

# NAVAL AVIATION NEWS

March-April 1994



Naval Air Power Update page 8

# NAVAL AVIATION NEWS

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**COVERS—Front:** *Abraham Lincoln* (CVN 72) steams en route to its first WestPac deployment in June 1991 (PH3 David Dentry). **Back:** Crew members conduct a foreign object damage walk-down aboard *Nimitz* (CVN 68), while the ship is under way off the coast of California during pre-cruise workups in August 1992 (PH2(AW) Tim W. Tow).

**RADM Brent M. Bennitt**  
Director, Air Warfare

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By RAdm. Brent M. Bennett

The Navy and Marine Corps are billed as the "enabling force," capable of providing "forcible entry" so Army and Air Force units will have access to build up the forces and infrastructure they need to sustain combat. However, a greater role of the naval service is evident in what it provides day in and day out—solving problems and deterring potential conflict early so that it may not have to act as enabler. That role is promoting stability, cooperation and collective security through the presence of **credible, forward-deployed combat capability**.

Our political and economic security ties, backed up by forward naval presence, are the cornerstone of regional stability. The credible capability of a carrier battle group or amphibious ready group's striking power is a clearly visible deterrent. Because of the Navy's versatility and responsiveness, inherent in the fact that it is not required to negotiate for basing or overflight rights, the positioning of naval forces has often been used to signal our government's interest in, or concern about, a distant trouble spot.

For the past year and a half, our naval forces have been continuously enforcing no-fly zones in Bosnia and Iraq and performing maritime intercept operations (visit/board/search of commercial vessels) in the Red Sea, Adriatic

## Credible, Forward-deployed Combat Capability

Sea, Arabian Gulf and, more recently, in the vicinity of Haiti. These ongoing lesser regional contingencies are probably not just a present-day anomaly; similar crises are apt to be the norm in this age of disorder. In addition to responding to these crises, we will be required to meet our normal presence commitments in the Mediterranean Sea, Indian Ocean and Asia/Pacific regions.

Thus, the roles of our Navy are broadening. Much has been discussed and written about the use of the military in operations not involving coercive force. In the future, our forces may, indeed, be assigned more mis-

sions that have less to do with armed conflict in the traditional sense. However, those forces must have credible combat capability to underpin those nontraditional roles. The naval service often performs such roles as part of its normal routine, unencumbered by the requirement to secure foreign basing or overflight agreements. With the perseverance and continued outstanding performance of every member of our sea-going units, we will continue to lead the way, advancing U.S. interests by being on scene with credible, forward-deployed combat capability.

Keep 'em flying SAFE.

LCdr. Prochilo



A VF-14 Tomcat returns to John F. Kennedy (CV 67).



## Critical Error, Critical Time

A section of day attack AV-8Bs was on a close air support training mission working with forward air controllers (FACs) on the ground. While inbound to the roll-in point, the FAC requested "flares or a fuel squirt in the dive to help get eyes on."

The lead pilot rolled in but was not cleared "hot" for weapon release because the FAC didn't see him. The wingman rolled in, released two flares, but didn't get cleared, either.

Lead pulled out of his dive and began a climbing right turn to set up for a re-attack—at full throttle, 300 knots, climbing through 14,000 to 15,000 feet, the roll-in altitude. His right hand was on the control stick, left on the throttle. He transmitted, "Here comes a squirt," indicating he would dump a small amount of fuel to mark his position in the sky. With his *Harrier* in a 140-degree right wing down, 30-degree nose-low flight path angle, the pilot was looking out the right side of the cockpit, eyes on the target. He actuated what he believed to be the fuel dump switch.

He suddenly "felt three bangs from the engine compartment with associated thumps in the seat." The wingman saw two puffs of flame with black smoke followed by white smoke trails shooting from the tail.

Lead rolled wings level, pulled the nose up, placed the throttle in idle, selected manual fuel system (MFS) on, noted jet pipe temperature (JPT) 800 degrees (Celsius), then selected throttle off. He radioed, "I got a problem ... get everyone out of the area."

The pilot saw two yellow caution lights illuminated on the left side of the up-front control but was unsure which they were. He figured one must have been the MFS light. He saw no red lights nor did he hear any warnings. He did hear a loud grinding noise in the engine, similar to that when the aircraft's gun is fired.

During an airstart attempt, he observed that "manual fuel was already on." He hit the ignitors and held them down, checking JPT. He asked the wingman to give altitude calls. Unable to get a start, he tried again to no avail. Finally, he abandoned



the aircraft, ejecting at 2,000 feet. The pilot survived, the aircraft was lost.



Grampaw Pettibone says:

Well, stamp on my switches with

barnacle-bottomed boots!

Some of the *Harriers* in this squadron had T-shaped MFS switches, the others—like the one lost here—had "post" types. That shoulda been determined during preflight. But it wasn't. The pilot believed he had a T-handle switch for the MFS. So, with eyes glued on the target, and going by feel, he actuated what he thought was the fuel dump "post-type" switch. Instead, he flipped the post-type MFS switch. He thought he would squirt a shot of gas to help the FAC spot him but got a compressor stall instead. At full throttle in the *Harrier*, selection of MFS can lead to sudden engine overfueling and a compressor stall.

Critical mistake at a critical time.

Gramps knows that marking your spot in the sky in real combat plays into the hands of the bad guys. But this was training and we have to put a premium on safety. Even though the switch shape contributed to the actuation of the wrong system, the

But I flipped a switch!



Inexact Dilbert

pilot retains the responsibility.

Naval Aviation is a world of details. It's tough payin' attention to all of 'em. But the for the sake of life and limb—and flyin' machines—do so!

## Twenty Seconds to Trouble

An RH-53D was approaching a practice minefield 30 miles offshore for an airborne mine countermeasures (AMCM) training exercise. The copilot was at the controls. The helicopter was flying at 100 knots, about 300 feet over the water. Extensive UHF (ultrahigh frequency) communications existed between the helo, the assigned Coast Guard support ship, mobile inshore underwater van and AMCM radar controller throughout the transit. Nearing the intended hover point where the MK 103 gear (used for "sweeping" and cutting deployed mine cables) could be deployed, or "streamed," the pilot advised the crew to "get ready."

The safety observer (SO), starboard rampman (SR) and starboard handler (SH) moved aft and prepared for streaming. The SO informed the pilot and copilot that the crew was in position and requested permission to "control the ramp." The copilot then transferred ramp control aft. The SO subsequently reported, "Ramp level, man on ramp." The copilot acknowledged this transmission. Then the SO told the pilots that the crew was ready to stream.

"The area you're in is a good area to stream," radioed the AMCM radar controller. Believing he heard directions from the pilot or copilot to stream, the SR commenced the operation. The pilot and copilot indicated they did not give this direction. The aircraft was actually heading downwind to a stream point, still at 300 feet, 100 knots. However, both the SO and SR had only the water to use as a reference point, and they believed that the RH-53D was in or nearing a hover.

The SR released a marker float (a 65-pound metal and fiberglass assembly connected to a cable) out over the end of the ramp. The float oscillated about four to six feet aft of the ramp, striking the bird cage assembly (a bar-type device over the ramp). The SO quickly paid out winch cable hoping to control

float oscillations. The oscillations slowed for a moment then increased rapidly when the float approached the tail rotor arc. The SO and SR told the pilots to hover.

The copilot began slowing the aircraft and descended. The SO tried reeling in the float but a pendant jammed in a roller pulley. The float circled over the starboard side of the tail pylon and struck the upper tail rotor arc. The helo experienced moderate to severe vibrations.

The pilot took the controls and increased the rate of descent toward the water, transmitting, "Mayday," and declaring the aircraft was going in the water. The total time elapsed from the radar report, which indicated being in a good area to stream, until the mayday call was 20 seconds.

The helo experienced uncommanded right yaw in the descent. The pilot tried to maintain a level attitude, but the RH-53D impacted the water nose low with near-zero airspeed. It rolled right and sank rapidly.

The pilot and copilot stayed in their seats and sustained no injuries on impact. The SO remained attached to his gunners belt in a crouched position and suffered an ankle sprain.

The SR departed the ramp area during descent and moved forward in the cabin where he sat down on the deck without restraint, subsequently sustaining two cracked vertebrae. The SH's gunners belt was released by the SR, who signaled him forward during descent. The SH laid down on the deck prior to impact and suffered a leg bruise and mild back sprain. All five crew members egressed from underwater successfully—the pilot and copilot through starboard and port pilot jettisonable windows, respectively, the SR and SH through the personnel door, and the SO through the furthest aft port cabin window on a second attempt after getting stuck on the initial try. The crewmen met on the surface, connected lobes of their life preservers, and after 15 minutes in the water were rescued by the Coast Guard ship.



**Grampaw Pettibone says:**

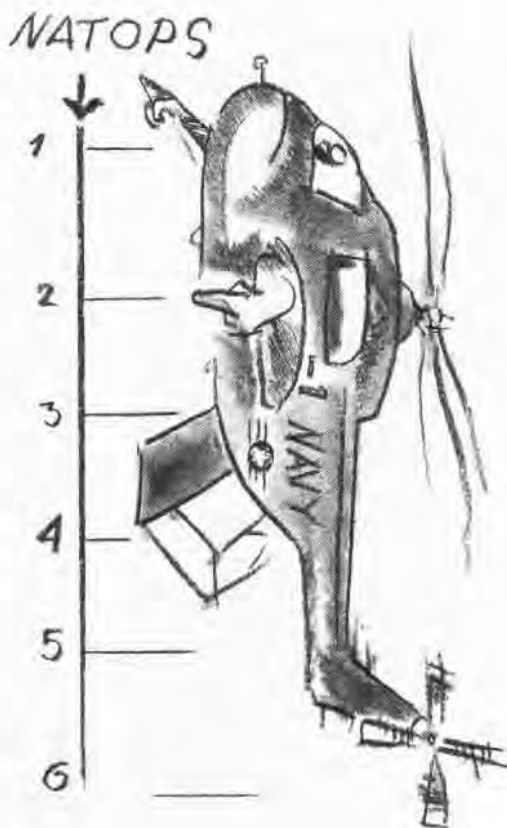
**Dad blast it! CC took a hike again! That's CC, as in crew coordination. NATOPS (Naval Air Training and Operating Procedures Stand-**

ardization) sez: enter a 50-foot hover BEFORE directing the crew aft to prepare for streaming.

Every time you cut a corner you risk fallin' off the shelf. If that float was a gun, you could say these fellas shot themselves down! All that miscommunicatin' with the many players in this episode directly resulted in the loss of one perfect flyin' machine.

AMCM crews have a tough, grind-it-out mission—from the pilots up front to the aircrewmembers in the back. Flyin' low and slow and deployin' all that gear takes know-how and plenty of practice—and goin' by the numbers, a la NATOPS. Communicatin' is a critical part of the coordination in a complex evolution where equipment is streamed from a helicopter. Fact is, communication is pretty important in ANY airborne evolution where there ain't no net.

Gramps is happy they survived. But it sure weakens these old bones to know that a little miscommunication can cause such a big snafu.



## VAdm. Spane— New CNAP

VAdm. Robert J. Spane assumed his new position as Commander Naval Air Forces, U.S. Pacific Fleet, 26 October 1993, replacing RAdm. Steven R. Briggs who had been Acting Commander after VAdm. Edwin R. Kohn retired in June 1993. RAdm. Briggs reassumed his assignment as Commander Fleet Air, Western Pacific.

VAdm. Spane was commissioned from the Naval Academy class of 1962 and received his wings in 1963. He came up through the attack community and had the following command tours: Attack Squadron 37, *Tripoli* (LPH 10), *Enterprise* (CVN 65) and Carrier Group 8. His last assignment was Director, Aviation Manpower and Training Branch (N889) for CNO's Air Warfare staff.

## RAdm. Allen Chosen as Next CNAL

RAdm. Richard C. Allen has been nominated to become the next Commander Naval Air Forces, U.S. Atlantic Fleet, replacing VAdm. Anthony A. Less who is retiring. If confirmed by the Senate, Allen will be promoted to vice admiral and take over in March 1994.

RAdm. Allen enlisted in the Naval Aviation Cadet Program in 1959, was designated a Naval Aviator in 1960 and redesignated a Naval Flight Officer in 1971. A veteran of the attack community, Allen had the following command tours: Attack Squadron 85, Carrier Air Wing 6, *Detroit* (AOE 6), *America* (CV 66) and Carrier Group 6. He is reporting from Director,

Assessment Division (N81), on the CNO staff.

## MCAS Beaufort Wins MUC

MCAS Beaufort, S.C., and Marine Corps Air Bases, Eastern Area, were recently awarded the Meritorious Unit Commendation for the period 2 August 1990 to 30 June 1991. The commands were recognized for services in connection with sustained support to Marine Aircraft Wing 2, both in garrison and deployed during Operations Desert Shield and Desert Storm.

## AW's Change Name



As a result of a broadened scope of responsibilities and missions, the rating title Aviation Anti-Submarine Warfare Operator (AW) was changed on 16 November 1993 to Aviation Warfare Systems Operator. The change reflects transition in the rating to a multimission function involving sensor/systems operators in antisurface warfare, mine warfare, electronic warfare, antisubmarine warfare, counter narcotics, land/sea combat search and rescue, and door gunner roles. The existing rating badge and abbreviation "AW" will not change. (See Sep-Oct 93, p. 16.)

## FY-94 ACP Approved

Applications are being accepted for the FY-94 Aviation

Continuation Pay (ACP) program. Qualified regular (or selected for augmentation) pilots who are current in the following communities may apply: VF (F-14), VFA (FA-18), VAQ (EA-6), VS (S-3), VQ (EP-3, E-6A, ES-3A) and HM (MH-53). More information may be obtained from NAVADMIN 216/93.

## New Aviator Flag Selects

The most recent flag selection board named 11 aviator captains for promotion to rear admiral. The following list includes previous assignments:

**Timothy R. Beard**, Deputy Director for General Planning and Programs for the CNO staff.

**Stanley W. Bryant**, Commanding Officer, *Theodore Roosevelt* (CVN 71).

**Tony M. Bucchi**, Commander, Carrier Air Wing 3.  
**Robert S. Cole**, Chief of Staff to Commander, Second Fleet.

**William W. Copeland**, Commanding Officer, *America* (CV 66).

**John W. Craine, Jr.**, Commanding Officer, Naval Air Station, Oceana, Va.

**Richard G. Kirkland**, Senate Liaison Director for Navy Office of Legislative Affairs.

**Patrick D. Moneymaker**, Director of the Space and Electronic Warfare Combat Division for the CNO staff.

**Charles W. Moore**, Joint Staff Chief of Special Technical Operations.

**John B. Nathman**, Commanding Officer, *Nimitz* (CVN 68).

**Donald A. Weiss**, Commanding Officer, *Saratoga* (CV 60).



## X-31 Goes Supersonic

The X-31 International Test Program announced its first two supersonic flights on 24 November 1993, piloted by Karl Lang of the German Ministry of Defence. Aircraft Number 1 flew nine flights achieving Mach 1.08 at an altitude of 37,500 feet. Tests in February are planned to demonstrate and analyze rudder destabilization and thrust vectoring stabilization

during supersonic flight in order to develop tail and tailless flight experiments for future flights. The X-31 is an international program that includes NASA, the U.S. Navy, U.S. Air Force, Rockwell International, the Federal Republic of Germany and Deutsche Aerospace and is managed by the Advanced Research Projects Agency.



## F-14 Crashes— Both Crewmen Saved

A VF-84 F-14 from NAS Oceana, Va., crashed in Currituck Sound, N.C., on 18 November 1993 after receiving indications of an onboard fire when returning from a routine air combat training mission. Lt. Jeffrey Daus was picked up from land by local authorities and LCdr. Kevin Wensig was rescued by a fishing boat from Currituck Sound before both were taken to local hospitals, treated for minor injuries and released.

## RAdm Steidle to be JAST Navy Deputy

RAdm. Craig E. Steidle was named as the Navy's top representative to the Joint Advanced Strike Technology (JAST) program. RAdm. Steidle will serve as deputy to Air Force BGen. George Muellner, who is the head of the program to develop advanced technologies that will become the basis for a future joint tactical aircraft development program. Components and concepts adaptable to differing service needs will receive particular attention.

## Reflectone Wins Training Contract

Reflectone Training Systems, a subsidiary of Reflectone, Inc., received a \$16.3-million contract over five years to provide operation and maintenance services for FA-18 training equipment at five Navy and Marine Corps air stations. NAS Lemoore, Calif.; NAS Cecil Field, Fla.; MCAS El Toro, Calif.; MCAS Beaufort,

S.C.; and Iwakuni, Japan, will receive support from Reflectone.

## NASA to Study Auroras

The National Aeronautics and Space Administration (NASA) and an international group of scientists began an extensive study of auroras over Alaska using suborbital rockets and ground instruments during late January to continue through March 1994. Eight sounding rocket launches from the Poker Flat Research Range near Fairbanks, Alaska, are planned to study the composition of auroras and their effects on the surrounding atmosphere. Auroras, or "Northern Lights," are a result of the interaction of charged particles from the sun with the earth's magnetic field in the upper atmosphere. These energized particles excite the gases present in the upper atmosphere, causing them to emit light that is called the aurora. What is not understood is the acceleration process that energizes these particles. The sounding rockets will allow scientists to take measurements through the aurora to gain a better understanding of this phenomenon. The project is managed by the NASA Goddard Space Flight Center's Wallops Flight Facility, for the Office of Space Science, NASA Headquarters, Washington, D.C.

## VP-66 Takes Over FEW Training Mission

In October 1993, reserve Patrol Squadron (VP) 66 assumed the mission of fleet electronic warfare training upon active Tactical Electronic Warfare Squadron (VAQ) 33's disestablishment.



A VP-66 EP-3J Orion shares the skies with an A-6 Intruder.

VP-66 acquired two EP-3J aircraft from VAQ-33 and immediately began providing direct support to the fleet. The EP-3J carries chaff pods and simulator pods, such as the ALQ-170 missile seeker simulator, AST-4 and AST-6 radar signal threat simulators and the ALQ-167 noise/deception jammer. It can also provide command and control warfare training with an onboard USQ-113 communication scanner/jammer and UST-105 HF scanner/jammer.

## Three Missing from Helo Crash in Atlantic

On 10 January 1994, an HH-46 *Sea Knight* from *Inchon* (LPH 12) crashed in the Atlantic Ocean about 500 miles northeast of Bermuda. The twin-rotor helicopter was assigned to Helicopter Combat Support Squadron 6, Det 1, NAS Norfolk, Va. Missing and presumed dead are Lt. Edward "Randy" O'Neill, 27, of Chestnut Hill, Pa.; Lt. Michael Tanner, 28, of St. Albans, Vt.; and AT3 Patrick Bleakney, 29, of Elwood, Pa. Airman Brian Darley, 21, of Virginia Beach, Va., was rescued from the sea by a boat from *Trenton* (LPD 14) and treated for a hip dislocation, broken wrist and minor scrapes and bruises. *Inchon* had commenced a scheduled six-month Mediterranean Sea deployment on 5 January.

## Goshawk Joins Training Command

The newest, most sophisticated jet trainer, T-45 *Goshawk*, began service in January at NAS Kingsville, Texas, with its first student class of 10. The T-45 is a single-engine, turboprop, tandem-seat aircraft with a length of 39 feet, a wing span of almost 31 feet and weight of 10,500 pounds. It carries 3,000 pounds of fuel which gives it a range of 700 miles.

## Blue's Hiring

The Navy Flight Demonstration Squadron, *Blue Angels*, will select two demonstration pilots (USN), an events coordinator, a flight surgeon and a Marine C-130 pilot for the 1995 team. Applicants should be career oriented, regular Navy or Marine Corps, officers with the following qualifications: **Demonstration Pilot** applicants must be tactical jet pilots with 1,500 flight hours. Applicants must be carrier qualified and preferably rotating from sea duty or having been on shore duty for less than 12 months. **Events Coordinator** applicants must be designated as Naval Flight Officers. **Flight Surgeon** applicants must be qualified Naval Flight Surgeons and be on or have completed an operational fleet tour. **Marine**

**C-130 Pilot** applicants must have 1,500 flight hours and hold a plane commander rating in the C-130 aircraft. Applications must be received by 30 April 1994 and final selections will be made in July/August 1994. Applications should include the officer's experience, qualifications and a photograph. Further information can be obtained from the Blue Angels Applicants Officer, Lt. Rick Young, at DSN 922-2583 or 904-452-2583, Navy Flight Demonstration Squadron, 390 San Carlos Road, Suite A, Pensacola, FL 32508-5508.

## 19 More Squadrons to Go in '94

Out of a total of 28 squadrons to be disestablished in FY 94, 19 remain. The following list gives the squadron and the month of disestablishment:

VP-22,	March
VP-49,	March
HC-16,	April
HSL-33,	April
HSL-74,	April
VA-36,	April
VX-4,	April*
VX-5,	April*
HC-1,	May
VF-43,	July
VA-42,	September
VAW-110,	September
VF-124,	September
VF-126,	September
VP-60,	September
VP-67,	September
VP-90,	September
VP-93,	September
VS-27,	September

\* VXs 4 and 5 will consolidate to form VX-9

## FA-18 Midair Kills 1

Two Marine Corps FA-18s collided on 17 December 1993 southeast of Okinawa while participating in routine air combat training maneu-

vers. Marine Capt. Kirk W. Kissinger, 31, of Hebron, Ind., was lost but Marine Maj. James C. Jumper, Jr., 37, of Beaufort, S.C., was rescued by members of the Japanese Air Self-Defense Force.

## Silver Eagles Contribute to Aviation Museum

The Silver Eagles Association (former enlisted pilots) recently made a special financial presentation of \$50,000 to the National Museum of Naval Aviation, Pensacola, Fla. The contribution is to be used to construct the initial phase of an Enlisted Naval Aviation Exhibit in the museum.

## Newest Glide Missile Tested at Pax River

Airworthiness tests for the Joint Stand-off Weapon (JSOW)—the next generation air-to-ground missile—were conducted last November at NAS Patuxent River, Md. The Navy has been designated the lead service for the program with the Air Force and is working with an integrated test team consisting of Navy, McDonnell Douglas Aerospace and Texas Instruments personnel. The JSOW is designed to provide the Navy and Air Force with a standoff capability at low and high altitudes against a variety of land and sea targets. The Navy will begin quality testing flights, noise and vibration and carrier suitability testing as part of more air worthiness tests in early 1994. The first launch of the

missile is scheduled for mid-1994 using the ranges at NAWCWD China Lake, Calif. The FA-18 and AV-8B are planned to be the first aircraft to operate with the new missile.

## Disestablished VAQ-34 Flashbacks

A 5 October 1993 ceremony at NAS Lemoore, Calif., marked the disestablishment of Tactical Electronic Warfare Squadron (VAQ) 34 after over 10 years of service. Cdr. Phil Tomkins was the last CO of the *Flashbacks*.

VAQ-34 was established at NAS Point Mugu, Calif., on 1 March 1983 as a West Coast expansion of the Fleet Electronic Warfare Support Group's electronic aggressor force structure, designed to accommodate the ever-increasing demand for fleet electronic warfare training. The squadron adopted the nickname *Electric Horsemen*.

Four RA-3B *Skywarrior* aircraft earmarked for scrapping were reinstated to the naval inventory and modified to ERA-3Bs similar to those in service with VAQ-33. VAQ-34 eventually operated the ERA-3B and EA-7L *Corsair II*, as well as other variants of the *Skywarrior*, or "Whale" (EA-

3B, KA-3B, EKA-3B and UA-3B).

During its decade of existence, VAQ-34 sent detachments to locations ranging from Puerto Rico to Japan, supporting fleet exercises, air wing training and research and development. In late 1990, the squadron, together with VAQ-33, flew sorties against the carriers deploying to the Persian Gulf, providing them with exposure to Iraqi antiship missile tactics and electronic warfare threats.

With the retirement of the ERA-3B and the phaseout of the EA-7L in 1991, VAQ-34 moved to NAS Lemoore in June 1992 and transitioned to the FA-18A/B *Hornet*. The *Electric Horsemen* eventually operated eight *Hornets* which employed the AST-6, ALE-39, ULQ-21, ALQ-167 and Gym-Sim pods for missile simulators, jammers, threat detectors and chaff dispensers. With the disestablishment of VAQ-34, its role has been assumed by the FA-18 squadrons assigned to the two reserve carrier air wings, CVWRs 20 and 30.

VAQ-34 enjoyed the distinction of being the first Naval Aviation squadron to have a woman commanding officer, Cdr. Rosemary Mariner.

Contributed by LCdr. Rick Burgess.



A VAQ-34 FA-18 Hornet flies over Mono Lake in California returning from a low-level training mission.



# Radiant Oak Demonstrates Off-board "Sensor-to-Shooter" Concept

By Cdr. Randy E. Nees, USNR

**R**adiant Oak, the first successful war-at-sea strike using national systems targeting data, was conducted on 19 August 1993. The demonstration showed the Naval Air community's capability to provide missiles on target using **off-board sensor targeting data delivered directly to the cockpit**. Radiant Oak was a Chief of Naval Operations and Navy Space Command Tactical Exploitation of National Capabilities initiative, which was executed by Navy Reserves and the High-speed Anti-Radiation Missile (HARM) Program Office.

The target was a moving 100-foot patrol craft, which operated 100 nautical miles off the California coast in the Sea Test Range at Point Mugu, Calif. Off-board targeting data was provided via the near-real-time TADIXS-B and Tactical Related Applications broadcasts. Multimission Advanced Tactical Terminal (MATT) and Tactical Receive Equipment (TRE) were used to receive and filter the off-board data, which was displayed on stand-alone computers.

A MATT-equipped EA-6B *Prowler* of Tactical Electronic Warfare Squadron (VAQ) 209, a reserve unit at NAF Washington, D.C., led the air wing strike group. It was guided to the target solely by off-board targeting data.

The strike group flew a 500-mile, low-level ingress to the target area remaining terrain masked from the threat. The Electronic Counter-Measures Officers, Lieutenant Commanders Doug Cook and Tom Burke, derived the HARM "range known" targeting solution from the over-the-horizon contact data provided. The EA-6 fired the first improved warhead HARM, which disabled both the target acquisition and target tracking radars on the patrol craft. The TACCOs (Tactical Coordinators), Lieutenant Commanders John Coleman and Matt Vance, in the P-3 *Orion* of Patrol Squadron 60, then used the TRE to launch a "range and bearing" Harpoon missile from beyond line of sight to the target—without tracking data from the P-3's radar. The Harpoon acquired, tracked and struck



The improved HARM warhead comes off the EA-6B rail en route to the first successful over-the-horizon, war-at-sea shot.

the target, piercing a three-foot-diameter hole directly through the patrol craft two feet above the waterline. Both the HARM and Harpoon were successfully launched from below the radar horizon, enhancing strike aircraft survivability and ensuring the element of surprise. Off-board data provided the beyond-line-of-sight situation awareness needed for success. Altogether, an unprecedented seven air-launched Harpoon missiles were fired

from A-6, P-3 and S-3 aircraft.

During Radiant Oak, the off-board "sensor to shooter" concept was validated. When integrated into airborne weapons control systems, this off-board, over-the-horizon adjunct will support a multitude of missions/warfare areas throughout the tactical air community. ■

Cdr. Nees was the Space and Electronic Warfare Officer in VAQ-209 when he served as strike lead for Radiant Oak.

The Harpoon impact caused this hull damage to the patrol craft target.



# Naval Air Power Update

By LCdr. Bob LaBelle and N88 Staff

The highly publicized draw-down in the Department of Defense has caused some significant changes in Naval Aviation. This article describes what our force structure will likely be in the future.

In regions where the United States has a significant stake in maintaining a stable political and economic climate, it is important for us to offer tangible evidence of our interest. The United States Navy helps demonstrate our nation's interest in the events of a region by its routine presence with forward-deployed aircraft carriers. When a crisis arises, carriers and their embarked air wings often avert or contain conflict by the deterrent effect of their credible forward-deployed combat capabilities.

This fact has been recognized by the administration as evidenced in the recently issued Defense Planning Guidance, which says "our overseas presence needs can impose requirements for forces equal to or beyond those needed to fight and win two near-simultaneous major regional conflicts." Thus, a force level of 12 aircraft carriers and 11 large deck amphibious ships is keyed to our requirement to provide a strong naval presence in three areas of vital national interest: the Mediterranean Sea, East Asia and Southwest Asia.

## Aircraft Carrier Plan

The Bottom-Up Review conducted in FY 93 and the Navy's internal joint war-fighting assessment (SECNAV Wargame) reaffirmed the need for 12 aircraft carriers—11 active and one operational reserve/training. This number is the minimum required to meet our defense strategy of being able to fight

and win in two nearly simultaneous major regional contingencies, as well as maintaining a forward presence in support of overall U.S. national security interests abroad.

As the centerpiece of our regional defense strategy, aircraft carriers provide a credible forward-deployed warfare capability. They are not encumbered by political restraints of overflight and access rights, or subject to employment restrictions dictated by the national interests of others. The presence of a forward-deployed carrier enables rapid response to a crisis. Capable of the full spectrum, when the carrier arrives, it dominates the scene with its potential to project sustained, precise and awesome firepower.

Flexible response to threats is the carrier's strong point. Aircraft carriers provide the carefully measured response our nation's leaders require to protect national security interests and help facilitate world stability. Whether our national goals require missions ranging from peaceful diplomacy to full combat, carriers quickly answer the call.

Highly mobile, carriers can transit 500 nautical miles a day and arrive to be the first on scene, rapidly injecting the flexible response element and providing the initial enabling force for conducting joint combat operations. The carrier has prolonged staying power at a high state of readiness and an organic self-sufficiency enjoyed by no other military force.

The current plan for aircraft carriers is shown in the chart. *Saratoga* (CV 60) will be decommissioned in FY 94, bringing the carrier force level to 12. In FY 95, *John F. Kennedy* (CV 67) will be designated an operational reserve/training carrier, taking the force level to 11 active and one reserve. Importantly, *Kennedy* is *not* a replace-

ment for the AVT. *Kennedy* will be an operational asset—a "full-up-round." It will provide a readily available surge capability, as well as unique training opportunities for our active and reserve forces. Our concept of operations for *Kennedy* includes participation in USACOM joint training, special operations, research and development and tactics development and routine exercises in the Atlantic and Caribbean operating areas. *Kennedy* will also be available for refresher carrier qualifications for our active and reserve pilots. As an operational reserve asset, she will be one of the flight decks available for the training of student aviators.

## Moving Towards 12 CV/CVNs

FY	Subtract	Add	Net	CV/CVN Mix
FY 92	Midway*	Washington	15	8/7
FY 93	Ranger Forrestal		13	6/7
FY 94	Saratoga		12	5/7
FY 96	America	Stennis	12	4/8
FY 98	Independence	United States	12	3/9
FY 02	Kitty Hawk	CVN 76	12	2/10

\*Independence replaced Midway in Japan

Upon commissioning of CVN 76 and decommissioning of *Kitty Hawk* (CV 63) in 2002, our carrier force will be as follows:

Constellation (CV 54)  
Enterprise (CVN 65)  
John F. Kennedy (CV 67)  
Nimitz (CVN 68)  
Dwight D. Eisenhower (CVN 69)  
Carl Vinson (CVN 70)  
Theodore Roosevelt (CVN 71)  
Abraham Lincoln (CVN 72)  
George Washington (CVN 73)  
John C. Stennis (CVN 74)  
United States (CVN 75)  
CVN 76

With recent legislation that permits women to serve aboard combatant ships, an ambitious plan has been for-



A Navy FA-18A Hornet fires a 5" Zuni air-to-ground rocket during a training exercise.

mulated to modify aircraft carriers to accommodate up to 500 women per ship. Modification funding has been directed at *Nimitz*-class carriers. *John F. Kennedy* is also receiving some modifications during her present overhaul to accommodate women for an operational reserve role. Modifications center around providing privacy alterations for men and women and some berthing upgrades where possible.

#### Expected Women Embark Dates

1994	1995	1996	1997
CVN 69	CV 67	CVN 75	CVN 70
CVN 72	CVN 68		CVN 73
CVN 74			
1998	1999	2000	2001
CVN 71		CVN 65	CVN 76

### Selected Modernization Programs, 1993-1996

The aircraft carrier Fleet Modernization Program has many significant programs ongoing:

- The SPS-48E air search radar is a significant improvement over and replaces the existing 3D SPS-48C radar, providing improved reliability and maintainability/performance in a hostile electronic warfare environment.
- The SPS-49 (V)5 is an upgrade to the (V)1 two-dimensional air search radar. The modification will improve target detection, evaluation, radar operability during jamming, reliability and maintainability and will reduce the system's mean time to repair.
- The AN/WSC-(V)SHF satellite terminal will provide the fleet with highly reliable, high-capacity, long-range ship-to-shore communications with a high degree of immunity to jamming and direction finding.
- The AN/USC-38 EHF SATCOM terminal provides survivable wartime voice and data communications to allow designated commanders direct command and control of assigned forces. The system is designed to provide jam-resistant, low-probability-of-intercept communications within selected mission areas.
- The AN/SPN-46 has been developed to replace the existing AN/SPN-42 automatic carrier landing system. The SPN-46 is a revised and

upgraded system that will improve operator performance, reduce time to repair, increase time between failures and improve flight safety. The system employs the SPN-42 antenna-receiver group with modifications.

- The AN/SPN-43A/B 2-D air traffic control radar will be replaced with the SPN-43C to provide improved performance.
- The aircraft catapult number four MK7/MOD1 jet blast deflector (JBD) modification significantly enhances flight deck operations and safety. This modification provides a capability similar to that presently existing on other catapults. It is larger than present catapult four JBDs, water-cooled and enables FA-18s to launch from catapult four with the JBD raised—increasing the safety margin aft of the catapult and improving the operational restrictions now imposed with the present JBD configuration.

The modifications mentioned above will be installed between now and the end of 1996. Although most carriers will receive all the mods, certain mods may not be installed on some carriers due to age and availability.

Hand in hand with the requirement for 12 carriers is the need to maintain



11 (10 active and 1 reserve) modern and power projection-capable carrier air wings. This is not an easy task and, in fact, has forced some hard decisions. The major issues are air wing composition and aircraft modernization.

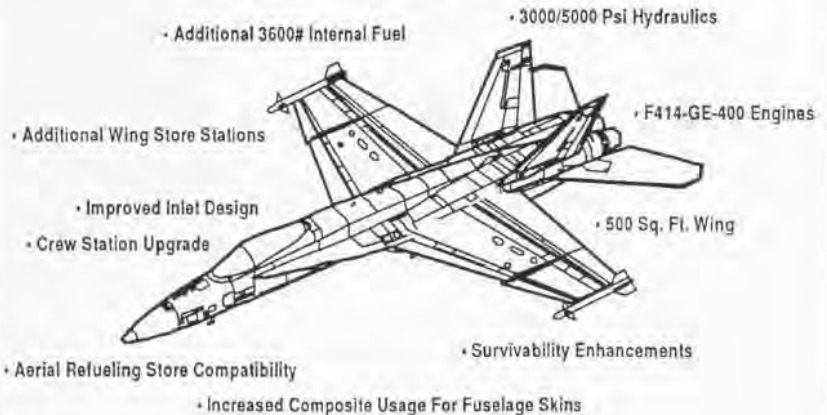
## Future Air Wing Composition

Plans for the future rest on recapitalizing the nation's investment in Naval Aviation. Keys to recapitalization are force-structure reductions, service life extensions and new procurement. Force reductions are coming in the form of squadron disestablishments. In FY 94 alone, 28 squadrons will be disestablished.

In looking for ways to afford 11 total air wings, the Navy looked at many alternatives. Reducing the number of aircraft on the decks was one step necessary in order to achieve the cost savings needed to maintain the required number of air wings and sustain a robust modernization program. Due to many factors, including survivability, airframe age and costs to modernize, a decision was made to remove A-6s from the inventory. Retiring A-6s by 1997 will save significant modernization and operating costs. Estimated savings amount to approximately \$3 billion over the next five years.

A significant reduction in the number of F-14s is another cost-cutting measure. We will reduce from two squadrons of 10 aircraft per carrier air wing to one squadron of 14 aircraft. As we "neck down" to fewer aircraft types, we need air assets that are more flexible and capable of multiple missions. A potent, adverse-weather, medium-range strike capability will be economically provided by upgrading 210 F-14A/Bs to deliver air-to-ground ordnance. Modifications will be limited to laser guided bomb capability, targeting forward-looking infrared detector, laser designation for precision bombing, night vision devices (NVD) and NVD-compatible cockpit, Inertial Navigation System/Global Positioning System integration, and off-the-shelf electronic countermeasure improvements. These modest improvements provide a multi-mission strike/escort complement which will be utilized at least until 2010.

## FA-18E/F Features



Currently there are a variety of squadron mixes in our carrier air wings. Plans call for a transition (already under way) of all air wings to a 50 strike fighter composition: 36 *Hornets* (3 squadrons of 12) and 14 upgraded *Tomcats* (1 squadron). The transition schedule is shown below. This plan depends upon the continued integration of three Marine Corps *Hornet* squadrons into carrier air wings.

### CVW Transition Schedule

	1994	1995	1996	1997	1998
36- <i>Hornet</i> / 14- <i>Tomcat</i> Air Wing	2	*4	7	10	10
Reserve	**2	1	1	1	1

\* One Active Air Wing to be disestablished in FY 95  
\*\*Reserve Air Wings = 36 *Hornets* in FY 94

## Modernization

The cornerstone of Naval Aviation's modernization plans is the FA-18E/F. This state-of-the-art platform is a dual-mission strike fighter based upon the combat-proven design of the FA-18C/D and its track record of superb reliability. The E/F overcomes the mission radius and endurance limitations of its predecessor while providing the capacity for growth that is unavailable in the current *Hornet*. There will be extensive commonality in weapons systems, avionics and software between the two aircraft, and the infrastructure for supporting the new *Hornet* will grow from in-place organizations. The lethality, flexibility and reliability of the

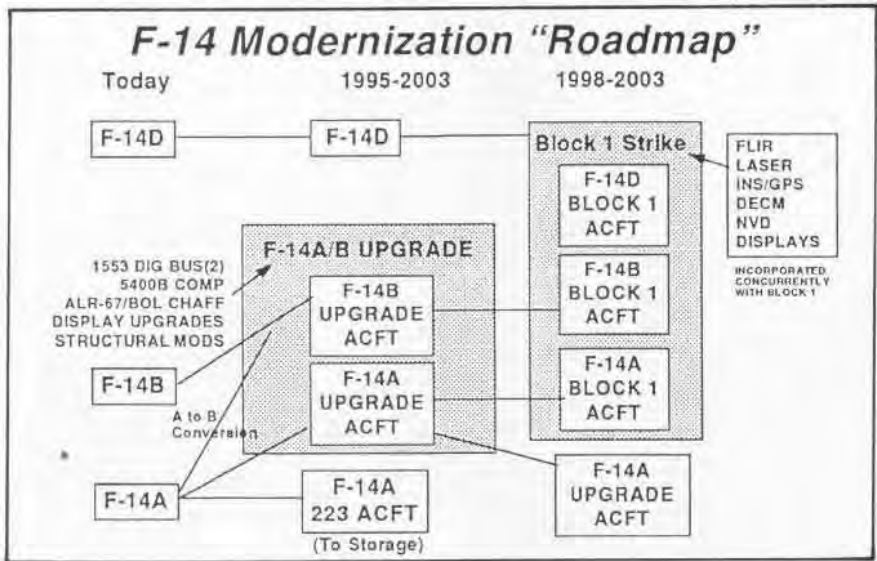
FA-18E/F will make it the premier aircraft to fulfill the majority of missions anticipated in littoral scenarios. Some of the improvements included in the new *Hornet* are shown above.

There is a modernization program mapped out for virtually every naval aircraft that will remain in the inventory. The F-14 modernization plan was described above. The other large programs are the AV-8B, EA-6B, SH-60 and E-2C.

The AV-8B is funded for a remanufacture which will convert 73-day-attack-capable *Harriers* to a radar/night attack capability. Features include a new engine, structural upgrades, targeting radar (APG-65), night vision-compatible cockpit, and survivability features (ALR-67).

This program prolongs the life of the *Harrier* through the next decade and provides the Marine Corps with very capable forward-area airborne artillery. While not all *Harriers* will receive this upgrade, the program does provide an upgraded mix of aircraft to meet Marine Corps requirements until the next generation of vertical/short takeoff and landing aircraft is fielded.

The EA-6B will remain the premier platform for airborne suppression of enemy air defenses (SEAD). It starred in that role in the Persian Gulf war. The *Prowler's* improvement program is called ICAP II. It features communications and navigation system improvements (ARC-210 radio, Global Positioning System), expansion of jammer frequencies, a low-band communications and radar receiver, and



VF-14 F-14A Tomcats fly over the French aircraft carrier Foch (R-99) during a joint exercise.



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structural upgrades. These enhancements will sustain the *Prowler* and Naval Aviation as the leader in SEAD.

Substantial adjustments have been made to the H-60 program, involving the SH-60B, SH-60F and HH-60H. These changes are in response to the changed threat environment and the need to exact savings wherever they are available. The H-60 will neck down from three to two models as depicted in the chart on page 15. Our CV helo squadrons will transition to three SH-60Fs and two HH-60Hs in 1995.

The SH-60B will receive upgrades

in the Block I retrofit to provide it with better antisubmarine warfare and antisurface warfare (ASUW) capability, including the Penguin missile; MK-50 torpedo; 99-sonobuoy channel capability; and self-protection improvements, such as missile warning and chaff/flare dispenser.

The SH-60B and some SH-60Fs will be converted to a common configuration designated the SH-60R, which will then receive a Block II upgrade with the following features:

- Airborne Low-Frequency Sonar

(ALFS) to counter the modern diesel sub threat

- Imaging Radar (ISAR), bringing a tailored search capability to the wide variety of conditions in which the helo operates
- Electronic Support Measures (ESM) upgrades that improve sensitivity and accuracy of identifying threat emitters
- Integrated survivability features

Significant numbers of the SH-60F will be converted to HH-60s to improve our combat search and rescue capability. See SH-60/HH-60 Roadmap, p.15.

## CV/CVW Aircraft Mix (End of FY 93)

	Ship	F-14	FA-18	A-6	EA-6B	E-2C	S-3	SH-3H	VC
CVW-1 LANT	America (CV 66)	VF-102 VF-33	VFA-82 VFA-86 VMFA-251	VA-85	VMAQ-1	VAW-123	VS-32	HS-11	
CVW-2 PAC	Constellation (CV 64)	VF-1 VF-2	VFA-151 VFA-137	VA-145	VAQ-131	VAW-116	VS-38	HS-14	
CVW-3 LANT	Eisenhower (CVN 69)	VF-14 VF-32	VFA-37 VFA-105	VA-75	VAQ-130	VAW-128	VS-22	HS-7	
CVW-5 PAC	Independence (CV 62)	VF-21 VF-154	VFA-192 VFA-195	VA-115	VAQ-136	VAW-115	VS-21	HS-12	
CVW-7 LANT	Washington (CVN 73)	VF-142 VF-143	VFA-131 VFA-136	VA-34	VAQ-140	VAW-121	VS-31	HS-5	
CVW-8 LANT	Roosevelt (CVN 71)	VF-41 VF-84	VFA-15 VFA-87 VMFA-312	VA-36	VAQ-141	VAW-124	VS-24	HS-3	
CVW-9 PAC	Nimitz (CVN 68)	VF-24 VF-211	VFA-146 VFA-147	VA-165	VAQ-138	VAW-112	VS-33	HS-2	
CVW-11 PAC	Lincoln (CVN 72)	VF-213	VFA-22 VFA-94 VMFA-314	VA-95	VAQ-135	VAW-117	VS-29	HS-6	
CVW-14 PAC	Vinson (CVN 70)	VF-11 VF-31	VFA-25 VFA-113	VA-196	VAQ-139	VAW-113	VS-35	HS-8	
CVW-15 PAC	Kitty Hawk (CV 63)	VF-51 VF-111	VFA-27 VFA-97	VA-52	VAQ-134	VAW-114	VS-37	HS-4	
CVW-17 LANT	Saratoga (CV 60)	VF-74 VF-103	VFA-81 VFA-83	VA-35	VAQ-132	VAW-125	VS-30	HS-15	
CVWR-20 East	Cecil Field	VF-201 VF-202	VFA-203 VFA-204	VA-205	VAQ-209	VAW-78			VC-12 VC-13
CVWR-30 West	Miramar	VF-301 VF-302	VFA-303 VFA-305	VA-304	VAQ-305	VAW-88			

### Marines LANT

VMFA-115	FA-18
VMFA-122	FA-18
VMFA-251	FA-18
VMFA-451	FA-18
VMFA-312	FA-18
VMFA(AW)-224	FA-18DN
VMFA(AW)-332	FA-18DN
VMFA(AW)-533	FA-18DN

### Marines PAC

VMFA-314	FA-18
VMFA-323	FA-18
VMFA-212	FA-18
VMFA-232	FA-18
VMFA-235	FA-18
VMFA(AW)-121	FA-18DN
VMFA(AW)-242	FA-18DN
VMFA(AW)-225	FA-18DN

### Marines Reserves

VMFA-134	El Toro	FA-18
VMFA-321	Wash	FA-18
VMFA-142	Cecil	FA-18
VMFA-112	Dallas	FA-18

The E-2C *Hawkeye* is scheduled for a major modification under the Group II program. This program includes continued production of new aircraft in the Group II configuration with improved overland tracking ability, increased radar range, new engines, color displays and a high-speed processor. A number of E-2C Group I aircraft will be modified to the Group II configuration. The figure shows the plan for E-2Cs.

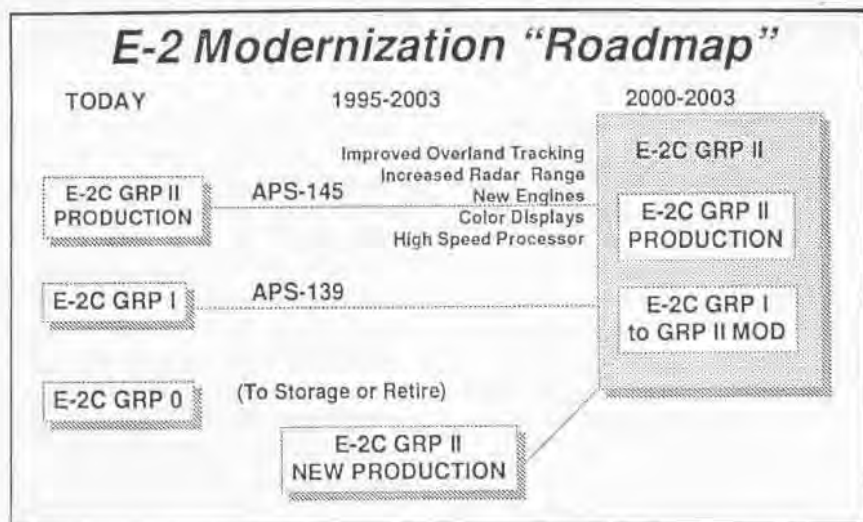
The S-3B *Viking* will receive the Co-processor Memory Unit computer, communications and navigation improvements, armament control system replacement and improved ESM software. Other initiatives address critical structures repair and other items required to curb obsolescence. The *Viking*, with its APS-137 radar, plays an important role in maintaining the sea control picture for the battle group and will assume all of the organic tanking

capability in our air wings when the A-6 is retired.

Our maritime patrol force is drawing down to 13 active and 9 reserve squadrons. Each squadron will have a pro-

grammed aircraft authorization of 8 and will soon be comprised of all P-3Cs.

The sustained readiness program provides material upgrades to correct corrosion problems and will match ma-







Four VAQ-140 EA-6B Prowlers fly in formation over Dwight D. Eisenhower (CVN 69).

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terial condition with fatigue life. A major upgrade to the capability of the P-3C is the ASUW improvement program, which includes:

- APS-137 Imaging Radar
- ESM Pulse Analyzer
- Officer in Tactical Command Information Exchange System
- Infrared Detection Set Enhancement
- Electro-Optical Surveillance

As mentioned earlier, virtually every aircraft the Navy owns has a modernization program planned or ongoing. The few covered here are those of the carrier air wings and Maritime Patrol Aircraft force.

In view of the stated Marine Corps requirement for more modern lift and

the expanded role of expeditionary forces, the V-22 *Osprey* is a key competitor in our search for a medium-lift replacement aircraft. It represents significant improvement over current technologies and capabilities and our commitment to expeditionary warfare.

## Weapons

All future weapons programs will be pursued jointly. The Joint Direct Attack Munition and the Joint Standoff Weapon are completely joint developments. The AIM-120 Advanced Medium Range Air-to-Air Missile is being improved under a three-phase program. Phase I gives the missile ECCM (Electronic Counter Counter-Measures) capability and compressed carriage.

Phase II provides ECCM and better lethality. Phase III is a proposal to enhance ECCM, propulsion and seeker. The cost and operational effectiveness study for Phase III is ongoing.

## Naval Aviation Imperatives

The tremendous instability in the world and the associated unpredictability of future opponents' capabilities demands that we maintain a modernized, technically superior war-fighting capability. Future naval forces must be both capable and affordable. The Navy has taken steps to ensure this by constructing a strategy that supports the unique capability of the Navy and Marine Corps to project power



PH2 Grezdinski

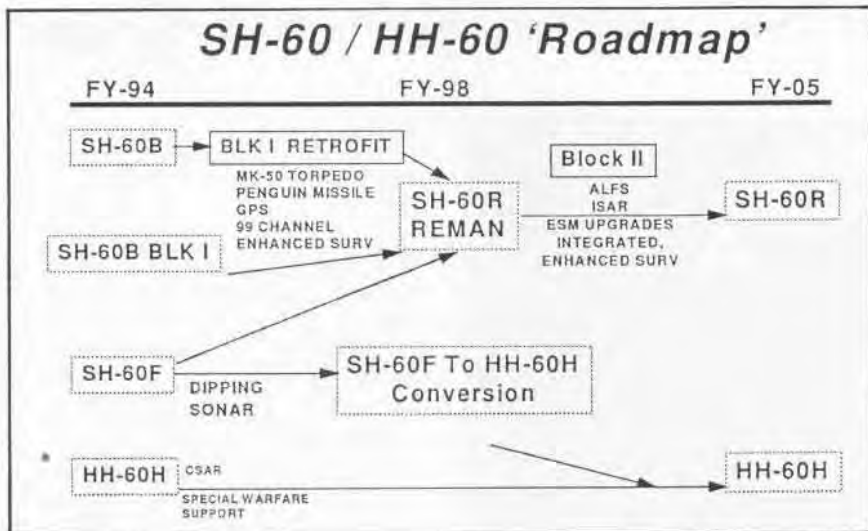
Two S-3A Vikings of VS-38 fly over the Sierra Nevada Mountains.



PH1 David M. Miller

An HS-6 SH-60 Seahawk prepares to lift supplies from the deck of Abraham Lincoln (CVN 72) during a vertical replenishment while the ship operated in the Gulf of Oman during Operation Southern Watch.

## SH-60 / HH-60 'Roadmap'



proliferation demand a stealthy aircraft to go against heavily defended and deep targets. Further down the road, it is hoped that the requirement for an advanced strike aircraft will be filled in the 2010 period.

Naval Aviation will continue to operate and exercise throughout the world. In order to do so effectively, we must deploy credible combat capability. It is imperative that we continue to prepare for the future with a war-fighter's mentality. ■

throughout the world. For our strategy to work, it is imperative that we neck down the force with vigor and continue to pursue infrastructure savings at every available opportunity.

The improved capabilities of the advanced *Hornet* are necessary to guarantee success when fighting future wars. Anticipated technological improvements and continued weapons

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A VAW-124 E-2C Hawkeye prepares to launch from Roosevelt.





The SJU-17 F-14 ejection seat, with its state-of-the-art electronic sequencer, provides a challenge for AME2(AW) Jeff Nanney.

## Aviation Structural Mechanic-Safety Equipmentman

Story and photos by JO1(SW) Eric S. Sesit

There is much to talk about in the Aviation Structural Mechanic-Safety Equipmentman (AME) community these days. Concerned voices are expressing their opinions in workcenters throughout the Navy about the pro-

posed rating merger between AMEs and Aircrew Survival Equipmentman (PRs). (See *NANews*, Jan-Feb 94, pp. 26-27.) Tentatively scheduled to be implemented during a three-year period beginning in 1996, the merger will com-

bine the two ratings into the Aviation Life Support Equipmentman (AL) rating.

AME1 Norman Fisher, leading petty officer of the AME shop at Strike Aircraft Test Directorate, NAWCAD Patuxent River, Md., said, "Many people think the PRs and the AMEs do the same job—dealing with survival gear—and to an extent that's true. But the differences between our jobs are much greater than the similarities. PRs deal with the *aviators* life support gear—their parachutes, flotation devices, helmets, etc. AMEs work on the *systems* in the aircraft, ECS [Environmental Control Systems] and ejection seats."

AMEs receive their initial training at an eight-week "A" school located at Naval Air Technical Training Center, Millington, Tenn. They learn the basics of egress systems for Navy aircraft and the fundamentals of air conditioning and cockpit pressurization systems.

"Hopefully, they come out of A school smart enough to be scared to death," AME2(AW) Jeff D. Nanney, also of Strike, said. "Ejection seats are loaded with Class B explosives, the same type of fuel used in rocket motors. It's dangerous stuff."

An example of the explosive force packed under an aviator's bottom can be found in the F-14 *Tomcat*. The fighter is equipped with an ejection seat that can propel a 200-pound man wearing 40 pounds of flight gear 80 feet in less than two seconds.

"We go through very intensive on-the-job training," continued Nanny. "When we get a new airman, he or she must be signed off on a series of tasks specifically related to the aircraft that they've been assigned."

Fisher added, "Even though a person has successfully completed all qualifications, I've got to insure the individual working with me knows [the right] stuff. If their attitude is not right, or I don't feel comfortable working around this person, he or she will not perform maintenance on a seat. It's just too dangerous. There's enough ex-

plosives in one seat to kill everyone in the shop."

Egress systems are inspected regularly. The cycles vary for different aircraft and range from 224 days to 728 days. But the systems are constantly being removed and reinstalled to gain access to other aircraft components that need servicing. And even though the seat can be made "safer" before removal and installation, it cannot be disarmed until it is completely out of the aircraft. AME2 Nanny compares it to "dealing with a loaded gun without a safety and you have to hold it all the time."

AMEC(AW) Ed Holland, of the Strike Directorate, said, "Working on egress systems takes approximately 10 percent of our time and provides 90 percent of our glory. Conversely, working on ECS takes up 90 percent of our time and provides 10 percent of the glory, even though it's every bit as important to the crew and mission. Aviators fly in a hostile environment and the ECS systems allow them to survive."

The ECS system in today's aircraft, besides keeping the crew and gear comfortable, also includes the anti-G system which pressurizes flight suits depending on the "G" forces the aircraft and crew are experiencing. This helps prevent the aviators from blacking out. The ECS system of valves and tubes running throughout the aircraft

makes troubleshooting a system malfunction a time consuming as well as frustrating job.

Since the systems AMEs work on are the most crucial to the life and welfare of the crew, AMEs have a great responsibility when it comes to sending an aircraft out to fly. "If our systems aren't just the way the book says they should be and we can't guarantee the life of the crew, the aircraft will not fly," said Holland.

The AME rating has numerous Navy Enlisted Classification (NEC) codes, numerical codes that identify specific skills. For AMEs, these codes are assigned for knowledge of systems pertaining to a specific aircraft or aircraft system. It is not unusual for a sailor who has earned an NEC for FA-18s to work on FA-18s his or her entire career, moving from one *Hornet* squadron to another. This makes the AME rating NEC driven for assignments. However, a sailor can go from one type of aircraft to another and earn a new NEC if manning requirements dictate.

With so much specialization, it's easy to understand why today's AMEs are concerned about the upcoming merger with PRs. "Right now, we're very close to being merged in a lot of places in the fleet," Holland said. "Many of the nonejection seat outfits [P-3s, for example] have PRs and AMEs working together."

Other sailors are not as positive about the transition. Many have a personal prejudice, a natural feeling of protecting their own turf. Concerns about space allocation on board ships, learning new skills, safe working conditions and advancement in a new rating are some of the problems expressed by AMEs. But most agree that if the merger is implemented and done properly, it should work out and benefit everyone involved.

"On a positive note," Nanny said, "the merger will allow AMEs to serve on shore duty at Aviation Intermediate Maintenance Departments, good billets that are not available to us now since our job is mostly "O" [organizational]-level maintenance."

AMEC(AW) Carl J. Bender, Jr., the AME detailer who is responsible for assigning new duty orders to the 2,500 men and women of the AME rating, said, "The merger will provide AMEs a good opportunity to cross train and learn more about the aircraft they work on. It should be a very exciting time for AMEs. There will be a lot of opportunity for our young E-4s, E-5s and E-6s, PRs as well as AMEs, to make a name for themselves by helping train people in the new skills they need."

With a bright future on the horizon, presently the AME rating is manned nearly at 100 percent. Selected Reenlistment Bonuses have been discontinued due to the increased manning levels. The rating is still open, however, to sailors E-4 and below who wish to convert to the AME rating from another field.

Concerning promotion, Bender said, "As we move past the drawdown, advancement opportunities will undoubtedly improve. These are very turbulent times in the Navy. I just want to advise people to stick to it and keep a positive attitude. Things are going to get better."

AME2 Nanney summed up the AME rating this way: "I wouldn't want any other rating. It's challenging, demanding and once you're into it, you fall in love with your job." ■

Up to his elbows in an F-14D, AME2 Mark Lynn removes a hot air control valve.



## R6O-1/R6V-1 Constitution

By Hal Andrews

Looking back, jet aircraft and helicopters get most of the attention for aeronautical advancements in the early post-WW II period. Probably because they were ahead of their time, the Lockheed XR6O-1 *Constitutions*, predecessors of today's jumbo airline transports, are largely forgotten. With Lockheed abandoning its Burbank, Calif., roots, the special large hangar built for R6O-1 final assembly will no longer serve as a reminder. The similarly outsized facility built at Palmdale some 25 years later for the next Lockheed jumbo airline transport, the L-1011, is now the center of Lockheed's Southern California presence. Even Pan American Airways, which initiated Lockheed's L-136 design and played a major role in its evolution into the Model 89/Navy XR6O-1 prototypes, exists only as a name—and memories!—today.

Almost all of the Navy's—and Pan Am's—majestic flying boats are also long-ago memories. The story of the Navy's patrol plane transition to landplanes, initiated before the Pearl Harbor attack, is oft told. The demise of its transport flying boats was even swifter. Several programs were planned, and at least one initiated for building transport flying boats during WW II, but only converted patrol boats joined the ex-Pan Am boats in service. While the Navy continued transport flying boat development into the Korean War years, these were also converted from patrol plane prototypes, and only limited numbers were built and operated.

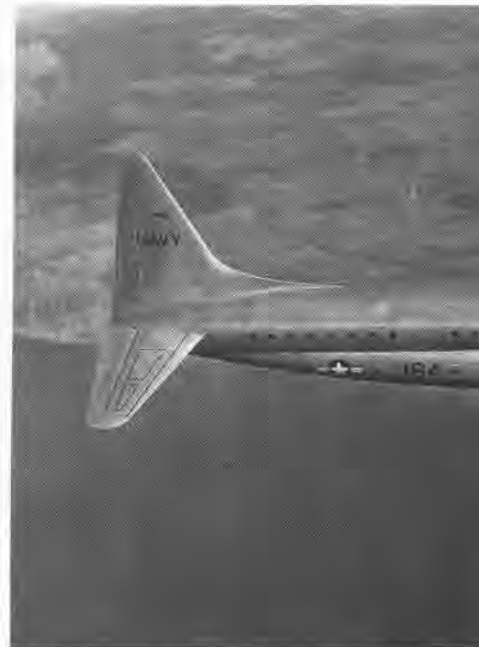
Late in 1942, with Pan Am's military-directed worldwide wartime operations—both landplane and seaplane—well underway, its planners began looking towards a potential postwar, worldwide airline. Airfields could be expected at all major population centers. And Pan Am knew better than any other airline both the advantages and problems of flying boat operations. The Army Air Force had initiated several large cargo transport aircraft developments, all landplanes, to follow as rapidly as possible the immediate

bomber and cargo transport production programs. Lockheed's *Constellation*, taken over by the AAF from civil development for Pan Am and TWA, was nearing first flight. Each of the other companies who were designing and building large land-based aircraft were contracted to build at least a prototype large cargo transport. With this, and its relationship with Lockheed on the *Constellation*, Pan Am turned to Lockheed. Design studies were initiated for a landplane passenger transport to meet potential postwar needs.

At that time, Pratt and Whitney's R-4360 Wasp Major, a 28-cylinder, four-row radial air-cooled engine, was the largest under development. Using four of these, supercharged for cruising "above the weather" at 25,000-foot altitude, a double-deck, pressurized fuselage design was developed. Cruising at 250 mph, it would carry 17,500 pounds of payload 5,000 miles. Meanwhile, the Navy was also looking at similar future landplane, cargo/passenger transport requirements—though with more urgency to meet wartime needs.

In early 1943, the three parties came together and jointly worked out a common design to meet the Navy and Pan Am's mutual needs. Working arrangements were established using Navy contract and development procedures, Civil Aeronautics Administration (predecessor of today's Federal Aviation Administration) participation and Pan Am advisors. A letter of intent later in the year for two XR6O-1 prototypes, with planning for 50 R6O-1s initially, started the contract activities. With the current emphasis, it's interesting that the hardware specifications called for Lockheed to follow "best commercial practice," as well as, where existent, ANC (Army-Navy-Commercial) documents.

Final design specifications were signed off by the end of the year. The airplane would be sized based on planned upratings of the Wasp Majors or potential new larger engines. With a 185,000-pound gross weight, it would have a full-length, double-bubble fuselage. Four-wheel tandem dual main



landing gears would retract inboard into a 187-foot-span laminar flow airfoil section wing. The large size made possible a small workshop in the lower deck, between the wing spars, and passageways forward of the front spar allowed in-flight access to all engine accessory sections. Flight controls would use hydraulic boost with triple hydraulic systems, and electric power would be provided by a 208-volt, three-phase system.

Wind tunnel tests, already underway, continued into 1944 as design proceeded, with mock-up inspection in April. A large hangar to accommodate two R6O-1s was built as a final assembly facility, and full system test stands for the hydraulic system, electrical system and fuel systems were constructed—common place in subsequent years, but unusual then. Extensive effort went into engine installation and nacelle design to establish a minimum drag nacelle with an effective supercharger system. Included were scale model wind tunnel and later full-size testing using one of the first R-4360s off the production line.

Working towards an April 1946 flight date, main fuselage assembly of the first airplane began in 1945, while various component and system tests proceeded. VJ day brought Navy production plans for the new *Constitution* to an end, but not the XR6O-1 con-





tract. Turbo-prop engines, then in initial development, promised significantly improved capability in a future production R6O. And Pan Am—by then Pan American World Airways—maintained an interest in a civil version.

Early 1946 saw the first structure completed and equipment and flight test instrumentation being installed. Assembly of the second was under

R6O-1, VR-44, May 1949



Cornell Aero-Lab



XR6O-1, first takeoff, November 1946

way. Engines for the first were delivered in May and only these and the landing gear were yet to be installed. Drop testing and installing the landing gear delayed first flight into the fall, while the structure of the second was being completed and moved to the static test hangar for proof testing.

November saw the first flight of the *Constitution*, the largest transport airplane in the world at the time. Static proof tests of the second were also completed and both aircraft returned to their hangar, the first for post-flight changes and the second for systems installations. Flight tests resumed in January 1947, including climbs to its 25,000-foot design cruising altitude. The first modifications to improve cooling were tested; engine power and cooling were both of considerable concern. While flight testing continued, alternate updated versions of its R-4360 engines were studied. In May, -22W (water injection) 3,500-hp engines were selected, with nacelle modifications and installation completed in the first airplane in September. A main wheel prerotation system with electric motors was also installed to spin up the wheels before touchdown. The first prospective Navy pilots and crewmen reported to the Bureau of Aeronautics Representative, Burbank, that month for crew training at Lockheed in anticipation of early 1948 delivery for Navy test and evaluation—though this would turn out to be premature.

Heavyweight takeoffs, up to design gross weight, at Muroc (now Edwards AFB, Calif.) highlighted the continuing engine performance and cooling problems. Propeller vibrations and electrical system failures also required resolution. A JATO (jet-assisted take-



R6O-1, VR-5

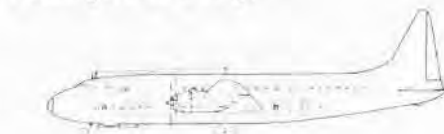
off) system—three 1,000-pound rocket units behind each inboard nacelle—was installed to improve heavyweight takeoffs. In November, one of the pilot's overhead windows failed at 25,000-foot altitude, resulting in sudden decompression. The windows

*Continued on page 32*

### R6O-1



Span	189'1"
Length	156'1"
Height	50'4"
Engines:	
4 P&W R-4360-22W	3,500 hp
Speed	303 mph
Service ceiling	28,600'
Range	4,850 mi
Crew: 7 + flight attendants	
Passengers: 92 + cargo	



# Helicopter Recovery in Somalia

By Keith R. Cooper

**A** Marine Corps CH-46E Sea Knight helicopter lost power and impacted the water off the coast of Somalia. In an effort to determine the cause of the accident, the Chief of Naval Operations directed the Naval Sea Systems Command's Office of the Director of Ocean Engineering/Supervisor of Salvage and Diving (SUPSALV) to conduct search and recovery operations.

## Search Operations Using Orion

In July 1992, SUPSALV tasked its search operations contractor to mobilize the Navy-owned Orion search system, and Orion was air shipped to Dubai, UAE. Dubai was selected as the search mobilization site because it was the closest port to the loss area, which provided vessel selection, a modern port facility and commercial vessels suitable to support search operations.

Dubai mobilization efforts were hampered by high temperatures and untimely arrival of materials. An initial effort to complete the six-day transit to the search area was terminated after the search vessel encountered gale force winds and high seas. Dangerous weather and damaged deck equipment necessitated a return to port for repairs. After repairs were completed, the search vessel again commenced the transit to the search site, arriving on 19 September 1992.

The Orion search system consists of a multisensor electronics package that is towed submerged behind a ship using a fiberoptic electro-mechanical cable connected to surface support equipment. The towed sensor body—or electronics fish—contains a dual-frequency, side-scan sonar, which operates at 50 kHz for long-range detection and 500 kHz for high resolution



CH-46E secured on stern of USNS Catawba (T-ATF 168).

Underwater photo of CH-46E on bottom.



on a reduced-range scale. The sensors can operate at both frequencies simultaneously. A 210-kHz forward-looking sonar is used for obstacle avoidance. Orion's search team utilized a satellite differential ship navigation system and installed a long base line bottom transponder navigation system.

The helicopter was located on the sea floor 29 hours after arrival in the search area. Several Orion runs were made over the site to confirm the position and to conduct video surveys of the debris field. Orion's capability to obtain video documentation of the intact helicopter was of great assistance to the salvage team's operational planning. Search operations were secured on 23 September, and the search team returned to port for demobilization of Orion.

## Recovery Operations

SUPSALV directed its ocean operations contractor to mobilize the Cable Controlled Underwater Recovery Vehicle (CURV III) for the helicopter recovery operations, which were scheduled to avoid the southern monsoon season off the Somali coast.

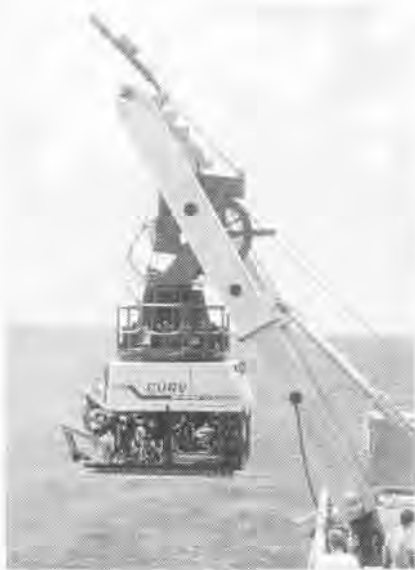
Salvage operations planning was based upon data received from the search operation. Salvage rigging and lifts were planned around a recovery of a 25,000-pound (air) weight. Dynamic load factors necessitated the

use of the Navy Fly-Away Deep Ocean Salvage System motion compensation system during the salvage lift. Assistance from the CH-46E program office included sling designs, load points and structural information. The Military Sealift Command provided ship trim and stability calculations. The results of engineering analysis, coordination meetings, logistics considerations and ship availability were documented in a detailed salvage plan.

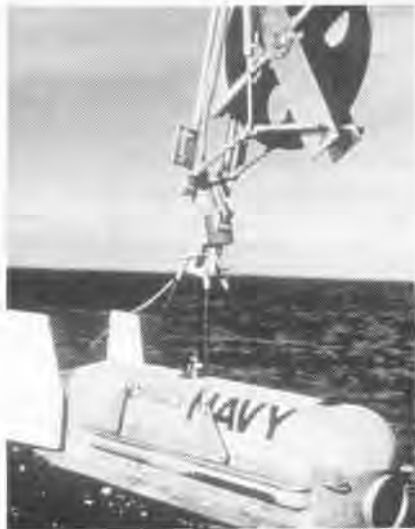
The Navy's CURV system was mobilized from the contractor's Maryland facility, containerized and sea shipped to Mombasa, Kenya, to meet USNS *Catawba* (T-ATF 168). Mobilization in Mombasa was selected based upon the relative short distance to the operations site, as compared to Dubai, and the availability of semimodern port facilities. Premobilization site visits were made to determine the availability of cranes, welders and support materials.

CURV and *Catawba* arrived in Mombasa in early April 1993. Changes in ship off-loading schedules, availability of local equipment and spares, assignment of berthing facilities and use of a third world port facility slowed the mobilization effort.

CURV's deployment aboard *Catawba* provided a challenge for the salvage team. As fleet tugs are not equipped with heavy lift cranes, a local 70-ton crane was leased for the salvage operation. Crane installation



CURV vehicle



Orion "fish"

severely limited remaining deck space for the CURV system, which included an A-frame handling system, umbilical traction winch, motor hydraulic power unit, operations van, electronics and hydraulics vans, standby 450-kw generator, spares van and a satellite communications van. Salvage equipment included the leased crane, motion compensation ram tensioner and winch, salvage line spooler with 10,000 feet of line, and ancillary air tuggers, capstans and salvage rigging.

During mobilization and operations, *Catawba* provided power to the CURV system from a ship's generator. Local labor and welding contractors were utilized to support the effort. Again, the

salvage team met the challenge of translating descriptions of the tasks to be accomplished through the local Swahili language. Mobilization was completed on 12 April, and *Catawba* began the three-day transit to the salvage site.

On 24 April, while *Catawba* held position over the salvage site, CURV attempted to locate the CH-46E using onboard sonars. CURV investigated numerous sonar targets later determined to be bottom debris consisting of small bottles, cable, pipe and 55-gallon drums.

CURV made a second dive the following day and successfully located the wreckage resting intact and laying on its side. CURV conducted a thorough video and photographic documentation of the helicopter. Personnel from the Naval Safety Center accident investigation team, aircraft squadron and CH-46 program office were on board to receive a firsthand look at the wreckage. The safety investigation personnel teamed with CURV pilots and camera operators to identify and inspect specific areas of interest, primarily in and around the engine compartment. The ability to view wreckage *in situ*, prior to possible damage of material evidence during salvage operations, was greatly enhanced by CURV's optical camera suite. CURV completed a dive of over 26 hours prior to surfacing for additional salvage rigging.

The initial inspection dive allowed CURV personnel to establish a salvage plan. With the assistance of the CH-46 engineer on board to calculate the force vectors that rigging placed on the helicopter structure, a lift plan was established and equipment installed on CURV.

Using the *Catawba* crane, the salvage line spooler was placed over the side while connected to dual acoustic releases and a 3/8-inch lowering line. The spooler had to be lowered to the bottom and placed near the wreckage, while *Catawba* held position from over one mile above the wreckage. When the load reached the bottom, acoustic signals were transmitted to release the load.

CURV was launched on 27 April and located the spooler some 450 feet from the wreckage. Over the next three days, CURV completed several dives to install rigging around each of

the two rotor heads, connect chain and wire rope slings to form a two-part lift bridle, pull line off the spooler to the salvage rigging, and connect the line to the rigging. Movement from the spooler to the wreckage, while dragging line and heavy rigging, was greatly enhanced by utilizing CURV's 80-hp thruster.

After completing the rigging task, CURV connected to the spooler, ascended to the surface and paid out spooler line. The spooler was then free to be recovered on deck.

On 1 May 1993, the CH-46E reached the surface. At the sea-air interface, the forward rotor head broke loose from its mounting base and was held on by only a few rotor head linkages. The salvage team placed two lines around the midsection of the helicopter and passed them back to the ship's capstans. As the lift line picked up the load and the crane boom was raised, the wreckage was lifted aboard *Catawba's* stern. The salvage team secured the wreckage to the ship, while accident investigation personnel began to clean, store and catalog items from the engine compartment.

After securing the helicopter, CURV was launched again, using sonar to recover the three transponders. CURV cut the transponder counterweight lines, which released the transponders to the surface. *Catawba's* small boat was later used to recover each unit.

Upon *Catawba's* return to Mombasa, the helicopter was off loaded and later transported to a storage facility for removal of engines and other critical components. These components were then returned to the U.S. for further investigation.

The successful search and recovery of the CH-46E off the coast of Somalia was the direct result of cooperation among several military organizations, civilian contractors and numerous support companies. The search and salvage teams overcame technical problems, weather and environmental hazards and other challenges typical of deep water operations. The combined efforts of SUPSALV contractors and *Catawba's* officers, engineering department and crew made this salvage possible. ■

Mr. Cooper is an operations specialist in the Operations Branch, Ocean Engineering/Supervisor of Salvage & Diving, Code OOC, Naval Sea Systems Command.



# TQL in the Air: A Growing Success Story

By Capt. John Heinrich, USNR

*"... I want us to structure a quietly effective effort to improve quality in the Navy which makes sense to our people, helps them get the job done properly, and helps us all manage our resources better."*

Admiral F. B. Kelso II, CNO  
13 August 1990

It was with those words that the Chief of Naval Operations kicked off the broadened Total Quality Leadership (TQL) process and established a Navy Executive Steering Committee to govern TQL's implementation throughout the Navy. The CNO envisioned a program starting with shore establishments (to prove the program) and extending to fleet and air elements to avoid operational disruptions.

The first air squadrons became demonstration units in 1990, and they're nearly all doing well in TQL. Here are some examples of successes, common elements in successful programs and current information on where to find aid and comfort.

Some examples of TQL success:

- HSL-41 has used teams to reduce water damage to helo computers, improve the squadron scheduling process and improve squadron launch performance.
- VA-34 is using TQL teams to look at the relationship between foreign object damage and maintenance problems.

- HS-14 used TQL flowcharting techniques, on a crash basis, to stay on schedule for a simultaneous transition to a new aircraft type and a move to a new home port in Japan, all in 12 months.

- HS-10 used TQL to streamline watch-standing processes, standardize early morning launch times and develop an innovative "Process Improvement Form" for personnel use in making suggestions.

- VS-22 did its strategic goals and objectives, discovered several department heads had other ideas in mind, revised the goals and started a team to streamline administrative procedures.

- Naval Air Systems Command is using TQL teams to develop common approaches for new aircraft between Air Force and Navy elements.

Despite the variety of uses found for TQL and its Process Action Teams, several common elements can be found in the reasons for success:

First, there is an unwavering commitment to TQL by the squadron CO and XO. Also, CO/XO TQL education levels may vary but all have been to the Senior Leaders Seminar.

Second, successful squadrons have involved the entire wardroom at the outset, and the Chief Petty Officer Mess shortly thereafter.

Third, success is aided by a "critical mass" of knowledge about TQL, which is defined as having at least 15 per-

cent of assigned squadron personnel familiar with TQL's basic ideas. Most fundamental knowledge is imparted during squadron indoctrination.

Okay, so now you're convinced that TQL is both here to stay and can have a major impact. Following is a list of support services:

- Commander in Chiefs, U.S. Atlantic and Pacific fleets, both maintain staff elements dedicated to TQL teaching and implementation.
- A "TQL Starter Kit" was published by the CNO's office in late 1992 and is available through the Philadelphia office handling education and training aids at (215) 697-2261/5655 or DSN 422-2261/5565.
- The Navy's TQL Office (TQLO) recently published an excellent book entitled *TQL in the Fleet: From Theory to Practice*. It's available through the Fleet TQL offices, the Philadelphia office, or by calling the TQLO at 703-602-8990.

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For more information contact: Mr. Joe Bizup, NO9BQ, DSN 223-7016 or 703-693-7016 or Ms. Bobbie Ryan, TQLO, DSN 332-8952 or 703-602-8952.

Capt. Heinrich is a naval reservist assigned to OP-09BQ, the Chief of Naval Operations' staff for Total Quality Leadership.

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# Tailored Logistics Packages Support Fleet

By Ed Waraksa

Integration" is defined as forming, coordinating or blending into a functioning or unified whole; uniting. "Logistics" is defined by Webster as the "aspect of military science dealing with the procurement, maintenance and transportation of military material, facilities and personnel."

Thus, Integrated Logistics can be defined as a coordinating effort to procure and provide for the maintenance and transportation of military material.

The Naval Air Warfare Center Aircraft Division (NAWCAD) Lakehurst, N.J., designs and procures dozens of items of Aircraft Platform Interface (API) hardware each year to support Navy and Marine Corps missions. Each one of these items require a support package to be designed specifically for the item. These support packages are critical to the proper operation, maintenance and transportation of the item.

Without proper support, the fleet is left with the burden of using and maintaining equipment as best it can. Inevitably, this leads to improper operation and use, premature failures and faulty troubleshooting and maintenance. This translates into huge wastes in manpower and material because of excessive downtime and repair. Fielding improperly supported equipment wastes up to 20 times the cost of developing a tailored logistics package concurrently with the design and reduces fleet readiness to perform its mission.

The analysis and management of the proper tailored logistics package is the job of the people in the Integrated Logistics Support Department. The logistics managers in the department analyze requirements by reviewing engineering documents, i.e., mission analysis, program plans, etc.; ensuring team communications with the program manager, engineers and the fleet; and performing logistics support analysis studies and other studies, early on.

The Integrated Logistics Support Department designs and evaluates tailored logistic packages for Aircraft Platform Interface hardware to support Navy missions such as landing an F-14 Tomcat efficiently.



From this data, the logistics manager determines the support requirements that best fit the equipment as it relates to its design, operational environment and use, always developing a logistics package that minimizes life-cycle costs. This logistics support package is constantly evaluated during the actual design of the equipment, ever changing to meet optimal support and minimal operation and maintenance costs. Logistics managers utilize data contained in the Logistics Support Analysis Record (LSAR) to evaluate whether or not the design is compatible with support goals and thresholds. Areas of concern are reevaluated and brought to the attention of the project engineer and designers.

An example of this would be that a system or equipment has a goal of two hours Mean Time to Repair (MTTR). Looking at the LSAR task analysis on the repairables early in the design reveals that the time to repair a major subassembly is six hours as currently designed. Since MTTR is the mean of all repair task times, the six hours showing up early would most likely hinder achieving our goals.

The logistics manager then alerts the design team to review the area causing the excessive repair time for redesign. The reviews and team cooperation enable NAWCAD Lakehurst to supply the fleet with quality equipment with quality support avoiding costly redesigns after the equipment is fielded. The logistics manager also ensures that the maintenance plan developed during the design supports the desired maintenance philosophy and is used to develop the logistics products, such

as technical manuals, training packages and spare and repair parts.

The logistics manager ensures proper development of all logistics products, reviews and approves them and ensures that they are available to the fleet when the first system is delivered. Even though this manager is responsible for developing the logistics package, he or she cannot do an efficient job without close interface with the procurement and design team members, other government activities and the fleet.

Working as a team, the program manager, logistics manager and engineers develop a plan that integrates the knowledge and disciplines of each of their areas of responsibility to design, develop and field API systems and equipment that fully meet mission requirements, operate reliably, can be properly maintained, reduce life-cycle costs and achieve readiness and availability goals. This plan is documented in the Integrated Logistics Support Plan and distributed to internal and external team members.

Therefore, all members of the team are pulled into the project early to meet these important goals. All have equal say and empowerment; all must have knowledge of the other members' disciplines.

Navy-style teamwork at NAWCAD Lakehurst produces logistics support packages that are tailored to meet the needs of Naval Aviation—fulfilling all support requirements while minimizing life-cycle cost burdens. ■

Mr. Waraksa is assigned to the Logistics Support Department at NAWCAD Lakehurst.

Reprinted from NAWCAD Lakehurst's *Airscoop*, October 29, 1993.

# Hall of Honor Inducts Five

By JO1(SW) Eric S. Sesit

*The National Museum of Naval Aviation, Pensacola, Fla., will induct five outstanding men into the Hall of Honor in a ceremony to be held 5 May 1994. The selectees were chosen for their contributions to technical or tactical development, or their achievements in combat or noncombat flight operations in and for Naval Aviation.*

**Brigadier General Joseph J. Foss, USMC.** Joseph Foss arrived in Guadalcanal in September 1942 and became an ace by the end of October. For his actions from 9 October to 19 November 1942, Foss received the Medal of Honor. He also received the Distinguished Flying Cross for his heroism and extraordinary achievement in shooting down six *Zero* fighters and one bomber from 13 October to 30 October 1942. His 26 planes shot down included 20 *Zeros*, four bombers and two biplanes.

After being shot down over Malaita and rescued, Foss returned to the U.S. for rehabilitation leave. Following a bond-selling tour and a training assignment, he returned to the Pacific in 1944 as squadron commander of Marine Fighter Squadron 115.

Foss entered politics in 1948 and won an election to the South Dakota State House of Representatives. In 1954, Foss was elected Governor of

South Dakota and reelected two years later. In 1960, he was named commissioner of the American Football League.

Foss lives in Scottsdale, Ariz.



**Capt. Ashton Graybiel, USN, Medical Corps.** An acknowledged expert in the field of cardiovascular medicine, Ashton Graybiel attended the University of Southern California and Harvard Medical School. He completed his medical internship at Massachusetts General Hospital in 1931 and held a Moseley Traveling Fellowship in cardiovascular research in Sir Thomas Lewis' Laboratory in London, England.

Through the years, Capt. Graybiel served as a consultant for many experiments undertaken by the School of Aviation Medicine and Research. One of his projects was Operation Everest, in which researchers collected information under controlled conditions to serve as a guide to the physiological changes which occur in human beings at extreme altitudes. As an acknowledged expert in the field of cardiovascular medicine, he was assigned as Director of Naval Research for the Naval School of Aviation Medicine and Research at NAS Pensacola, Fla.

His work, which included the development of electrocardiographic techniques, experimentation with flight

disorientation and the follow-up of the "Thousand Aviators" (a long-term test searching for the physical and mental attributes that predict a successful aviator), advanced current aeromedical knowledge to Naval Aviation and the space programs. For his work as Director of Research at NAS Pensacola, Graybiel received the Legion of Merit.

Capt. Graybiel lives in Pensacola.

**Colonel Gregory "Pappy" Boyington, USMC (deceased).** Perhaps one of the best known Marine Aviators, Gregory Boyington shot down his first six enemy aircraft while serving with the American Volunteer Group, a civilian organization formed to augment China's defenses against Japan. This unit later became known as the "Flying Tigers."

Boyington later became commanding officer of Marine Fighter Squadron 214, the "Black Sheep" squadron. Inaccurately portrayed by a 1970's television show as a band of misfits, the "Black Sheep" were actually a group of replacement and green pilots who fought in some of the most intense air battles of the war in the Russell Is-





# More Giants of Aviation

lands, New Georgia, Bougainville, New Britain and New Ireland areas. The "Black Sheep" accounted for destroying or damaging 201 enemy planes. Boyington earned the nickname "Pappy" from his troops because of his age in comparison to theirs. He was 31 at the time.

Boyington tied the American record of 26 planes shot down before being shot down himself on 3 January 1944, over Rabaul. (After the war, Boyington was credited with two additional planes for a total of 28.) Upon his release from a Japanese Prisoner of War camp and return to the U.S., Boyington received the Navy Cross for his actions on the day he was shot down. The next day, 5 October 1945, he was awarded the Medal of Honor. He retired from the Marine Corps on 1 August 1947.

Boyington died in 1988 at the age of 75 after a 20-year bout with cancer.

**Admiral Frederick H. Michaelis, USN (deceased).** When Frederick Michaelis graduated from the Naval Academy, he reported directly to *Pennsylvania*, berthed in Pearl Harbor, and was on board when the Japanese attacked on 7 December 1941. Michaelis left *Pennsylvania* in October 1942 to begin flight training at NAS New Orleans, La., and was designated a Naval Aviator in June 1943.

As commanding officer of Fighter Squadron 12, Michaelis led a patrol in the vicinity of Okinawa Jima in which he shot down three enemy aircraft. He received the Silver Star for participating in the first carrier-based air attacks on the Tokyo area on 16, 17 and 25 February 1945. He shot down two enemy fighters, assisted in downing a third and destroyed three enemy planes on the ground. He received the Air Medal for leading strafing runs against enemy airfields and installations in the vicinity of Tokyo and the Distinguished Flying Cross and Gold Stars in lieu of his second, third and fourth Air Medals for completing 20 combat missions in the vicinity of the Japanese Empire from February to May 1945.



Michaelis held a variety of assignments before becoming Assistant Chief of Naval Operations (Air), Deputy Director Joint Strategic Planning Staff and Commander Naval Air Force, U.S. Atlantic Fleet, respectively.

In 1974, Michaelis was named Tail Hooker of the Year as the officer who had contributed the most to the advancement of carrier aviation during that year. He received his appointment as a four-star admiral on 18 April 1975 and became Chief of Naval Material three years later.

Michaelis died 13 August 1992, from cancer, at the age of 75.

**Vice Admiral Apollo Soucek, USN (deceased).** At the Bureau of Aeronautics (BuAer), where he served as Assistant Flight Officer, Soucek established world altitude records for land and seaplanes using the same Wright *Apache* for both feats. The plane was equipped with a single float for the seaplane record. In 1929, he climbed to 39,140 feet, setting the record for seaplanes; in 1930, he set the record for landplanes when he reached a height of 43,166 feet. For these achievements, he received the

Distinguished Flying Cross.

Soucek commanded Fighter Squadron 2 on board *Lexington* and served two years as Assistant to the Chief of the Personnel Division, BuAer, before reporting to *Yorktown* in 1941, where he served as navigator.

His next tour was Air Officer aboard *Hornet*. He was on duty as *Hornet's* executive officer when she was lost in the Battle of the Santa Cruz Islands on 26 October 1942. Soucek received the Silver Star and Bronze Star for his actions during *Hornet's* final battle.

A variety of assignments followed WW II, culminating in Soucek's appointment as Chief of BuAer in 1953. He transferred to the retired list after becoming ill and died at his home on 22 July 1955.



# Island Hopping in WW II The Marianas

By John C. Reilly

In February 1944, with the Marshalls in hand and Truk's weakness exposed, Rear Admiral Marc Mitscher headed for the Mariana Islands with two of his task groups of Task Force (TF) 58. A Japanese scout plane spotted the force on the 22nd, and the carriers fought off a series of night attacks with gunfire. Early the next day, carrier planes hit Saipan, Tinian and Guam, destroying 150 newly arrived torpedo bombers on the ground and getting good photographs of airfields and landing beaches.

On 12 March 1944, the Joint Chiefs of Staff directed Admiral Chester Nimitz, Commander, Pacific Ocean Area, to move on the Marianas by mid-June and the Palaus by mid-September, establishing bases to control the approaches to Formosa and the Philippines. The success of the recent raid on Truk convinced Nimitz that the island was not worth the lives, time and resources needed to capture it; instead, he would "neutralize" it and let it wither on the vine. Capture of the Marianas would isolate Truk and give the Navy an advanced base to attack Japanese sea communications and launch further amphibious offensives. The Army Air Forces had begun extreme-range attacks on the Japanese mainland with B-29 *Superfortresses* based in China; flying from the Marianas would cut 800 miles from the range with a corresponding increase in payload.

The Joint Chiefs' directive also called on the fast carriers to support General Douglas MacArthur's Army

troops in an amphibious jump to Hollandia, on New Guinea's north coast. This was out of reach of land-based air, and TF 58 demonstrated the strategic versatility of the carrier force by stepping in to fill the need. Admiral Raymond Spruance and his Central Pacific Force sailed from Majuro on 22 March 1944 with three carrier task groups. Spotted en route by Japanese search planes, Spruance decided to push ahead at best speed and attack on 30 March instead of the planned 1 April. Japanese planes attacked the force in the evening of the 29th without result, and hundreds of fighters and attack planes spent all day on 30 March and half of the 31st raking over the Palaus, sinking ships, destroying a large number of planes and planting mines in main harbor channels. One task group attacked Yap, in the Caroline Islands, and all three groups then struck Woleai. Woleai offered little in the way of targets, but Commander Samuel Dealey took the submarine *Harder* into water so shallow that she scraped bottom to rescue a downed carrier pilot under fire.

Some organizational changes entered the picture at this time. On 26 April 1944, Spruance's Central Pacific Force became the Fifth Fleet. In May, Admirals King and Nimitz set up a "two-platoon" command system, Adm. Spruance in command of the Fifth Fleet and Admiral William Halsey commanding the Third Fleet. The operating forces themselves remained the same, but the two commanders and fleet staffs were to alternate, one com-

mander taking the fleet to sea for a period of operations while the other commander planned the campaign that would follow. This was designed to allow ample time for planning while still letting one operation follow another with minimum delay.

On 13 April 1944, Adm. Mitscher sailed from Majuro with TF 58, five *Essex*-class fleet carriers (CVs) and seven *Independence*-class small carriers (CVLs). Hitting New Guinea targets on 21-24 April, the carriers turned north and revisited Truk before heading for Majuro; during their return, gunnery ships bombarded Satawan and Ponape.

Gen. MacArthur's landings at Alitape and Hollandia went well; he then quickly ordered another move westward, landing on the small offshore island of Wakde. Within days, another landing was aimed at the larger island of Biak.

The Japanese naval command had assumed that the main Allied thrust would come by way of New Guinea and that TF 58 was now committed to supporting Gen. MacArthur. They planned a naval counterstrike aimed at bringing the American carrier force to battle in the Caroline Islands area, between New Guinea and the Marianas. The pick of the available Japanese forces, including carriers, concentrated at Tawitawi and formed the Mobile Fleet under Vice Admiral

SB2Cs return to Yorktown (CV 10) after a strike in support of the Marianas landings. The Fast Carrier Force's mobile firepower was essential to the success of the central Pacific drive.





Jisaburo Ozawa, an experienced naval aviator.

The Japanese planners realized that TF 58 outgunned the new Mobile Fleet and supplemented their carrier planes with land-based aviation. This now made it essential to hold Biak with its airfield within range of the anticipated battle area. The Japanese moved considerable air strength to bases in New Guinea and the adjacent Moluccas and assembled a powerful surface force in the Moluccas to hit MacArthur at Biak.

Before the Biak strike could be mounted, Mitscher's carriers arrived off the Marianas and began to hit defenses and airfields. As soon as the Japanese high command heard this, they realized what was happening and ordered their naval striking forces north from Tawitawi and the Moluccas to rendezvous in the Philippine Sea.

As Allied forces crossed the English Channel to assault Fortress Europe, TF 58 led the way across a thousand miles of open ocean. During their approach, Army bombers struck airfields in the Caroline Islands, but aerial preparation for this invasion was entrusted solely to the carriers. On 11 June 1944, Mitscher launched his first carrier strikes against little opposition; much Japanese air power had been pulled south to face MacArthur. Battleships and cruisers from TF 58 bombarded Saipan and Tinian, and two task groups steamed north to strike Bonin Islands bases.

Saipan, the first objective, was nothing like Tarawa or Kwajalein. Fourteen miles long, mountainous and held by 32,000 Japanese troops, its defenses could not be broken by prelanding bombardment. It still had to be captured as rapidly as possible, since the Japanese were sure to strike back.

The landing force arrived off Saipan on 14 June, and its bombardment ships began their deliberate work. Early on the 15th, ships' gunfire was restricted to within a thousand yards of the beaches, while carrier planes went after active guns on Saipan and nearby Tinian and kept reinforcements from the landing area. Before H hour, the ships' guns checked fire as 165 planes from TF 58 came in to hammer assigned targets along the landing beaches; this last strike was intended more to shake and demoralize the defenders than to knock out specific de-

## Naval Aviation in WW II



Amphibious shipping assembles in a Marshalls lagoon under the umbrella of carrier aviation.



"Jeep carriers" and a variety of bombardment ships gave the landing force its own versatile spectrum of fire support. Specialized training and experience made CVEs and "gunships" indispensable to amphibious victory.



P-47 Thunderbolt fighters launch from an escort carrier for the flight to Saipan as the island is secured. Army fighters and artillery observation planes were ferried in by flattop to support the capture of Guam and Tinian.

fenses. As the planes left, the ships resumed shooting.

Marines went ashore with the help of heavy fire from ships and support craft, but took heavy casualties from Japanese defenses that had not been destroyed by guns or planes. Artillery and mortars in hills behind the beach were registered on the beaches and the outlying reef, and inflicted losses. Supporting aircraft, assigned in groups to specific areas and controlled by flight leaders and an airborne air coordinator, went after targets of opportunity. This was the first operation in which planes from the fast carriers gave close support to the landing forces. Demands for service came at a rapid pace, especially during the early days before Marine artillery could come ashore. A network of command posts and liaison officers did an effective job of filtering and coordinating requests for missions with the planes available. Support missions varied from heavy attacks before a general advance to precise strikes at individual targets by small numbers of planes using dive bombing, glide bombing, rocketing or strafing, as the mission demanded.

In the morning of 16 June, submarine contact reports were telling Adm. Spruance that the Japanese Mobile Fleet was approaching the Marianas. An Army division was landed to reinforce the Marines on Saipan; by the next day, the American attack began to move ahead against stiff resistance. Marines cut the island in two on 18 June, as Army troops took the principal airfield, and turned to push north on the 19th.

Meanwhile, the fleet was moving to counter the Japanese stroke. TF 58 had been waiting west of the Marianas in the hope of just such an action. It now formed in four task groups with seven CVs and eight CVLs. Mitscher knew that the Japanese carrier planes had longer strike ranges than his own. He wanted to steer westward and attack early on 19 June to keep Ozawa's planes from shuttling from their carriers to Guam and back—hitting the American carriers on both flights and getting two strikes in for the price of one. Spruance turned Mitscher down. The main objective as Spruance saw it was to protect the landing forces as they took the Marianas, and moving

too far to the west could leave the amphibious forces wide open for an end run by a Japanese flanking force. Then, too, contact reports were uncertain and no one could be sure just where the Mobile Fleet was. Under the circumstances, it appeared best to stay close to the Marianas.

Ozawa assumed that Spruance would stay within range of the Marianas as, in fact, he did. Planes from Guam and Rota were to open the attack, severely damaging TF 58 before carrier planes began shuttle runs between the Mobile Fleet and Guam. Japanese scout planes spotted TF 58 during the afternoon of 18 June, and Ozawa prepared to attack early on the 19th. His Van Force, three task groups formed around single CVLs, advanced 100 miles ahead of the Main Body, two three-carrier task groups. If the Americans attacked, the Van Force was to dull its force before it reached the Main Body.

In the morning of 19 June 1944, some 300 planes took off from Ozawa's carriers. The first part of the Japanese plan unraveled; many Guam-based planes had been destroyed on the ground or while en route from Japan. The small number of planes remaining on Guam tried to launch an

attack that morning, but carrier fighters tangled with them and with some reinforcements trying to fly in from Truk, and the attack was stillborn.

TF 58 had taken up air defense stations. The four-carrier task groups were in tight circular formation, surrounded by rings of cruisers and destroyers which were arranged for maximum all-around gunfire. The seven fast battleships of the force, with their own screening ships, were in their own formation between the carriers and the Japanese. Spaced 12 to 15 miles apart, the task groups were in position to support each other against air attack or to counter any attempt at an end run against Saipan. The advantage was with them; Ozawa had 430 planes where TF 58 had 891, and there was a wide difference in the relative experience of the Japanese and American aircrews.

The Japanese planes came in four separate raids. The first came from the Van Force; radar picked it up at 1000 and Mitscher immediately put over 450 fighters into the air. He then launched all his attack planes getting them clear of the area while the fighters landed to refuel and rearm before launching again. Fighter directors in the task force vectored the F6Fs to meet the in-



TBFs and SB2Cs of Hornet's (CV 12) air group arm for a strike as antiaircraft gun crews watch from their battle stations.



coming raid; they attacked from above and shot down nearly half of the incoming planes. Some got to the battleship task group, to be driven off by heavy antiaircraft fire. One bomb hit the battleship *South Dakota*, inflicting casualties but no serious damage. The second raid was similarly chopped down by fighters before reaching the battle line. One crashed into the side of *Indiana*, and two landed near-misses on the carrier *Bunker Hill* and set fires that were soon put out. Nearly all the planes of the third raid went astray and never found the task force. The last raid approached in groups, did minor damage and was shattered between the task force and Guam, losing all but 11 of 82 planes.

At the same time, two U.S. submarines approached the Main Body and mortally wounded the carriers *Shokaku* and *Taiho*. Some of Ozawa's pilots reported TF 58 badly damaged, and he turned westward to refuel and prepare for another attack the next day. When he found that he had lost more than three-fourths of his air strength, he decided to wait another day.

TF 58 recovered its planes from what its pilots were calling the "Great Marianas Turkey Shoot." Spruance was now ready to launch his own attack. One task group was left to keep the Japanese airfields out of action, and the others headed west through



Aerial view of Guam, on which Marines and Army troops landed 20 July 1944, taken by a Navy reconnaissance plane before the ground forces began the momentous assault. Etched in white, highways and military roads can be seen on a large Japanese installation near the shore of the base.

the night. Late in the afternoon on 20 June, the Japanese intercepted an American contact report. Realizing that an attack would follow, they turned up more speed in the hope of pulling away. Mitscher, however, had

decided that the risk of a night return at sea was worth taking to strike a decisive blow at the Japanese fleet, and he launched 216 planes before turning toward the Mobile Fleet to close the distance. The search pilot then radi-



Posing for photographer Edward Steichen, Navy Cross recipient Ltjg. Alexander Vraciu of VF-16 on board *Lexington* proudly displays the number of planes he shot down during the "Great Marianas Turkey Shoot."





## Naval Aviation in WW II

oed that his initial contact report had been in error, and the Japanese fleet was 60 miles further from TF 58 than he had originally plotted it. Mitscher decided not to recall the strike that was already on the way but canceled a second strike that was to follow.

The squadrons flew more than 300 miles to sight their targets just before sunset. Dive and torpedo bombers sank the carrier *Hiyo* and two oilers, damaged carriers *Chiyoda* and *Zui-kaku*, a battleship and a cruiser. Anti-aircraft guns and *Zero* fighters downed 20 of TF 58's planes, but the stricken carriers took many of their own planes with them; by the end of the action, Ozawa had 35 of his original 430 planes left.

The return to the carriers became one of the legendary stories of the war. Their fuel tanks draining, the planes flew through the darkness. Some, in more dire condition than others, began to go down. The task groups had dispersed to give themselves ample sea room to recover aircraft. Shortly after 2000, the first planes were detected approaching the task force, and the carriers turned into the wind. Mitscher was now faced with a dilemma. If he turned on the lights of his darkened force, he would risk attack by Japanese submarines or

planes. If he left them off, many an aircrewman would die in the ocean. For reasons both military and humane, he ordered, "Turn on the lights." Ships turned on their running lights, searchlights were pointed into the sky and five-inch guns fired star shell into the air. Planes landed wherever and however they could; others went into the water as destroyers combed between the carriers to pick them up. Several planes ignored wave-offs and crash-landed, killing and injuring some men on the flight decks. *Enterprise* saw the most unusual landing of all as two planes landed simultaneously, snagging different arresting wires and coming out of it intact.

By 2230 that night, the recovery was over. TF 58 headed in the direction of the day's action, tracing the course followed by the strike and searching for survivors in the water. Through the next day, planes looked for Japanese stragglers but found none. On the evening of 21 June, TF 58 turned toward the Marianas.

The Turkey Shoot was now history, and TF 58 could devote time and attention to supporting the conquest of Saipan, and then of neighboring Tinian and Guam. The Pacific Fleet now had advanced bases from which to threaten western island groups and

slash at sea communications between the homeland and the oil fields of the East Indies, and the Army could now bomb the Japanese home islands at much closer range than heretofore.

Though we did not realize it, the Japanese high command was now convinced that the war could have only one outcome. ■

Mr. Reilly is head of the Ships' History Branch of the Naval Historical Center.

### 1944 Year Ago - WW II

**6 Mar:** A new specification for color of naval aircraft went into effect. The basic camouflage scheme used with fleet aircraft was modified slightly to provide for use of nonspecular sea blue on upper fuselage surface; airfoil surfaces visible from above remained semigloss sea blue, and other surfaces visible from below semigloss insignia white.

**13 Mar:** A new specification for color of fighter aircraft went into effect. It directed that fighters be painted glossy sea blue on all exposed surfaces.

**15 Mar:** The twin-engine North American PBJ *Mitchell* was taken into combat for the first time in its naval career in an attack on Rabaul by pilots of Marine Bombing Squadron 413.

**15 Apr:** Air-Sea Rescue Squadrons (VH) were formed in the Pacific Fleet to provide rescue and emergency services as necessary in the forward areas. Prior to this time, the rescue function was performed as an additional duty by regularly operating patrol squadrons.

**19 Apr:** *Saratoga*, operating with the British Eastern Fleet, participated in the carrier strike on enemy installations at Sabang in the Netherlands East Indies.



Left center: The Japanese fleet is attacked by carrier-based aircraft west of the Marianas, 19 June 1944. Left: Japanese planes burn on the air strip on Tinian Island, the Japanese stronghold in the Marianas, following an attack by carrier-based planes.

Continued from page 19

were replaced by metal skin. Completion of the second *Constitution* was further delayed into 1948 for installation of a new 1,200-volt DC electrical system, and the first was undergoing major cowling and engine installation modifications at the end of the year.

With civil certification and Navy production no longer of concern, planned contractor demonstration and Navy trials flight testing was cut back in January 1948 to the minimum necessary to accept the two XR6O-1s for Navy transport operations. Further propeller problems when the first resumed flight testing in February resulted in borrowing B-50 production props of smaller diameter from the Air Force pending delivery of similar new ones. After their installation and other rework were completed, the final high-speed demonstration tests were flown, including low-angle dives.

In June, the second XR6O-1, completely fitted out with passenger upper deck and cargo lower, flew. A nonstop flight east from Moffett Field, Calif., to Patuxent River, Md., in July was followed by christening and exhibition at Washington National Airport outside D.C. Returning to Burbank, it joined the first in Navy crew training and final flight tests preparatory to formal Navy evaluation at the Naval Air Test Center, Patuxent River. The instrumented first started Navy flight tests there in October and the second followed for service tests in November. An early December engine failure and fire at altitude demonstrated the effectiveness

of the nacelle fire extinguishing system as well as rapid power plant changes. Both returned to Burbank after completion of the Navy tests in December, the first for deinstrumentation and completion in passenger/cargo configuration with the new electrical power system, the second for further Navy crew training and preparation for delivery.

With its new propellers installed, the second was accepted, redesignated as R6O-1 and delivered to Commander, Fleet Logistic Support Wing at Moffett Field on 24 January 1949. Following a commissioning ceremony there, it went into service with VR-44.

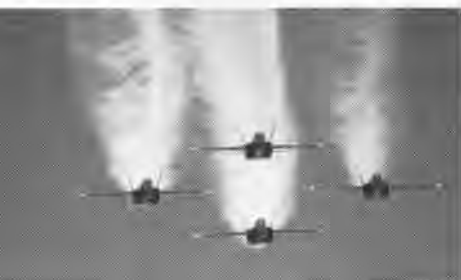
Transcontinental flights began with a well-publicized nonstop press flight from Moffett Field to Washington National. In May, the Navy took advantage of the public's interest in its new transport to begin a six-week combined exhibition and recruiting tour covering 19 major U.S. cities. During the summer, it was used for Naval Academy midshipmen "Air Cruise" transportation. The first *Constitution*, now also an R6O-1, was completed, accepted and joined the second in August; however, the military funding cut-back of 1949 cast a cloud over their future.

In December, the Bureau of Aeronautics offered the aircraft for lease, but lack of CAA certification limited interest. NACA (National Advisory Committee for Aeronautics, predecessor of today's National Aeronautics and Space Administration) made arrangements for using the first to measure in-

flight tail loads on a large aircraft. These tests were done jointly by NACA's Ames Laboratory and VR-44 personnel, both located at Moffett Field. Following completion of the tests, the outbreak of the Korean War resulted in continuation of R6O-1 transport operations, both now assigned to VR-5. Grounding following a series of generator failures resulted in reconsideration in the fall, but correction had them back in harness before the end of the year. A shortage of military transports as the Korean War escalated led to a plan for Lockheed overhauls at 1,500 hours and continued use. The second went to Lockheed in early 1951, the first following when the second was completed in September. Both continued with VR-5 in 1952. With Lockheed's "O" changed to the "V" of its patrol planes, they became R6V-1s.

Late in the year, more modern transports were entering Navy service, and the two R6O-1s were retired by the end of the year. Sold surplus, one ended up at Las Vegas, Nev., and the other at Opa Locka, Fla. However, their owners' plans fell through and both eventually became deteriorating derelicts for many years before being cut up for scrap—a sad end for a pioneering jumbo transport design. ■

Frank Powers of Augusta, Maine, who assisted in the preparation of this feature, would like to contact anyone involved in the operations of these aircraft—particularly the Navy years, including passengers. He is writing their overall story. You can reach him at P.O. Box 5253, Augusta, ME 04332-5253.



<b>March</b>	
12	NAF El Centro, CA
19	Dyess AFB, TX
26-27	Little Rock AFB, AR
<b>April</b>	
9-10	Punta Gorda, FL
16	Luke AFB, AZ
23-24	MCAS Beaufort, SC
29-30	MCAS El Toro, CA

## Blue Angels 1994 Show Season Schedule

<b>May</b>		<b>July</b>		<b>September</b>	
1	MCAS El Toro, CA	2-3	Traverse City, MI	3-5	Cleveland, OH
7-8	Redmond, OR	9-10	Eau Claire, WI	10-11	NAS Memphis, TN
14-15	Corpus Christi, TX	16	Pensacola Beach, FL	17-18	Burlington, VT
20-21	Andrews AFB, MD	23-24	Minot, ND	24-25	NAS Jacksonville, FL
23-25	U.S. Naval Academy, MD	30-31	Springfield, IL	<b>October</b>	
28-29	Chattanooga, TN	<b>August</b>		1-2	McGuire AFB, NJ
<b>June</b>		6-7	Seattle, WA	8-9	San Francisco, CA
4-5	Huntington, WV	13-14	Abbotsford, BC	15-16	Salinas, CA
11-12	Selfridge ANGB, MI	19-21	NAS Miramar, CA	22-23	Fort Worth, TX
18-19	McConnell AFB, KS	27-28	Chicago, IL	29-30	NAS New Orleans, LA
25-26	Davenport, IA			<b>November</b>	
				5-6	Miami, FL
				11-12	Pensacola, FL

As of 10 February, 1994.

## Awards

**NAS Miramar**, located in San Diego, Calif., and home of Top Gun, the Navy Fighter Weapons School, became the sixth military base to earn the **Dick Schram Memorial Community Relations Award**. It is presented annually to the military air show/open house that sets new standards of excellence in its relationships with its civilian neighbors. The award is named for Cdr. Dick Schram, a former *Blue Angel* public affairs officer and well-known air show pilot.

**VS-38** received the **Adm. J. S. "Jimmy" Thach Sub Hunter Award** for 1993. It is presented to the carrier-based antisubmarine warfare (ASW) VS or HS squadrons in the Navy that have shown outstanding performance and ASW excellence throughout the past calendar year.

## Birthday



**Pearce Clyde Poyntz**, Naval Aviator No. 1449, turned 100 years old on 18 February 1994. Born in Allegheny, Pa., he became an ensign on 15 July 1918 and entered WW II as a lieutenant commander on 26 March 1941. He retired from active duty on 1 August 1955. He once said, "Except for my wife and children, I am proudest of my designation as a Naval Aviator and my service in Naval Aviation."

## Anniversaries

**NADep** Cherry Point, N.C., celebrated 50 years of fleet service on 16 December 1993. For five decades, the depot's work force has provided maintenance, engineering and logistics sup-

port on a variety of military aircraft, engines and components.

## Rescues

Two SH-3D helicopters from the **Search and Rescue Division**, NAS Patuxent River, Md., took part in a massive sea-air rescue in the Chesapeake Bay, 5 December 1993.

The SAR crew, **Rescue 70**, responded to a Coast Guard report that a 61-foot charter fishing boat, *El Toro II*, with 23 passengers and crew on board, was sinking four miles southeast of Point Lookout, Md., during a winter storm. The duty alert SAR crew was launched in 35 minutes. A second helo crew, **Rescue 75**, not on duty, volunteered to assist and launched within an hour.

Despite eight foot seas and 45 knot winds, two Navy rescue swimmers from the first helo on scene were lowered into the 50-degree water and assisted in hoisting eight survivors to the hovering SH-3D. The swimmers also assisted with the hoisting of four survivors to a Coast Guard SH-65 and helped the crew of a Coast Guard cutter recover the remaining 11 survivors.

All survivors were taken to Point Lookout State Park where 14 ambulances from local volunteer rescue squads took them to area hospitals for treatment of severe hypothermia. Through the combined efforts of the Navy, Coast Guard, Maryland State Police and local Maryland Volunteer Fire and emergency squads, 20 of 23 people on board survived. Coast Guard sources said it was the largest helo rescue mission ever attempted on the Chesapeake Bay.



**Rescue 75**, L-R, back row: aircraft commander Lt. Mike Honer and crew chief AT3 Tom Runger; front row: rescue swimmer AD3 Tim Hall, medical corpsman HM2 Enrique Ruiz and copilot Lt. Bob Glover.



**Rescue 70**, L-R, back row: aircraft commander Lcdr. Brad Cadswell, crew chief AO3 Greg Spickel and copilot Lt. David Acker; front row: rescue swimmers AE3 Brian McManus and ADC Kevin Clark.

A **VS-22 S-3 Viking**, part of a two-plane detachment from NAS Roosevelt Roads, P.R., was flying drug interdiction with the Coast Guard in the Greater Antilles area when the crew heard a radio call concerning a small civilian aircraft which had lost its bearings and was low on fuel.

The crew was given the range and bearing, 100 miles southeast of Puerto Rico, by an E-2 *Hawkeye* operating off *Saratoga's* battle group in the Caribbean. The E-2 stayed on station acting as the communication link between the civilian plane and the S-3 throughout the search and rescue coordination.

The low-fuel situation was critical, so the pilot flew the S-3 in an "S" pattern, enabling the slower single-engine Cessna 206 aircraft to maintain pace. The small civilian plane was only 10 minutes from St. Christopher in the Leeward Islands of the Caribbean. When the aircraft taxied to a stop, it had only 3 gallons of fuel on board.

A **VC-8** helo crew rescued two civilians whose 25-foot catamaran capsized northeast of NS Roosevelt Roads, P.R., May 14. The ComFAir-Carib duty officer located at Roosevelt Roads received notice that two per-



JQ3 Tim Birchard



The VC-8 SAR crew who rescued two civilians from their capsized catamaran, L to R: Lt. Kent Shuford, copilot; AE2 John Byrd, rescue swimmer; AMS1 Curt Stewmon, crew chief; HM2 Steve Mullis, corpsman; and Lt. John Grammar, aircraft commander.

sons had been spotted atop an overturned catamaran eight miles from the base.

Within minutes a search-and-rescue helo from VC-8 was en route to the last known position of the sailboat. Once the boat was spotted, the SH-3 helo hovered 40 feet above the boat and lowered a Navy rescue swimmer into the water. Although hampered by darkness and four-to-five foot waves, the helo shone a spotlight on the boat, marking its location about 50 feet away, and the swimmer quickly swam over to it.

The two civilians were in good condition and were hoisted into the helo, which returned to the Navy base.

## Records

Several units marked **safe flying time:**

Unit	Hours	Years
HC-8	10,000	
HS-15	29,500	9
HS-75	35,700	15
HSL-40	41,625	8
HSL-51	10,000	2
NAS Adak	2,800	4
VAQ-135		14
VAW-116	37,000	18
VAW-123	51,526	25
VFA-192	43,198	10
VMGR-234	70,000	
VMFA-122	30,000	
VP-8	100,000	11
VS-37	45,300	11

## Special Records

**Cdr. Donald G. Bringle**, CO, VF-213, attained his 3,000th F-14 *Tomcat* hour on 29 September 1993.

**Col. David L. Percy**, CO, MATSG Point Mugu, Calif., reached a career milestone of 6,000 accident-free flight hours.

**Cdr. Graham Gordon**, CO, VA-95, hooked his 1,000th trap on 15 October 1993 while aboard *Lincoln* (CVN 72).

**AWC Michael Triemer** of VP-26 passed his 5,000th career flight hour while on a flight over the Adriatic Sea in support of United Nations sanctions against the former Republic of Yugoslavia.

**LCdr. Tom Phelan**, test pilot and Head, Carrier Suitability Department, Strike Aircraft Test Directorate, NAW-CAD Patuxent River, Md., became the first T-45A *Goshawk* centurion on 26



Cdr. Larry J. Stack, then-CO of VAQ-36, logs his 1,000th carrier landing aboard *Independence* (CV 62).

January 1994 when he trapped aboard *Dwight D. Eisenhower* (CVN 69).

**Cdr. Brett Bernier**, CO, VT-19, achieved an aviation milestone by surpassing 5,000 flight hours.

A VF-31 fighter from CVW-14 marked *Carl Vinson's* (CVN 70) 100,000th landing since the carrier's commissioning in 1982.

**Lt. Cols. Dan C. Spurlock**, CO, and **Raymond S. Shelton**, XO, HMH-363, attained their 5,000th flight hour on 1 April 1993 and 4 November 1993, respectively.

## Honing the Edge



"Old Smokey" lifts off the runway at Pax River for its last flight. The UC-880 has been at the air station since 1981. It was purchased as a tanker for the FA-18 Hornet program. Later, it was extensively modified by the Range Directorate for the East Coast cruise missile program. Budget cuts and its own obsolescence have permanently grounded "Old Smokey."

"Old Smokey," a modified Convair 880 and the last of its breed to fly, ended an era at the Naval Air Warfare Center Aircraft Division, NAS Patuxent River, Md., in late September 1993 after its last flight. Three other 880s exist: "Dirty Sox" at Pax River which was used for spare parts to keep "Old Smokey" flying; one in Memphis, Tenn., which belonged to Elvis; and a third in South Africa being modified into a restaurant.

"Old Smokey" and "Dirty Sox" will become part of the Federal Aviation Administration's structural integrity test to determine the vulnerability of commercial aircraft to terrorist attacks and to develop methods to reduce that vulnerability.

T. Dalton

## Scan Pattern

Two British Royal Air Force exchange officers with VF-101 received their Wings of Gold from the squadron on 23 November 1993.

**Sqn. Ldr. J. D. Carter** carrier qualified aboard *George Washington* (CVN 73) on 4 November 1993. **Sqn. Ldr. R. J. C. Powell**, a radar intercept officer, carrier qualified aboard *Theodore Roosevelt* (CVN 71) on 6 October 1992. Both officers are expected to be with VF-101 for two more years before returning to England.

The Commandant of the Marine Corps, General Carl Mundy, approved the naming of the MCAS El Toro Command Museum in honor of the founding chairman of the MCAS El Toro Historical Foundation, **Brigadier General Jay W. Hubbard, USMC (Ret)**.



AFCM(AW) George H. Watson, Command Master Chief of Abraham Lincoln (CVN 72), wed his long-time sweetheart Dorothee Johnson aboard the ship. The ceremony was conducted by Lincoln's chaplain, Lt. Barry Vaughman.

## Change of Command

**CVW-7:** Capt. R. H. Coon relieved Capt. S. H. Baker, 14 Jan 94.

**CVW-11:** Capt. James D. McArthur, Jr., relieved Capt. Daniel W. Gabriel, Jr., 9 Sep 93.

**HC-3:** Cdr. Charles G. Deitchman relieved Capt. James P. Butler, 10 Dec 93.

**HM-19:** Cdr. Steven H. Roach relieved Cdr. Alexander J. Sabol, 11 Dec 93.

**HMH-361:** Lt. Col. Douglas F. Ashton relieved Lt. Col. Peter Francescon, 12 Nov 93.

**HMM-166:** Lt. Col. Danny J. McDaniel relieved Lt. Col. James V. Huston, 19 Nov 93.

**HS-8:** Cdr. Henry E. Dosker, Jr., relieved Cdr. Lars A. Wallis, 16 Dec 93.

**HSL-46:** Cdr. Walter G. Scull relieved

Cdr. George F. Barton, 5 Nov 93.

**HSL-49:** Cdr. Zachary A. Henry, Jr., relieved Cdr. William R. Farawell, 9 Dec 93.

**MAG-13:** Col. John R. Bioty, Jr., relieved Col. George G. Goodwin III, 10 Dec 93.

**NAWCWD Point Mugu:** RAdm. Dana B. McKinney relieved RAdm. William E. Newman, 14 Dec 93.

**PatWing-5:** Capt. John D. Roberts relieved Capt. Benjamin P. Riley III, 3 Dec 93.

**VA-85:** Cdr. John Scheffler relieved Cdr. Bruce Weber, 29 Sep 93.

**VAQ-136:** Cdr. Jerome J. Mathews relieved Cdr. Larry J. Stack, 20 Dec 93.

**VF-101:** Cdr. Charles Wyatt relieved Capt. Chris Weuthrich, 4 Feb 94.

**VF-111:** Cdr. Donnie L. Cochran relieved Cdr. Marc L. Purcell, 29 Oct 93.

**VFA-37:** Cdr. Scott Hoffman relieved Cdr. Richard O'Hanlon, 18 Nov 93.

**VFA-106:** Cdr. Matthew G. Moffit relieved Cdr. Michael T. Anderson, 9 Dec 93.

**VFA-151:** Cdr. Thomas W. Trotter relieved Cdr. John V. Stivers, 22 Oct 93.

**VP-23:** Cdr. Ronald C. Schuller relieved Cdr. Keith T. Weaver II, 19 Nov 93.

**VR-57:** Cdr. Kenneth J. Gunderson relieved Cdr. Van E. Moir, 20 Nov 93.

**VS-27:** Cdr. Mark D. Kikta relieved Cdr. Stanton C. Greenawalt, 11 Jan 94.

**VT-19:** Cdr. Brett B. Bernier relieved Cdr. David S. Tyson, 14 Jan 94.

**VT-27:** Cdr. Thomas A. Russell relieved Cdr. Robert F. Kernan, 10 Dec 93.

**VX-1:** Capt. Edward L. Swartz relieved Capt. James M. Farley, 17 Dec 93.

## PROFESSIONAL READING

Cdr. Peter Mersky, USNR (Ret.)

Lake, Jon, ed. *McDonnell F-4 Phantom: Spirit in the Skies*. Aerospace Publishing, London, UK. Distributed in the U.S. by Airtime Publishing, Inc., 10 Bay St., Westport, CT 06880. 232 pp. Ill. \$29.95.

A large number of aviation books have appeared in the last five years. Besides the traditional narratives, describing the careers of pilots and aircraft, there was a minor revolution of color photography on modern equipment and operations presented in large-format "coffee-table" books.

Another variation was paperbound volumes of varying length and quality.

The trick became to combine both presentations in one book or magazine. The hard-working folks at Aerospace did a good job in producing such a package in several recent publications. Aerospace is well known for its "piecemeal" series, *Takeoff*, magazines that included about four articles on aircraft and aviation history, as well as modern operations. The magazines used color photos and artwork, the three-view profile now considered required material and occasional contemporary illustrations of some of the stories' action.

Soon after the end of the 1991 Gulf War, Aerospace branched out into books, publishing what has to be one of the best overviews of the air war in the gulf, *Gulf Air War Debrief*. Replete with first-person accounts, color photos and artwork, it remains one of the best accounts of the war.

Aerospace soon took on the challenge of publishing "di-

rectories" of USAF and USN/USMC air power. These two books get top marks for concept, detail and presentation and are recommended as attractive references on their subjects.

The books are presented in the same format as Aerospace's well-received quarterly, *World Air Power Journal*; the association is intentional. Publisher Stan Morse wants his readers to know that the books emulate the periodical both in standard and appearance, thereby reducing any confusion as to how good a new product is.

Aerospace calls its newest effort on the F-4 "the definitive work on the world's greatest jet fighter," and it just might be. The book is crammed with detailed information, interviews and personal accounts, color photos—some published for the first time—and impressive artwork.

*Phantom* describes the F-4's design and construction history and chronicles its operational career, including combat in Vietnam and the Middle East.

The last portion presents a compendium of every F-4 user—American, European, Middle Eastern and Asian. Most squadron insignia are shown, and there are a lot of interesting details about these units.

There is no way to give an accurate number of full-length books and major magazine articles on the *Phantom*, but until someone shows me something better, I'll agree with this book's jacket blurb.

## ANA Bimonthly Photo Competition

Right, Ltjg. Stephen P. Davis won the bimonthly competition with this overhead shot of an F-14B Tomcat of VF-143, NAS Oceana, Va., flying over Lake Tahoe, Nev. Far right, Rick Mullen, Malibu, Calif., was the annual contest winner with his action shot of D Company, 4th Recon Marines, fast-roping from a CH-53D Sea Stallion in a Tactical Recovery of Aircraft and Personnel mission.



Cash Awards: Bimonthly—\$100; Annual—First, 500; Second, \$350; Third, \$250.

For deadline and submission details, call (703) 998-7733. Mail photographs to: Association of Naval Aviation Photo Contest, 5205 Leesburg Pike, Suite 200, Falls Church, VA 22041-3863.

The Association of Naval Aviation and its magazine, *Wings of Gold*, is continuing its annual photo contest which began in 1989. Everyone is eligible except the staffs of *Wings of Gold* and *Naval Aviation News*. The ONLY requirement is that the subject matter pertain to Naval Aviation. Submissions can be in black and white or color, slides or prints of any dimension. Please include the photographer's complete name and address, and **PHOTO CAPTION**.

## Annual Winner Rick Mullen, Malibu, Calif.





## 1994 Naval Aviation Ball

The 21st annual Washington-area Naval Aviation Ball, sponsored by the Director, Air Warfare, will be held on Saturday, April 23, at the Crystal Gateway Marriott, Arlington, Va.

This formal gathering is open to all active duty and retired Navy and Marine Corps aviators, naval flight officers and other aviation officers, as well as supporting civilian government and corporate personnel. The evening will commence with a reception at 1830. Dinner will be followed by dancing and entertainment. Cost: \$75 per couple. Dress: Dinner Dress Blue Jacket or Evening Dress (Black Tie).

For information/reservations, please contact Capt. Terry Simpson (DSN 223-2938 or 703-693-2938) or Lt. Bill Hendricks (DSN 224-6003/703-614-6003).

## Fleet Air Arm Museum Carrier Project

The Fleet Air Arm Museum is undertaking a project to build an aircraft carrier under cover. Anyone interested in this development or willing to make a financial contribution towards it, please contact: Capt. W. J. Flindell, FRAeS RN, Director, The Fleet Air Arm Museum, Box No. D6, RNAS Yeovilton, Near Ilchester, Somerset BA22 8HT, UK, phone: 0935 840565.

## NANews Back Issues Needed

The library of the National Museum of Naval Aviation needs the following back issues of *Naval Aviation News* to complete its collection: 15 Sep 1943; 15 Feb and 1 May 1944; 15 Jul and 1 Sep 1945; Jan, Sep and Dec 1946; Jan and Apr 1947; Feb 1965; and Jul 1966. Anyone willing to donate these issues, please contact Ms. Margaret Johnson, Director, Emil Buehler Naval Aviation Library, National Museum of Naval Aviation, 1750 Radford Blvd., Suite C, Pensacola, FL 32508-5800, 904-452-8451.

## Normandy Vet Histories

Oral histories by members of VCS-7 or any squadron that took part in the June 1944 Normandy D day Invasion

are being solicited for an archives for research scholars. Transcripts of interviews with 1,000 American veterans and British, French and German forces are already part of the collection. Contact: Dr. Stephen Ambrose, Director, Eisenhower Center, University of New Orleans, Lakefront, New Orleans, LA 70148.

## F4U-5NL Corsair Restoration

We are restoring an F4U-5NL *Corsair*, serial 124692, which flew with VCs 3 and 4 during the Korean War. The aircraft served aboard: *Essex* with VC-3 Det B, Nov 51-Feb 52; *Leyte* with VC-4 Det B in Aug 52; and *Tarawa* with VMFN-114 in early 1953. Anyone who has photos or information, please contact the Collings Foundation, Box 248, Stow, MA 01775, 508-568-8924.

## Spirit of St. Louis

I need information and photographs to help me document the initial design and building of the *Spirit of St. Louis*, the New York to Paris flight, and Lindbergh's subsequent goodwill tours in the U.S., Canada, Mexico, Central and South America and the Caribbean. I am particularly interested in hearing from anyone involved in June 1927 when the *Spirit* returned from England aboard *Memphis* at the Washington Navy Yard and was reassembled at NAS Anacostia, D.C., for display and Lindbergh's U.S. tour. I plan to publish a book detailing the building and flying of this famous airplane. Contact: Ev Cassagneres, 430 Budding Ridge, Cheshire, CT 06410, 203-272-2127.

## Symposium '94

### The Marianas Turkey Shoot and American Aces 5-6 May 1994

The Naval Aviation Museum Foundation presents its eighth annual Naval Aviation Symposium. This series of educational and social events features the presentation of Naval Aviation in the victorious "Marianas Turkey Shoot" on its 50th anniversary, and the key role that "American Aces" have played over the years in the United States' armed conflicts.

## Reunions, Conferences, etc.

**VP-60 reunion/disestablishment**, 19-20 MAR, NAS Glenview, IL. POC: LCdr. Giedlin/YNC Perkins, 708-657-2200.

**VF-126 reunion**, 31 MAR-2 APR, POC: Lt. Mitch Darling, VF-126, NAS Miramar, CA 92145, DSN 577-4590 or 619-537-4590.

**U.S. Naval Test Pilot School reunion**, 29-30 APR, POC: Lt. Kevin Switick, NAWCAD, TP66F, Patuxent River, MD 20670-5304, DSN 326-4411 x 3169 or 301-826-4411 x 3169.

**Kalinin Bay (CVE 68/VC 3) reunion**, MAY 94, Pensacola, FL. POC: Robert Mayo, 1501 Thistle Rd. T-3, Richmond, VA 23233-4521, 804-741-0267.

**Millsaps College Navy V-12 reunion**, 6-8 MAY, Jackson, MS. POC: Rubel Phillips, POB 823, Ridgeland, MS 39158, 601-977-1523.

**Lexington (CV 2) Club reunion**, 11-14 MAY, Spokane WA. POC: Walt Kastner, 466 Ivy Glen Dr., Mira Loma, CA 91752, 909-681-1101.

**Marine Air Groups 11/12/14 reunion**, 11-14 MAY, Arlington, TX. POC: Red Twomey, POB 824, Athens, TX 75751, 903-675-1218.

**Tarawa (CV/CVA/CVS 40) reunion**, 12-15 MAY, Milwaukee, WI. POC: Rudy Marzano, 488 Summit Ave., Maplewood, NJ 07040, 704-322-5445.

**Yorktown (CV/CVA/CVS 10) reunion**, 12-15 MAY, Charleston, SC. POC: E. Wayne Tietgen, 1431 8th St. N., Jacksonville Beach, FL 32250, 904-246-6943.

**Franklin D. Roosevelt (CV 42) reunion**, 18-22 MAY, Jacksonville, FL. POC: Fred Guest, 10928 Aloha Dr., Jacksonville, FL 32211, 1-800-437-0869.

**Breton (CVE 23) reunion**, 19-22 MAY, San Antonio, TX. POC: Larry Eckard, POB 5310, Hickory, NC 28603, 704-322-5445.

**VMFA-451 reunion**, 20-22 MAY, Beaufort, SC. POC: Capt. Dwight Schmidt, DSN 832-7363 or 803-522-7363.

**National Aerospace & Electronics Conference**, 23-27 MAY, Dayton, OH. "Technology for a Global Market," will introduce the application of dual-use, military-commercial technology on an international scale. POC: NAECON, POB 31341, Dayton, OH 45437-0341, 513-255-6281.

**EA-6B Prowler Electronic Warfare Symposium**, NAS Whidbey Island, WA. POC: LCdr. Bill Wilson, DSN 820-8148 or 206-257-8148.

**Salamaua (CVE 96/VCS 70 & 87) reunion**, 24-26 MAY, Seattle, WA. POC: John W. Smith, 7268 NW 16th St., Ankeny, IA 50021, 515-289-1467.

**CAG-11/Sun Downers reunion**, 24-29 MAY, San Francisco, CA. POC: Tim Enander, 419 Maple St., Port Townsend, WA 98368.

**PBM Mariner-P5M Marlin Assn. reunion**, 25-29 May, San Francisco, CA. POC: M. Gitlin, 488 Ar-buckle Ave., Cedarhurst, NY 11516, 516-295-4363.

**HAL-3 reunion**, 27-29 MAY, Pensacola, FL. POC: Dan Calvert, 11306 Sunco Dr. #4, Rancho Cordova, CA 95742, 916-635-8255.

**Normandy Invasion reenactment**, 4 JUN, Chicago, IL. POC: James Balcer, 312-744-7582.

**Teenagers of the 50s and 60s who lived at White Sands Missile Range reunion**, JUL 95. POC: Bill Adler, 3726 Fieldcrest Dr., Garland, TX 75042, 214-684-4758.

# NAVAL AVIATION NEWS

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