DEPARTMENT OF THE NAVY

USS CANOPUS AS 34
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From: Commanding Officer, USS CANOPUS (AS 34)
To: Director, Naval History (OP-09B4), Washington Navy Yard, Washington, DC 20474

Subj: COMMAND HISTORY OF USS CANOPUS (AS 34), 1984; REPORT SYMBOL 5750-1

Ref: (a) OPNAVINST 5750.12C

Encl: (1) Basic History

1. In accordance with reference (a), enclosure (1) is submitted as the Command History for USS CANOPUS (AS 34) for calender year 1984.

W. D. WILKES
By direction

BASIC HISTORY

COMMAND ORGANIZATION

USS CANOPUS (AS 34) was under the operational control of Submarine Squadron FOUR, Charleston Naval Base, Captain James E. Collins, USN, Squadron Commander until 16 January 1984. USS CANOPUS (AS 34) moved into Charleston Naval Shipyard on 16 January 1984 to commence overhaul coming under Commander Submarine Group SIX. CANOPUS' Commanding Officer was Captain Charles C. Holcomb, USN until 7 July 1984 and relieved by Captain Michael J. Lees, USN. Executive Officer was Commander John B. Fields, USN until 28 June 1984 and relieved by Commander Victor J. Bankston, USN. Additional key personnel changes which occurred during 1984 are as follows:

BILLET	DATE
ADP Production	January 1984
Hull Repair Officer	March 1984
Operations Officer	April 1984
Outside Machinery Repair	April 1984
TSO General ROV(SS)	May 1984
Assistant Weapon Repair	June 1984
Primary Medical Care	July 1984
Assistant Dental	July 1984
Electrical Repair	July 1984
Planning/Nuclear Repair	August 1984
Nuclear QA	August 1984
Main Propulsion Assistant	September 1984
Ship's Boatswain	September 1984
General Dental	October 1984
Repair Officer	November 1984
Assistant to Repair	November 1984
Weapons Navigation Repair	December 1984

NARRATIVE

1. USS CANOPUS was moored and homeported at Naval Base Charleston, SC until 16 January 1984. CANOPUS was then moored at Charleston Naval Shipyard, Charleston, SC for overhaul.

2. **REPAIR DEPARTMENT**

a. During 1984, CANOPUS completed a regular overhaul in which 789,299 production manhours were directed to the overhaul maintenance effort. The analysis, records and reports section provided training for managers, shipsupts, work center supervisors and P&E personnel in IMMS documentation procedures and the use of management reports. The ARRS office provided both ARRS and MDCO functions during overhaul. The Print Shop and Photo Lab were completely renovated and redesigned to provide maximum utilization of assigned space. Both shops installed new equipment to increase capabilities and modernize techniques. The Photo Lab maintained production during overhaul completing 559 work requests and developing over 26,000 prints in both color and black and white.

b. The Hull Repair Division accomplished an extensive shipyard overhaul on CANOPUS. Shop 26A replaced approximately 500 feet of steam piping and over 150 valves, while supporting tended units of Submarine Squadron FOUR and Submarine Squadron EIGHTEEN in both Nuclear and Non-Nuclear Repair work. Shop 17A manufactured and installed some 1700 linear feet of vent ducting, paneled and manufactured bulkheads for over 15 office spaces, in addition to building numerous lockers and sinks for various spaces throughout. Shop 56A Pipe Shop accomplished numerous jobs ranging from support of other R-1 work centers to the major installation of the Diver Air System onboard the CANOPUS Dive Boat and Decompression Chamber. Shop 11A Shipfitter Shop accomplished some 280 jobs, including such items as manufacturing and installing gun mounts onboard CANOPUS, replacing deteriorated bulkheads, manufacturing and installing bullet and terrorist proof entry paint to high security areas, etc.

c. The Machinery Repair Division repaired 75 typewriters, 20 clocks, calibrated approximately 2,500 mechanical instruments, overhauled 7 MK28 binoculars, one MK32 binocular, one MK45 binocular, one MK1 ship's telescope, one MK2 sextant, one AN/SAR-7A infrared set, two MK3 MOD3 Parallel Motion Protractors, one Boiler Inspection Device, repaired two 8" Gate valves, refurbished 2 fire pumps, manufactured RLW hoses, manufactured linkages for 2 forced draft blowers, skim cut 8 relief valves, manufactured 100 guage glass covers, refurbished 2 brine pumps, manufactured 50 step wedge standards, repaired 2 fuel oil service pumps, manufactured several small boat shafts, manufactured 4 davit units and repair parts for a portable king post, refurbished 4 large turnbuckles and 12 pelican hook stop pins, manufactured 4 shafts for ship's elevators, 2 plugs for neutrom stowage units, and provided 4,100 manhours of engraving services. In addition, the divisional spaces were completely overhauled and refurbished which significantly enhanced individual shop performance.

d. The Electrical Repair Division completed the renovation of all division spaces. In support of the overhaul effort, 500 flourescent light fixtures were installed, 51 electric motors were rewound and over 5 miles of various electrical cables were run. Division personnel established a departmental tool issue procedure, plastisoled 6,300 pieces of equipment and calibrated over 7,000 meters.

e. The Electronic Division completed a renovation of all division spaces which included the relocation of the Antenna Shop. Division personnel installed new electronic work benches, storage cabinets and lonmat decking in all work centers. The AN/WLR-1, ESM test stand was relocated and rewired. A communications test stand was designed and installed. Required calibration was completed by division personnel utilizing the facilities of other tenders and shore establishments.

f. The Radiological Controls Division conducted one Portable Effluent Tank (PET) hookup, an extensive inspection and decontamination of onboard Radioactive Liquid Waste Tanks and calibrated over 500 Radiac Instruments for various units of the surface and submarine communities. The division also supported one steam generator inspection and one resin discharge for the USS HOLLAND (AS 32). All division spaces were refurbished. A Radiological Controls Practice Evaluation was conducted with an overall grade of excellent.

g. The Repair Services Division completely renovated all work spaces, associated equipment and machinery. Manufactured approximately 300 CANOPUS plaques, 30 retirement packages, 800 board feet of boat beading, installed several thousand feet of tile and terrazo. Poured approximately 100 castings per month. Manufactured several podiums and platforms for change of command ceremonies and retirements. Performed numerous rigging job's for other departments onboard CANOPUS.

h. The Diving Locker completely overhauled and refurbished the LCM-3 Diving Boat Hull, Engineering Plant and Diver's Air System, including the installation of a new L.P. Air Compressor. They met NAVSEA certification requirements in September and received certification papers for the LCM-3. In addition, the Shipboard Diver's Air, oxygen and recompression chamber systems were completely reworked, cleaned, tested and reinstalled. They also completely remodeled all spaces belonging to Shop 72B. They maintained diving qualification by performing scuba dives in support of CANOPUS and participated in Hyperbaric Treatments in support of the USS FRANK CABLE (AS 40) Diving Locker.

i. The Planning and Estimating Division prepared 161 Controlled Work Procedures, accomplished 25 SHIPALTS and 16 A&I's on the CANOPUS including two boiler Lay-up systems and many improvements to the ship's habitability. The Alteration Management Office also tracked 114 SHIPALTS accomplished by the Charleston Naval Shipyard on the CANOPUS. During this time, personnel assigned to Planning and Estimating, Repair Technical Library and Ship Alterations Office completely renovated their spaces, inventoried, revised and entered over 3000 Technical Publications into the Snap System.

j. Nuclear Planning/Repair completed 11 nuclear repairs/alterations. Included were one major valve repair and freeze seal on an SSN, and completion of 3 SHIPALTS in the Nuclear Support Facility. The overhaul of USS CANOPUS resulted in completely moving the Nuclear Planning Office and extensive remodeling/upgrading of spaces and equipment.

k. The Quality Assurance Division reviewed over 133 Non-Nuclear procedures and performed over 3000 of the following examinations: Visual Dimensional, Liquid Penetrant, Magnetic Particle, Eddy Current, Ultrasonic, Radiographic, Acid Spot Test and Chemical Analysis. The NDT Lab installed new metalgraphic examination equipment. All division spaces were completely renovated.

l. All Outside Machinery Division spaces were completely renovated during overhaul. The Governor Shop was designed and installed. The Hydraulic Flushing Rig and Marotta Test Stand were overhauled, a hydro test area was established and a new Ultrasonic Filter Cleaner was installed. Various relief valves were overhauled and tested while numerous items were grade B cleaned. The following types of valves were overhauled: glode, gate, butterfly, swing check, claval, reducing and firemain check valves. One air conditioning package unit was installed while two units were charged and repaired. all work centers conducted in rate training.

3. **SUPPLY DEPARTMENT**

a. During 1984 the Supply Department was engaged primarily in the progress of the regular overhaul. Noteworthy accomplishments include:

- Completion of an Intregated Logistics Overhaul.

- Completion of a SOAP, including backload, of over 71,000 repair parts.

- Refurbishment of all food preparation spaces including the installation of all new equipment.

- Refurbishment of the ship's store, soda fountain and retail storeroom.

- Reconfiguration and refurbishment of repair parts storerooms.

- Installation of SNAP I/Phase II B configuration ADP equipment.

- Bar coding of the repair parts inventory and installation of bar code computers.

- Refurbishment of officer and CPO areas.

4. **ENGINEERING DEPARTMENT**

a. Major maintenance items performed on the ship include the complete overhaul of: 2 low pressure air compressors, 2 main and 4 auxiliary condensate pumps, 2 distilling units, 9 conveyors, 3 elevators, 2 potable water pumps, 3 air conditioning plants, 3 air conditioning salt water pumps, 3 chilled water pumps, 4 refigeration units, 2 fresh water drain pumps, 2 fire and flushing pumps, 2 oxygen and nitrogen producer plants, 2 oxygen and nitrogen plant refrigeration units, and corrected all CHT system discrepancies to become fully certified. Major ship alterations installed include: Oily water separator system, Boiler NAV-jet burner system, make-up feed water demineralizer system, condensate morpholine injection system, superheater temperature indicating system, shore power switchboard and 4 ship alongside stations, increasing the capability to receive 4,000 amperes of shore power for CANOPUS use and 4,800 amperes for tended units, steam return drain cooler, tank level indicating units for 22 fuel oil tanks, 6 potable water tanks and 2 feed water tanks. Replacement of high pressure air compressor, 7 oil free HPAC'S, 3 hydrolic operators for hull valves, boiler floating superheater header diaphram plates, boiler monel bottom blow system, centrafilters for forced draft blower lubricating oil system, bypass valves for main steam bulkhead stops, shore steam condensate return system, nitrogen system for boiler lay-up, boiler hot air lay-up system.

b. Other major accomplishment made within the Engineering Department were: The on loading of 1,004,000 gallons of fuel and 17,000 gallons of lubricating oil, the successful completion of an Engineering Light-Off Examination (LOE), conducted by the CINCLANTFLT Propulsion Examination Board,

and a full power trial. The CANOPUS Damage Control Team demonstrated outstanding knowledge and ability by placing first, for the third consecutive year in the 1984 annual COMNAVBASE Charleston, S.C. Damage Control Olympics.

5. WEAPONS REPAIR DEPARTMENT

a. During this period the Weapons Repair Department completed a significant number of evolutions involving interface with other departments and commands.

(1) The Torpedo/Gunnery Repair (W-1) Division completed the installation of 20 MM and .50 caliber gun Mounts (SHIPALT 1284) and major modifications to all magazines for stowing Small Arms Ammunition. (SHIPALT 1945F) was completed on the MK 48 Torpedo Magazine which gave the ship a capability to handle and stow MK 48 Torpedoes with an installed Torpedo Mounted Dispenser (TMD). Major modification was accomplished to the MOSS and BST Shop to facilitate maintenance requirements at Kings Bay. MOSS/BST Shop installed a Battery Shop. MOSS/BST Shop personnel received extensive on line training in the maintenance and handling of both units. MOSS/BST Shop personnel assisted in the CNSY in installing two VAND systems, one LADS Panel and a Launcher Test Tank. W-1 Division coordinated the firing for M14 rifle and M870 Riot Shotgun. Training lectures continued on a regular basis for appropriate personnel. Approximately 16,715 rounds of various pyrotechnics, 144,517 rounds of small arms ammunition were handled on the ship without mishap or loss of accountability. W-1 Division's work load included an annual inspection for Conventional Weapons Handling and Security. Which was the Tactical Weapon Capability Review.

(2) During the shipyard overhaul period the Fire Control Repair Division was involved with extensive refurbishment of the Fire Control Shop, Module Checkout Shop, and Fire Control Office. This involved the installation of new desks, storage cabinets, deck coverings, and ventilation systems. In converting from MK 88 MOD 1 to MK 88 MOD 2 Fire Control System (FCS) support, all test equipment requirements were reviewed, excess equipment was turned in, and unique replacement equipment was acquired. The MK 412 Module Test Set (MOTS) and Trident Refit Improved Maintenance System (TRIM) were overhauled. The L125 Digital Test Set (DTS) was installed, thereby providing the capability of testing and troubleshooting C-4 Backlift FCS modules and printers. W-2 personnel completed an alignment of the Missile Magazine Liner Rollers, a unique task ordinarily performed by civilian contractors. Fire Control personnel were certified to perform Preventive Maintenance, Corrective Maintenance, and wire-wrap services for the MK 88 MOD 2 FCS. The Fire Control Division was responsible for the acquisition, inventory, and turn-in of shipyard tools required by the Weapons Department. The F/C Division also supported the following ship related refresher training, Tactical Weapons Capability Review (TXCR), 3-M Inspection and Capability and Proficiency Examination (CAPE).

(3) The Nuclear Weapons Repair Division (W-3) was dramatically involved during the 1984 shipyard overhaul. SHIPALT 1303 installed two new 7½ ton overhead bridge cranes and modified existing air piping to accomodate them. The existing 2 ton overhead bridge cranes were removed, refurbished, and reinstalled. SHIPALT 1365, which installed stowage brackets for REB handling equipment, was completed and all equipment was satisfactorily fit-checked. The 2nd and 3rd decks of the missile magazine were refurbished which included painting, stenciling, and laying of non-skid and tile. The H3520 REB Transfer Unit was overhauled which included complete painting and installation of watertight doors in place of joiner doors on entrances to the REB shop and missile magazine. The FZ Security Alarm System was also upgraded under SHIPALT 1384. SHIPALT 1797 provided stowage for 3rd stage motor supports in two locations within the missile magazine. All lighting control panels were relocated outside the missile magazine by accomplishment of SHIPALT 1476. Missile stowage position covers were modified to accommodate mounting of C-4 REB workstand by accomplishment of SHIPALT 1730. The division office work space was made more serviceable by installation of divider partitions and suitable office furnishings. To prepare for the change in weapon systems capability, an extensive training program was formulated. All assigned Capability Proficiency Evaluation tasks were performed satisfactorily. During this period 22 Unsatisfactory Reports were generated.

(4) W-4 Division completed a Poseidon C-3 Missile and Handling Equipment offload to the relieving tender in preparation for entering regular overhaul. A total of five (5) C-3 missiles were transferred. Over 900 items were inventoried, serialized, and cross-checked. W-4 Division completed several SPALTS during overhaul, including Nitrogen System Removal, C-4 electrical modification, C-4 MTRE modification, C-4 Fire Control Switchboard modifications, and handling equipment bracket modification. In addition to SPALT completion, W-4 Division also refurbished the missile trunk area, the missile magazine area, and the Missile Handling Shop Area, which included painting, laying tile, and installing non-skid. W-4 Division personnel attended various Navy Schools; three divisional personnel attended C-4 Tender Maintenance; two divisional personnel attended C-4 Poseidon Operational Readiness inspections: FZ System Certifications, PARE/QA Inspection, Ship's Instrumentation School.

(5) Navigations Repair (W-5) Division performed the overhaul of this division's spaces. The Navigations Repair Shop was extensively rearranged resulting in three distinct NEC work areas. The Navigations Storeroom was refurbished and two ESGM inertial components storage lockers were installed.

The division installed electronic equipment was overhauled by division personnel and MMF. The AM BSQ-4 Frequency Standard was refurbished by the division. Fine test sets were off-loaded for refurbishment by MMF. Upon completion of refurbishment, three test sets were reinstalled, SINS computer test set MK 2 MOD 6, Gear Train Test Set MK 476, and MSR Test Set MK 478. The SINS Module Test Set MK 498 and the Sonar Test Set 508 were not installed, but placed in storage. Upon completion of test set installations, division personnel conducted test set validation and Quality Recertification of all Tender Load Navigation modules.

(6) Quality Assurance (W-6) Division completed conversion of MK 14 Torpedo Magazine and storage spaces into Lower Weapons Berthing (providing 75 additional bunks), TPL and SPALT Offices, TPL and SPALT storage space, and general storage area.

Upgraded Weapons Department's TPL to reflect the documentation necessary for support of the C-4 Missile System. Instituted a computerized TPL inventory system to facilitate a more efficient inventory control and distribution system.

Reinstated a vigorous training program insuring that both the Weight Test Facility and Quality Assurance Division will have personnel trained and ready to assume on-line status.

Completed modification and testing of Weight Test Facility Monorail System.

Refurbished and upgraded the ship's Weight Test Facility.

Commenced testing and certification of the ship's new 57.5 ton boat and missile cranes.

Completed testing of the ship's two motor whale boats.

Accomplished approximately 3000 weight test evolutions throughout the year.

Completed testing of USS MOUNT BAKER (AE 34) aviation and ammunition handling equipment.

6. ADMINISTRATIVE DEPARTMENT

All compartments within the Administrative Department were upgraded during overhaul. Productivity and quantity increased during the overhaul period due to increased paperwork, i.e. required reports, etc.. The Educational Services Office administered Navy-Wide Advancement in Rate exams and provided crew members with Navy Correspondence Courses. The Legal Office handled Captain's Mast, Courts Martials and Administrative Boards. The Command Chaplain continued Bible Study Groups; Outreach Ministries; Marriage Enrichment Sessions; Christian Film Presentations; Pastoral Care and Counselling; and "After Hours" visits.

7. OPERATIONS DEPARTMENT

a. The Operations Department consists of the Communications, Electronics and Navigation Divisions, with personnel from the RM, ET, QM and SM rates being assigned. During this year, the Operations Department underwent complete renovation during shipyard overhaul. In addition to the standard mission responsibilities outlined in current directives which include all standard navigation and external communications functions. Operations Department is also responsible for the repair and maintenance of all communications, radar and own ship's navigational equipment.

b. The Operations Department participated in the refurbishment of its own spaces during the ROH period. Those work projects that were not completed by the Shipyard or Repair Department were accomplished by the Operations Department Tiger Teams. This included preservation, painting, lagging, deck tiling, antenna overhaul and the reconfigurations of radio spaces.

c. The ship's communications guard was over the counter at NTCC Charleston, SC. Throughout the overhaul the manual intervention rate for CANOPUS was less than 1 percent with an average of 475 outgoing messages per month. As a result of hard work, CANOPUS continuously maintained the lowest error rate for large ships in the Charleston area. During overhaul, Communications received many new state of the art systems. The Standard Remote Terminal (SRT) was installed to upgrade the landline AUTODIN communications link and propelled CANOPUS into the automated communications era. CANOPUS was the first ship to receive this system and is the lead platform for future shipboard installations within the submarine force. Additionally, the SRT was configured to operate in a stand-alone capacity to streamline training and to provide for partial system operation while the ship is underway on own power or inport supplied by shore power. This system allows for OCR scanner input, punched paper tape input/output and for storage and retrieval from magnetic tape and/or hard disc files. Other state of the art systems installed include: NAVMACS V2, UHF DAMA, AN/URT-23, Discone/Cage Antenna, SRA-49, SRA-56, 57, 58 multicouplers, AN/GRR-21, AN/GRT-23, AN/WSC-3, XEROX 1075 and SRT. The floor plan for Radio was upgraded to provide for Radiomen and Electronics Techician operator/technician compatibility and for ease of operation. The various new systems were arranged to meet the primary AUTODIN traffic flow with the back-up satellite and HF systems within rational reach. The office space was redesigned as a Distribution Room and outfitted with XEROX 1075 reproduction machines. The previous distribution area was redesigned as a Facilities Control (FACCON) room and all receivers and switchboards and converters were installed for quality monitoring and control. The unclassified teletype and continuous wave (CW) systems were also installed to provide for a logical user friendly configuration. Secure teletype was redesigned to afford system integration to meet both the operator's needs and the technicians' requirements.

d. The Electronics Division conducted a class B overhaul on the AN/SPS-10F radar system and received new state of the art AN/SPA-25E radar repeaters and an AN/SRN-19 satellite navigation set.

e. Visual signaling training was conducted by the Navigation Division between units at the Charleston Naval Shipyard. This training consisted of flaghoists, semaphore and flashing light.

8. DECK DEPARTMENT

a. While in the shipyard, Deck Department completed various major jobs. All CANOPUS small boats (total of eight (8)) were completely stripped of all paint and entirely refurbished and outfitted. All shipboard ground tackle and appendages were sand blasted, preserved and painted. Shipboard accommodation ladders, platforms and boat booms were completely overhauled and preserved.

b. As the shipyard actively replaced both B&M Cranes for conversion to accommodate C-4 missiles, the Crane Division preserved all crane tracks, bulkheads and decks. Additionally, four (4) new Crane Operators and Signalman were qualified during this time.

c. Finally, CANOPUS Deck Department finished first place in the Charleston Naval Station Seamanship Olympics.

9. DENTAL DEPARTMENT

In 1984 the Dental Department provided comprehensive dental treatment to Navy, Marine Corps, and eligible retired beneficiaries at more than 4,010 treatment visits. During January, CANOPUS Dental Department temporarily replaced USS FRANK CABLE (AS 40) in providing dental service to CSS-4. From January until October a clinic was established at Naval Dental Clinic Charleston to provide uninterrupted dental treatment during the overhaul period. Beneficiaries included ship's company, afloat and ashore commands, and retired personnel on a space available basis. Department personnel volunteered off duty hours for participation in the Naval Base Preventive Dentistry Program for dependent children. In October, the Dental Department was relocated back onboard providing service to the ship's personnel and USS ORTOLON. 1984 highlights an outstanding effort by dental personnel in completing a difficult overhaul of dental spaces and maintaining a high degree of dental health for the crew. The crew's dental health status at the close of 1984 was 413 Class I patients, 361 Class II patients, 179 Class III patients, and 86 Class IV patients.

10. MEDICAL DEPARTMENT

The Medical Department evaluated 3,702 patients seeking both routine and emergency care. In support of sick-call, the Pharmacy filled over 4,899 prescriptions and the Laboratory performed 3,848 procedures. The Medical Department routinely monitors over 500 personnel in the hearing conservation program and conducted 536 Audiograms. The Radiation Health Officer monitors more than 300 personnel in the Radiation Health Program. Additionally, 413 complete physical examinations were performed, 80 spectacle prescriptions were submitted, 96 Radiographic Exposures were made and 361 immunizations were given. A total of 348 test and controls were completed utilizing the EMIT Port-Kit in support of the drug screening urinalysis program. During shipyard overhaul the Medical Facilities were updated and remodeled in the area of the Operating Room, Treatment Room, X-Ray Room, Office Spaces, and Medical Ward. The Medical Department participated in the following inspections: LOE, RCPE, Ionizing Radiation Equipment Survey and Underway Heat, Noise and Ventilation Surveys.

11. HABITABILITY

Ship's Force Habitability self-help projects which started on 1 December 1983 is scheduled to complete on 29 April 1985. The project involved as many as 124 personnel at the height of the project, including 5 Technical Representatives. The refurbishment of 18 berthing compartments and 16 sanitary spaces, 3 offices and 1 supply storeroom was accomplished. A total of 22,821 man days have been expended on this self help project to date.