



DEPARTMENT OF THE NAVY
USS AVENGER (MCM-1)
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5750
AVENGER:L6/043
8 March 1989

OPNAV Report Symbol 5750-1

From: Commanding Officer, USS AVENGER (MCM 1)
To: Director of Naval History (OP-09BH), Washington Navy Yard, Washington, DC
20374-0571

Subj: COMMAND HISTORY FOR 1988

Ref: (a) OPNAVINST 5750.12D

Encl: (1) Command Composition and Organization
(2) Chronology
(3) Narrative
(4) Supporting Documents

1. In accordance with reference (a), enclosures (1) thru (4) are submitted.


R. S. RAWLS

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COMNAVSURFLANT
COMCRUDESGRU TWO
COMINERON TWO

USS AVENGER (MCM 1)

Command Composition and Organization

a. **Mission:** Conduct countermeasures for moored and bottom mines. Conduct independent mine warfare operations and participation in coordinated mine warfare force operations with amphibious and other forces. USS AVENGER's primary missions are Mine Warfare (MIW) and Mobility (MOB) and Command, Control, and Communications (CCC). Secondary missions are Intelligence (INT), Fleet Support Operations (FSO), and Non-Combat Operations (NCO).

b. **Immediate Senior in Command:** Commander, Mine Squadron TWO, Charleston, South Carolina.

c. **Commanding Officer of USS AVENGER (MCM 1):** Commander Robert S. Rawls, USN

d. **Homeport:** Charleston, South Carolina.

e. **Statistical Data:**

(1) **Current crew complement:** 7 officers, 60 enlisted.

Length:	224 feet	Draft (Navigation):	15 feet
Beam:	39 feet	Displacement:	1312 tons
Speed:	13.5 knots	Accommodations:	6 officers
Draft (Keel):	12.2 feet		5 CPO
			70 enlisted

Propulsion

- 4 Waukesha LN 1616 DSIN's (Turbocharged) modified diesel engines
- 2 Controllable reversable pitch propellers
- 2 rudders
- 2 Electric light load propulsion motors

Auxiliary Systems

- 1 Gas turbine generator
- 1 Omnithruster bow thruster system

Sensors/Navigation Systems

- 1 AN/SPS-55 Surface Search Radar
- 1 AN/SSN-2 Precise Integrated Navigation System
- 1 AN/SQQ-30 Mine Hunting Sonar

Mine Countermeasures Systems

- 1 AN/SLQ-48 Mine Neutralization System
- Type O Size 1 Mechanical Sweep Equipment
- AN/SLQ-37(V)2 Magnetic/Acoustic Influence Sweep Equipment

Encl (1)

USS AVENGER (MCM 1)

Chronology

JAN 1-3 Ran Degaussing range in Charleston.
JAN 6-12 Conducting EMR/Strayfield tests in Charleston.
JAN 11 Independent Steaming Exercises in Charleston OPAREA.
JAN 12 Inroute training/Degaussing in Charleston area.
JAN 14-FEB 4 Minesweep Generator repairs while inport Charleston.
FEB 8 Type Training/DMJR in Charleston.
FEB 12-MAR 18 Conducted Shakedown Training (REFTRA) in Little Creek, VA OPAREA.
MAR 21-27 Port visit/Pre-shock testing in Washington, DC.
MAR 29-APR 5 Independent Steaming Exercises/Standardization Trials in Little Creek, VA OPAREA.
APR 8 SESEF (Antenna Radiation Pattern Tests) in Charleston.
APR 8-12 Rotor ripout in Charleston.
APR 8-MAY 1 EMI hardening in Charleston.
APR 18-19 Inport OPPE preps SEAT in Charleston.
APR 18-22 Type Training SEAT (Squadron Engineering Assist Team) in Charleston.
APR 20-22 Independent Steaming Exercises OPPE preps SEAT in Charleston OPAREA.
APR 25-29 OPPE preps SEAT in Charleston OPAREA.
APR 27-28 Independent Steaming Exercises in Charleston OPAREA.
MAY 2-16 Precise Integrated Navigation Systems (PINS) workup in Charleston.
MAY 2-3 OPPE preps/Independent Steaming Exercises in Charleston OPAREA.
MAY 5-6 Independent Steaming Exercises in Charleston OPAREA.
MAY 9 Independent Steaming Exercises in Charleston OPAREA.
MAY 10 Enroute Training in Charleston area.
MAY 11 Independent Steaming Exercises in Charleston OPAREA.
MAY 12 Enroute Training in Charleston area.
MAY 13-JUL 5 Minesweep Generator repairs/OPPE preps in Charleston.
MAY 17-JUN 30 IMAV(SIMA) in Charleston.
JUN 13-30 Technical availability in Charleston.
JUL 6-8 Independent Steaming Exercises/TYCOM training in Charleston OPAREA.
JUL 11-15 DMTT (Diesel Mobile Training Team) in Charleston.
JUL 12-14 Independent Steaming Exercises/late sail in Charleston OPAREA.
JUL 18-19 Independent Steaming Exercises/OPPE preps in Charleston OPAREA.
JUL 20 Enroute Training in Charleston area.
JUL 25 Independent Steaming Exercises in Charleston OPAREA.
JUL 28-29 OPPE in Charleston.
AUG 3-5 Independent Steaming Exercises/Acoustic trials in Port Everglades, FL OPAREA.
AUG 8-10 Independent Steaming Exercises/Acoustic trials in Port Everglades, FL OPAREA.
AUG 11-12 Combat Ships Systems Qualifications Training in Port Everglades, FL OPAREA.

USS AVENGER (MCM 1)

Chronology (cont'd)

AUG 15-19	Independent Steaming Exercises/Combat Ships Systems Qualifications Training Phase 3&4 in Port Everglades, FL OPAREA.
AUG 22-23	Combat Ships Systems Qualifications Training in Port Everglades, FL OPAREA.
AUG 26	Enroute Training in Panama City, FL area.
AUG 27-OCT 1	Combat Ships Systems Qualifications Training in Panama City, FL OPAREA.
OCT 1-4	Independent Steaming Exercises/Combat Ships Systems Qualifications Training in Panama City, FL OPAREA.
OCT 7	Enroute Training in Port Everglades, FL area.
OCT 8	Day Cruise in Port Everglades, FL OPAREA.
OCT 9-16	Inport/PUST in Port Everglades, FL.
OCT 17	Sonar Operations in Port Everglades, FL OPAREA.
OCT 19	Enroute Training in Charleston area.
OCT 20-25	Diesel Inspection in Charleston.
OCT 20-NOV 14	Intermediate Maintenance Availability (SIMA) in Charleston.
NOV 8-10	3-M Inspection in Charleston.
NOV 25	Full power run/steering drills in Charleston OPAREA.
NOV 28-DEC 10	OPEVAL/Shock Trials in Key West, FL OPAREA.
NOV 30	Shock #1 in Key West, FL OPAREA.
DEC 5	Shock #2 in Key West, FL OPAREA.
DEC 11-12	Inport Mayport, FL due to bad weather.
DEC 14	Enroute Training in Charleston area.
DEC 22-31	TECH AV in Charleston.
DEC 29	Post Shakedown Availability/IMAVC in Deytens Shipyard, Wando, SC.

USS AVENGER (MCM 1)

Narrative

USS AVENGER successfully completed degaussing runs and strayfields checks in the beginning of January 1988. It is important to note that this vessel made over 200 runs through the Charleston MCM Degaussing Range in a three day period. The Marconi degaussing system, performed flawlessly and the ship's magnetic signature has been adjusted to a safe level for mine countermeasures.

USS AVENGER has experienced difficulties with her minesweep gas turbine generator. Repairs were made to the commutator by the contractor technical representatives 14 January through 4 February 1988. These repairs have allowed the ship to operate the generator at reduced capacity to supply power to the bow thruster and the light load propulsion motors. However, due to inherent design limitations, the AN/SLQ-37(V)2 Magnetic Influence System cannot be pulsed leaving the ship with no influence sweep capability.

The ship conducted type training at the beginning of February and received a Training Readiness Evaluation from Mine Squadron TWO in preparation for Refresher Training at Little Creek, Virginia.

Refresher Training was conducted in the Little Creek, Virginia operations area 12 February through 18 March 1988. All departments training progress was smooth and the ship successfully completed all phases of the training. One area of concern that was identified during training was a lack of Engineering Department approved EOSS and EOCC procedures.

USS AVENGER transited the Potomac River 19 and 20 March for a port visit and pre-shock testing at the Washington Navy Yard in Washington, DC. The ship received many important guests and visitors on board including VADM Nyquist Deputy CNO for Surface Warfare, several members of the Senate Armed Services Committee, and many other Congressmen and their staff. Of note is that the ship had over 2,000 people visit the ship during a two-day open ship.

USS AVENGER transited down the Potomac River 28 March enroute to Little Creek, Virginia for Standardization Trials.

USS AVENGER conducted a portion of Standardization Trials 29 March through 5 April 1989.

April 6th and 7th USS AVENGER transited back to Charleston with several David Taylor Research Center personnel aboard who were conducting sea-keeping surveys of various underway evolutions. April 8th the ship ran the SESEF Range to determine her antenna radiation patterns.

April 8th thru 12th sub-contractor personnel to Peterson Builders Incorporated removed the rotor from the Minesweep Gas Turbine Generator. Beginning at the same time, and running thru 1 May government employees from St. Ingoes, Maryland began installing additional capacitor boards in various equipment to protect this equipment from Electro-Magnetic Interference (EMI).

The ship received a Squadron Engineering Assist Team (SEAT) visit from 18-29 April, consisting of inport and underway inspections and training. USS AVENGER conducted Basic Engineering Casualty Control Exercises (BECCE) in the Charleston operating area on 27-28 April.

During the month of May the ship continued its preparation for the Operational Propulsion Plant Exam (OPPE) in addition to conducting Precise Integrated Navigation System (PINS) training for Combat Systems Qualification Trials.

Narrative (Cont'd)

May 13th thru July 5th the ship was inport for Minesweep Generator repairs, an Intermediate Maintenance Availability with SIMA and a technical availability.

On July 6th the ship was underway to continue OPPE preparations. The Diesel Mobile Training Team came aboard 11-15 July and conducted inport and underway training for the engineering department in preparation for OPPE. The ship continued conducting BECCE's underway in the Charleston operating area and returned to port on the 25th of July. The 25-26 were spent in final cleaning of all engineering spaces prior to OPPE.

The Operational Propulsion Plant Exam was conducted on the 27th and 28th of July. The morning and part of the afternoon of the 27th were spent in pre-lightoff and underway checks. AVENGER was underway in the late afternoon for the Charleston operating area. The ship conducted BECCE's on two watch sections and returned to port on the 28th. USS AVENGER successfully completed OPPE and received a 12 month certification to operate the propulsion plant.

USS AVENGER transited to Port Everglades, Florida on the 1st and 2nd of August for Acoustic Trials and Combat Systems Qualifications Trials. Acoustic Trials were conducted off Boca Raton at night to reduce the amount of small craft radiated noise in the area. The ship was required to transit over a hydrophone array on the bottom placed by David Taylor Research and Development Center using various speeds and equipment configurations. Radiated noise during various engineering plant alignments and speeds was found to be within design specifications. Since this was the first time in over thirty years Acoustic Trials were performed on an MCM ship there were many rough spots in the test plan. David Taylor personnel and ship's force worked together to make testing as realistic as possible. The four days of continuous testing resulted in a great deal of useable data and also laid the frame work for future MCM Acoustic Trials.

Combat Systems Qualifications Trials began on 11 August in Port Everglades, Florida. Phase three and four of the testing was conducted in the Deep and Shallow Water operating Areas. Day one consisted of 4 tracks of 6000 yards length at 3 knots and then 7 knots. These tracks were run using the Dead Reckoning mode of operation. Day two consisted of 6 tracks of 4000 yards length at 3 and 7 knots using the Loran "C" and Dead Reckoning mode of operation. Day three consisted of 6 tracks of 4000 yards length at 3 and 7 knots in shallow water using all available PINS inputs. Day four and Day five were identical to day three except they were conducted in intermediate and deep water, respectively. Completed PINS portion of CSSQT on 16 August 1989. Results of testing in shallow, intermediate, and deep waters were consistent with those found during Charleston testing. Navigational accuracy and equipment reliability were outstanding.

WQN-1, Channelfinder testing was conducted 17-22 August 1989. Trial results substantiates both the advantages of this system and the reliability of the equipment.

Advanced Sea Mine (ASM) testing was conducted on 23 August. The ASM data collection system was the measurement instrumentation used in determining the Acoustic Radiated noise underway. Controlled geometry runs were made at varying speeds with Acoustic Equipment configured for various frequency bands. Although Gulf Stream currents were in excess of 4 knots, the data obtained confirmed the expectation that USS AVENGER is a quiet ship.

August 25-27 ship conducted independent steaming exercises enroute to Panama City, Florida.

The week of August 29th USS AVENGER laid dan bouys, streamed OROPESA sweep, A MK 4 (V), A MK 6 (B), and M MK 5 (A). Dan bouy and Master Reference bouy launch and recovery went extremely well. Integrating PINS into the procedures simplified these evolutions immensely. All other Minesweeping Evolutions went smoother than expected.

Narrative (Cont'd)

The week of 5 September the ship streamed the FA 2A and conducted SQQ-30 Sonar Operator and Mine Neutralization Vehicle (MNV) training. FA 2A streamed and recovered extremely well. Unsuitable conditions for MNS operations prevented completion of all scheduled evolutions. Missions completed went well but more operating time is needed to get operators up to desired proficiency.

September 12, 13, and 14th the ship conducted MNV at sea training and SQQ-30 Sonar Minehunting exercises. AVENGER suffered a casualty to the MNV on 13 September. Salt water contamination of oil filled cables caused serious shorting of electrical sensors and system wiring. Technical Representatives from the manufacturer, Honeywell came aboard and recommended that the Engineering Developmental Model vehicle be replaced with a production model vehicle. This was accomplished by 22 September and the ship continued with CSSQT. Sonar Operations conducted on 13 and 14 September went extremely well. Coordination between PINS and SQQ-30 was outstanding. The ability to punch up sonar contacts and automatically transfer contacts to plotter frees up evaluator and gives him a precise real time visual display.

Operations conducted during the week of 26 September in Panama City, operating area were outstanding. With all material discrepancies cleared, ship was able to conduct 10 to 15 hours of operations each day. With both the proficiency of the operators, and the coordination of the Mine Hunting team steadily improving, mission run time has been cut in half. Minehunting scenarios conducted in shallow water were realistic and effective. Search, classification, and neutralization were executed on every contact planted. Deeper water (95-105 ft) posed greater difficulties in bottom Mine detection. Evidence of thermal layers 8-10 feet from bottom could have accounted for difficulties. PINS has proven to be a critical factor in Minehunting operations. The high degree of precision in correlating contacts seen on previous tracks and its ability to give known positions of lost Sonar contacts has assisted greatly in Mine Neutralization.

The week of 1 October AVENGER continued with CSSQT testing consisting of various Minehunting scenarios as well as Minesweeping. All testing was highly successful and all systems performed as designed.

AVENGER transited back to FT Lauderdale, Florida for Navy Appreciation Week hosting a day cruise for the Navy League in addition to playing host ship for an evening party for Navy League and invited guests. AVENGER held open ship for the entire week, hosting more than 5000 people during the visit. The ship departed Port Everglades on 18 October bound for Charleston arriving on 20 October. A diesel inspection began on 20 October in addition to an Intermediate Maintenance Availability with SIMA Charleston.

USS AVENGER departed Charleston on 25 November for Shock Trials in Key West, Florida, arriving on 27 November. The USS AVENGER was the first Mine Countermeasures vessel in thirty years to be shock tested in a controlled environment. USS AVENGER and USNS MOHAWK (Operations Support Ship) were temporarily based in Key West at the Naval Air Station Trumbo Point Annex adjacent to Naval Air Development Center Detachment. USS AVENGER'S shock trial was designed to identify additional shock hardening initiatives which should be applied to the class, and to demonstrate the capability of the crew to fight the ship in a shock environment.

Shot number one was conducted on 30 November with minimal damage to ship's equipment. The SQQ-30 Sonar transmitter lost power during shot (Sonar was in hull mount position for shot). Ship's force manually recycled transmitters 30 seconds after shot and transmitters returned to full operation. The minesweep gas turbine generator was shut down by ship's force due to overspeed alarm indication. Shutdown of generator resulted in a loss of power for light load propulsion motors, bow thruster, and magnetic tail.

Narrative (Cont'd)

During post-shock testing of SLQ-48 MNV vehicle lost power at 85 feet below the surface. The Emergency Recovery Group Pyrotechnics automatically initiated causing umbilical cable separation and jettisoning of training bomblet and ballast weight. Vehicle was recovered by ship's boat and swimmers. Later investigation revealed a crack in the umbilical cable connector which was source of water intrusion and subsequent shorting of power causing ERL initiation. The crack developed due to tension on the cable during shock which placed a strain on the connector as the vehicle moved about on shock mounts. Shock factor for shot one was 0108.

Shot number two was conducted on 5 December 1989. AVENGER experienced a casualty to the SQQ-30 Sonar Depth Position Indicator as a result of component cards shifting within the unit. The ship also experienced a brief loss of 60 H power immediately following the shot. After power restoration all systems were checked for operation. Bow Thruster was inoperable and found to have a stuck rheostat which was shock induced.

Overall, USS AVENGER shock trials were very successful. USS AVENGER returned to Charleston departing Key West 10 December. Ship was forced to divert to Mayport, Florida due to heavy seas 11 and 12 December. AVENGER arrived in Charleston on 14 December. December 15 through 31st was a holiday leave and upkeep period. On 28 December AVENGER transited up the Wando River to Deyton's Shipyard to begin Post Shakedown Availability.