

OWNER'S & OPERATOR'S MANUAL 2001

YOUR GUIDE TO THE
FACTS & FIGURES
OF THE U.S. NAVY

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All HANDS

MAGAZINE OF THE U.S. NAVY

JANUARY 2001



Rights and
Benefits

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and BUPERS

January

Number 1005

Features

2 Message from the CNO

A Forward from the Chief of Naval Operations ADM Vern Clark

4 Year in Review

All Hands looks at what the Navy did this year through the eyes of Navy photographer's mates.

12 Reader Feeder

If you have some spare time, the MCPON has a book for you. The books on the MCPON's Naval Heritage/Core Values Reading Guide (with reference list) can provide hours of entertainment, education and professional development.

14 Webwise

When you need to find information fast, check out these sites. There's something for everyone.

16 Ranks

From seaman to admiral and everything in between.

17 Enlisted Ratings

Ever wonder what a particular Sailor does for a living? There's a story to be found on every Sailor's sleeve.

20 Military Sealift Ships

Always at the ready, Military Sealift Command ships resupply our ships at sea as well as bring personnel, beans and bullets to the world's hot spots when the need arises.

22 Monthly Basic Pay Table

Check out our pay chart and see what this year's 3.7 percent pay raise means to you.

23 Special Pull-out Warfare Pins and Badges & Order of Precedence

Pins, ribbons and badges. Look no further. These charts explain it all in a special pullout section.

27 Naval Reserve Activities

One key to the Navy's success is the coordinated efforts between Reserve and active forces.

Photo by PH2(AW) Jim Watson

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The Honorable Richard Danzig
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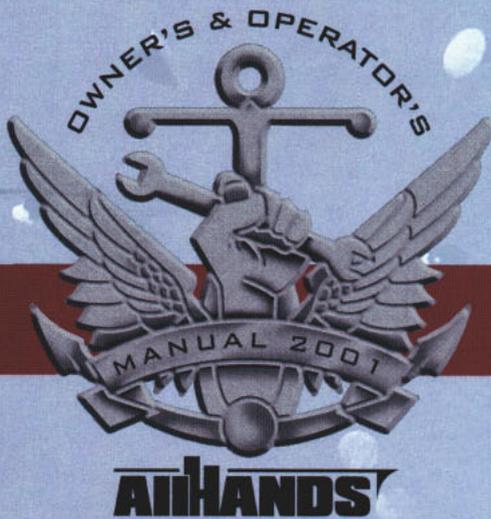
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28 Navy Ships

From cruisers and destroyers to oilers and mine hunters — here's today's surface Navy.

32 Navy Subs

The "silent service" is everywhere.

34 Aircraft Carriers

Carrier battle groups continue to provide forward presence and power projection for the 21st century.

36 Navy Aircraft

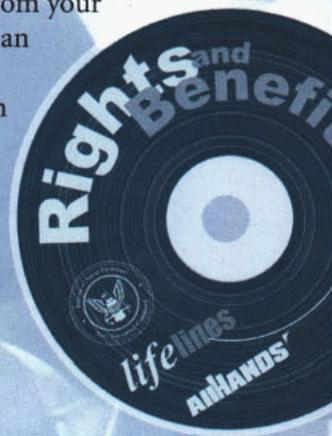
Whether on board one of the Navy's 12 carriers or at a shore facility, U.S. Navy aircraft remain the best in the world.

42 Navy Weapons

The Navy uses a wide variety of modern weapons and weapon systems. Today's Sailors are using cutting-edge technology to put ordnance on target.

48 Navy Rights and Benefits

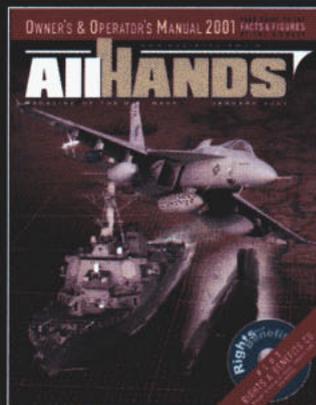
This year's Owner's and Operator's Manual is a multimedia edition; inside these pages, you'll find an All Hands Rights and Benefits CD for easy access from your desktop. If you have an Internet connection, the web sites listed in the CD will link to the source sites at all agencies listed. The Navy's world is at your fingertips.



All Hands
WINNER



2000
Awards of Magazine
Excellence



On the Front Cover

The cover of your Owner's and Operator's Manual 2001 features a photo illustration developed by PH2 Aaron Ansarov and Seth Sirbaugh of our design team at Rabil & Bates.

Next Month

All Hands reflects on the Gulf War: 10 years after *Desert Storm*. We also look at Sailors serving in Bahrain and experiencing the Mideast culture.

Check us out Online at:

www.mediacen.navy.mil



Message From: CNO

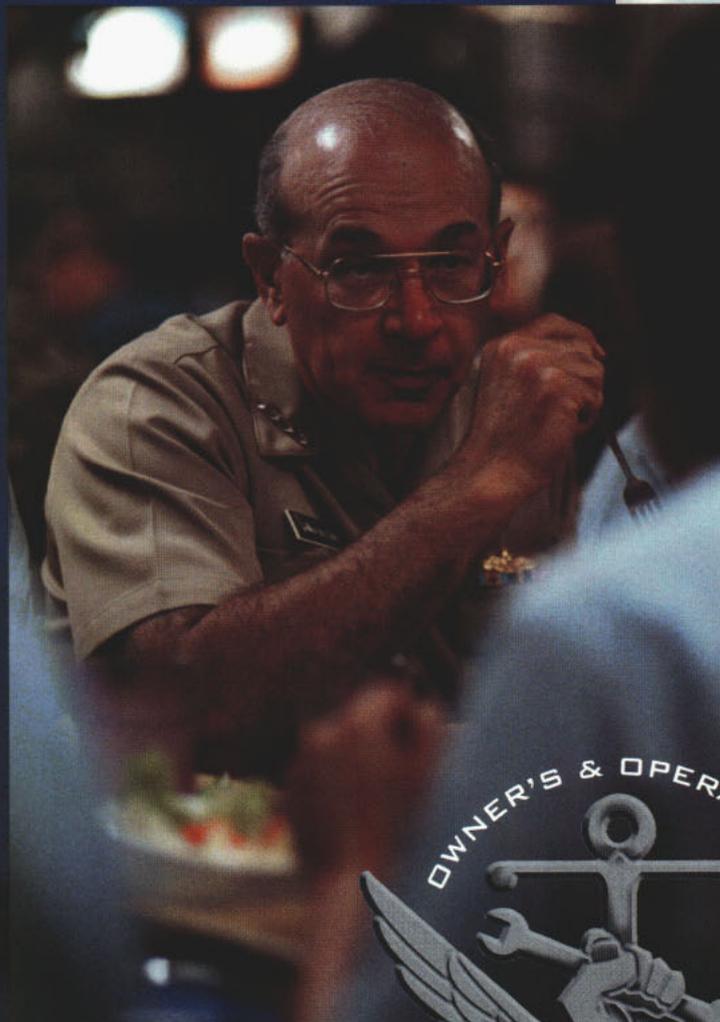
AS OUR GREAT NAVY begins 2001, we look ahead in anticipation of an exceptional year. We are the best trained, most capable and most deployable Navy the world has ever seen, and we have put into motion substantial efforts to make our capabilities even more robust — guaranteeing Sailors the tools, the training and the technology needed to perform at the highest levels.

One of the tools available to Sailors right now is this year's January issue of *All Hands* — the **Owner's and Operator's Manual**.

This fantastic annual publication provides a snapshot of Navy hardware, capabilities and programs. This year's edition is even better because it contains an interactive CD ROM, loaded with Rights and Benefits information for Sailors and their families. It includes the most up-to-date information on pay, allowances and benefits available.

I sincerely believe that Sailors are our Navy's greatest resource. It is our responsibility to ensure our people have all of the information they need to get the job done, and this powerful multi-media package fits the bill. This CD, and the new web site it links to, www.Lifelines2000.org/rights, provides quality-of-life support for Sailors in an appropriate high-tech manner for our cyber age.

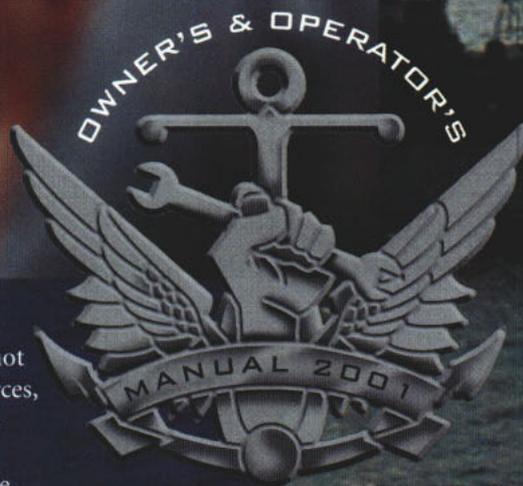
This issue of *All Hands* underscores aspects of our work and life,



representing Navy quality of service. Success on the job cannot be had without the right resources, nor can it be experienced at sea without the peace of mind that comes from contentment on the home front.

Together, with work and life issues in order, we can provide our Navy and our country the quality of service demanded by the new millennium. ☑

ADM Vern Clark
CHIEF OF NAVAL OPERATIONS



To: The Fleet



**“ We are the
best trained,
most capable,
most deployable
Navy the world
has ever seen... ”**

Year in Review

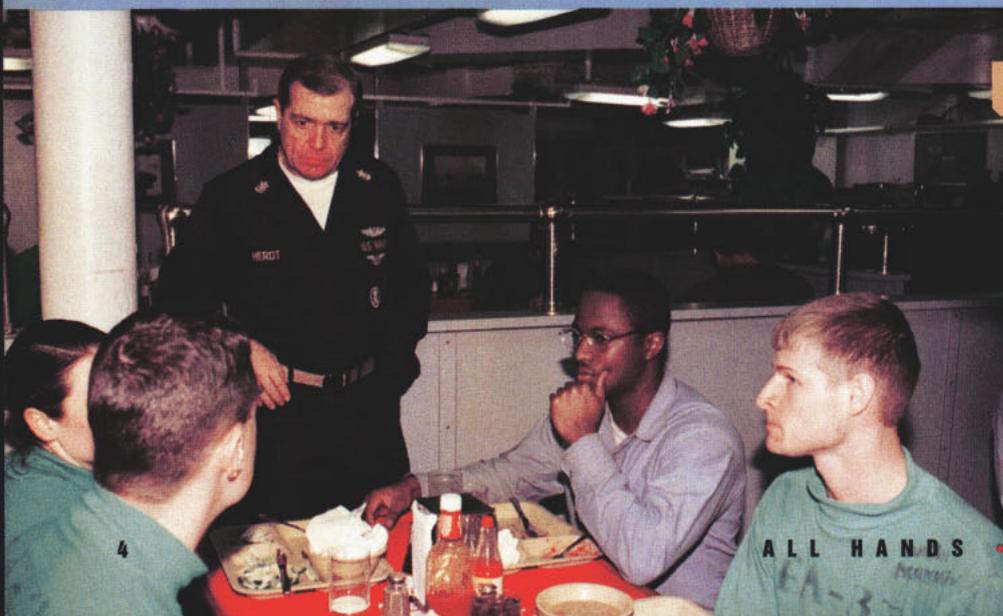


Photo by PH3 Aaron J. Leback

JANUARY

Carrier Qualifications

Sailors chisel ice off of the 4.5 acre flight deck of USS *Harry S. Truman* (CVN 75) after a major snow storm hit the U.S. East Coast, Jan. 25, 2000.

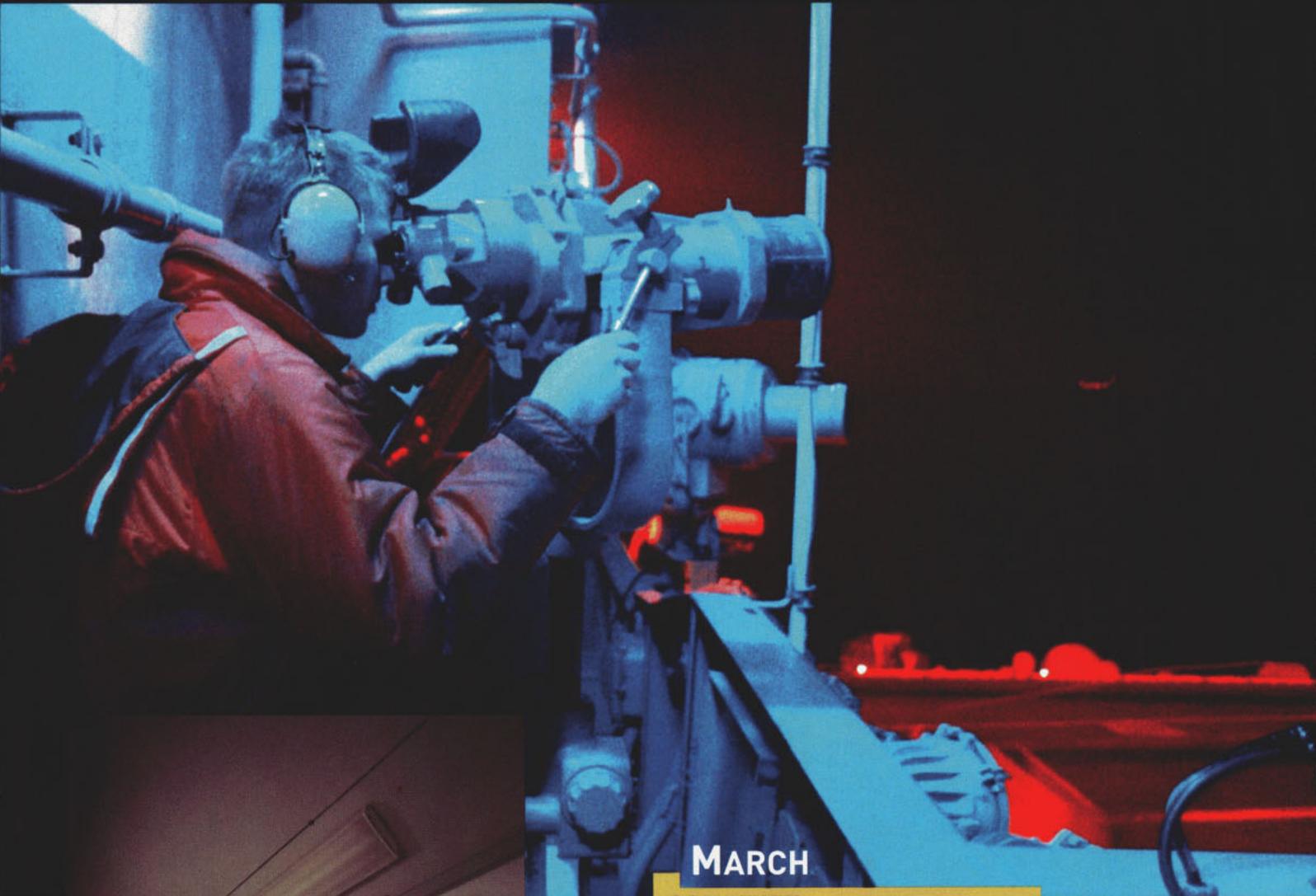


DECEMBER 99

5th Fleet Visit

Master Chief Petty Officer of the Navy MMCM(SS/SW/AW) Jim Herdt visited USS *Enterprise* (CVN 65). During his visit he spent time on the mess decks eating and chatting with Sailors and Marines.

Photo by William R. Crosby



MARCH COMPTUEX

Photo by PH3 Corey Lewis

SN Shawn Bowers stands watch aboard USS *George Washington* (CVN 73) as the forward night lookout, scanning the ocean surface through the "big eyes," during composite unit exercise (COMPTUEX) in the Gulf of Mexico.

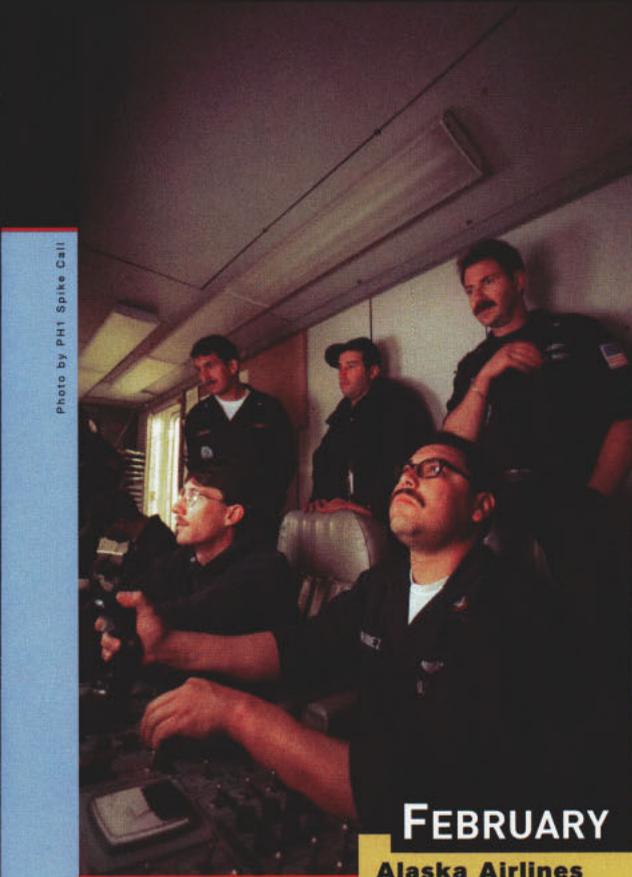
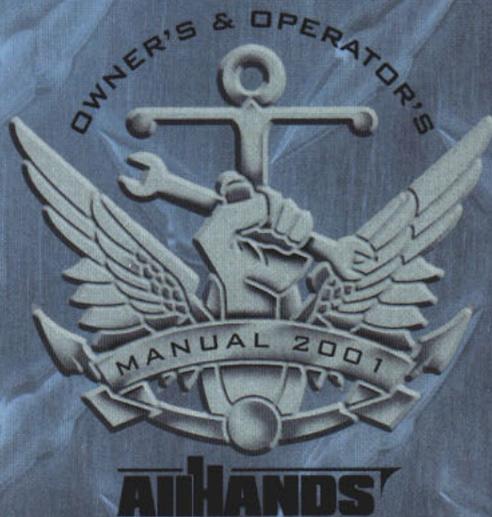


Photo by PH1 Spike Call

FEBRUARY Alaska Airlines

MM2 Robert Rodriguez, of Amarillo, Texas, drives the *Scorpio* a tethered unmanned work vehicle as MM2 Robert Duncan of Torrance, Calif., continues to search the ocean floor for the second of two flight recorders from the crash site of Alaska Airlines Flight 261.



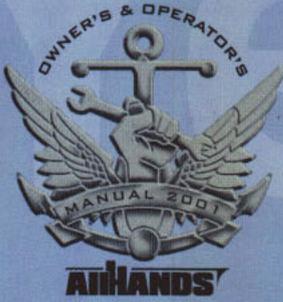


Photo by Marine Corps Sgt. Kevin Dolloson

Marines and Sailors of the 24th Marine Expeditionary Unit (Special Operations Capable) conduct ship-to-shore familiarization exercises with Ukrainian Soldiers in the Black Sea using *Zodiacs* and Ukrainian BTR-80s during the first phase of NATO's Exercise Cooperative Partner 2000. The Ukrainian amphibious ship *Sagadaidi* is anchored to the left in the background.



JUNE

Cooperative Partners

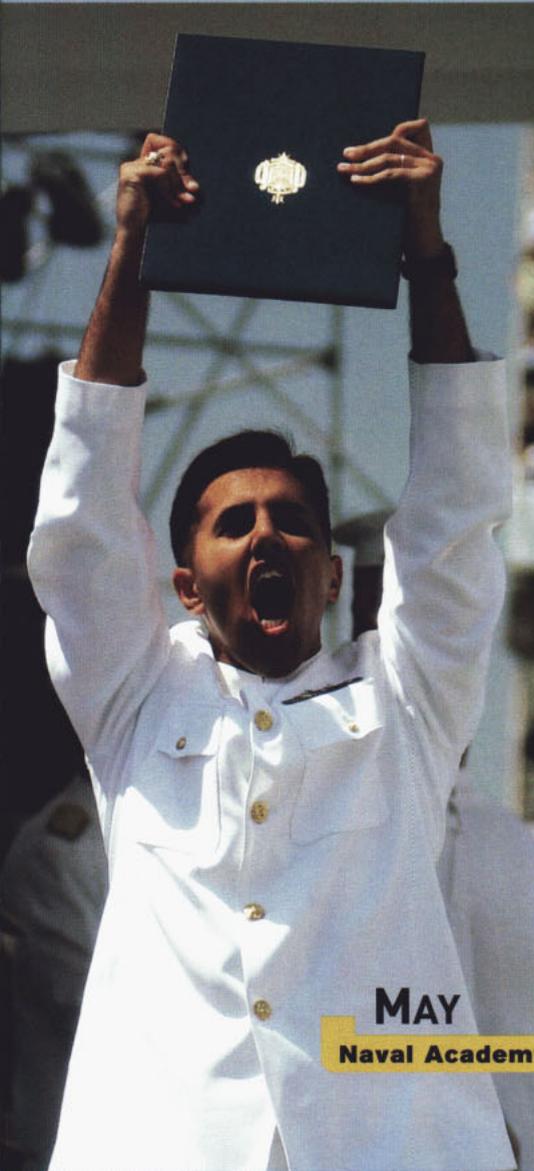
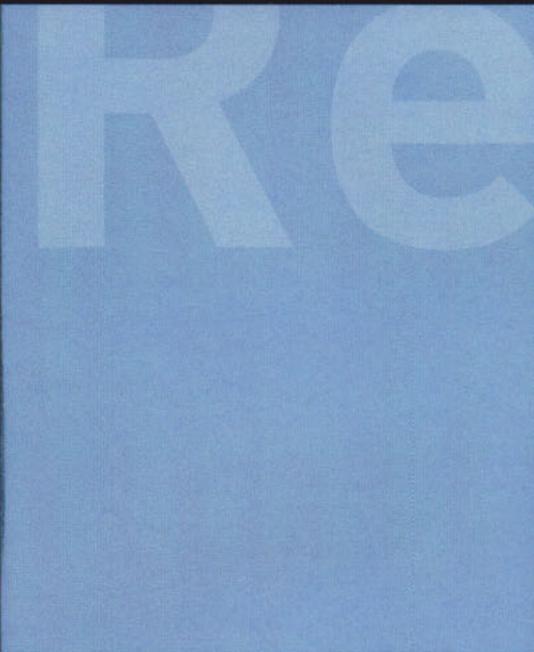


APRIL

Med Ops

Giving the OK thumbs up, EOD LT Kathy Miranda, Carrier Air Wing 7 (CAG) CAPT Richard Jaskot and EOD/SEAL personnel practice Special Purpose Insertion and Extraction (SPIE) techniques from an HH-60 helicopter aboard USS *Dwight D. Eisenhower* (CVN 69).

Photo by PH2 Leland B. Comer



MAY
Naval Academy Graduate



MAY
Admiral On Deck

Photo by PHAN James Wagner

VADM Charles W. Moore Jr., Commander, 5th Fleet, renders a salute as he passes through the side boys before coming aboard USS *Dwight D. Eisenhower* (CVN 69). The *Eisenhower* and Carrier Airwing 7 (CVW 7) were on a six-month cruise on the Persian Gulf.

After four long years at the U.S. Naval Academy, a Midshipman becomes an Ensign.

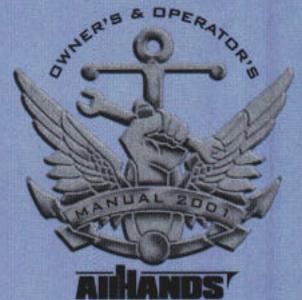
Photo by PHCS Terry Cosgrove



JUNE

Exercise *Strong Angel*

This makeshift refugee camp is one of the sites of exercise *Strong Angel*, located at the base of Puu Paa on the northwest corner of Hawaii. *Strong Angel* was part of the Rim of the Pacific (RIMPAC 2000) exercise that took place in and around the Hawaiian Island chain during the month of June. RIMPAC is the largest maritime exercise in the Asia-Pacific region, bringing together military forces from seven different nations.



AUGUST

Unitas 2000

ENS Deldrick Gray confirms the position of the *Aegis* cruiser USS *Ticonderoga* (CG 47) during an aerial drone gunnery exercise with the naval forces of Argentina, Brazil, Uruguay and France. *Ticonderoga* is participating in the Atlantic Phase of *UNITAS 2000*, an annual series naval exercises with South American naval forces in the region.



Photo by LTJG Corey Barker



JULY

International Naval Review 2000

The 16-barge July 4th fireworks display was spectacular from the flight deck of the aircraft carrier *USS John F. Kennedy* (CV 67) during International Naval Review 2000 (INR 2000). INR 2000 is the Navy's congressionally mandated observance of the millennial year and recognized of the Nation's 224th birthday. More than 25,000 Sailors and Marines from 20 countries enjoyed this week long "Celebration of Seapower for the Millennium."



Photo by PH1 Martin Maddock

AUGUST

Welcome Home

OS2 Class Michael Standfill from Virginia Beach, VA, is greeted by his wife and son upon his return from a scheduled six-month deployment aboard *USS Mahan* (DDG 72). The Norfolk-based destroyer was one of nine ships assigned to the *USS Dwight D. Eisenhower's* (CVN 69) Carrier Battle Group.

OCTOBER

USS Cole (DDG 67) Incident

The United States Navy Ceremonial Guard provides honors for the fallen members of USS *Cole* (DDG 67), upon their return to the United States at Dover AFB, Del.



Photo by TSgt Paul Fazzini, 436th Public Affairs, DAFB



Photo by PHAN Clover B. Christensen

SEPTEMBER

Cleared for Landing

ABAN Steve Reyes and AB Christopher Rogotero signal a helo to land on the flight deck of the amphibious assault ship USS *Essex* (LHD 2) while underway in the sea of Japan.

SEPTEMBER

CARAT 2000

The guided-missile frigate USS *Sides* (FFG 14) steams along with ships attached to the Royal Brunei Navy in support of *CARAT* (Cooperation Afloat Readiness and Training) 2000. *Carat 2000* is an annual series of bilateral exercises between the United States and Southwest Asian navies designed to promote cooperation and interoperability.

Photo by PH1 Spike Call

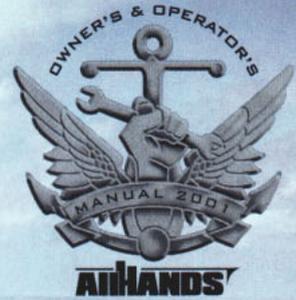
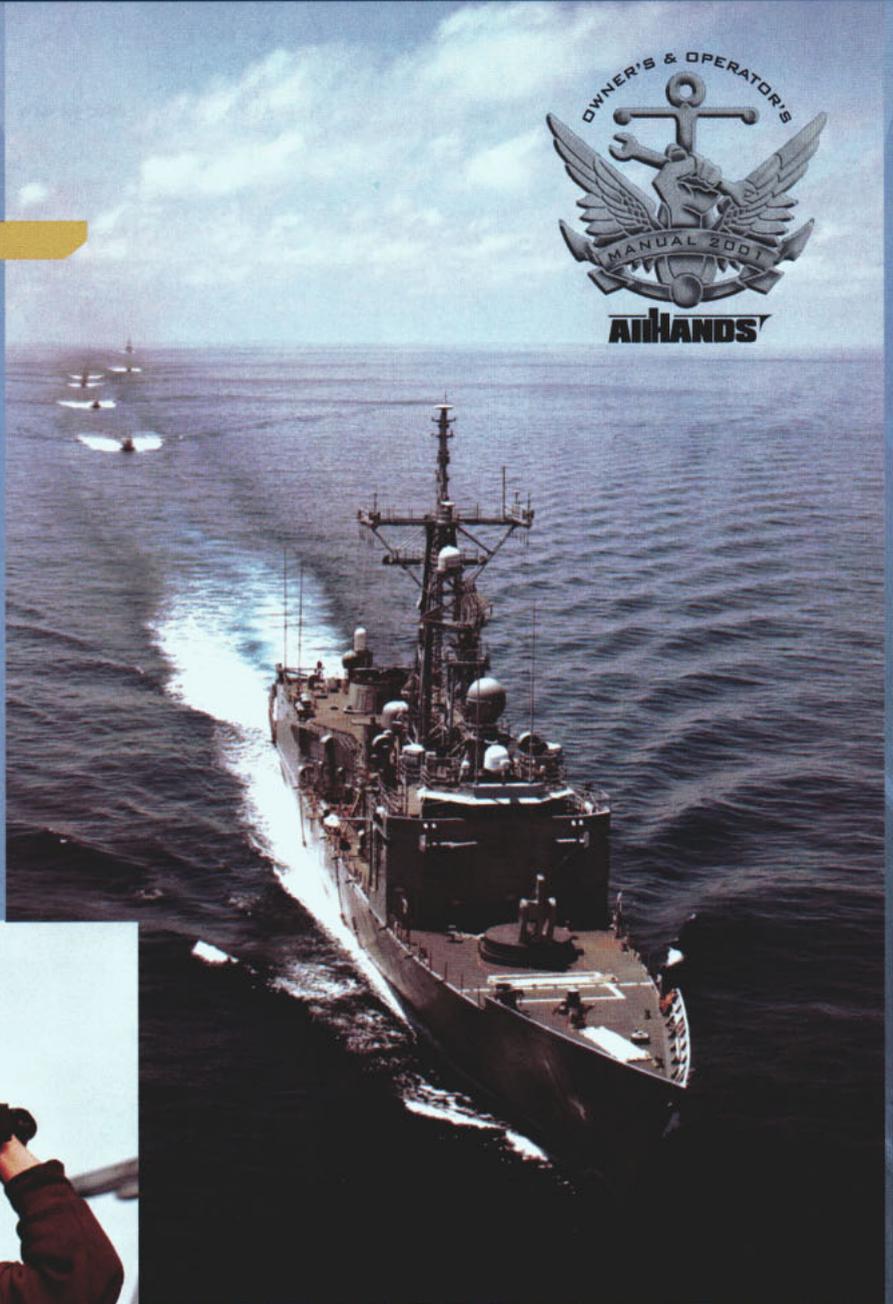


Photo by PH3 Carrie-Anne Gonzalez

NOVEMBER

Southern Watch

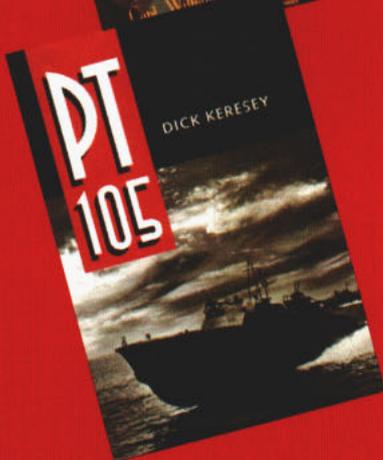
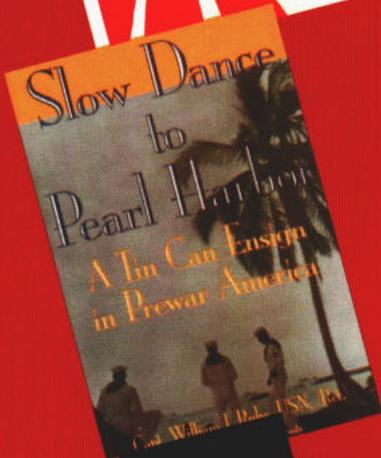
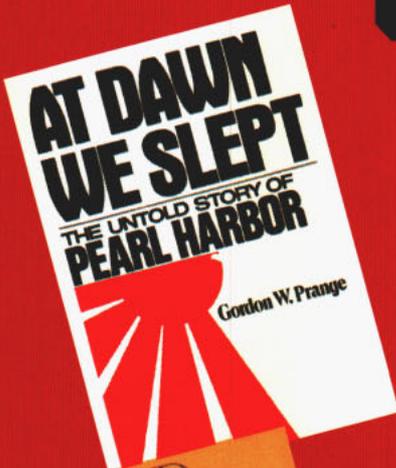
AMSAN Zachariah Wagner prepares to service a jet engine on the flight deck aboard USS *George Washington* (CVN 73).

The Master Chief Petty Officer of the Navy's
Naval Heritage/Core Values

Reading Guide



This list is updated annually as part of the Chief Petty Officer Initiation Season. The books are available through the Navy Exchange or the Uniform Center toll-free ordering system at 1.800.368.4088



"A" List: Required Reading

The Fighting Liberty Ships – A Memoir
by A. A. Hoehling

A Sailor's Log: Recollections of Forty Years of Naval Life
by Rear Adm. Robert D. Evans
with introduction
by Benjamin Franklin Cooling

Tin Can Sailor - Life Aboard the USS Sterett, '39 -'45
by C. Raymond Calhoun

Battleship Sailor
by Theodore C. Mason

Brave Ship, Brave Men
by Arnold S. Lott

We Will Stand by You – Serving in the Pawnee, 1942-1945
by Theodore C. Mason

Crossing the Line: A Bluejacket's World War II Odyssey
by Alvin Kernan

Thunder Below
by Adm. Eugene B. Fluckey, USN (Ret.)

The Battle of Cape Esperance – Encounter at Guadalcanal
by Capt. Charles Cook, USN (Ret.)

The Golden Thirteen – Recollections of the First Black Naval Officers
by Paul Stillwell
with Colin L. Powell

The Last Patrol
by Harry Holmes

Raiders from the Sea
by John Lodwick

Submarine Diary – The Silent Stalking of Japan
by Rear Adm. Corwin Mendenhall

Devotion to Duty – A Biography of Admiral Clifton A. F. Sprague
by John F. Wukovits

Every Other Day: Letters from the Pacific
by George B. Lucas

In Love and War: Revised and Updated
by Jim and Sybil Stockdale

Nimitz
by E. B. Potter

Ship's Doctor
by Captain Terrence Riley

What a Way to Spend a War: Navy Nurse POWs in the Philippines
by Dorothy Still Danner

Naked Warriors
by Cmdr. Frances Douglas Fane and Don Moore

Iwo by Richard Wheeler

Descent Into Darkness
by Cmdr. Edward C. Raymer

Blood on the Sea
by Robert Sinclair Parkin

On Watch
by Adm. Elmo Zumwalt

Wake of the Wahoo
by Forrest J. Sterling

Quiet Heroes
by Cmdr. Frances Omori

The Fast Carriers – The Forging of an Air Navy
by Clark G. Reynolds

A Most Fortunate Ship – Narrative History of Old Ironsides
by Tyrone Martin

A Voice From the Main Deck
by Samuel Leech

Amongst My Best Men – African Americans in the War of 1812
by Gerald T. Altoff

Life in Mr. Lincoln's Navy
by Dennis J. Ringle

Divided Waters – The Naval History of the Civil War
by Ivan Musicant

That Gallant Ship: Yorktown
by Robert Cressman

By Sea, Air, and Land – An Illustrated History of the U.S. Navy and the War in Southeast Asia
by Edward J. Marolda

Shield and Sword – The U.S. Navy and the Persian Gulf
by Marolda and Schneller

My Father My Son
by Zumwalt and Zumwalt

Good Night Officially
by William M. McBride

Tin Can Man
by E. J. Jernigan

Raiders of the Deep
by Lowell Thomas, introduction by Gary E. Weir

"B" List: Reference

American Naval History – An Illustrated Chronology of the U.S. Navy and Marine Corps, 1775-Present
by Edward J. Marolda

The Book of Navy Songs
by The Trident Society

Gray Steel and Black Oil: Fast Tankers and Replenishment at Sea in the U.S. Navy, 1912-92
by Thomas Wildenberg

Sea Power: A Naval History
by E. B. Potter

Air Raid: Pearl Harbor! – Recollections of a Day of Infamy
by Paul Stillwell

E-Boat Alert – Defending the Normandy Invasion Fleet
by James Foster Tent

Heroes in Dungarees – The Story of the American Merchant Marines in World War II
by John Bunker

Unsung Sailors – The Naval Armed Guard in World War II
by Justin F. Gleichauf

The First Team: Pacific Naval Air Combat from Pearl Harbor to Midway
by John B. Lundstrom

The First Team and the Guadalcanal Campaign: Naval Fighter Combat from August to November 1942
by John B. Lundstrom

Admiral John H. Towers — The Struggle for Naval Air Supremacy
by William F. Trimble

The Magnificent Mitscher
by Theodore Taylor

At Dawn We Slept
by Gordon W. Prange

Prisoners of the Japanese
by Gavon Daws

The Two Ocean War
by Samuel Eliot Morrison

History of the U.S. Navy, 1775-1941
by Robert W. Love Jr.

History of the U.S. Navy, 1942-1991
by Robert W. Love Jr.

Clash of the Titans
by Walter J. Boyne

Okinawa — The Last Battle of World War II
by Robert Lackie

Normandy
by Vice Adm. William P. Mack

War at Sea
by Nathan Miller

War Beneath the Sea
by Peter Sudfield

Miracle at Midway
by Gordon W. Prange

Authors at Sea: Modern American Writers Remember Their Naval Service
by Robert Shenk

Rocks & Shoals: Naval Discipline in the Age of Fighting Sail
by James E. Valle

The Unsinkable Fleet: The Politics of U.S. Navy Expansion in World War II
by Joel R. Davidson

Run Silent/Run Deep
by Captain Edward L. Beach

Decision and Dissent with Halsey at Leyte Gulf
by Carl Solberg

PT 105
by Dick Keresey

Submarine Commander
by Paul Schratz

We Pulled Together and Won! Personal Memories of the World War II Era
by Reminisce Books

War in the Boats
by Captain William J. Ruhe

Submarine Admiral
by Adm. J.J. Galantin

All at Sea
by Louis R. Harlany

Slow Dance to Pearl Harbor — A Tin Can Ensign in Prewar America
by Captain William J. Ruhe

The People Navy
by Kenneth J. Hagan

Longitude by Dava Sobel

U-Boat Commander
by Peter Cremer

Kinkaid of the Seventh Fleet: A Biography of Admiral Thomas C. Kinkaid, USN
by Gerald E. Wheeler

Project Hula: Secret Soviet-American Cooperation in the War against Japan
by Richard A. Russell

Assault from the Sea — The Amphibious Landing at Inchon
by Curtis Utz

Cordon of Steel: The U.S. Navy and the Cuban Missile Crisis
by Curtis Utz

Swift and Effective Retribution — The U.S. Sixth Fleet and the Confrontation with Qaddafi
by Joseph T. Stanik

Revolt of the Admirals
by Jeffrey Barlow

A Quest for Glory: A Biography of Rear Admiral John A. Dahlgren
by Robert J. Schneller

One Hundred Years of Sea Power: The U.S. Navy, 1890-1990
by George Baer

Great U.S. Naval Battles
by Jack Sweetman

Black Shoes and Blue Water: Surface Warfare in the U.S. Navy 1945-1975
by Malcolm Muir

Quiet Warrior: A Biography of ADM Raymond A. Spruance
by Thomas Buell

Anchors and Eagles
by Paul Adkisson

Honor Bound: The History of American Prisoners of War in Southeast Asia, 1961-1973
by S.I. Rochester and F. Wiley

And I Was There
by Rear Adm. Edwin T. Layton

The Lost Ships of Guadalcanal
by Robert D. Ballard

Crossed Currents: Navy Women from World War I to Tailhook
by Jean Ebbert/Marie-Beth Hall

"C" List: Reference

History of U.S. Naval Operations in World War II
by Samuel Eliot Morrison

Vol. I: The Battle of the Atlantic

Vol. II: Operations in North African Waters

Vol. III: The Rising Sun in the Pacific

Vol. IV: Coral Sea, Midway and Submarine Actions

Vol. V: The Struggle for Guadalcanal

Vol. VI: Breaching the Bismarks Barrier

Vol. VII: Aleutians, Gilberts and Marshalls

Vol. VIII: New Guinea and the Marianas

Vol. IX: Sicily — Salerno — Anzio

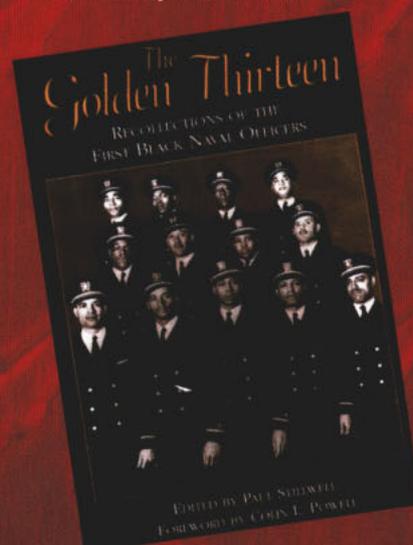
Vol. X: The Atlantic Battle Won

Vol. XI: The Invasion of France and Germany

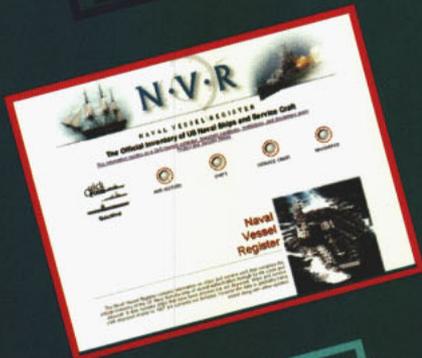
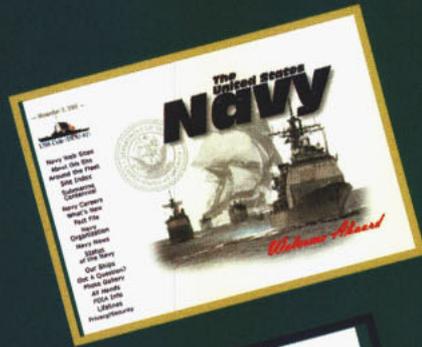
Vol. XII: Leyte

Vol. XIII: The Liberation of the Philippines, Luzon, Mindanao, the Visayas

Vol. XIV: Victory in the Pacific



Web Wise



Navy (and Navy-related) sites can be extremely useful when Sailors want to expand their knowledge of ships, aircraft and weapons systems as well as those commands and areas of the world where they might be stationed next.

The list presented here is nowhere near comprehensive. It is simply meant as a reference to show you what is out there and to help get you started. We've attempted to list sites relating to as many areas of Navy life as possible (and most of them have links to other sites).

The list was accurate at press time. However, site addresses and composition change constantly, so learn to use the various search engines available to find the site (or information) you're looking for.

Site List

www.navy.mil

www.ncts.navy.mil/nol

www.navyjobs.com

www.history.navy.mil

www.defenselink.mil

www.nmaa.org

www.nmcrs.org

www.redcross.org

<http://neds.nebt.daps.mil>

www.mediacen.navy.mil/pubs/allhands/

www.mediacen.navy.mil/pubs/cck

www.chinfo.navy.mil/navpalib/news/navnews/
www.navnews.html

www.history.navy.mil/branches/nhcorg5.htm

www.ncts.navy.mil/navresfor/nrn

www.cpf.navy.mil

www.atlanticfleet.navy.mil

www.comthirdflt.navy.mil/c3f

www.c7f.navy.mil

www.cnfj.navy.mil

www.guam.navy.mil

www.ndw.navy.mil

sea

www.hawaii.navy.mil

www.naples.navy.mil

www.rota.navy.mil

www.yokosuka.navy.mil

www.cnrma.navy.mil

www.cnbsd.navy.mil

www.surfpac.navy.mil

www.cnsl.spear.navy.mil

www.nvr.navy.mil

www.ussconstitution.navy.mil

www.airpac.navy.mil

www.blueangels.navy.mil

www.chinfo.navy.mil/navpalib/ships/submarines/sub100.html

www.sublant.navy.mil

www.csp.navy.mil

www.sealchallenge.navy.mil/

<http://navymedicine.med.navy.mil>

www.tricare.osd.mil

www.ucci.com/government/governmentprog.html

www.bupers.navy.mil

www.dfas.mil

www.cnet.navy.mil

<http://www.navycollege.navy.mil>

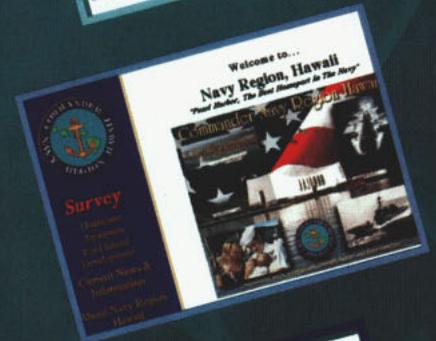
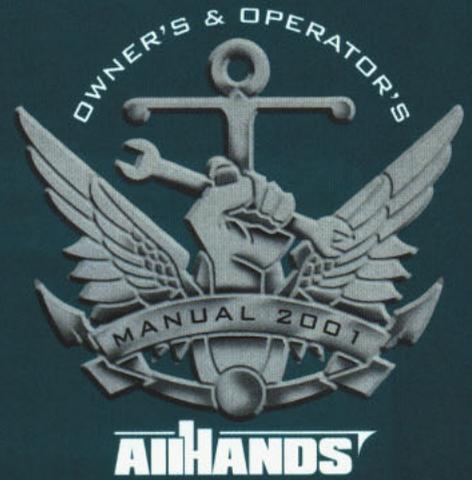
www.cnet.navy.mil/nrotc/nrotc.htm

www.cnet.navy.mil/njrotc/njrotc.htm

www.lifelines4qol.org

www.usni.org

www.lonesailor.org



Ranks

Commissioned Officers

| PAY GRADE/RANK | HAT/SHOULDER/COLLAR |
|----------------------------------|---|
| O-1 Ensign |  |
| O-2 Lieutenant Junior Grade |  |
| O-3 Lieutenant |  |
| O-4 Lieutenant Commander |  |
| O-5 Commander |  |
| O-6 Captain |  |
| O-7 Rear Admiral (Lower Half) |  |
| O-8 Rear Admiral (Upper Half) |  |
| O-9 Vice Admiral |  |
| O-10 Admiral |  |

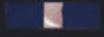
SHOULDER BOARDS



SLEEVE



Warrant Officers

| PAY GRADE/RANK | HAT/SHOULDER/COLLAR |
|------------------------------|---|
| W-1 Chief Warrant Officer |  |
| W-2 Chief Warrant Officer |  |
| W-3 Chief Warrant Officer |  |
| W-4 Chief Warrant Officer |  |

SHOULDER BOARDS



SLEEVE



Enlisted Members

Enlisted Sailors can be referred to by their rank (for example, Petty Officer Third Class Smith) or by a combination of rank and rating (Yeoman First Class Smith). Personnel in pay grades E-4 through E-6 can be referred to as "petty officer" without regard to specific level (i.e., petty officer second class). Knowing enlisted ranks and ratings isn't the easiest thing to do, but once accomplished, you can know the individual's seniority and job specialty with one look at their uniform.

Enlisted Ranks

| PAY GRADE/RANK | HAT/COLLAR | SLEEVE |
|---|------------|--------|
| E-1 Seaman Recruit NO DEVICE | | |
| E-2 Seaman Apprentice NO DEVICE | | |
| E-3 Seaman NO DEVICE | | |
| E-4 Petty Officer Third Class | | |
| E-5 Petty Officer Second Class | | |
| E-6 Petty Officer First Class | | |
| E-7 Chief Petty Officer | | |
| E-8 Senior Chief Petty Officer | | |
| E-9 Master Chief Petty Officer | | |
| E-9* Master Chief Petty Officer of the Navy | | |

Line/Staff/Warrant Officer Sleeve Devices

The specialties of naval officers can be identified by devices worn on the sleeve, shoulder board and collar of certain uniforms.

| | | | |
|------------------------------|--|--------------------------------------|--|
| Line | | Cryptologic Technician | |
| Supply Corps | | Repair Technician | |
| Medical Corps | | Intelligence Technician | |
| Nurse Corps | | Boatswain | |
| Medical Service Corps | | Data Processing Technician | |
| Dental Corps | | Engineering/Nuclear Power Technician | |
| Physician's Assistant | | Aerographer | |
| Judge Advocate General Corps | | Air Traffic Controller | |
| Law Community | | Aviation Boatswain | |
| Christian Chaplain | | Explosive Ordnance Disposal | |
| Jewish Chaplain | | Aviation Electronics Technician | |
| Muslim Chaplain | | Aviation Ordnance Technician | |
| Civil Engineer Corps | | Band Master | |
| Ship's Clerk | | Ordnance Technician | |

* Devices for Diving Officer and Security Technician not pictured

• The example shown here illustrates the E-1 through E-9 Boatswain's Mate structure.

Rates

Enlisted Sailors wear their job specialty in plain sight. Rating badges, worn on the left sleeve, consist of an eagle (called a "crow") chevrons indicating the wearer's rate and a specialty mark indicating rating. While some of these ratings have historical significance (such as Boatswain's Mate), others show the evolution of naval technology in modern times, such as the GS (Gas Turbine System Technicians).



AB

Aviation Boatswain's Mate



AC

Air Traffic Controller



AD

Aviation Machinist's Mate



AE

Aviation Electrician's Mate



AG

Aerographer's Mate



AK

Aviation Storekeeper



AM

Aviation Structural Mechanic



AO

Aviation Ordnanceman



AS

Aviation Support Equipment Technician



AT

Aviation Electronics Technician



AW

Aviation Warfare Systems Operator



AZ

Aviation Maintenance Administrationman



BM

Boatswain's Mate



BU

Builder



CE

Construction Electrician



CM

Construction Mechanic



CT

Cryptologic Technician



DC

Damage Controlman



DK

Disbursing Clerk



DM

Illustrator/Draftsman



DT

Dental Technician



EA

Engineering Aide



EM

Electrician's Mate



EN

Engineman



EO

Equipment Operator



ET

Electronics Technician



EW

Electronics Warfare Technician



FC

Fire Controlman



FT

Fire Control Technician



GM

Gunner's Mate



GS

Gas Turbine System Technician



HM

Hospital Corpsman



HT

Hull Maintenance Technician



IC

Interior Communications Electrician



IS

Intelligence Specialist



IT

Information Systems Technician



JO

Journalist



LI

Lithographer



LN

Legalman



MA

Master-at-Arms



MM

Machinist's Mate



MN

Mineman



MR

Machinery Repairman



MS

Mess Management Specialist



MT

Missile Technician



MU

Musician



NC

Navy Counselor



OS

Operations Specialist



OT

Ocean Systems Technician



PC

Postal Clerk



PH

Photographer's Mate



PN

Personnelman



PR

Aircrew Survival Equipmentman



QM

Quartermaster



RP

Religious Program Specialist



SH

Ship's Serviceman



SK

Storekeeper



SM

Signalman



ST

Sonar Technician



SW

Steelworker



TM

Torpedoman's Mate



UT

Utilitiesman



YN

Yeoman



SN

Apprentice Training Graduate



FN

Apprentice Training Graduate



AN

Apprentice Training Graduate



AllHANDS

USNS Ships

NAVAL FLEET AUXILIARY FORCE

T-AFS (Combat Stores Ships)

USNS *Niagara Falls* (T-AFS 3)
USNS *Concord* (T-AFS 5)
USNS *San Jose* (T-AFS 7)
USNS *Sirius* (T-AFS 8)
USNS *Spica* (T-AFS 9)
USNS *Saturn* (T-AFS 10)

T-AE (Ammunition Ships)

USNS *Kilauea* (T-AE 26)
USNS *Butte* (T-AE 27)
USNS *Santa Barbara* (T-AE 28)
USNS *Flint* (T-AE 32)
USNS *Shasta* (T-AE 33)
USNS *Mount Baker* (T-AE 34)
USNS *Kiska* (T-AE 35)

T-ATF (Fleet Ocean Tugs)

USNS *Catawba* (T-ATF 168)
USNS *Navajo* (T-ATF 169)
USNS *Mohawk* (T-ATF 170)
USNS *Sioux* (T-ATF 171)
USNS *Apache* (T-ATF 172)

T-AO (Oilers)

USNS *John Lenthall* (T-AO 189)
USNS *Walter S. Diehl* (T-AO 193)
USNS *John Ericsson* (T-AO 194)
USNS *Leroy Grumman* (T-AO 195)
USNS *Kanawha* (T-AO 196)
USNS *Pecos* (T-AO 197)
USNS *Big Horn* (T-AO 198)
USNS *Tippecanoe* (T-AO 199)
USNS *Guadalupe* (T-AO 200)
USNS *Patuxent* (T-AO 201)
USNS *Yukon* (T-AO 202)
USNS *Laramie* (T-AO 203)
USNS *Rappahannock* (T-AO 204)

T-AH (Hospital)

USNS *Mercy* (T-AH 19)
USNS *Comfort* (T-AH 20)

SPECIAL MISSION PROGRAM

T-AGOS (Ocean Surveillance)

USNS *Stalwart* (T-AGOS 1)*
USNS *Vindicator* (T-AGOS 3)*
USNS *Persistent* (T-AGOS 6)*
USNS *Indomitable* (T-AGOS 7)*
USNS *Prevail* (T-AGOS 8)
USNS *Assertive* (T-AGOS 9)
USNS *Bold* (T-AGOS 12)
USNS *Capable* (T-AGOS 16)*
USNS *Victorious* (T-AGOS 19)

USNS *Able* (T-AGOS 20)
USNS *Effective* (T-AGOS 21)
USNS *Loyal* (T-AGOS 22)
USNS *Impeccable* (T-AGOS 23)**
*converted for counter-drug missions
**to be delivered

T-AGS (Oceanographic Survey)

USNS *Kane* (T-AGS 27)
USNS *John McDonnell* (T-AGS 51)
USNS *Littlehales* (T-AGS 52)
USNS *Pathfinder* (T-AGS 60)
USNS *Sumner* (T-AGS 61)
USNS *Bowditch* (T-AGS 62)
USNS *Henson* (T-AGS 63)
USNS *Bruce C. Heezen* (T-AGS 64)
USNS *Mary Sears* (T-AGS 65)**
**to be delivered

T-ARC (Cable Repair)

USNS *Zeus* (T-ARC 7)

T-AG (Acoustic Research)

USNS *Hayes* (T-AG 195)

T-AG (Missile Range Instrumentation)

USNS *Observation Island* (T-AGM 23)
USNS *Invincible* (T-AGM 24)
USNS *Waters* (T-AGS-45)

(Special Mission Charter)

MV *Carolyn Chouest*
MV *Dolores Chouest*
MV *Kellie Chouest*
MV *Cory Chouest*
MV *C-Commando*

AFLOAT PRE-POSITIONING PROGRAM

Maritime Pre-Positioning Ships
(supports U.S. Marine Corps and U.S. Navy)

T-AK (Maritime Pre-Positioning)

MV *Cpl. Louis J. Hauge Jr.* (T-AK 3000)
MV *Pfc. William B. Baugh* (T-AK 3001)
MV *Pfc. James Anderson Jr.* (T-AK 3002)
MV *1st Lt. Alex Bonnyman* (T-AK 3003)
MV *Pvt. Franklin J. Phillips* (T-AK 3004)
SS *Sgt. Matej Kocak* (T-AK 3005)
SS *Pfc. Eugene A. Obregon* (T-AK 3006)
SS *Maj. Stephen W. Pless* (T-AK 3007)
MV *2nd Lt. John P. Bobo* (T-AK 3008)
MV *Pfc. Dewayne T. Williams* (T-AK 3009)
MV *1st Lt. Baldomero Lopez* (T-AK 3010)
MV *1st Lt. Jack Lummus* (T-AK 3011)
MV *Sgt. William R. Button* (T-AK 3012)

T-AK (Maritime Pre-Positioning Force Enhanced)

USNS *1st Lt. Harry L. Martin*
(T-AK 3015)
USNS *Lance Cpl. Roy M. Wheat*
(T-AK 3017)
USNS *Gy. Sgt. Fred W. Stockham*
(T-AK 3017)

Combat Prepositioning Ships (supports U.S. Army)

T-ACS (Auxiliary Crane)

SS *Gopher State* (T-ACS 4)

T-AKR (Large Medium-Speed, Roll-on/Roll-off)

USNS *Gilliland* (T-AKR 298)
USNS *Bob Hope* (T-AKR 300)
USNS *Watson* (T-AKR 310)
USNS *Sisler* (T-AKR 311)
USNS *Dahl* (T-AKR 312)
USNS *Red Cloud* (T-AKR 313)
USNS *Charlton* (T-AKR 314)
USNS *Watkins* (T-AKR 315)
USNS *Pomeroy* (T-AKR 316)**
USNS *TBD* (T-AKR 317)**
**to be delivered

T-AK (Float-on/Float-off)

MV *American Cormorant* (T-AK 2062)

T-AK (Heavy Lift Pre-Positioned)

MV *Strong Virginian* (T-AK 9205)

T-AK (Lighter Aboard)

SS *Green Valley* (T-AK 2049)
SS *Green Harbour* (T-AK 2064)
MV *Jeb Stuart* (T-AK 9204)

T-AK (Container)

MV *Lt. Col. Calvin P. Titus* (T-AK 5089)
MV *SP5 Eric G. Gibson* (T-AK 5091)

Logistics Prepositioning Ships

(supports U.S. Air Force, U.S. Navy and the
Defense Logistics Agency)

T-AVB (Aviation Maintenance Logistics)

SS *Wright* (T-AVB 3)
SS *Curtiss* (T-AVB 4)

T-AK (Freighters)

MV *Buffalo Soldier* (T-AK 9881)
SS *Cape Jacob* (T-AK 5029)

T-AK (Container)

MV *Captain Steven L. Bennett* (T-AK 4296)
MV *Maj. Bernard F. Fisher* (T-AK 4396)

T-AOT (Tankers)

SS Potomac (T-AOT 181)
 USNS Henry J. Kaiser (T-AOT 187)
 SS Petersburg (T-AOT 5075)

SEALIFT PROGRAM**T-AKR (Fast Sealift)**

USNS Algol (T-AKR 287)
 USNS Bellatrix (T-AKR 288)
 USNS Denebola (T-AKR 289)
 USNS Pollux (T-AKR 290)
 USNS Altair (T-AKR 291)
 USNS Regulus (T-AKR 292)
 USNS Capella (T-AKR 293)
 USNS Antares (T-AKR 294)

(Roll-on/Roll-off)

MV Strong Texan

T-AK (Break Bulk Ship)

MV Green Wave (T-AK 2050)

T-AK (Combination)

MV Maersk Constellation (T-AK 9656)

(Down Range Support)

MV Seacor Clipper
 MV Sea Mark III

(Container)

MV Sagamore

T-AOT (Tankers)

MV Gus W. Darnell (T-AOT 1121)
 MV Paul Buck (T-AOT 1122)
 MV Samuel L. Cobb (T-AOT 1123)
 MV Richard G. Matthiesen (T-AOT 1124)
 MV Lawrence H. Gianella (T-AOT 1125)
 MV Valiant (T-AOT 94)

T-AKR (Large, Medium-Speed, Roll-on/Roll-off)

USNS Shughart (T-AKR 295)
 USNS Gordon (T-AKR 296)
 USNS Yano (T-AKR 297)
 USNS Fisher (T-AKR 301)
 USNS Seay (T-AKR 302)
 USNS Mendonca (T-AKR 303)**
 USNS Pillalau (T-AKR 304)**
 USNS Brittin (T-AKR 305)**
 USNS Benavidez (T-AKR 306)**

**to be delivered

READY RESERVE FORCE**T-AK (Break Bulk)**

SS Cape Nome (T-AK 1014)
 SS Cape Ann (T-AK 5009)
 SS Cape Alexander (T-AK 5010)
 SS Cape Archway (T-AK 5011)
 SS Cape Avinof (T-AK 5013)
 SS Cape Johnson (T-AK 5075)
 SS Cape Juby (T-AK 5077)

T-AK (Barge Carriers)

SS Cape Fear (T-AK 5061)
 SS Cape May (T-AK 5063)
 SS Cape Mendocino (T-AK 5064)
 SS Cape Mohican (T-AK 5065)

SS Cape Flattery (T-AK 5070)
 SS Cape Florida (T-AK 5071)
 SS Cape Farewell (T-AK 5073)

T-AKR (Roll-on/Roll-off)

SS Comet (T-AKR 7)
 SS Meteor (T-AKR 9)
 SS Cape Island (T-AKR 10)
 SS Cape Intrepid (T-AKR 11)
 MV Cape Texas (T-AKR 112)
 MV Cape Taylor (T-AKR 113)
 GTS Adm Wm. M. Callaghan (T-AKR 1001)
 MV Cape Orlando (T-AKR 2044)
 MV Cape Ducato (T-AKR 5051)
 MV Cape Douglas (T-AKR 5052)
 MV Cape Domingo (T-AKR 5053)
 MV Cape Decision (T-AKR 5054)
 MV Cape Diamond (T-AKR 5055)
 SS Cape Isabel (T-AKR 5062)
 MV Cape Hudson (T-AKR 5066)
 MV Cape Henry (T-AKR 5067)
 MV Cape Horn (T-AKR 5068)
 MV Cape Edmont (T-AKR 5069)
 SS Cape Inscription (T-AKR 5076)
 MV Cape Lambert (T-AKR 5077)
 MV Cape Lobos (T-AKR 5078)
 MV Cape Knox (T-AKR 5082)
 MV Cape Kennedy (T-AKR 5083)
 MV Cape Race (T-AKR 9960)
 MV Cape Washington (T-AKR 9961)
 MV Cape Wrath (T-AKR 9962)
 MV Cape Vincent (T-AKR 9666)
 MV Cape Rise (T-AKR 9678)
 MV Cape Ray (T-AKR 9679)
 MV Cape Victory (T-AKR 9701)
 MV Cape Trinity (T-AKR 9711)

T-ACS (Auxiliary Crane)

SS Keystone State (T-ACS 1)
 SS Gem State (T-ACS 2)
 SS Grand Canyon State (T-ACS 3)
 SS Flickertail State (T-ACS 5)

SS Cornhusker State (T-ACS 6)
 SS Diamond State (T-ACS 7)
 SS Equality State (T-ACS 8)
 SS Green Mountain State (T-ACS 9)
 SS Beaver State (T-ACS 10)

T-AP (Troop)

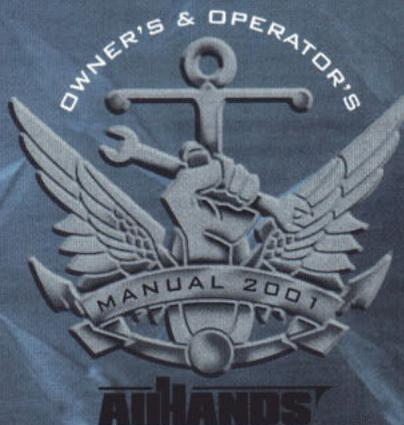
SS Empire State (T-AP 1001)
 SS Golden Bear

T-AOT (Tankers)

MV Nodaway (T-AOT 78)
 MV Alatna (T-AOT 81)
 MV Chattahoochee (T-AOT 82)
 SS Mission Buenaventura (T-AOT 1012)
 MV Mission Capistrano (T-AOT 5005)
 SS Mount Washington (T-AOT 5076)
 SS Chesapeake (T-AOT 5084)

T-AK (Freighters)

SS Cape Girardeau (T-AK 2039)
 SS Cape John (T-AK 5022)
 SS Cape Gibson (T-AK 5051)
 SS Cape Breton (T-AK 5056)
 SS Cape Bover (T-AK 5057)
 SS Cape Borda (T-AK 5058)
 SS Cape Blanco (T-AK 5060)



USNS Leroy Grumman (T-AO 195) (middle)

Photo by PH1(AW) David Sidney

USNS Ships

Monthly Basic Pay Table



Effective January 1, 2001

| PAY GRADE | YEARS OF SERVICE | | | | | | | | | | | | | | |
|--|------------------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|
| | <2 | 2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 |
| COMMISSIONED OFFICERS | | | | | | | | | | | | | | | |
| O-10 | 8518.80 | 8518.80 | 8518.80 | 8518.80 | 8518.80 | 9156.90 | 9156.90 | 9664.20 | 9664.20 | 10356.00 | 10356.00 | 11049.30 | 11103.90 | 11334.60 | 11737.20 |
| O-9 | 7550.10 | 7747.80 | 7912.80 | 7912.80 | 7912.80 | 8114.10 | 8114.10 | 8451.60 | 8451.60 | 9156.90 | 9156.90 | 9664.29 | 9803.40 | 10004.70 | 10356.00 |
| O-8 | 6838.20 | 7062.30 | 7210.50 | 7252.20 | 7437.30 | 7747.80 | 7819.80 | 8114.10 | 8198.70 | 8451.60 | 8818.50 | 9156.90 | 9382.80 | 9382.80 | 9382.80 |
| O-7 | 5682.30 | 6068.40 | 6068.40 | 6112.50 | 6340.80 | 6514.50 | 6715.50 | 6915.90 | 7116.90 | 7747.80 | 8280.90 | 8280.90 | 8280.90 | 8280.90 | 8322.60 |
| O-6 | 4211.40 | 4626.60 | 4930.20 | 4930.20 | 4949.10 | 5160.90 | 5189.10 | 5189.10 | 5360.70 | 6005.40 | 6311.40 | 6617.40 | 6791.40 | 6967.80 | 7309.80 |
| O-5 | 3368.70 | 3954.90 | 4228.80 | 4280.40 | 4450.50 | 4450.50 | 4584.30 | 4831.80 | 5155.80 | 5481.60 | 5637.00 | 5790.30 | 5964.60 | 5964.60 | 5964.60 |
| O-4 | 2839.20 | 3457.20 | 3687.90 | 3739.50 | 3953.40 | 4127.70 | 4409.70 | 4629.30 | 4781.70 | 4935.00 | 4986.60 | 4986.60 | 4986.60 | 4986.60 | 4986.60 |
| O-3 | 2638.20 | 2991.00 | 3228.00 | 3489.30 | 3656.40 | 3839.70 | 3992.70 | 4189.80 | 4292.10 | 4292.10 | 4292.10 | 4292.10 | 4292.10 | 4292.10 | 4292.10 |
| O-2 | 2301.00 | 2620.80 | 3018.60 | 3120.30 | 3184.80 | 3184.80 | 3184.80 | 3184.80 | 3184.80 | 3184.80 | 3184.80 | 3184.80 | 3184.80 | 3184.80 | 3184.80 |
| O-1 | 1997.70 | 2079.00 | 2512.80 | 2512.80 | 2512.80 | 2512.80 | 2512.80 | 2512.80 | 2512.80 | 2512.80 | 2512.80 | 2512.80 | 2512.80 | 2512.80 | 2512.80 |
| COMMISSIONED OFFICERS WITH MORE THAN 4 YEARS ACTIVE-DUTY SERVICE AS AN ENLISTED MEMBER OR WARRANT OFFICER | | | | | | | | | | | | | | | |
| O-3E | 0.00 | 0.00 | 0.00 | 3489.30 | 3656.40 | 3839.70 | 3992.70 | 4189.80 | 4355.50 | 4450.50 | 4580.40 | 4580.40 | 4580.40 | 4580.40 | 4580.40 |
| O-2E | 0.00 | 0.00 | 0.00 | 3120.30 | 3184.80 | 3285.90 | 3457.20 | 3589.50 | 3687.90 | 3687.90 | 3687.90 | 3687.90 | 3687.90 | 3687.90 | 3687.90 |
| O-1E | 0.00 | 0.00 | 0.00 | 2512.80 | 2684.10 | 2783.10 | 2884.20 | 2984.10 | 3120.30 | 3120.30 | 3120.30 | 3120.30 | 3120.30 | 3120.30 | 3120.30 |
| WARRANT OFFICERS | | | | | | | | | | | | | | | |
| W-5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4640.70 | 4800.00 | 4959.90 | 5120.10 |
| W-4 | 2688.00 | 2891.70 | 2974.80 | 3056.70 | 3197.40 | 3336.30 | 3477.00 | 3614.10 | 3756.30 | 3892.50 | 4032.00 | 4168.20 | 4309.50 | 4448.40 | 4590.90 |
| W-3 | 2443.20 | 2649.90 | 2649.90 | 2684.10 | 2793.90 | 2919.00 | 3084.30 | 3184.80 | 3294.60 | 3420.30 | 3545.10 | 3669.90 | 3794.70 | 3919.80 | 4045.20 |
| W-2 | 2139.60 | 2315.10 | 2315.10 | 2391.00 | 2512.80 | 2649.90 | 2750.70 | 2851.50 | 2949.60 | 3058.20 | 3169.50 | 3280.80 | 3391.80 | 3503.40 | 3503.40 |
| W-1 | 1782.60 | 2043.90 | 2043.90 | 2214.60 | 2315.10 | 2419.20 | 2523.30 | 2626.80 | 2731.50 | 2835.90 | 2940.00 | 3018.60 | 3018.60 | 3018.60 | 3018.60 |
| ENLISTED MEMBERS | | | | | | | | | | | | | | | |
| E-9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3126.90 | 3197.40 | 3287.10 | 3392.40 | 3498.00 | 3601.80 | 3742.80 | 3882.60 | 4060.80 |
| E-8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2622.00 | 2697.90 | 2768.40 | 2853.30 | 2945.10 | 3041.10 | 3138.00 | 3278.10 | 3417.30 | 3612.60 |
| E-7 | 1831.20 | 1999.20 | 2075.10 | 2149.80 | 2227.20 | 2303.10 | 2379.00 | 2454.90 | 2529.60 | 2607.00 | 2683.80 | 2758.80 | 2890.80 | 3034.50 | 3250.50 |
| E-6 | 1575.00 | 1740.30 | 1817.40 | 1891.80 | 1969.50 | 2046.00 | 2122.80 | 2196.90 | 2272.50 | 2327.70 | 2367.90 | 2367.90 | 2370.30 | 2370.30 | 2370.30 |
| E-5 | 1381.80 | 1549.20 | 1623.90 | 1701.00 | 1777.80 | 1855.80 | 1930.50 | 2007.90 | 2007.90 | 2007.90 | 2007.90 | 2007.90 | 2007.90 | 2007.90 | 2007.90 |
| E-4 | 1288.80 | 1423.80 | 1500.60 | 1576.20 | 1653.00 | 1653.00 | 1653.00 | 1653.00 | 1653.00 | 1653.00 | 1653.00 | 1653.00 | 1653.00 | 1653.00 | 1653.00 |
| E-3 | 1214.70 | 1307.10 | 1383.60 | 1385.40 | 1385.40 | 1385.40 | 1385.40 | 1385.40 | 1385.40 | 1385.40 | 1385.40 | 1385.40 | 1385.40 | 1385.40 | 1385.40 |
| E-2 | 1169.10 | 1169.10 | 1169.10 | 1169.10 | 1169.10 | 1169.10 | 1169.10 | 1169.10 | 1169.10 | 1169.10 | 1169.10 | 1169.10 | 1169.10 | 1169.10 | 1169.10 |
| E-1 >4 | 1042.80 | 1042.80 | 1042.80 | 1042.80 | 1042.80 | 1042.80 | 1042.80 | 1042.80 | 1042.80 | 1042.80 | 1042.80 | 1042.80 | 1042.80 | 1042.80 | 1042.80 |
| E-1 <4 | 964.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Unofficial Proposed 3.7 Percent Pay Raise Increase

Note - Basic Pay for O-7 to O-10 is limited to Level III of the Executive Schedule and Basic Pay for O-6 and Below is limited to Level V of the Executive Schedule.

Source: Defense Finance and Accounting Service (www.dfas.mil/money)

NAVY



Integrated Undersea Surveillance System (officer)



Integrated Undersea Surveillance System (enlisted)



Master Explosive Ordnance Disposal



Senior Explosive Ordnance Disposal



Explosive Ordnance Disposal



Diving (officer)



Diving (medical)



Master Diver



Diver (medical technician)



First Class Diver



Second Class Diver



Scuba Diver



Deep Submergence (officer)



Deep Submergence (enlisted)



Presidential Service Badge



Vice Presidential Service Badge



Office of the Secretary of Defense



Joint Chiefs of Staff



Recruiting Command



Recruiting Command for Excellence



Recruiter



Career Counselor



Recruit Company Commander



Command-at-Sea



Command Ashore



Officer in Charge (small craft)



Petty Officer in Charge (small craft)



Craftmaster



Master Chief Petty Officer of the Navy



Force Master Chief Petty Officer



Fleet Master Chief Petty Officer



Master Chief Petty Officer of the Command



Senior Chief Petty Officer of the Command



Chief Petty Officer of the Command



U.S. Navy Police (officer)



U.S. Navy Police (enlisted)



U.S. Navy Security



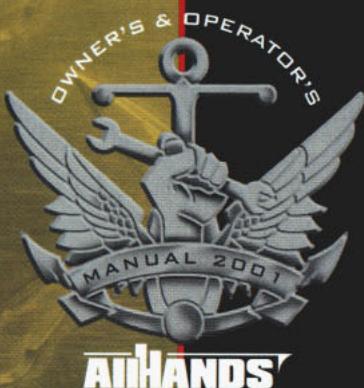
U.S. Navy Corrections



U.S. Navy Guard



U.S. Navy Master-at-Arms



Warfare Pins & Badges



Naval Astronaut



Naval Astronaut (NFO)



Naval Aviator



Balloon Pilot
(obsolete)



Naval Aviation Observer
and Flight Meteorologist



Naval Flight Surgeon



Naval Flight Nurse



Naval Flight Officer



Aviation Experimental
Psychologist and
Aviation Psychologist



Enlisted Aviation Warfare
Specialist



Naval Aviation Supply
Corps



Aircrew



Marine Combat Aircrew



Special Warfare



Special Operations



Surface Warfare
(officer)



Surface Warfare
(enlisted)



Surface Warfare
(nurse)



Surface Warfare
(medical)



Surface Warfare
(dental)



Surface Warfare
(medical service)



Surface Warfare
(supply)



Submarine (officer)



Submarine (enlisted)



Submarine (medical)



Submarine
(engineering duty)



Submarine (supply)



Submarine
Combat Patrol



SSBN Deterrent Patrol
(20 patrols)



SSBN Deterrent Patrol
(12 patrols)



Seabee Combat Warfare
Specialist
(officer)



Seabee Combat Warfare
Specialist (enlisted)



Naval Parachutist



Basic Parachutist



Naval Reserve
Merchant Marine

Order of Precedence-U.S. Navy



Medal Of Honor



Navy Cross



Defense Distinguished Service Medal



Distinguished Service Medal



Silver Star



Defense Superior Service Medal



Legion of Merit



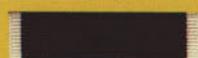
Distinguished Flying Cross



Navy/Marine Corps Medal



Bronze Star



Purple Heart



Defense Meritorious Service Medal



Meritorious Service Medal



Air Medal



Joint Service Commendation Medal



Navy/Marine Corps Commendation Medal



Joint Service Achievement Medal



Navy/Marine Corps Achievement Medal



Combat Action Ribbon



Presidential Unit Citation



Joint Meritorious Unit Award



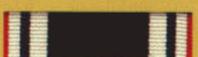
Navy Unit Commendation



Meritorious Unit Commendation



Battle "E" Ribbon



POW Medal



Good Conduct Medal



Naval Reserve Meritorious Service Medal



Fleet Marine Force Ribbon



Navy Expeditionary Medal



China Service Medal



Navy Occupation Service Medal



National Defense Service Medal



Korean Service Medal



Antarctica Service Medal



Armed Forces Expeditionary Medal



Vietnam Service Medal



Southwest Asia Service Medal



Armed Forces Service Medal



Humanitarian Service Medal



Military Outstanding Volunteer Service Medal



Sea Service Deployment Ribbon



Navy Arctic Service Ribbon



Naval Reserve Sea Service Ribbon



Navy/Marine Corps Overseas Service Ribbon



Navy Recruiting Service Ribbon



Armed Forces Reserve Medal



Naval Reserve Medal



Philippine Presidential Unit Citation



Republic of Korea Presidential Unit Citation



Republic of Vietnam Presidential Unit Citation



Republic of Vietnam Gallantry Cross Unit Citation



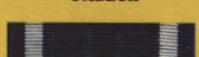
Republic of Vietnam Civil Actions Unit Citation



United Nations Service Medal



United Nations Medal



NATO Medal



Multinational Force and Observers Medal



**Inter American
Defense Board Medal**



**Republic of Vietnam
Campaign Medal**



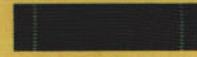
**Kuwait Liberation
Medal
(Kingdom of Saudi
Arabia)**



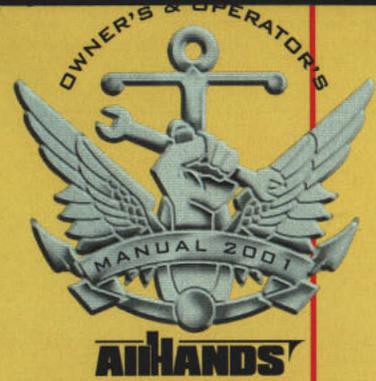
**Kuwait Liberation
Medal
(Kuwait)**



**Rifle Marksmanship
Medal**



**Pistol Marksmanship
Medal**



Devices



Gold Star

Denotes each subsequent award of the same Navy decoration.



Silver Star

Worn in the same manner as the gold star, in lieu of five gold stars.



Bronze Service Star

Represents participation in campaigns or operations, multiple qualification or an additional award to any of the various ribbons on which it is authorized. Also worn to denote first award of the single-mission Air Medal after Nov. 22, 1989.



Silver Service Star

Worn in the same manner as the bronze service star, in lieu of five bronze service stars.



Bronze Oak Leaf Cluster

Represents second and subsequent entitlements of awards.



Silver Oak Leaf Cluster

Worn for the 6th, 11th or in lieu of five bronze oak leaf clusters.



WINTERED OVER

Wintered Over

For wintering over on the Antarctic continent - a clasp for Antarctic Service Medal; a suspension ribbon and a disc for the service ribbon of bronze for first winter; gold for the second winter; and silver for the third winter.



"V" Device

Authorized for acts or service involving direct participation in combat operations.



Hourglass

Issued for each succeeding award of the Armed Forces Reserve Medal.



Europe and Asia Clasps

Worn on the suspension ribbon of the Navy Occupation Service Medal.



Fleet Marine Force Combat Operations Insignia

For Navy personnel attached to Fleet Marine Force units participating in combat operations.



Silver "E"

Denotes Expert Marksman qualification.



Bronze "S"

Denotes Sharpshooter Marksman qualification.



"M" Device

Denotes Naval Reserve mobilization in support of certain operations.



Strike/Flight Device

Bronze Arabic numeral denotes the total number of strike/flight awards of the Air Medal earned subsequent to April 9, 1962.



"3/16" Palm

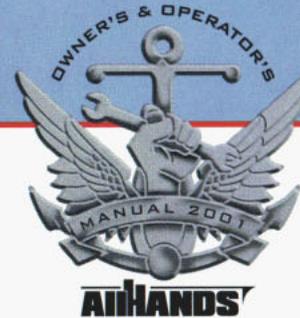
Worn on the Republic of Vietnam Gallantry Cross Unit Citation and Republic of Vietnam Civil Actions Unit Citation ribbons.



"E" Wreath

Denotes four or more Battle "E" Awards.

Naval Reserve Activities



Ships

CRUISERS

Ticonderoga-class

USS *Ticonderoga* (CG 47)
USS *Yorktown* (CG 48)
USS *Vincennes* (CG 49)
USS *Valley Forge* (CG 50)
USS *Thomas S. Gates* (CG 51)
USS *Bunker Hill* (CG 52)
USS *Mobile Bay* (CG 53)
USS *Antietam* (CG 54)
USS *Leyte Gulf* (CG 55)
USS *San Jacinto* (CG 56)
USS *Lake Champlain* (CG 57)
USS *Philippine Sea* (CG 58)
USS *Princeton* (CG 59)

USS *Normandy* (CG 60)
USS *Monterey* (CG 61)
USS *Chancellorsville* (CG 62)
USS *Cowpens* (CG 63)
USS *Gettysburg* (CG 64)
USS *Chosin* (CG 65)
USS *Hue City* (CG 66)
USS *Shiloh* (CG 67)
USS *Anzio* (CG 68)
USS *Vicksburg* (CG 69)
USS *Lake Erie* (CG 70)
USS *Cape St. George* (CG 71)
USS *Vella Gulf* (CG 72)
USS *Port Royal* (CG 73)

DESTROYERS

Spruance-class

USS *Spruance* (DD 963)
USS *Paul F. Foster* (DD 964)
USS *Kinkaid* (DD 965)
USS *Hewitt* (DD 966)
USS *Elliot* (DD 967)
USS *Arthur W. Radford* (DD 968)
USS *Peterson* (DD 969)
USS *Caron* (DD 970)
USS *David R. Ray* (DD 971)
USS *Oldendorf* (DD 972)
USS *John Young* (DD 973)
USS *O'Brien* (DD 975)
USS *Briscoe* (DD 977)
USS *Stump* (DD 978)
USS *Moosbrugger* (DD 980)
USS *John Hancock* (DD 981)
USS *Nicholson* (DD 982)
USS *Cushing* (DD 985)
USS *O'Bannon* (DD 987)
USS *Thorn* (DD 988)
USS *Deyo* (DD 989)
USS *Fife* (DD 991)
USS *Fletcher* (DD 992)
USS *Hayler* (DD 997)

Arleigh Burke-class

USS *Arleigh Burke* (DDG 51)
USS *Barry* (DDG 52)
USS *John Paul Jones* (DDG 53)
USS *Curtis Wilbur* (DDG 54)
USS *Stout* (DDG 55)
USS *John S. McCain* (DDG 56)
USS *Mitscher* (DDG 57)
USS *Laboon* (DDG 58)
USS *Russell* (DDG 59)
USS *Paul Hamilton* (DDG 60)
USS *Ramage* (DDG 61)
USS *Fitzgerald* (DDG 62)
USS *Stethem* (DDG 63)
USS *Carney* (DDG 64)
USS *Benfold* (DDG 65)



USS *Bunker Hill* (CG 52)

Photo by PH1 David Miller

Photo by PH1 Wade McKinnon

USS Gonzalez (DDG 66)
 USS Cole (DDG 67)
 USS The Sullivans (DDG 68)
 USS Milius (DDG 69)
 USS Hopper (DDG 70)
 USS Ross (DDG 71)
 USS Mahan (DDG 72)
 USS Decatur (DDG 73)
 USS McFaul (DDG 74)
 USS Donald Cook (DDG 75)
 USS Higgins (DDG 76)
 USS O'Kane (DDG 77)
 USS Porter (DDG 78)
 USS Oscar Austin (DDG 79)
 Roosevelt (DDG 80)*
 Winston S. Churchill (DDG 81)*
 Lassen (DDG 82)*
 Howard (DDG 83)*
 Bulkley (DDG 84)*
 McCampbell (DDG 85)*

FRIGATES

Oliver Hazard Perry-class

USS McInerney (FFG 8)
 USS Wadsworth (FFG 8)**
 USS Clark (FFG 11)**
 USS George Phillip (FFG 12)**

Photo by PW2 Marlow Dix

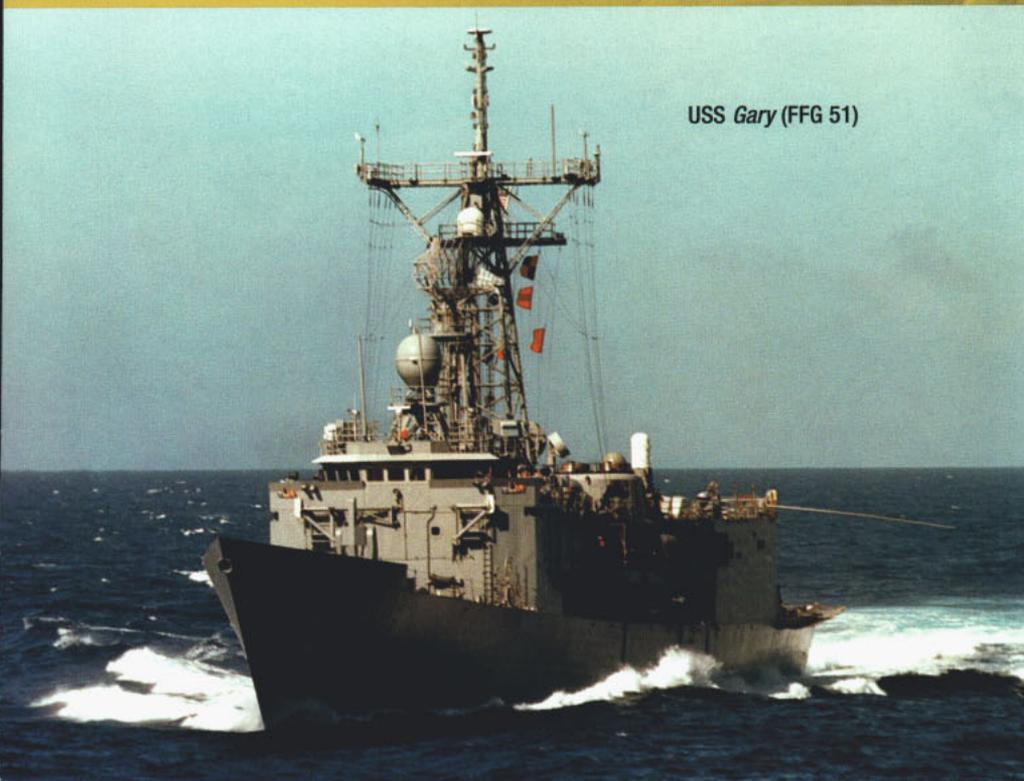


USS Gettysburg (CG 64)

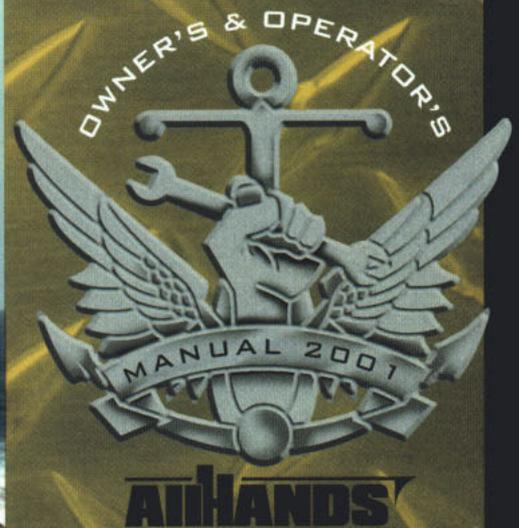
USS Samuel Eliot Morison (FFG 13)**
 USS Sides (FFG 14)**
 USS Estocin (FFG 15)**
 USS John A. Moore (FFG 19)**
 USS Boone (FFG 28)
 USS Stephen W. Groves (FFG 29)**
 USS Stark (FFG 31)
 USS John L. Hall (FFG 32)
 USS Jarret (FFG 33)
 USS Underwood (FFG 36)
 USS Crommelin (FFG 37)
 USS Curts (FFG 38)**
 USS Doyle (FFG 39)
 USS Halyburton (FFG 40)
 USS McClusky (FFG 41)
 USS Klakring (FFG 42)
 USS Thatch (FFG 43)

USS DeWert (FFG 45)
 USS Rentz (FFG 46)
 USS Nicholas (FFG 46)
 USS Vandegrift (FFG 48)
 USS Robert G. Bradley (FFG 49)
 USS Taylor (FFG 50)
 USS Gary (FFG 51)
 USS Carr (FFG 52)
 USS Hawes (FFG 53)
 USS Ford (FFG 54)
 USS Elrod (FFG 55)
 USS Simpson (FFG 56)
 USS Reuben James (FFG 57)
 USS Samuel B. Roberts (FFG 58)
 USS Kauffman (FFG 59)
 USS Rodney M. Davis (FFG 60)
 USS Ingraham (FFG 61)

* Under Construction
 ** Naval Reserve Force, Active



USS Gary (FFG 51)



AMPHIBIOUS ASSAULT

Tarawa-class

USS *Tarawa* (LHA 1)
USS *Saipan* (LHA 2)
USS *Belleau Wood* (LHA 3)
USS *Nassau* (LHA 4)
USS *Peleliu* (LHA 5)

Wasp-class

USS *Wasp* (LHD 1)
USS *Essex* (LHD 2)
USS *Kearsarge* (LHD 3)
USS *Boxer* (LHD 4)
USS *Bataan* (LHD 5)
Iwo Jima (LHD 7)*

AMPHIBIOUS TRANSPORT DOCK

Austin-class

USS *Austin* (LPD 4)
USS *Ogden* (LPD 5)
USS *Duluth* (LPD 6)
USS *Cleveland* (LPD 7)
USS *Dubuque* (LPD 8)
USS *Denver* (LPD 9)
USS *Juneau* (LPD 10)
USS *Shreveport* (LPD 12)
USS *Nashville* (LPD 13)
USS *Trenton* (LPD 14)
USS *Ponce* (LPD 15)

San Antonio-class

USS *San Antonio* (LPD 17)*

AMPHIBIOUS DOCK LANDING

Anchorage-class

USS *Anchorage* (LSD 36)
USS *Portland* (LSD 37)
USS *Pensacola* (LSD 38)
USS *Mount Vernon* (LSD 39)

Whidbey Island-class

USS *Whidbey Island* (LSD 41)
USS *Germantown* (LSD 42)
USS *Fort McHenry* (LSD 43)
USS *Gunston Hall* (LSD 44)
USS *Comstock* (LSD 45)
USS *Tortuga* (LSD 46)
USS *Rushmore* (LSD 47)
USS *Ashland* (LSD 48)
USS *Harpers Ferry* (LSD 49)
USS *Carter Hall* (LSD 50)
USS *Oak Hill* (LSD 51)
USS *Pearl Harbor* (LSD 52)

AMPHIBIOUS TANK LANDING

Newport-class

USS *Frederick* (LST 1184)**

AMPHIBIOUS COMMAND

Blue Ridge-class

USS *Blue Ridge* (LCC 19)
USS *Mount Whitney* (LCC 20)

LaSalle & Coronado-class

USS *LaSalle* (AGF 5)
USS *Coronado* (AGF11)

MINE WARFARE

Avenger-class

USS *Avenger* (MCM 1)**
USS *Defender* (MCM 2)**
USS *Sentry* (MCM 3)**
USS *Champion* (MCM 4)**
USS *Guardian* (MCM 5)
USS *Devastator* (MCM 6)
USS *Patriot* (MCM 7)
USS *Scout* (MCM 8)
USS *Pioneer* (MCM 9)
USS *Warrior* (MCM 10)
USS *Gladiator* (MCM 11)
USS *Ardent* (MCM 12)
USS *Dextrous* (MCM 13)
USS *Chief* (MCM 14)

Iwo Jima-class

USS *Inchon* (MCS 12)**

USS *Tarawa* (LHA 1)



Photo by David Miller

Photo by PH3 Adam Eastman

AUXILIARY SHIPS

Osprey-class

- USS Osprey (MHC 51)**
- USS Heron (MHC 52)**
- USS Pelican (MHC 53)**
- USS Robin (MHC 54)**
- USS Oriole (MHC 55)**
- USS Kingfisher (MHC 56)**
- USS Cormorant (MHC 57)**
- USS Black Hawk (MHC 58)**
- USS Falcon (MHC 59)**
- USS Cardinal (MHC 60)
- USS Raven (MHC 61)

PATROL COASTALS

Cyclone-class

- USS Cyclone (PC 1)
- USS Tempest (PC 2)
- USS Hurricane (PC 3)
- USS Monsoon (PC 4)
- USS Typhoon (PC 5)
- USS Sirocco (PC 6)
- USS Squall (PC 7)
- USS Zephyr (PC 8)
- USS Chinook (PC 9)
- USS Firebolt (PC 10)
- USS Whirlwind (PC 11)
- USS Thunderbolt (PC 12)
- USS Shamal (PC 13)

Sacramento-class/Supply-class

(Fast Combat Support)

- USS Sacramento (AOE 1)
- USS Camden (AOE 2)
- USS Seattle (AOE 3)
- USS Detroit (AOE 4)
- USS Supply (AOE 6)
- USS Rainier (AOE 7)
- USS Arctic (AOE 8)
- USS Bridge (AOE 10)

Safeguard-class

(Salvage)

- USS Safeguard (ARS 50)
- USS Grasp (ARS 51)
- USS Salvor (ARS 52)
- USS Grapple (ARS 53)

Emory S. Land-class

(Submarine Tenders)

- USS Emory S. Land (AS 39)
- USS Frank Cable (AS 40)

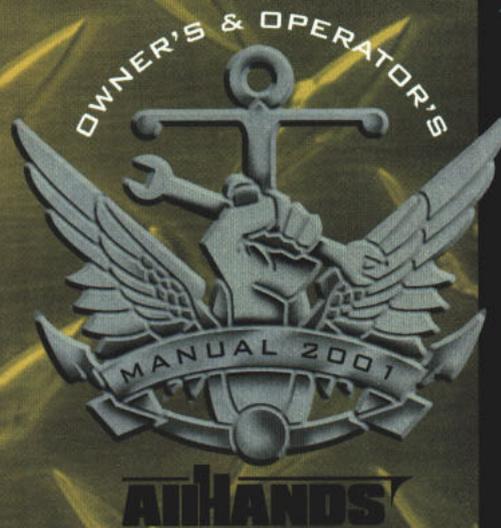
* Under Construction
 ** Naval Reserve Force, Active

USS Grasp (ARS 51)



Photo by PH1 Johnny Bivara

USS Blue Ridge (LCC 19)



Subs

ATTACK SUBMARINES

Los Angeles-class

USS Los Angeles (SSN 688)
USS Philadelphia (SSN 690)
USS Memphis (SSN 691)
USS Bremerton (SSN 698)
USS Jacksonville (SSN 699)
USS Dallas (SSN 700)
USS La Jolla (SSN 701)
USS City of Corpus Christi (SSN 705)
USS Albuquerque (SSN 706)
USS Portsmouth (SSN 707)
USS Minneapolis-St. Paul (SSN 708)
USS Hyman G. Rickover (SSN 709)
USS Augusta (SSN 710)
USS San Francisco (SSN 711)
USS Houston (SSN 713)
USS Norfolk (SSN 714)
USS Buffalo (SSN 715)
USS Salt Lake City (SSN 716)
USS Olympia (SSN 717)
USS Honolulu (SSN 718)
USS Providence (SSN 719)
USS Pittsburgh (SSN 720)

USS Chicago (SSN 721)
USS Key West (SSN 722)
USS Oklahoma City (SSN 723)
USS Louisville (SSN 724)
USS Helena (SSN 725)
USS Newport News (SSN 750)
USS San Juan (SSN 751)
USS Pasadena (SSN 752)
USS Albany (SSN 753)
USS Topeka (SSN 754)
USS Miami (SSN 755)
USS Scranton (SSN 756)
USS Alexandria (SSN 757)
USS Asheville (SSN 758)
USS Jefferson City (SSN 759)
USS Annapolis (SSN 760)
USS Springfield (SSN 761)
USS Columbus (SSN 762)
USS Santa Fe (SSN 763)
USS Boise (SSN 764)
USS Montpelier (SSN 765)
USS Charlotte (SSN 766)
USS Hampton (SSN 767)
USS Hartford (SSN 768)
USS Toledo (SSN 769)
USS Tucson (SSN 770)
USS Columbia (SSN 771)
USS Greeneville (SSN 772)
USS Cheyenne (SSN 773)

Seawolf-class

USS Seawolf (SSN 21)
USS Connecticut (SSN 22)
Jimmy Carter (SSN 23)*

Virginia-class

Virginia (SSN 774)*
Texas (SSN 775)
SSN 776
SSN 777

Sturgeon-class

USS Parche (SSN 683)

USS City of Corpus Christi (SSN 705)

Benjamin Franklin-class

USS Kamehameha (SSN 642)
(ex-SSBN 642)

**BALLISTIC MISSILE
SUBMARINES**

Ohio-class

- USS Ohio (SSBN 726)
- USS Michigan (SSBN 727)
- USS Florida (SSBN 728)
- USS Georgia (SSBN 729)
- USS Henry M. Jackson (SSBN 730)
- USS Alabama (SSBN 731)
- USS Alaska (SSBN 732)
- USS Nevada (SSBN 733)
- USS Tennessee (SSBN 734)
- USS Pennsylvania (SSBN 735)
- USS West Virginia (SSBN 736)
- USS Kentucky (SSBN 737)
- USS Maryland (SSBN 738)
- USS Nebraska (SSBN 739)
- USS Rhode Island (SSBN 740)
- USS Maine (SSBN 741)
- USS Wyoming (SSBN 742)
- USS Louisiana (SSBN 743)

**Deep Submergence
Rescue Vehicles**

DSRV *Mystic*
DSRV *Avalon*

**Submersible
Research Vehicles**

Submarine NR-1 (Nuclear)

USS *Dolphin* (AGS 555)
* Under Construction



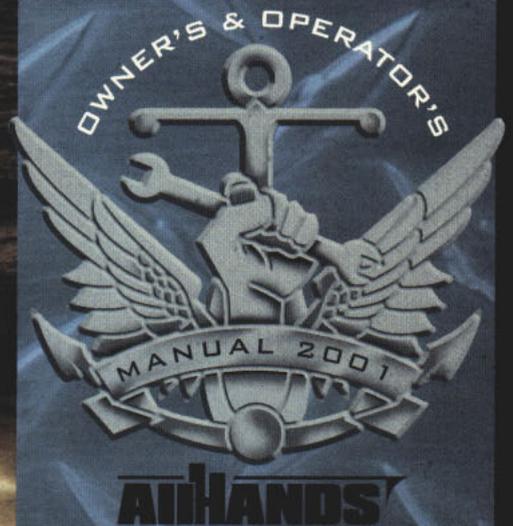
Photo by J.O. Jason Everett Miller

The deep submergence rescue vehicle
Mystic (DSRV 1)

Subs



USS *Maine* (SSBN 741)



Carriers

Nimitz-class

USS *Nimitz* (CVN 68)
USS *Dwight D. Eisenhower* (CVN 69)
USS *Carl Vinson* (CVN 70)
USS *Theodore Roosevelt* (CVN 71)
USS *Abraham Lincoln* (CVN 72)
USS *George Washington* (CVN 73)
USS *John C. Stennis* (CVN 74)
USS *Harry S. Truman* (CVN 75)
USS *Ronald Reagan* (CVN 76)*

Enterprise-class

USS *Enterprise* (CVN 65)

Kitty Hawk & John F. Kennedy-classes

USS *Kitty Hawk* (CV 63)
USS *Constellation* (CV 64)
USS *John F. Kennedy* (CV 67)

*Under Construction

USS *Dwight D. Eisenhower* (CVN 69)



Photo by PHAN Angela Elizabeth Padilla

USS *Abraham Lincoln* (CVN 72)



Photo by JOT David Rush

Photo by PH3 Scott Campbell

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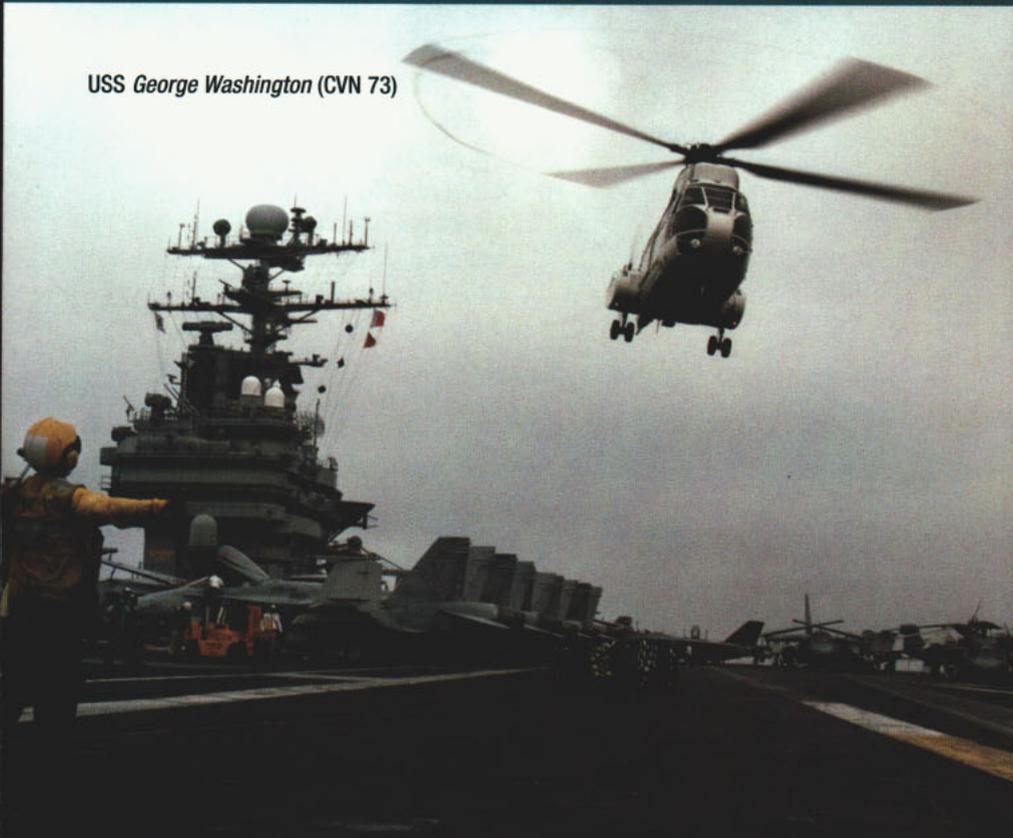
Photo by PHS (AW) Aaron J. Leback



USS Harry S. Truman (CVN 75)

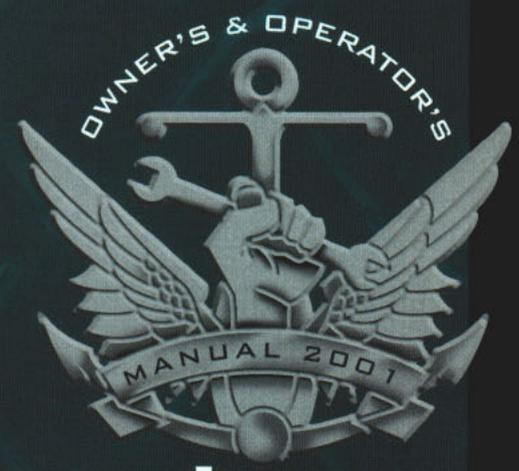


USS Theodore Roosevelt (CVN 71)



USS George Washington (CVN 73)

Carriers



AirHANDS

Aircraft

CARRIER BASED

F/A-18 Hornet

The F/A-18 is an all-weather, attack aircraft that can also be used as a fighter. In its fighter mode, the F/A-18 is used primarily as an escort and for fleet air defense. In its attack mode, it is used for force projection, interdiction and close-air support.

WINGSPAN: 37.5 ft.

LENGTH: 56 ft.

HEIGHT: 15 ft., 3.5 in.

SPEED: Mach 1.8+

RANGE: 290 nm

ARMAMENT: 20mm MK-61 *Vulcan* cannon; *Sparrow III* and *Sidewinder* air-to-air missiles; laser-guided and general purpose bombs; *Harpoon* and *HARM*
CREW: 1 or 2

F/A-18E/F Super Hornet

The F/A-18E/F will provide the carrier battle group with a strike fighter that has significant growth potential and increased range, endurance and ordinance-carrying capabilities. It will eventually replace the F-14 on carrier decks.

WINGSPAN: 44 ft., 8.5 in.

LENGTH: 60 ft., 1.25 in.

HEIGHT: 16 ft.

WEIGHT: 60,000 lbs. maximum takeoff

SPEED: Mach 1.8+

CEILING: 50,000 ft.

RANGE: 462 nm

ARMAMENT: 20mm MK-61 *Vulcan* cannon; *Sidewinder*, *Sparrow* and *AMRAAM* air-to-air missiles; *Maverick*, *Harpoon*, *Shrike*, *HARM*, *SLAM-ER* and *Joint Direct Attack Munition (JDAM)*; *Walleye* and other bombs and rockets.
CREW: 1 or 2

F-14 Tomcat

The F-14 is a supersonic, twin-engine, variable sweep-wing fighter designed to attack and destroy enemy aircraft at night and in all weather conditions. The F-14 can track up to 24 targets simultaneously with its advanced weapons control system and engage any of them with one of its six *Phoenix* missiles while continuing to scan the airspace.

WINGSPAN: 64 ft., 1.5 in.

LENGTH: 62 ft., 8 in.

HEIGHT: 16 ft.

WEIGHT: 74,349 lbs. maximum takeoff

SPEED: Mach 1.88

CEILING: 50,000 ft.

RANGE: 1,800 nm (with external fuel)

ARMAMENT: 20mm MK-61 *Vulcan* cannon; *Sparrow*, *Sidewinder* and *Phoenix* air-to-air missiles; laser-guided and general purpose bombs
CREW: 2 (one pilot, one radar intercept officer)

E-2C *Hawkeye*



F/A-18E Super Hornet



EA-6B Prowler

The EA-6B, a twin-engine, mid-wing aircraft designed for carrier and advanced base operations, is used to provide an umbrella of protection for strike aircraft by jamming enemy radar, electronic data links and communications. The EA-6B is a fully integrated electronic warfare system, combining long-range, all-weather capabilities with advanced electronic countermeasures.

WINGSPAN: 53 ft.

LENGTH: 59 ft., 10 in.

HEIGHT: 16 ft., 3 in.

WEIGHT: 65,000 lbs. maximum takeoff

SPEED: 622 mph

CEILING: 41,200 ft.

COMBAT RANGE: 955 nm

ARMAMENT: HARM

CREW: 4 (one pilot, three electronic warfare officers)

E-2C Hawkeye

The E-2C is the Navy's all-weather, carrier-based tactical warning and control system aircraft. It provides airborne early warning and command and control functions for the battle group. Additional missions include: surface surveillance coordination, strike and interceptor control, search and rescue guidance and communications relay.

WINGSPAN: 80 ft., 7 in.
LENGTH: 57 ft., 8.75 in.
HEIGHT: 18 ft., 3.75 in.
WEIGHT: 63,288 lbs. maximum takeoff
SPEED: 389 mph
CEILING: 37,000 ft.
RANGE: 1,541 nm (ferry range)
CREW: 5 (two pilots, three mission systems operators)

C-2A Greyhound

The C-2A is the principal aircraft used for COD (carrier on-board delivery) of personnel and materiel. It can deliver a payload of up to 10,000 lbs.

WINGSPAN: 80.5 ft.
LENGTH: 57 ft., 10 in.
HEIGHT: 15 ft., 10.5 in.
WEIGHT: 57,000 lbs. maximum takeoff
SPEED: 310 mph
CEILING: 33,500 ft.
RANGE: more than 1,040 nm (with freight)
CREW: 3 (one pilot, one co-pilot, one flight engineer)

S-3B Viking

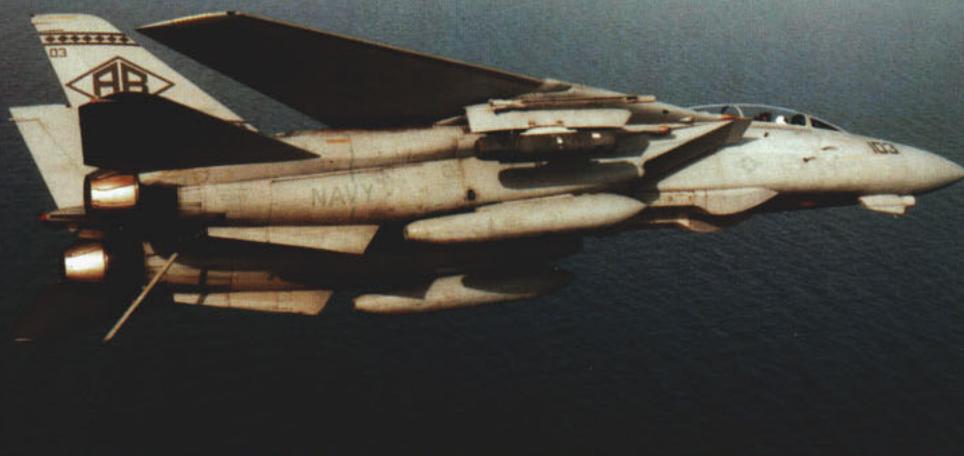
The S-3B, a jet aircraft used for anti-submarine and anti-surface warfare, is extremely versatile and can be equipped for tanking, mining and limited electronic surveillance.

WINGSPAN: 68 ft., 8 in.
LENGTH: 53 ft., 4 in.
HEIGHT: 22 ft., 9 in.
WEIGHT: 52,539 lbs. maximum design gross weight
SPEED: 518 mph
CEILING: more than 35,000 ft.
RANGE: more than 2,000 nm (combat)
ARMAMENT: torpedoes, bombs, *Harpoon* and *Maverick*
CREW: 4 (one pilot, two flight officers and one sensor operator)

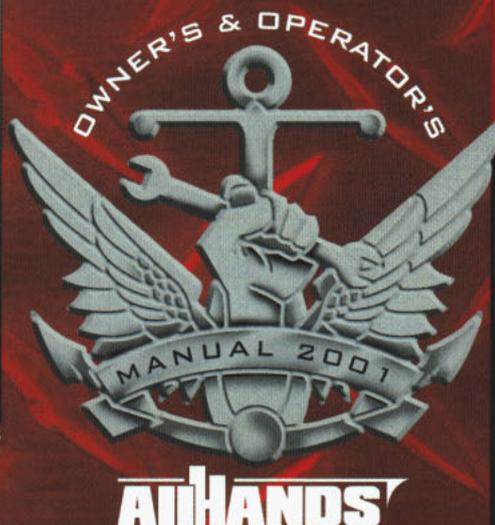


Photo by PH3 J. Scott Campbell

F-14 Tomcat



U.S. Navy photo



Shore-Based

E-6A Mercury

The E-6A provides secure, survivable, jam-resistant strategic communications while performing the Navy's TACAMO mission. The E-6B program has been established to upgrade TACAMO operational capabilities and will perform both the TACAMO and airborne command post mission with installed equipment.

WINGSPAN: 148 ft., 2 in.

LENGTH: 152 ft., 11 in.

HEIGHT: 42 ft., 5 in.

WEIGHT: 341,000 lbs. maximum takeoff

SPEED: 523 mph

CEILING: 42,000 ft.

RANGE: more than 6,400 nm (E-6A); 5,500 nm (E-6B)

CREW: 18 (E-6A); 23 (E-6B)

P-3C Orion/EP-3E Orion (Aries II)

The P-3, a land-based, long-range patrol aircraft, has been in the Navy since the 1960s. Both versions provide multi-mission intelligence, surveillance, reconnaissance and combat capability to theater commanders worldwide.

WINGSPAN: 99 ft., 8 in.

LENGTH: 116 ft., 10 in.

HEIGHT: 33 ft., 8.5 in.

WEIGHT: 146,000 lbs. maximum permissible

SPEED: 473 mph

CEILING: 28,300 ft.

RANGE: 1,346 nm with three hours on station

ARMAMENT: Harpoon and Maverick; torpedoes; mines

CREW: 10 (three pilots, three flight officers /engineers, three sensor operators, one in-flight technician)

C-130 Hercules

The C-130 is probably the most versatile tactical transport aircraft ever built. Its uses have been almost limitless: transport, electronic surveillance, search and rescue, space-capsule recovery, helicopter refueling, gunship and special cargo delivery.

WINGSPAN: 132 ft., 7 in.

LENGTH: 97 ft., 9 in.

HEIGHT: 38 ft., 10 in.

WEIGHT: 175,000 lbs. maximum takeoff

SPEED: 400 mph maximum

CEILING: 28,000 ft.

RANGE: 4,460 nm

CREW: 4 (two pilots, one navigator, one load-master)

C-9B/DC-9 Skytrain II

The C-9B is used for fleet logistics support and military sealift.

WINGSPAN: 93 ft., 5 in.

LENGTH: 119 ft., 3.5 in.

HEIGHT: 27.5 ft.

WEIGHT: 121,000 lbs. maximum takeoff

SPEED: 575 mph

RANGE: 2,185 nm

CREW: 5 (one pilot, one co-pilot, one crew chief, two attendants and 90 passengers)

C-130 Hercules



Photo by Lynn Walters

C-12 Huron

The UC-12B/F/M *Huron* is a utility transport, equipped with high floatation landing gear and tip tanks. The UC-12F and UC-12M models also have hydraulically retractable landing gear.

WINGSPAN: 54 ft., 6 in.

LENGTH: 43 ft., 9 in.

HEIGHT: 15 ft.

WEIGHT: 12,500 lbs. maximum takeoff

SPEED: 298 mph maximum

CEILING: more than 35,000 ft.

RANGE: 1,965 nm

CREW: pilot only (or crew of two side by side)

T-45A Goshawk

The T-45A *Goshawk*, a carrier-capable trainer aircraft, is replacing the T-2C *Buckeye* and TA-4J *Skyhawk* as the Navy's strike trainer. The Navy has 187 T-45s in service.

WINGSPAN: 30 ft., 9.75 in.

LENGTH: 39 ft., 4 in.

HEIGHT: 14 ft.

WEIGHT: 14,081 lbs. maximum takeoff

SPEED: 625 mph

RANGE: 826 nm

CEILING: 40,000 ft.

CREW: 2 (one instructor, one student)

T-44A Pegasus

The T-44A is used to train Navy and Air Force pilots to fly multi-engine, turbo-prop aircraft such as the P-3 and the C-130.

WINGSPAN: 45 ft., 10.75 in.

LENGTH: 39 ft., 9.5 in.

HEIGHT: 15 ft., 1.75 in.

WEIGHT: 10,950 lbs. maximum takeoff

SPEED: 267 mph

RANGE: 360 nm

CEILING: 31,000 ft.

CREW: 2 (one instructor, one student)

Trainers

T-34C Turbomenter

The T-34C is the Navy's aircraft for primary pilot and navigator training. Six training squadrons are equipped with the Turbomenter. As of mid-1998, 313 T-34Cs remained in service, along with one NT-34C developmental aircraft. The Raytheon T-6A Texan II will replace the T-34C beginning in 2003.

WINGSPAN: 33 ft., 4 in.

LENGTH: 28 ft., 8.5 in.

HEIGHT: 9 ft., 11 in.

WEIGHT: 4,274 lbs. maximum takeoff

SPEED: 288 mph

RANGE: 650 nm

CEILING: more than 30,000 ft.

CREW: 2 (one instructor, one student)

T-2 Buckeye

The T-2 is a two-seat trainer used to school pilots and flight officers in basic and intermediate strike training.

WINGSPAN: 38 ft., 1.5 in.

LENGTH: 38 ft., 3.5 in.

HEIGHT: 14 ft., 9.5 in.

WEIGHT: 13,179 lbs.
maximum takeoff

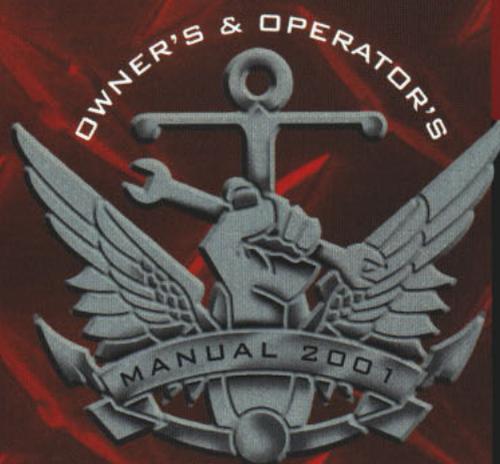
SPEED: 522 mph

RANGE: 909 nm

CEILING: 40,400 ft.

CREW: 2 (one instructor,
one student)

P-3C Orion



Trainers continued...

T-4J Skyhawk

The TA-4J two-seat trainer version of the famous A-4 *Skyhawk* attack aircraft serves in one training squadron and one fleet composite squadron. As of mid-1998, 51 TA-4Js remained in service. The *Skyhawk* is being replaced in the pilot training role by the T-45A/C *Goshawk*.

WINGSPAN: 27 ft., 6 in.
LENGTH: 40 ft., 3.25 in.
HEIGHT: 15 ft.
WEIGHT: 24,500 lbs. maximum takeoff
SPEED: 675 mph
RANGE: 1,785 nm
CREW: 2 (one instructor, one student)

T-39N Sabreliner

The seven T-39N *Sabreliners* in service are used to train naval flight officers in radar navigation and airborne radar-intercept procedures. These aircraft, replaced the Cessna T-47A during the early 1990s; the T-47As had replaced earlier T-39Ds in the training role. One T-39D rapid-response airlift *Sabreliner* remained in service as of mid-1998.

WINGSPAN: 44 ft., 5.25 in.
LENGTH: 48 ft., 4 in.
HEIGHT: 16 ft.
WEIGHT: 20,000 lbs. maximum takeoff
SPEED: Mach .8
RANGE: 1,777 nm
CEILING: 27,000 ft.
CREW: 2 (one instructor, one student)

HELICOPTERS

SH/HH-60 Seahawk

The SH-60E is a twin-engine helicopter used for anti-submarine warfare, search and rescue, drug interdiction, anti-ship warfare, cargo lift and special operations. The SH-60B is an airborne platform based aboard cruisers, destroyers and frigates, that deploys sonobuoys and torpedoes in an anti-submarine role while extending the range of the ship's radar capabilities. The SH-60F is carrier based. The HH-60A is designed to accomplish today's combat search and rescue mission as well as other replenishment and utility functions.

LENGTH: 40 ft., 11 in. (rotors and tail pylon folded)
HEIGHT: 17 ft.
WEIGHT: 21,894 lbs. maximum takeoff
SPEED: 169 mph
RANGE: 380 nm
ARMAMENT: MK46/50 torpedoes (SH-60B/F); 7.62mm or .50-caliber machine guns (SH-60B); *Hellfire* and *Penguin* air-to-surface missiles
CREW: 3 (two pilots, one crewman (SH-60B); or 4 (two pilots, two crewmen (SH-60F).

CH-46 Sea Knight

The CH-46D is a tandem-rotor transport helicopter designed for both land- and sea-based operations. It can accommodate 25 passengers or 15 litters, with two medical attendants or 10,000 lbs. of sling-loaded cargo.

LENGTH: 84.3 ft.
HEIGHT: 16.7 ft.
WEIGHT: 23,000 lbs. maximum takeoff
SPEED: 162 mph
CEILING: 10,000 ft.
RANGE: 150 nm
CREW: 3 (two pilots, one crewman)

TA-4J Skyhawk



Photo by PH3 Johnnie Robbins

SH-60 Sea Hawk



Photo by PH3 John Sullivan

SH-3 Sea King

The first version of this workhorse anti-submarine warfare helicopter was flown more than 38 years ago. The H-3's versatility was emphasized during Operation *Desert Shield/Desert Storm* when 36 *Sea Kings*, flying from carriers, logged more than 5,000 hours conducting combat SAR, special operations, maritime interdiction operations, logistics support and mine hunting. The SH-3H has been replaced in the fleet by SH-60F and HH-60H aircraft. The UH-3Hs are programmed to be replaced by the CH-53 version of the Sikorsky *Blackhawk/Seahawk*.

LENGTH: 72 ft., 8 in.
HEIGHT: 16 ft., 10 in.
WEIGHT: 21,000 lbs. maximum takeoff
SPEED: 186 mph
CEILING: 14,700 ft.
RANGE: 542 nm
ARMAMENT: MK46/50 torpedoes, 7.62mm machine guns
CREW: 3 to 4 (two pilots, 1 to 2 crewmen)

TH-57 Sea Ranger

The TH-57 *Sea Ranger* is used to train several hundred student naval aviators with 45 TH-57Bs (for primary visual flight rules training) and 71 TH-57Cs (for advanced instrument flight rules training) in two helicopter training squadrons at NAS Whiting Field, Milton, Fla. Two TH-57Cs configured for RDT&E are used for photo, chase and utility missions at the Naval Air Warfare Center Aircraft Division at Patuxent River, Md.

LENGTH: 39 ft.
HEIGHT: 10 ft.
WEIGHT: 3,200 lbs. maximum takeoff
SPEED: 138 mph
CEILING: 20,000 ft., pressure altitude
RANGE: 368 nm
CREW: 3 (one pilot, four student pilots)

MH-53 Sea Dragon/CH-53 Sea Stallion

The MH-53E, a mine-counter-measures derivative of the CH-53E *Super Stallion*, is heavier and has a greater fuel capacity than the *Super Stallion*. Capable of transporting up to 55 troops, the MH-53E can carry a 16-ton payload 50 nautical miles, or a 10-ton payload 500 nautical miles. In its primary mission of airborne mine countermeasures, the MH-53E is capable of towing a variety of mine-countermeasures systems.

LENGTH: 99 ft. (rotors turning)
HEIGHT: 29 ft., 5 in. (tail rotor turning)
WEIGHT: 73,500 lbs. maximum takeoff
SPEED: 196 mph
CEILING: 18,500 ft.
RANGE: 1,120 nm
CREW: 3 to 8 (two pilots, 1 to 6 crewmen)

SH-2G Seasprite

The SH-2G *Seasprite* first flew in 1959 and served long as a utility and search-and-rescue helicopter and later as the first light airborne multipurpose system (LAMPS) helicopter.

LENGTH: 38 ft., 4 in. (nose and blades folded)
HEIGHT: 15 ft., 6 in. (rotors turning)
WEIGHT: 12,800 lbs. normal takeoff
SPEED: 165 nm
CEILING: 22,500 ft.
RANGE: 367 nm
ARMAMENT: MK46/50 torpedoes; 7.62mm machine guns
CREW: 3 (two pilots, one sensor operator)

CH-46 Sea Knight

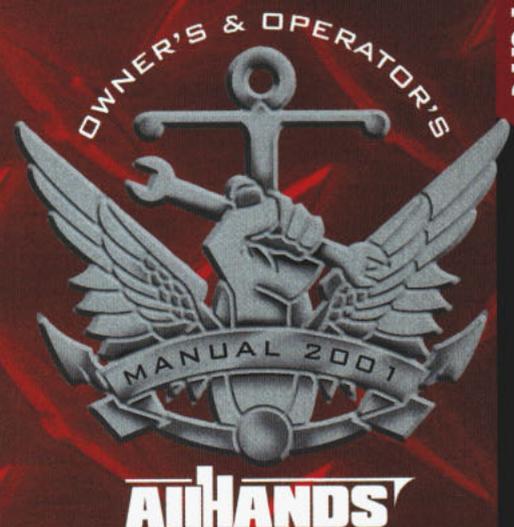


Photo by PHILA Les McKeel

SH-60 Sea Hawk



Photo by Pat Selby



Weapons

STRATEGIC STRIKE

Trident I (C-4)

The *Trident I* replaced the *Poseidon* in the Navy's ballistic missile inventory. It became operational in 1978 and is carried on *Ohio*-class ballistic missile submarines.

DIMENSIONS: 74 x 408 in.

WEIGHT: 70,000 lbs.

WARHEAD: Eight 100-kT MK 4 MIRV

PROPULSION: Solid-fuel rocket

RANGE: 4,350 nm.

MANUFACTURER: Lockheed-Martin

Trident II (D-5)

Larger and with longer range than the *Trident I*, the *Trident II* was first tested aboard a submarine in August 1989 and deployed in 1990.

DIMENSIONS: 83 x 528 in.

WEIGHT: 130,000 lbs.

WARHEAD: Eight to 12 MK-5 RV or 14 150-kT MIRV or 7 300-kT MARV

PROPULSION: Three-stage, solid-fuel rocket

RANGE: 6,000 nm.

MANUFACTURER: Lockheed-Martin

UNGUIDED BOMBS/AIR-LAUNCHED ROCKETS

MK-80 Series

The MK-80 series was developed in the late 1940s and has been the standard for Navy bombs ever since. The Mark (MK) number designates the weight of the bomb. Many other designations (*Paveway*, *Snakeye*, *Ballute*) use the standard MK-80 series bombs with guidance system kits to customize them for specific missions and purposes.

MK-81 (250 lbs.; 9 in. x 76.1 in.)

MK-82 (500 lbs.; 10.8 in. x 90.9 in.)

MK-83 (1,000 lbs.; 14 in. x 110.9 in.)

MK-84 (2,000 lbs.; 18 in. x 154 in.)

STRIKE/ANTI-SURFACE WARFARE (ASUM)

Joint Stand-off Weapon (JSOW)

Planned to replace the *Paveway*, *Skipper* and *Maverick* laser-guided weapons.

JSOW was designed as a drop-and-forget weapon to protect delivery aircraft.

DIMENSIONS: 13.26 in. w x 174 in. h x 160 in. l; 106 in. wing span

WEIGHT: 1,065 lbs.

WARHEAD: BLU-97 or BLU-108 bomblets

PROPULSION: Unpowered; glide range of 15 nm. (low alt.), 40 nm. (high alt.).

MANUFACTURER: Raytheon

Paveway Laser-Guided Bomb

The *Paveway* series was developed to increase the accuracy of laser-guided bombs. All use standard MK-80 series bombs with *Paveway* kits attached to guide the explosives to their targets. The first of the *Paveway* series entered the fleet in 1968.

Tomahawk missile



Photo by PHITNAO/Strike Call

HARM (High-Speed Anti-Radar Missile)

HARM is the standard anti-radar missile in the U.S. inventory. It's used as both a strike-protection and anti-ship weapon. First deployed aboard USS *Kitty Hawk* (CV 63) in January 1984. First used in combat in April 1986 during raids on Libya.

DIMENSIONS: 10 m x 13 ft. 7 in. x 44 in. wing span
WEIGHT: 798 lbs.
WARHEAD: 146 lbs.
RANGE: Depends on launch speed/altitude
PROPULSION: Dual-thrust rocket motor (Mach 2+)
MANUFACTURER: Raytheon

Harpoon/SLAM-ER

The Harpoon and Stand-Off Land Attack Missile - Expanded Response (SLAM-ER) missiles are derivatives from the original Harpoon, which was conceived in 1965.

Harpoon: Air, surface/submarine-launched, anti-ship, all-weather cruise missile. Originally designed as an air-to-surface missile for the P-3 *Orion*, the Harpoon, which entered service in 1977, can now be carried by virtually all naval platforms.

DIMENSIONS: 12.6 ft. long - air launched; 15.2 ft. long - surface and submarine launched.
WEIGHT: 1,160 lbs. (air launch), 1,459 lbs. (ASROC launcher), 1,520 lbs. (SAM launcher), 1,523 lbs. (capsule/canister launch)
SPEED: High subsonic speeds
WARHEAD: 488.5 lbs. HE (blast; semi-armor piercing)
PROPULSION: Turbojet (cruise) w/solid-fuel booster for ship/ submarine launch
RANGE: 75 to 80 nm for surface-launched; 120 nm for air launched
MANUFACTURER: The Boeing Company

AGM 119 Penguin missile



U.S. NAVY PHOTO

SLAM-ER

The SLAM-ER (Expanded Response) is an upgrade currently in production. SLAM-ER has a greater range (150+ miles), a titanium warhead for increased penetration and software improvements which allow the pilot to retarget the impact point of the missile during the terminal phase of attack (the last five miles).

DIMENSIONS: 14.3 ft. long
WEIGHT: 1,400 lbs.
SPEED: In excess of 150 nm
MANUFACTURER: The Boeing Company

Maverick

The Maverick is a short-range, air-to-surface, tactical missile. The version used by the Navy carries a warhead designed to penetrate large, hard targets. First deployed in August 1972.

DIMENSIONS: 8.2 ft. long; 12 in. diameter; 2.4 ft. wing span
WEIGHT: 635 lbs.
WARHEAD: 300 lbs.
PROPULSION: Two-stage, solid-fuel rocket motor
SPEED: Supersonic
RANGE: Approx. 14 nm.
MANUFACTURER: Hughes/Raytheon

Tomahawk Cruise Missile

An all-weather, ship- or submarine-launched, cruise missile. Tomahawks have proven to be highly-survivable weapons due to their low radar detectability and terrain/wave-skimming flight. First deployed in 1986.

DIMENSION: 18.3 ft. long (20.6 ft. with booster); 20.4 in. diameter; 8.9 ft. wing span
WEIGHT: 2,650 lbs. (3,200 lbs. with booster)
WARHEAD: 1,000 lbs. (conventional) or conventional submunitions dispenser with combined-effect bomblets
PROPULSION: Turbojet (cruise); solid-fuel booster (launch)
SPEED: Subsonic Range: 870 nm (land attack/conventional warhead)
MANUFACTURER: General Dynamics

Penguin Anti-ship Missile

The Norwegian-designed and built Penguin anti-ship missile is carried aboard Lamps III helicopters. First deployed in 1993.

DIMENSIONS: 10 ft long; 11.2 in. diameter; 39 in. wing span
WEIGHT: 847 lbs.
PROPULSION: Solid-fuel rocket motor/solid-fuel booster
WARHEAD: 265 lbs., semi-armor piercing
RANGE: 25 nm Speed: Mach 1.2
MANUFACTURER: Konigsberg Vaapenfabrikk (Norway)

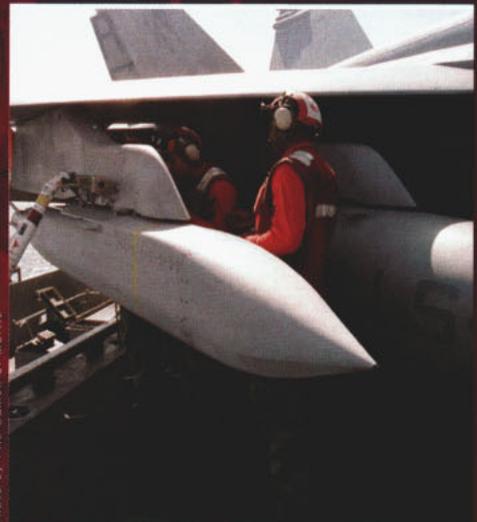
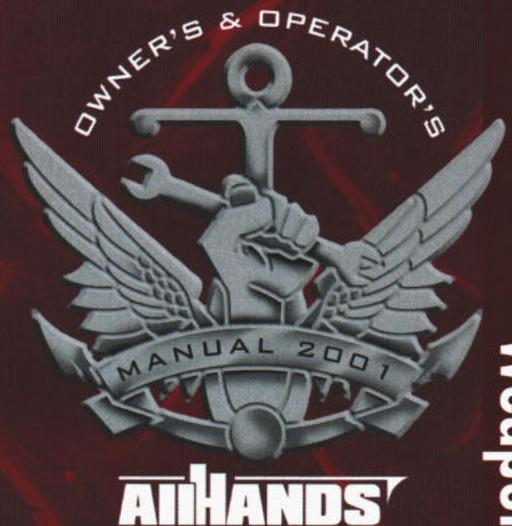


Photo by PH2 Damon J. Maritz

AGM-154 JSOW weapon



Weapons

ANTI-AIR WARFARE (AAW)

Anti-Aircraft Guns

M61A1

This 20mm Gatling gun, which also forms the basis for the *Phalanx* Close-In Weapons System (see "Anti-aircraft Warfare" section), is mounted aboard the F/A-18 *Hornet* and F-14 *Tomcat*.

CALIBER: 20mm//62

MUZZLE VELOCITY: 3,400 ft./sec.

RATE OF FIRE: 4,000 or 6,000 rounds/min.

WEIGHT: 841 lbs. total (gun, feed system, ammunition)

MANUFACTURER: General Electric

Surface-to-Air Missiles Rolling Airframe Missile (RAM)

Developed jointly with the Federal Republic of Germany, RAM provides ships with a low-cost, self-defense system against anti-ship missiles.

DIMENSIONS: 9.25 ft. long; 5 in. diameter; 1.5 ft. wing span

WEIGHT: 162 lbs.

WARHEAD: 25 lbs.

PROPULSION: Solid-fuel rocket

RANGE: 5 nm

SPEED: Supersonic

MANUFACTURER: Raytheon

Standard Missile-1 (SM-1)/ Standard Missile-2 (SM-2)

Designed as a surface-to-air and surface-to-surface missile, the *Standard* missile is currently employed in two variations: SM-1/SM-2 MR (medium range) and SM-2 ER (Extended Range).

The first *Standard* missile entered the fleet in 1970. The SM-2 ER arrived in 1981.

SM-1 ER

DIMENSIONS: 14.7 ft. long; 13.5 in. diameter; 3.6 ft. wing span

WEIGHT: 1,100 lbs. (SM-1); 1,380 lbs. (SM-2)

WARHEAD: Proximity fuse/high-explosive

PROPULSION: Dual thrust/solid-fuel rocket

RANGE: 15 to 20 nm. (SM-1); 40 to 90 nm (SM-2 MR)

MANUFACTURER: Raytheon

SM-2 ER

DIMENSIONS: 26.2 ft long; 13.5 in. diameter; 5.2 ft. wing span

WEIGHT: 2,980 lbs.

WARHEAD: Proximity fuse/ high-explosive

PROPULSION: Two-stage/solid-fuel rocket; sustainer motor and booster motor

RANGE: 65 to 100 nm

MANUFACTURER: Raytheon

Air-to-Air Missiles

Advanced, Medium-Range, Air-to-Air Missile (AMRAAM)

An all-weather, beyond-visual-range, air-to-air missile designed as a follow-on to the Sparrow missile series. Less dependent on the aircraft's fire control system for guidance, the missile frees the pilot to aim and fire multiple missiles while evading enemy fire. The AMRAAM program is the result of a joint agreement between the U.S. and its NATO allies to develop and share production technology. The AMRAAM was deployed in September 1991 and is carried aboard the F/A-18 *Hornet*.

DIMENSIONS: 12 ft. (long); 7 in. diameter; 21 in. wing span

WEIGHT: 335 lbs.

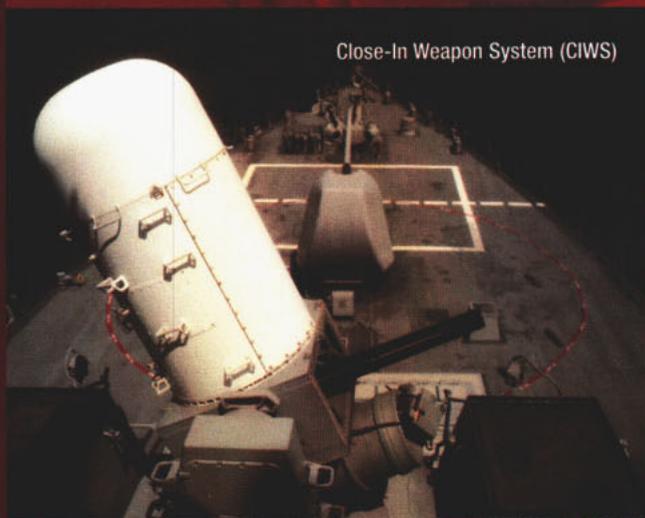
PROPULSION: High performance, directed rocket motor

WARHEAD: Blast fragmentation; high explosive

SPEED: Supersonic

MANUFACTURER: Raytheon

Close-In Weapon System (CIWS)



U.S. Navy photo



Photo by PH1 Lance Kirk

Advanced Medium-Range Air-to-Air Missiles AMRAAM and AIM-7 Sparrow missiles

Phoenix Missile

The Navy's only long-range, air-to-air missile. The missile has been designed for use in an all-weather, heavy-jamming environment. First deployed in 1974.

DIMENSIONS: 13 ft. long; 15 in. diameter; 3 ft. wing span

WEIGHT: 1,024 lbs.

PROPULSION: Solid-fuel rocket motor

WARHEAD: 135 lbs.; proximity fuse, high explosive

RANGE: In excess of 100 nm

SPEED: In excess of 3,000 mph

MANUFACTURER: Raytheon

Sparrow

A highly-maneuverable, all-weather, all-altitude, air-to-air missile found throughout the U.S. and NATO forces.

A surface ship version, the *Sea Sparrow*, provides U.S. Navy and NATO ships with an effective, anti-air weapon. First deployed in 1976. Carried on F-14 *Tomcat* and F/A-18 *Hornet* aircraft.

DIMENSIONS: 12 ft. long; 8 in. diameter; 3.4 ft. wing span

WEIGHT: 500 lbs.

WARHEAD: 90 lbs. annular blast fragmentation

PROPULSION: Solid-fuel rocket motor

RANGE: In excess of 30 nm

SPEED: In excess of 2,660 mph

MANUFACTURER: Raytheon

Sidewinder

The Sidewinder is a short-range, heat-seeking, anti-air missile carried by fighter aircraft. The missile's high-explosive warhead and infrared, heat-seeking guidance system have contributed to the program's long life. The first prototype was fired successfully in 1953 and the initial production version became operational in 1956. The current version, AIM-9M, began fleet use in 1983. The *Sidewinder* is one of the oldest, least-expensive and most-successful missiles in the entire U.S. inventory.

DIMENSIONS: 9.6 ft. long; 5 in. diameter; 2.1 ft. fin span

WEIGHT: 190 lbs.

PROPULSION: Single-stage, solid-fuel rocket motor

WARHEAD: 20.8 blast fragmentation

SPEED: Supersonic

RANGE: 8.7-plus nm

MANUFACTURER: Raytheon/Ford Aerospace/Loral

Shipboard Guns

MK-45 - 5-inch/54-caliber lightweight gun

This 54-caliber, lightweight gun provides surface combatants accurate naval gunfire against fast, highly-maneuverable, surface targets, air threats and shore batteries during amphibious operations.

CALIBER: 5 inch/54 inch

SHELL WEIGHT: 70 lbs.

FIRING RATE: 20 rounds per minute

MUZZLE VELOCITY: 2,650 ft./sec

RANGE: 13 nm

MAGAZINE CAPACITY: 475 to 500 rounds

WEIGHT: 47,820 lbs.

MK-38 - 25 mm machine gun system

The naval version of the Army Bushmaster, or "Chain Gun." This single-barrel, air-cooled, heavy machine gun meets the needs of ships throughout the fleet, especially those operating in the Arabian Gulf.

CALIBER: 25mm/87

ROUND WEIGHT: 1.1 lbs.

MUZZLE VELOCITY: 1,100 m/sec

RANGE: 2,700 yds.

TYPE OF FIRE: Single shot; 175 rounds/min. in automatic

MANUFACTURER: Crane Division, Naval Surface Warfare Center

MK-75 - 76mm/62 caliber 3-inch gun

Best suited for use aboard smaller combat vessels, the MK-75 features rapid fire capability with low manning requirements. The gun was approved for fleet use in 1975 and was first deployed aboard USS *Oliver Hazard Perry* (FFG 7) in 1978.

CALIBER: 3-inch/62

RATE OF FIRE: 85 rounds/min.

MUZZLE VELOCITY: 925 m/sec

RANGE: 10 nm

WEIGHT: 7.35 tons

MANUFACTURER: FMC Naval Systems Division and OTO Melara

Phalanx Close-In Weapons System (CIWS)

The *Phalanx* CIWS combines a 20mm Gatling gun with search and tracking radar to provide surface ships with terminal defense against anti-ship missiles.

The system underwent operational tests and evaluation on board USS *Bigelow* (DD 942) in 1977 and went into production in 1978 with the first systems installed aboard USS *Coral Sea* (CV 43) in 1980. The original versions used rounds made from depleted uranium that have since been replaced by tungsten rounds.

CALIBER: 20mm/53

RATE OF FIRE: 1,000-3,000 rounds/min.

MUZZLE VELOCITY: 3,650 ft./sec

RANGE: 6,000 yds.

MANUFACTURER: Hughes Missile Systems Company

60mm Mortar

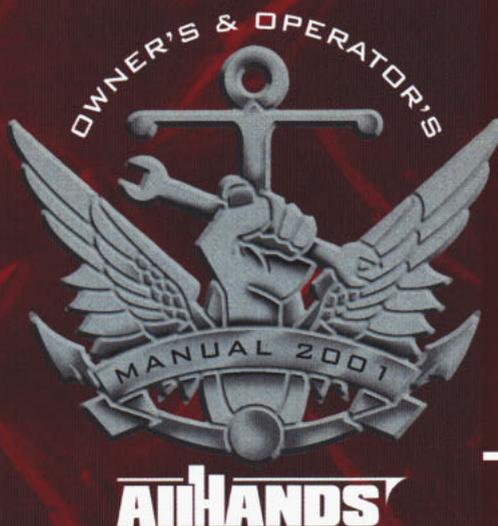
Often combined with the M-60 machine gun, the 60mm mortar is used aboard patrol boats (PBs).

CALIBER: 60mm

RATE OF FIRE: 10 rounds/min. (trigger mode); 18 rounds/min. (drop mode)

MUZZLE VELOCITY: 500 ft./sec

RANGE: 1,850 to 2,000 yds.



ANTI-SUBMARINE WARFARE (ASW)

Torpedoes

MK-46

The MK 46 MOD 5A(S) torpedo achieved its initial operational Capability and was introduced into the fleet in 1979. It can be launched from fixed and rotary wing aircraft and surface combatants VLA and torpedo tubes. Full-up MK 46 torpedoes are no longer being produced. In 1987, a major upgrade program enhanced the performance of the MK 46 Mod 5A(S) in shallow water.

A service life extension program was initiated in 1992 to extend the life of the MK 46 Mod 5A(S), convert it to the MK 46 Mod 5A(SW), and to provide additional shallow water and bottom avoidance modes. The MK 46 Mod 5A(SW) was introduced to the Fleet in 1996.

DIMENSION: 8.5 ft. long, 12.75 in. diameter

WEIGHT: 512 lb.

RANGE: More than 8,000 yds.

SPEED: 45 Knots

PROPULSION: Two-speed, reciprocation external combustion

WARHEAD: 96 lbs. of PBXN-103

DEPTH: Greater than 1,200 ft.

ORIGINAL MANUFACTURER: Alliant Techsystems, Honeywell



RIM-7P Sea Sparrow missile

MK-48

The MK-48 Torpedo is a long-range, high-speed, deep-depth, wire-guided acoustic homing weapon designed to combat slow diesel submarines, fast, deep diving nuclear submarines and high-performance surface ships and can be carried aboard all Navy submarines. Developed by the Applied Research Laboratory, Pennsylvania State University, and Westinghouse Electric Corporation, Baltimore, Md., the MK-48 and its subsequent variants have been in service with the Navy since 1972.

In 1975 an operational requirement was issued by OPNAV to develop modifications to the MK-48 to keep pace with threat advancements. This development effort was accelerated to neutralize the former Soviet Alpha threat and resulted in the MK-48 MOD 4 which achieved Initial Operational Capability in 1980.

Additional efforts resulted in development of the digital advanced capability (ADCAP) MK-48 MOD 5 which is carried by Los Angeles and Seawolf-class attack submarines and some Ohio-class ballistic missile submarines. The MK-48 MOD 5 became operational in 1988 and was approved for production a year later.

Although full-up torpedoes have not been produced since 1994, modifications (ADCAP MODS) produced by Northrup Grumman and Raytheon Systems Corporation have significantly reduced the weapon's radiated noise, enhanced its countermeasure rejection capability, increased its guidance and control processing and memory and improved its shallow water capabilities. This newest variant is designated the MK-48 MOD 6.

DIMENSION: 19 feet long, 21 in. diameter

WEIGHT: 3,434 lbs. (MK-48) 3,695 (MK-48 ADCAP)

RANGE: Greater than 8 nm.

SPEED: Greater than 28 Knots

PROPULSION: Positive displacement Piston-type engine with OTTO fuel II

WARHEAD: Bulk Charge 650 lbs. of high explosive

DEPTH: Greater than 1,200 ft.

Original Manufacturer: Gould

MK-50

The MK-50 torpedo began low-rate initial production in 1987. The MK-50 can be launched from all ASW aircraft and from torpedo tubes aboard surface combatants. It is an advanced lightweight digital torpedo designed for use against faster, deeper-diving and more sophisticated submarines.

The stored chemical energy propulsion system develops full power at all depths and is capable of multi-speed operations required by the tactical situation. Although full-up torpedoes have not been produced since 1993, the Block I software upgrade program has enhanced the MK 50's shallow water and countermeasure capability. Also a new longer-lasting, safer and cheaper stored chemical energy propulsion system is currently being introduced.

DIMENSION: 9.3 ft. long, 12.75 in. diameter

WEIGHT: 750 lbs.

RANGE: In excess of 14,000 yds.

SPEED: Multiple speeds with a top speed in excess of 40 knots

PROPULSION: Close-cycle Stored Chemical Energy Propulsion System

WARHEAD: Approximately 100 lbs. high explosive shaped charge

DEPTH: 3,600 ft.

ORIGINAL MANUFACTURER: Alliant Techsystems, Westinghouse

An MK-46 exercise torpedo

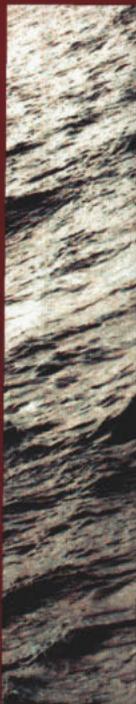


Photo by PH1 J. Slaughterhaupt

Mines

MK-67 SLMM (Submarine Launched Mobile Mine)

Based on the MK 37 torpedo, the SLMM is a submarine-deployed mine used for covert mining in hostile environments.

The MK-67 began active service in 1983.

TYPE: Submarine laid bottom mine.

DIMENSIONS: 13.4 ft. long; 19 in. diameter

DETECTION SYSTEM: Magnetic/seismic or Magnetic/seismic/pressure target detection devices (TDDs)

DEPTH RANGE: Up to 600 ft. (183 meters)

WEIGHT: 1,658 pounds (754 kilograms)

EXPLOSIVES: 330 pounds (150 kilograms) of high explosive

MK-65 Quickstrike

The Quickstrike is a shallow-water, aircraft-laid mine used primarily against surface ships. The MK 65 is a 2,390 lb. bomb fitted with a thin-walled mine casing. Older Quickstrike versions (MK-62, MK-63 and MK-64) were converted streamlined bombs of the 500 lb., 1,000 lb. and 2,000 lb. sizes. First fleet service in 1983.

TYPE: Aircraft laid bottom mine.

DIMENSIONS: 10.6 ft. long; 29 in. diameter
Detection System: Magnetic/seismic/ pressure target detection devices (TDDs) are used on various models.

DEPTH RANGE: Up to 600 ft. (183 meters)

WEIGHT: 2,390 pounds (1,086 kilograms)

EXPLOSIVES: Various loads

MK-60 Captor

The *Captor* is the Navy's primary, anti-submarine weapon. This deep-water mine is designed to be laid by aircraft or submarines and is anchored to the ocean floor. Its acoustic detection system is designed to seek hostile submarines, while ignoring surface craft and friendly submarine acoustic signatures.

Upon detection of a hostile submarine, the *Captor* launches an MK-46 Mod 4 torpedo. First fleet use in 1979.

TYPE: Aircraft, ship or submarine-laid, magnetically-moored mine.

DIMENSIONS: Aircraft/Ship laid: 12 ft. long/21 in. diameter; Submarine laid: 11 ft. long/21 in. diameter

DETECTION SYSTEM: Reliable acoustic path (RAP) sound propagation.

DEPTH RANGE: Up to 3,000 ft.

WEIGHT: Air/Ship laid: 2,370 pounds; submarine laid: 2,056 pounds

EXPLOSIVES: 96 pounds of PBXN 103 high explosive MK-46 torpedo.

MK-56 and MK-57

The MK-56 ASW mine (the oldest still in use) was developed in 1966.

TYPE: Aircraft-laid, moored mine (MK-56); submarine-laid, magnetically-moored mine (MK-57).

DIMENSIONS: (MK 56) 9.5 ft. long, 22.4 in. diameter; (MK 57) 10 ft. long, 21 in. diameter

DETECTION SYSTEM: Total field magnetic exploder.

DEPTH RANGE: Up to 1,000 ft.

WEIGHT: MK 56: 2,000 pounds; MK 57: 2,059 pounds

EXPLOSIVES: MK 56: 360 pounds HBX-3; MK 57: 340 pounds HBX 3

Sources:

Naval Sea Systems Command

Naval Air Systems Command

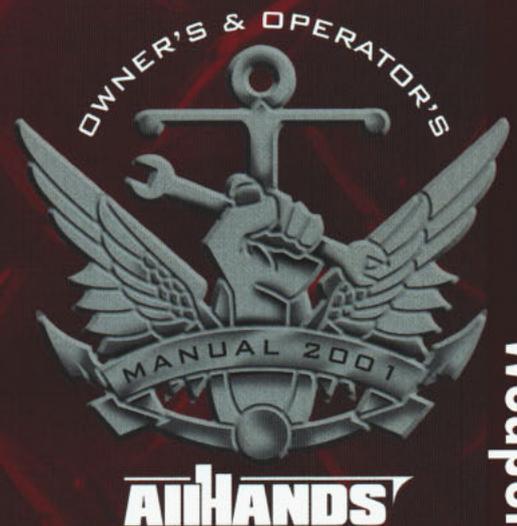
The U.S. Naval Institute Guide to

World Naval Weapons Systems, 1997-1998

AIM-9 Sidewinder missile



Photo by PH2/AWI, Donna McKissic



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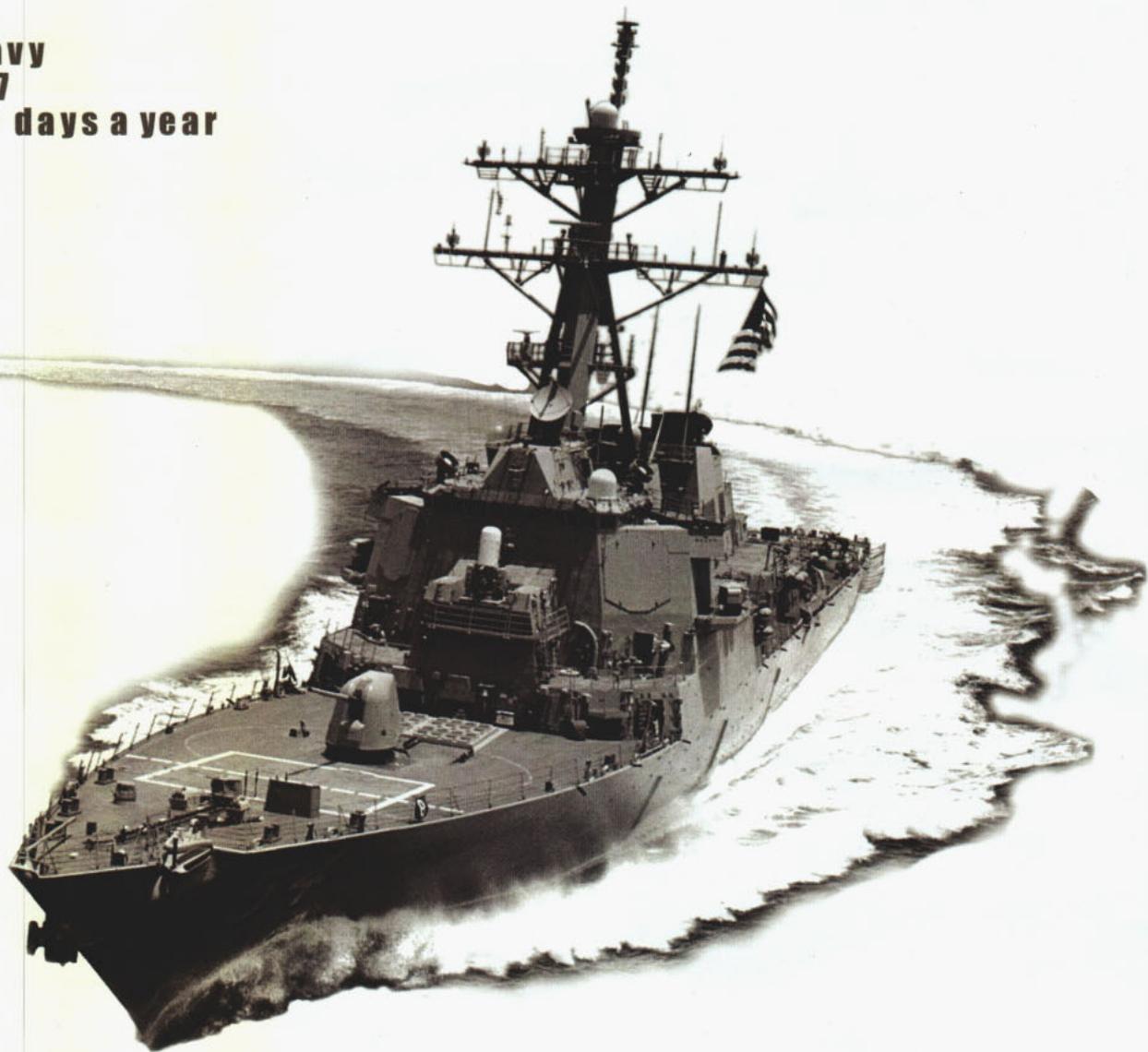
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