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ANALYSIS OF FY 1974 REGULAR OVERHAUL OF USS PONCHATOULA (AO-148--ETC(U)  
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ANALYSIS OF  
FY 1974 REGULAR OVERHAUL  
OF USS PONCHATOULA (AO-148)

November 1974

Prepared for  
COMMANDER SERVICE FORCE, PACIFIC  
Honolulu, Hawaii

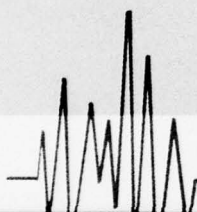
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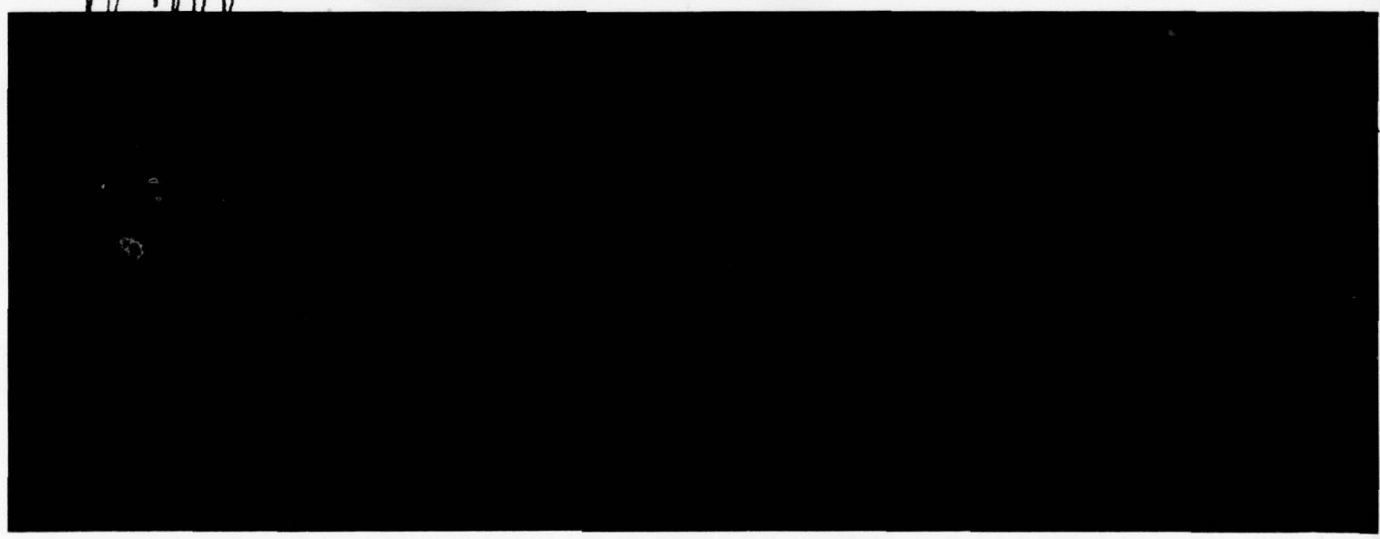
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ABSTRACT

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This document has been prepared to a Navy format for ship overhaul reports.

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USS PONCHATOULA (AO-148)

POST OVERHAUL ANALYSIS REPORT

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I. GENERAL INFORMATION AND PREFACE

A. GENERAL INFORMATION

Ref: (a) Contract N00604-73-C-0181

B. PREFACE

USS PONCHATOULA (AO-148) was overhauled from 21 January 1974 through 10 July 1974 at the U.S. Naval Ship Repair Facility, Guam.

In planning the overhaul of PONCHATOULA, ARINC Research, acting as COMSERVPAC maintenance management agent, commenced the planning effort 14 months prior to the overhaul start date. The goal of the planning effort was to identify in advance any potential and existing problem areas, and to provide the detailed preoverhaul guidance, planning, and coordination necessary to achieve a successful depot level overhaul. The purpose of this report is to evaluate the management judgments and decisions associated with the planning effort.



## II. MANAGEMENT SUMMARY

Appendix A of reference (a) lists the management milestones in planning the FY 1974 regular overhaul of USS PONCHATOULA (AO-148). Deviations from the milestones that affected the overhaul, and unanticipated factors that contributed to the final overhaul outcome, are discussed below.

### A. AUTHORIZED VS. ACCOMPLISHED WORK

The repair and alteration work items of the PONCHATOULA overhaul were essentially completed as authorized. Minor items were not complete at the end of the overhaul because of late material delivery. Repair material is to be forwarded to the ship when received.

### B. PLANNED VS. ACTUAL COMPLETION TIME

The overhaul completion date was extended 19 days to complete corrections of discrepancies resulting from the Propulsion Examination Board (PEB) Light-Off Examination (LOE), and to test the completed repairs.

### C. PLANNED VS. ACTUAL COMPLETION COSTS

No departure report had been received as of the preparation of this report. All cost comparisons in this report are based on those estimated costs made available to ARINC Research. True comparison of growth costs for the PONCHATOULA overhaul would be difficult, however, due to the frequent adjustments made by NSRF/Guam to job estimates throughout the overhaul.

### D. MAJOR CONFIGURATION CHANGES

Several pollution-abatement shipalts were accomplished and habitability was significantly upgraded during PONCHATOULA's overhaul.

### E. FOLLOW-ON WORK REQUIRED

Required follow-on work is to complete repairs outstanding when required parts are received, and plan for accomplishment of items in the Long Range Maintenance Plan of Section III-C.

### III. DETAILS OF OVERHAUL

#### A. PLANNING PROCESS

##### 1. Ideal Vs. Actual Milestones

Advance overhaul planning for USS PONCHATOULA commenced in November 1972. The overhaul planning procedures used for the PONCHATOULA overhaul are defined in the COMSERVPAC "Overhaul Planning Task Chart, Task Index, and Tasks", dated 15 Sept. 1972 (Appendix A of Reference a). Fifty tasks are specified therein, of which 25 were designated as ARINC Research responsibility for the PONCHATOULA overhaul. The ideal target dates for these tasks ranged from the start of overhaul minus 13 months (A-13) to the completion of the overhaul plus two months (C+2). Some adjustments to these dates were necessary due to the ship's operating schedule and other factors mentioned later in this report; however, all tasks were completed. Table III.A-1 lists the principal tasks, indicating the actual dates of accomplishment.

- a. Advance Overhaul Planning. Overhaul planning was initiated by ARINC Research with a survey of the available maintenance history of PONCHATOULA as contained in the Current Ships Maintenance Project (CSMP) and the Maintenance and Material Management (3M) Program Material History Report. Programmed alterations were reviewed, along with other pertinent maintenance history documents such as last overhaul records, departure reports, casualty reports (CASREPTs), and last INSURV reports.

At the time ARINC Research began its planning efforts, the PONCHATOULA overhaul was scheduled to commence on 26 November 1973 at Pearl Harbor Naval Shipyard (PHNSY). Before the ship deployed, a briefing on the overhaul planning process was presented to ship personnel by ARINC Research.

On 27 February, two ARINC Research representatives went to Subic Bay, P.I. for a shipcheck. Using the CSMP for reference, these representatives held conferences with work center supervisors and

TABLE III.A-1. IDEAL VS. ACTUAL MILESTONES FOR ROH OF USS PONCHATOU LA (AO-148)

Milestone	COMSERVPAC Target Date	Contract Target Date	Actual Start	Completion	Remarks
Contract Date			11/1/72	11/30/74	Extended from 5/30/74 completion because of change in overhaul schedule.
Brief Ship on ROH Preparation	Prior to deployment	11/72	11/72	11/72	
Shipcheck	A-6 to A-3	5/73*	3/73	3/73	Subic Bay, P.I.
Prepare Preliminary Alt/Repair Work Package	A-9 to A-6	2/73 to 5/73*	4/73	5/73	
Prepare Preoverhaul Test and Inspection Plan (POT/I)	A-6	5/73*	7/73	7/73	
Receive Work Requests from Ship	A-6 to A-4	7/73 to 9/73**	10/73	10/73	
Screen Work Requests for Priority/Accomplishing Activity	A-6 to A-4	7/73 to 9/73**	10/73	10/73	
Conduct POT/I	A-6 to A-3	7/73 to 10/73**	11/73	12/73	At PHNSY with NSRF/Guam representatives.
Work Definition Conference	A-2	11/73**	12/73	12/73	3-4 Dec. 73
Monitor Overhaul	A to C	1/21/74 to 6/21/74	12/74	7/74	Rescheduled 10/30/73
Prepare Final Reports	C + 2	10/31/74	7/74	10/74	

\*Based on original overhaul start date of 11/26/73.

\*\*Based on overhaul start date of 1/14/74.

ship officers to determine the current status of the ship's known repair package; and inspected selected systems and equipments.

Following the shipcheck, a preliminary work package was assembled using work briefs prepared on the basis of the CSMP entries and information from the ship. Additional work briefs were prepared for items that ARINC Research believed had a high probability of being required for the overhaul, based on the company's previous experience in planning the USS KAWISHIWI (AO-146) overhaul. This preliminary work package was delivered to PHNSY for cost estimating in May 1973.

In June 1973, a series of conferences was held between representatives of CINCPACFLT, COMSERVPAC, PHNSY, and SUPSHIP/Pearl Harbor to investigate the feasibility of assigning the PONCHATOULA overhaul, except for drydocking, to SUPSHIP/Pearl Harbor. This was considered necessary because of a projected high workload at PHNSY. The initial reaction from the Honolulu ship repair contractors was that they could accomplish this overhaul through a cooperative effort, although a Navy ship overhaul of this size had not been awarded to them before. These conferences resulted in the following schedule being proposed and forwarded to CNO for approval:

Start Overhaul	14 January 1974
Ripout/Stripping	14 January - 3 February 1974 for farm-out/farm-in
Drydock at PHNSY	4 February - 6 March 1974
SUPSHIP P. H.	7 March - 30 June 1974

However, subsequent problems arose. On 24 July, PHNSY requested CINCPACFLT to consider reassignment of PONCHATOULA's overhaul to the shipyard. Further, the local repair contractors reconsidered their position and withdrew their support of the overhaul. As a result of these developments and after further analysis of the situation, CNO was requested to assign the overhaul to NSRF/Guam from 14 January to 14 June 1974. This



decision was reached late in September and immediate planning efforts were started with NSRF/Guam.

PONCHATOULA returned from deployment in June 1973. During the following months, ARINC Research worked with the ship to finalize its repair work package. Automated work requests were produced from the CSMP and reviewed by ship's personnel. The majority of these work requests was received by ARINC Research on 5 October 1973. These work requests were reviewed for completeness and accuracy, and screened relative to recommended accomplishing activity. The screened work requests were reviewed by the COMSERVGRU FIVE maintenance officer and forwarded to NSRF/Guam periodically during the month of October.

Throughout October and November, continuous liaison was maintained with representatives of the Naval Ship Systems Command Management Office, Western Pacific (NMOWP), COMSERVGRU FIVE, PHNSY, NSRF/Guam, and PONCHATOULA. Personnel of NMOWP coordinated the development of policies and procedures for Pearl Harbor activities supporting the PONCHATOULA overhaul, particularly in the areas of material support.

In July a list of recommended POT/I requirements was provided to COMSERVGRU FIVE for transmittal to PHNSY. A restricted availability was assigned from 12 November to 11 December to conduct the POT/I. Representatives from NSRF/Guam were in Pearl Harbor during this period to witness POT/Is, shipcheck specific job requests, and develop cost estimates to support the tradeoff conference (arrival/work definition conference).

- b. Tradeoff Conference. The overhaul tradeoff conference was held at PHNSY on 3 and 4 December 1973. It was attended by representatives of COMSERVGRU FIVE, COMSERVPAC, NMOWP, NSRF/Guam, PONCHATOULA, and ARINC Research. A preliminary workbook with estimates was provided the first day of the conference, which precluded performing a planned tradeoff analysis. In addition, certain shipchecks, tests, and inspections were still being accomplished at the time of the conference. Final estimates for all work



authorized at the tradeoff conference were not received until after the start of the overhaul.

c. Overhaul Phase. Following the rescheduling of the PONCHATOUULA overhaul to NSRF/Guam, ARINC Research Corporation's overhaul-support contract was modified to provide for periodic visits of a company representative to Guam during the overhaul to act as COMSERVGRU FIVE's management agent. His specific tasks were to:

- 1) Review job orders prepared by NSRF/Guam with ship and NSRF personnel to ensure desired coverage and recommend to NSRF any changes required.
- 2) Receive new work requests from the ship and NSRF, obtain required estimates, and screen the requests for recommended action. Obtain concurrence of the COMSERVGRU FIVE maintenance officer at Pearl Harbor by frequent telephone calls for authorization of new work and resolution of any controversial work items. (Original work requests were delivered to COMSERVGRU FIVE for authorization signature and returned to NSRF/Guam for documentation.)
- 3) Assist ship's personnel in establishing an Overhaul Management Center and their SFOMS program.
- 4) Transmit to the ARINC Research Honolulu Office any requests for assistance in required follow-up actions.
- 5) Perform other liaison functions as required by COMSERVGRU FIVE and COMSERVPAC.

In performing these tasks, ARINC Research representatives visited NSRF/Guam from 17 January to 20 February, 20 March to 28 March, and 3 May to 7 June 1974.

In addition to the tasks mentioned above, ARINC Research briefed the ship on preparations for a Light-Off Examination, and later participated with COMSERVPAC and COMSERVGRU FIVE personnel in the LOE of PONCHATOUULA.

- d. Postoverhaul Phase. ARINC Research Corporation's responsibilities following completion of the overhaul were to analyze the overhaul records and prepare a final report. The overhaul was completed 10 July and PONCHATOULA returned to Pearl Harbor.

2. Impact of Planning Milestone Slippages

Overhaul planning for PONCHATOULA started at A-12 months, based on an overhaul start date of 26 November 1973. The period available for planning therefore fit the timetable of the COMSERVPAC Overhaul Planning Task Index, and theoretically all task milestone target dates could be met. Discussed below are actions or occurrences during planning-task accomplishment that impacted on the overhaul planning.

- a. Alteration Work Package. Alterations to be accomplished on PONCHATOULA were identified early, and planning and work accomplishment proceeded on schedule.
- b. Repair Work Package. Identification and assembly of the repair work package started immediately after contract award, and a preliminary work package based on the ship's CSMP and data obtained by ARINC Research during a ship visit in March was delivered to PHNSY for estimating in May 1973. Refinement of this package, which was planned for accomplishment from June through September 1973, was delayed by the uncertainty of what activity would accomplish the overhaul and the resulting rescheduling of the overhaul start to January 1974. As a result, the updated ship's work package was not received by ARINC Research until early October; and an intensive effort was needed to screen this work and deliver the work package to NSRF/Guam in sufficient time for them to prepare their estimates and job specifications. Mailing time from Pearl Harbor to Guam also had an effect on the time that NSRF/Guam personnel had to prepare their job estimates and specifications. As a result, estimates were still being prepared at the start of the overhaul.

It does not appear, however, that the above circumstances had any effect on the scheduled completion of the overhaul. It did mean that

the ship entered overhaul with the overhaul manager (COMSERVGRU FIVE) not having a clear picture as to what he could expect as to total cost, and with some uncertainty as to the completeness of the work package. That is, some low priority work may have been authorized at the expense of higher priority work identified late.

- c. Preoverhaul Tests and Inspections (POT/I). The overhaul planning tasks called for identifying and conducting predeployment tests and inspections. However there was not sufficient time prior to the ship's deployment to permit accomplishment of these tasks. By July 1973, the work requirements had been identified to the point where POT/Is could be designated. Here, however, as in the case of the repair work package, the uncertainty of where and when the ship was going to be overhauled had an effect. Once this matter was resolved, a POT/I RAV was scheduled and accomplished from 12 November to 11 December 1973 at PHNSY, with NSRF/Guam personnel participating. This late accomplishment was one of the reasons that estimates and firm work definitions were still being received when the overhaul started.
- d. Tradeoff Analysis. A tradeoff analysis to compare estimates of dollars and manhours to accomplish the identified work with available resources could not be accomplished for the PONCHATOULA overhaul. As mentioned above, estimates were still being received after the tradeoff conference. With adequate time between receipt of the work package (with the POT/I results included) and the tradeoff conference, proper preparation for the conference could have been made.

### 3. Recommendations

As a result of the review of the planning process for the PONCHATOULA overhaul, ARINC Research recommends that efforts be directed toward:

- a. Developing estimates and specifications early enough to support the overhaul tradeoff conference.

- b. Increasing and defining the role of the overhaul manager during the overhaul management phase.
- c. Minimizing changes in overhaul location and start date.



**B. WORK PACKAGE**

1. **Summary Sheet**
2. **Cost Summary Sheet**
3. **Alteration Summary Sheet**
4. **TYCOM Repair Package**
5. **ARINC Research Screening Summary**
6. **Narrative of Major Alteration Items**
7. **Narrative of Major Repair Items**
8. **Narrative of Material Condition Prior to Overhaul**
9. **Narrative of Material Condition After Overhaul**



1. Summary Sheet - USS PONCHATOULA (AO-148)

Scheduled Start Date: 14 Jan 74 Scheduled Completion Date: 21 Jun 74

Actual Start Date:\* 21 Jan 74 Actual Completion Date: 10 Jul 74

Overhaul Extended:\*\* 19 days

\*Overhaul start date was delayed to allow for PONCHATOULA to transit from Pearl Harbor to Guam and off-load before overhaul start.

\*\*Overhaul extended to correct LOE-noted deficiencies and to complete tests and trials of main propulsion plant. PONCHATOULA remained in Guam until 21 July for RFS and to correct overhaul discrepancies.

SIGNIFICANT CAPABILITY CHANGES:

- a. Two gun mounts were removed and the remaining gun mounts were replaced with modernized versions.
- b. Several pollution abatement shipalts were accomplished, including partial CHT system, installation of tank level indicators, a bilge flooding alarm circuit, and a bilge water discharge riser.
- c. An AFFF/PKP firefighting system was installed in the machinery spaces.
- d. Several habitability shipalts were accomplished, including sanitary space modernization and installation of wardroom sheathing.

2. Cost Summary Sheet – USS PONCHATOULA (AO-148)

a. <u>Summary of Overhaul Costs</u>	<u>K-Alt</u>	<u>Repair**</u>
1) Budget	\$1,634,982*	\$5,800,000
2) Estimated Cost	1,608,648*	4,803,916
3) Total Cost	Not Available	Not Available
4) Growth Cost	Not Available	Not Available
5) Percent Growth	Not Available	Not Available

\*Includes \$34,360 for ship's selected records and \$9,878 nonrecoverable costs for cancelled shipalts.

\*\*Estimated cost for repair work and TYCOM D and F alterations and AERs authorized at start of overhaul.

- b. Estimated Costs by EIC Category. The estimated costs of item a. 2, above, when increased by new-work estimates and late estimates (made available to ARINC Research after the start of the overhaul) brings the estimated cost of the PONCHATOULA overhaul, including alterations, to \$6,987,401. The breakdown of these estimates by EIC category is shown in Table III. B-1.

3. Alteration Summary Sheet

The alteration summary sheet for the USS PONCHATOULA is shown in Table III. B-2.

TABLE III. B-1. ESTIMATED COSTS BY EIC CATEGORY  
FOR ROH OF USS PONCHATOUULA (AO-148) (Sheet 1 of 4)

EIC		Est. Cost (\$)		Pct. Total Cost		Pct. Growth	
System	Subsys.	System	Subsys.	System	Subsys.	System	Subsys.
A000		965,595		13.8			
	AB00		98,025		1.40		
	AC00		10,000		0.14		
	AD00		18,770		0.27		
	AE00		2,020		0.03		
	A100		18,510		0.26		
	A500		49,645		0.71		
	A600		7,475		0.11		
	A700		3,025		0.04		
	A800		122,980		1.76		
A900		635,145		9.09			
F000		823,002		11.8			
	FA00		2,490		0.04		
	FB00		45,780		0.66		
	FD00		39,530		0.57		
	FE00		22,085		0.32		
	F100		328,580		4.70		
	F300		253,858		3.63		
	F400		24,360		0.35		
	F500		26,440		0.38		
	F700		28,685		0.41		
F800		46,759		0.67			
G000		113,135		01.6			
	GB00		83,610		1.20		
	GR00		27,930		0.40		
	GW00		1,595		0.02		
L000		62,320		0.9			
	LB00		21,230		0.30		
	LC00		30,310		0.43		
	LF00		2,705		0.04		

TABLE III. B-1. (Sheet 2 of 4)

EIC		Est. Cost (\$)		Pct. Total Cost		Pct. Growth	
System	Subsys.	System	Subsys.	System	Subsys.	System	Subsys.
M000	LJ00	353,855	5,380	5.1	0.08		
	L100		2,695		0.04		
	M400		39,620		0.57		
	M500		8,770		0.13		
	M600		290,120		4.15		
	M700		15,345		0.22		
N000		7,990		0.1			
	N400		7,990		0.11		
P000		28,985		0.4			
	P100		12,075		0.17		
	P600		4,780		0.07		
	P700		12,130		0.17		
Q000		142,003		02.0			
	QB00		17,780		0.25		
	QC00		4,570		0.07		
	QD00		31,116		0.45		
	QE00		25,230		0.36		
	QF00		2,495		0.04		
	QR00		7,085		0.10		
	Q100		14,270		0.20		
	Q300		35,161		0.50		
	Q700		4,295		0.06		
R000		445		-			
	R500		445		0.01		
T000		2,685,848	13,465	38.4	0.19		
	TA00		42,765		0.61		
	TB00		16,665		0.24		

TABLE III. B-1. (Sheet 3 of 4)

EIC		Est. Cost (\$)		Pct. Total Cost		Pct. Growth	
System	Subsys.	System	Subsys.	System	Subsys.	System	Subsys.
	TC00		18,315		0.26		
	TD00		13,680		0.20		
	TF00		58,295		0.83		
	TH00		169,780		2.43		
	TK00		43,980		0.63		
	TL00		28,055		0.40		
	TM00		78,790		1.13		
	TS00		272,288		3.90		
	TT00		120,615		1.73		
	T100		69,405		0.99		
	T300		125,660		1.80		
	T400		57,980		0.83		
	T500		5,330		0.08		
	T600		463,095		6.63		
	T700		851,255		12.18		
	T800		124,045		1.78		
	T900		112,385		1.61		
U000		1,108,877	1,780	15.9	0.03		
	UA00		133,175		1.91		
	UC00		36,070		0.52		
	UE00		131,690		1.88		
	UF00		171,185		2.45		
	UG00		82,420		1.18		
	UH00		283,000		4.05		
	UJ00		61,380		0.88		
	U400		30,030		0.43		
	U500		26,855		0.38		
	U600		31,960		0.46		
	U700		105,585		1.51		
	U800		13,747		0.20		



TABLE III. B-1. (Sheet 4 of 4)

EIC		Est. Cost (\$)		Pct. Total Cost		Pct. Growth	
System	Subsys.	System	Subsys.	System	Subsys.	System	Subsys.
W000		5,960	5,960	0.1	0.08		
Y000		58,775		0.8			
	YA00		4,120		0.06		
	YC00		54,655		0.78		
1000		252,586		3.6			
	1A00		7,705		0.11		
	1B00		32,635		0.47		
	1100		15,115		0.22		
	1400		67,801		0.97		
	1600		48,385		0.69		
	1700		80,775		1.16		
	1800		170		-		
3000		324,280		4.7			
	3100		210,005		3.01		
	3300		114,275		1.64		
4000		53,745		0.8			
	4100		26,595		0.38		
	4300		25,855		0.37		
	4500		1,295		0.02		
<b>TOTAL:</b>		\$6,987,401					

TABLE III. B-2. ALTERATION SUMMARY SHEET - USS PONCHATOUOLA (AO-148) (Sheet 1 of 3)

Alteration	FMP Est. (\$)	NAVSHIP Est. (\$)	NSRF Est. (\$)	Actual Cost (\$)	Remarks
AO-1644K Install Mach Space AFFE/PKP System	95,048	77,315	75,845		Complete
AO-1683K P/A Sewage CHT	839,954	855,295	851,255		Partial; pumps not installed
AO-1684K P/A Install Bilge Water Discharge Riser	10,573	12,871	12,885		Complete
AO-1686K P/A Install Fuel Tank Level Indicating Sys.	293,864	300,969	281,725		Complete
AO-1689K P/A Install Bilge Flooding Alarm Circuit FD	5,232	7,903	7,910		Complete
AO-1701K H/I Sanitary Space Vent and Sheathing	355,994	326,381	324,790		Complete
Update Ship Record Drawings		34,360	34,360		
AO-1723K General Weight and Moment Compensation	49,922	10,010	10,000		Complete
AO-1527D Install Additional Laundry Vent.			15,265		Complete
AO-1609D Modify Forced Draft Blower Motor Controls			2,710		Missing parts for No. 1 FDB
AO-1615D Modify Boiler Blow Overboard Discharge			11,590		Complete

TABLE III, B-2. (Sheet 2 of 3)

Alteration	FMP Est. (\$)	NAVSHIP Est. (\$)	NSRF Est. (\$)	Actual Cost (\$)	Remarks
AO-1647D Replace Service Fuel Pressure Control Valve			4,130		Complete
AO-1724D Officer Sanitary Space Modifications			58,540		Complete
AO-1725D Crew Sanitary Space Modifications			137,000		Complete
AO-1759D Modify Cargo Fuel Pump Turbine Blading			13,820		Three of five turbines only
AO-1512F Install Wardroom Sheathing			80,775		Complete
AO-1554F Install Stowage for Additional Life Preservers			13,415		Complete
AO-1784F Remove Gun Mounts Nos. 35 and 36					Complete
AER AO-121 Disconnect Switches for Electronic Equipments			5,680		Complete
AER AO-126 Relocate Padeye			1,885		Complete
AER AO-138 Install Remote Controls for Fire Pump			910		Complete

TABLE III. B-2. (Sheet 3 of 3)

Alteration	FMP Est. (\$)	NAVSHIP Est. (\$)	NSRF Est. (\$)	Actual Cost (\$)	Remarks
AER AO-139 Replace Fuse Clips			4,305		Complete
AER AO-154 Modify SSTG Govern- ment Head Assembly			10,915		Complete
AER AO-158 Install Safety Climb Devices			9,000		Complete

4. TYCOM Repair Package - USS PONCHATOULA (AO-148)

	<u>No.</u>	<u>Pct.</u>
1. Total Automated Work Requests	427	34.7
2. Total Work Requests Screened	1,230	
a. Number of Work Requests Deferred	46	3.7
b. Number of Work Requests Disapproved	31	2.5
c. Number of Work Requests Duplicated, etc.	0	0.0
d. Number of Work Requests Approved	1,153	93.7
TOTAL	1,230	100.0
3. Total Work Requests Approved	1,153	
a. Number Work Requests Screened: Priority One (1)	37	3.0
b. Number Work Requests Screened: Priority Two (2)	479	42.0
c. Number Work Requests Screened: Priority Three (3)	482	42.0
d. Number Work Requests Screened: Priority Four (4)	143	12.0
e. Number Work Requests Screened: Priority Five (5)	10	1.0
f. Number Work Requests Screened: Priority Six (6)	2	0.0
TOTAL	1,153	100.0
4. Number of Approved Work Requests by Type Work		
a. Repair (including Remove, Replace, Manufacture, Drydock, POT/I, and Calibrate)	1,094	95.0
b. Ship Alteration	17	1.0
c. TYCOM AER	6	1.0
d. Habitability	13	1.0
e. Routines	23	2.0
TOTAL	1,153	100.0
5. Number of Approved Work Requests Insurance Items:	NA	NA
As insurance items were identified, the ship was advised to include them in the work package. Separate identity was not maintained.		
6. Number of Approved Work Requests Accomplished	NA	NA
7. Number of Approved Work Requests Not Accomplished and Not Entered in CSMP	NA	NA



5. ARINC Research Corp. Screening Summary,  
USS PONCHATOULA (AO-148)

1. Screening Action*	<u>ARINC</u>	<u>TYCOM</u>
a. Number Work Requests Screened One (1)	780	721
b. Number Work Requests Screened Two (2)	0	0
c. Number Work Requests Screened Three (3)	365	376
d. Number Work Requests Screened Four (4)	0	0
e. Number Work Requests Screened Five (5)	0	0
f. Number Work Requests Screened Six (6)	0	0
g. Number Work Requests Screened Seven (7)	0	0
h. Number Work Requests Screened Eight (8)	13	46
i. Number Work Requests Screened Nine (9)	37	31
j. Number Work Requests Screened Zero (0)	35	56
	<hr/>	<hr/>
	1,230	1,230

2. Comments/Recommendations:

Screening actions were reviewed with the overhaul manager prior to being finalized. No distinction was made between TYCOM and ARINC Research screening actions. Generally, the overhaul manager concurred with the recommended screening.

\*LEGEND: Screening Action (Appendix 17 OPNAV 43P23)

1. Shipyard accomplish
2. Tender or repair ship accomplish
3. Ships Force - (tender or repair ship/yard) assist
4. Accomplish as alteration equivalent to a repair
5. Ship to shop
6. Accomplish with modification
7. Yard open inspect - advise TYCOM - proceed with minimum repairs
8. Deferred
9. Disapproved
0. Other - Specify in remarks

6. Narrative of Major Alteration Items

Table III. B-2 lists all alterations accomplished during the PONCHATOULA overhaul. The estimated cost of these alterations represents about 28% of the total estimated overhaul cost. As a result of these alterations, significant improvements were achieved in the areas of pollution abatement, firefighting capability, and habitability. Although some material problems developed during the overhaul, all were resolved with no impact on the overhaul completion, and all desired work was essentially completed.

7. Narrative of Major Repair Items

Overhaul and repair of PONCHATOULA's systems and equipment accounted for about 67% of the total estimated cost. The major overhaul items are discussed below.

a. Propulsion Examination Board Light-Off Examination (PEB/LOE).

Before the PONCHATOULA overhaul began, COMSERVPAC had decided that the LOE process would be expanded to include all ships. With the understanding that an LOE was planned, the ship's crew commenced training and preparation. Additional work items were added to the work package specifically for this event. During March 1973, ARINC Research briefed ship and SRF personnel on PEB/LOE requirements.

The LOE was originally scheduled for 29 April, but delayed until 6 May. The CINCPACFLT PEB has not been chartered to conduct LOEs on 600-psi ships, and therefore the examination was conducted by a board made up of representatives of COMSERVPAC and COMSERVGRU FIVE. The board decided that the ship was not ready to light off and a second examination was scheduled. In the first LOE, numerous discrepancies were identified and assistance from SRF was required to correct many of them. This additional work and the need for a second LOE was the principal reason for the delay of overhaul completion until 10 July.

The second LOE was conducted on 7 June and was satisfactory except for a few safety discrepancies that were corrected prior to

lighting fires. Planning for future overhauls when LOEs are expected must take this examination into consideration as a key factor in completing an overhaul on schedule. Although individual discrepancies were not major in terms of repair man-hours or dollars, the aggregate number was significant.

- b. Main Propulsion Plant. Repairs to the main propulsion plant and its associated systems amounted to about 12% of the estimated overhaul cost. Extensive repairs were made to both boilers; feed pumps Nos. 1 and 2 were overhauled; HP and LP turbine bearings and thrust shoes were inspected and repaired; a large amount of fireroom lagging and insulation was accomplished; and both propellers and one tail shaft were replaced.
- c. Electrical Plant. Major repairs to the electrical plant included repairs to the ship's service turbine including air coolers and reduction gears; and gland and interstage labyrinth packing; overhaul of the emergency diesel generator engine; and repair-in-place of the emergency diesel generator. Following overhaul, the SSTGs experienced 20-40 kW oscillation in parallel operation. That problem had not been resolved as of the preparation of this report.
- d. Cargo Fuel Oil Pumps. Complete overhaul of the cargo fuel pumps and turbines was authorized, including a shipalt to modify the turbine blading. Because of material problems, only three of the turbines received the blade modification.
- e. Winch Repairs. Shop overhauls were accomplished on 16 of the ship's deck winches. The remaining winch repairs were accomplished in place. Foundations were renewed where required. Remote control systems were repaired.
- f. Tank Preservation. The after peak tank, 3CL JP-5 tank, and the lower portion of the 4CL AVGAS tank, were cleaned and preserved. Two feed water tanks were cleaned and the preservative coating touched up.

Following is a list of the major work items accomplished during the PONCHATOULA overhaul, grouped according to cost range.

<u>Cost Range</u>	<u>Job Order</u>	<u>Item</u>	<u>Est. Cost</u>	<u>Pct.</u>
>\$100K	59301	S/A 1683K sewage CHT	\$ 851,255	
	51201	S/A 1701K sanitary spaces, vent and sheathing	324,790	
	43701	S/A 1686K fuel tank level indicating system	281,725	
	57101	Winch repairs	247,975	
	63101	Underwater body preservation	171,185	
	04102	Personnel (on-loan SRF Subic)	166,000	
	04101	Advance planning	129,305	
	64402	S/A 1725D crew sanitary spaces	112,590	
	99201	Shore services	105,585	
			<u>\$2,390,410</u>	34.21
>\$50K-\$100K	31203	Repair emergency diesel generator engine	\$ 89,115	
	22103	Repair No. 2 boiler	88,145	
	52102	Repair sea valves	86,500	
	83001	Design services	84,830	
	64101	S/A 1512F wardroom sheathing	80,775	
	54002	Repair cargo FO pump turbines	80,360	
	31106	Repair SSTG reduction gears	78,830	
	22118	Fireroom lagging and bulkhead insulation	76,010	
	55501	S/A 1644K AFFF/PKP firefighting system	75,845	
	22115	Repair No. 1 boiler	75,090	
	54003	Repair main cargo FO pump turbine governors	64,020	



<u>Cost Range</u>	<u>Job Order</u>	<u>Item</u>	<u>Est. Cost</u>	<u>Pct.</u>
>\$50K-\$100K (Cont)	63107	Clean and preserve JP-5 cargo tank	\$ 62,140	
	99702	Dock and undock ship	61,380	
	25501	Repair main feed pumps	60,715	
	98301	Assist ship force funds	60,000	
	64401	S/A 1724D officers' sanitary spaces	58,540	
	04103	Personnel (PWC-Guam)	57,000	
	54401	Repair cargo FO pumps	56,710	
	51703	Heating system repairs	56,110	
	63105	Clean and preserve AFT peak tank	53,790	
	58103	Repair anchor windlass	51,400	
			<u>\$1,457,305</u>	20.86
>\$25K-\$50K			947,515	13.56
\$0-\$25K			<u>2,192,171</u>	31.37
TOTAL			<u>\$6,987,401</u>	

8. Narrative of Material Condition Prior to Overhaul

USS PONCHATOULA entered overhaul in average material condition for an AO-143 class ship. Significant overhaul items required were repairs to both boilers, shop overhaul of several deck winches, repair of ship's service turbine generators, repairs to propulsion plant support system components, and overhaul of the emergency diesel generator set. The ship was not able to conduct a successful full-power run before the overhaul.

9. Narrative of Material Condition After Overhaul

All scheduled major repair work was accomplished during the PONCHATOULA overhaul, after which a successful sea trial was conducted. Several habitability and pollution abatement shipalts were accomplished (installation of CHT complete except for pumps). A few pieces of equipment still required repair parts at the end of the



overhaul, and these parts are to be forwarded to the ship by NSRF when received. The required items are:

- Parts to complete No. 1 FDB controller modification
- New steam cylinder for No. 28 deck winch
- Replacement feed water check valves

### C. LONG RANGE MAINTENANCE REQUIREMENTS

An essential element of overhaul maintenance planning is assuring continuity from one overhaul to the next. An influential factor in attaining this continuity is the Long Range Maintenance Plan (LRMP). Using the completion date of the PONCHATOULA overhaul as a starting point, and utilizing the records of that overhaul, ARINC Research prepared a plan identifying long range maintenance requirements for PONCHATOULA. This plan addresses the period between overhauls, and specifies major maintenance requirements that should be targeted for accomplishment during the next overhaul.

Together with the LRMP, a second group of work (that deferred during the overhaul) was identified and the associated information was provided to the ship for inclusion in and updating of the Current Ships Maintenance Projects (CSMP). The LRMP does not discuss the work entered into the CSMP, although planning for and accomplishment of that work is an integral part of long-range maintenance planning.

Probably the most important aspect of long-range maintenance planning is ship's force scheduling and accomplishment of 3M Planned Maintenance Subsystem (PMS) requirements. If ship's force pursues this program thoroughly and conscientiously, maintenance problem areas can be identified promptly and corrected before major deficiencies develop.

The long-range maintenance requirements identified for PONCHATOULA are shown in Table III.C-1. Section A of the table lists work defined and deferred during the recent overhaul. Ship's force and/or the overhaul manager (COMSERVPAC/COMSERVGRU) should start now to plan and budget for its accomplishment. Section B is work recommended for accomplishment during the next overhaul that requires actions by the overhaul manager early in the ROH requirements planning phase. Long-lead-time material must be ordered, or preoverhaul testing and inspection has to be scheduled early to firm up repair requirements. Section C is work that should be given high priority for accomplishment during the next overhaul. For most of this work, pre-overhaul testing should not be required. Section D identifies PMS-related actions whose accomplishment during the period between overhauls is considered especially important in preparation for the next overhaul.

No attempt has been made to include programmed ship alterations into this plan. It is considered that these are adequately handled by existing programs under the FMP.

The work deferred had no impact on the overall quality of the PONCHATOULA overhaul, or on the ability of the ship to perform its assigned tasks and missions.

TABLE III. C-1 DEFERRED WORK/LONG-RANGE MAINTENANCE ACTIONS,  
USS PONCHATOU LA (AO-148) (Sheet 1 of 3)

EIC	Description	Remarks	Est. Cost (\$)
<b>A. WORK DEFINED AND DEFERRED DURING 1974 REGULAR OVERHAUL</b>			
1101	Towing Padeye Static Test		1,600
1900	Modernize Oil Test Lab		15,000*
1B00	Replace Galley Equipment and Modernize Scullery	Accomplishment of shipalts not authorized	150,000*
FC00	Jacking Gear Motors	Clean and inspect	3,800
FD00	Main L.O.P. Pump Motors	Clean and inspect	3,200
	Repair Main L.O. Service Pumps		23,465
	Repair No. 2 Turbine L.O. Pump		10,600
Q100	Antenna Mast Access		10,000
T800	Clean Firemain		20,000
	Fire and Flushing Pump Motor	Clean and inspect	2,400
	Repair #2 F&F Pump Wearing Rings		4,600
TF00	L.P. Air Compressor Motor	Clean and inspect	2,500*
TK00	Acid Clean Evaporators		6,000
TM00	Install L.P. Drain Traps	Deck winches and anchor windlass	10,000*
Vari-ous	Replace Rubber Expansion Joints	S.F. designate	10,000*



TABLE III. C-1. (Sheet 2 of 3)

EIC	Description	Remarks	Est. Cost (\$)
<b>B. REPAIRS RECOMMENDED FOR NEXT ROH REQUIRING LLTM</b>			
1400	Deck Gratings	Procure for ship force installation approximately 3,000 sq. ft.	15,000*
AD00	Watertight Doors	Six doors	12,000*
F100	ACC and Boiler Feed Water Controls	Inspect, repair and test using tech rep services	20,000*
<b>C. OTHER LONG-RANGE MAINTENANCE REQUIREMENTS</b>			
A904	Tanks, Cargo Fuel	Inspect and air-test	50,000*
F300	Main Feed Pump	Repair 1	40,000*
T300/ T400	Ventilation and Air Conditioning	Conduct survey, recommend modifications	40,000*
T600	CFO Piping	Non-destructive testing	10,000*
T800	DFO Pumps	Shipalt 1759D - modernize turbine blading, two turbines (LLTM)	15,000*
T500	Firemain	Non-destructive test	10,000*
TT00	Deck Winches	Schedule those winches not shop-overhauled for future overhaul	300,000*
TT00	Ram Tensioner	Schedule during complete overhaul	70,000*



TABLE III. B-1. (Sheet 3 of 3)

EIC	Description	Remarks	Est. Cost (\$)
<b>D. PMS ITEMS (SHIP'S FORCE ACCOMPLISHMENT)</b>			
1405	Degaussing and Weather-Exposed Cableway Protective Enclosures		
4000	Electrical Safety Devices		
4400	Power Distribution Cabling		
F000	<ol style="list-style-type: none"> <li>1. Soot Blowers</li> <li>2. Valves, Main Steam</li> <li>3. Lagging and Insulation</li> <li>4. Reduction Gears</li> <li>5. Stern Tube and Line Shaft Bearings</li> <li>6. Boiler Sliding Feet</li> </ol>		
G000	Gun Systems, with Emphasis on Wiring		
T100	Steam Heating System		
T300	Ventilating Cleaning		
T801	Firemain Piping and Valves		
TH01	Auxiliary Steam Piping, Valves, Insulation		
	Deck Winches		
*ARINC Research estimates; other estimates were developed during overhaul planning just concluded.			

## D. RECOMMENDATIONS

### 1. For the Ship

It is recommended that ship's force personnel of PONCHATOULA take the following actions:

- a. Maintain an active program of maintaining and/or replacing steam and drain piping.
- b. Ensure that the CSMP is up to date and accurately reflects the condition of the ship following overhaul. Completed action reports should be submitted for previously deferred work items accomplished during the overhaul. Work items not accomplished should be reviewed and revised as necessary to reflect their status at the end of the overhaul.
- c. Follow-up on and ensure receipt of updated record plans and documents that reflect the condition of the ship at the end of overhaul.
- d. Take action as necessary to accomplish deferred work/long range maintenance items, as discussed in Section III. C.

### 2. For the Class

It is recommended that for AO-143 class ships, the type commander, with assistance from PERA(CSS) and the ships, accomplish the following:

- a. Plan for and accomplish a series of habitability studies and incorporate the results into future alteration and overhaul planning. The objective of this action is to update priority of accomplishment and obtain the necessary data to authorize early development of plans and ordering of material.
- b. Review existing alterations to determine new equipment/material requirements and take action as needed to obtain these items.

3. Standardized ROH Work Requests (Form 4790.2K)

It is recommended that a program to develop standardized work requests and overhaul specification for AO class ships be actively pursued. Having available a standard work package for equipments such as boilers, SSTG sets, deck winches, and underway replenishment equipment would improve the overhaul planning process.

4. For COMSERVPAC

It is recommended that COMSERVPAC take the following actions with respect to advance overhaul planning:

- a. Require more active participation of PERA(CSS) during the overhaul management phase.
- b. Increase the emphasis on advance material definition and procurement for overhauls.

## E. EVALUATION/USEFULNESS

The following comments are offered in evaluation of the planning and management of USS PONCHATOULA's overhaul:

### 1. ARINC Research Products to Ship/Industrial Activity

- a. Integrated Work Package Summary Reports. Computerized work-package summary reports were issued periodically throughout the overhaul planning phase. These reports were used by the ship, overhaul manager, and ARINC Research to progress the development of the overhaul package. The ability to produce these reports in various numbering sequences, such as work-center job sequence number (WC-JSN), EIC category, type commander screening-action code, and industrial activity item number, proved to be a valuable aid in managing the overhaul work package. The reports also served as an expedient method of keeping ship's force advised as to the screening action for its work requests.
- b. POT/I Plan. As the work package was developed, the requirements for preoverhaul testing and inspection were identified and a plan provided to the overhaul manager. Late scheduling of an RAV to accomplish these POT/Is because of the change in the overhaul availability resulted in work still being identified and estimates being prepared after the tradeoff conference. For future overhauls, the results expected from POT/Is should be better defined, and a period for their accomplishment scheduled early enough for the results to be available for the tradeoff conference.
- c. Tradeoff Analysis. To serve its intended purpose, a tradeoff analysis requires that cost and man-hour estimates for the planned work be available before the tradeoff conference. This was not possible for this overhaul for reasons mentioned earlier in this report. The tradeoff analysis can be a valuable tool in authorizing overhaul work, and its preparation should be supported by all concerned parties.



2. Overhaul Management

Since PONCHATOU LA was overhauled in GUAM and the overhaul manager (COMSERVGRU FIVE) was in Pearl Harbor, management continuity was not maintained throughout the overhaul. Periodic visits by ARINC Research aided in resolving this situation, but it is considered that a full-time representative of the Type Commander should be available for future overhauls conducted under similar circumstances.