA 98124-2499

16 March 1993
W-7860-EPY93-003

Commander
Naval Sea Systems Command
Attn: Code PMS 330C1, S. Torres
Department of the Navy
Washington, D.C. 20362-5101

BOEING

Subject: PHM Decommissioning and Long Term Storage

Reference: (a) Navy Letter 4720 OPR:PMS330C11 Ser 330C1/282, 02 March 1993, Technical Instruction 389R1
(b) Telecon, Sergio Torres/Joe Schobert, 08 March 1993

1. The following procedure is provided as part of Technical Instruction 389R1 for decommissioning and long-term storage of the PHM fleet.

2. Any questions regarding this information should be directed to Joe Schobert, EPY Manager, Phone (206) 393-3389.

G. M. Tennery
PHM Program Manager
Aircraft and Marine Operations-Seattle
Org. W-7000, M/S 6K-55
Phone (206) 393-8800

LKB/GMT:kfr
(EPY93003.DOC)

Enclosure: Procedural Data - PHM Decommissioning and Long Term Storage

Procedural Data - PHM Decommissioning and Long Term Storage

References:

(a) NAVSEA 0905-LP-503-7020, SOOMM, PHM 1, Chapter 5

(b) NAVSEA S9PHM-AC-SHP-020/(U) PHM 3 CL, SOOMM, Chapter 6

(c) NAVSEA 0905-LP-503-7020, SOOMM, PHM 1, Chapter 8

(d) NAVSEA S9PHM-AC-SHP-020/(U) PHM 3 CL, SOOMM, Chapter 11

(e) NAVSEA 0942-LP-16-4010, Overrunning Clutch Technical Manual

(f) NAVSEA S9247-AB-MMO-010/MODS AJW-800-1 & AJW-900-1, Propulsor Assy, Hullborne

(g) NAVSEA S9247-AA-MMO-010, Propulsor Assembly, Foilborne

(h) NAVSEA S9567-AD-MMO-010/P/N 44267R1, Foilborne Propulsion Gearbox (PHM 3)

(i) NAVSEA S9234-AD-MMO-020/LM2500, LM2500 Technical Manual, Main Propulsion Engine

(j) NAVSEA S9234-EL-MMO-010/MOD ME831-800 Technical Manual, SSPU

(k) DWG 245-5330741, Protection and Preservation, Foilborne Engine

(l) NAVSEA S9PHM-AC-SHP-020/(U) PHM 3 CL, SOOMM, Chapter 8

The following three numbered sections discuss requirements and procedures for long term storage of PHM subsystems under two sets of conditions. The first condition is with the ship "wet", moored in the water; the second is with the ship "dry", out of the water in cradle position.

1. STRUT AND FOIL LAY-UP: REF (a) and REF (b) are the basic documents that control operator level maintenance and repair of the struts and foils. Only minimal effort will be required to prepare this system for long term lay-up. All PHM's have completed S/A 104, Strut Corrosion Control and Painting, which provides increased protection over previous systems.

The struts and foils are to be stowed in the retracted and locked position, regardless of "wet" in-water or "dry" on-land PHM storage. The point, in either case, is to get the struts and foils up out of the seawater.

Struts and foils (including the yoke) should be flushed with fresh water on all seawater exposed or flooded surfaces. All watertight voids where floatcoat preservative is specified should be checked to assure that preservative is still in place and that no leaks have occurred. Floatcoat should be renewed as needed. It is recommended that the instructions contained in REF (b) paragraphs 6-80 through 6-83, be used to control cleaning and corrosion removal. In addition, a weak phosphoric acid solution should be applied to deactivate any pitting corrosion cells. The agency performing lay-up work should verify and follow local regulations regarding the use and disposal of acid washing wastes prior to commencing operations.

After cleaning, struts and foils should be touch-up painted in accordance with the appropriate hull-specific S/A 104 painting requirements using primer only. No top coat is required, although it may be applied at the Navy's option. A check with local authorities is required prior to using any PHM specified paint system regarding the use and disposal of wastes.

Remaining exposed, unpainted surfaces, such as portions of the yoke, retract actuator rods, forward flap and steering actuator and aft flap actuator external surfaces, should all be lightly coated with a preservative compound, such as MIL-G-24139 water resistant grease, after they are fresh water flushed, cleaned, and dried. MIL-G-24139 water resistant grease should be lightly packed in cavities between the wipers and flaps.

2. HULLBORNE PROPULSOR LAY-UP - GENERAL: The hullborne propulsion system comprises a diesel engine, gearbox, flexible drive shaft, overrunning clutch, bearing and seal assembly, and waterjet pump, one set each PORT and STBD. Requirements for diesel and gearbox lay-up are being provided by other design authority. Of the remaining items, only the waterjet pump has requirements that differ depending on wet or dry storage. Lay-up requirements for these items appear below.

1. Flexible Drive Shaft, P/N MD6966 (PHM 1, REF (c)) or P/N SKCP2320L (PHM 3, REF (d)): No special preparation required.

2. Overrunning Clutch, P/N CL-41843-1, -3: Refer to REF (e), Section V. Inspect clutch for evidence of leakage; if found, replace seal(s). Clean clutch internals by flushing and refilling to proper level with the vendor's recommended MIL-L-23699 Lube Oil. Rotate clutch to assure that all surfaces are oil-coated. Wrap exterior of clutch with vapor-inhibitor type activated paper and secure with non-aging tape (duct-tape or similar). Apply heat-shrinkable plastic wrap around exterior and activate; alternately, use heavy gage plastic wrap and non-aging tape to secure clutch from ambient air.

3. Bearing and Seal Assembly, P/N 1163996-29, -19, or 1189250-9: The general approach to preparing the bearing and seal assy for lay-up shall be in accordance with the 3000 operating hour scheduled maintenance procedures described in REF (f), regardless of actual operating hours. This consists of all actions required in Chapter 4, paragraphs 4-10 through 4-17, which mainly requires external visual and internal borescope inspections, and oil drain, flush, and fill. Discrepancies noted during borescope inspection will be evaluated, and either repaired or documented at the discretion of the decommissioning authority. In addition, the cooling water supply and discharge hoses should be disconnected and capped, and the cooler flushed with fresh water, then dried using low-pressure compressed air, and finally capped at the housing connections.

4. Hullborne Propulsor Assembly, Model AJW-800-1 and Model AJW-900-1: The general approach to preparing the hullborne propulsor for lay-up shall be in accordance with the 3000 operating hour scheduled maintenance procedures described in REF (f), regardless of actual operating hours. This consists of all actions required in Chapter 4, paragraphs 4-10 through 4-17, for either wet or dry ship lay-up.

a. "Dry" lay-up, ship stored on a cradle out of the water, is essentially complete at this point with some minor additional actions after the ship is hauled out. The propulsor cutless bearing water auxiliary water supply hose should be disconnected and capped. Low pressure air should be blown through the auxiliary water connection to dry out internal cavities. Assure free flow of ambient air through both the propulsor intake and its discharge nozzle. The propulsor can then be left mounted in the ship.

b. "Wet" lay-up, ship in the water, presents several additional problems. Experience has shown that there is galvanic corrosion of the impeller housing and stator sacrificing to the impeller, of the stator to the auxiliary water feed tube, and of the stator sacrificing to the rubber cutless bearing. Carbon in the rubber bearing makes it noble to the aluminum stator, much the same problem that is noted with graphite fiber composites and aluminum; note that the new Thordon bearings, being carbon free, are immune to this problem. In addition, there may be a problem with crevice corrosion and pitting of the impeller and impeller shaft.

The ideal solution to these problems is to remove the inlet grill and bolt on a gasketed plate in its place, remove the steering nozzles and buckets and seal off the exhaust nozzle. Then pump out the interior cavities, flush with fresh water, dry with warm air and place bags of dessicant in the pump cavities. The propulsor can then be left open to the ship ambient air without concern for corrosion. Store the inlet grill and steering nozzles in the ship.

If this is not practical, then the hullborne propulsor must have the internals and cutless bearing flushed out through the auxiliary water connection using fresh water. The auxiliary hose and the stator connection would be disconnected and capped. Remove the steering nozzle, hydraulics, and related assemblies and store inside the ship. Several aluminum anodes should be placed inside the impeller housing and noted by tagging the equipment. The vendor (Aerojet) further suggests rotating the impeller 1-1/2 turns every month or so, to distribute corrosion on the impeller and shaft. Even with all these precautions, in-water storage of the propulsor for an extended period may result in a marginally serviceable hullborne propulsor.

3. FOILBORNE PROPULSOR LAY-UP - GENERAL: The foilborne propulsor assembly comprises the waterjet proper and the bearing and seal assembly (REF (g)), and the foilborne gearbox (REF (h)). Lay-up of the remainder of the power train, the LM2500 and the high speed coupling shaft, are discussed later in this report.

Long term requirements are identical for both in-water "wet" and land "dry" PHM storage. The basic goal in both cases is to isolate the propulsor from seawater. This can be accomplished a number of ways, either by the use of cofferdams in accordance with current PHM repair practice, or by manufacturing cover plates for the ducts leading to the inlet "Y" duct and the exit duct at the transom. Conversely, the cover plates could be installed at the ground plane and welded over the transom exit, which would provide further protection.

The propulsor should be stored with the rubber inlet and exit bellows removed, allowing free flow of ambient air from within the ship through the pump. The seawater bleed line at the top of the propulsor should be disconnected and blanked off, and the bleed port at the propulsor allowed to drain dry, then blanked off to prevent ingress of contaminants. Remaining water in the propulsor should be swabbed out, the interior rinsed with fresh water and air dried using portable fans (COPPUS style blowers). The propulsor impeller and inducer should be rotated periodically during this period to assure cutless bearing drainage.

Remaining propulsor preservation can be accomplished by completing the shipboard maintenance procedures described in Section 3 and 4 of Chapter 4, REF (g). These primarily consist of inspections, coating renewals, packing grease fittings, and lube oil inspection.

Bearing and seal assembly lube oil system preservation is part of the foilborne gearbox lay-up. General foilborne gearbox preservation starts by performing the preventive maintenance procedures listed in Section IV of REF (h). All the operations described should be completed regardless of actual operating hours.

There are two suggestions regarding oil system lay-up. The system should either be flushed and refilled with clean MIL-L-9000G or drained and preserved per Westech Corporation DWG 1292-904-001, paragraph 13, Assembly Data Sheet Preservation instructions. In the latter case, the gearbox would be drained, cleaned, and coated with MIL-C-16173, Type P-2, Grade 2, preservative compound. Boeing recommends using the MIL-L-9000G oil flush/fill procedure, as it will obviate future requirements to solvent or "hot" flush the gearbox or bearing and seal assembly. Using standard lube oil will also permit periodic prelube of the gearbox as part of lay-up maintenance. The Westech procedure can only be recommended if there is no intention of providing any maintenance support to the laid-up ships.

Remaining preservation work on the gearbox largely depends on the interior air quality of the ship. Ideally, the interior of the ship should be at 65^{o} F with R.H. 40% or less. In this case, the covers can be removed and replaced with a lockable vent cap arrangement to allow free flow of air throughout the gearbox. If such ship air quality is not possible, the manufacturer recommends hanging desiccant bags in accordance with MIL-D-3464, Type I (preferred media: adsorbent silica gel per MIL-S-14374) inside the gearbox, and periodically replacing them as part of lay-up maintenance.

The gearbox on PHM 1 is a different design than the boxes on PHM 2 through 6. EPY recommends the same procedures be followed on PHM 1 as on the other ships.

The following five numbered sections discuss requirements and procedures for decommissioning PHM's and preparing them for towing to a long term storage mooring area.

4. BALLASTING REQUIREMENTS:

a. Removal of missiles, and aft weight items may increase the trim by the head. Towing will produce some additional equivalent downward loads near the bow, conditional to towing arrangement selected. The preferred PHM towing configuration, with FWD strut installed and a weighted towline with an adequate catenary, should avoid bridle contact with the forward strut and foil. Ballasting will be required to insure even or slight trim by the stern to minimize yaw oscillations during towing (see section 7).

b. Ballasting will depend on the final ship configuration when towing. In the preferred configuration (FWD strut installed), the ballast required for a 15 knot tow in a 50 knot cross wind is obtained by pressing up Fuel Tank #4 with fresh water. The other ballast option would press-up all fuel tanks with water (to avoid free-surface, and after gas-freeing them to deal with the environmental concerns for overboard discharge), but it is not necessary. No additional fixed ballast (eg. steel plates or solid ballast in the bilges) is required, and no stability analysis for fixed ballast was performed.

c. No other ballasting requirements are established for emergency towing procedures as currently specified in REF (1), or as described in this report.

5. PROPULSION TURBINE AND SSPU PRESERVATION - GENERAL: Both General Electric, the manufacturer of the LM2500, and Garrett, the SSPU manufacturer, agree that the work required for engine preservation largely depends on the storage conditions. Both vendors agree the optimum storage conditions for the engines would require removal from the ship and containment in sealed cans charged by dry nitrogen. The cans would then be stored inside some structure at 25-85^{o} F, 25-65% R.H. From this best condition, there is a descending order of storage preference with a corollary reduction in probable engine operability at reactivation. This study assumes that all compartment vents, air inlets, and exhaust ducts are secured from the weather, preventing entry of ambient air into the ship.

The next best procedure would be storage of the engines on the ship in a controlled atmosphere meeting the requirements imposed above. This presupposes that all air passages between the engine, internally and externally, are blanked off, including the exhaust collector/eductor/stack and the inlet plenum at the weather deck. The SSPU's would have air inlets and exhausts disconnected and blanked off at the ducts, still allowing ambient air free flow through the SSPU. If these conditions can be achieved, all engines can probably survive an extended lay-up without any periodic maintenance.

If it is not possible to supply a controlled atmosphere, then it is still desirable to isolate the engines internally and externally from outside ambient air to the greatest extent possible. SSPU and LM2500 inlet and exhausts should be prepared as described above in essentially all circumstances.

In an uncontrolled atmosphere, both turbine suppliers recommend periodic motoring or manual rotation of their equipment to distribute oil on the bearings. The instructions for this and the frequency required are included in the vendors' technical manuals, REF (i) and REF (j). Following the procedures outlined in the manuals will very probably retain the engines in an operable condition.

Storing the engines completely "cold iron", with no periodic service during lay-up, and in an uncontrolled atmosphere, introduces a reasonable probability that they will not be operable at the next attempted start up.

LM2500 SPECIFIC PROCEDURES: Assume on-ship engine storage after completion of a fresh water engine wash while cold motoring. REF (i) is the basic controlling document, with REF (k) a valuable source of additional information. Both EPY and G.E. strongly recommend that the LM2500 be preserved in accordance with the steps described in Chapter 4 of REF (i), with some minor modifications. Preservation largely consists of service to the lube oil and fuel systems, and control of air flow around and inside the engine.

The minimum acceptable long term storage scheme that offers a reasonable guarantee of future engine operability requires periodic bearing "wetting" with lube oil. This can be accomplished either by motoring the engine or by hand rotating the turbine gas generator and power sections. It is assumed that no engine motoring capability will be available, so the ship storage facility should plan on hand rotation of the turbine every 60 days or so.

EPY recommends disconnecting the high speed coupling shaft at the gearbox and slinging it to the overhead using a low friction strap (nylon or similar). Rotation of the turbine power section is then an easy one man operation.

G.E. made one specific recommendation in regards to LM2500's used on PHM's. Most Navy LM2500's burn DFM, but PHM's largely burn JP-5, which has less inherent lubricity. It is desirable to either run the PHM engines for a short time on DFM, or flood the fuel line with a light grade of mineral oil per REF (i) requirements by motoring the engine at the time of lay-up.

SSPU SPECIFIC PROCEDURES: The SSPU should first have a substantial fresh water wash while cold motoring, then allowed to air dry. Then, in addition to the general comments, the supplier recommends following the instructions for temporary storage and periodic service contained in REF (j) as maintenance requirement cards MRC LU-1 and MRC PM-1. The supplier suggests a few additional actions, consisting of fresh water cleaning of exposed or salt encrusted surfaces, followed by thorough drying. If the SSPU's are not in a controlled atmosphere, plastic wrapping should be applied around the SSPU's and sealed with non-aging (duct) tape. Desiccant packets in accordance with MIL-D-3464, Type I, should be placed within the plastic wrap to preclude excessive moisture (preferred media: adsorbent silica gel per MIL-S-14374).

EPY also suggests disconnecting the engine start air line off the load compressor and blanking it off. Partially disassemble the load compressor and clean it of any caked on salts using fresh water, then reassemble.

Experience has shown that the Westinghouse generator often ingests salty air or sea water (especially Generator #2 in AMR #3). The generators have been successfully dried and run after these incidents, but the long term effects of salt in the devices would be deleterious. The generators should be flushed out internally with distilled water or demineralized engine wash water, and gently air dried using forced circulation, such as "hair dryer" type of gun fan/heater set on low or no heat. The generators can then be successfully preserved inside the SSPU's general plastic barrier wrap.

6. HULL OPENINGS:

a. As the standard towing procedure (REF (1)) is for towing with the struts and foils down, the bow opening is normally faired by the forward strut. If the PHMs are towed with the struts raised, then the towing speed should be limited to 15 knots maximum.

b. The aft strut foilborne propulsion intake duct at the ground seal plane needs to be sealed to avoid water flow past the intake ducts and into the foilborne propulsor and to reduce drag.

1. By replacing the bolted-on strut seals with gasketed sealing plates, an effective cofferdam can be developed. Additional gasketed seal plates (with test connections) will be bolted to the flanges when the port and starboard "Y" duct inlet expansion bellows are disconnected, in order to provide dual water-tight protection.

2. The plates at the ground plane seal provide an optimum location for adding additional skegs to provide added transverse stability for improving yaw, roll, and sway while under tow with the struts raised. For the distance from Key West to Portsmouth, Virginia, if rough seas are encountered at an eight to fifteen knot towing speed, the skegs would definitely help. Without added skegs, the PHMs can still be successfully towed, as current fins exist, but may not have sufficient transverse area (without the aft struts in the water) to avoid yaw, roll, or sway conditions while under tow.

c. The foilborne propulsor outlet at the transom needs to be sealed to also keep water out of the foilborne propulsor. Protection can be provided by adding a bolted and gasketed plate to the inboard transom flange with the foilborne propulsor's aft bellows is removed. Work is best accomplished when the ship has been deballasted and the Harpoon missiles removed, in order to minimize the draft at the transom and thereby reduce or eliminate water in the work around the lower plate circumference.

d. Isolation of strut trunnion pins and hydraulic actuator rods from sea water is highly recommended.

1. Sea water exposure to flaw-growth-critical and hard-to-access trunnion pins and extended retract/extend actuators' rods will be more significant during the long hullborne tow with the struts raised.

2. Coverage of these components with heavy marine water-resistant grease, such as MIL-G-24139, will provide much needed protection.

e. Other external hull openings for ship systems do not have to be sealed, as all other systems have sufficient hull isolation valving. This includes the hullborne propulsor inlets and outlets, although the steering buckets and arms should be disconnected and stored inside the ship. See hullborne propulsor preservation procedure for additional long term recommendations.

7. TOWING BRIDLE AND TOWING REQUIREMENTS - GENERAL: EPY evaluated two basic towing configurations, one with the FWD strut retracted and one with the FWD strut removed and stowed on deck. Neither of the two configurations studied matches the procedure outlined in REF (1), which considers emergency towing with the struts down only. ENCL (1), an excerpt from REF (1), shows the existing emergency towing rig. ENCL's (2) through (5) consist of a series of sketches showing the ship and tow configurations studied.

FWD STRUT INSTALLED: EPY recommends towing the PHM's intact, with the FWD struts installed and secured in the retracted position. The study indicates that towing gear can be successfully deployed over the bows, and that sufficient catenary can be developed to avoid tow line contact with the FWD strut. The FWD strut tailcone should be removed to provide an additional margin of clearance; the tailcone can be stored inside the ship.

Additional rub rails made of 6 inch, Sch 160, 5086 Aluminum Alloy pipe should be welded at the deck edge approximately as shown in ENCL (2) to provide additional abrasion resistance to the towing chain bridle. The rub rails could, conversely, be made of molded rubber or high density polyethylene (HDPE) available commercially for towing/fendering operations.

The tow connection is envisioned as consisting of a 1 inch stud link chain bridle, with two legs each 1 shot (90 feet) long. The legs would be made fast to the second set of bits aft of the bow on either side using 1 inch preformed wire slings and anchor shackles. The legs then run forward to "chokers" on the fowardmost set of bits, then are draped over the side in way of the rub rails (the capstan will have to be removed and stowed). The free ends of the chains are connected to a flounder plate (the existing one will not be adequate). One more shot (90) feet of 1-1/2 inch chain attaches to the fishplate and runs to the towing wire or hawser via a swivel and shackle connection.

This configuration should provide ample strength and catenary for clearance between the FWD strut and the towing gear. ENCL (3) shows a typical offshore towing arrangement for the PHM so configured. Typical vessel separation would be about 300 to 600 feet at 10 knots. Lower towing speeds could have smaller vessel separations.

FWD STRUT REMOVED: Boeing investigated towing PHM with the strut removed in response to a NAVSEA request. This towing arrangement uses the existing towing bridle and arrangement described in REF (1). In this configuration, the strut is removed and stowed intact on the foredeck as shown in ENCL (4) and ENCL (5). Boeing evaluated the effect of stowing the FWD strut on the afterdeck and found that such stowage is unacceptable from all stability and trim considerations, and cannot be compensated for using any combination of tank ballasting.

Removing the strut and foil has several advantages, especially as regards clearance between the towing gear and the FWD strut/foil. There would then be no chance of the towing gear interfering with or damaging the strut, and existing towing gear can be used instead of procuring new gear. Typical vessel separation would be between 200 and 500 feet offshore.

EPY does not propose this method as the for several reasons. Stowage of the strut on the main deck may be unacceptable from stability and deck structure standpoints. As a minimum, extensive cribbing or bracing will be required, and additional lashing or chocking points added to the deck to support the FWD strut and foil. Numerous interferences on deck will have to be removed or relocated to allow strut stowage.

EPY's principal concern is with future operability of the ships if the FWD strut is removed. MLSG is well qualified to remove and re-install the struts, but there will likely not be any support personnel at the lay-up site so trained. Personnel attempting to reinstall the strut in the future may damage or improperly install it. EPY also has concerns about long term retention of critical strut/foil components and damage of bearing surfaces.

ADDITIONAL COMMENTS REGARDING TOWING:

a. Shipchecks by Boeing personnel in Key West show emergency towing bridles present on each ship, configured for towing with the forward strut in the down and locked position. A modification of the existing bridle or a new bridle as previously described is required for the towing with the forward strut raised. Supply of the towing gear could be made part of towage contract if commercial towing operators are used.

b. The existing emergency towing gear is rated at a breaking strength of 75,000 lbs. Measured PHM 1 towline tensions of 21,000 lbs at 16 knots and 40,000 lbs at 22 knots, both with the struts down, compare with predicted towline tension of 40,000 lbs at 16 knots, as derived from the PHM 1 sea trials data. Towing forces with struts up, and at normal towing speeds of about 8 to 10 knots (15 max) should be substantially less. Towing force is roughly proportional to the square of the speed, and towing power to the cube. This would indicate that towing forces at 10 knots should be no greater than 8200 pounds based on measured loads. Achieving the proper catenary in the towing gear to avoid FWD strut damage requires an average tow chain/wire weight of 12 pounds per foot for a minimum 300 foot vessel separation at 10 knots. Use of a 2 inch diameter wire rope tow line or heavy chain lead off the fishplate will accomplish this.

c. Towing with the struts up will result in lower towing forces than any previously calculated or measured. The towing speeds should not exceed 15 knots, with 10 knots recommended. The maximum wind conditions for towing are 50 knots. At 10 knots, transit from Key West to Portsmouth should be about 5 days with a day at each end for tow make-up and removal.

d. Protection will be required on the lower surfaces of the strut and foils to avoid damage in heavy seas where the towing gear may still impact the systems. Boeing recommends using commercial rubber or plastic fendering material lashed on the foil trailing edges.

8. MOORAGE AND SPACING REQUIREMENTS:

a. The nested moorage arrangement described in the SOOMM, NAVSEA S9PHM-AC-SHP-010, Section IV, Paragraph 4-36, and ENCL (6), is the preferred configuration for the decommissioned mooring of several PHMs. Also shown are the fendering and spacing requirements for the PHMs.

b. Maneuvering room will be affected by the need to use another vessel (or vessels) for positioning the PHMs, as the PHMs will not be under their own power.

c. The 8.5 m wide camel is sized to avoid striking the aft foil tips only during approach maneuvering with a 45 degree approach angle. 4.5 m of space is required for the nested moorage camels to accommodate motions of up to a 20 degree roll angle. Less width may be required if measures are taken to limit roll angles and a shallower approach angle to the pier is adopted.

Attachments:
(1) REF (1) excerpt
(2) Towing gear, strut installed
(3) Typical towing catenary
(4) Deck arrangement, FWD strut off, stowed FWD
(5) Elevation, FWD strut off, stowed FWD
(6) PHM moorage arrangements

ITEM NO.	DESCRIPTION	BRK STG-LBS	S.F @ 3200	NO. REQUIRED	MATERIAL SPECIFICATIONS	REMARKS
1	Tow Pad	96,000	3.00	-	----------	Existing
2	1" Shackle	122,000	3.81	2	MIL-S-24214 Type 1, Gr B, CL 3	
3	7/8" Chain-Link-Detachable	98,000	3.06	2	MIL-L-2710 Type 1, CL 1	
4	3/4" Dielock Chain	75,000	2.43	2	MIL-C-19944 Type 1	40 Links
5	3/4" Chain-Link Detachable	75,000	2.43	4	MIL-L-2710 Type 1, CL 1	
6	7/8" Shackle	93,500	2.92	4	MIL-S-24214 Type 1, Gr B, CL 3	
7	Flounder-Plate			1		
8	3/4" Pelican-Hook	91,100	1.73	1	NAVSEA DWG: No. S2605-860000	Part Nos. 7, 8, 9, 10, 11, 12, 13
9	1" Long-link	76,000	1.44	2	Crosby No. G340 Weldless End-link	Commercial
10	WR. Pendant 1" Diameter	130,000	1.96	1	Fed. Spec RR-W-410 Type 1, CL 3 IPS IWRC	With Thimbles
11	1-1/4" Chain-Link Detachable	190,000	3.62	1	MIL-L-2710 Type 1, CL 1	
12	Thimble with Link for 6-1/2" CRCMF Rope	246,000	4.69	2	Ocean Products Research CAS-1015-GU-125	Commercial
13	6-1/2" Hawser, Nylon	123,000	2.43	1	Plaited MIL-R-24337	600' Long

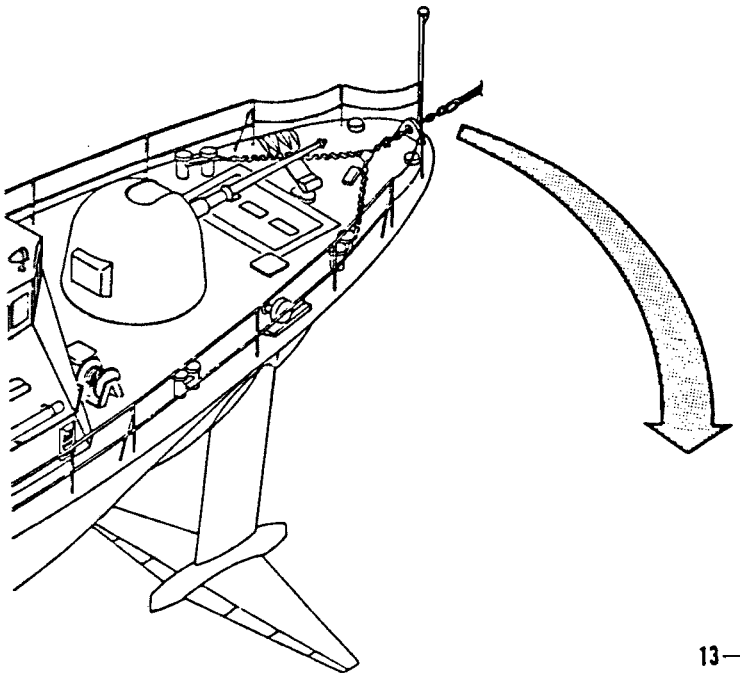
NOTES:
32000 lbs per bridle leg (Items - 1, 2, 3, 4, 5, 6) = W. L. x 2 x Cosine 35° (.819) = 52,425 lbs on hawser.

Tow pads have been designed for a safety factor of 3, based on the ultimate strength of material; other safety factors based on design tow load of tow pad.

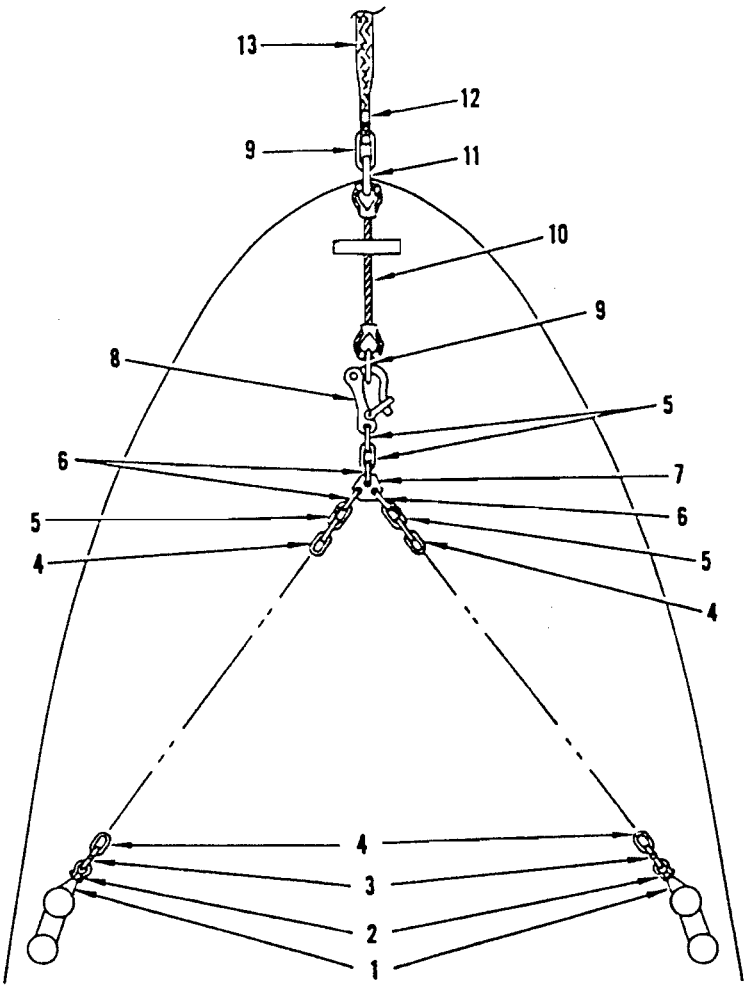
Items 9 (1 ea) and 11 through 13 are carried by towing ship.

PHM TETHER TOW RIG
NAVSEA Dwg No. 802-5751206

Figure 8-8. Towing Fittings and Bridle (Sheet 3 of 3)



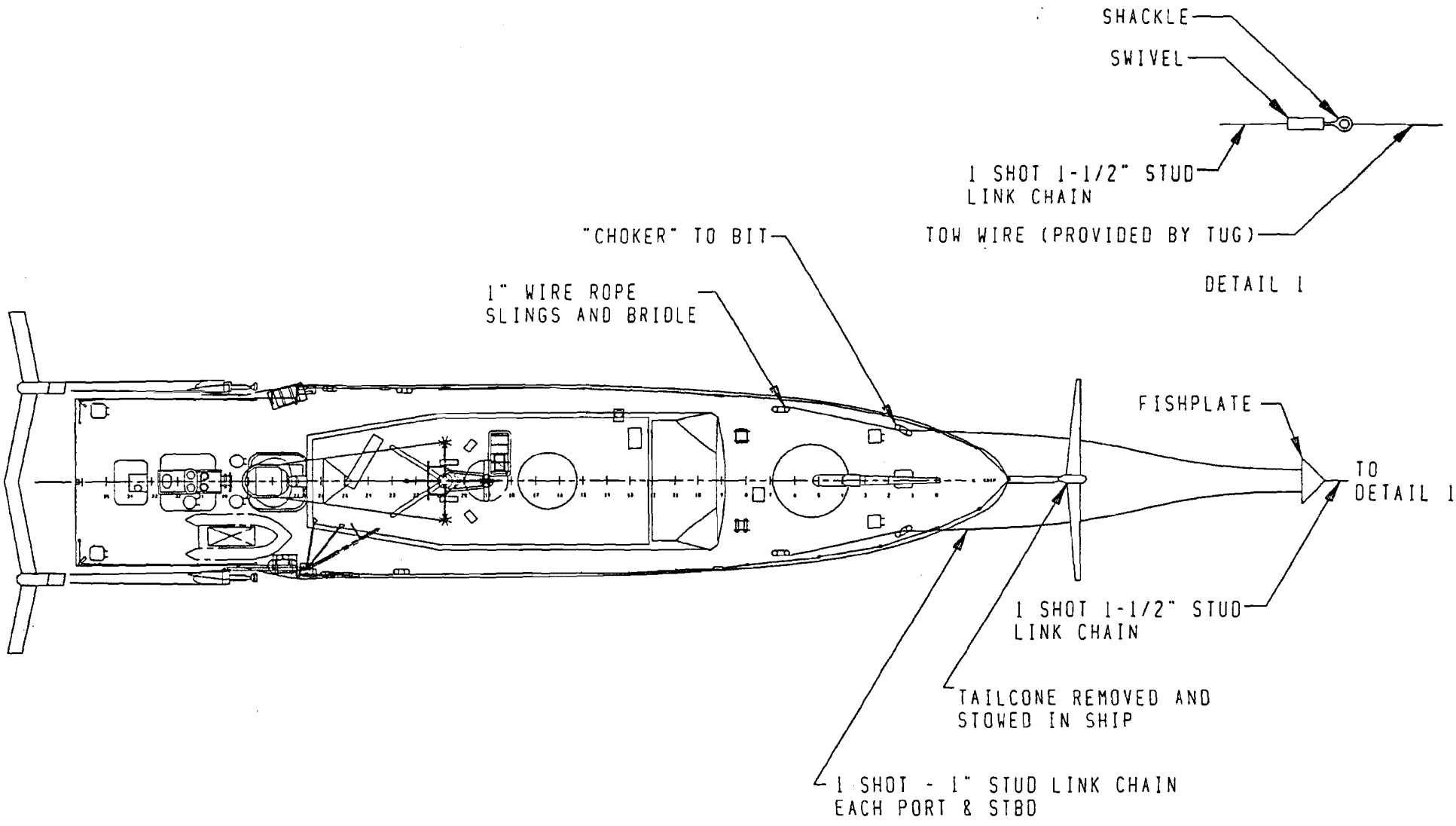
ITEM NUMBERS DEFINED ON SHEET 3



DETAIL (F)

0368C-GB

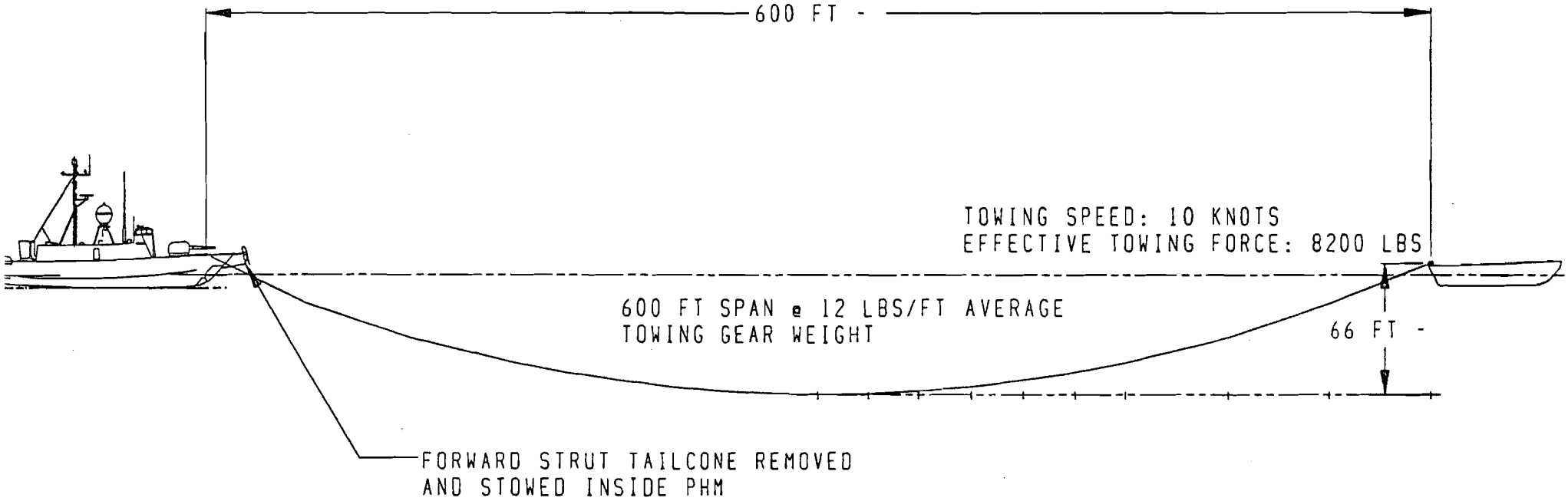
Figure 8-8. Towing Fittings and Bridle (Sheet 2 of 3)



PLAN VIEW

TYPICAL TOWING ARRANGEMENT OFFSHORE
FORWARD STRUT RETRACTED

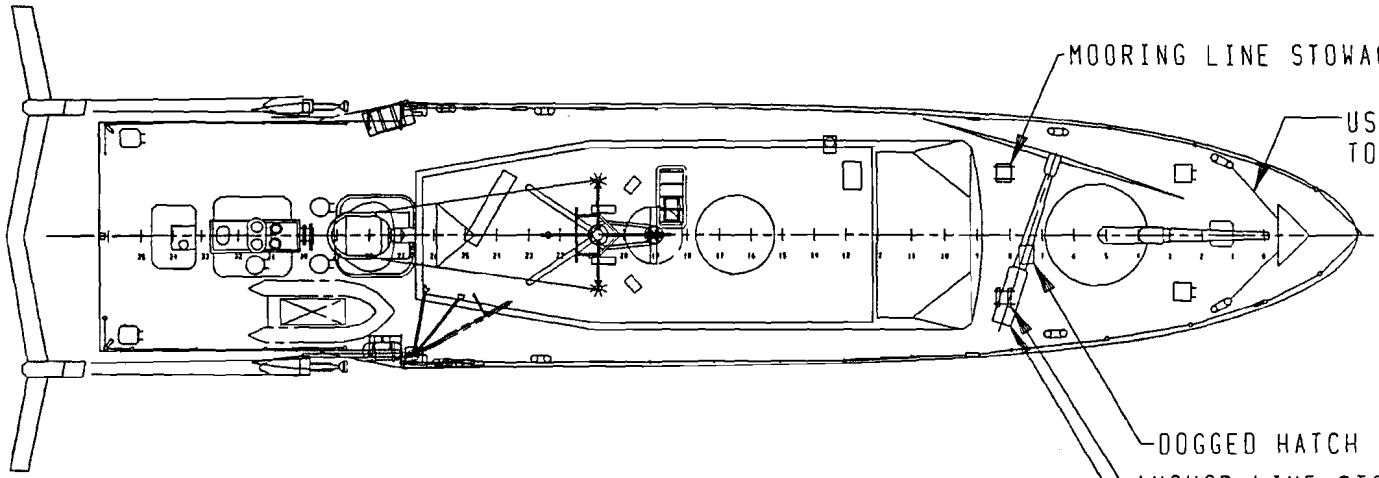
ENCLOSURE 2
W7840-DGL-398



ELEVATION

TYPICAL TOWING ARRANGEMENT OFFSHORE
STRUTS RETRACTED

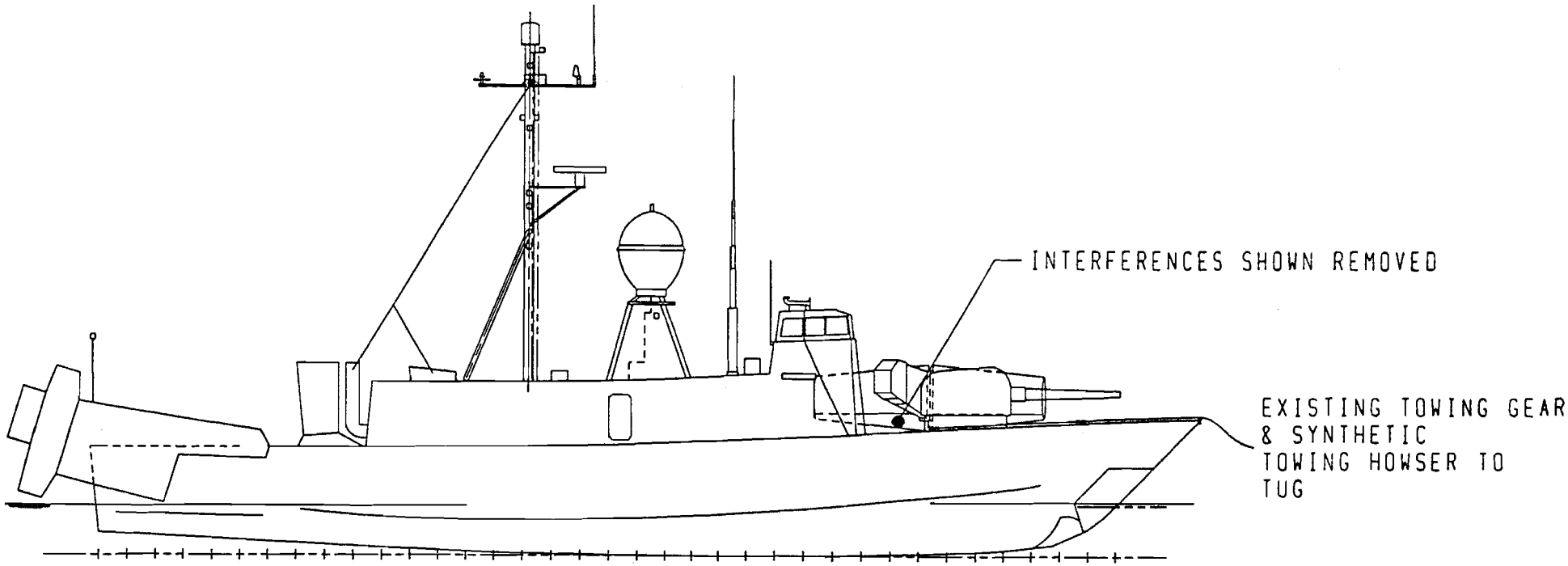
ENCLOSURE
W7840-DGL-



PLAN VIEW

TYPICAL TOWING ARRANGEMENT OFFSHORE
FORWARD STRUT REMOVED

ENCLOSURE 4
W7840-DGL-398



ELEVATION

TYPICAL TOWING ARRANGEMENT OFFSHORE
FORWARD STRUT REMOVED

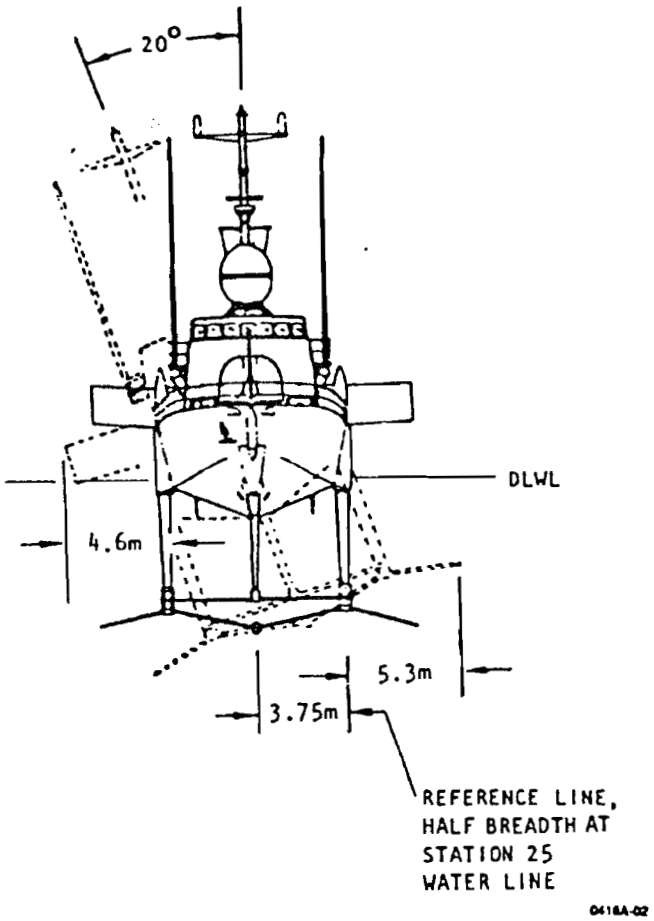


Figure 2-39: Mooring Clearance Requirements

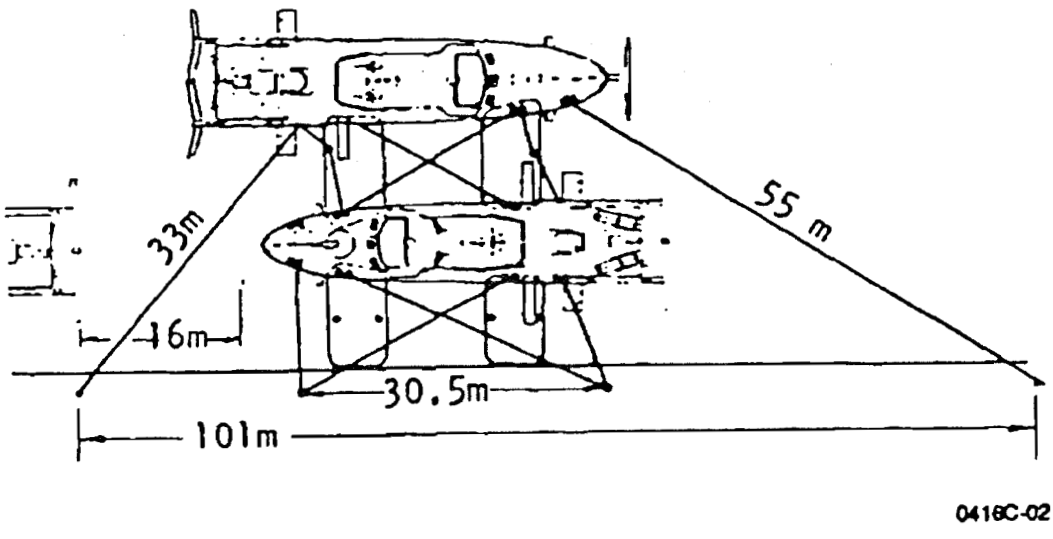
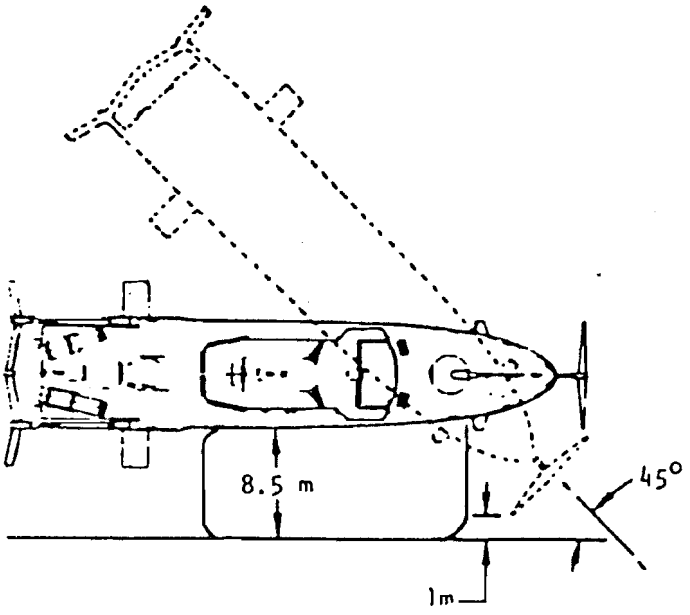
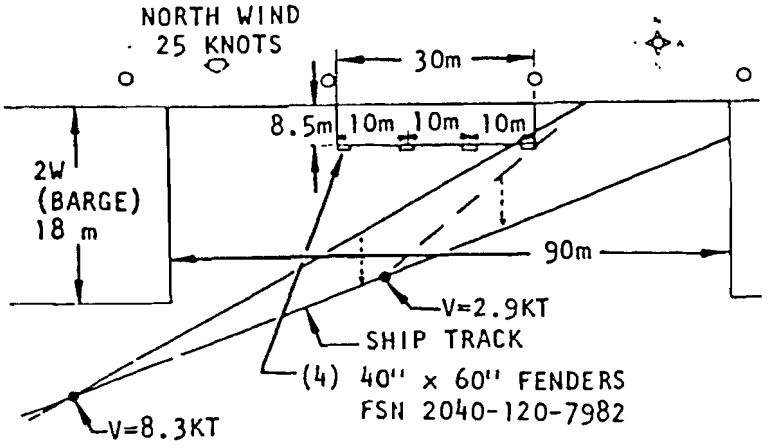


Fig. 2-42: Nested Moorage Arrangement



NOTE: DRAFT AT DESIGN LIMIT WATERLINE
FOILS DOWN - 7.1m
FOILS UP - 2.2m

Figure 2-40(a): Ship Maneuverability Requirements at Moorage



NOTE:
THE RESULTANT TRACK AT VARIOUS APPROACH HEADINGS IS ASSUMED TO INCLUDE THE COMPONENT OF 1.3 KT ACTING IN THE DIRECTION OF THE WIND

Figure 2-40. Ship Maneuverability

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U UNCLASSIFIED U
UUUUUUUUUUUUUUUUUUUUUUUUU

RTTUZDKW RUCBSGG8181 0781652-UUUU--RULSSEA.
ZNR UUUUU
R 190103Z MAR 93 ZDK FSN 573634M26

FM COMNAVSURFLANT NORFOLK VA//N431A31/N431A/N431A12//

TO RHBAOSA/COMPHMRON TWO

RHBAOSA/PHMRON TWO MLSG
RHFJFGU/COMNAVSURFGRU MAYPORT FL
INFO RUENAAA/CNO WASHINGTON DC//N37/N43/N943/N86//
RUCBSAA/CINCLANTFLT NORFOLK VA//N00/N01/N33/N43/N433//
RUEACNF/BUPERS WASHINGTON DC//409/41//
RULSSEA/COMNAVSEASYSCOM WASHINGTON DC//PMS330/380/071/91//
RULSSAD/COMNAVSUPSYSCOM WASHINGTON DC//00/07/71B//
RULSSPA/COMSPAWARSYSCOM WASHINGTON DC//00/PMW152-35/PMW151-23//
RULKSDG/DCMS WASHINGTON DC//T60/T40//
RUCOHAD/INSURVLANT NORFOLK VA//N1//
RULSSAK/NAVY IPO WASHINGTON DC//00/02X/10D/62//
RUCBLLN/NAVSEA DET PORTSMOUTH VA//00//
RUCIZZA/DAASO DAYTON OH//00//
RUCLFVJ/EPMAC NEW ORLEANS LA//00//
RULSTGP/NAVTACSUPPACT WNY DET WASHINGTON DC//00/13//
RUEDAMS/SPCC MECHANICSBURG PA//00//
RULSKBF/NAVELEXSYSENGACT ST INIGOES MD//2442//
RUERNWC/NAVSURFWARCENDIV CRANE IN//00//
PAGE 02 RUCBSGG8181 UNCLAS
RUEOHUA/NAVSURFWARCEN SHIPSYSENGSTA PHILADELPHIA PA//00//
RUCBLLC/NAVSEACENLANT PORTSMOUTH VA//00//
RUCKCIC/NAVELEXCEN CHARLESTON SC//212/214//
RUCBLLE/NAVSEA DET NISMF PORTSMOUTH VA//00//
RULYSHH/NSCSES NORFOLK VA//00//
RHFJFFF/NAVSURFLANT READSUPPGRU MAYPORT FL//00//
RULSLAK/NAVSURFWARCENDIV DAHLGREN VA//00//
RUCOFAX/NAVBCSTSVC FSD NORFOLK VA//00//
RHFJFFF/NAVSTA MAYPORT FL//00//
RULSIAX/NETC NEWPORT RI//00//
RUEAHOF/EXEC DIR MIL POSTAL SVC AGCY ALEXANDRIA VA//MPSA-OP//
RHBAOSA/USS PEGASUS
RHBAOSA/USS HERCULES
RHBAOSA/USS TAURUS
RHBAOSA/USS ARIES
RHBAOSA/USS GEMINI
RHBAOSA/USS AQUILA

UNCLAS //N04710//
SECTION 01 OF 03
PAGE 03 RUCBSGG8181 UNCLAS

MSGID/GENADMIN/CNSL N431A31/001/MAR//

SUBJ/PHM DECOMMISSIONING GUIDANCE//

REF/A/GENADMIN/CNO WASHINGTON DC/151701ZMAR93//
REF/B/DOC/OPNAV/29MAY91//
REF/C/DOC/COMNAVSURFLANT/26MAR85//
REF/D/DOC/NAVSEA/15JUL83//
REF/E/DOC/OPNAV/01MAR88//
REF/F/DOC/OPNAV/05NOV86//
REF/G/DOC/DCMS/01MAR87//
REF/H/DOC/OPNAV/29APR88//
REF/I/DOC/CINCLANTFLT/02APR90//
REF/J/DOC/NAVMAT/04MAY74//
REF/K/DOC/BUPERS/14NOV85//
REF/L/DOC/OPNAV/09AUG85//
REF/M/DOC/DCMS/01OCT90//
REF/N/DOC/NIPR/15NOV91//
REF/O/DOC/SECNAV/25JUN92//
REF/P/DOC/NAVSEA/01NOV89//
REF/Q/DOC/SECNAV/06NOV90//
NARR/REF A PROMULGATES CNO PHM DECOM AUTHORIZATION. REF B IS
PAGE 04 RUCBSGG8181 UNCLAS
OPNAVINST 4770.5F, REF C IS COMNAVSURFLANTINST 4770.1B, REF D IS NAVAL SHIPS TECHNICAL MANUAL CHAPTER 050. REF E IS NAVAL WARFARE PUBLICATION 10-1-11 (REV A), REF F IS OPNAVINST 5605.19, REF G IS COMSEC MATERIAL SYSTEM 4L, REF H IS OPNAVINST 5510.1H, REF I IS CINCLANTINST 8010.12, REF J IS NAVMATINST 8300.1A, REF K IS BUPERINST 1710.11A, REF L IS OPNAVINST 5212.6, REF M IS COMSEC MAT'L SYSTEM 6, REF N IS NAVAL INTELLIGENCE PRODUCTS REGISTER, REF O IS SECNAVINST 5700.9D, AND REF P IS NAVSEA TECH MANUAL SE700-AA-MAN-210/RADIAC, AND REF Q IS SECNAVINST 4900.48.//

.

RMKS/1. PER REF A, THIS MSG IS AUTHORIZATION TO COMMENCE INACTIVATION PLANNING AND DECOMMISSIONING OF SUBJ SHIPS. ACTIONS OUTLINED BELOW COMMENCE ON INDIVIDUAL SHIP STAND DOWN DATES. IN THE EVENT FOREIGN MILITARY SALE (FMS) "HOT SHIP" TRANSFER DOES NOT OCCUR, ADDITIONAL GUIDANCE WILL BE PROVIDED. STAND DOWN IS TO PROCEED IAW WITH THE GUIDANCE PROVIDED IN PARA 2 OF THIS MSG.

.

2. EVERY EFFORT HAS BEEN MADE TO ENSURE ADEQUATE DECOM STAND DOWN TIME (IAW REF B) IS AVAILABLE TO COMPLETE CREW PHASE DOWN AND INACTIVATION PROCEDURES. INSURV, STAND DOWN AND DECOM DATES ARE AS
PAGE 05 RUCBSGG8181 UNCLAS
FOLS:

SHIP	INSURV	STANDDOWN	DECOM DATE
PEGASUS	04/26/93	04/01/93	06/30/93
HERCULES	11/92	04/01/93	06/30/93
TAURUS	04/12/93	06/01/93	08/31/93
AQUILA	05/17/93	06/01/93	08/31/93
ARIES	05/24/92	10/01/93	12/15/93
GEMINI	05/17/93	10/01/93	12/15/93

3. REFS B THROUGH P PROVIDE GUIDANCE FOR INACTIVATION AND REMOVAL/ REDISTRIBUTION OF EQUIPMENT AND PUBLICATIONS. REF Q IS GUIDANCE FOR TRANSFER OF U.S. NAVAL VESSELS BY SALE, LEASE, LOAN OR GRANT TO FOREIGN GOVERNMENTS AND INTERNATIONAL ORGANIZATIONS. THESE PROCEDURES WILL BE FOLLOWED EXCEPT AS MODIFIED HEREIN, AND BY THE SHIP'S INACTIVATION PLAN PROVIDED BY NAVSEA DET PORTSMOUTH, VA. IF CONFLICTING GUIDANCE IS ENCOUNTERED, REF Q PREVAILS. QUESTIONS SHOULD BE DIRECTED TO THE APPROPRIATE POC LISTED PARA (8). ENSURE STRICT ACCOUNTABILITY OF ITEMS TRANSFERRED FROM THE SHIP. ENSURE THAT INVENTORY LISTS ARE PROVIDED (INCLUDING STORAGE LOCATION) FOR

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ANY PILFERABLE ITEMS STORED ON BOARD. EXCEPT AS DIRECTED BELOW OR ADDRESSED SEPCOR, ALL EQUIP REMOVALS MUST BE APPROVED, IN WRITING, BY THE APPROPRIATE OPNAV SHIP PLATFORM SPONSOR (N86). REMOVALS (IF APPROVED) MUST BE ARRANGED/FUNDED BY THE REQUESTING AGENCY. PREPARATIONS FOR DECOMMISSIONING ARE OUTLINED BELOW.

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4. SHIP'S ACTIONS UPON COMMENCEMENT OF STAND DOWN:

A. OPERATIONS:

(1) SORTS: REPORT C-5 OVERALL, AND C-5/M-5 IN ALL RESOURCE AND PRIMARY MISSION AREAS EXCEPT PERS. REPORT "PRESTRIKE" AS CURRENT ACTIVITY CODE. UPON DECOM SUBMIT FINAL REPORT IAW REF C.

(2) READINESS REPORTING: CANCEL EXISTING CASREPS. DISCONTINUE CASREP REPORTING. FOR PEGASUS: SINCE STAND DOWN PRECEEDS INSURV, CONTINUE CASREP REPORTING UNTIL AFTER COMPLETION OF INSURV.

(3) NWPL AND COMTAC PUBS: THE FOLLOWING GUIDANCE PERTAINS TO REMOVAL OF SNDL CODE AND NWPL ICW DECOMMISSIONING:

(A) THREE TO FOUR MONTHS PRIOR TO DECOMMISSIONING, SEND VIA LETTER OR NAVAL MESSAGE, A REQUEST TO CNO (OP N9822) FOR REMOVAL FROM THE STANDARD NAVY DISTRIBUTION LIST (SNDL). INFO PROVIDED WILL INCLUDE SNDL CODE, UIC, DECOM DATE AND A POC.

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(B) SEND, VIA LETTER OR MESSAGE, A REQUEST TO THE NAVAL TACTICAL SUPPORT ACTIVITY (NAVTACSUPPACT) WASHINGTON DC CODE 13, REQUESTING REMOVAL FROM AUTOMATIC DISTRIBUTION AND DISESTABLISHMENT OF THE NWPL ACCOUNT. INFO PROVIDED WILL INCLUDE SNDL CODE, UIC, DATE TO BE REMOVED FROM DISTRIBUTION, DECOM DATE AND A POC. INFO CHAIN OF COMMAND.

(C) UNDER TURN-IN PROCEDURES IN NAVSUP PUBLICATION 2002, ONLY USABLE COPIES (WITHOUT CHANGES OR CORRECTIONS), CAN BE RETURNED TO THE AVIATION SUPPLY OFFICE COG I SUPPORT BRANCH (FORMERLY NAVY PUBS AND FORMS CENTER) STOCK POINT. IAW REF F, PUBLICATIONS SHALL BE DESTROYED LOCALLY WHERE THE VALUE IS LESS THAN THE MAILING AND ADMINISTRATIVE COST INVOLVED IN RETURNING THE ITEM(S) TO STOCK. TACTICAL PUBLICATIONS, EXCEPT NWP 10-1-10, WILL BE DESTROYED LOCALLY IAW OPNAVINSTS 5510.1/5510.1L. RECORD DESTRUCTION ON OPNAV FORM 5511-12 AND FORWARD TO CNSL CODE (N54).

(D) TURN-IN NWP (10-1-10) TO ISIC WHEN ALL REPORTS HAVE BEEN COMPLETED.

(4) CMS ACCOUNT: DISESTABLISH IAW ART 205 REF G.

(5) OTHER CLASSIFIED MATERIAL: REF C AND H REFER. MATERIAL NO

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#8181

MSGID/GENADMIN/CNSL N43A31/001/MAR//

SUBJ/PHM DECOMMISSIONING GUIDANCE//

RMKS/
LONGER REQUIRED WILL BE DESTROYED IAW REF G UNLESS OTHERWISE NOTED IN THE INDIVIDUAL DOCUMENT LTR OF PROMULGATION.

(6) CLASSIFIED PUBS AND TECH MANUALS PERTAINING TO EQUIP WHICH WILL REMAIN ONBOARD WILL BE BOXED WITH CONTENTS IDENTIFIED AND TRANSFERRED TO NAVAL INACTSHIP MAINTENANCE FACILITY PRIOR TO DECOM.

(7) INTELLIGENCE PUBLICATIONS: REF N PROVIDES GUIDANCE AND AN EXAMPLE OF THE LETTER REQUIRED TO CANCEL DISTRIBUTION OF INTEL PUBLICATIONS. THE LETTER SHOULD BE SUBMITTED 60 DAYS PRIOR TO DECOM.

(8) ALL SAFES ARE TO BE LEFT OPEN WITH COMBINATIONS RESET TO STANDARD COMBINATION (50-25-50). ALL PASS KEYS AND KEYS TO LOCKS ONBOARD AND STANDARD COMBINATIONS WILL BE TRANSFERRED TO NAVY IPO OF INACTSHIPFAC UPON DECOM. RETAIN ADEQUATE NUMBERS OF HIGH/MED SECURITY LOCKS ONBD TO PROVIDE SECURE STOWAGE OF PILFERABLE ITEMS.

(9) PORTABLE/COMMERCIAL NAVIGATION EQUIP. REDISTRIBUTION TO OTHER SURFLANT UNITS WILL BE DIRECTED BY PARENT ISIC. GPS EQUIP

INCLUDING (TRIMBLE TRIMPACK) IS CONTROLLED BY CNSL CODE (N635C).

(10) SHARP PC-1500 HAND HELD COMPUTERS AND HP67 CALCULATORS: SHIP HARDWARE, SOFTWARE AND DOCUMENTATION TO SURFACE WARFARE DEVELOPMENT GROUP, NAVAL AMPHIBIOUS BASE LITTLE CREEK, NORFOLK VA 23521-5240 ATTN: CODE N33 (POC LCDR CAMPAGNA A/V 680-7965).

(11) ELECTRONIC WARFARE ON BOARD TRAINER (EWOBT): SHIPPING INSTS FOR Z248 HARDWARE, SOFTWARE AND DOCUMENTATION TO BE PROVIDED SEPCOR.

(12) GPETE/SPETE/CAL STANDARDS: CONTACT CINCLANTFLT TECRR CENTER PROGRAM MANAGER, MRS. CAROLINE DIXON (CNSL N635E2), AT (804)-445-1066 TO ARRANGE SHIPPING OF ALL TEST EQUIP.

(13) STU-III: ENSURE ALL STU-III TERMINALS ARE ZEROIZED AND TURN-IN TO SQDN POOL FOR FLEET REDISTRIBUTION. DOCUMENT XFER ON SF-153, PROVIDING COPY TO DCMS AND COMSPAWARSYSCOM PMW-151. FOLLOW PROCEDURES OUTLINED IN REF M FOR DISPOSITION INSTRUCTIONS OF ASSOCIATED MATERIALS. ZEROIZE ALL STU-III SEED KEYS. DOCUMENT DESTRUCTION ON SF-153 AND FORWARD COPY TO KMS IAW EKMS-702.1. FORWARD STU-III REPRESENTATIVE REGISTRATION FORM DELETING USER REP TO CNSL (N612A).

(14) NTCS-A HARDWARE (JOTS EQUIPMENT) WILL BE REMOVED BY

NAVALEXCEN PORTSMOUTH UPON COMMENCEMENT OF STAND DOWN.

(15) SATCOM EQUIP (INCLUDING NAVMACS AND THE ON-143V6) WILL BE REMOVED BY COMSPAWARSYSCOM AFTER COMMENCEMENT OF STAND DOWN. CONTACT CNO (N943C21), RCMS (SW) NAVAR, AV 225-1380 (COMM 202-695) TO COORDINATE REMOVAL.

(16) PORTABLE COMMUNICATIONS EQUIP: CONTACT READINESS SQUADRON TO DETERMINE IF ASSETS ARE REQUIRED FOR REDISTRIBUTION TO BRING SHIPS UP TO ALLOWANCE WITHIN SQDN. ASSETS NOT REQUIRED FOR REDISTRIBUTION SHOULD BE SHIPPED WITH ALL ANCILLIARIES (TO INCLUDE ANTENNAS, MANUALS, HANDSETS, ETC.) TO NAVAL ELECTRONIC SYSTEMS ENGINEERING ACTIVITY, CODE 2442 (ATTN: D. KRONENWETTER) ST. INIGOES MD 20684-0010. INCLUDE EQUIPMENT TYPE, QTY AND RECIPIENT OF TRANSFERS ON DECOM SITREPS.

B. SUPPLY: GUIDANCE WILL BE PROVIDED VIA SEPCOR.

C. WEAPONS:

(1) WEAPONS OFF-LOAD PRIOR TO DECOM TO BE COORDINATED BY GROUP/SQUADRON.

(2) TURN IN ALL ORDNANCE AND PYROTECHNICS PRIOR TO DECOM IAW

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REF I. SMALL ARMS, WEAPONS AND COMBAT EQUIP ARE TO BE TURNED IN TO NAVWPNSUPPCEN CRANE IAW REF J.

D. ENGINEERING:

(1) EXECUTE GUIDANCE CONTAINED IN NSTM CHAPTER 050, AND AS TAILORED TO INDIVIDUAL SHIP DECOMMISSIONING BY NAVSEA DET PORTSMOUTH VA.

(2) CONTINUE DAILY/WEEKLY MAINTENANCE, AS FEASIBLE, UNTIL EQUIPMENT LAID UP. ALL 3-M DOCUMENTATION AND MATERIALS INCLUDING MEO'S, AND A CURRENT OSMP) ARE TO REMAIN WITH THE SHIP.

(3) TURN IN RADIAC EQUIP IAW REF F SECTION 5.

(4) TRANSFER CBR-D EQUIP AND FOL DC GEAR AS DIRECTED BY CNSL CODE (N814) AND AS DIRECTED BELOW:

(A) NAVY FIREFIGHTER THERMAL IMAGER (NFTI), SHIP TO SIMA NORFOLK.

(B) P-250 MOD 1/MOD II, SHIP TO SIMA NORFOLK.

(C) RED DEVIL BLOWERS, SHIP TO SIMA NORFOLK.

(D) CHEMICAL WARFARE DIRECTIONAL DETECTOR (AN KAS-1), SHIP TO NAVWPN SUPPCEN CRANE IN, CODE 2032.

(E) CHEMICAL AGENT POINT DEFENSE SYSTEM (CAPDS), SHIP TO

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NAVWPN SUPPCEN CRANE IN CODE 2032.

(F) ALL CHEMICAL WARFARE EQUIP, AS DIRECTED SEPCOR.

(G) DT 60'S, SHIP TO NAVELEX CHARLESTON, 4600 MARRIOTT NORTH, CHARLESTON SC 29418, ATTN: CODE 321

(H) SUBMERSIBLE PUMPS, SHIP TO SIMA NORFOLK.

(I) PORTABLE EMERGENCY CUTTING UNIT (PECU), PORTABLE HYDRAULIC AIR RESCUE SYSTEM (PHARS), RAM FAN AND NDI EQUIP, SHIP TO NON DEVELOPMENTAL ITEMS BLDG V58 NAS NORFOLK, VA. 23511.

(J) ISIC COORDINATE REDISTRIBUITION OF OTHER DAMAGE CONTROL EQUIP. SHIP IS TO SUBMIT BASELINE CBR EQUIP REPORT AT STAND DOWN COMMENCEMENT, THEREAFTER REPORT TRANSFER IN WEEKLY SITREP VICE PERIODIC CBR EQUIP REPORTS (INFO CNSL N814).

(5) SITE TV AND VCR MOTION PICTURE TAPES: INVENTORY, PACKAGE AND MAIL (INSURED) ALL MOTION PICTURES TO NMPS IAW MOTION PICTURE MANUAL. COORDINATE WITH: NAVAL BROADCAST SERVICE FACILITY NORFOLK, VA FOR SITE SYSTEM REMOVAL. NBSF POC: ICC MEDIVICH, A/V 565-1975.

E. MEDICAL: ISIC COORDINATE REDISTRIBUTION OF MEDICAL SUPPLIES TO OTHER SURFLANT UNITS. CNSL (N02M) WILL COORDINATE THE

//

#8182

7. PERSONNEL: SCREENING GUIDANCE WILL BE PROMULGATED SEPCOR.

8. MISCELLANEOUS:

(A) WELFARE/RECREATION FUND: DISESTABLISH IAW REF K. ISIC COORDINATE REDISTRIBUTION OF RECREATION EQUIP. CONTACT CNSL CODE (N444A) PRIOR TO DISTRIBUTION FOR GUIDANCE.

(C) POST OFFICE: DISESTABLISH IAW REF L. SQUADRON WILL PROVIDE DIRECTORY SERVICE FOR A PERIOD OF 60 DAYS AFTER DECOM, DURING WHICH TIME PERSONAL MAIL WILL BE FORWARDED, AND OFFICIAL MAIL OPENED AND SCREENED FOR NECESSARY ACTION.

9. SHIP IS TO SUBMIT A WEEKLY SITREP MSG TO ISIC, (INFO NAVSEA DET PORTSMOUTH VA (00), COMNAVSURFLANT (CODES PER PARA 8), CINLANTFLT (N471, N00), NAVSEA (330D,330C,360), NAVY IPD (10D,02X,62)) STARTING ONE WEEK AFTER STAND DOWN COMMENCEMENT, WITH A GENERAL

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NARRATIVE REPORT OF PROGRESS/PROBLEMS INCLUDING SPECIFIC STATUS OF REFERENCE TO PARA 7. INCLUDE PROGRESS OF SPACE CLOSE-OUT. REPORT INDIVIDUAL ITEMS ONLY WHERE ACCOMPLISHMENT IS IN JEOPARDY OR RESOLUTION FROM HIGHER AUTHORITY IS REQUIRED. IN FINAL SITREP INCLUDE STATEMENT CERTIFYING ALL CLASSIFIED MATERIAL HAS BEEN REMOVED FROM THE SHIP. NLT ONE WEEK AFTER DECOMMISSIONING, SUBMIT LESSONS LEARNED VIA MSG TO ISIC, INFO COMNAVSURFLANT CODE (N431A1).

10. FOR ISIC: ASSIST SHIP IN DECOMMISSIONING PREPARATIONS, TO INCLUDE COORDINATION OF OFF-SHIP BERTHING/MESSING ARRANGEMENTS WHEN NECESSARY, ARRANGEMENTS FOR DECOM CEREMONY AND COORDINATION WITH COMLOGGRU TWO FOR TOW SHIP REQUIREMENTS AS NEEDED. ENSURE EACH DECOMMING UNIT SUBMITS TO CNSL CODE (N431A31): (1) A BULLETIZED SHIPS HISTORY NLT 30 DAYS PRIOR TO DECOM DATE AND (2) FACT AND JUSTIFICATION (F&J) SHEET IAW REF O NLT 180 DAYS (OR SOONEST) PRIOR TO DECOM. ADDITIONALLY, ONCE DECOMMISSIONING OCCURS, MLSG WILL ASSUME CONTROL OF SHIP AND CARETAKER CREW UNTIL TRANSFER TO FOREIGN NAVY OR TOW TO NISMF. PROVIDE VIA MSG TO CNSL CODE (N431A31) A SINGLE POC AT ISIC AND SHIP FOR COORDINATION OF DECOM ACTIONS.

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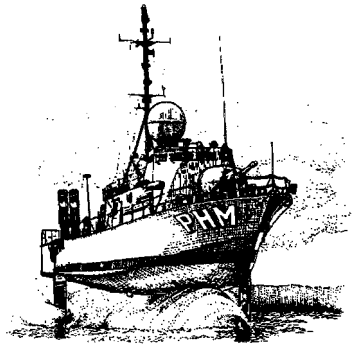
11. AN INACTIVATION BRIEFING PROVIDING MORE DETAILED GUIDANCE FOR SHIP WILL BE CONDUCTED ONBOARD BY NAVINACTSHIPFAC. BRIEFING DATE WILL BE PROMULGATED VIA SEPCOR.

12. COMNAVSURFLANT POC - COMM (804) OR AUTOVON 564/565

DECOM COORDINATION/LIAISON	LT MARY LOGSDON (N431A31)	444-5504
	MR FRANK CLEMONS (N431A12)	444-5941
PERSONNEL	CDR TOM LINDNER (N14)	444-5854
SUPPLY	SKCM(SW) MACDONALD (N412A2)	444-5414
MEDICAL	HMCM SMITH (02M1)	444-5050
COMMUNICATION EQUIP	LT MONTGOMERY (N611)	444-5530
NTCS-A/JOTS	OSCS(SW) FERGUSON (N635B)	445-6648
CMS/STU III/PORTABLE COMM	MAJ CROWELL, USMC (N612)/	
	RMC(SW) SCHAFFER (N612A)	444-5872
GPS EQUIP	ETC(AW) HARDIN (N635C)	445-1562
GENERAL ELECTRONIC EQUIP	ETCS(SW) WAGONER (N635A)	445-1562
GPETE/SPETE/CAL	MR JIM WEST (N635E)	445-1086
2M/ATE EQUIPMENT	ETCS(SW) DEROUSSE (N635E1)	445-1563
DC/CBR-D	LCDR STARBUCK (N814)	444-5837
WELFARE/RECREATION	MR TOM MARSHALL (N444)	444-5565

COMBAT CARGO	MAJ J. SMITH, USMC (N36)	444-5794
INTEL	ISC ENGSTROM (N22)	444-5931
RADIACS	LCDR LINEBERGER (N431A2)	444-5943//

Patrol Combatant Missile (Hydrofoil)

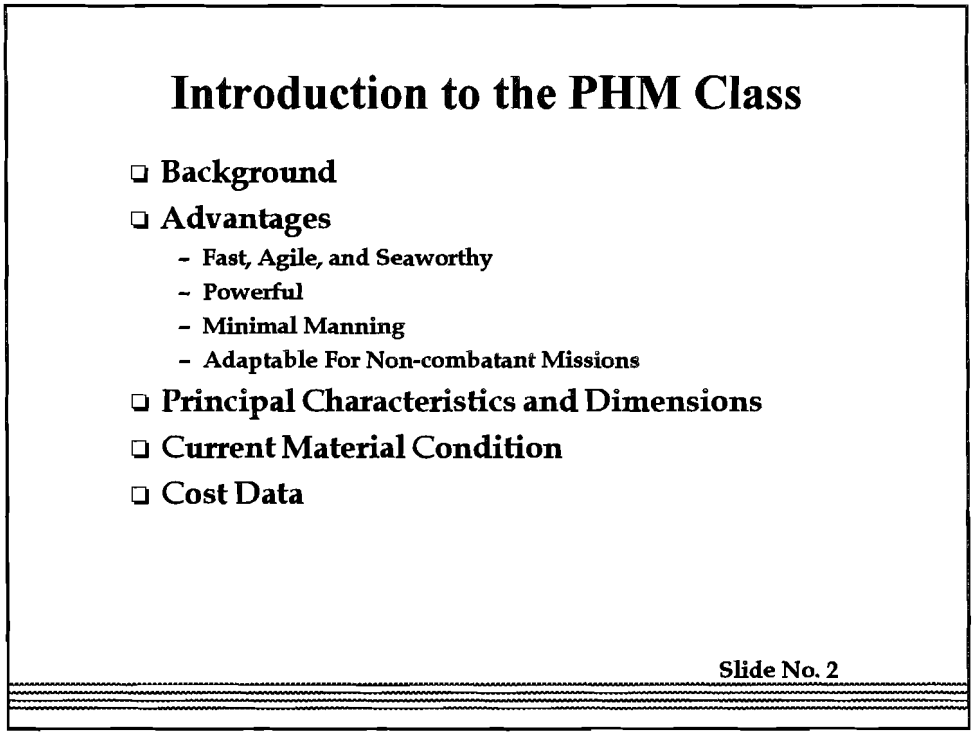


PHM

Presented by
U.S. NAVY IPO

Slide No. 1

SPEAKER'S NOTES



GOOD MORNING AND WELCOME

DURING TODAY'S BRIEFING, I WILL INTRODUCE YOU TO A UNIQUE CLASS OF SIX HYDROFOIL WARSHIPS, THE PHMS.

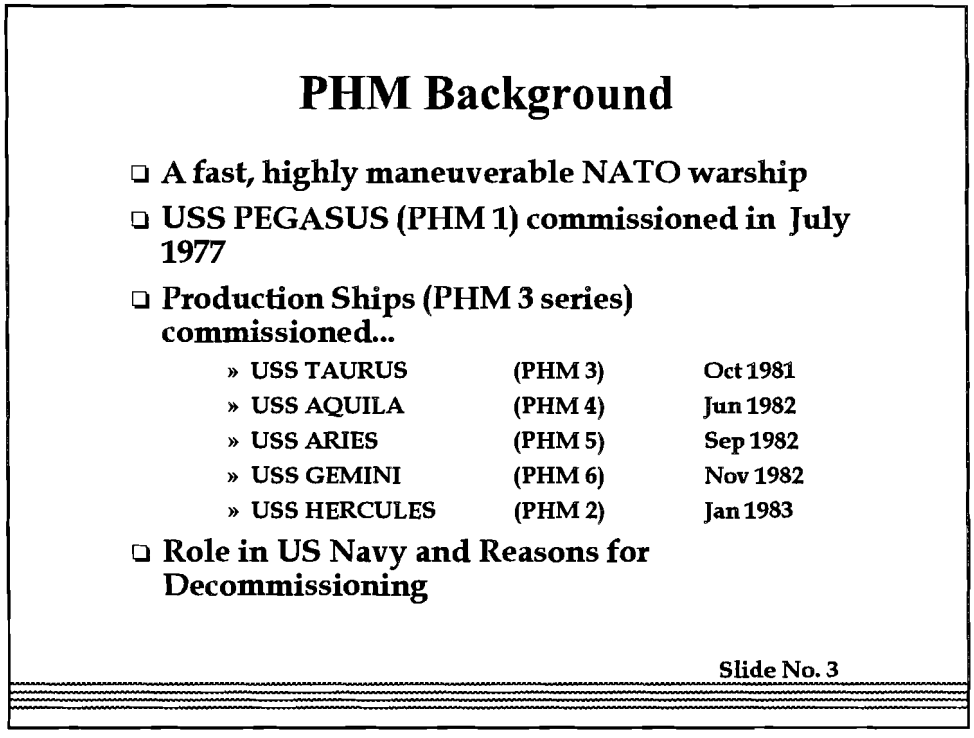
I WILL COVER THE BACKGROUND OF THESE SHIPS VERY BRIEFLY. MOST OF THE BRIEFING IS DEDICATED TO DISCUSSING THE CAPABILITIES OF THESE SHIPS AND POTENTIAL USES.

I WILL ALSO DISCUSS THE PRINCIPAL CHARACTERISTICS AND DIMENSIONS OF THE SHIPS.

WE WILL TAKE A LOOK AT THE CURRENT MATERIAL CONDITION OF INDIVIDUAL PHMS. ALSO WE WILL DISCUSS COST DATA... THE ORIGINAL ACQUISITION COST AND THE MAINTENANCE AND OPERATIONAL COSTS.

AFTER THE PRESENTATION, I WILL OPEN UP THE FLOOR TO QUESTIONS. THIS BRIEFING IS JUST AN OVERVIEW. I WILL BE HAPPY TO MAKE AVAILABLE PRINTED MATERIAL THAT GIVES MORE DETAILED INFORMATION ABOUT THE PHMS OR TO MEET WITH YOUR REPRESENTATIVES FOR A MORE DETAILED DISCUSSION.

YOUR HANDOUTS INCLUDE COPIES OF THE OVERHEAD PROJECTION SLIDES AND SEVERAL FIGURES DEPICTING PHMS.



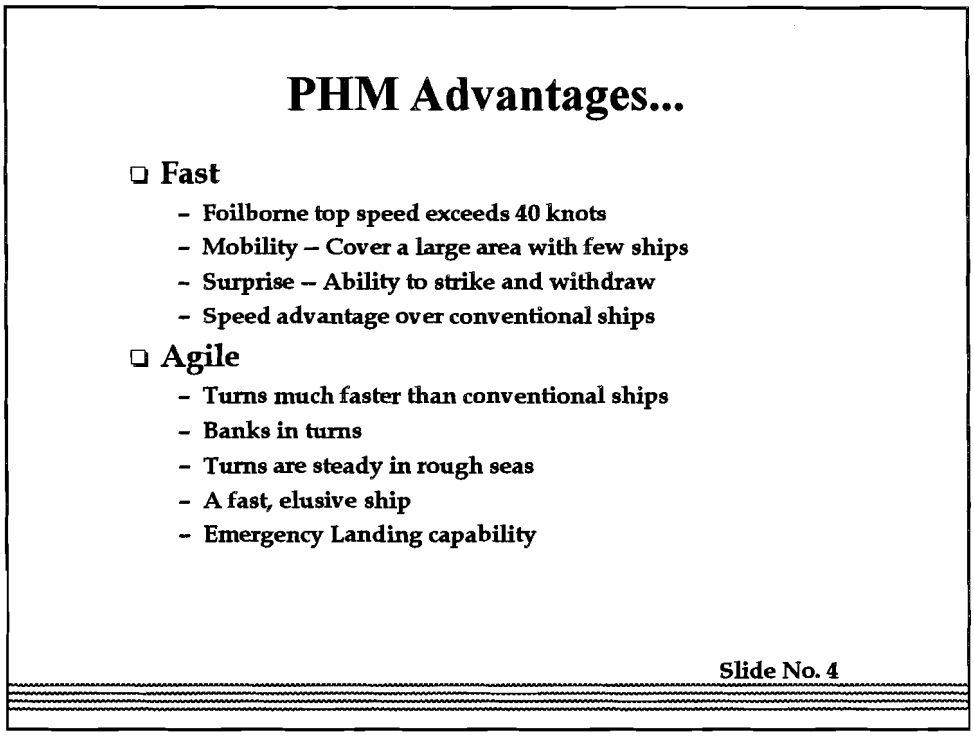
THE PHM IS A FAST, HIGHLY MANEUVERABLE WARSHIP DEVELOPED BY BOEING AND INTENDED FOR THE NATO NAVIES. USS PEGASUS, COMMISSIONED IN 1977, WAS THE PROTOTYPE FOR THESE MISSILE FIRING HYDROFOILS. FIVE ADDITIONAL PHMS (THE PHM 3 SERIES) WERE PRODUCED DURING 1981-82, ALL BY THE UNITED STATES.

THE REQUIREMENT FOR PHMS ORIGINATED WITH THE SUCCESS IN 1967 OF SMALL EGYPTIAN PATROL BOATS USING ANTI-SHIP MISSILES AGAINST THE ISRAELI DESTROYER *EILAT*. PHMS WERE TO BE THE COUNTER-MEASURE AGAINST THE THREAT POSED BY SUCH CRAFT.

LOGISTICS SUPPORT FUNCTIONS WERE HOUSED IN A SERIES OF TRAILERS TO ALLOW DEPLOYMENT OF PHMS ANYWHERE IN THE WORLD. IN PRACTICE, HOWEVER, ALL SIX PHMS HAVE BEEN STATIONED IN KEY WEST FL. THEY HAVE PARTICIPATED IN A FULL RANGE OF FLEET EXERCISES IN THE CARIBBEAN, THE GULF OF MEXICO, CENTRAL AND SOUTH AMERICA, AND THE EAST COAST OF THE UNITED STATES.

PHMS HAVE PROVEN HIGHLY USEFUL AND EFFECTIVE IN PURSUING AND BOARDING DRUG SMUGGLING CRAFT. AS A RESULT ANTI-NARCOTICS INTERDICTIONS AND PATROLS HAVE MADE UP AN INCREASINGLY LARGE PART OF THE PHM OPERATIONS.

THE EARLY DECOMMISSIONING OF PHMS DESPITE ALL SUCCESS REFLECTS THE HIGHER PRIORITY OF THE LARGER SHIP CLASSES OF THE REGULAR NAVY IN A CONSTRAINED FUNDING ENVIRONMENT.



THE SHIP IS PROPELLED WHEN FOILBORNE BY A WATERJET PROPULSOR CAPABLE OF PUMPING APPROX. 340,000 LITERS PER MINUTE. IT IS DRIVEN BY A GE LM2500 GAS TURBINE ENGINE, THE SAME TURBINE USED BY FFG CLASS FRIGATES .

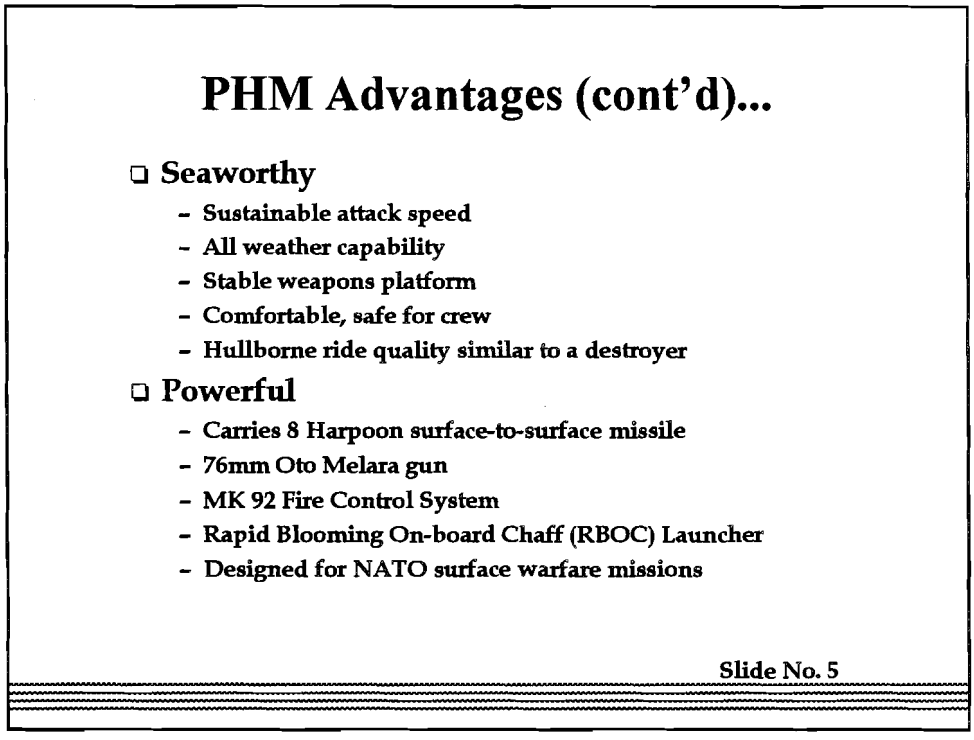
SUSTAINABLE TOP SPEEDS ARE IN EXCESS OF 40 KNOTS, A SUBSTANTIAL ADVANTAGE OVER CONVENTIONAL SHIPS. THIS SPEED ALLOWS LARGE AREA COVERAGE BY ONLY A FEW SHIPS. SPEED ALSO ENHANCES THE ELEMENT OF SURPRISE IN STRIKE AND WITHDRAW TACTICS.

PHMS HAVE SUCCESSFULLY CHASED AND OVERTAKEN HIGH PERFORMANCE "CIGARETTE" TYPE SPEEDBOATS USED BY NARCOTICS SMUGGLERS.

WHILE FOILBORNE, THE PHM TURNS AND MANEUVERS MUCH FASTER THAN CONVENTIONAL SHIPS. THE SHIP BANKS WHEN TURNING, PERMITTING A TIGHT TURNING RADIUS WHILE COUNTERING LATERAL FORCES DURING THE TURN.

TURNS ARE STEADY AND SMOOTH, EVEN IN ROUGH SEAS. THIS IS A FAST, ELUSIVE SHIP.

AN EMERGENCY STOP CAPABILITY IS BUILT IN. THIS MANEUVER IS ANOTHER EXAMPLE OF PHM AGILITY.

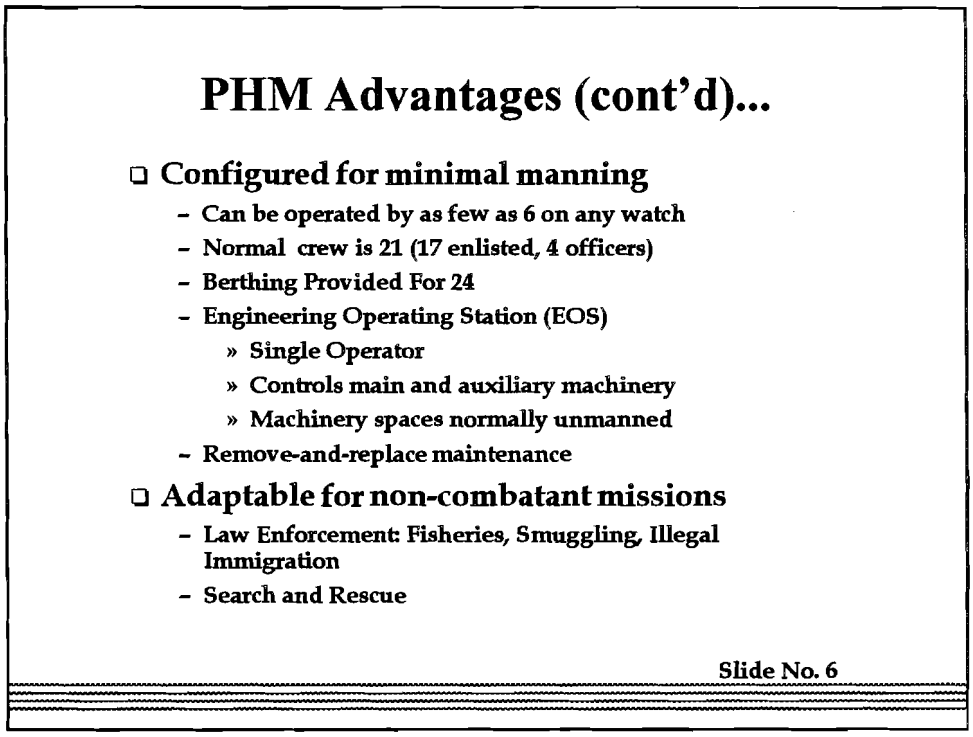


MISSION EFFECTIVENESS OF THE PHM IS ENHANCED BY HIGH SPEED MANEUVERABILITY AND ALL-WEATHER CAPABILITY. THE HYDROFOILS MAINTAIN THESE ATTRIBUTES IN VERY HEAVY SEAS, WHILE PROVIDING A STABLE WEAPONS PLATFORM AND A COMFORTABLE, SAFE WORKING ENVIRONMENT FOR THE CREW.

SOME FAST ATTACK CRAFT CAN ATTAIN THE SPEED OF PHMS. BUT UNLIKE PHMS, MOST CANNOT SUSTAIN THAT SPEED , EVEN IN MODEST SEAS.

THE HYDROFOILS ENHANCE HULLBORNE OPERATIONS AS WELL. WHEN HULLBORNE WITH HYDROFOILS EXTENDED, THE RIDE QUALITY APPROXIMATES THAT OF A DESTROYER-SIZED SHIP.

POWERFUL OFFENSIVE ARMAMENT MAKES THE PHM AN EFFECTIVE, COMPACT SYSTEM FOR STRIKE, PATROL, AND SURVEILLANCE MISSIONS. PHMS ARE EQUIPPED WITH EIGHT HARPOON MISSILES, AN OTO MELARA 76 mm RAPID FIRE GUN, AN RBOC LAUNCHER, AND THE MK 92 FIRE CONTROL SYSTEM



THE SHIP CAN BE OPERATED BY AS FEW AS SIX ENLISTED AND OFFICERS ON ANY WATCH. THE NORMAL CREW IS 21, CONSISTING OF 17 ENLISTED AND 4 OFFICERS. BERTHING IS PROVIDED FOR 24.

THE AUTOMATIC CONTROL SYSTEM (ACS) PROVIDES CONTINUOUS COMPUTERIZED DYNAMIC CONTROL OF THE SHIP DURING TAKE-OFF, LANDING, AND ALL FOILBORNE OPERATIONS.

IN THE ENGINEER'S OPERATING STATION (EOS), A SINGLE OPERATOR CONTROLS THE SHIP'S MAIN AND AUXILIARY MACHINERY. THE MACHINERY SPACES ARE NORMALLY UNMANNED.

CREW RESPONSIBILITY FOR MAINTENANCE AND REPAIR IS BASED ON A REMOVE AND REPLACE CONCEPT. INTERMEDIATE LEVEL REPAIRS ARE PERFORMED BY A SHORE BASED SUPPORT ACTIVITY. REPAIR DEPOTS ARE ESTABLISHED FOR THE MAJOR PHM-UNIQUE EQUIPMENTS.

A TYPICAL MISSION PROFILE FOR A PHM IS FIVE DAYS DEPLOYED FOLLOWED BY TWO DAYS IN HOME PORT FOR MAINTENANCE AND REPLENISHMENT.

Principal Characteristics

- **Dimensions (meters):**
  - Length overall, foils up/down — 44.7 / 40.5
  - Beam, Main Deck — 8.6
  - Overall Aft Foil Span — 14.51
  - Draft, Hullborne, Foils up/down — 2.3 / 7.1
  - Draft, Foilborne — 2.6
  - Height, Masthead (hullborne) — 17.0
  - Height, Bridge (hullborne)/(foilborne) — 6.8 / 11.1
- **Displacement (metric tons):**
  - Light Ship — 175 to 177
  - Minimum Operating Condition — 206 to 209
  - Full Load Condition — 245 to 248

Slide No. 7

SOME OF THE PHM CHARACTERISTICS ARE PRESENTED ON THIS SLIDE AND THE NEXT SLIDE.

THE HYDROFOILS ADD TO THE OVERALL LENGTH WHEN THEY ARE IN THE RETRACTED POSITION FOR A TOTAL OF 44.7 METERS.

NOTE THAT PHMS NORMALLY OPERATE IN DEEP WATER WITH THE HYDROFOILS EXTENDED, EVEN WHEN HULLBORNE. THIS GIVES STABILITY IN ROUGH SEAS AND PERMITS RAPID TRANSITION TO THE FOILBORNE MODE IF NEEDED.

ALTHOUGH THE SHIPS BEAM IS 8.6 METERS, NOTE THAT THE AFT FOIL SPAN IS 14.5 METERS.

DISPLACEMENT RANGES ARE AS SHOWN.

Characteristics (Cont'd)

- **Speed (knots):** 40+ F/B (11 H/B)
- **Turning Rate:** 6+ degrees/second
- **Range (N. Mi.):** 600+ F/B (1200+ H/B)
- **Propulsion:**
  - Foilborne
    - » 1 – GE LM2500 gas turbine engine
    - » 1 – Aerojet waterjet propulsor
  - Hullborne
    - » 2 – MTU 8V331TC81 diesel engines
    - » 2 – Aerojet waterjet propulsors
  - Fuel – JP-5 or Diesel No. 2

Slide No. 8

HERE ARE SOME ADDITIONAL CHARACTERISTICS. THE TOP SPEED, TURNING RATE, AND MAXIMUM RANGE FIGURES ARE CLASSIFIED. TO GIVE YOU AN IDEA, NOMINAL FIGURES ARE SHOWN.

RANGE CAN BE EXTENDED BY REPLENISHMENT AT SEA.

THE MAIN PROPULSION TURBINE IS THE SAME ENGINE THAT IS USED ON THE FFG CLASS FRIGATE. THE LARGE F/B PROPULSOR IS UNIQUE TO PHMS. IT WAS DESIGNED AND MANUFACTURED BY AEROJET CORP.

TWIN DIESEL ENGINES PROVIDE POWER FOR H/B OPERATIONS. THE SMALLER PROPULSORS IN THE H/B DRIVE TRAIN ARE ALSO UNIQUE TO PHMS AND MANUFACTURED BY AEROJET.

Current Material Condition

- Operational Status
- 10-15 Years Design Life Remaining
- USS PEGASUS Structural Problems
- Chilled Water Plant Problems
- Speed Log Problems
- Configuration Database Up-To-Date
- Technical Manuals and SIBs Up-To- Date
- Design solutions exist for known problems

Slide No. 9

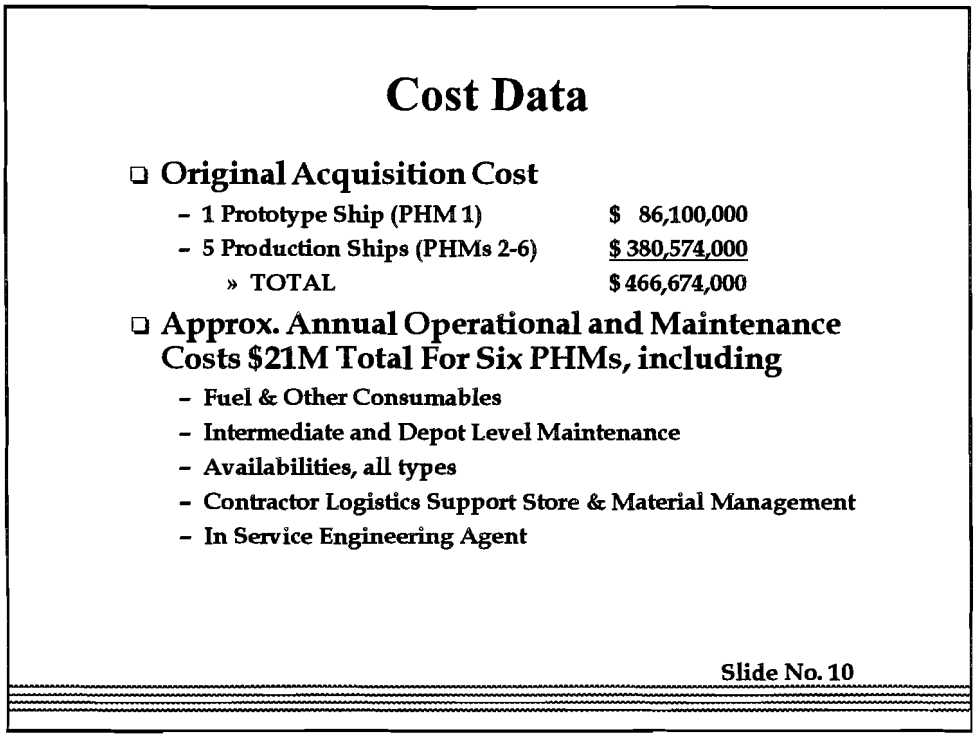
PHM 1 -- OPERATIONAL , BUT NEEDS $2M STRUCTURAL UPGRADE. PHM 2 IS OVERDUE FOR DEPOT MAINTENANCE, ESPECIALLY U/W PAINTING. PHM 3 NEEDS A $30K REPAIR TO THE F/B PROPULSOR. PHMS 4, 5 & 6 ARE FULLY OPERATIONAL.

CONSTRAINING FACTOR IS HOURS OF F/B OPERATION. REMAINING DESIGN LIFE IS 10-15 YEARS AT 300-400 F/B HOURS PER YEAR. DESIGN LIFE CAN BE EXTENDED BY REGIMEN OF INSPECTIONS AND REPAIRS FOR STRUT/FOIL SYSTEM.

PHM 1 NEEDS UPGRADE OF FWD STRUT KING POST AND DECK STRUCTURE TO OPERATE SAFELY LONG TERM. THE CHILLED WATER PLANT IS MAINTENANCE INTENSIVE. PRODUCT IMPROVEMENT CHANGES ARE READY TO INSTALL, OR NEW PLANTS CAN BE PROCURED, $3.0M FOR SIX PHMS. SPEED LOGS ARE OBSOLETE. REPLACEMENT IDENTIFIED BUT NOT INSTALLED, EXCEPT ON PHM 3.

MOST CONFIGURATION DATA IS UP-TO-DATE AND VALIDATED, INCLUDING COSAL, SHIP SELECTED RECORDS, SHIP INFORMATION BOOKS, EQUIPMENT TECHNICAL MANUALS, LESSONS LEARNED DATA BASE FOR DEPOT REPAIR, AND TECHNICAL DATA BASE VOYAGE REPORT STATISTICS (ASSIST).

DESIGN SOLUTIONS FOR MOST KNOWN MAINTENANCE PROBLEMS ARE EITHER COMPLETE OR WELL ADVANCED.



THE ORIGINAL ACQUISITION COSTS ARE SHOWN IN THESE SLIDES. THESE AMOUNTS HAVE NOT BEEN ESCALATED TO CURRENT DOLLARS. THE AVERAGE PER SHIP COST FOR THE PRODUCTION SERIES WORKS OUT TO $76,114,800.

RECENT ANNUALIZED MAINTENANCE COSTS FOR THE SQUADRON OF SIX SHIPS IS BETWEEN $18M TO $21M. THIS AMOUNT SUPPORTS OPERATIONS AT A RELATIVELY HIGH OPTEMPO, WITH EACH PHM ACCUMULATING 300-400 F/B HOURS PER YEAR.

ENCLOSURE (2)

NAVSEA PMS330 Comments to COMNAVSURFLANT Instructions For Decommissioning PHM Class Ships

Para. Nº	Requirement (See COMNAVSURFLANT 190103 MAR 93)	References SECNAVINST 4900.48	Comments
4.A.(1)	**Sorts:** Report C-5 Overall, and C-5/M-5 in all resource and primary mission areas except Pers. Report "Prestrike" as current activity code. Upon decommissioning, submit final report IAW COMNAVSURFLANTINST 4770.1B		1. Concur.
4.A.(2)	**Readiness Reporting:** Cancel existing CASREPs. Discontinue CASREP reporting. For USS PEGASUS (PHM 1): Since stand down precedes INSURV,, continue CASREP reporting until after completion of INSURV.	4900.48: 4. 8.e.(3)	1. Concur with reservations. No repair work for the benefit of the foreign buyer shall be done before the FMS sale is approved by Congress. However, canceled CASREPs and requisitions should be documented to facilitate resumption of repair/maintenance activity once transfer is approved.
4.A.(3)	**NWPL and COMTAC publications:** (A) 3-4 months prior to decommissioning, send request to OP N9822 for removal from SNDL; (B) request NAVTACSUPPACT Code 13 remove from automatic distribution and disestablish NWPL account ; (C) Per NAVSUP Pub 2002, turn in usable copies where value is greater than shipping/handling cost. Destroy others locally. Destroy tactical pubs locally, except NWP 10-1-10 per OPNAVINSTs 5510.1 and 5510.1L; (D) Turn in NWP 10-1-10 when all reports have been completed.	4900.48: 8.d.(2)	1. Concur. Notes: NWPL = Naval Warfare Publication List SNDL = Standard Navy Distribution List NWP 10-1-10 specifies PHM tactical warfare engineering order of battle. NAVSUP (Philadelphia) is the tech manual distribution point.
4.A.(4)	**CMS Account:** disestablish IAW article 205 of COMSEC Material System 4L.	4900.48: 8.c 8.d.(1) 8.h	1. Concur. Note: CMS = Communications Material System COMSEC = Communications Security

4.A. (5)	**Other Classified Material:** Refer to COMNAVSURF-LANTINST 4770.1B and OPNAVINST 5510.1H. Destroy material no longer required IAW COMSEC Material System 4L unless otherwise noted in the individual document letter of promulgation.	4900.48: 6.b.(4) 7.a.(2)(c) , (e) ,& (f) 8.c 8.d.(1) 8.h	1. Concur.
4.A.(6)	**Classified pubs and tech manuals for equipment to remain on board:** Box it with contents identified and transfer to Naval INACTSHIP Maintenance Facility prior to decommissioning.		1. Concur.
4.A.(7)	**Intelligence Pubs:** Submit letter to cancel distribution 60 days prior to decommissioning per Naval Intelligence Products Register.		1. Concur.
4.A.(8)	**Safes/Locks:** Reset all safe combinations to 50-25-50. Turn over all pass keys, keys/combinations to locks on board to INACTSHIPFAC upon decommissioning. Retain adequate numbers of high/medium security locks to provide secure stowage for pilferable items.	4900.48: 8.b.(3).(x)	1. Concur.
4.A.(9)	**Portable/commercial navigation equipment:** Redistribute to other SURFLANT units per direction of Parent ISIC. GPS equipment incl. Trimble Trimpack is controlled by CSNL Code N635C.	4900.48: 8.b.(5).(c)	1. **Do not concur.** Only hand-held GPS units should be redistributed. Other commercial navigation equipment should remain on board. This includes the Magnavox MX-1157, the speed log, the DSF-6000 and DSF 600-6 depth sounders, the PL-41S Gyroscope, etc.
4.A.(10)	**Hand-held computers/calculators:** Hardware, software, and documentation to Surface Warfare Development Group, Naval Amphibious Base Little Creek.	4900.48: 8.b.(3).(f) 8.b.(3).(s)	1. Concur. Hand-held calculators and automatic data processing (ADP) equipment must be removed from the ship. Note: Desktop computers are used to plan and track ship maintenance. Lack of this equipment and their software will pose a problem for the buyer countries.
4.A.(11)	**Electronic Warfare in Trainer (EWOBT):** Shipping Instructions to be provided by separate correspondence.		1. No comment. No direction provided.

4.A.(12)	**GPETE/SPETE/CAL Standards:** Ship all test equipment, making arrangements with CNSL N635E2.	4900.48: 8.b.(3).(n) 8.b.(3).(u) 8.b.(5).(b)	1 . **Do not concur** that *all* General Purpose Evaluation and Test Equipment (GPETE) shall be turned in and redistributed to other Navy Activities. as a minimum, exceptions should be made for the data logger and for the Huntron Universal Circuit Card Assembly tester and the HYCATs "gold cards." The data logger should go to DTRCEN, and the Huntron should convey with the ships to the buyer of Package "A." See general note 2 re: GPETE held by PHMRON TWO MLSG. 2. **Do not concur** with redistribution of Special Purpose Evaluation and Test Equipment (SPETE) for equipment that remains with the ship. This equipment must be turned in to the CLS store or to NAVSEA DET Portsmouth and held until turned over to maintenance activities for the buyer countries. 3. **Do not concur** with redistribution of all calibration standards. PHM-specific standards, including UT calibration blocks for 17-4PH stainless steel shall transfer with the ships. See general note 2 re: general purpose standards held by MLSG.
4.A.(13)	**STU-III:** Ensure all STU-III terminals are zero-ed. Turn in for redistribution to fleet. Document transfer on Form SF-153. Dispose of associated materials per procedures in COMSEC Material System 6. Zero all STU-III speed keys. Document destruction on SF-153 and forward copy to KMS IAW EKMS-702.1. Forward STU-III representative registration form deleting user rep to CNSL N612A		1. Concur Note: STU = Secure Telephone Unit
4.A.(14)	**NTCS-A Hardware (JOTS):** To be removed by NAVELEXCEN Portsmouth upon stand down of ship. Coordinate removal with CNO N943C21.		1. Concur. Note: USS PEGASUS is the only PHM to have JOTS hardware.
4.A.(15)	**SATCOM:** To be removed, including NAVMACS and ON-143V6 by COMSPAWARSYSCOM after stand down. Coordinate removal through CNO N943C21.	4900.48: 8.b.(3).(k)	1. Concur. Satellite Communication equipment is to be removed from the ship before transfer. Note: CNO N943C21 is the SPAWAR sponsor.

4.A.(16)	**Portable Communications Equipment:** Redistribute to Readiness Squadron if needed. Otherwise, turn in with all ancillary equipment (incl. antennas, manuals, hand sets, etc.) to Naval Electronic Systems Engineering Activity Code 2442. ST Inigoes MD.	4900.48: 8.b.(3).(l)	1. Concur.
4.B	**Supply:** Guidance to be provided by separate correspondence.		1. No comment. No direction provided.
4.C.(1)	**Weapons off-load:** Group/Squadron to coordinate.	4900.48: 7.b.(7)	1. **Do not concur.** Small arms (below .50 cal) transfer to the buyer country. Harpoon missiles are removed.
4.C.(2)	**Ordnance and Pyrotechnics:** Turn in prior to decommissioning per CINCLANTINST 8010.12	4900.48: 7.b.(7) 8.f	1. **Do not concur.** small arms ammunition and pyrotechnics are transferred with the ship. MK 75 Gun ammunition and Harpoon missiles, if authorized for release to the buyer gov't may be purchased separately as an FMS case.
4.D.(1)	Execute requirements of NSTM Chapter 050 as tailored by NAVSEA DET Portsmouth VA		1. Concur, but with reservation (see below): Notes. 1. The Inactivation Plan prepared by NAVSEA DET Portsmouth as written does not call for installation of dehumidifiers or for any special lay-up procedures for PHM unique equipment. 2. Waiver of some NSTM 050 requirements may be required. For example, a waiver allowing cofferdams to be placed over the sea water intakes during towing. 3. The plan may need to address lay up and maintenance of such PHM unique equipment as the water jet propulsors.
4.D.(2)	**Daily/weekly maintenance:** Continue as feasible until equipment is laid up. All 3-M documentation and materials including MRCs and a current CSMP are to remain with the ship.	4900.48: 6.a.(5)	1. Concur. All administrative, logistical, material, and operational support will continue to be provided as before by the immediate operational commander of the ship prior to its transfer to safe storage.
4.D.(3)	**RADIAC Equipment:** Turn in IAW Section 5 of NAVSEA Tech Manual SE700-AA-MAN-210/RADIAC.	4900.48: 8.b.(3).(g)	1. Concur. RADIAC equipment, if any, must be removed from the ship.

4.D.(4).(A)	**Navy Firefighter Thermal Imager (NFTI):** Ship to SIMA Norfolk.		1. Concur, but none are on PHMs.
4.D.(4).(B)	**P-250 Fire Pumps:** Ship to SIMA Norfolk.		1. **Do not concur.** Firefighting equipment in the ships allowance (1 per ship) should not be stripped off. See general note 2 re: Navy standard firefighting equipment held by MLSG.
4.D.(4).(C)	**Red Devil Blowers:** Ship to SIMA Norfolk.		1. **Do not concur.** Firefighting equipment in the ships allowance (1 per ship) should not be stripped off. See general note 2 re: Damage Control equipment held by MLSG. Note: These blowers are used to free compartments of smoke, gas, fumes, etc.
4.D.(4).(D)	**Chemical Warfare Directional Detector (AN/KAS-1):** Ship to NAVWPNSUPPCEN Crane.		1. Concur, but none on PHMs.
4.D.(4).(E)	**Chemical Agent Point Defense System (CARDS):** Ship to NAVWPNSUPPCEN Crane.		1. Concur, but none on PHMs.
4.D.(4).(F)	**Chemical Warfare Equipment:** Direction for disposition to be provided by separate correspondence.	4900.48: 8.b.(3).(h)	1. No comment. No direction provided. Note: Biological warfare/chemical warfare (BW/CW) protective clothing, if any, must be removed from the ship.
4.D.(4).(G)	**DT 60s:** Ship to NAVELEX Charleston Code 321.		1. Concur. Note: these are dosimeters for monitoring individual exposure to radiation.
4.D.(4).(H)	**Submersible Pumps:** Ship to SIMA Norfolk.		1. **Do not concur;** see general note 2.
4.D.(4).(I)	**PECU, PHARS, RAM Fan, and NDI Equipment:** Ship to Non Developmental Items Bldg V58 NAS Norfolk VA.		1. Not on PHMs.
4.D.(4).(J)	**Other Damage Control Equipment:** Redistribute per ISIC. Report transfers in weekly SITREP.	4900.48: 8.b.(5).(c)	1. **Do not concur.** Damage Control equipment in the ships allowance should not be stripped off. See general note 2 re: DC equipment held by MLSG.

4.D.(5)	**Site TV and VCR Movie Tapes:** Coordinate with Naval Broadcast Service Facility Norfolk for Site System removal. Package and mail movies to NMPS.	4900.48: 8.b.(3).(i) 8.b.(3).(w)	1. Concur.
4.E	**Medical Supplies:** ISIC coordinate redistribution to other SURFLANT units.	4900.48: 8.b.(5).(a)	1. **Do not concur.** Medical and dental equipment and supplies, other than controlled substances should transfer with the ship.
4.F.(1)	**Welfare Recreation Fund:** Disestablish IAW BUPERINST1710.11A.	4900.48: 8.b.(3).(a)	1. Concur. Welfare and recreation equipment must be removed prior to transfer of the ship.
4.F.(2)	**Post Office:** Disestablish IAW OPNAVINST 5212.6.		1. Concur.
5.	**Weekly SITREP Messages:** Submit to ISIC (info copies to NAVSEA DET Portsmouth, SURFLANT, CINCLANTFLT, Navy IPO) beginning one week after stand down. Certify in final SITREP that all classified material has been removed from the ship. Final SITREP due NLT one week after decommissioning. Submit lessons learned to ISIC, info SURFLANT.		1. NAVSEA PMS330 should ask for info copies of the SITREPs. These reports would also be of value to the Planning Yard and to DTRCEN.

GENERAL NOTES:

1. ALL COMMENTS ASSUME A HOT SHIP TRANSFER, I.E. TRANSFER OCCURS BEFORE SHIPS ARE PLACED INTO SAFE STORAGE.

2. PHMS ARE DESIGNED TO THE PROGRESSIVE MAINTENANCE CONCEPT. SMALL TOOLS, TEST EQUIPMENT, MOST SPARE PARTS ALLOWANCES, SOME MEDICAL SUPPLIES, AND SOME DAMAGE CONTROL EQUIPMENT ARE KEPT WITH THE DEPLOYABLE MAINTENANCE ACTIVITY (MLSG) INSTEAD OF ON BOARD SHIP . SUCH ITEMS NORMALLY STAY WITH THE SHIP WHEN A HOT TRANSFER OCCURS (CONSUMABLE ITEMS ARE REIMBURSED BY THE FOREIGN BUYER). THIS IS A REQUIREMENT OF SECNAV INSTRUCTION 4900.48 [SEE 8.b(5) AND 8.e]. THE SECNAV INSTRUCTION IS SILENT ON THE SUBJECT OF PROGRESSIVE MAINTENANCE SHIPS. HOWEVER, IF THE INTENT OF THE INSTRUCTION IS FOLLOWED, IT WOULD SEEM THAT THE MLSG SHOULD TURN OVER ITS SMALL TOOLS, TEST EQUIPMENT, NON-PHM-UNIQUE SPARE PARTS, MEDICAL SUPPLIES, AND DAMAGE CONTROL EQUIPMENT FOR TRANSFER WITH THE SHIPS TO THE FOREIGN BUYER(S).

3. ITEMS THAT SHOULD TRANSFER WITH THE SHIPS, BUT THAT WERE NOT SPECIFICALLY CITED IN COMNAVSURFLANT 190103Z MAR 93 INCLUDE NAVIGATION AND VISUAL SIGNALLING EQUIPMENT, BEDDING, FOUL WEATHER GEAR, DECK EQUIPAGE, GALLEY AND WARDROOM EQUIPMENT, SMALL ARMS AND ASSOCIATED AMMUNITION AND PYROTECHNICS, AND POWER TOOLS (REFER TO 8.(b).(5) OF SECNAVINST 4900.48).

NAVSEA PMS330 Comments to COMNAVSURFLANT Instructions For Decommissioning PHM Class Ships

Para. №	Requirement (See COMNAVSURFLANT 190103 MAR 93)	References SECNAVINST 4900.48	Comments
4.A.(1)	**Sorts:** Report C-5 Overall, and C-5/M-5 in all resource and primary mission areas except Pers. Report "Prestrike" as current activity code. Upon decommissioning, submit final report IAW COMNAVSURFLANTINST 4770.1B		1. Concur.
4.A.(2)	**Readiness Reporting:** Cancel existing CASREPs. Discontinue CASREP reporting. For USS PEGASUS (PHM 1): Since stand down precedes INSURV,, continue CASREP reporting until after completion of INSURV.	4900.48: 4. 8.e.(3)	1. Concur with reservations. No repair work for the benefit of the foreign buyer shall be done before the FMS sale is approved by Congress. However, canceled CASREPs and requisitions should be documented to facilitate resumption of repair/maintenance activity once transfer is approved.
4.A.(3)	**NWPL and COMTAC publications:** (A) 3-4 months prior to decommissioning, send request to OP N9822 for removal from SNDL; (B) request NAVTACSUPPACT Code 13 remove from automatic distribution and disestablish NWPL account ; (C) Per NAVSUP Pub 2002, turn in usable copies where value is greater than shipping/handling cost. Destroy others locally. Destroy tactical pubs locally, except NWP 10-1-10 per OPNAVINSTs 5510.1 and 5510.1L; (D) Turn in NWP 10-1-10 when all reports have been completed.	4900.48: 8.d.(2)	1. Concur. Notes: NWPL = Naval Warfare Publication List SNDL = Standard Navy Distribution List NWP 10-1-10 specifies PHM tactical warfare engineering order of battle. NAVSUP (Philadelphia) is the tech manual distribution point.
4.A.(4)	**CMS Account:** disestablish IAW article 205 of COMSEC Material System 4L.	4900.48: 8.c 8.d.(1) 8.h	1. Concur. Note: CMS = Communications Material System COMSEC = Communications Security

4.A. (5)	**Other Classified Material:** Refer to COMNAVSURF-LANTINST 4770.1B and OPNAVINST 5510.1H. Destroy material no longer required IAW COMSEC Material System 4L unless otherwise noted in the individual document letter of promulgation.	4900.48: 6.b.(4) 7.a.(2)(c) , (e) ,& (f) 8.c 8.d.(1) 8.h	1. Concur.
4.A.(6)	**Classified pubs and tech manuals for equipment to remain on board:** Box it with contents identified and transfer to Naval INACTSHIP Maintenance Facility prior to decommissioning.		1. Concur.
4.A.(7)	**Intelligence Pubs:** Submit letter to cancel distribution 60 days prior to decommissioning per Naval Intelligence Products Register.		1. Concur.
4.A.(8)	**Safes/Locks:** Reset all safe combinations to 50-25-50. Turn over all pass keys, keys/combinations to locks on board to INACTSHIPFAC upon decommissioning. Retain adequate numbers of high/medium security locks to provide secure stowage for pilferable items.	4900.48: 8.b.(3).(x)	1. Concur.
4.A.(9)	**Portable/commercial navigation equipment:** Redistribute to other SURFLANT units per direction of Parent ISIC. GPS equipment incl. Trimble Trimpack is controlled by CSNL Code N635C.	4900.48: 8.b.(5).(c)	1. **Do not concur.** Only hand-held GPS units should be redistributed. Other commercial navigation equipment should remain on board. This includes the Magnavox MX-1157, the speed log, the DSF-6000 and DSF 600-6 depth sounders, the PL-41S Gyroscope, etc.
4.A.(10)	**Hand-held computers/calculators:** Hardware, software, and documentation to Surface Warfare Development Group, Naval Amphibious Base Little Creek.	4900.48: 8.b.(3).(f) 8.b.(3).(s)	1. Concur. Hand-held calculators and automatic data processing (ADP) equipment must be removed from the ship. Note: Desktop computers are used to plan and track ship maintenance. Lack of this equipment and their software will pose a problem for the buyer countries.
4.A.(11)	**Electronic Warfare in Trainer (EWOBT):** Shipping Instructions to be provided by separate correspondence.		1. No comment. No direction provided.

4.A.(12)	**GPETE/SPETE/CAL Standards:** Ship all test equipment, making arrangements with CNSL N635E2.	4900.48: 8.b.(3).(n) 8.b.(3).(u) 8.b.(5).(b)	1 . **Do not concur** that *all* General Purpose Evaluation and Test Equipment (GPETE) shall be turned in and redistributed to other Navy Activities. as a minimum, exceptions should be made for the data logger and for the Huntron Universal Circuit Card Assembly tester and the HYCATs "gold cards." The data logger should go to DTRCEN, and the Huntron should convey with the ships to the buyer of Package "A." See general note 2 re: GPETE held by PHMRON TWO MLSG. 2. **Do not concur** with redistribution of Special Purpose Evaluation and Test Equipment (SPETE) for equipment that remains with the ship. This equipment must be turned in to the CLS store or to NAVSEA DET Portsmouth and held until turned over to maintenance activities for the buyer countries. 3. **Do not concur** with redistribution of all calibration standards. PHM-specific standards, including UT calibration blocks for 17-4PH stainless steel shall transfer with the ships. See general note 2 re: general purpose standards held by MLSG.
4.A.(13)	**STU-III:** Ensure all STU-III terminals are zero-ed. Turn in for redistribution to fleet. Document transfer on Form SF-153. Dispose of associated materials per procedures in COMSEC Material System 6. Zero all STU-III speed keys. Document destruction on SF-153 and forward copy to KMS IAW EKMS-702.1. Forward STU-III representative registration form deleting user rep to CNSL N612A		1. Concur Note: STU = Secure Telephone Unit
4.A.(14)	**NTCS-A Hardware (JOTS):** To be removed by NAVELEXCEN Portsmouth upon stand down of ship. Coordinate removal with CNO N943C21.		1. Concur. Note: USS PEGASUS is the only PHM to have JOTS hardware.
4.A.(15)	**SATCOM:** To be removed, including NAVMACS and ON-143V6 by COMSPAWARSYSCOM after stand down. Coordinate removal through CNO N943C21.	4900.48: 8.b.(3).(k)	1. Concur. Satellite Communication equipment is to be removed from the ship before transfer. Note: CNO N943C21 is the SPAWAR sponsor.

4.A.(16)	**Portable Communications Equipment:** Redistribute to Readiness Squadron if needed. Otherwise, turn in with all ancillary equipment (incl. antennas, manuals, hand sets, etc.) to Naval Electronic Systems Engineering Activity Code 2442. ST Inigoes MD.	4900.48: 8.b.(3).(l)	1. Concur.
4.B	**Supply:** Guidance to be provided by separate correspondence.		1. No comment. No direction provided.
4.C.(1)	**Weapons off-load:** Group/Squadron to coordinate.	4900.48: 7.b.(7)	1. **Do not concur.** Small arms (below .50 cal) transfer to the buyer country. Harpoon missiles are removed.
4.C.(2)	**Ordnance and Pyrotechnics:** Turn in prior to decommissioning per CINCLANTINST 8010.12	4900.48: 7.b.(7) 8.f	1. **Do not concur.** small arms ammunition and pyrotechnics are transferred with the ship. MK 75 Gun ammunition and Harpoon missiles, if authorized for release to the buyer gov't may be purchased separately as an FMS case.
4.D.(1)	Execute requirements of NSTM Chapter 050 as tailored by NAVSEA DET Portsmouth VA		1. Concur, but with reservation (see below): Notes. 1. The Inactivation Plan prepared by NAVSEA DET Portsmouth as written does not call for installation of dehumidifiers or for any special lay-up procedures for PHM unique equipment. 2. Waiver of some NSTM 050 requirements may be required. For example, a waiver allowing cofferdams to be placed over the sea water intakes during towing. 3. The plan may need to address lay up and maintenance of such PHM unique equipment as the water jet propulsors.
4.D.(2)	**Daily/weekly maintenance:** Continue as feasible until equipment is laid up. All 3-M documentation and materials including MRCs and a current CSMP are to remain with the ship.	4900.48: 6.a.(5)	1. Concur. All administrative, logistical, material, and operational support will continue to be provided as before by the immediate operational commander of the ship prior to its transfer to safe storage.
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4.D.(4).(D)	**Chemical Warfare Directional Detector (AN/KAS-1):** Ship to NAVWPNSUPPCEN Crane.		1. Concur, but none on PHMs.
4.D.(4).(E)	**Chemical Agent Point Defense System (CARDS):** Ship to NAVWPNSUPPCEN Crane.		1. Concur, but none on PHMs.
4.D.(4).(F)	**Chemical Warfare Equipment:** Direction for disposition to be provided by separate correspondence.	4900.48: 8.b.(3).(h)	1. No comment. No direction provided. Note: Biological warfare/chemical warfare (BW/CW) protective clothing, if any, must be removed from the ship.
4.D.(4).(G)	**DT 60s:** Ship to NAVELEX Charleston Code 321.		1. Concur. Note: these are dosimeters for monitoring individual exposure to radiation.
4.D.(4).(H)	**Submersible Pumps:** Ship to SIMA Norfolk.		1. **Do not concur;** see general note 2.
4.D.(4).(I)	**PECU, PHARS, RAM Fan, and NDI Equipment:** Ship to Non Developmental Items Bldg V58 NAS Norfolk VA.		1. Not on PHMs.
4.D.(4).(J)	**Other Damage Control Equipment:** Redistribute per ISIC. Report transfers in weekly SITREP.	4900.48: 8.b.(5).(c)	1. **Do not concur.** Damage Control equipment in the ships allowance should not be stripped off. See general note 2 re: DC equipment held by MLSG.

4.D.(5)	**Site TV and VCR Movie Tapes:** Coordinate with Naval Broadcast Service Facility Norfolk for Site System removal. Package and mail movies to NMPS.	4900.48: 8.b.(3).(i) 8.b.(3).(w)	1. Concur.
4.E	**Medical Supplies:** ISIC coordinate redistribution to other SURFLANT units.	4900.48: 8.b.(5).(a)	1. **Do not concur.** Medical and dental equipment and supplies, other than controlled substances should transfer with the ship.
4.F.(1)	**Welfare Recreation Fund:** Disestablish IAW BUPERINST1710.11A.	4900.48: 8.b.(3).(a)	1. Concur. Welfare and recreation equipment must be removed prior to transfer of the ship.
4.F.(2)	**Post Office:** Disestablish IAW OPNAVINST 5212.6.		1. Concur.
5.	**Weekly SITREP Messages:** Submit to ISIC (info copies to NAVSEA DET Portsmouth, SURFLANT, CINCLANTFLT, Navy IPO) beginning one week after stand down. Certify in final SITREP that all classified material has been removed from the ship. Final SITREP due NLT one week after decommissioning. Submit lessons learned to ISIC, info SURFLANT.		1. NAVSEA PMS330 should ask for info copies of the SITREPs. These reports would also be of value to the Planning Yard and to DTRCEN.

GENERAL NOTES:

1. ALL COMMENTS ASSUME A HOT SHIP TRANSFER, I.E. TRANSFER OCCURS BEFORE SHIPS ARE PLACED INTO SAFE STORAGE.

2. PHMS ARE DESIGNED TO THE PROGRESSIVE MAINTENANCE CONCEPT. SMALL TOOLS, TEST EQUIPMENT, MOST SPARE PARTS ALLOWANCES, SOME MEDICAL SUPPLIES, AND SOME DAMAGE CONTROL EQUIPMENT ARE KEPT WITH THE DEPLOYABLE MAINTENANCE ACTIVITY (MLSG) INSTEAD OF ON BOARD SHIP . SUCH ITEMS NORMALLY STAY WITH THE SHIP WHEN A HOT TRANSFER OCCURS (CONSUMABLE ITEMS ARE REIMBURSED BY THE FOREIGN BUYER). THIS IS A REQUIREMENT OF SECNAV INSTRUCTION 4900.48 [SEE 8.b(5) AND 8.e]. THE SECNAV INSTRUCTION IS SILENT ON THE SUBJECT OF PROGRESSIVE MAINTENANCE SHIPS. HOWEVER, IF THE INTENT OF THE INSTRUCTION IS FOLLOWED, IT WOULD SEEM THAT THE MLSG SHOULD TURN OVER ITS SMALL TOOLS, TEST EQUIPMENT, NON-PHM-UNIQUE SPARE PARTS, MEDICAL SUPPLIES, AND DAMAGE CONTROL EQUIPMENT FOR TRANSFER WITH THE SHIPS TO THE FOREIGN BUYER(S).

3. ITEMS THAT SHOULD TRANSFER WITH THE SHIPS, BUT THAT WERE NOT SPECIFICALLY CITED IN COMNAVSURFLANT 190103Z MAR 93 INCLUDE NAVIGATION AND VISUAL SIGNALLING EQUIPMENT, BEDDING, FOUL WEATHER GEAR, DECK EQUIPAGE, GALLEY AND WARDROOM EQUIPMENT, SMALL ARMS AND ASSOCIATED AMMUNITION AND PYROTECHNICS, AND POWER TOOLS (REFER TO 8.(b).(5) OF SECNAVINST 4900.48).

Boeing Aerospace Operations, Inc.
P.O. Box 3999
Seattle, WA 98124-2499

30 March 1993
W-7800-PHM93-050

Commander
Naval Sea Systems Command
Attn: Code PMS 330C1, S. Torres
Department of the Navy
Washington, D.C. 20362-5101

BOEING

Subject: ROM Estimate for PHM Re-Activation and for Operator and Maintenance Training

1. In response to your request, we submit a preliminary ROM estimate for costs attendant to re-activating the PHM at the James River location, and for operator and maintenance training at the buyer's location.

2. This estimate does not account for pre-post shipment preparation, subsequent to initial reactivation.

3. Please be cautioned that this information is provided on an informal basis and may be construed only as rough order-of-magnitude in accuracy. As such, Boeing shall not be held accountable or otherwise liable for the data contained herein.

4. Please contact me if further information is needed.

G. M. Tennery
PHM Program Manager
Aircraft and Marine Operations-Seattle
Org. W-7000; M/S 6K-55
Phone (206) 393-8800

WAE/GMT:kfr
(PHM93050.DOC)

Enclosure: ROM Estimate for PHM Re-Activation and for Operator and Maintenance Training

ENCLOSURE(7)

ROM Estimate
for
PHM Re-Activation
and
Operator and Maintenance Training

This document provides ROM (Rough Order of Magnitude) estimates for the Boeing Company to provide the expertise and labor necessary to:

1. Re-activate the PHM's up to one year after decommissioning.

2. Provide maintenance and operator training to a foreign customer.

RE-ACTIVATION OF PHM's

Background:
PMS 330C1 requested that BAO provide a ROM estimate for BAO to re-activate the PHMs within one year of decommissioning. (Two PHMs will be decommissioned during June 1993, two during August 1993 and the remaining two during December 1993.) PMS 330C1 has advised that the U. S. Navy is attempting to sell the PHMs to a foreign government. The assumption is that the PHMs have been properly inactivated, decommissioned and safe stowed, and located at James River. Although the infra-structure required to re-activate the PHMs is unique to the Boeing Company, the U. S. Navy has advised that no engineering skills will be required after the last decommissioning.

Assumptions:
1. The Boeing Company has been contracted to retain the skills necessary to accomplish re-activation. At a minimum, the U. S. Navy must provide a letter of intent to the Boeing Company by 30 May 1993 that Boeing will be funded to retain the skills necessary to accomplish this task.

2. The assumptions for this ROM are that Boeing will only provide the expertise and labor to re-activate the ships. All materials, parts, equipments, etc. are to be provided by the U. S. Government, excluding combat systems.

3. A preliminary list of additional assumptions is included with this estimate.

In-Plant:
Prior to reactivation, there will be a two (2) month period of pre-planning. This will incorporate gathering of all material (drawings, documents, etc) necessary to accomplish the task at hand.

On-Site (James River):
Approximately two (2) months before start of reactivation, the ships will be visited for visual inspections of ship systems. The possibility will exist that components will have deteriorated and will have to be replaced and/or repaired. The visitation will also facilitate identifying some Long Lead Time material.
The reactivation period for all six ships is expected to take seven (7) calendar months excluding on-site visitation.

Estimate: ROM Estimate is: <u>$950,000</u>

Preliminary Assumptions
for
Re-Activation of PHM's

Rates: Labor rates for this estimate are based on the February 1993 rates. Actual rates will reflect rates effective at contract signing.

Personnel: Boeing will provide the expertise and labor to re-activate the PHMs. This will include some sub-contract labor.

Flow Time: Seven (7) calendar months will be required to re-activate all six (6) PHMs pending availability of material, support equipment, special tooling, etc.

Location: The ships will be located at a USN facility on the east coast of the U.S.

Facilities: The U.S. Government shall provide shore-side electrical power (400 HZ mobile shore power carts), compressed air, fresh water, etc.

Tooling/Support Equipment: The U.S. Government shall provide those special tools, special test equipment and support equipment that are required for reactivation.

Equipment: Heavy maintenance/repair requiring the use of cranes, fork lifts, etc., including operators will be provided by the U.S. Government.

Ship Condition: Haulout for hull or other repair is beyond the scope of this estimate. Prior to deactivation, the ships and all systems were operational when in-activated and all systems are still in-place. All systems will have been properly readied for an extended inactive period, i.e., safe stow (seawater systems freshwater flushed, compartments clean and dry, etc). Re-installation of removed parts/assemblies that would require a significant amount of additional effort is not included in this estimate.

Hazardous Wastes: U.S. Government shall be responsible for providing containers to collect, and the disposal of, hazardous wastes generated as a result of re-activation process, as well as providing and maintaining containment booms around the ships and collecting and disposing of any spills.

Materials: The U.S. Government shall provide all materials excluding personal hand tools and contractor proprietary data. The types of materials the U.S. Government is expected to provide includes fuel, lube oils, hydraulic oil, standards, consumables, PHM unique spares, USN common spares, etc. that will be required to re-activate the PHMs.

Methodology:

a. The contractor will energize and operate (from Local Control Panel, EOS and Pilot House) any/all systems as required to ensure complete ship operation (excluding combat systems), i.e., no USN assistance required.

b. Reactivation test and checkout will be dockside only (no underway), and will not include combat systems.

c. Operation of the LM2500 will utilize the high speed shaft spool piece so the foilborne propulsor will not turn.

d. No equipment performance demonstrations (i.e. desalinator production rate, depthsounder accuracy, etc.) will be conducted - only operability testing. Operational acceptance will be accomplished by Boeing.

e. Authorization will be provided to move equipment between ships to maintain schedule.

Data Package: The U.S. Government shall provide a data package for each ship, two months prior to activation, consisting of the following:

a. Records detailing work performed during deactivation activities.

b. Storage location of any equipment removed during deactivation.

c. Record of any equipment which did not function correctly prior to deactivation.

PHM Maintenance and Operation Training

Background:

PMS 330C1 requested that BAO provide a ROM estimate for BAO to conduct Maintenance and Operation training for a potential new customer. PMS 330C1 has advised that the U. S. Navy is attempting to sell the PHMs to a foreign government.

Assumptions:

1. The Boeing Company has been contracted to retain the skills necessary to accomplish training. At a minimum, the U. S. Navy must provide a letter of intent to the Boeing Company by 30 May 1993 that Boeing will be funded to retain the skills necessary to accomplish this task.

2. The assumptions for this ROM are that Boeing will provide instructors and training material.

3. A preliminary list of additional assumptions is included with this estimate.

In-Plant:

Three (3) months preparation time (prior to training) to correct, update and prepare training material and develop a training program (using the existing PHM training material).

On-Site (James River):

Maintenance Training: Five (5) weeks are required for each class. The general familiarization (gen/fam) training will be provided for all technicians, operators and staff personnel as required.

a)	Maintenance Engineering (set up maintenance program and conduct gen/fam's)	(5 wks)
b)	Electrical systems	(5 wks)
c)	Electronics systems	(5 wks)
d)	Mechanical systems	(5 wks)

Underway Training: Two (2) weeks will be required for two (2) crews. Three (3) of the above instructors will oversee the pilothouse, EOS and Radio/Nav/Electronics instruction.

a)	Ship Master, (ship characteristics/ operators training)	(2 wks)
b)	EOS (Electrical/mechanical)	(2 wks)
c)	Radio/Nav/Electronics Electronics	(2 wks)

On the Job Training (OJT): Three months OJT will be provided for follow-up, on-site support, and providing additional training as appropriate.

a) Ship Master	(3 mo)
b) Electrical/electronic	(3 mo)
c) Mechanical	(3 mo)

Estimate: ROM Estimate is: **$450,000**

Maintenance & Operator Training Curriculum

1. History and Theory of Foilborne Water Craft
2. General Review of PHM
3. PHM Series Ship Modification History
4. PHM Series Ship Arrangement
5. PHM Series Ship's Equipment and Systems.
6. Detailed Operation/Maintenance of the following Systems;
   a. Hullborne Propulsion*
   b. Foilborne Propulsion (includes Struts/Foils)*
   c. Ship Service Power Units*
   d. Electrical Power*
   e. Fuel System
   f. Hydraulic Power*
   g. Sea Water
   h. Fresh Water
   i. Bilge Drainage
   j. Pollution Control
   k. Compressed Air
   l. Environmental Control
   m. Fire Extinguishing*
   n. Anchors and Mooring
   o. Automatic Control and Steering*
   p. Radio and Communication
   q. Navigation
   r. Engineering Operation Station (EOS)*

Underway Training

1. Basic Docking Operation
2. Hullborne Operation and Maneuvering
3. Transition Between Hullborne and Foilborne Operation*
4. Foilborne Operation*
   a. Basic Operation
   b. Maneuvering
   c. Emergency Procedures
   d. Rough Water Operation
   e. Performance Evaluation
5. High Speed Hullborne Turbine Operation*

*These systems/operations are unique to PHM

PHM 1 CLASS CONTRACTOR LOGISTICS SUPPORT FOR SHIP REACTIVATION AFTER A FOREIGN MILITARY SALE

Purpose: Argument for $2.5M interim funding to retain a minimum Contractor Logistics Support (CLS) infrastructure for PHMs from May 93 through May 94, or until a Foreign Military Sale (FMS) of the ship class is completed.

Rationale:

(1) PHMs rely primarily on CLS by Boeing rather than Navy SPCC and other Navy support to operate. This essential CLS infrastructure, which is comprised of specialized personnel plus hundreds of active supply and repair contracts with PHM vendors, is an integral part of PHMs. A minimized, but viable and transferrable CLS support infrastructure is indispensable to a successful FMS. Without CLS, PHMs are worth little beyond their scrap value.

(2) Accelerated decommissioning means that ships maybe inactivated and crews dispersed months before FMS legislation can be approved. Thus a "hot transfer" to the foreign buyer(s), though highly desirable, may be ruled out by the decommissioning schedule. In that case, PHMs would be towed to Norfolk, VA and placed into safe stowage. This leaves no contractor or Navy activity in place to support the FMS turnover, including ship reactivation, training of maintainers and crews, apportioning spares inventories, etc.

(3) To date, PMS330 has preserved a minimum CLS capability by approving tasking under the existing CLS contract to support final operations and decommissioning planning. No further such tasking appears to be justified beyond May 93. Thereafter, CLS activities must terminate, with lapse of the CLS contract and permanent transfer or lay off of all key personnel unless new tasking to support FMS requirements is approved and funded.

(4) Whether the ships are to be supported by the purchasing nation(s) or by NAVSEA via an FMS case, CLS support must continue with new interim funding to retain contracts with PHM vendors and CLS personnel with key PHM experience/skills until permanent arrangements are made per the specific needs of the foreign buyer(s). This goal can be accomplished without wasting funds by assigning productive tasks to Boeing in support of PHM reactivation and transfer.

Funding Amount: It will cost $2.5M to retain the minimum CLS infrastructure in place for the period May 93 through May 94 . This cost represents personnel, and some level of procurement activity. If timing/coordination of the decommissioning and the FMS sale permits a hot transfer, then the portion of these funds remaining at time of transfer could be

ENCLOSURE(8)

redirected according to the permanent FMS arrangement for CLS support. In that case, ships force could provide turnover training, and ship reactivation would not be required. But if deactivated ships are placed in safe stowage, then CLS personnel could reactivate the ships and operate them with the foreign crews while training. Costs in addition to the $2.5M will be required for such activities and are currently being estimated. Such additional costs include per diem, locally procured material and services, ship operating expenses, etc.

Potential Funding Sources: PMS330 is unable to fund continued support for deactivated ships. However, PMS380 may justify arranging CLS funds/tasking to obtain services in direct support of a potential FMS case. Retention of the CLS infrastructure certainly enhances the value of the ships far beyond the actual cash expenditure, and may in fact be a key to the sale. The foreign buyer(s) could justify providing funds because the CLS capability bears directly on the success of the turnover and subsequent operations.

Potential Contract Vehicles: The existing CLS contract may be a suitable temporary vehicle. PMS330 could remain the COTR, but funding would be provided via PMS380. The FY94 option year would have to be exercised. If the foreign buyers provide funding, they would have the option of contracting directly with Boeing.

Minimum Support To Be Retained:

Material Management

Maintain parts warehouse in Key West (approx 11,500 PHM-unique line items)
Maintain inventory control database and associated computer equipment
1-2 experienced clerks in Key West to maintain security and inventory control
Do not cancel existing Basic Ordering Agreements
Review outstanding orders for possible cancellation
Reassure vendors as to possible continued PHM market
Retain manager and core of experienced Purchasing Agents

In Service Engineering

Retain manager/engineer and core of personnel in publications, training, and key technical/engineering areas: (strut/foil structure, valves and piping, machinery and electrical, Automatic Control System and HYCATs)
Maintain SOOMM computer files (WP and CAD) and associated hardware intact
Maintain Engineering drawing vault, microfilm, and CAD files intact
Maintain specifications, including process specifications and instructions intact

Planning Yard

Retain manager and core of engineers, especially port engineers
Maintain configuration and weight/moment status database intact

Conclusion: Interim funding to retain the CLS infrastructure will enhance the possibility of an FMS sale, increase the sale value of the ships, and ensure the feasibility of having the CLS contractor provide all services for reactivation, including maintainer and operator training at a later date, should the ships have to be placed into safe stowage.

P.O. Box 3999
Seattle, WA 98124-2499

09 March 1993
W-7800-PHM93-044

Commander
Naval Sea Systems Command
Attn: Code PMS 330C1, S. Torres
Department of the Navy
Washington, D.C. 20362-5101

BOEING

Subject: ROM Estimate for Boeing PHM Infrastructure Transfer

In response to your request, we submit a preliminary estimate for costs attendant to the retention of a minimum capability for transfer of the PHM CLS activity outside the U.S. Navy.

Please be cautioned that this information is provided on an informal basis and may be construed only as rough order-of-magnitude in accuracy. As such, Boeing shall not be held accountable or otherwise liable for the data contained herein.

Please contact me if further information is needed.

G. M. Tennery
PHM Program Manager
Aircraft and Marine Operations-Seattle
Org. W-7000, M/S 6K-55
Phone (206) 393-8800

GMT:kfr
(PHM93044)

Enclosure: ROM estimate for Boeing PHM Infrastructure Transfer

ROM Estimate for Boeing PHM Infrastructure Transfer

Statement of Work:

Provide labor mix, man-years and cost estimate to retain the minimum expertise necessary to transfer our infrastructure to someone else. The time period for this effort is from May 93 until May 94.

Assumptions:

1. All ships will go into a stand down mode vice total decommissioning, and two (2) ships will remain at limited operational level until December 1993.

2. The labor mix presented in this proposal is the minimum requirement to ensure that an adequate level of infrastructure would be retained for later transfer.

3. This proposal is totally independent from all other contracted or proposed efforts, i.e.,:

   a. It does not include any travel or actual transfer of infrastructure. The effort required to transfer the infrastructure to someone else would be additional effort, and would be dependant on the "someone else's" capabilities.

   b. It does not take into account the current and remaining BAO effort that will be required to close the program, nor any re-activation of ships or customer training effort. The expertise required for retaining the necessary infrastructure could be quite different from that required for program closeout.

Estimate:

Total $2,500,000

12.5 man-years (150 man-months) labor ($1,500,000) to retain BAO expertise

$1,000,000 material to retain the Supplier expertise

Labor Mix	Headcount
Engineering	
Mechanical	
Aux	1
Struct	1
Electrical	
Systems	1
Controls	1
Stability	*
Publications	1
DSRA knowledge	
EPY Rep	1
Material Management:	
Inventory Mgt	1
Stores	1.5
Materiel	2
Program Management	2
TOTAL	12.5 (150 man-months)

* One of the other engineers could also handle this concern.

Rationale for Labor:

Engineering

Mechanical Engineers will be required to provide technical resources for the various unique systems/sub-systems such as H/B & F/B propulsors, high pressure hydraulics, SSPU, Pneumatics, HVAC, Fuel and Lube systems etc., and the strut/foil system fatigue related details.

Electrical/Electronic Engineers will be required to provide interpretation for unique systems such as power generation and differential protection, EOS auxiliary systems control, propulsion control & monitor, and for the foilborne controls (ACS) and flight characteristics.

Stability: An engineer would be required to provide knowledge of the unique PHM operational hullborne stability restrictions.

Publications uniqueness for the PHM would include our method of updating the Damage Control plates (some manual and some on AutoCAd, both of which are non-standard for the USN), transfer of SOOMM data (manual, Wang, MS Word and Ventura), TRS's, IMS's, PMS, etc. of PHM unique systems.

DSRAs: Typically, the MLSG does not accomplish depot level maintenance, repairs, and modifications. This would normally occur at shipyards and be supervised by the appropriate Navy organization. The one constant throughout all SRA/DSRAs is the EPY representative, who is intimately familiar with the methods and tools used.

Material Management: See Attachment

Program Management: Required to keep a valid infrastructure together.

Rationale for Material:

Material Management Services

Assumptions:

1. NAVSEA should pursue completing as many orders that are currently placed vice terminations to maintain critical supplier infra-structure. Critical suppliers are identified as those with specialized dedicated repair/production facilities and employees that, if forced to close, would be permanently lost.

    * Reduced cost of terminations process will offset cost of order completion
    * Open orders are currently funded
    * Some returned NRFI carcass from free issue should be repaired to maintain supplier infra-structure

2. Computer automated maintenance supply systems, and inventory and configuration records are critical technical data. These systems must be maintained as part of data package transfer.

3. Store operations will be required to receive and process order completions.

Material -

ROM Estimate is provided commensurate with 15% of the current annual PHM unique operation cost for material on the CLS contract. Estimate is based on actual costs of MLSG ordering in FY1992.

Rom Estimate: $1,000,000

Boeing Aerospace Operations, Inc.
P.O. Box 3999
Seattle, WA 98124-2499

01 April 1993
W-7860-EPY93-006

Commander
Naval Sea Systems Command
Attn: Code PMS 330C1, S. Torres
Department of the Navy
Washington, D.C. 20362-5101

BOEING

Subject: Welded Hull Blanking Plates/Cofferdams for the PHMs

Reference: Navy Letter 4720 OPR:PMS330C11 Ser 330C1/282, 02 March 1993, Technical Instruction 389R1

1. The following recommendations and procedures are provided as part of Technical Instruction 389R1 for decommissioning and long-term storage of the PHM fleet.

2. Any questions regarding this information should be directed to Joe Schobert, EPY Manager, Phone (206) 393-3389.

G. M. Tennery
PHM Program Manager
Aircraft and Marine Operations-Seattle
Org. W-7000, M/S 6K-55
Phone (206) 393-8800

LKB/GMT:kfr
(EPY93006.DOC)

Enclosure: Welded Hull Blanking Plates/Cofferdams for the PHMs

WELDED HULL BLANKING PLATES/COFFERDAMS FOR THE PHMS

Based upon these studies, the Expanded Planing Yard strongly recommends using bolted-on blanking plates as suggested in memo W-7860-EPY93-003 due to: (a) welded blanking plates/cofferdams requirement for extensive disassembly of interferences (such as the chiller plant, inlet ducts, seawater lines, hullborne steering internal links, seawater pumps #2 & #3, hydraulic lines, and bilge water discharge system) and the need to stow these in such a manner for possible later reinstallation, (b) the difficulty and safety issues involved in welding under the ship since there are no accepted underwater aluminum welding procedures, (c) bolted blanking plates ease of installation, ease of reactivation, and low costs. Therefore, although the sections below provide the best possible methods for welding blanking plates/cofferdams over the propulsor inlets and outlets, they are still greatly inferior to using bolted-on blanking plates.

All the welded blanking plates/cofferdams below are designed to avoid disturbing the bolted flanges and seal planes. For the cofferdam situations, care must be taken to ensure the watertight integrity of the enclosed space, especially where local existing structure is involved, such as shell stringers passing through frames.

1. Foilborne Propulsor Inlets

Welding hull blanking plates with the PHM hulls in the water can only be accomplished inside the ship.

Welding hull blanking plates external to the waterborne PHM hulls is not feasible as the ground planes are significantly below the waterline. There are no accepted procedures for performing underwater aluminum welding. Drydocking or creation of an external cofferdam would be required.

The foilborne propulsor inlet ducts are subjected to the forces of the high and sometimes turbulent intake flow of seawater. Therefore, they have precision machined faying surfaces and flanges in order to maintain alignment for both structural integrity and watertightness. Welding blanking plates directly to the propulsor inlet ducts will distort the inlet ducts, thereby preventing their reuse, and is therefore to be avoided.

If the outboard elbows are initially made watertight with externally bolted-on plates, it is possible to remove the inboard elbows, chiller plant, and other interferences, and then weld cofferdams to the hull that surround the inboard openings of the outboard elbows. Figures 1A and 1B show the general method of accomplishing the task. However, it is evident that the using bolted-on blanking plates to the existing inboard flanges of either the outboard or inboard elbows is much easier to do.

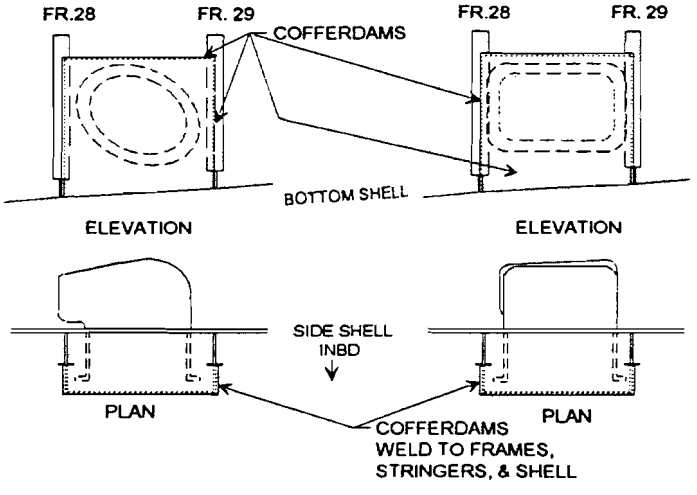

FIGURE 1A. PHM 1 OUTBOARD ELBOW

FIGURE 1B. PHM 2-6 OUTBOARD ELBOWS

2. Foilborne Propulsor Outlet

The foilborne propulsor outlet is only half submerged in the standard hullborne operating trim. Once the deadweight items and liquids are removed from the ships (especially the Harpoon missiles), the transom may come out of the water sufficiently to allow welding a blanking plate over the outlet. If not, additional ballasting by the head may be required, or the transom may be raised through the use of a shoreside crane lifting on the aft trunnions (lift unlimited) or aft towing bitt (vertical lift limited to 50,000 lbs).

Welding should be accomplished to minimize distortion of the transom and propulsor outlet. To do this, Figure 2 below details the welding and sequencing.

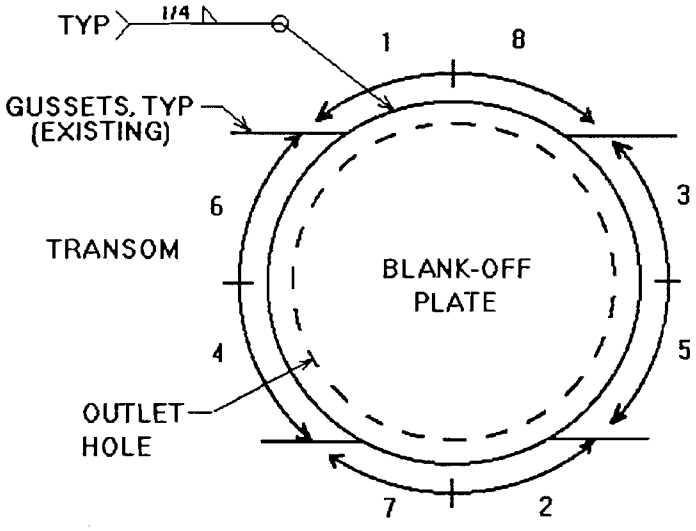

FIGURE 2. F.B. PROPULSOR OUTLET WELDING DETAIL

Another option is to initially use an externally bolted-on plate with a gasket to generate an outside cofferdam, so the foilborne propulsor can be disconnected from the transom, and a welded box cofferdam placed on the inside of the transom over the propulsor outlet, as shown in Figure 3. Local plumbing and other interferences need removal.

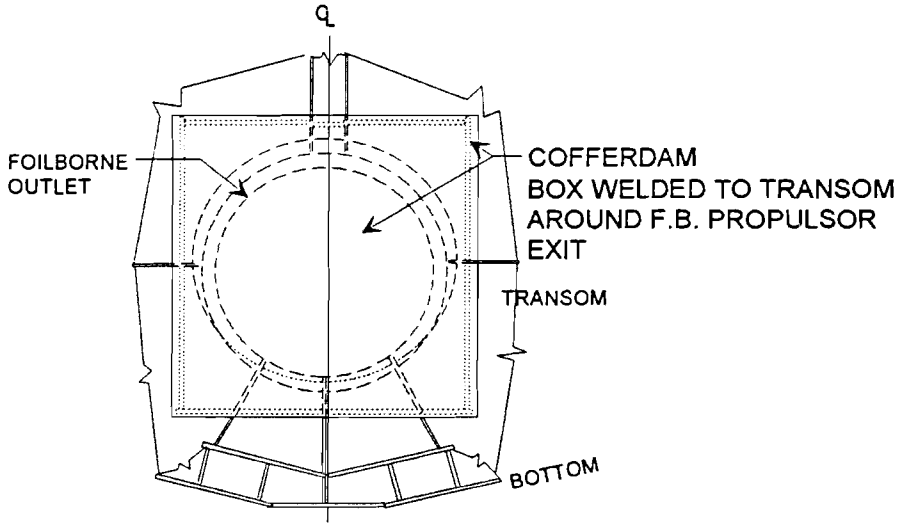

FIGURE 3. TRANSOM F.B.PROPULSOR OUTLET COFFERDAM

April 7, 1993
W-7840-DLG-400

TO: W. Eveland

cc: J. Cannon
R. Hass
J. Schobert
G. Tennery
P. Weston

Subject: STORAGE SHIPPING PREPARATIONS, T.I. 389R1

References:
(a) Boeing Document D323-15012-5, Recommissioning and Decommissioning of Unoutfitted Model 929-120 Jetfoil

(b) MEMO W-7840-DLG-398, Procedural Data - PHM Decommissioning and Long Term Storage

(c) MEMO W-7840-DLG-399, PHM Overseas Transport

(d) MEMO W-7840-DLG-403, Hurricane Preparations

(e) MEMO W-7840-DLG-402, PHM Hull Blanking

(f) NAVSEA MEMO 4770/01A1:SRB:1rh/Ser:173/11MAR93 INACTIVATION PLANNING OF PHM CLASS VESSELS

This report discusses recommendations for inactivating the PHM's during a long period of deactivation and/or pending foreign military sale. REF (a) was used as guidance in preparation of this report, since it discusses similar actions required for commercial hydrofoil lay-up. The report is the fourth of a series addressing PHM decommissioning issues (see REF (b), REF (c), REF d), and REF (e)). REF (f), provided by the EPY tasking document, has been marked up to reflect PHM conditions, and is provided as ENCL (1). Numbered sections in ENCL (2) track the outline REF (f), and provide additional clarification or ship lay-up requirements.

If any further assistance is required contact Christopher Fay at ORG W-7840, MS 6K-56, phone 206-393-3393.

D. Garrison
ORG W-7840, MS 6K-56
Phone 206-393-3904

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ENCL:
(1) REF (f), Mark-Up
(2) EPY Inactivation Notes (REF (f) clarification)
(3) NAVSEA S9PHM-AC-SHP-010/(U) PHM-3 CL, SOOMM, Excerpt from Chapter 6

GMT JHS WAE RGH DLG LFA JJC PEW CJF(FILE)

ENCL (1)
W7840-DLG-400

DEPARTMENT OF THE NAVY
OFFICER IN CHARGE
NAVAL SEA SYSTEMS COMMAND DETACHMENT
NAVY INACTIVE FLEET
BLDG. 8Y. ST. JULIENS CREEK ANNEX
PORTSMOUTH, VIRGINIA 23702-5002

4770
01A1:SRB:lrh
Ser: 173
11 MAR 93

From: Officer in Charge, Naval Sea Systems Command Detachment, Navy Inactive Fleet, Portsmouth, VA 23702-5002
To: Director, Naval Sea Systems Command Detachment, Naval Inactive Ship Maintenance Facility, Portsmouth, VA 23709-5000
Commander, Patrol Combatant Missle Hydrofoil Squadron Two Trumbo Point Annex, Key West, FL 33040-6300

Subj: INACTIVATION PLANNING OF PHM CLASS VESSELS

DRAFT

Ref: (a) NSTM Chapter 050

Encl: (1) Inactivation Plan
(2) COMNAVSEASYSCOM WASHINGTON DC ltr Ser PMS 330/1528 of 22 Jul 91
(3) COMNAVSEASYSCOM WASHINGTON DC 010550Z SEP 92

1. Enclosures (1) through (3) are the inactivation procedures for the PHM Class vessels. They are based on and supplement reference (a). The plans provided in these enclosures are tailored for PHM Class vessels based on the planned disposition of the ships. Therefore, these enclosures take precedence over reference (a). Other enclosures, as required for special equipment/systems, will be provided by Boeing Aerospace Operations (BAO) through Commander (PMS 330C), Naval Sea Systems Command (COMNAVSEASYSCOM), Washington, DC.

2. Any deviation from the procedures in the enclosures require written approval from Officer in Charge, Naval Sea Systems Command Detachment (NAVSEA DET), Navy Inactive Fleet (PMS 330I), Portsmouth, VA. Request for deviations and or waivers from activities other than NAVSEA DET Naval Inactive Ship Maintenance Facility (NISMF), Portsmouth VA, must be submitted via NAVSEA DET NISMF Portsmouth VA.

3. NAVSEA DET NISMF Portsmouth, VA, will be the primary liaison for the PHM Class. NAVSEA DET NISMF Portsmouth, VA, point of contact is Mr. Fred Hood, autovon 961-4763 or commercial (804) 396-4763.

4. It is recommended that Commander, Naval Surface Force, U.S. Atlantic Fleet, Norfolk, VA, COMNAVSEASYSCOM (PMS 330C), Washington, DC, and NAVSEA DET NISMF Portsmouth, VA, establish early liaison to arrange a mutually agreed inactivation plan brief and training session. During this training session, the NAVSEA DET NISMF and ship are encouraged to establish the initial space acceptance visit date. During this initial plan brief, it is requested that the ship provide NISMF with a copy of the Booklet of General Plans and a listing of all ships compartments. In addition, should the towing of the ship

NOTE: WHERE (#) APPEARS SEE ENCL (2)

begin more than three weeks following the final acceptance inspection, NAVSEA DET NISMF Portsmouth, VA, is tasked to conduct an additional inspection 12-15 days prior to the towing date.

5. It is requested that those activities which require additional copies of this inactivation plan for their internal distribution or other use reproduce additional copies locally.

6. Point of contact for NAVSEA DET Portsmouth, VA, is S. R. Baines, commercial (804) 485-6449 or autovon 961-6449.

S. R. Baines

S. R. BAINES
By direction

Copy to:
CNO WASHINGTON DC (N431D1) (w/o encls)
COMNAVSEASYSCOM WASHINGTON DC (PMS 330D and PMS 330C)
COMNAVSURFLANT NORFOLK VA (Code N431A31)

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INACTIVATION PLAN
PHM CLASS

11 Mar 93

CATEGORTY ASSIGNMENT: SAFE STOW	**HOMEPORT:** KEY WEST FL
DECOMMISSION DATE (PLANNING): TBD	**STANDOWN:** TBD
RETENTION SITE: NAVSEA DET NISMF PORTSMOUTH VA	

INACTIVATION CHECKLIST

ITEM	APP	REMARKS
I. PRE-INACTIVATION		
a. Overhaul	NO	
b. Drydocking	NO	
c. INSURV	YES	See Note 1
II. INACTIVATION (SHIP'S FORCE)		
a. Safe Stowage Preps Only	NO	
b. Safe Stowage Preps plus selected items from full inactivation list	YES	See attached
c. Full Inactivation Items		
1. Industrial Work Period	*	As Assigned by Type Commander
2. Drydocking	NO	
3. Sea Connection Blanking		
(1) ~~(a) Externally Welded~~	~~*~~	~~See Note 2~~
(b) Internal	YES	See Note 3
4. Hull Preservation	NO	
5. Topside Preservation	*	Touch-Up Only
(2) 6. Propulsion Equipment and Systems Layup and Preservation	*	~~As assigned by Type Commander~~
(2) 7. Auxiliary Equipment/Systems Layup and Preservation	*	~~As assigned by Type Commander~~
8. Electrical Systems Preservation	~~NO~~ YES	

II. INACTIVATION (SHIP'S FORCE - CONTINUED)		
9. Electronic Equipment and Systems Layup and Preservation	~~NO~~ YES	See Note 4
10. Ordnance Layup and Preservation	NO	
III. POST DECOMMISSIONING (NAVSEA DET NISMF)		
(3) a. Dehumidification Installation	~~NO~~ YES	
b. Cathodic Protection Installation	YES	
(18) c. Fire and Flooding Alarm Installation	YES	

Note 1: In accordance with OPNAVINST 4770.5F.

Note 2: ~~If internal blanking is not effective, blanks will be required to be installed externally. (Refer to NSTM, Chapter 050, Section 3, paragraph 050-3.29 through 050-3.34 for wet welding procedures (Attachment 1)).~~ (4)

Note 3: Internal blanking will be accomplished at the ~~inboard~~ OUTBOARD flange of the first skin valve. Blanks will be fabricated from 1/2-inch thick ~~steel~~ ALUMINUM plate with a 0.060-inch solid rubber gasket having the same number of bolts as the flange. (Cloth inserted rubber gaskets per HH-P-151 Class 1, gaskets cut from 1/8" thickness sheet, not bonded or seamed, is an authorized substitute gasket material.) (5)

Note 4: Upon standdown contact Bruce Lewis DSN 332-2417 or (703) 602-2417 at SPAWAR PMW156-4C. Provide POC onboard to coordinate removal of all SATCOM communications equipment.

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INACTIVATION ITEMS

1. NAVSEA SL740-AA-MAN-101 (Subject: U. S. Navy Towing Manual): All applicable items AS MODIFIED IN THIS PLAN.

2. Naval Ships Technical Manual, Chapter 050, Section 9 (Subject: Preparation for Safe Stowage): All applicable items. (See attachment 2)

3. ~~Offload hydraulic oil from ship's systems with the exception of the capstans and anchor windlass as applicable. Ensure compliance with environmental and hazardous material regulations.~~ (6)

4. Open and drain all ~~saltwater, freshwater, feedwater, and condensate~~ pumps EXCEPT HYDRAULIC OR LUBE OIL. (7)

5. Naval Ships Technical Manual, Chapter 050, Section 7 (Subject: Safety Precautions). Paragraphs 050-7.1 through 050-7.14. (See attachment 3)

6. Naval Ships Technical Manual, Chapter 050, Section 3 (Subject: Detailed Preservation Instructions):

   Following paragraphs to be accomplished: ← AS MODIFIED IN THIS PLAN.

PARAGRAPH NUMBER	SUBJECT
3.11	(Flooding Marking Installation)
3.61	(Boats, Life Floats)
3.64	(Inflatable Boat Transfer)
3.140	(Refrigerating Plants and Air Conditioning System)
6.47	(Closing the Ship)

DRAFT

050-3.11 The ships name, bow numbers, and draft marks shall be painted in accordance with instructions in chapter 631, **Preservation of Ships in Service (Surface Preparation and Painting)**. In addition, flooding markers shall be applied to identify the inactive ships waterline and to provide a distance observer a base line to visually detect a change in draft. The marker shall be in accordance with figure 050-1, made of 4-inch wide suitable reflective white adhesive tape or by application of white luminous paint. Apply the markers with their bases on the inactive waterline at port and starboard bow and at the stern. When the stern configuration permits, apply the stern inactive waterline marker to the vertical centerline of each inactive ship. In cases where stern configurations do not provide a clear baseline, stern markers shall be applied to the port and starboard rudder facings. Flooding/draft markers will be applied by the Naval Inactive Ship Maintenance Facility. Flooding/draft markers required during the ship's tow are the responsibility of the ship's force.

050-3.61 BOATS AND LIFE FLOATS. All ship's boats shall be removed during inactivation and turned into stocking point. For small boats accounted for in OPNAVINST 4780.5 (Series), request disposition instructions from Commander, Naval Sea Systems Command (PMS 30063) by message (COMNAVSEASYSCOM WASHINGTON DC //PMS30063//).

050-3.64 Inflatable boats shall be removed and shipped to the ~~Philadelphia or Mare Island Naval Shipyard.~~ FACILITY DIRECTED.

050-3.140 REFRIGERATING PLANTS AND AIR CONDITIONING SYSTEMS. See enclosure in the inactivation planning letter.

050-6.47 CLOSING THE SHIP

1. Blank all sea connections.

2. Dry all bilges and keep them dry.

3. Stop all underwater leaks.

4. Thoroughly drain and dry all ~~steam and~~ water piping, all machinery, ~~boilers, condencers,~~ and so forth. Check each system to ascertain that all pockets which may collect water, such as pump casing, valve bodies, and loops are ~~provided with drain connections. Where drains are not so provided, it may be necessary to~~ disconnected ~~the pipe fittings~~ to permit draining. All drains should be opened, including those on pumps and fittings. The systems should then be (21) blown out with compressed air of sufficient pressure and velocity to clear the lines and machinery units of all entrapped water. As each drain connection ceases to show water in the air stream, it should be temporarily closed to provide greater pressure on the remaining

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portions of the system. The importance of getting ~~ferrous~~ piping systems absolutely dry cannot be overemphasized.

5. Close to outside atmosphere all exhaust pipes, ventilation openings, safety valve exhaust pipes, tank vents, drain pipes, and voice tubes, except vents and overflow lines for fuel, diesel, and JP5 tanks which contain oil, or are empty but have not been cleaned. Blanking off should be accomplished, where possible, by metal covers. Seal weld metal covers on smoke stacks and atmosphere exhaust pipes. External openings for ventilation systems should be covered with sheet metal, tack welded, and sealed. An approved method for general sealing is to grind surfaces to be sealed to clean, bare metal, then paint on one coat of adhesive (MIL-A-5092), (NSN 8040-00-290-4301). Place a piece, cut to size, of No. 10 untreated canvas (CCC-C-419C, Type I), minimum width 6 inches, so that it is equally distributed on both sides of the joint. Paint on second coat of adhesive over the canvas and allow 48-hours drying time. Finally, apply a good, thick coat of Pro-Seal (MIL-C-15705, NSN 8030-00-238-2788) by hand, while wearing rubber gloves. (This material is too thick to spread with a brush.) Cargo hatches having wooden hatch boards should be covered with 16-gage sheet metal butted together. Drill holes 12 inches apart along seams, nail to boards with 2-inch monel boat nails (size 10), tack weld 1/2 inch every 6 inches along perimeter of sheet metal to the hatch coaming, then seal all seams as above. If metal of sheet metal to the hatch coaming, then seal all seams as above. If metal hatch boards are installed, cover with sheet metal, tack weld, and seal as with wood boards, but without nailing. Flanged vent openings may be blacked with 11-gage sheet metal cut to fit inside the bolt holes. Set the blank in place on a bead of caulking compound and hold it in place with bolts and washers in the flange bolt holes. As an alternative, omit the caulking and tack weld the cover at intervals around the perimeter. The joint area is then cleaned and sealed as above. When no flange exists, seal weld the sheet metal, wirebrush the welds, and apply one coat of aluminum heat resisting paint (NSN 8010 AMERON 023 TY (1 Gallon)) to weld areas.

(8)

6. Inspect all air ports, hatches, and doors opening to the weather. See that gaskets and knife edges are free from grease, dirt, and paint and are in good condition. Adjust dogs, if required, and ensure by chalk test, proper bearing of knife edges. If more than one access opening is provided, restrict normal access to only one opening and make sure that it is conspicuously marked by painting complete access yellow and dogged tight except when actually in use. Those doors and hatches which are not required for normal access shall be closed and marked SEALED - DO NOT OPEN. Doors and hatches which are to remain closed shall be secured and sealed. Doors that are warped or constructed of light sheet metal with insufficient dogs for proper closure shall be sealed by filling

all cracks, crevices, and voids with caulking compound (MIL-C-15705 or MIL-C-18969) or other approved material. Wiring of all dogs around doors and securing doors by padlocks, or other means, will prevent inadvertent opening. Treat similarly all other possible sources of air leakage (such as electric cable stuffing tubes, and voice tube covers). Where metal joiner doors are a boundary, seal as above, including locks. Seal riveted door frames with caulking compound.

(1) ~~WET WELDING PROCEDURES~~

050-3.29 **SURFACE SHIP SEA CONNECTIONS.** When funding permits docking during inactivation of surface ships, all sea connections shall be blanked outboard rather than inboard. Internal blanking will be accomplished at the inboard flange of the first skin valve (blanks will be fabricated from 1/2-inch thick steel plate with a 0.125-inch cloth inserted rubber gasket or a 0.060-inch solid rubber gasket having the same number of bolts as the flange). Procedures in paragraph 050-3.260 shall be followed for the installation of depth sounder cover plates. All other sea connections shall be blanked with welded blanks. These welded blanks may be installed either during drydocking or by wet-welding while the ship is in a waterborne condition. If the blanks are installed during drydocking, the welding procedures described in Chapter 074, Volume 1, Welding and Allied Processes, shall be followed.

050-3.30 **Wet-Welding Limitations.** Wet-welding may be performed only within the following limitations:

1. The wet-welding process must receive prior approval from NAVSEA.

2. Before underwater blanking operations are undertaken, commands and commercial contractors must be cleared by NAVSEA to use a wet-welding process.

3. Both the approved wet-welding procedure and the divers/welders must successfully pass the procedure and performance qualification tests that are described in chapter 074 volume 1, Welding and Allied Processes. These procedures and performance tests must be conducted for each ship on which diving and wet-welding will be used. The written reports of the procedure and performance qualifications shall form part of the permanent deactivation record of the ship.

4. The approved wet-welding process shall be used only for depositing fillet welds.

5. The approved wet-welding process shall be used for welding only on hulls fabricated from mild steel (MIL-S-22698, classes A, B, C, and D) and high-tensile steels (MIL-S-16113C, Grade HT, and MIL-S-24113, Grade N).

050-3.31 **Welding Procedures.** The hull shall be surveyed to verify the size and location of all openings listed on the Docking Plan. Each opening shall be checked to ensure it is free from damage or obstructions. If blanks are to be installed while the ship is waterborne, a UDATS or commercial underwater television/communications equivalent will be employed

for immediate onsite review of the hull openings, doubler plates, and splitter bars. The hull plates immediately adjacent to the openings will be examined and all welded and riveted seams will be noted. A complete video or written record of the inspection, or both, will be prepared for inclusion in the permanent deactivation record of the ship.

050-3.32 The welded blanks shall be fabricated using NAVSEA dwg 805-2250-443, Type Drawing, Outboard Closures, Welded Type, as a guide for fabricating and installing. The closure blanks shall be fabricated from 3/8-inch plate (thickness includes 1/8-inch corrosion allowance to avoid more expensive galvanizing or other protective coating). Closures shall have a coaming with minimum height of 2 inches to facilitate future removal underwater. The coaming shall be sloped, if possible, to lessen the chance for mechanical damage. Coaming shall be approximately 3 inches high on closures with stiffeners. Each coaming shall be sized so that the distance from hull opening is approximately 3 inches. Closures weighing over 25 pounds shall be provided with lifting eyes to which 3/4-inch shackles can be connected for future removal of closures by divers. Number and thickness of lifting eyes shall be determined by weight and size of the closure. Closures shall be drilled and tapped for 1/2-inch pipe fittings (two holes in each closure) for water displacement and air testing. Two-inch diameter, 3/8-inch thick cover plates will be welded over holes after test is complete. In lieu of the drilled and tapped holes, pipe couplings can be fitted and welded in drilled holes and then closed with seal-welded pipe plugs after the test. The latter method is recommended. Closures will be identified with a number corresponding to the number on the docking plan. A protective coating will be applied to the exterior and interior of each closure.

050-3.33. Prior to installation of the welded blanks, the hull shall be cleaned to bright metal in an area approximately 6-inches wide around the hull openings where the blanks will be installed. For underwater cleaning, water blasting and pneumatic or hydraulic tools may be used. For underwater installation, closures shall be keelhauled to within 2 to 3 inches of final location. Fit-up lugs tack-welded to the ship's hull and tapered wedges and hull pins will be used in the final fit-up for welding. If ship's hull plates are contoured, smaller blanks must be temporarily positioned in proper location, marked to fit hull contour and returned to the surface where marked coaming will be shaped with a cutting torch to the proper contour. A template will be used to determine the contour for larger closures. All closures shall be fitted to the hull (with no gaps greater than 1/8-inch) prior to welding. A fire watch shall be posted inside the ship in the areas where welding is being performed.

050-3.34. After each blank has been welded in place, it shall be tested for leaks. The

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~~blanks will be~~ air tested with pressure equivalent to the draft of the ship plus 2 psi ~~(except in no case will the test be less than~~ 10 psi) to ensure tightness of the ~~blanks~~. For blanks installed by wet-welding while the ship is ~~waterborne~~, the test shall be made while the diving stages remain in place. ~~After~~ successful pressure testing, the test ~~equipment will be removed and threaded~~ caps installed in their place in accordance with paragraph 050-3.32.

TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

SECTION 9 PREPARATION FOR SAFE STORAGE

050-9.1 GENERAL INFORMATION

050-9.2 On occasion, funding and other resources may not have been identified for inactivation of a ship or craft, or it may not be considered prudent to expend funds on a ship/craft that is scheduled for transfer to a foreign government under the Security Assistance Program, under a Navy-to-Navy lease, or according to other transfers. In each of these cases, custody of the ship/craft may be transferred to an NAVSEA DET NISMF for safe storage pending identification of funding or outcome of legislation, authority, or transfer actions.

050-9.3 STORAGE PREPARATION

050-9.4 Required storage preparations are designed to ensure the tight security of the ship/craft while at the storage facility. Fire and flood prevention are the principal concerns. Accordingly, the minimum preparations required are those that will increase hull integrity and remove obvious fire hazards. Protection of classified material is also a prime concern. There is generally a requirement for the removal of classified documents and the safe-guarding of classified equipments. Since ships/craft are normally delivered to the NAVSEA DET NISMF by tow, all preparations required for a Navy tow (which are generally more detailed than for a commercial tow) must be completed.

050-9.5 The provisions of OPNAVINST 4770.5 series that pertain to preparation for safe stowage are applicable and shall be complied with, as shall additional guidance provided herein.

050-9.6 JOINT INSPECTIONS

050-9.7 Prior to turnover of custody, provisions must be made for joint inspections of a ship or craft in order for the prospective custodian to know the condition of the ship/craft that is being transferred. Accordingly, a booklet of general plans, tank loading and sounding tables, CSMP, blueprints, and other machinery records must be available and sighted before the turnover. Required turnover materials also include a listing of the tank soundings and the location and amount of installed fixed ballast, as well as other applicable engineering documents.

050-9.8 Safe storage inspection check-off list is given in table 050-11.

050-9.9 INACTFLT ACCEPTANCE OF SHIP/CRAFT

050-9.10 Ships/crafts not properly prepared for safe storage will not be accepted for INACTFLT custody.

050-9.11 MAINTENANCE

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

(10) **050-9.12** Ships/craft prepared for safe stowage, and in custody of INACTFLT, shall receive maintenance and care vital to prevention of fire and flooding casualties only, unless otherwise directed by NAVSEADET.

050-9.13 Prepare requisitions for material required to accomplish urgent repairs; forward requisition copies to the supply support activity. Take this action even though the repairs cannot be accomplished without industrial assistance or because of the inability to perform operational tests following the accomplishment of the repair. All requisitioned material, when received, shall be securely marked to indicate the repair for which it is intended.

050-9.14 RESPONSIBILITIES

050-9.15 The Type Commander is responsible for the following:

1. Messing and berthing ashore.
2. Consumable distribution direction.
3. Towing arrangements.
4. Scheduling tender/repair availability.
5. Coordinating with industrial managers for pre-decommissioning equipment removal.
6. Monitoring ship's safe storage progress.
7. Coordinating adequate mooring with services available.
8. Providing funding safe storage preparations.
9. Providing security/safe storage from time of decommissioning unit arrival at NAVSEA DET NISMF.
10. If the following are considered beyond the ship's capability, accomplishment by other facilities must be arranged:
    a. Stack ~~covers (16-gage Sheet Metal).~~ COVERING, (SEE (8))
    b. Bilge Cleaning.
    c. Shaft Locking Devices.
    d. CHT System.
    ~~e. Rudder Locking Devices.~~

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f. Blank Flanges (1/2-inch plate).

g. Diving Services.

h. Crane Services (rigging of towing bridle and offloading).

i. Fuel and Lube Oil Offload.

j. Temporary Fire Protection.

k. Transportation.

l. Vent ~~Covers (16-gage Sheet Metal).~~ COVERING. (SEE ⑧)

m. Porthole ~~covers (follow U.S. Navy Towing Manual NAVSEA SL-740-AA-MAN-101).~~ COVERING. (SEE ⑧)

050-9.16 NAVSEA DET NISMF is responsible for:

1. Providing safe storage briefing, inspections, and guidance.

2. Obtaining proper documentation in order to compile the activation work package and to prepare both the Service Craft and Boat Accounting Report (SABAR) OPNAVINST 4780.5, and the Material Readiness Report (MR), NAVSEAINST 4770.2.

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

(24)

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1. SAFETY/SECURITY	NOT APP	NOT COMP	% COMP	COMP
a. All trash, rags, debris, oil, grease, and other fire hazards have been removed from the ship and spaces are clean and dry.				
b. The following are in place and secured:				
Weathertight/watertight closures				
Weather-deck doors, hatches, and scuttles (except for one access)				
Weather-deck lifelines/liferails				
Where decks/deck drains are sealed, to facilitate D/H installations, rat holes shall be cut in coamings to provide weather drainage.				
Stanchions/safety chains around interior ladders, hatches, scuttles				
Deck plates and gratings				
All vent duct openings including the stack, all topside deck drains that return inside of ship are sealed shut				
c. Lockers, wardrobes, desk drawers, and file cabinets containing material **not** required to be retained onboard are empty and wired shut in the following spaces (Plastic tie, ties):				
Officer berthing				
CPO/enlisted berthing				
Offices				
Other compartments				
d. All flammables except parts' storage boxes have been removed from storerooms and compartments.				

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

1. SAFETY/SECURITY	NOT APP	NOT COMP	% COMP	COMP
e. All compressed gas cylinders (halon, acetylene, carbon dioxide (CO2), nitrogen, oxygen, etc.) removed except as modified by item 1.k. ~~Ship halon 1301 cylinders to: For east coast: Naval Supply Center, Cheatham Annex, Williamsburg, VA 23187-8792, phone A/V 953-7114, Comm (804) 887-7114/7115. For west coast: Naval Supply Center Detachment, Long Beach, CA 90822-5074, phone A/V 360-6513; Comm (213) 547-6513/8182. Mark for 2S Stock.~~ Remove fixed carbon dioxide cylinders. (22)				
f. See COMNAVSEASYSCOM WASHINGTON DC ltr 4710 Ser PMS330/1528 of 22 Jul 91 shown as an enclosure to this inactivation planning letter for procedures on the removal of refrigerants.				
g. All portable PKP has been offloaded. All fixed PKP cylinders have been offloaded.				
h. At all switchboards, all electrical circuits, ~~except lighting circuits,~~ have been deenergized and red tagged. ~~All equipment (e.g., fans, scuttlebutts) is disconnected from lighting circuits and cable ends are insulated.~~ (19)				
i. All batteries have been removed ~~from the ship except those required for flooding alarms and tow lights.~~ (20)				
j. All compartments have adequate lighting, ~~(minimum of 50 percent). If more than 50 percent, DO NOT remove to 50 percent.~~				
k. Five full (weighed-tagged-sealed) 15-lb CO2 bottles have been placed adjacent to the designated access door.				
l. All firefighting liquid has been off-loaded.				

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

1. SAFETY/SECURITY	NOT APP	NOT COMP	% COMP	COMP
m. All insulation material shall be sealed. This includes insulation material on piping, equipment and structural (bulkheads, overheads, etc). All asbestos containing materials (ACM) such as pipe lagging, equipment insulation, etc., are in a sealed, non-friable condition. Any ACM's that are disturbed during the inactivation preparations, equipment removals, or is an existing condition must be certified by an industrial hygienist as being safe for unrestricted entry. (See paragraph 050-7.14).				
n. All asbestos material in storage (e.g., powder, cloth, molded) has been removed from the ship. (Request disposition guidance from FLEMATSUPPO, Code 99223).				
o. All safes have been locked open with standard combination 50-25-50 and wired shut.				
p. All high security locks, except those installed on reduction gears or designated by the NISMF have been removed and redistributed by TYCOM or turned in to NWS, Crane, IN (Chapter 604. Locks, Keys, and Hasps).				
q. All keys have been identified and stored in a space agreed upon by current custodian and NAVSEA DET NISMF.				
r. All keys, technical manuals, and wiring diagrams for circuit FZ or 4FZ have been turned in (See para 050-3.235).				
s. Vessel has been exterminated for rodents, insects, pests, etc., and an extermination certification provided to the NAVSEA DET NISMF.				

TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

1. SAFETY/SECURITY	NOT APP	NOT COMP	% COMP	COMP
t. All items containing or suspected of containing polychorinated biphenyls (PCBs) have been inventoried, tagged, and recorded in accordance with the Shipboard Management Guide for PCBs, NAVSEA S9593-A1-MAN-010. A copy of the PCB inventory has been provided to NAVSEA DET NISMF. Each PCB Item identifies the location, container type, identification number, present status, quantity, and concentration. Each PCB item has been inspected to ensure that no leaks exist and that the item is self-contained. Attachment (4) provides a baseline inventory that was provided to the David Taylor Research Center by the manufacturers of known PCB sources. Use this list, along with an updated COSAL, to assist in identifying specific items in systems containing PCBs.				
u. Hydraulic and lube oil systems have been tested and analyzed for polychlorinated biphenyls (per 40 CFR 761.30 (d)(1) and (e)(1)). Samples have been extracted using **ONLY** glass products and been been sent to a qualified laboratory for analysis. Results of the samples have been forwarded to the NAVSEA DET NISMF and to PMS 330I. (1) In the event that the analysis yields results above the threshold value of 50 parts per million, then the affected system will be drained and refilled with non-PCB fluid and retested to ensure the fluid contains less than 50 ppm. The drained fluid will be disposed of as PCB waste in accordance with 40 CFR 761 and any state and local regulations.				
(11) v. An inventory of all mercury-containing components has been conducted. All mercury-containing components have been identified and labeled in accordance with NAVSEAINST 5100.3B. A copy of the inventory has been provided to the NAVSEA DET NISMF.				

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

2. COMMAND/ADMIN	NOT APP	NOT COMP	% COMP	COMP
a. All nonregistered, unclassified instruction books, manuals, records, logs, ship's instructions, bills and similar documents that may be of assistance during and after safe stowage preparation have been retained on board, inventoried, and stowed in normal locations. An inventory sheet noting contents of each filing cabinet drawer/bookcase/desk has been fastened on the outside of the container and a master inventory list, with locations identified, has been delivered to the DIRECTOR, NAVSEA DET NISMF.				
b. All unclassified records, files, correspondence, and publications not essential for activation, or required by the Curator of the Navy have been removed.				
c. All classified correspondence and navigation charts have been removed from the ship. Disposition of classified publications and technical manuals remaining with the vessel will be determined by the DIRECTOR, NAVSEA DET NISMF. (See paragraph 050-3.286)				
d. The ship's Commanding Officer has certified in writing that all classified material which must be maintained with the vessel (e.g., classified equipment, technical manuals, etc.) has been identified by location and/or turned over to DIRECTOR, NAVSEA DET NISMF.				
e. Armed Forces censorship stamps have been disposed of.				
f. Special Services property has been transferred/disposed of.				
g. Postal system has been disestablished.				
h. The ship's Commanding Officer has certified in writing that the ship has been properly secured and that no unauthorized stripping actions have occurred during his period of accountability. See SECNAVINST 4900.48, paragraph 8b.				

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

3. ENGINEERING/HULL	NOT APP	NOT COMP	% COMP	COMP
a. All hull penetrations below the waterline, and those likely to result in flooding casualties have been blanked and painted yellow. Blanks have been fabricated from 1/2-inch thick ~~steel~~ ALUMINUM plate and the installation includes a .060-inch solid rubber gasket having the same number of bolts as the flange. The watertight integrity level generally is 4 feet above the waterline. All blanks will have a stenciled number painted on and a list of blank flanges will be provided by blank serial number, compartment number, frame number, port or starboard and system blanked to directed NAVSEA DET NISMF.				
b. All piping system items removed to facilitate blanking are wired in a conspicuous location near the installed blank.				
c. All sea valves have been ~~wired shut with seizing wire.~~ ISOLATED FROM SHELL				
d. All stern tube packing and rudder packing glands have been tightened so there is no leak-off, ensuring at least 2 inches of adjustment exists for future packing gland adjustment. See paragraph 050-3.110.	X			
e. Sanitary holding tank and system, have been cleaned, flushed, dried, gas freed and left open. Gas free letter required from certified Marine Chemist.				
f. Propellers are in the docking position, and locking devices have been installed on propeller shaft(s).	X			
g. Rudder(s) are locked mechanically on centerline.	X			
h. All ~~steam,~~ freshwater, saltwater, ~~condensate,~~ air and drain piping systems have been drained to low point and left open for natural drying.				

(26) (27) (28) (29) (30) (31) (34) (35) (36) (37) (38) (39) (40)

(41) (42) (43) (44) (45)

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

3. ENGINEERING/HULL	NOT APP	NOT COMP	% COMP	COMP
i. All ~~boilers and~~ heat exchangers have been drained to low point and left open.				
(12) j. All lube oil tanks have been ~~pumped empty.~~ TREATED PER SYSTEM INSTRUCTIONS.				
(13) k. All fuel tanks have been pumped to low suction and all fuel oil transfer valves are wired closed with seizing wire.				
l. All AvGas and MoGas tanks have been cleaned and are gas free.	X			
m. As an alternative to cleaning and gas freeing AVGAS and MOGAS in short-term safe stowage situations, the following alternative procedure has been used:	X			
(1) Pump AVGAS tanks empty.	X			
(2) Flush AVGAS tanks thoroughly using freshwater.	X			
(3) Flush all risers, pumps, transfer piping, and those stations with freshwater.	X			
(4) Fill tanks completely full with freshwater.	X			
(5) Fill all risers, pumps, transfer piping and hose stations with a mixture of freshwater and antifreeze.	X			
(6) Post warning throughout all spaces and hose stations: NOT SAFE FOR HOT WORK - NOT SAFE FOR PEOPLE	X			
(7) Custodian shall ensure that entire system is kept full of water at all times.	X			
(8) Prospective purchasers shall be informed of the status of the system as a condition of sale.	X			

(46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56)

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

3. ENGINEERING/HULL	NOT APP	NOT COMP	% COMP	COMP
n. Internal watertight and subdivision integrity is maintained and acceptable.				
(14) o. The following are in place, secured, and weather sealed: (Replace all Fasteners)				
Stack covers (16-gage sheet metal)	X			
Porthole covers	X			
Deck accesses				
Deck plates and grates				
Handrails and ladders				
p. All portable 2Z radiac equipment/ dosimeters have been offloaded/turned in.				
q. All heads and sanitary facilities are clean and dry.				
(1) All sink and urinal traps have been removed and wired to piping next to where they were removed.				
r. At least one copy of the Booklet General Plans, Tank loading and Sounding Tables, blue-prints, and the Machinery History Records/Current Ship's Maintenance Project has been retained onboard and is centrally located in Compartment Number _____.				
s. Copies of the Booklet of General Plans, last Material Inspection or last INSURV report, last drydocking report, work requests for next scheduled overhaul, Current Ship's Maintenance Projects, and listing of all fixed ballast and location have been given to the Director, NAVSEA DET NISMF.				
(15) t. All sounding tubes are properly marked, capped and workable. A listing of all tank soundings made within last week prior to transfer of ship to NAVSEA DET NISMF has been provided to the Director, NAVSEA DET NISMF.				

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

3. ENGINEERING/HULL	NOT APP	NOT COMP	% COMP	COMP
u. All bilges are clean and dry.				
v. All hydraulic systems have been repaired, filled and closed, ~~or drained, preserved, and left open.~~				
w. All hazardous materials and hazardous wastes have removed from the ship/craft.				

4. NAVIGATION	NOT APP	NOT COMP	% COMP	COMP
a. Unclassified charts and hydrographic publications subject to correction by hand have been disposed of; publications not normally corrected by hand that contain data of long-term value have been turned in.				
b. Sinuous course clocks and cams have been turned in. (See paragraph 050-3.237).	X			

5. WEAPONS	NOT APP	NOT COMP	% COMP	COMP
a. All ammunition has been off-loaded.				
b. All firearms have been off-loaded.				
c. All pyrotechnics have been off-loaded.				
d. Tampions are installed.				
e. Guns are in stowed position and locked.				

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

6. SUPPLY	NOT APP	NOT COMP	% COMP	COMP
a. As directed by higher authority, redistribution of the following items has been arranged and documentation has been prepared:				
(1) All labor saving devices (e.g., typewriters and office machines).				
(2) All electric-and pneumatic-power tools.				
(3) Life jackets.				
(4) Special clothing.				
(5) Sheets, blankets, pillow covers, pillows, and mattresses.				
(6) Life rafts.				
(7) Portable PKP bottles.				
(8) Containers of firefighting liquid.				
(9) Shoring.				
(10) Hand tools.				
(11) Messing utensils and dishes.				
(12) Emergency rations.				
(13) Emergency drinking water.				
(14) Perishables.				
(15) Medical supplies.				
(16) All other consumable supplies.				
(17) P-250 and submersible pumps except for P-250 pumps required for towing.				
(18) Vaneaxial blowers and ducting.				

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

6. SUPPLY	NOT APP	NOT COMP	% COMP	COMP
(19) All other easily pilferable items (see listing in Appendix Eleven to NAVSUP Publication 485) have been disposed of according to existing directives or redistribution by TYCOM as appropriate (Above items are not be be transferred to the Inactive Fleet)				
b. Electronic test equipment peculiar to ship's installed equipments have been stowed in a locked compartment (Pilferable Gear Locker).				
c. General Purpose Electronic Test Equipment (GPETE) has been forwarded to the nearest Naval Supply Center.				
d. A copy of all transfer documents has been turned over to NAVSEA DET NISMF Supply Officer and a copy retained onboard in the Supply Office.				
e. All custody records for equipage have been updated to reflect disposition (if any) and retained onboard in the Supply Office.				
f. Ship's COSAL (including ILO supplement) and other unclassified allowance lists have been retained onboard in the Supply Office.				
g. All Supply functions have been closed out and final reports have been submitted as required by the Type Commander.				
h. Appropriate Curator items have been removed and shipped to the Curator according to OPNAVINST 4770.5(Series).				
i. The Pilferable Gear Locker (PGL), located in Compartment Number _____, has been secured with hasp and padlock. PGL contents will be jointly inventoried by the NAVSEA DET NISMF Supply Department representative and ship's force before acceptance by NAVSEA DET NISMF.				

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TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

6. SUPPLY	NOT APP	NOT COMP	% COMP	COMP
j. All reefers/refrigerators are clean, with doors wired open and blocked at the outer edge with shoring to prevent sagging. (Doors may be removed and securely stored inside the reefer/refrigerator).				

TABLE 050-11. SAFE STOWAGE INSPECTION CHECK-OFF LIST

7. SHIP MOVEMENT TO NAVSEA DET NISMF	NOT APP	NOT COMP	% COMP	COMP
(32) (33) a. One (1) complete set of mooring lines, fenders and shore power cable(s) with viking plugs are retained onboard to permit ship to be moored upon delivery to NAVSEA DET NISMF.				
(16) b. In addition to the ships normal mooring lines, provide the following addition equipment: ~~(1) Eight lengths of 7/8" wire rope each with a six foot FLEMISH EYE on one end and each 500 foot in length (4 wires coiled forward and 4 aft)~~ ~~(2) Two lengths of 1½" or 2" wire, with clamps/clips, 500 foot in length, one coiled forward and one coiled aft.~~	~~X~~ YES			

8. SUBMARINES	NOT APP	NOT COMP	% COMP	COMP
a. In addition to the foregoing preparations for safe stowage, the following requirements, as applicable, have been been met in the case of a submarine:	X			
(1) Discharge open disconnect links, remove electrolyte, flush and dry batteries.	X			
(2) High-pressure air flasks de-pressurized.	X			
(3) In addition to rudders, stern planes are locked on centerline.	X			
(4) Inaccessible areas, including bilge areas below reefers and in main engineering space, have been cleaned by water/steam lancing.	X			

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USEFUL STOCK NUMBERS

NOMENCLATURE	FEDERAL STOCK NUMBER
Seizing wire (3/32")	4010-00-222-5346
Seizing wire (1/8")	4010-00-222-5347
Plier, fencing	5120-00-293-3485
Tie-down (large)	5975-00-158-3253
Salt and pepper wire (MRI-D-1)	6145-00-922-8592
Dehumidification Tape	9Q-5710-00-890-9874
RTV	8030-00-225-4548
*Pro-Seal Caulking Compound	8030-00-664-4318
*Adhesive (water resistant) (pint cans)	8040-00-664-4318
*Canvas	8030-00-170-5090
Lagging cloth (Cloth, plain weave)	8305-00-148-7363
Lagging paste (Thermal insulation)	8040-00-273-8707
Tag, stock marking (For labeling keys)	8135-00-239-1648
Cap, protective plastic (for S/R receptacles)	5340-00-437-6461

*Required for sealing with canvas/pro-seal (vents and general sealing).

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SECTION 7 SAFETY PRECAUTIONS

050-7.1 Safety must be a constant concern. Safety consciousness is an acquired talent, born of experience. With the constant influx of new personnel, it is a never-ending job to educate all involved in the hazards of Navy life. Continuing emphasis on safety at all supervisory levels is required to develop safety consciousness throughout all commands. Safety requirements, found in OPNAVINST 5100.19, and this section, shall be adhered to.

050-7.2 INACTIVATION/ACTIVATION

050-7.3 Inactivation/activation of naval ships entails extensive repair and modification in a wide variety of shipboard areas requiring thorough knowledge of and strict compliance with numerous safety precautions and regulations.

050-7.4 SCOPE. In addition to the requirements set forth herein, safety precautions, listed in referenced NSTM chapters are of particular importance and require strict adherence.

050-7.5 Responsible Supervision. Many accidents result from disinterested and/or uninformed leaders. An effective training program will result in continuing command attention to safety. A command with officers and petty officers who are concerned and informed is normally a safety command.

050-7.6 Corrective Action. Discovery of a safety deficiency or violation is only the first in a chain of events which should result in the elimination of that deficiency or violation. One of the most common shortcomings in command safety programs is the lack of adequate procedures to insure prompt action to correct deficiencies **AT THE TIME THEY ARE DISCOVERED.** To delay in taking remedial action, for even a short period, jeopardizes the safety of men and equipment,and makes material casualties probable. Therefore, Commanding Officers will establish procedures which insure prompt remedial action **AT THE TIME** deficiencies are discovered.

050-7.7 Protective/Safety Equipment. All personnel are required to wear appropriate protective and safety gear.. Failure to use such items as life jackets and safety lines can result in injury and/or death. Consequently, Commanding Officers will procure safety equipment for issue as required and insure that equipment is tested prior to use and is then used.

050-7.8 Flammable and Toxic Materials Safety. During inactivation/activation procedures, flammable and toxic materials are encountered to a greater extent than during routine operations. Paragraphs 050-4.3, 050-4.27, 050-6.12, and 050-8.9 go into great detail on the specific precautions which must be adhered to in addition to those general precautions contained in OPNAVINST 5100.19.

050-7.9 Commanding Officers of ships undergoing inactivation will publish necessary safety regulations and insure all hands are indoctrinated in the provisions thereof and will insure that appropriate safety precautions are posted as required.

050-7.10 Entering Tanks and Voids. Due to the special circumstances surrounding inactivation, frequent inspections, and the readiness and care involving inactive ships and craft, particular attention must be given to insure that all required measures are explicitly followed prior to permitting personnel to enter and work in tanks and voids. All damage Control Fire and Flooding Investigation Teams must have a certified Gas Free Engineer.

050-7.11 Gas Free Certification. All unventilated spaces, for example, closed compartments, tanks, cofferdams, voids, and bilges, will be considered hazardous until certified as safe for entry after inspection by the Safety Officer and a qualified certified Gas Free Engineer. **SAFE FOR ENTRY** signs or labels will be conspicuously posted at or near spaces certified. **A Gas Free Certificate** shall be posted. When the space is again closed all signs will be removed. Procedures for gas free testing and safe atmospheres will be used in accordance with Chapters 079 V4 (9880), **Compartment Testing and Inspection**, and 074 V1 (9920), **Welding and Allied Processes**. Additional assistance can be obtained from the nearest naval shipyard.

050-7.12 The Gas Free Engineer will maintain a record of each space inspected showing the atmospheric composition determined by tests before ventilation and the means and lengths of time to establish a safe atmosphere. No space shall be entered unless there is at least 20 percent oxygen present. Periodic gas free tests shall be made as necessary, however, under no circumstances is the Gas Free Certificate valid for more than 4 hours.

050-7.13 Handling and Removal of Asbestos Materials. The unusual circumstances associated with inactivation, cannibalization (see paragraph 050-8.4) and retention of ships and craft may result in personnel exposure to hazardous friable asbestos fibers. Past naval shipbuilding programs have included extensive use of asbestos materials for shipboard installations such as thermal insulation and deck tile. Occasionally, shipboard stores and consumable supplies left on inactivated ships include asbestos materials. It is incumbent on all personnel to familiarize themselves with the hazards of asbestos materials and safety procedures as cited herein. Commanding Officers will ensure that all hands are indoctrinated in safe handling procedures for asbestos materials.

050-7.14 Handling or removal of asbestos materials (installed insulation or consumable stores) shall be in strict compliance with the requirements of OPNAVINST 5100.23, NSTM Chapter 635, **Thermal Insulation**; and Code of Federal Regulations 29 CFR 1910.1001, Occupational Safety and Health Act (OSHA). Asbestos, in any form (cast, powder, pipe covering, gasket, etc.) in storage in storerooms or ready service lockers must be removed prior to transfer of the ship to the Inactive Fleet. Contact Fleet Material Support Officer (FMSO) Code 99223 for disposition instructions. Once an asbestos contaminated area is cleared of all asbestos debris and the exposed asbestos insulation has been sealed, an Industrial Hygienist shall certify the area safe for unrestricted personnel entry. Contractors engaged in operations that could involve exposure of personnel to friable asbestos materials, shall be guided by the requirements set forth herein. Additional costs relative to asbestos removal must be borne by requestors of stripped or cannibalized material. Activities accomplishing safe storage preparations, inactivation, or activation will fund asbestos-relative costs. Acceptance of a ship prepared for safe storage will, in part, be predicated on complete removal and clean-up of asbestos debris resulting from stripping and safe storage preparations.

DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND
WASHINGTON D C 20362 5101

IN REPLY REFER TO
4710
OPR:PMS330D31
Ser:PMS330/1528
22 July 1991

From: Commander, Naval Sea Systems Command
To: Officer in Charge, Naval Sea Systems Command Detachment, Navy Inactive Fleet, Portsmouth, Va. 23702-5002

Subj: REFRIGERANTS HANDLING

Ref: (a) NAVSEA ltr 4710 OPR:PMS313B121 Ser:PMS313/1512 of 19 Mar 91
(b) COMNAVSEASYSCOM WASHINGTON DC 010550Z SEP92

Encl: (1) Refrigerant Recovery Procedure (ATTACHED)

1. Reference (a) advised that further guidelines would be provided concerning the handling of used refrigerants as the situation develops. Prior guidance on the inactivation of ships instructed that the used refrigerant in the ships refrigeration and air conditioning plants be pumped down and stored in the refrigerant receiver of each plant until removable/recycling equipment is available and a permanent central storage location or recycling facility is identified. This applied to both R-12 and R-114 refrigerant. NAVSEA, however, has recently made arrangements with NAVSSES Philadelphia to accept cylinders of used refrigerant for temporary storage.

2. In view of the availability of the above temporary storage site, future inactivation plans for all ships should include the requirement to purge refrigerant gas from the ship's systems during the stand-down period. The following guidelines are provided:

(a). Recover refrigerants using enclosure (1) for guidance and ship to the temporary storage location at Philadelphia in properly marked compressed gas cylinders which meet the requirements of FED SPEC RR-C-910/1-3 or 1-8. Cylinders meeting these requirements can be obtained through the Navy Supply System using stock numbers NSN 9G-8120-00-178-1598 or NSN 9G-8120-00-598-6598 for cylinders with water capacities of 42 and 122 lbs respectively. ~~Cylinders should be plainly marked with the words: "USED R-(identify refrigerant)~~". DO NOT STENCIL ON CYLINDER. SEE REF B. (Caution: Do not mix new refrigerants with used refrigerants, and do not mix refrigerants.)

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(b). Upon removal of refrigerants from ships designated as retention (Mobilization or FML) assets, pressurize the compressor, condenser, piping, and cooling coil with

ENCL (2)

five (5) Psig of Nitrogen to preserve internal components. System layup requirements of enclosure (1) section 5.3 are not applicable to striken ships or ships to be striken and disposed of upon decommissioning.

(c). Cylinders should be shipped to:

~~Commanding~~ Officer (Code 041C)
Naval ~~Ship~~ Systems Engineering Station
Philadelphia, ~~PA 19112-5083~~

~~ATTN:~~ Building 781

See Distribution
010550Z SEP 92
(REF B)

3. Previously inactivated ships located at the various NISMF Sites should also have their refrigerants recovered and shipped to the temporary storage ~~location~~ [redacted]. Refrigerant recovery within the inactive fleet should also be accomplished utilizing enclosure (1) for guidance.

4. The refrigerant recovery procedure outlined in enclosure (1) will be incorporated in the next NSTM Chapter 516 revision. Upon completion of the NSTM Chapter 516 update, a rewrite of NSTM Chapter 50, Section 050-3.140 to reflect this removal procedure will be provided for incorporation in the next NSTM Chapter 50 update (change 10).

By direction

Copy to:
NAVSEA DET NISMF PORTSMOUTH VA
NAVSEA DET NISMF PHILADELPHIA PA
NAVSEA DET NISMF BREMERTON WA
NAVSEA DET NISMF PEARL HARBOR HI
COMNAVSURFPAC (N42)
COMNAVSURFLANT (N412)
NAEC LAKEHURST NJ
NAVSSES PHILADELPHIA, PA (041C)
DGSC RICHMOND, VA (9G COG MAT'L)

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REFRIGERANT RECOVERY PROCEDURE

1. SCOPE

1.1 Scope. This procedure establishes criteria for the recovery of refrigerant from Air Conditioning Plants, Ships Stores Refrigeration Plants and Cargo Refrigeration Plants, to prevent the inadvertent release of chlorofluorocarbon refrigerants to the atmosphere.

2. APPLICABLE DOCUMENTS

2.1 References. Refrigerant storage and handling are to be in accordance with the following:

a. Naval Ships Technical Manual, Chapter 510, Heating, Ventilating, and Air Conditioning Systems for Surface Ships (S9086-RQ-STM-010/CH 510).

b. Naval Ships Technical Manual, Chapter 516, Refrigeration System (S9086-RW-STM-010/CH 516).

c. Naval Ships Technical Manual, Chapter 550, Industrial Gases; Generating, Handling, and Storage (S9086-SX-STM-000/CH 550).

d. Refrigerating Plant Equipment Technical Manual.

3. SAFETY PRECAUTIONS

3.1 Handling halocarbon refrigerants.

3.1.1 All personnel using halocarbon compounds shall familiarize themselves with and observe the following safety precautions to prevent injury:

a. Always wear goggles when handling refrigerants to avoid the possibility of liquid getting into the eyes. Liquid refrigerant can cause injury due to the freezing of moisture in the eyes. If liquid refrigerant accidentally comes in contact with the eyes, give first aid treatment by promptly irrigating and washing the eye gently with water at room temperature for 15 minutes. Avoid rubbing or irritating the eyes. Immediately take the person suffering the injury to the medical officer.

b. Should liquid refrigerant with a boiling point below 32 °F at normal atmospheric pressure, come in contact with the skin, treat the injury the same as though the skin had been frostbitten or frozen.

c. Suspend all hot work in the space prior to conducting refrigerant operations. Open flame, welding, or hot surfaces such as space heaters (Salamanders or other types) will decompose halogen refrigerants to extremely toxic materials. The medical department shall observe personnel exposed to significant levels of decomposition products of refrigerant for immediate or delayed pulmonary edema.

d. During refrigerant recovery operations, prohibit nonessential personnel from being in, or entering the space while the refrigerant recovery operation is being conducted.

e. Ensure that at least two people are present when working with Refrigerating Plants. Do not leave the area unattended while the refrigerant operation is being conducted.

f. Provide an emergency self-contained breathing device for each person in the space, to permit evacuation in the event of an accidental spill. Each person shall have received instruction and practice in the usage of the particular self-contained breathing device to be utilized.

g. Refrigerant vapors are heavier than air. In the event of a leak, vapors will drop to the lowest level of a compartment, accumulate at the bottom, and fill the compartment displacing the oxygen. When conducting refrigerant operations ensure that adequate ventilation of the space is maintained. If necessary, use portable blowers. Exhaust ventilation with suction at a low spot (near deck level) is preferable to blowing air into the space.

h. Refrigerant vapors have an anesthetic effect (causing incoordination such as stumbling), can affect breathing (shortness of breath), can affect the heart beat (causing irregular beats and even stoppage), and can cause tremors, convulsions, and death. Exposure can cause headache, rapid heart beat, light-headedness, and tingling of fingers and toes. Seek medical attention if any of these symptoms occur. Exposure to large concentrations of halocarbon compound vapors can be fatal. Should a person be overcome because of high concentrations of refrigerant, treat such a person as one who has experienced suffocation. Should someone be overcome in a space that has or may have a high concentration of refrigerant vapor, immediately remove the person and give artificial respiration if breathing has stopped.

NOTE TO PHYSICIAN: Since halocarbons cause cardiac sensitization, the attending physician SHALL NOT administer an injection of epinephrine or similar heart stimulant. Cardiac arrhythmias, including ventricular fibrillation, may result.

i. Nitrogen is a nontoxic inert gas. However, Nitrogen can displace air, and in small, closed, or confined spaces enough oxygen may be displaced by Nitrogen to cause suffocation and death. Vent the gas to the outside.

j. Use a halocarbon monitor with an audio alarm and visual level indicator to continuously monitor the atmosphere in the space when conducting refrigerant operations.

k. Do not allow the halocarbon concentration to exceed 1,000 ppm (parts of halogen per million parts of air). If the alarm sounds, evacuate the space immediately and notify the Quarterdeck and Damage Control Central. It will be necessary to use a supplied-air respirator (air-line respirator) or self-contained breathing apparatus operated in pressure-demand mode to return safely to the space. Do not reenter the space without an oxygen breathing device, until the space has been certified to be gas free by a Gas Free Engineer.

l. Do not allow used refrigerant oil to stand in an open container. The refrigerant oil is contaminated with refrigerant and will contaminate the ship's atmosphere.

3.2 Handling refrigerant cylinders and drums.

3.2.1 Observe the following precautions when handling refrigerant cylinders or drums:

a. Never drop cylinders or drums, nor permit them to violently strike each other or any other object.

b. When loading or transferring cylinders, use a crane, forklift derrick, or handcart when available (ensure that the cylinder is secured firmly before moving). Never use a lifting magnet, or a sling (line or chain) when handling cylinders. If moving a cylinder by hand, tilt the cylinder slightly and roll on its bottom edge, without dragging or sliding. If a crane or hoist is used, provide a safe cradle or platform to hold the cylinders or drums.

c. Keep caps provided for cylinder valve protection on cylinders except when cylinders are in use. Never use the protective cap for lifting cylinders.

d. Whenever refrigerant is discharged from a cylinder or drum, weigh the cylinder or drum and record the weight of refrigerant remaining.

e. Never mix refrigerants or gases in a cylinder or drum.

f. When a cylinder or drum is emptied, immediately close the cylinder valve or drum cap to prevent entrance of air, moisture, or dirt.

g. Never use cylinders or drums for rollers, supports, or for any purpose other than to carry refrigerant.

h. Never tamper with the safety devices in valves, cylinders, or drums.

i. Open cylinder valves slowly.

j. Only use wrenches designed to open cylinder valves.

k. Make sure that the threads on regulators or other connections are the same as those on cylinder outlets or drum connections. Never force connections.

l. Open drums slowly and be cautious of outgassing.

m. Do not use regulators and pressure gauges provided for use with a particular gas on cylinders containing different gases.

n. Never attempt to repair or alter cylinders, drums, or cylinder valves.

3.3 Special precautions in using cylinders.

3.3.1 Observe the following additional precautions when using cylinders:

a. If it becomes necessary to warm a cylinder, use a bucket of warm water, not hot water. Do not allow the cylinder temperature to exceed 130 °F. These cylinders have fusible plugs that melt at about 157 °F and soften at a lower temperature. Never use a torch or open flame to warm a cylinder.

b. Do not overcharge the Compressed Gas Cylinder with refrigerant. Use a weight scale to continuously weigh the cylinder during the recovery operation. Overcharging could result in inadvertent venting of the cylinder due to liquid expansion.

c. Lubricating oil is light. If a refrigerant is diluted with oil it will occupy a greater liquid volume per pound, than would pure refrigerant. This could lead to dangerous overfilling of cylinders.

d. Do not fill cylinders above 80% of the rated water weight capacity. The water capacity in pounds is stamped on every cylinder.

3.4 Storage of compressed gas cylinders.

3.4.1 Observe the following precautions when storing Compressed Gas Cylinders:

a. Cylinders may be stowed on weather decks protected from direct rays of sunlight or in compartments designed for Compressed Gas Cylinder stowage.

b. Locate cylinders so that the cylinder temperature does not exceed 130 °F.

c. Stow cylinders with valve end up. Stow cylinders in racks fitted with metal collars, wherever possible.

d. Do not permit a direct flame, jet of steam or any other heat source to come in contact with any part of a Compressed Gas Cylinder.

4. EQUIPMENT

a. Refrigerant Recovery Unit (CFC Unit). The CFC Unit shall be mobile-portable of suitable size for usage in the space where the Refrigerating Plant is located, be capable of recovering liquid or gas refrigerant from a Refrigerating Plant and liquefying the gas, storing the recovered refrigerant in Compressed Gas Cylinders, and shall be compatible with the refrigerant to be recovered. (See 5.2.1).

~~For R-114 Air Conditioning Plants, the Purge and Pump-Out Unit may be utilized to accomplish the refrigerant recovery. (See 5.2.2).~~

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b. Compressed Gas Cylinders. Compressed gas cylinders shall be in accordance with FED SPEC RR-C-910/1-3 or 1-8. Cylinders meeting these requirements can be obtained through the Navy Stock System using stock numbers NSN 8120-00-178-1598 or NSN 8120-00-598-6598 for cylinders with water capacity ratings of 42 and 122 lbs respectively. ~~Cylinders shall be plainly stenciled with the words "USED R (identify refrigerant)"~~. See COMNAVSEASYSCOM 01C550Z SEP92 (Ref D)

WARNING
Disposable compressed gas cylinder
usage is prohibited

c. Halocarbon Monitor. The halocarbon monitor shall have an audible alarm and visual level indicator. The Halocarbon monitor shall be calibrated at 1000 ppm (maximum), and the audible alarm shall be actuated at 1000 ppm (maximum).

d. Compound Pressure Gauge (a pressure gauge having a vacuum and a pressure range). The pressure gauge shall be of suitable range and calibration.

e. Interconnecting pipe, valves, hose and fittings. Compatible with the refrigerant to be recovered.

f. Refrigerant Recovery Cylinder Weight Scale. The weight scale is utilized to continuously weigh the Compressed Gas Cylinder during the recovery operation, to avoid the possibility of overfilling the cylinder.

g. Vacuum Pump.

h. Container of ice and water.

5. PROCEDURE

5.1 Preliminary procedure.

5.1.1 Post a caution sign in the space and at each entrance to the space where refrigerant operations are to be conducted. The sign should read: "CAUTION: NO OPEN FLAMES. DO NOT ENTER WITHOUT TESTING THE AIR FOR HALOCARBONS". Sign letters should be at least 1 inch high.

5.1.2 Tag-Out all refrigerant valves communicating with the atmosphere that will not be utilized in the recovery operation. Wire them closed and tag "Do Not Open" to prevent accidental opening and possible injury due to contact with refrigerant or other fluids.

5.1.3 Notify the ship's Officer of the Deck and Engineering Duty Officer when refrigerant operations are ready to commence. It is recommended that a Gas Free Engineer review and approve procedures and operations.

5.1.4 The Halocarbon Monitor shall be calibrated at 1000 ppm (maximum), and set to alarm at the 1000 ppm level (maximum). Halocarbon monitor and ancillary instrumentation shall have current calibration stickers.

5.1.5 Ensure that the CFC Unit and interconnected piping (CFC System), does not contain leftover refrigerant of a different type from a previous refrigerant operation. Thoroughly evacuate the CFC System to ensure that residue of another type of refrigerant does not remain in the CFC System.

5.2 Procedure.

5.2.1 CFC Unit Refrigerant Recovery.

5.2.1.1 Ensure adequate ventilation in the space where the refrigerant operation is to be conducted.

5.2.1.2 Ensure that the Halocarbon Monitor is operational.

5.2.1.3 Evacuate each empty Compressed Gas Cylinder with a vacuum pump.

5.2.1.4 Connect a compound pressure gauge and the CFC Unit suction side to the charge and drain connection (liquid outlet) of the Refrigerating Plant.

5.2.1.5 Connect the CFC Unit discharge side to the Compressed Gas Cylinder shut-off valve.

5.2.1.6 Ensure that the CFC Unit and interconnected piping are leak free by conducting a pressure drop test with dry Nitrogen. Test R-12 and R-22 CFC Units and interconnected piping by pressurizing the CFC System up to the Refrigerating Plant and Compressed Gas Cylinder shut-off valve. Pressurize with dry Nitrogen to 75 Psig. Secure the Nitrogen and hold the test pressure for 15 minutes. For R-114 Air Conditioning Plants pressurize to 50 Psig, and for R-11 Air Conditioning Plants, pressurize to 15 Psig. Test all joints for leakage using soapsuds. No leakage is allowed. Repair any leaks in the CFC System and repeat the pressure drop test until the CFC Unit and interconnected piping are leak free.

5.2.1.7 Open all refrigerant line shutoff valves including solenoid and bypass valves contained in the system to be recovered, except those communicating with the atmosphere, such as purge and drain.

5.2.1.8 It will be necessary to cool the Compressed Gas Cylinder during the recovery operation. Set the Compressed Gas Cylinder in a container of ice and water. Account for the weight of the container and ice water when monitoring the weight scale.

5.2.1.9 Place the empty Compressed Gas Cylinder on the weight scale.

5.2.1.10 Start the CFC Unit, open the Refrigerating Plant shut-off valve and crack open the interconnected pipe fitting connected to the Compressed Gas Cylinder shut off valve. Allow a small amount of refrigerant to bleed from the connection to ensure that the CFC System is purged of air. Retighten the connection.

5.2.1.11 Open the Compressed Gas Cylinder shut-off valve. Allow the CFC Unit to fill the Compressed Gas Cylinder.

5.2.1.12 Continuously monitor the weight scale to ensure that the Compressed Gas Cylinder is not overcharged. When the weight of the refrigerant charge in the Compressed Gas Cylinder is 80% of its rated water capacity, secure the Compressed Gas Cylinder shut-off valve and the Refrigerating Plant liquid line shut-off valve.

5.2.1.13 To each Compressed Gas Cylinder, attach a tag identifying the refrigerant type "USED R-(identify refrigerant)", and the total weight of the contents.

5.2.1.14 Continue the recovery operation until a pressure below atmospheric is obtained in the Refrigerating Plant. Secure the CFC Unit. The absence of refrigerant can be ascertained by holding a negative pressure on the Refrigerating Plant for ten minutes. A rise in the pressure indicates that refrigerant is present in the plant.

5.2.1.15 Repeat steps 5.2.1.9 through 5.2.1.14, until the recovery operation is completed.

5.2.1.16 Secure the Refrigerating Plant liquid line shut-off valve and the CFC Unit.

5.2.1.17 Disconnect and remove the CFC Unit, interconnected piping, hoses and fittings.

5.2.1.18 The entrained refrigerant oil separated during the recovery operation is a hazardous waste. Dispose of the refrigerant oil accordingly.

5.2.2 R-114 Air Conditioning Plant Purge and Pump-Out (PPO) Unit Refrigerant Recovery.

5.2.2.1 Ensure adequate ventilation in the space where the refrigerant operation is to be conducted.

5.2.2.2 Ensure that the Halocarbon Monitor is operational.

5.2.2.3 Evacuate each empty Compressed Gas Cylinder with a vacuum pump.

5.2.2.4 Connect a compound pressure gauge to the vacuum pump connection on the Purge and Pump-Out Manifold. Open the vacuum pump connection shut-off valve.

5.2.2.5 Line up the valves on the PPO Manifold in accordance with the Refrigerating Plant Equipment Technical Manual for the Transferring Liquid Refrigerant From The Main System Chiller To The Receiver operation.

5.2.2.6 Start the PPO Unit and pump-out the liquid refrigerant to the refrigerant receiver until all liquid refrigerant has been transferred to the refrigerant receiver.

5.2.2.7 Secure the PPO unit and all valves opened in 5.2.2.5.

5.2.2.8 Connect the Compressed Gas Cylinder to the charge and drain connection (liquid outlet) of the Refrigerating Plant.

5.2.2.9 It will be necessary to cool the Compressed Gas Cylinder during the recovery operation. Set the Compressed Gas Cylinder in a container of ice and water. Account for the weight of the container and ice water when monitoring the weight scale.

5.2.2.10 Place the empty Compressed Gas Cylinder on the weight scale.

5.2.2.11 Open the refrigerant receiver isolation valve, the Refrigerating Plant charge and drain shut-off valve and crack open the interconnected pipe fitting connected to the Compressed Gas Cylinder shut-off valve. Allow a small amount of refrigerant to bleed from the connection to ensure that the CFC System is purged of air. Retighten the connection.

5.2.2.12 Open the Compressed Gas Cylinder shut-off valve. Allow the refrigerant receiver and cylinder differential pressure to fill the Compressed Gas Cylinder.

5.2.2.13 Continuously monitor the weight scale to ensure that the Compressed Gas Cylinder is not overcharged. When the weight of the refrigerant charge in the Compressed Gas Cylinder is 80% of its rated water capacity, secure the Compressed Gas Cylinder shut-off valve and the Refrigerating Plant liquid line shut-off valve.

5.2.2.14 To each Compressed Gas Cylinder, attach a tag identifying the refrigerant type "USED R-(identify refrigerant)", and the total weight of the contents.

5.2.2.15 Repeat steps 5.2.2.10 through 5.2.2.14, until all liquid refrigerant has been transferred to the Compressed Gas Cylinders from the refrigerant receiver.

5.2.2.16 Line up the valves on the PPO Manifold in accordance with the Refrigerating Plant Equipment Technical Manual for the Refrigerant Vapor Pumpout From Main System With Liquid Recovery operation, except that the chiller isolation valve is to remain secured.

5.2.2.17 It will be necessary to cool the Compressed Gas Cylinder during the recovery operation. Set the Compressed Gas Cylinder in a container of ice and water. Account for the weight of the container and ice water when monitoring the weight scale.

5.2.2.18 Place the empty Compressed Gas Cylinder on the weight scale.

5.2.2.19 Start the PPO Unit, open the Refrigerating Plant charge and drain shut-off valve and crack open the interconnected pipe fitting connected to the Compressed Gas Cylinder shut-off valve. Allow a small amount of refrigerant to bleed from the connection to ensure that the CFC System is purged of air. Retighten the connection.

5.2.2.20 Open the Compressed Gas Cylinder shut-off valve. Allow the PPO Unit to fill the Compressed Gas Cylinder.

5.2.2.21 Continuously monitor the weight scale to ensure that the Compressed Gas Cylinder is not overcharged. When the weight of the refrigerant charge in the Compressed Gas Cylinder is 80% of its rated water capacity, secure the Compressed Gas Cylinder shut-off valve and the Refrigerating Plant liquid line shut-off valve.

5.2.2.22 To each Compressed Gas Cylinder, attach a tag identifying the refrigerant type "USED R-(identify refrigerant)", and the total weight of the contents.

5.2.2.23 Repeat steps 5.2.2.18 through 5.2.2.22 until a pressure of approximately 60mm Hg absolute (27.5" Hg) vacuum is attained in the Refrigerating Plant. Secure the PPO Unit. The absence of refrigerant can be ascertained by holding a negative pressure on the Refrigerating Plant for ten minutes. A rise in the pressure indicates that refrigerant is present in the plant. Continue the Refrigerant Vapor Pumpout With Liquid Recovery operation until there is no rise in pressure.

5.2.2.24 Secure the Refrigerating Plant charge and drain shut-off valve and the PPO Unit.

5.2.2.25 Disconnect and remove interconnected piping, hoses and fittings.

5.3 System layup.

5.3.1 The Refrigerating Plant shall be layed-up in accordance with the Equipment Technical Manual and Naval Ships Technical Manual Chapter 516, Refrigeration System.

5.3.2 Perform a vacuum drop test to ensure Refrigerating Plant integrity. Repair all leaks. Repeat until the Refrigerating Plant is leak tight.

5.3.3 Charge the Refrigerating Plant with dry Nitrogen to approximately 5 Psig. Maintain the Nitrogen charge during the inactivation period.

6. SHIPPING

6.1 Marking.

6.1.1 ~~Clearly stencil each Compressed Gas Cylinder containing the recovered refrigerant as follows:~~ DO NOT Stencil on cylinder. See reference (b).

~~"USED R-(identify refrigerant)"~~

6.1.2 To each Compressed Gas Cylinder attach a tag identifying the refrigerant source, type of refrigerant, weight of refrigerant and possible contaminants, and type. See COMNAVSEASYSCOM 010550Z SEP 92 – Reference (b)

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6.2 Shipping.

6.2.1 Shipping shall be in accordance with Code Of Federal Regulations, Title 49. The recovered refrigerant is considered a hazardous waste in many states.

6.2.2 Recovered refrigerant shall be shipped to the following:

See COMNAVSEASYSCOM WASHINGTON DC 010550ZSEP92 (Reference b)

~~Commanding Officer (Code 1416)~~
~~Naval Ship Systems Engineering Station~~
~~Philadelphia, PA 19112-5083~~

~~Attn: Building 781~~

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U U N C L A S S I F I E D U
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ADMINISTRATIVE MESSAGE

ROUTINE

R 010550Z SEP 92 ZYB PSN 027334L19

FM COMNAVSEASYSCOM WASHINGTON DC//05V//

TO AIG ONE ONE ZERO TWO EIGHT
CINCPACFLT PEARL HARBOR HI//N43//
COMNAVAIRLANT NORFOLK VA//85/80//
COMSUBLANT NORFOLK VA//N4/N40B//
NAVSUBSCOL GROTON CT//N20//
SUBTRAFAC CHARLESTON SC//N20//
NAVSEA DET PORTSMOUTH VA//JJJ//
NISMF PHILADELPHIA PA//JJJ//
NAVSHIPYD NORFOLK VA//200/300//
NAVSHIPYD CHARLESTON SC//260/300//
NAVSHIPYD MARE ISLAND CA//300/260//
SIMA CHARLESTON SC
SIMA LITTLE CREEK VA
SIMA MAYPORT FL
SIMA PORTSMOUTH VA
SIMA SAN FRANCISCO CA
SIMA NRMF NEWPORT RI
SUPSHIP CHARLESTON SC//200/500//
SUPSHIP JACKSONVILLE FL//200/500//
SUPSHIP NEW ORLEANS LA//200/500//
SUPSHIP PASCAGOULA MS//200/500//
SUPSHIP SAN DIEGO CA//200/500//
SUPSHIP SEATTLE WA//200/500//
NAVSHIPREPFAC YOKOSUKA JA//JJJ//
CNO WASHINGTON DC//45/451//
CINCLANTFLT NORFOLK VA//N43//
COMNAVAIRPAC SAN DIEGO CA//73//
FLETRACEN NORFOLK VA//N335/N336//
SERVSCOLCOM SAN DIEGO CA//N4012//
SUBTRAFAC NORFOLK VA//N20A/N221//
NISMF BREMERTON WA//JJJ//
NISMF PEARL HARBOR HI//JJJ//
NAVSHIPYD PORTSMOUTH NH//200/300//
NAVSHIPYD LONG BEACH CA//300/260//
NAVSHIPYD PUGET SOUND WA//300/260//
SIMA GUANTANAMO BAY CU
SIMA NORFOLK VA
SIMA PEARL HARBOR HI
SIMA SAN DIEGO CA
SIMA NEW YORK NY
SUPSHIP BATH ME//200/500//
SUPSHIP GROTON CT//200/500//
SUPSHIP LONG BEACH CA//200/500//
SUPSHIP NEWPORT NEWS VA//200/500//
SUPSHIP PORTSMOUTH VA//200/500//
SUPSHIP SAN FRANCISCO CA//200/500//
SUPSHIP STURGEON BAY WI//200/500//
NAVSHIPREPFAC GU//JJJ//
COMNAVSURFLANT NORFOLK VA//N4/N422A//
COMNAVSURFPAC SAN DIEGO CA//N4/N401//
COMSUBPAC PEARL HARBOR HI//N4/N402//
NAVSURFWARCEN SHIPSYSENGSTA PHILADELPHIA PA//041/041C//
NAVAIRWARCENACDIV LAKEHURST NJ//SR41//
COMNAVSUPSYSCOM WASHINGTON DC//452//
NAVSUBTRACENPAC PEARL HARBOR HI//N93//

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DLVR:SUPSHIP PORTSMOUTH VA(5)...ACT
DLVR:NAVSEA DET PORTSMOUTH VA(1)...ACT
DLVR:NAVSEA DET NISMF PORTSMOUTH VA(1)...ACT
DLVR:SIMA PORTSMOUTH VA(2)...ACT

200(1)...INFO FOR NAVSHIPYD NORFOLK VA(8) 03450/17/0131
300(1) 500(1) 800(1) 1200(1) 1102.32(1) 100(1) NRRO(1)

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027334/0390/245 1 OF 3 M1 0252 265/16:26Z 010550Z SEP 92
CSN:RXL8036o COMNAVSEASYSCOM WASHINGTON DC//05V//

ENCL(3)

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U U N C L A S S I F I E D U
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NAVSEA DET NISMF PORTSMOUTH VA//JJJ//
NAVSHIPYD PEARL HARBOR HI//300/2603//
SUPSHIP BATH DET BOSTON MA//200/500//

BT
UNCLAS //N04700//

MSGID/GENADMIN/NAVSEA 05V24//
SUBJ/INTERIM GUIDANCE ON THE SHIPPING AND PROCESSING CYLINDERS OF
/RECOVERED REFRIGERANT//
REF/A/1990 AMENDMENTS/-//
REF/B/LTR//
REF/C/LTR//
AMPN/REF A IS AMENDMENTS TO U.S. CLEAN AIR ACT; REF B IS NAVSEA SER
56Y1/114 DATED 24 MARCH 1992; REF C IS NAVSEA SER 56Y1/405 DATED 16
SEPT 1991//
POC/A. NICKENS/05V2/PRIPHN:602-5585/-/-//
AKNLDG/-//
RMKS/1. THIS IS A NAVSEA, NAVSUP AND DLA COORDINATED MESSAGE. PLEASE
PASS TO SUPPLY/STORAGE/MATERIEL OFFICER AS APPROPRIATE.

2. THIS MESSAGE IS IN RESPONSE TO REF A WHICH PROHIBITS THE
INTENTIONAL VENTING OF CHLOROFLUOROCARBONS (CFCS) USED AS
REFRIGERANTS INTO THE ATMOSPHERE EFFECTIVE 1 JULY 1992.

3. DEFENSE GENERAL SUPPLY CENTER (DGSC) HAS RECENTLY ASSIGNED
NATIONAL STOCK NUMBERS (NSNS) TO CYLINDERS TO BE USED FOR REFRIGERANT
RECOVERY ONLY. THESE CYLINDERS WILL BE PAINTED ORANGE WITH A YELLOW
TOP TO DISTINGUISH THEM FROM VIRGIN REFRIGERANT CYLINDERS. THESE
CYLINDERS WILL ALSO HAVE DUAL PORT VALVES TO EASE THE RECOVERY
PROCESS. THE NSNS ARE AS FOLLOWS:
    A) 8120-01-355-4017 FOR RECOVERY OF R-12 IN 45 LBS CYLINDERS
    B) 8120-01-355-4018 FOR RECOVERY OF R-12 IN 145 LBS CYLINDERS
    C) 8120-01-355-4019 FOR RECOVERY OF R-12 IN 1500 LBS CYLINDERS
    D) 8120-01-356-1245 FOR RECOVERY OF R-114 IN 45 LBS CYLINDERS
    E) 8120-01-356-1246 FOR RECOVERY OF R-114 IN 145 LBS CYLINDERS
    F) 8120-01-356-1247 FOR RECOVERY OF R-114 IN 1500 LBS CYLINDERS
USING THE PROCEDURES PREVIOUSLY PROVIDED IN REFS B AND C, THESE
CYLINDERS SHOULD BE USED FOR RECOVERING USED REFRIGERANT FROM AIR
CONDITIONING AND REFRIGERATION PLANTS. THESE CYLINDERS CAN BE
ORDERED THROUGH DGSC, RICHMOND VA. THE DGSC POC IS MR. DEAN CRAWFORD
A/V 695-3233 OR COMMERCIAL (804) 279-3230.

4. AFTER RECOVERY, EACH CYLINDER SHALL BE TAGGED (DO NOT STENCIL ON
CYLINDER) WITH THE FOLLOWING INFORMATION ON THE TAG;
    A) RECORD RECOVERED REFRIGERANT AS "NAVY RECOVERED/USED R-
       (FILL IN REFRIGERANT NUMBER)"

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B) RECORD AMOUNT OF RECOVERED REFRIGERANT IN LBS CONTAINED IN CYLINDER
C) RECORD "SHIPPING ACTIVITY WITH POC AND PHONE NUMBER"
D) RECORD ONE OF THE FOLLOWING NSNS TO INDICATE THAT CYLINDER CONTAINS USED REFRIGERANT;
AA) 6830-01-355-4013 FOR R-12 IN 45 LBS CYLINDERS
BB) 6830-01-355-6648 FOR R-12 IN 150 LBS CYLINDERS
CC) 6830-01-355-4015 FOR R-12 IN 1500 LBS CYLINDERS
DD) 6830-01-356-1203 FOR R-114 IN 45 LBS CYLINDERS
EE) 6830-01-356-1205 FOR R-114 IN 145 LBS CYLINDERS
FF) 6830-01-356-1207 FOR R-114 IN 1500 LBS CYLINDERS

5. ONCE USED REFRIGERANT HAS BEEN RECOVERED AND PROPERLY TAGGED, THE CYLINDERS MAY BE SHIPPED TO THE STOCK POINT WHERE EXCESS MATERIAL IS NORMALLY TURNED IN FOR MATERIAL TURNED INTO STORES (MTIS) PROCESSING. SHIPPING ACTIVITIES SHOULD PREPARE A 1348 MILSTRIP DOCUMENT WITH "D6A" DOCUMENT IDENTIFIER, AN "F" CONDITION CODE AND "9G" COGNIZANCE SYMBOL.

6. RECEIVING STOCK POINTS SHOULD PICK-UP THE MATERIAL INTO NAVY RETAIL STOCK (9G) BY PROCESSING THE "D6A" AS AN MTIS RECEIPT TO "F" CONDITION WITH NO CREDIT. THE RECEIVING STOCK POINTS SHOULD STORE THE RECOVERED REFRIGERANT CYLINDERS UNTIL ADDITIONAL INFORMATION IS PROVIDED ADDRESSING THE DISPENSATION OF THESE CYLINDERS.

7. NAVSEA, NAVSUP, AND DLA ARE JOINTLY DEVELOPING PLANTS TO AFFECT RECLAMATION OF THE USED REFRIGERANT. IT IS OUR GOAL TO RECLAIM (PUT BACK TO ORIGINAL CONDITION) RECOVERED REFRIGERANT FOR REUSE DUE TO THE COST SAVINGS AND CONTINUED NEED FOR THESE REFRIGERANTS AFTER THE PRODUCTION PHASE OUT DATE OF 31 DEC 1995. THIS NEED WILL CEASE ONCE FLEET HAS BEEN BACKFITTED WITH ENVIRONMENTALLY ACCEPTABLE REFRIGERANTS.

8. REQUEST ADDRESSEES DISSEMINATE THIS INFORMATION TO YOUR COGNIZANT FIELD ACTIVITIES OR OPERATING UNITS.

9. THE NAVSEA POC IS CAPT GREGG PATCH, SEA 05VB, DSN 332-5320, OR COMM (703) 602-5320. NAVSEA TPOC IS MR. ANTHONY D. NICKENS, SEA 05V24, DSN 332-5585, COMM (703) 602-5585. THE NAVSUP POC IS MS. CAROL ANK, SUP 41123, DSN 327-0914 OR COMM (703) 607-0914. THE DLA POC IS MR. JOHN FRICK, DLA OWS, DSN 284-7541, COMM (703) 274-7541.//
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ANNOTATIONS TO INACTIVATION PLAN MARK-UP, ENCL (2), W7840-DLG-400

Note Description

1. No wet welding permissible on PHM. All welding on PHM shall be in accordance with the SOOMM instructions, which are provided as ENCL (3).

2. Instructions provided in detail sections to follow.

3. Dehumidification is critical to long term usability of PHM.

4. Blanking will be installed as described in detail sections to follow.

5. Diver/swimmer assistance will be required to externally cofferdam or blank seachests and overboards before internal blanks installed. See detail section to follow.

6. Depressurize all hydraulic reservoirs and accumulators. Take oil samples and determine if hydraulic oil meets SOOMM Chapter 13 in-service requirements. Retain oil if within limits, else flush and fill with MIL-H-83282. Leave the four hydraulic system reservoirs topped off at maximum capacity line for current strut position.

7. Drain and gas free fuel pumps as part of fuel system preservation. Fresh water flush, disinfect, and drain sanitation system pumps as part of system preservation.

8. BLANKING OFF OPENINGS TO THE SHIP - GENERAL: It is assumed that the PHM's are stored "wet" in the water. Openings can then be divided into hull openings - which include propulsor inlets and discharges, seachests, and overboards - and deck and superstructure openings consisting of combustion air inlets, engine exhausts, and ventilation ducting. Bolted cover plates are the preferred arrangement for PHM hull openings (see REF (b)).

A similar approach should be taken with seachest blanking. Existing seachest grills should be removed, the interiors hand cleaned/scraped as best possible, and solid coverplates bolted to the grill studs. The edges of the plates should be sealed with underwater hardening putty or epoxy filler. On the interior of the PHM, seachest connections should be removed (drain systems first), the seachest pumped out and dried with compressed air, and the seachest connections blanked off with 1/2" thick blind flanges made from 5086, H32 Aluminum Alloy plate using existing bolts and new rubber gaskets.

Overboard discharges are all above the waterline. All fluid systems will be disconnected at the shell after draining, and the overboards blanked using blind flanges as described for seachest connections. Internal draft gauge connections should be treated

in like fashion.

a. AIR INLETS: REF (b) discussed procedures to be used for isolating the main propulsion turbine and SSPU turbine inlets and exhausts. The LM2500 is left in the current local configuration (IE. free air flow through the turbine via the screen protected bellmouth and exhaust collector eductor). The SSPU's are disconnected from air inlets and exhausts to allow free flow through the turbines.

External air openings are most effectively blanked off using a variation on the canvas and adhesive method described in NSTM Chapter 050. EPY recommends against welding sheet aluminum cover plates to any ship's opening. The general procedure could be to fit Number 10 canvas to each opening, secure with adhesive, and coat with MIL-C-15075, fairing the compound out over the edges of the canvas to the surface material. In preference to MIL-C-15075, EPY would recommend a using a sprayed-on, vinyl plastic coating as currently specified by MARAD and MSC for long term ship protection. An earlier EPY study showed that a commercial contractor could most effectively perform this function.

b. EXHAUSTS: Essentially the same procedure would be followed for all above-deck openings, whether air inlets or exhausts. The only variation to this would be SSPU #2's exhaust, where the procedure should be to assure the transom mounted exhaust door is closed, and the edges sealed with MIL-S-81733, Type I or II.

Note that the ship's gun provides ~~and~~ uncontrolled air passage to the interior. EPY assumes that the Navy will make arrangements for securing and sealing the gun. If this is not the case, EPY proposes sealing the gun from the cowling to the deck, and around the barrel, using the canvas and vinyl sealant system or the alternate mentioned. Air conditioning units located on the 01 level should be treated similarly. The entire assemblies should be encapsulated using either canvas and sealant or the spray vinyl sealant system.

9. Towing and transportation plans may be modified by REF (b) and REF (c).

10. Additional maintenance work for the LM2500 and SSPU will be required during periods of PHM inactivation (see REF (b)).

11. Items containing free mercury are prohibited on PHM. Any items found, such as mercury thermometers or barometers, must be removed permanently.

12. REF (b) provides details required to lay up propulsor, LM2500, and SSPU lube oil systems.

13. Fuel tanks must be gas freed and fresh water flushed until no fuel residue exists, as fuel tank ballasting is required for

PHM stability in struts-up towing.

14. See paragraph 8, this enclosure.

15. All tanks should be dry and gas free. Tanks should be closed and sealed for watertight integrity.

16. Provide the required chains, cables, bridles, fishplates, shackles and swivels for towing per REF (b).

17. PHM's do not have any refrigerant receivers, so this statement is not applicable.

18. These should be temporary systems installed complete with their own battery backup system, and powered from the temporary lighting supply.

19. PHM uses 400 Hertz power, 440 VAC or 120 VAC, for equipment and lighting, respectively. PHM electrical circuits are not operable using Navy standard shore power carts. Consequently, there is no necessity to disconnect equipment from lighting circuits. All lighting and/or power for local power tools must be supplied by temporary circuits.

20. All shipboard batteries should be removed. Temporary and/or permanent stand alone, battery powered flooding and fire detection systems should be installed. They should have their own backup, but be primarily supplied by the temporary lighting circuit. Note that a 25 watt, 100 ohm, resistor should be secured in each SSPU generator as best possible for use as a protective heater, and it should run off the temporary lighting circuit.

21. Individual ship's systems, not discussed separately elsewhere, should be secured and preserved in accordance with the instructions contained in the equipment technical manuals and the SOOMM. Examples include the reverse osmosis unit (supplied by Aquachem), fuel oil purifier (supplied by Centrico), and the sewage treatment system (supplied by Electrocom Gard).

22. All personal items, bedding, stores, etc. should be removed by ship's force. Consumable spares and POL (petroleum, oils, and lubricants) not intended for storage in system service tanks, shall be removed and returned to government stores. Remove fixed Halon bottles, have them emptied by vendor or a naval activity, then return to PHM and store loose below decks. The PHM uses unique Halon bottles that must be stored empty with the ship to preclude loss. Remove all portable fire extinguishers of all types and return to government stores.

23. The PHM is equipped with numerous specialized metric hand tools. These should be retained on-board in a secured cabinet or compartment.

24. GENERAL NOTES: ITEMS TO BE REMOVED AND STORED, MAIN DECK:

It is assumed that all amunition, chaff, pyrotechnics, and Harpoons are offloaded by others. Life rafts and the ship's RIB (with engine) are removed and transferred to the designated storage facility. Unused mooring lines should be removed from the reels and stored out of the sun below decks or in a bosun's locker. Life preservers, life rings, etc., will be stored below decks (necessary lifesaving apparatus to be supplied by the storage facility). Fire hoses, fog applicators, etc., will be stored below decks (AFFF foam, as a consumable store, should be turned back to government stores); firefighting equipment will be the responsibility of the maintaining activity. All flags and pennants should be removed and stored below decks (halyards can be left rigged to simplify re-reeving at a later date - halyards will weather with time). The P-250 pump should be drained of fuel and returned to government stores. Signal searchlights on the P&S 01 Deck should be removed and stowed below decks.

Loudspeakers, ship's whistle, and navigation lights can be retained in place, but must be cleaned, plastic wrapped, and sealed (if the ships are towed, the towing agency should be responsible for rigging temporary lights). The FWD and AFT anchors can be left in place on the deck for long term storage, except that the FWD anchor will have to be relocated temporarily for ship towing. Similarly, the anchor capstan winch can be left in place except during ship towing, in which case it must be temporarily removed.

25. RAS floodlights should be removed and stowed below decks; running lights should be retained and covered as described above (if the ships are towed, the towing agency should be responsible for rigging temporary lights. Antennas and antenna couplers not removed and stowed ashore should be removed and stored below decks, with connecting cabling taped and sealed.

26. STRUT AND FOIL LAY-UP: The struts and foils are to be stowed in the retracted and locked position, regardless of "wet" in-water or "dry" on-land PHM storage.

Struts and foils (including the yoke) should be flushed with fresh water on all seawater exposed or flooded surfaces. All watertight voids where floatcoat preservative is specified should be checked to assure that preservative is still in place and that no leaks have occurred. Floatcoat should be renewed as needed. It is recommended that the instructions contained in the SOOMM paragraphs 6-80 through 6-83, be used to control cleaning and corrosion removal. In addition, a weak phosphoric acid solution should be applied to deactivate any pitting corrosion cells. The agency performing lay-up work should verify and follow local regulations regarding the use and disposal of acid washing wastes prior to commencing operations.

After cleaning, struts and foils should be touch-up painted in accordance with the appropriate hull-specific S/A 104 painting requirements using primer only. No top coat is required, although

it may be applied at the Navy's option. A check with local authorities is required prior to using any PHM specified paint system regarding the use and disposal of wastes.

Remaining exposed, unpainted surfaces, such as portions of the yoke, retract actuator rods, forward flap and steering actuator and aft flap actuator external surfaces, should all be lightly coated with a preservative compound, such as MIL-G-24139 water resistant grease, after they are fresh water flushed, cleaned, and dried. MIL-G-24139 water resistant grease should be lightly packed in cavities between the wipers and flaps.

27. HULLBORNE PROPULSOR LAY-UP - GENERAL: The hullborne propulsion system comprises a diesel engine, gearbox, flexible drive shaft, overrunning clutch, bearing and seal assembly, and waterjet pump, one set each PORT and STBD. Requirements for diesel and gearbox lay-up are per the technical manual. Of the remaining items, only the waterjet pump has requirements that differ depending on wet or dry storage. Lay-up requirements for these items appear below.

1. Flexible Drive Shaft, P/N MD6966 (PHM 1) or P/N SKCP2320L (PHM 3): No special preparation required.

2. Overrunning Clutch, P/N CL-41843-1, -3. Inspect clutch for evidence of leakage; if found, replace seal(s). Clean clutch internals by flushing and refilling to proper level with the vendor's recommended MIL-L-23699 Lube Oil. Rotate clutch to assure that all surfaces are oil-coated. Wrap exterior of clutch with vapor-inhibitor type activated paper and secure with non-aging tape (duct-tape or similar). Apply heat-shrinkable plastic wrap around exterior and activate; alternately, use heavy gage plastic wrap and non-aging tape to secure clutch from ambient air.

3. Bearing and Seal Assembly, P/N 1163996-29, -19, or 1189250-9: The general approach to preparing the bearing and seal assy for lay-up shall be in accordance with the 3000 operating hour scheduled maintenance procedures described in the technical manual, regardless of actual operating hours. This consists of all actions required in Chapter 4, paragraphs 4-10 through 4-17, which mainly requires external visual and internal borescope inspections, and oil drain, flush, and fill. Discrepancies noted during borescope inspection will be evaluated, and either repaired or documented at the discretion of the decommissioning authority. In addition, the cooling water supply and discharge hoses should be disconnected and capped, and the cooler flushed with fresh water, then dried using low-pressure compressed air, and finally capped at the housing connections.

4. Hullborne Propulsor Assembly, Model AJW-800-1 and Model AJW-900-1: The general approach to preparing the hullborne propulsor for lay-up shall be in accordance with the 3000

operating hour scheduled maintenance procedures described in the technical manual, regardless of actual operating hours. This consists of all actions required in Chapter 4, paragraphs 4-10 through 4-17, for either wet or dry ship lay-up.

a. "Dry" lay-up, ship stored on a cradle out of the water, is essentially complete at this point with some minor additional actions after the ship is hauled out. The propulsor cutless bearing water auxiliary water supply hose should be disconnected and capped. Low pressure air should be blown through the auxiliary water connection to dry out internal cavities. Assure free flow of ambient air through both the propulsor intake and its discharge nozzle. The propulsor can then be left mounted in the ship.

b. "Wet" lay-up, ship in the water, presents several additional problems. Experience has shown that there is galvanic corrosion of the impeller housing and stator sacrificing to the impeller, of the stator to the auxiliary water feed tube, and of the stator sacrificing to the rubber cutless bearing. Carbon in the rubber bearing makes it noble to the aluminum stator, much the same problem that is noted with graphite fiber composites and aluminum; note that the new Thordon bearings, being carbon free, are immune to this problem. In addition, there may be a problem with crevice corrosion and pitting of the impeller and impeller shaft.

Remove the inlet grill and bolt on a gasketed plate in its place, remove the steering nozzles and buckets and seal off the exhaust nozzle. Then pump out the interior cavities, flush with fresh water, dry with warm air and place bags of dessicant in the pump cavities. The propulsor can then be left open to the ship ambient air without concern for corrosion. Store the inlet grill and steering nozzles in the ship.

If this is not practical, then the hullborne propulsor must have the internals and cutless bearing flushed out through the auxiliary water connection using fresh water. The auxiliary hose and the stator connection would be disconnected and capped. Remove the steering nozzle, hydraulics, and related assemblies and store inside the ship. Several aluminum anodes should be placed inside the impeller housing and noted by tagging the equipment. The vendor (Aerojet) further suggests rotating the impeller 1-1/2 turns every month or so, to distribute corrosion on the impeller and shaft. Even with all these precautions, in-water storage of the propulsor for an extended period may result in a marginally serviceable hullborne propulsor.

28. FOILBORNE PROPULSOR LAY-UP - GENERAL: The foilborne propulsor assembly comprises the waterjet proper and the bearing and seal assembly, and the foilborne gearbox. Lay-up of the remainder of the power train, the LM2500 and the high speed coupling shaft, are discussed later in this report.

Long term requirements are identical for both in-water "wet" and land "dry" PHM storage. The basic goal in both cases is to isolate the propulsor from seawater. This can be accomplished a number of ways, either by the use of cofferdams in accordance with current PHM repair practice, or by manufacturing cover plates for the ducts leading to the inlet "Y" duct and the exit duct at the transom. Conversely, the cover plates could be bolted at the ground plane and the transom exit, which would provide further protection.

The propulsor should be stored with the rubber inlet and exit bellows removed, allowing free flow of ambient air from within the ship through the pump. The seawater bleed line at the top of the propulsor should be disconnected and blanked off, and the bleed port at the propulsor allowed to drain dry, then blanked off to prevent ingress of contaminants. Remaining water in the propulsor should be swabbed out, the interior rinsed with fresh water and air dried using portable fans (COPPUS style blowers). The propulsor impeller and inducer should be rotated periodically during this period to assure cutless bearing drainage.

Remaining propulsor preservation can be accomplished by completing the shipboard maintenance procedures described in Section 3 and 4 of Chapter 4, of the technical manual. These primarily consist of inspections, coating renewals, packing grease fittings, and lube oil inspection.

Bearing and seal assembly lube oil system preservation is part of the foilborne gearbox lay-up. General foilborne gearbox preservation starts by performing the preventive maintenance procedures listed in Section IV of the technical manual. All the operations described should be completed regardless of actual operating hours.

There are two suggestions regarding oil system lay-up. The system should either be flushed and refilled with clean MIL-L-9000G or drained and preserved per Westech Corporation DWG 1292-904-001, paragraph 13, Assembly Data Sheet Preservation instructions. In the latter case, the gearbox would be drained, cleaned, and coated with MIL-C-16173, Type P-2, Grade 2, preservative compound. Boeing recommends using the MIL-L-9000G oil flush/fill procedure, as it will obviate future requirements to solvent or "hot" flush the gearbox or bearing and seal assembly. Using standard lube oil will also permit periodic prelube of the gearbox as part of lay-up maintenance. The Westech procedure can only be recommended if there is no intention of providing any maintenance support to the laid-up ships.

Remaining preservation work on the gearbox largely depends on the interior air quality of the ship. Ideally, the interior of the ship should be at 65° F with R.H. 40% or less. In this case, the covers can be removed and replaced with a lockable vent cap arrangement to allow free flow of air throughout the gearbox. If such ship air quality is not possible, the manufacturer

recommends hanging desiccant bags in accordance with MIL-D-3464, Type I (preferred media: adsorbent silica gel per MIL-S-14374) inside the gearbox, and periodically replacing them as part of lay-up maintenance.

The gearbox on PHM 1 is a different design than the boxes on PHM 2 through 6. EPY recommends the same procedures be followed on PHM 1 as on the other ships.

29. PROPULSION TURBINE AND SSPU PRESERVATION - GENERAL: Both General Electric, the manufacturer of the LM2500, and Garrett, the SSPU manufacturer, agree that the work required for engine preservation largely depends on the storage conditions.

The best procedure for storage of the engines on the ship is in a controlled atmosphere meeting the requirements imposed in the propulsor section. This presupposes that all air passages between the engine, internally and externally, are blanked off, including the exhaust collector/eductor/stack and the inlet plenum at the weather deck. The SSPU's would have air inlets and exhausts disconnected and blanked off at the ducts, still allowing ambient air free flow through the SSPU. If these conditions can be achieved, all engines can probably survive an extended lay-up without any periodic maintenance.

In an uncontrolled atmosphere, both turbine suppliers recommend periodic motoring or manual rotation of their equipment to distribute oil on the bearings. The instructions for this and the frequency required are included in the vendors' technical manuals. Following the procedures outlined in the manuals will very probably retain the engines in an operable condition.

Storing the engines completely "cold iron", with no periodic service during lay-up, and in an uncontrolled atmosphere, introduces a reasonable probability that they will not be operable at the next attempted start up.

30. LM2500 SPECIFIC PROCEDURES: Assume on-ship engine storage after completion of a fresh water engine wash while cold motoring. Both EPY and G.E. strongly recommend that the LM2500 be preserved in accordance with the steps described in Chapter 4 of the technical manual, with some minor modifications. Preservation largely consists of service to the lube oil and fuel systems, and control of air flow around and inside the engine.

The minimum acceptable long term storage scheme that offers a reasonable guarantee of future engine operability requires periodic bearing "wetting" with lube oil. This can be accomplished either by motoring the engine or by hand rotating the turbine gas generator and power sections. It is assumed that no engine motoring capability will be available, so the ship storage facility should plan on hand rotation of the turbine every 60 days or so.

Disconnect the high speed coupling shaft at the gearbox and slinging it to the overhead using a low friction strap (nylon or similar). Rotation of the turbine power section is then an easy one man operation.

G.E. made one specific recommendation in regards to LM2500's used on PHM's. Most Navy LM2500's burn DFM, but PHM's largely burn JP-5, which has less inherent lubricity. It is desirable to either run the PHM engines for a short time on DFM, or flood the fuel line with a light grade of mineral oil per technical manual requirements by motoring the engine at the time of lay-up.

31. SSPU SPECIFIC PROCEDURES: The SSPU should first have a substantial fresh water wash while cold motoring, then allowed to air dry. Then, in addition to the general comments, follow the instructions for temporary storage and periodic service contained in the technical manual as maintenance requirement cards MRC LU-1 and MRC PM-1. Fresh water clean exposed or salt encrusted surfaces; follow by thorough drying. If the SSPU's are not in a controlled atmosphere, plastic wrapping should be applied around the SSPU's and sealed with non-aging (duct) tape. Desiccant packets in accordance with MIL-D-3464, Type I, should be placed within the plastic wrap to preclude excessive moisture (preferred media: adsorbent silica gel per MIL-S-14374).

Disconnecting the engine start air line off the load compressor and blank it off. Partially disassemble the load compressor and clean it of any caked on salts using fresh water, then reassemble.

Experience has shown that the Westinghouse generator often ingests salty air or sea water (especially Generator #2 in AMR #3). The generators have been successfully dried and run after these incidents, but the long term effects of salt in the devices would be deleterious. The generators should be flushed out internally with distilled water or demineralized engine wash water, and gently air dried using forced circulation, such as "hair dryer" type of gun fan/heater set on low or no heat. The generators can then be successfully preserved inside the SSPU's general plastic barrier wrap.

32. BALLASTING REQUIREMENTS:

a. Removal of missiles, and aft weight items may increase the trim by the head. Towing will produce some additional equivalent downward loads near the bow, conditional to towing arrangement selected. The preferred PHM towing configuration, with FWD strut installed and a weighted towline with an adequate catenary, should avoid bridle contact with the forward strut and foil. Ballasting will be required to insure even or slight trim by the stern to minimize yaw oscillations during towing.

b. Ballasting will depend on the final ship configuration when towing. In the preferred configuration (FWD strut

installed), the ballast required for a 15 knot tow in a 50 knot cross wind is obtained by pressing up Fuel Tank #4 with fresh water. The other ballast option would press-up all fuel tanks with water (to avoid free-surface, and after gas-freeing them to deal with the environmental concerns for overboard discharge), but it is not necessary. No additional fixed ballast (eg. steel plates or solid ballast in the bilges) is required, and no stability analysis for fixed ballast was performed.

c. No other ballasting requirements are established for emergency towing procedures as currently specified in the SOOMM.

33. HULL SECURING FOR TOWING:

a. As the standard emergency towing procedure is for towing with the struts and foils down, the bow opening is normally faired by the forward strut. If the PHMs are towed with the struts raised, then the towing speed should be limited to 15 knots maximum.

b. The aft strut foilborne propulsion intake duct at the ground seal plane needs to be sealed to avoid water flow past the intake ducts and into the foilborne propulsor and to reduce drag.

1. By replacing the bolted-on strut seals with gasketed sealing plates, an effective cofferdam can be developed. Additional gasketed seal plates (with test connections) will be bolted to the flanges when the port and starboard "Y" duct inlet expansion bellows are disconnected, in order to provide dual water-tight protection.

2. The plates at the ground plane seal provide an optimum location for adding additional skegs to provide added transverse stability for improving yaw, roll, and sway while under tow with the struts raised. For the distance from Key West to Portsmouth, Virginia, if rough seas are encountered at an eight to fifteen knot towing speed, the skegs would definitely help. Without added skegs, the PHMs can still be successfully towed, as current fins exist, but may not have sufficient transverse area (without the aft struts in the water) to avoid yaw, roll, or sway conditions while under tow.

c. The foilborne propulsor outlet at the transom needs to be sealed to also keep water out of the foilborne propulsor. Protection can be provided by adding a bolted and gasketed plate to the inboard transom flange with the foilborne propulsor's aft bellows is removed. Work is best accomplished when the ship has been deballasted and the Harpoon missiles removed, in order to minimize the draft at the transom and thereby reduce or eliminate water in the work around the lower plate circumference.

d. Isolation of strut trunnion pins and hydraulic actuator rods from sea water is highly recommended.

1. Sea water exposure to flaw-growth-critical and hard-to-access trunnion pins and extended retract/extend

actuators' rods will be more significant during the long hullborne tow with the struts raised.

2. Coverage of these components with heavy marine water-resistant grease, such as MIL-G-24139, will provide much needed protection.

e. Other external hull openings for ship systems do not have to be sealed, as all other systems have sufficient hull isolation valving. This includes the hullborne propulsor inlets and outlets, although the steering buckets and arms should be disconnected and stored inside the ship. See hullborne propulsor preservation procedure for additional long term recommendations.

34. HULL AND STRUCTURE: Fresh water wash down all of ship's superstructure, pilothouse, and hull above waterline. Hand clean difficult items such as inlet demisters. Touch-up paint on aluminum surfaces using primer per the ship's paint schedule.

35. FUEL SYSTEM: Fresh water flush, drain, and dry all lines and fuel tanks. Lay up purifier in accordance with technical manual.

36. HVAC SYSTEM: Drain/purge chill water system and add fresh fluid. Handle refrigerant per atachment this procedure.

37. FRESH WATER SYSTEM: Backflush R.O. unit per technicval manual and follow layup procedures. Flush system, bleed off accumulator pressure, and drain system. Empty and open tanks. Flush, drain and hand wash components comprising cloronation system.

38. SEAWATER SYSTEM: Fresh water flush, drain and dry all lines. Fill pumps to proper oil level.

39. WASTE WATER SYSTEM: Fresh water flush, drain and dry all lines. Open waste water tanks, hand clean and wipe dry, and reassemble. Must be accomplished prior to start of work on bilge drainage system.

40. COMPRESSED AIR SYSTEM: Remove pressure from all lines in system. Disconnect lines at hydraulic and ACS system interfaces. Use clean, dry, oil-free air to purge lines. Change all filter/dryer elements. Cap lines.

41. HULLBORNE ENGINES AND CONTROLS: Flush, drain, and dry all fluid system lines associated with engine. Install new filters in lube oil and fuel lines. Flush and fill engine cooling system with preservative. Fill lubrication system to normal capacity with preservative oil. Add preservative (MIL-P-21260, Type 1, Grade 10-30) to cylinders, fuel lines, etc. Disconnect exhaust and air linet piping at engine to allow free air flow.

42. AUTOMATIC CONTROL SYSTEM (ACS): Remove sonic and radar height sensors and store in ship. Sealcable ends and stow inside ship. Open pressure cans. Service electronic equipment prior to

stowing onboard.

43. HF, UHF, VHF RADIOS AND ANTENNAS: Remove batteries. Service electronic equipment as required prior to stowing onboard. Remove antennas and antenna couplers from weather decks, stow below deck, and seal cabling ends left exposed.

44. TTY AND SECURE VOICE SYSTEMS: Remove batteries. Service electronic equipment prior to storing onboard.

45. ICK AND ANNOUNCING SYSTEMS: Remove batteries from battery cassette. Service electronic equipment prior to storing onboard. Remove external stations and store inside.

46. SOUND POWER SYSTEM: Service sound power head/chest sets and stow onboard.

47. GYROCOMPASS: Remove battery from emergency power junction box. Service electronic equipment prior to stowing onboard.

48. SPEED LOG: Clean and seal external sensor face. Service electronic equipment prior to stowing onboard.

49. DEPTH SOUNDER: Clean and seal external sensor face. Service electronic equipment prior to stowing onboard.

50. WIND SPEED AND DIRECTION: Remove the wind bird from the mast and stow onboard. Seal mast end of cables. Service electronic equipment prior to stowing onboard.

51. NAVIGATION RADAR: Remove antenna for stowage onboard. Seal mast end of cables and blank off waveguides. Service electronic equipment prior to stowing onboard.

52. SATNAV, LORAN, GPS: Service electronic equipment prior to stowing onboard.

53. RADAR DISTRIBUTION AND DISPLAY: Service electronic equipment prior to stowing onboard.

54. MK-92 FIRE CONTROL SYSTEM: Remove antenna for stowage on deck. Seal waveguides above deck and open wave guides internal to ship. Stow cable ends in ship and seal cable entries. Service electronic equipment prior to stowing onboard.

55. IFF: Service electronic equipment prior to stowing onboard.

56. ESM: Remove antenna for stowage onboard. Service electronic equipment prior to stowing onboard.

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CAUTION

Do not paint or otherwise cover the sacrificial anodes located on the hull, in the forward strut well, in the foilborne propulsor assembly, etc. Protection of these surfaces is only available when the anodes are in intimate contact with the seawater and are free to corrode.

3. Mask anode to prevent paint application, but not the weld radii of the anode. Paint to match the surrounding structure.

6-23. Replace the foilborne propulsor inlet housing anodes in accordance with procedures specified in NAVSEA S9247-AA-MMO-010. Mask anode to prevent paint application, but not the weld radii of the anode. Paint to match the surrounding structure.

6-24. WELDING OF ALUMINUM STRUCTURES.

6-25. MATERIALS.

1. Unless otherwise specified, material which has been removed from ship structure shall be replaced with material of identical type, temper and thickness. Emergency temporary repairs on primary hull structure and foundations may be made using any 5000 series aluminum alloy and, in extreme cases, 6000 series aluminum alloy. Such temporary repairs should be replaced at the earliest possible opportunity.

2. Repair of 5456 and 5086 primary hull structures and foundations shall be made using ER5556 filler metal per AWS A5.10. Filler metal additions are required for all welding of 5000 series aluminum alloys. ER5556 filler metal shall also be used for welding 5000/6000 series aluminum alloy combinations, but shall not be used for welding 6000 series aluminum alloys since, in a salt water environment, a galvanic cell would be set up in which a small anode (weld) would be sacrificing itself to a large cathode (base metal).

3. Repair of existing structures of 6061-T6 aluminum alloys shall be made using ER4043 filler metal per AWS A5.10. Filler metal additions are required for all welding of 6000 series aluminum alloys.

4. Nonconsumable tungsten arc welding electrodes shall be procured to the requirements of AWS A5.12.

a. EWZr (zirconiated) electrodes are recommended for welding with alternating current (AC).

b. EWTh-2 (2% thoriated) electrodes are recommended for welding with direct current, straight polarity (DCSP).

6-26. WELDING PROCESSES.

6-27. Repair welding may be accomplished by gas metal arc welding (GMAW) and/or gas tungsten arc welding (GTAW).

1. To the maximum extent practicable, repair welding should be accomplished using the GMAW process with a "sporadic crackling" spray arc mode of metal transfer. This mode of metal transfer is achieved by first setting the equipment for a smooth "humming" spray arc transfer and then slightly reducing the voltage. Argon gas is suitable for most applications, but a 75% helium-25% argon gas mixture may also be used for thicker sections with greater heat sinks.

2. Gas tungsten arc welding (GTAW) should generally be limited to localized repairs or applications where access and manipulation limitations restrict the use of GMAW. GTAW is required for making the root pass and at least the first fill layer of melt-through welds.

a. For general applications, alternating current (AC) GTAW using argon gas is suitable. Use of helium-argon gas mixtures to achieve a hotter arc is feasible, but caution must be exercised because tungsten spitting is promoted. Use of helium-argon gas mixtures generally requires the electrode diameter be increased one size over that recommended for AC welding with argon gas and more frequent cleaning of the electrode.

b. For making the root pass of melt-thru welds, direct current, straight polarity (DCSP) GTAW using helium gas is recommended, although use of AC-GTAW is not precluded.

6-28. Welding procedures employed in repair welding of ships structure shall be qualified in accordance with MIL-STD-248.

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6-29. RECOMMENDED JOINT DESIGNS AND WELD PASS SEQUENCES.

1. To the maximum extent practicable, joints should be designed to be doublewelded.

2. Use of melt-through welds should be limited to applications where the second side of a joint is inaccessible for welding. Where access permits, use of a non-fusible backing is recommended for singlewelded complete joint penetration welds.

3. Much of the PHM aluminum structure is subject to fatigue loading and use of joints with backing strips or integral backing should be avoided.

4. Vee-grooves are preferred for butt joints and melt-through welds. A 70° included angle is recommended for doublewelded joints.

5. The minimum included angle for bevel-groove welds shall be 60°. With such an included angle, the weld width will increase rapidly as a function of material thickness and groove depth. Because of this, single bevel-groove welds should be limited to a maximum material thickness of 5/16 inch and double bevel groove welds to a maximum material thickness of 5/8 inch. For material thicknesses greater than 5/8 inch where only one joint member is to be prepared, J-groove welds should be specified.

6. The maximum thickness for square groove welds shall not exceed 1/8 inch for doublewelded joints; .065 inch for melt-through welds. As an option, square groove melt-through welds may be chamferred to form single Vee-groove welds to facilitate complete joint penetration.

7. A root face is required for all groove welds in aluminum. Use of root edges (sharp point or zero root face) is prohibited.

8. For doublewelded joints, consideration should be given to using unbalanced weld preps since there will be greater reaction to shrinkage when welding from the second side after backgouging.

9. When doublewelding plate in a flat fixed position, the first pass shall be made from the underside of the plate (overhead welding position). The depth of groove from the underside should be controlled so as to permit complete fill in one weld pass.

10. Recommended joint designs and weld pass sequences are shown in figure 5-20A.

11. Standard weld joint designs illustrated in figure 5-20A are applicable to both GMAW and GTAW.

a. For GTAW, the root face dimension should approach the low end of the tolerance range specified to minimize the amount of backgouging required.

b. For GMAW, the root face dimension should approach the upper end of the tolerance range specified to minimize the risk of burn through when depositing the root pass. When the root face dimension is less than 1/8 inch and/or the root opening (joint gap) is greater than 1/16 inch, consideration may be given to the use of non-fusible (stainless steel backing or fiberglass backing tape) or fusible backing to preclude burnthrough. Fusible backing, if used, shall be of the same alloy as the joint base metal and shall be removed prior to backgouging.

12. For melt-through welds, it is recommended that the root edges of the joint be lightly chamferred immediately prior to welding so as to remove any oxide.

6-30. WELDING EQUIPMENT.

6-31. WELDING STRAY CURRENT AVOIDANCE. Refer to "WELD REPAIR", chapter 6, for criteria governing welding stray current avoidance.

6-32. HOSES FOR SHIELDING GAS LINES.

Inadequate hoses for shielding gas lines are frequently a source for moisture pickup, contributing to porosity in aluminum welding. Connecting hoses, which are used to supply shielding gases or mixtures from the gas source to the welding equipment should be made of a flexible, fibre reinforced polymer tubing capable of operating at working pressures up to 500 psi and temperatures within a range of -20°F to 180°F. The tubing should not absorb more than 0.10 percent moisture by weight when tested in distilled water at 70°F to 85°F for 24 hours in accordance with ASTM D570.

6-33. CLEANING.

1. Proper cleaning is essential to the achievement of quality welds in aluminum and its alloys. Aluminum forms a natural oxide which, if not removed, will inhibit joint penetration and weld fusion since this oxide is significantly higher melting (3600°F) than is the aluminum itself (/1200°F). In addition, aluminum oxide, particularly in the case of 5000 series alloys, is hygroscopic, thereby contributing to porosity in welding.

2. Solvent cleaning should be general to ensure removal of grease, oil, dirt and other contaminants.

3. Deoxidation may be accomplished by chemical or mechanical means.

a. Chemical cleaning and deoxidizing may be accomplished manually or by immersion. Prior to deoxidizing, heavily soiled parts may require alkaline cleaning using materials per MIL-C-25769. Some suitable solutions for chemical cleaning and deoxidizing are given in table 5-11A. Cleaned parts shall be thoroughly rinsed and dried. Parts shall be water-break-free or recleaned.

b. Mechanical deoxidation may be accomplished by scraping, filing (with a vixen file), shaving, routing, "Scotch-Brite" abrading and/or sanding, followed by stainless steel wire brushing. Wire brushing alone is not sufficient to ensure the removal of surface oxides.

4. Generally, cleaning and deoxidizing may be limited to weld joint edges and adjacent surfaces within 1/2 inch of the weld joint. However, aluminum structure such as hull plating, which has had long term exposure to seawater, may require more extensive cleaning. See "REPLACEMENT OF DAMAGED HULL PLATING" for replacement of damaged hull plating recommendations.

5. To the extent practicable, parts should be welded as soon as possible after cleaning and deoxidizing. If more than 8 hours has elapsed, recleaning and deoxidizing is required.

6-34. PREHEAT AND INTERPASS TEMPERATURE.

1. Parts shall be at 60°F or above prior to and during welding.

2. Preheat is not normally required when the ambient temperature is at 60°F or above. However, preheat may be employed to drive off moisture that may have accumulated on parts due to condensation.

3. The maximum preheat and interpass temperature shall not exceed 150°F for 5000 series alloys and 300°F for 6000 series alloys. To minimize distortion, it is good practice to delay further welding until parts can be safely and comfortably touched by hand.

6-35. WELDING PERFORMANCE QUALIFICATION.

All welding on ship structure, including tack welding, shall be performed by welders who have been qualified in accordance with MIL-STD-248.

6-36. TACK WELDING.

1. All tack welds shall be made with filler metal additions.

2. Tack welds used to secure fitup and alignment shall either be removed completely when they have served their purpose, or their starting and stopping ends shall be suitably prepared, as necessary, by grinding or other suitable means so that they may be satisfactorily incorporated into the final weld.

3. Whenever practicable, tack welds in doublewelded joints should be deposited on the side opposite from which the root pass is to be made. These tack welds shall be removed when backgouging.

4. Tack welds, which are to become part of the finished weld, shall be visually examined by the welder and removed if defective.

6-37. WELDING TECHNIQUE.

1. In order to minimize porosity and promote uniform joint penetration when initiating a weld, the welding arc should be struck ahead of the weld start location, stabilized and brought back to the start of the weld before progression is commenced.

2. Stringer bead and backstep welding techniques should be used to minimize distortion.

3. Weld passes should be deposited in accordance with the general trend depicted in the weld pass sequence sketch for the applicable weld joint. The number of weld passes per layer may be increased or decreased from that shown in figure 5-20A based on conditions present at the time of welding.

4. Bevel-groove and J-groove welds shall employ a weld sequence where the first pass in any layer is deposited along the square edge detail and the pass progression continued toward the beveled detail or from both sides toward the center of the layer so that accessibility to the root of the cavity is always afforded.

5. Weld metal deposition shall be alternated from side to side when making multilayer doublewelded joints in order to minimize distortion. Following deposition of the root pass, sides should generally be alternated after each two additional layers are deposited.

6. Stagger starts and stops on multipass welds whenever practicable.

7. To avoid crater cracking when terminating a weld, the direction of welding should be reversed when the end of the weld has been reached and welding terminated over previously deposited weld metal.

8. Welds should not be started or terminated on inside corners or other critical areas such as changes in weld direction or sudden changes of thickness.

9. Slugging of welds is prohibited.

6-38. BACKGOUGING.

1. Backgouging of full penetration doublewelded joints is required for all manual and semiautomatic welding applications.

2. Full penetration doublewelded joints shall be backgouged to a depth sufficient to ensure removal of the original root face of the joint (i.e., backgouge to a minimum depth equal to the maximum root face design dimension or the actual measured maximum root face dimension, whichever is less), except that the minimum depth of backgouge for square groove-welded joints shall be 1/2t, where t is the thickness of the thinnest member of the weld joint.

3. Backgouging shall be accomplished by chipping, routing, machining, rotary filing and/or grinding, followed by stainless steel wire brushing.

4. Prior to welding from the second side, the backgouged area shall be at least visually examined to verify that backgouging has been performed to a depth sufficient to remove the original root face and reach sound weld metal, and to ensure that the backgouged cavity has been contoured to remove reentrant angles and allow sound deposition of the root pass from the second side.

a. For square groove welds, the adequacy of backgouging shall be confirmed using the GTAW high frequency etching technique.

b. Use of penetrant inspection to verify the adequacy of backgouging is not recommended. Joints are frequently drawn closed so tight by weld shrinkage that the penetrant cannot enter. Residual penetrant is also detrimental to the quality of subsequent welding. However, if used, backgouged cavities shall be suitably etched to ensure removal of any smeared metal which could mask relevant indications. Manual deoxidizers listed in table 5-11A are suitable for this purpose.

6-39. GTAW HIGH FREQUENCY ETCHING TECHNIQUE.

1. High frequency etching for the purpose of verifying the adequacy of backgouging or crack removal shall be performed in accordance with the following parameters:

Process:	Gas Tungsten Arc Welding (GTAW)
Current/Polarity:	Alternating Current (AC) with continuous high frequency output
Shielding Gas:	Argon at 20-40 cfh
Amperage:	100 amps maximum
Travel Speed:	Minimum necessary to etch without melting the surface

2. Power supplies should be set for 100 amps maximum output and the arc should be applied to the part using single pass techniques with minimal weaving. Repeated passes shall not be made over any area without prior additional material removal to expose fresh clean metal. Implementation of this technique will result in an etching of the aluminum surface which will expose the presence of porosity, lack of fusion, incomplete penetration and cracks to visual examination. Etched areas shall at least be stainless steel wire brushed prior to welding over them.

3. Some very minor melting may occur at pores, sharp edges and burrs. However, excessive surface melting and/or puddling shall be avoided. Any significant melting will bridge over and mask defects, and may cause surface cracking. In the event that excessive melting or surface cracking has occurred, the affected material shall be mechanically removed and the area rechecked without melting.

4. Use of the high frequency etching technique is limited to checking welds and weld grooves, to include gouge cavities for repair welds. The technique shall not be used as a base metal check, except in the case of arc strikes.

5. Only welders who are qualified for the GTAW-AC process are permitted to use this technique.

6-40. RADIUSING OF FILLET REINFORCED GROOVE WELDS. Certain fatigue critical structures (such as internal splitter vanes on propulsion ducts, for example) require that fillet reinforced groove welds be radiused after welding to improve fatigue life. Such requirements are identified on the applicable engineering drawings by showing a concave grind symbol on the fillet weld symbol(s) and specifying a minimum radius requirement (see figure 5-20B).

1. The specified fillet reinforcement weld sizes establish minimum fillet weld leg sizes; however, only sufficient weld throat is required to meet the minimum radius requirements specified. A continuous radius through the fillet reinforcement is not required. Larger fillet welds may employ two radii (one at each toe) provided the throat is smoothly blended flat or slightly concave. Radii shall blend smoothly into the base metal at the toes of the fillet reinforcement. Care must be exercised when blending the toe of the fillet reinforcement so as not to thin any member by more than .030 inch total.

2. The area in the immediate vicinity of the tangent point of the radius (where it intersects the base metal) is an extremely fatigue critical area (see figure 5-20B). Within this region, undercut, nicks, gouges and dings are unacceptable. Relevant linear and non-linear surface indications are not acceptable. Flaws and indications having a depth equal to or less than .030 inch may be blended out and generously faired into adjacent material. Flaws and indications having a depth greater than .030 inch shall be repaired by welding. Repair welds shall be dressed to drawing requirements.

6-41. PEENING. Peening of welds, other than final shot peening when specified by engineering drawing for fatigue critical structures, is prohibited. When required, shot peening or rotopeening may be performed as described in chapter 6.

6-42. REPLACEMENT OF DAMAGED HULL PLATING.

6-43. EXTERIOR HULL SURFACE PREPARATION.

1. Remove paint and all foreign material at least 12 inches beyond planned cutout area for the new insert.

2. Thoroughly flush and scrub an area extending at least 2 feet beyond the cutout area using fresh water and brushes.

3. Thoroughly flush and scrub all bare metal within 12 inches of the cutout area with fresh water, "Scotch-Brite" pads and an abrasive cleanser such as Ajax.

6-44. INTERIOR HULL SURFACE PREPARATION.

1. If interior hull surface has been coated, strip coating and all foreign material at least 12 inches beyond the planned cutout area for the new insert.

2. Solvent clean all bare base metal within 12 inches of the planned cutout using freon, acetone, MEK or other suitable nonchlorinated solvent.

3. Mask off or dam around cleaned area as necessary to prevent any contaminant from leaking into the cutout area.

6-45. REMOVING DAMAGED HULL PLATING.

1. All cutouts shall have a minimum 1 inch radius at the corners, except where a cutout is terminated at an existing weld. When practicable, a 3 inch radius at the corners is recommended.

2. If damaged hull plating includes or is near an existing weld, other than the weld at the chine, the cutout for the replacement insert should extend at least 2 inches beyond the existing weld (see figure 5-20C, detail A).

3. For cutouts terminating at the weld at the chine or other existing weld, (see figure 5-20C, detail B). Note that the sawcut through the existing weld is extended at least 2 inches beyond both ends of the cutout.

4. If the damaged hull plating is near other structures such as the keel, trunnion fitting or gunwhale, the cutout shall be terminated at the existing weld between the hull plating and the adjacent structure as shown in figure 5-20C, detail B.

5. If the damaged hull plating crosses existing bulkheads, frames and stringers, the welds attaching these members to the hull plating shall be chipped or gouged to free these members prior to making the cutout in the hull plating. The attachment welds shall be chipped or gouged at least 2 inches beyond both ends of the cutout (see figure 5-20C, detail C). These attachment welds shall be restored after completion of the welds on the replacement hull plating, to include inspection and acceptance.

6-46. WELD JOINT PREPARATION.

1. File, route or grind cutout to remove any sawcut irregularities.

2. Cutout replacement hull plating insert from same base metal as hull plating. Insert is to fit within 1/8 inch of hull cutout.

3. File, route or grind a 35° to 45° chamfer on the edge of the hull cutout to a depth of 0.12 to 0.16 inch for 0.25 inch or thicker plate and 0.09 to 0.12 inch for plate less than 0.25 inch thick.

4. File, route or grind a 35° to 45° chamfer on the edge of the replacement insert to a depth of 0.12 to 0.16 inch for 0.25 inch or thicker plate and 0.09 to 0.12 inch for plate less than 0.25 inch thick.

NOTE

On all plating below the chine line where welding would be performed in the overhead position from one side of the joint, prepare the external hull surfaces with the chamfered edges (see figure 5-20C, detail C).

5. Deburr the edges of both the cutout and insert.

6. With a 100 grit abrasive sanding disc, remove 0.010 to 0.015 inch material from the external hull plating surface for at least 2 inches beyond the edge of the cutout.

7. With a 100 grit abrasive sanding disc, remove surface oxide from the internal hull plating surface to expose fresh, bare metal for a distance of at least 2 inches beyond the cutout. Generally, removal of 0.005 inch of material should suffice. Do not thin material by more than 10 percent of nominal plate thickness.

8. With a 100 grit abrasive sanding disc, remove surface oxide from the replacement insert face and root surfaces to expose fresh, bare metal for a distance of at least 1/2 inch beyond the joint preparation. Generally, removal of 0.005 inch of material should suffice. Do not thin material by more than 10 percent of nominal plate thickness.

9. Stainless steel wire brush details without scoring of the base metal.

10. With a solvent dampened clean cloth or wiper, clean the weld joint surfaces and the adjacent area on both the external and internal hull and insert surfaces.

6-47. INSERT INSTALLATION.

1. Fit insert into cutout.

2. From side opposite single vee groove, tack weld using the gas tungsten arc (GTAW) process with alternating current. Use ER5556 filler wire per AWS A5.10. Ensure weld wire is not oxidized.

6-48. HULL WELDING.

1. Gas metal-arc weld (GMAW) using the following recommended parameters.

a. Filler wire size:	3/64 inch diameter.
b. Wire feed speed:	475 inches per minute nominal.
c. Amperage:	200-240 amps.
d. Voltage:	20-25 volts.
e. Weld speed:	16-32 inches per minute.

f. Shielding Gas: Argon at 60 cubic feet per hour when welding overhead and 45 to 50 cubic feet per hour in all other positions.

g. Gas cup size: Number 10

2. Do not preheat. Fiberglass backing tape or other suitable nonfusible backing may be applied to root side of weld joint to prevent burnthrough. Recommend use of backing when root face of joint is less than 1/8 inch.

3. Weld fill the initial prepared single vee groove joint in a single pass.

4. Backgouge as previously described.

5. Verify the adequacy of backgouging using the GTAW high frequency etching technique as previously described.

6. Contour backgouge cavity to assure complete accessibility to the root of the cavity for backwelding. A 1/8 inch radius at the root of the cavity and a 60° included angle is suitable.

7. Deburr and stainless steel wire brush.

8. Solvent clean weld groove and surrounding area using clean cloth or wipers dampened with solvent. Use clean face of dampened wiper for each cleaning pass.

9. Backweld using the GMAW process and parameters previously specified. Use of fiberglass backing tape or other suitable nonfusible backing is permissible to prevent burnthrough when backwelding.

6-49. REPEATED REPAIRS.

1. When gas metal arc welding (GMAW), up to six repeated repairs are possible with no loss in tensile properties or further degradation of the heat affected zone beyond that which occurred when making the initial weld.

2. When gas tungsten arc welding (GTAW), repair attempts in any given area should be limited to a maximum of three. The GTAW process requires much higher heat inputs than does GMAW and, particularly in the case of welding with alternating current, heat transfer to the point of welding is not effective, resulting in the heat affected zone being subjected to higher heat for longer periods of time. This causes the loss of magnesium content in 5000 series alloys and sensitization of 6000 series alloys, making the heat affected zone more susceptible to cracking and stress corrosion.

3. If additional repairs are necessary, material should be prepared such that at least the high temperature heat affected zone is removed prior to rewelding. Usually 1/4 inch from the original fusion line is sufficient. Repairs should always be prepared to ensure the addition of fresh filler metal when welding. The use of wash passes is prohibited.

6-50. POSTWELD HEAT TREATMENT.

Postweld heat treatment is not normally feasible on ship structures nor is it normally required for 5000 series aluminum alloy weldments. However, when specified by engineering drawing, certain fatigue critical structures, which are susceptible to significantly reduced life due to residual stresses from welding, may be required to be removed from the ship and effectively annealed. When required, stress relieving shall be accomplished in accordance with the following;

1. Stress relieving shall be accomplished in an air atmosphere furnace having a work zone at least as large as the part(s) being heat treated. The work zone shall have been surveyed and certified to a temperature uniformity of ± 15°F within a temperature range of 450°F-650°F.

2. A minimum of two thermocouples (T/Cs) shall be attached to each part in a furnace load for the purpose of monitoring part temperature gradients through the heat treat cycle. The T/Cs shall be attached to the minimum and maximum heat sinks, including heat treat fixtures, on the surface of the part(s). If the part(s) have internal members, one additional T/C shall be attached to thickest internal member of each part. These monitoring T/Cs shall not be connected to the furnace controls, but shall be wired to independent instrumentation capable of monitoring and recording the temperature of each T/C at least once every three minutes.

3. The stress relief heat treat cycle for 5000 series aluminum alloy weldments shall be in accordance with the following:

a. Stabilize the furnace at 450°F ± 15°F. Load the part(s) into the heated furnace. Hold at temperature until the hottest point in the part(s) has stabilized at 450°F ± 15°F and the maximum temperature gradient in the part(s) is 75°F.

b. Heat the part(s) to the annealing temperature (650°F ± 15°F) at a rate not to exceed 100°F per hour. The maximum temperature gradient in the part(s) shall not exceed 75°F during heating.

c. Stabilize the furnace at 650°F ± 15°F and hold.

d. Initiate furnace cooling after holding at 650°F for one hour or when the coldest monitoring T/C reaches 635°F, whichever occurs first.

e. Cool to 450°F at a rate not to exceed 100°F per hour. The maximum temperature gradient in the part(s) shall not exceed 75°F during cooling.

f. Stabilize the furnace at 450°F ± 15°F and hold.

g. When the coldest monitoring T/C is at 450°F ± 15°F and the maximum temperature gradient in the part(s) is no more than 30°F, remove the part(s) from the furnace and forced air cool to ambient temperature using fans.

Table 5-11A. Chemical Cleaning and Deoxidizing Solutions for Aluminum Alloys

METHOD	SOLUTION	INITIAL MAKEUP PER 100 GALLONS	
IMMERSION	1	37 lbs. 10 gal. 2.5 fl. oz.	ACP No. 2 [1] Nitric Acid, Technical (40°-42° Be) per O-N-350 Hydrofluoric Acid, Technical (60-70%) per MIL-A-24641
	2	37 lbs. 12 gal.	Turco Smut Go No. 4 [2] Nitric Acid, Technical (40°-42° Be) per O-N-350
	3	100 lbs.	Diversey 514 [3]
MANUAL	4	15 gal. 13 fl. oz.	Nitric Acid, Technical (40°-42° Be) per O-N-350 Hydrofluoric Acid, Technical (60-70%) per MIL-A-24641
	5	100 gal. 10 gal.	Turco No. 4461 [2] Nitric Acid, Technical (40°-42° Be) per O-N-350
	6	31 lbs. 18 gal.	Buzz Deoxidizer No. 70 [4] (including Buzz Deoxidizer Replenisher No. 170) Nitric Acid, Technical (40°-42° Be) per O-N-350

[1] Amchem Products Inc, Ambler, PA 19002-3436, CAGE (FSCM) 84063

[2] Turco Products Inc, Marion, OH 43302, CAGE (FSCM) 95510

[3] Diversey Corp., Des Plaines, IL 60018-1805, CAGE (FSCM) 33759

[4] Malter Intl Corp, Bulk Chemical Div, Gretna, LA 70053-4721, CAGE (FSCM) 27978

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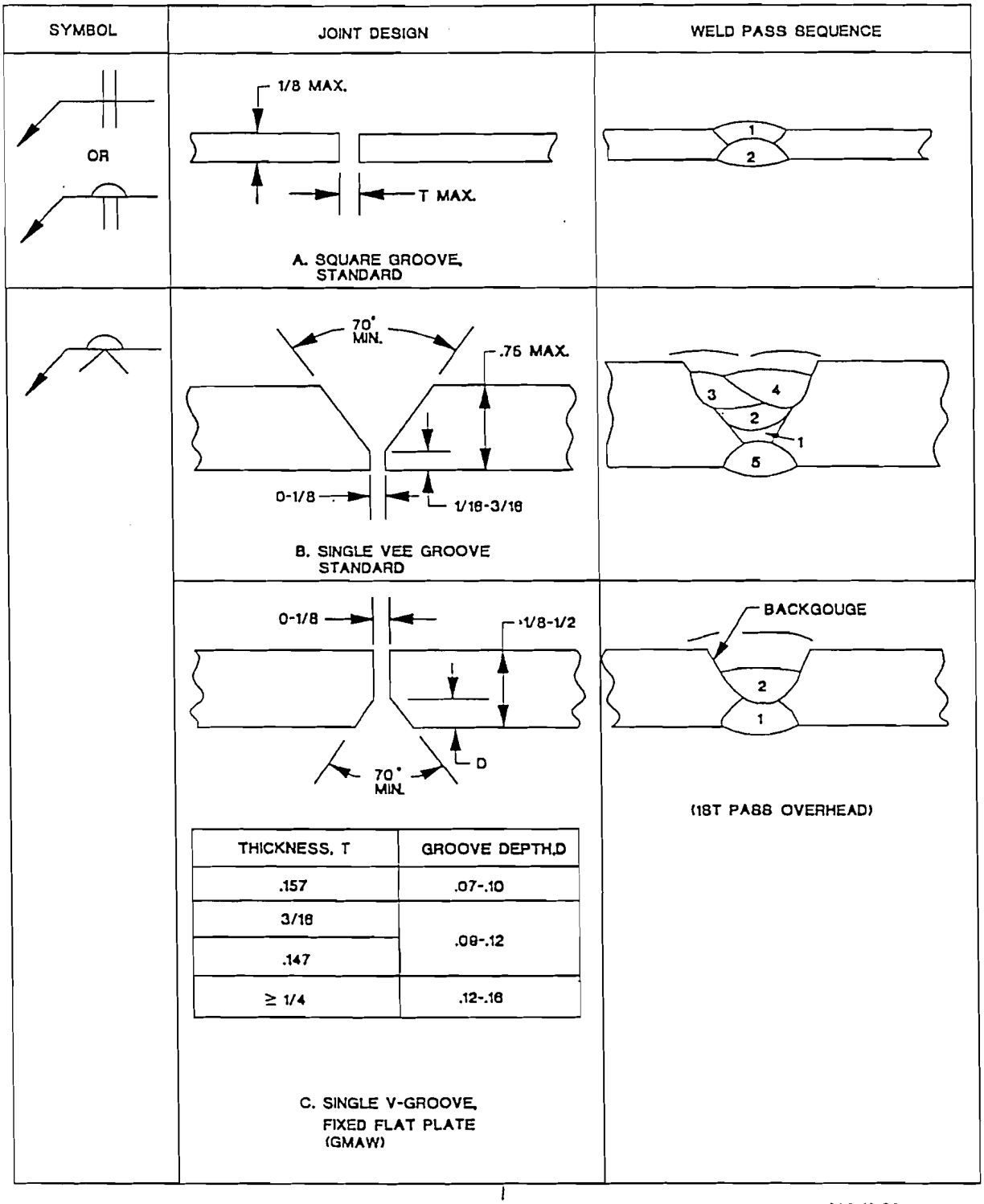
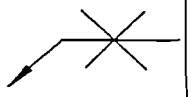
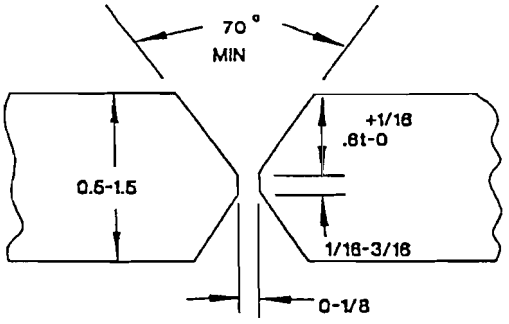
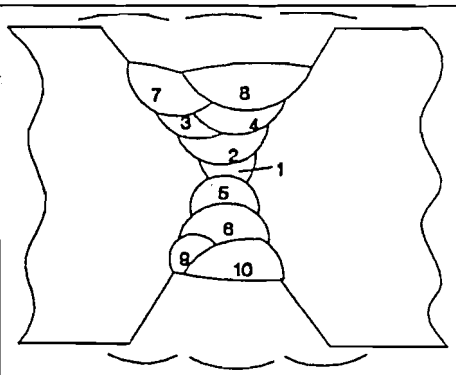
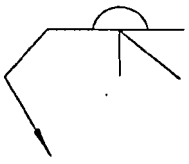
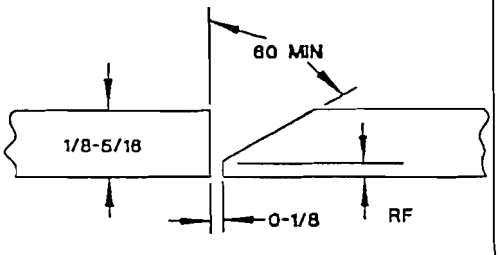
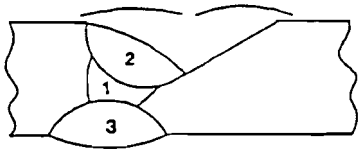
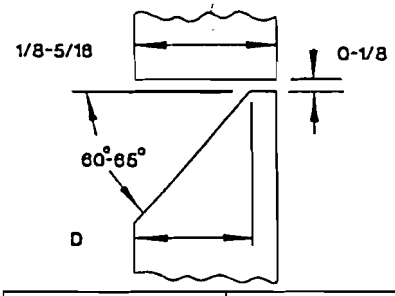
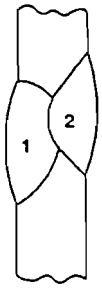


THICKNESS, T	GROOVE DEPTH,D
.157	.07-.10
3/16	.09-.12
.147	
≥ 1/4	.12-.16

Figure 5-20A. Recommended Joint Designs and Weld Pas
Sequences (Sheet 1 of 4)

DRAFT

SYMBOL	JOINT DESIGN	WELD PASS
	 D. DOUBLE V-GROOVE STANDARD (WITH UNBALANCED JOINT PREP)	
		
	THICKNESS, t / ROOT FACE, RF .156-.197 / 1/16-3/32 1/4 / 1/16-1/8 5/16 / 1/16-5/32 E. SINGLE BEVEL GROOVE, STANDARD	
		
	THICKNESS,t / GROOVE DEPTH, D .157 / .07-.10 3/16 / .09-.12 .197 / .09-.12 ≥ 1/4 / .12-.16 F. SINGLE BEVEL GROOVE, HORIZONTAL (GMAW)	

A0582A-05

Figure 5-20A. Recommended Joint Designs and Weld Pass Sequences (Sheet 2 of 4)

DRAFT

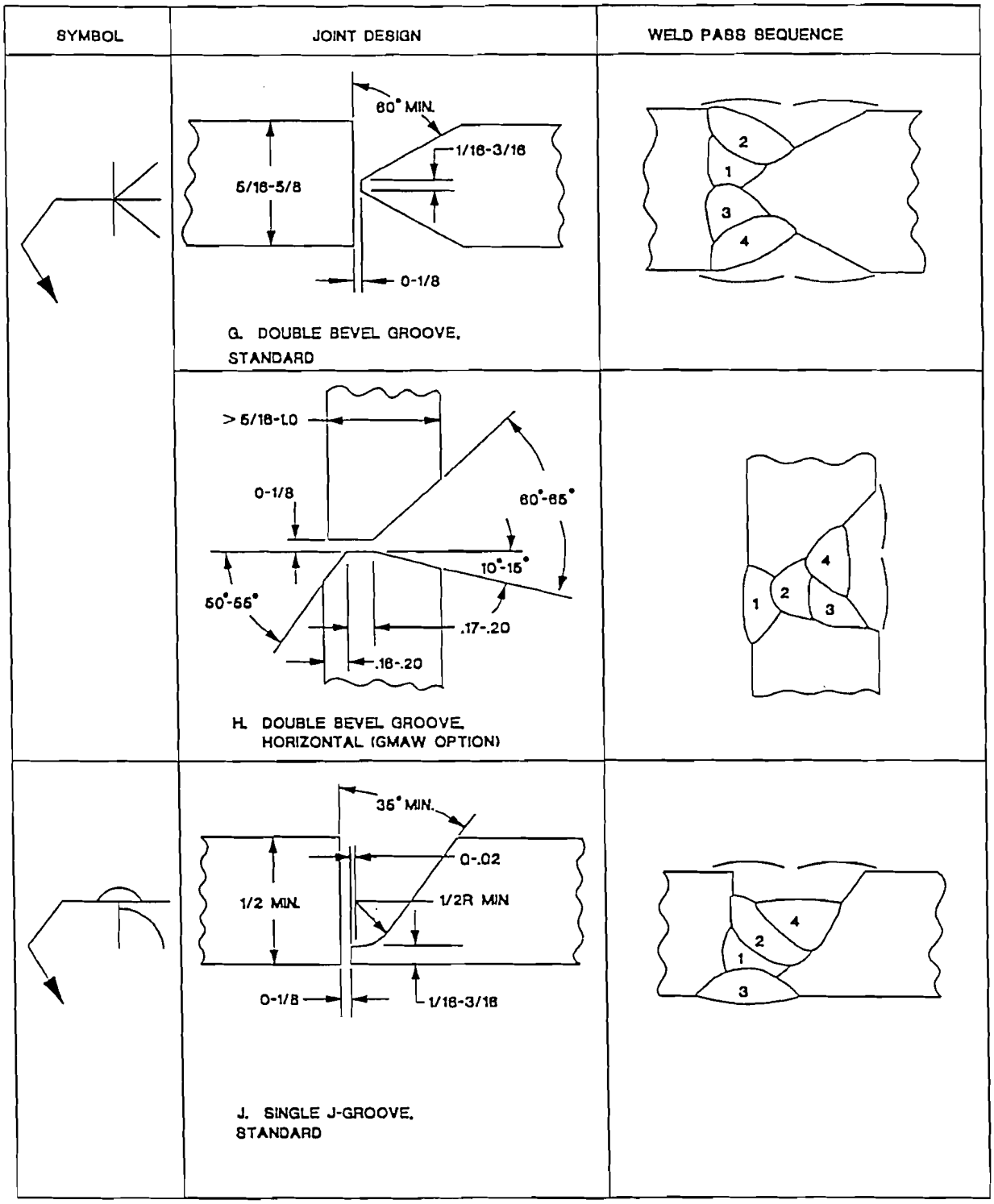
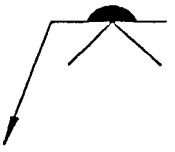
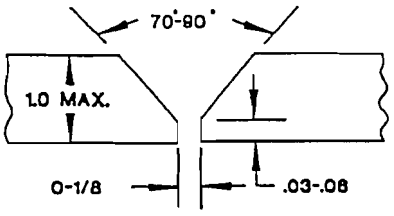
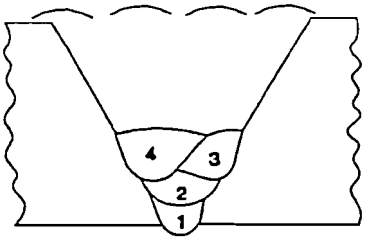
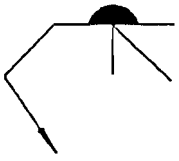
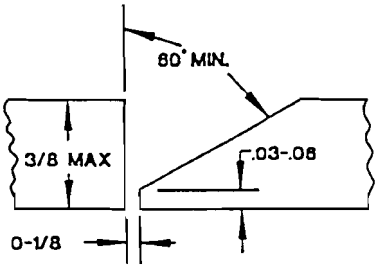
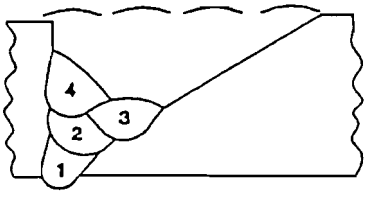
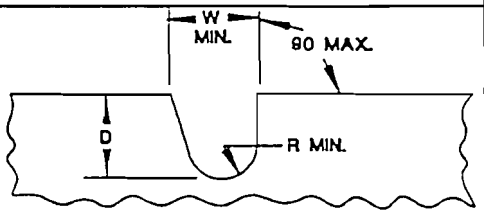
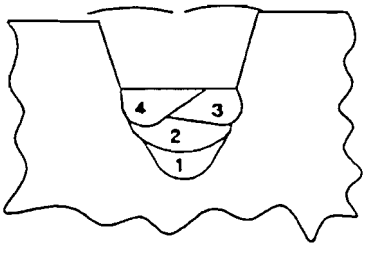


Figure 5-20A. Recommended Joint Designs and Weld Pass Sequences (Sheet 3 of 4)

DRAFT

SYMBOL	JOINT DESIGN	WELD PASS SEQUENCE
	 K. SINGLE VEE GROVE, MELT-THROUGH (GTAW)	
	 L. SINGLE BEVEL GROOVE, MELT-THROUGH (GTAW)	
NONE	 M. GROOVE REPAIR AND BACKGOUGE	

DEPTH, D	W MIN.	R MIN.
≤ 1/8	1/4	1/8
> 1/8-1/4	7/16	
> 1/4-3/8	9/16	
> 3/8-1/2	5/8	
> 1/2-5/8	11/16	
> 5/8-3/4	7/8	1/4
> 3/4-7/8	1-1/8	
> 7/8-1.0	1-1/4	

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Figure 5-20A. Recommended Joint Designs and Weld Pass Sequences (Sheet 4 of 4)

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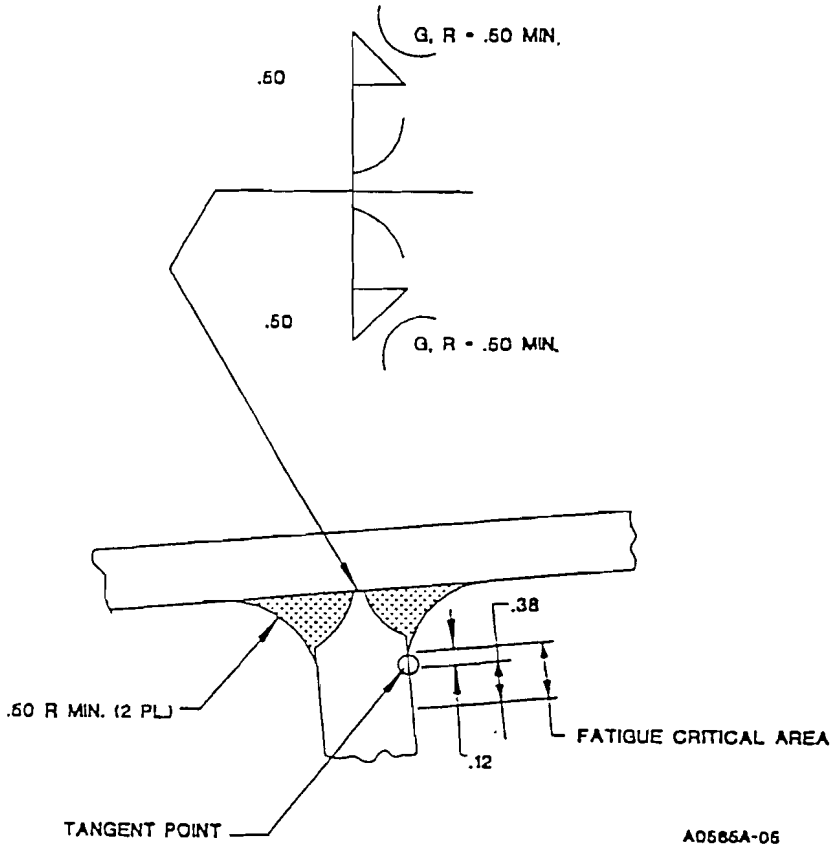
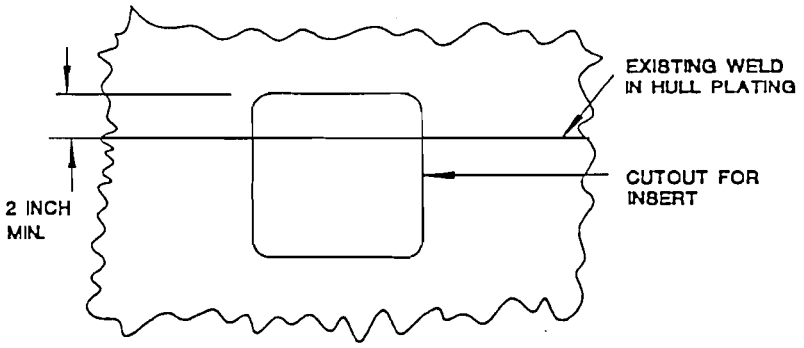
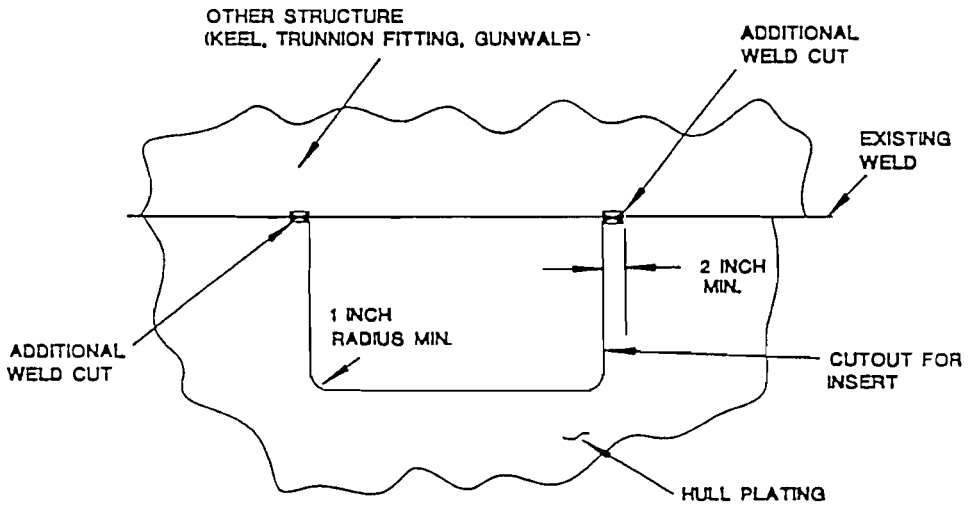


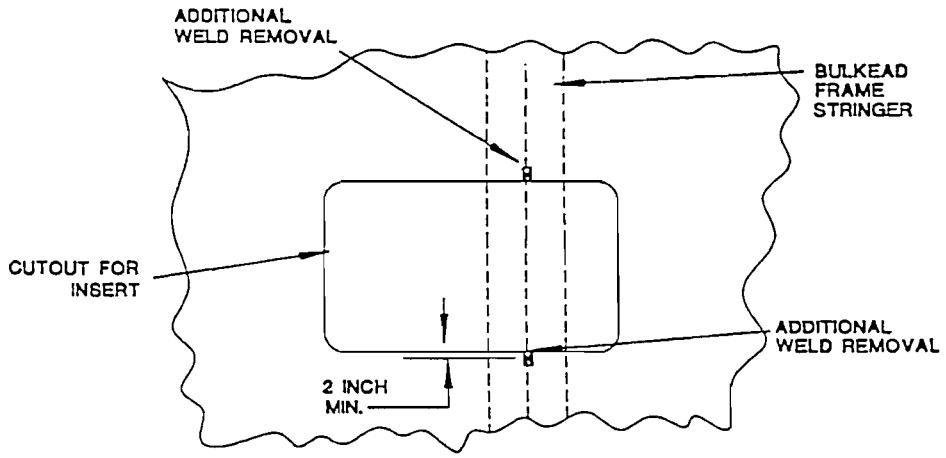
Figure 5-20B. Radiusing of Fillet Reinforced Groove Welds



DETAIL A. CUTOUT BEYOND EXISTING WELD
IN HULL PLATING



DETAIL B. CUTOUT TERMINATING AT EXISTING
WELD TO OTHER STRUCTURE



DETAIL C. CUTOUT ACROSS EXISTING BULKHEADS,
FRAMES OR STRINGERS

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Figure 5-20C. Removing Damaged Hull Plating

DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
2531 JEFFERSON DAVIS HWY
ARLINGTON VA 22242-5160

4920 IN REPLY REFER TO
OPR 38023.5
Ser 3802/3099

APR 14 1993

From: Commander, Naval Sea Systems Command
To: Director, Navy International Programs Office (IPO-02)

Subj: REVISED SALE COSTS OF PHM CLASS SHIPS

Ref: (a) NAVSEA ltr 4920 Ser 3802/3079 of 31 Mar 93
(b) PHONECON NAVSEA (PMS330C1) Mr. Sergio Torres and (PMS38023.5) Mr. Al Borzoo / Navy IPO (02X) CDR Hal Slentz-Whalen of 7 Apr 93

Encl: (1) Price Computation Sale of PHM 1 / 7 Apr 93
(2) Price Computation Sale of PHM 2 / 7 Apr 93
(3) Price Computation Sale of PHM 3 / 7 Apr 93
(4) Price Computation Sale of PHM 4 / 7 Apr 93
(5) Price Computation Sale Of PHM 5 / 7 Apr 93
(6) Price Computation Sale Of PHM 6 / 7 Apr 93
(7) ROM Estimate for PHM Reactivation and for Operator and Maintenance Training
(8) PHM 1 Class Contractor Logistics Support for Ship Reactivation After a Foreign Military Sale

1. Reference (a) provided Price and Availability (P&A) of six PHMs. During reference (b), P&A of PHM 2-6 were discussed. Navy IPO was concerned about the price of USS TAURUS (PHM 3) being a greater value relative to the other PHMs. The parties to reference (b) agreed to recalculate the FMS sales price of the PHM 3 series ships (PHM 2-6) using an average acquisition cost. This approach reduces the FMS sales price of PHM 3 and makes the price of the PHMs more attractive to FMS customers.

2. Enclosures (1) through (6) provide revised calculation sale cost of six potentially excess PHM ships using an average acquisition cost for PHM 2-6. These five PHMs (PHM 2-6) have many configuration differences from USS PEGASUS (PHM 1) and are essentially a separate class. All six ships were procured from one source under a single contract, and were delivered within one year period. There was no actual multi-million dollar differences in the value of the ships as delivered, and there is no such difference today. Therefore, the average cost of PHM 2-6 which is equal to $76,115,000 was used to recalculate the sale costs.

3. Reference (a) forwarded the PHM's material condition, assigned federal condition codes and assigned percentage of original acquisition cost. Based on further detail evaluation by NAVSEA PHM's Program Office the material condition code of PHM 3 was revised to B-5 (20% of original acquisition cost, serviceable with qualification, used, fair condition).

Subj: REVISED SALE COSTS OF PHM CLASS SHIPS

4. Reference (a) recommended that all PHMs be offered to one FMS country; this is the ideal case. However, Navy IPO should also consider the option of selling PHMs in two packages of roughly equivalent value. Package "A" includes PHMs 1, 3, and 6; Package "B" includes PHMs 2,4, and 5. Since PHM 1 is worth substantially less than other PHMs, the buyer of "A" receives all one of-a-kind spares, special test equipment, trainers, and special tools. Package "A" also includes the odd item in each case that the quantity on hand is not an even number. The buyer of "B" receives the second set of special tools, which is a partial set. The buyer of "B" can procure any necessary PHM-unique item not provided with the package.

5. Enclosures 7 and 8 are provided in response to your request during reference (b). Enclosure (7) provides Rough Order of Magnitude (ROM) estimate for PHM reactivation, and operator and maintenance training. Enclosure (8) provides ROM estimate of $2.5M for Boeing to retain a minimum Contractor Logistics Support infrastructure for PHMs from May 93 through May 94.

6. NAVSEA point of contact is Al Borzoo, PMS38023.5, (703) 602-8598.

James M. Keating

JAMES M. KEATING
By Direction

Copy to:
Navy IPO (IPO-02X)

Blind copy to:
PMS380B R/F
PMS38023
PMS38023.9
PMS38023.5
PMS380L1
PMS380L3
PMS38024.10
PMS330C1

PRICE COMPUTATION
SALE OF PHM 1
7 APRIL 1993

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 5% of original cost.	$4,305,000
Nonrecurring cost recoupment charge (5% of NRC charge) (Note 1)	50,000
Overhaul in 24-month period preceding the sale.	2,760,162
Onboard repair parts at time of transfer (ESTIMATE)	112,760
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$7,267,922

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using the 5% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard repair parts, fuel lube oil and amount of small arms ammunition onboard the ship. Therefore, we used estimates.

ENCLOSURE(1)

PRICE COMPUTATION
SALE OF PHM 2
7 APRIL 1993

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 20% of PHM 2-6 levelized acquisition cost.	$15,223,000
Nonrecurring cost recoupment charge (20% of NRC charge) (Note 1)	200,000
Overhaul in 24-month period preceding the sale.	N/A
Spare parts onboard at time of transfer(ESTIMATE)	230,886
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$15,693,886

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using the 20% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard quantities of spare parts, small arms ammunition, and fuel and lube oil onboard the ship. Therefore, we used estimates.

ENCLOSURE(2)

PRICE COMPUTATION
SALE OF PHM 3
7 APRIL 1993

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 20% of PHM 2-6 levelized acquisition cost.	$15,223,000
Nonrecurring cost recoupment charge (20% of NRC charge) (Note 1)	200,000
Overhaul in 24-month period preceding the sale.	1,483,551
Spare parts onboard at time of transfer(ESTIMATE)	230,886
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$17,177,437

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using the 20% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard quantities of spare parts, small arms ammunition, and fuel and lube oil onboard the ship. Therefore, we used estimates.

ENCLOSURE(3)

PRICE COMPUTATION
SALE OF PHM 4
7 APRIL 1993

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 10% of PHM 2-6 levelized acquisition cost.	$7,611,500
Nonrecurring cost recoupment charge (10% of NRC charge) (Note 1)	100,000
Overhaul in 24-month period preceding the sale.	NA
Spare parts onboard at time of transfer(ESTIMATE)	230,886
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$7,982,386

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using the 10% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard quantities of spare parts, small arms ammunition, and fuel and lube oil onboard the ship. Therefore, we used estimates of spare parts, fuel oil and lube oil, and small arms ammunition.

ENCLOSURE(4)

PRICE COMPUTATION
SALE OF PHM 5
7 APRIL 1993

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 20% of PHM 2-6 levelized acquisition cost.	$15,223,000
Nonrecurring cost recoupment charge (20% of NRC charge) (Note 1)	200,000
Overhaul in 24-month period preceding the sale.	1,537,207
Spare parts onboard at time of transfer(ESTIMATE)	230,886
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$17,231,093

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using the 20% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard quantities of spare parts, small arms ammunition, and fuel and lube oil onboard the ship. Therefore, we used estimates.

ENCLOSURE(5)

PRICE COMPUTATION
SALE OF PHM 6
7 APRIL 1993

Ref: (a) DOD 7290.3-M
(b) DOD 5105.38-M

Value of ship where fair value computation is applicable per paragraph 70204 of reference (a). Fair value is 20% of PHM 2-6 levelized acquisition cost.	$15,223,000
Nonrecurring cost recoupment charge (20% of NRC charge) (Note 1)	200,000
Overhaul in 24-month period preceding the sale.	N/A
Spare parts onboard at time of transfer(ESTIMATE)	230,886
Small arms ammunition onboard at time of transfer (ESTIMATE)	10,000
Fuel and lube oil onboard at time of transfer (ESTIMATE)	30,000
FMS Selling Price	$15,693,886

Notes:

1. The pro rata nonrecurring cost recoupment charge was calculated in accordance with references (a) and (b). NRC was calculated by using the 20% fair value of NRC charge reported in reference (b).

2. The price calculated above is for fair value. In accordance with paragraph 70204 of reference (a), this price was selected because it is the higher of market value, fair value, and scrap value. Since this is a combatant ship, there is no market value. Scrap value was determined to be $200,000.

3. Due to the short time frame for this price calculation, NAVSEA did not have time to inventory onboard quantities of spare parts, small arms ammunition, and fuel and lube oil onboard the ship. Therefore, we used estimates.

ENCLOSURE(6)

DEPARTMENT OF THE NAVY
SUPERVISOR OF SHIPBUILDING, CONVERSION, AND REPAIR, USN
SEATTLE, WASHINGTON 98115-5003

IN REPLY REFER TO:
4400
Ser 510-889
25 June 1993

From: Supervisor of Shipbuilding, Conversion, and Repair, USN, Seattle
To: Commanding Officer, Naval Sea Systems Command, Washington, D.C. (Attn: PMS330C1)

Subj: DISMANTLING OF THE KEY WEST FACILITY FOR CONTRACT N00024-92-C-2202

Ref: (a) PHONCON NAVSEA (PMS 330C1) S. TORRES/S. BETTS, SUPSHIP (CODE 510)/G. WING SUPSHIP (CODE 415) of 23 Jun 93
(b) PHONCON NAVSEA (PMS 330C1) S. TORRES/S. BETTS, SUPSHIP (CODE 510) of 21 Jun 93
(c) PHONCON NAVSEA (PMS 330C1) S. TORRES/S. BETTS, SUPSHIP (CODE 510) of 17 Jun 93
(d) SUPSHIP LTR SER 415-737 DATED 7 Jun 93

1. As discussed during references (a) through (c) and in reference (d), the following recommendations are made:

a. The packing requirements recommended for the material at the CLS store is level C for electronic components and best commercial practices for the remainder of the material. The packaging recommended is level II. This packing and packaging will support the storage requirement for up to 12 months.

b. To support the proposed move of the start date for the wall-to-wall inventory from 1 September to 1 August 1993 SUPSHIP Seattle proposes the following scenario:

(1) Both the Property Administrator and the Contracting Officer will travel to Key West on 2 August to set and start the wall-to-wall inventory.

(2) The Property Administrator will return to Seattle for the period of 7-23 August to participate in an Environmental Compliance Audit at SUPSHIP Seattle. The Contracting Officer will perform the Property Administrator's duties during the absence of the Property Administrator. Upon return to Key West on 23 August, the Property Administrator will remain in Key West for the remainder of the wall-to-wall inventory through contract close-out of 15 January 1994.

(3) The Contracting Officer will return to Seattle on 26 August. The Contracting Officer will then return to Key West for the final close-out audit.

ENCLOSURE (|)

(4) The FY93 funding required to support the proposed 1 August start date for the Property Administrator will be $11,300 for TDY requirements. The FY93 funding required for the Contracting Officer will be $6,000 for TDY requirements. Reimbursable funding remaining in FY93 for use on FY93 TDY requirements is sufficient provided fourth quarter FY93 reimbursable funds are received prior to start. The FY94 reimbursable funding for the Property Administrator will be $22,400 for TDY requirements. The FY94 reimbursable funding for the Contracting Officer will be $4,000 for TDY requirements. FY94 reimbursable funding for labor through contract completion will be $35,000. Any additional person would be $30,000 each (includes labor) for FY94.

c. As discussed in reference (a), Boeing will not induct or receive material after the wall-to-wall inventory has started. This material will be held in an area outside of the chain link fence in the hangar. This will relieve Boeing of accountability for this material. Thus Boeing will not be held accountable for any shipping discrepancies from the Squadron, vendors, etc. It is also understood that this material will be received, inventoried, packaged, and shipped after the wall-to-wall inventory has taken place. Request written concurrence.

d. Also as discussed in reference (a), it was determined that the SUPSHIP Seattle Property Administrator will review the Special Tooling lists and determine what tooling will be retained for the program. Request in writing the program criteria to be used for these determinations.

e. FAR 45.508 states that the personnel who perform the physical inventory shall not be the same individuals who maintain the property records or have custody of the property unless the contractor's operation is too small to do otherwise. If Boeing were to replace all the personnel at the Key West CLS store with personnel from Seattle, this would add to the cost and time line of dismantling the Key West facility. It is the intent of the Property Administrator to issue a written waiver to Boeing waiving this contractual requirement.

f. As discussed in reference (a), this presupposes that the BAO will not have to be moved until 31 January 1994. You can add at least one month to the time line if it does and incur additional costs.

g. This presupposes no culling activity will occur of CLS Storeroom stock. If this should occur, add one to two man months to the time line.

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2. Request you review the above items and provide written direction/concurrence as soon as possible. No further actions will be taken on these items until the Property Administrator has received written direction/concurrence.

S. BETTS
Property Administrator

Copy to:
NAVSEA (SEA-02225N, PMS330C11)

ENCLOSURE (|)

FILE GMT FWC JJC

FAX TRANSMISSION

DATE:	09 JULY 1993	TIME:	1700 PST
TO:	S. TORRES	FROM:	J. CANNON
CODE:	NAVSEA 330C1	LOCATION:	RENTON
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cc:	GLENNA WING		
CODE:	SSSEA CODE 415		
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LEADER + 1 PAGES

SUBJECT: Packaging Requirements for CLS Store Closure

Reference: Telecon Torres/Cannon 7/9/93

1. We received your response to the recommended "standard commercial" packaging and preservation level of the CLS inventory to be transferred to Cheatum Annex, VA. I forwarded the Navy's request to have all material packaged and preserved for long term indefinite period storage to the Boeing packaging expert who is at Key West today.

2. The ROM estimate for commercial packaging is eight (8) weeks using six (6) people defined as five local Boeing employees, one Seattle expert. The material cost has not been fully defined (planning has just begun) but it is expected to be less than $16,000. This estimate is preliminary.

3. The ROM estimate for MIL-STD long term storage is a minimum of twelve (12) weeks using seven (7) people. An additional trained employee will be required from Seattle packaging organization. The material cost would more than double to $40,000. Neither dollar amount should be considered to be a hard quoted number. The packaging expert is in the middle of the task.

4. Additional issues need to be addressed to support the packaging and shipment of the CLS inventory. A fork lift and air compressor will be required by the packaging group, and Boeing needs approval to use the loading ramp on the opposite side of the hanger (under Marine/Navy Seal auspice?). The Squadron will be gone so I have directed the packaging expert to anticipate renting this equipment. The above quotes do not include this cost.

5. Your request to have material culled from the store will delay the beginning of the inventory, and require an extension of time to support government Property Management plant wide clearance requirements. I would anticipate a slide in schedule to the original late-Spring 1994 time frame. We do not have the time to plan a culling exercise to run in conjunction with the inventory if it is directed to begin on August 2nd. Only three weeks remain which is needed to receive as much Squadron assets as possible.

6. *** Glenna Wing intends to be in my office on Monday, July 12th, at 2:00 P.M. your time. We will call you to discuss the details of your request. Please let me know if this time is bad for you. I can be reached at (206) 773-4290 on Monday morning.

Regards

J. Cannon
PHM Material Management
Aircraft And Marine Operations - Seattle
Org W-7820 (206) 393-3425