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**MARINE U-BIRDS
OVER MUNDA - 1943**

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COVER—This original rendition of the familiar F4U-1 Corsair was done by A. Michael Leahy. At the time, it was known affectionately as the "U-Bird."

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The time-proven value of amphibious warfare is becoming even better as Marine Corps Air changes and improves. The developments are impressive. "Marine Aviation Today" will bring you up to date on the state of the aircraft and weapons systems programs, beginning on page 4.



Forty-six squadrons earned the CNO Aviation Safety Award last year and helped to keep Naval Aviation's safety record under control. VQ-4, one of the recipients, has a program worth a close look. See "Uniquely Missioned" on page 14.



The Naval Reserve is moving toward closer integration with the active Navy with the release of a study to Congress by Secretary of the Navy John Lehman, called "Total Force." The program is massive and is happening now, so we've summarized the Naval Aviation side of the report on page 16.



Depot-level rework is a tough enough job at a stateside NARF. Imagine doing it in a theater far from logistic support. The Navy's European Repair and Rework Activity (NERRA) in Naples not only does it, they make it look routine. See "Biggest Little NARF in Europe," page 18.



Hank Caruso has done it again. This time he's captured the essence of what it's like for the crew on the flight deck of a supercarrier, including purple, brown, green, yellow and blue shirts; paddles; and BB stackers. Enjoy "Flight Deck Seabirds" on pp. 20-23.



Career development for junior officers has received a lot of emphasis lately. Earning Naval Test Pilot papers is a remarkable and beneficial achievement, but to be able to earn an M.S. degree, too, is worth investigating. Check out the "TPS/NPS Cooperative Program" on page 24.



Wings for Naval Aviation Supply Officers

The Chief of Naval Operations has approved a plan to establish a Naval Aviation Supply Officer Program and has authorized a unique breast insignia for qualifying Supply Corps officers.

The first aviation supply "wings" were presented recently by VAdm. Robert F. Schoultz, USN, Deputy Chief of Naval Operations (Air Warfare), at the Naval Aviation Ball in Washington, D.C. Receiving the insignia were VAdm. Eugene A. Grinstead, Jr., SC, USN, Director, Defense Logistics Agency; RAdm. Andrew A. Giordano, SC, USN(Ret.), former Commander, Naval Supply Systems Command; and Como. John H. Ruehlin, SC, USN, Commanding Officer, Aviation Supply Office, Philadelphia, Pa.

The Aviation Supply Office (ASO) is the lead activity for program administration of the Naval Aviation Supply Officer (NASO) program. According to Como. Ruehlin, the program will give officers a career path through aviation logistics, and provide the Supply Corps with a group of uniquely qualified aviation logistics specialists.

Candidates for designation as Naval Aviation Supply Officers must undertake and successfully complete a



Receiving the inaugural sets of aviation supply wings at the Aviation Ball in Washington, D.C., from VAdm. Robert F. Schoultz, USN, Deputy Chief of Naval Operations (Air Warfare), second from right, are, from left, Como. John H. Ruehlin, SC, USN, Commanding Officer, Aviation Supply Office, VAdm. Eugene A. Grinstead, Jr., SC, USN, Director, Defense Logistics Agency and RAdm. Andrew A. Giordano, SC, USN(Ret.), former Commanding Officer, Naval Supply Systems Command.

demanding qualification program which requires approximately 350 hours of study and practical experience. Much of this program is modeled on the PQS System. Candidates must also pass an oral examination administered by supply and aviation maintenance officers at their operating sites. Final approval will be made by aircraft controlling custodians (i.e. air type commanders). Only those Supply Corps officers who are currently serving in designated aviation supply billets or who have been detached from such billets within the past two years are eligible to participate in the NASO Program.

Supply Corps officers who desire to participate in the NASO program will receive detailed information in OP-NAVINST 1542.4 and NAVSUP PUB 550, both of which are expected to be published and distributed later this year. Supply Corps "wings" will also be available in Navy exchanges by that time.

According to Commodore Ruehlin the standards for the program are high, and will remain high. "We must develop the talent," he said, "to give the Navy what it needs to be ready — and stay ready." ■

awards

Isbell Trophy

The 1983 Captain Arnold Jay Isbell Trophy for overall excellence and superior performance in air antisubmarine warfare has been awarded to HS-2, HSL-35, VS-33 and VP-6 in the Pacific Fleet; and HS-9, HSL-34, VS-22 and VP-10 in the Atlantic Fleet.

The award is sponsored by the Lockheed-California Company in honor of the antisubmarine warfare commander under whose leadership planes and escort carriers operating in the Atlantic during WW II developed into a powerful combat force. Capt. Isbell was killed in action in 1945 while serving aboard the aircraft carrier USS *Franklin*.

National Aviation Hall of Fame

Four individuals recognized for their outstanding contributions to aviation and for their achievements in air and space technology are being enshrined in the National Aviation Hall of Fame during ceremonies July 20-21 in Dayton, Ohio. World War II ace Joseph J. Foss as a Marine Corps major shot down 26 enemy planes and was awarded the Congressional Medal of Honor. He later served in the South Dakota legislature and then as Governor. He was a colonel in the Air Force during the Korean War and still later became a brigadier general and chief of staff of the South Dakota Air National Guard. The other three who are being honored are Henry Ford, builder of automobiles, aircraft engines and aircraft; Albert Boyd, who was the top test pilot in the Air Force; and John L. Atwood who made major contributions to the design of aircraft and many aerospace systems.

David S. Ingalls Award

Capt. Michael R. Burns, USMC, is the nineteenth winner of the Navy League's David S. Ingalls Award as the top flight instructor of the Naval Air Training Command for 1983. Capt. Burns, standardization officer with VT-6 at Whiting Field, was selected from some 1,200 flight instructors representing 21 Navy training squadrons. The award is named after RAdm. David S. Ingalls, the Navy's first ace who was a member of the famed Yale Reserve Unit in France in WW I.

CNO Safety Awards

The following are the winners of the 1983 CNO Aviation Safety Awards:

NavAirPac: VAs 52, 97 and 128, VAQ-132, VAW-117, VF-211, VP-22, VQ-1, VRC-30, VS-29, HC-11, HS-8 and HSL-31.

NavAirLant: VAs 45, 66 and 75, VF-11, VF-30, VQ-4, VS-30, HM-16, HS-5, HSL-34 and VAW-123.

FMFLant: VMFA-333, VMGR-252, and HMMs 162 and 264.

FMFPac: VMGR-152, HML-267 and HMMs 163, 262 and 265.

CNATra: VTs 6, 22, 23 and 28, and HT-18.

NavAiResFor: VA-204, VAQ-209, VF-201, VP-92, VR-58 and HS-85.

Fourth MAW: VMO-4 and HMA-773.

NavAirSysCom: NavPro St. Louis.



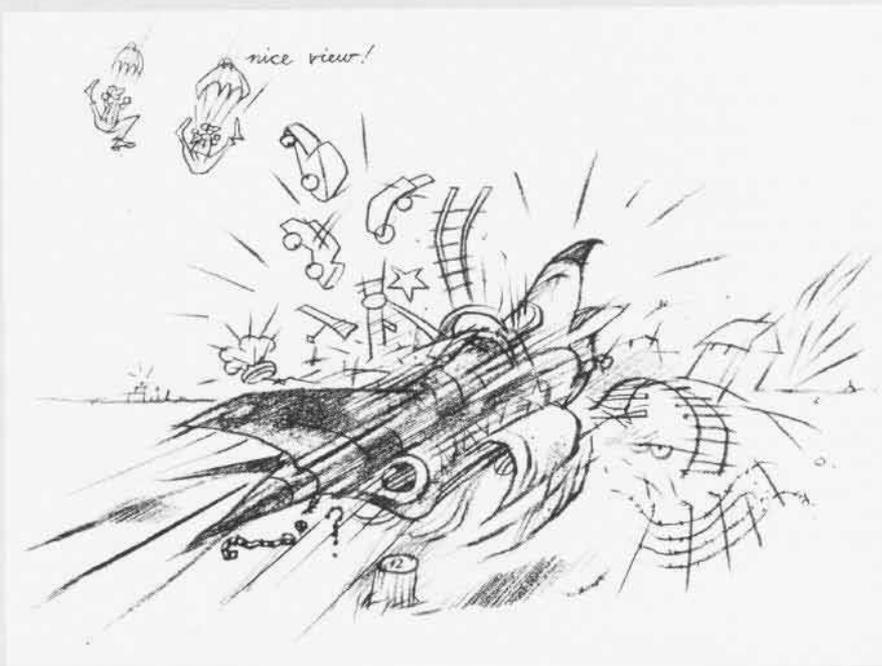
Neither Rain nor Sleet nor. . .

A pair of *Phantoms* were returning to NAS West Coast after static display duty. When they first filed, the weather at their planned third-leg, stopover point, a southwest civilian airfield, was

3,000 broken, seven-miles visibility with a chance of rain. Bad weather was massing to the north and, on their arrival, the field was 500 feet obscured with one-mile visibility in light snow and fog. The TACAN-only F-4s were to fly an ASR approach to the field's 11,000-foot-long southwest strip. The flight split up and the lead started down.

The pilot set half-flaps at 12 miles to prevent closing on a commercial airliner up ahead. The F-4 began a slow right roll, corrected by the pilot, followed by illumination of a BLC (boundary layer control) malfunction caution light. He informed the RIO who responded, "Full flaps, now we're committed." The pilot extended the gear and reportedly set full flaps.

About 150 feet above MDA (minimum descent altitude), at the one-mile point, the pilot pushed the stick forward, reduced power and, passing the threshold, retarded the throttles to idle. He flared to arrest his sink rate, decelerating to a slow AOA chevron at touchdown, 1,000 feet from the threshold. Due to the crosswind and wet runway he delayed deploying the drag chute until the *Phantom* was tracking down the centerline. After the chute was deployed, airspeed remained at 130 knots for a considerable time. The lack of illuminated runway distance markers, coupled with poor visibility, prevented the crew from judging how much runway remained. The pilot maintained full aft stick but later stated he did not apply brakes



during rollout. As the *Phantom* slowed to 100 knots, the aircrew noticed a color change in the runway lights to amber, unaware that this meant they were on the last 1,500 feet of runway. The aircraft yawed right and drifted left. The pilot advanced the throttles to light the afterburners. The RIO saw the runway end lights and said, "Hook down." The pilot swiped at the hook handle, unsure if it went down. The port tire blew as the F-4 departed the left-side overrun.

Noting 80 knots on the indicator as the afterburners cut in, the RIO ejected. The *Phantom* traveled nearly 2,000 feet over unprepared terrain, struck a set of railroad tracks, a heavy-gauge wire perimeter fence, another set of railroad tracks and a pole 12 inches in diameter — after which the pilot ejected. The F-4 continued across a four-lane highway, smashed into a small building and exploded about 120 yards from a housing area. The pilot suffered minor injuries, the RIO none.

The second *Phantom*, unaware of lead's problems, was waved off but eventually landed on the 9,000-foot west runway. Its drag chute failed (it had been drenched on a previous leg stopover and froze at altitude) but the pilot brought the aircraft to a stop after blowing the tires and departing the left side of the runway at 35 knots, ending up 60 feet from the runway's edge. The aircrew didn't realize that 3,000 feet more of runway were available to them. Neither aircraft had a wheel brake antiskid system installed.

 Grampaw Pettibone says:

What a brain-basher! These fellows should have stayed home, or at least at their last stopover point. The wingman didn't lose his bird but he gets no points for wasting 3,000 feet of runway. Among lead's miscues: the flaps were found at the one-half setting, indicating that they weren't fully down; he was high and fast close-in and landed beyond NATOPS' 500-foot limit for wet runways; he used improper stick position on rollout while NATOPS says full forward for wet runway directional control; he failed to execute judicious braking at air-speeds above 100 knots (he didn't



brake at all); and he made a poor decision to take off with insufficient runway left even with afterburner which burned out the drag chute panels.

There's more, but the real problem here was continuing to the civilian field with weather turning to worms. Although this base had a reputation for providing fast turnarounds, it had neither arresting gear nor distance-remaining markers, needed items when it's dark, wet and hard to see.

The *Phantom* flyers had had a hard day, experiencing frustrating delays on previous stops, plus losing tanker support at the outset, which led to the planned and exhausting four-leg return trip. Clearly, "get home-itis" was a factor. En route to the civilian field they pressed on despite worsening weather, electing not to divert to a more suitable field. When the mishap occurred the crews were completing the third leg. Although they hadn't yet violated the 3-flight/6.5-hour guideline in OPNAVINST 3710.7K, they did intend to return to home base that same day, which would have exceeded the limit. The slow right roll when extending the flaps in the approach was not considered abnormal. Illumination of the BLC light was distracting but not viewed as a causal factor in the mishap.

These were experienced airmen but they put on a poor and costly show. Professionalism took a holiday.

B/N to the Rescue

A flight of four USMC A-6 *Intruders* was proceeding in loose cruise formation at FL290 from Lajes AFB (Azores) en route to Rota, Spain. The pilot of the port wing aircraft had removed his oxygen mask to take a drink of water. In the process, he accidentally bumped the cockpit cabin pressure switch, dumping cockpit pressurization to altitude of 29,000 feet MSL. Before the pilot could replace his oxygen mask and restore oxygen, he lost useful consciousness. He was actually still conscious but

physically unable to move.

The B/N had been observing the other formation aircraft out the starboard panel when the incident occurred. At 29,000 feet, the decompression was a mildly explosive action, accompanied by a loud whooshing sound and moderate discomfort to the ears. Startled, the B/N looked at the pilot who was staring straight ahead with his arms hanging at his sides. The B/N asked the pilot if he was okay, but received no response. He quickly checked the instrument panel but could detect nothing wrong. He then pushed the pilot's knee aside to check the cockpit pressure gauge and verified 29,000-foot cabin altitude pressure, but could not determine the cause.

Acting quickly, the B/N reached across the pilot, took control of the aircraft and pushed over into a 15-degree dive. The airspeed built up quickly to 480 KIAS, at which point the B/N leveled off to bleed off some excess airspeed. A few seconds later he executed a second 15-degree dive and leveled at 10,000 feet altitude. After a short time, the pilot recovered and was able to resume control of the aircraft.

As he descended, the B/N radioed the flight leader and explained the situation. The flight leader passed the lead and directed the other aircraft to proceed to Rota. He joined the distressed wingman and escorted the flight back to Lajes for a safe recovery.



Grampaw Pettibone says:

Great sufferin' eardrums, this could have been very depressing had it not been for the timely action of the B/N.

This incident occurred during a period when the A-6 aircraft had experienced random cockpit pressurization problems. The B/N, unable to immediately assess the cause of the decompression, took positive action in getting the aircraft down to safe altitude. B/N's calm, corrective action during the incident is reflective of professional aircrew knowledge and coordination, and possibly saved the Corps one A-6E *Intruder*.

Old Gramps passes to this B/N, 1st Lieutenant (now Captain) Joe Baez, USMC, VMAT(AW)-202, a very proud "Well done, Marine!"

Modernizing for the Future

By JO2 Timothy J. Christmann

The supersonic, fly-by-wire, F/A-18 Hornet is the Marine Corps' most potent anti-air weapon.



Marine Aviation Today

In 1949, President Harry S. Truman directed his Secretary of Defense, Louis A. Johnson, to "trim the fat out of the Armed Forces." Johnson went to the Department of the Navy and told Admiral Richard L. Conolly, then Commander in Chief, U.S. Naval Forces Eastern Atlantic and Mediterranean, that there was "no longer a need for the Marine Corps." He said the U.S., in its post-WW II years, would never need the Marines because amphibious operations were a thing of the past.

On June 25, 1950, 60,000 North Korean troops, spearheaded by more than 100 Russian-built tanks, crossed the 38th parallel and invaded South Korea. Three months later, elements of the First Marine Division, under the command of General Douglas MacArthur, made a brilliant amphibious landing at Inchon. Their assault, which was heavily supported by Navy and Marine Corps fighter and attack planes, overwhelmed the enemy. American troops advanced inland behind North Korean army lines and swiftly changed the tide of the war. By October 20, U.S. and United Nations forces captured Pyongyang, North Korea's capital, and within a month pushed the retreating enemy into China. The need for Marine Corps amphibious and aviation capability was vindicated.

Today, the Marine Corps is part of one of the largest and most unique amphibious forces in the world. Large because it boasts more than 190,000 troops, 942,000 tons of amphibious shipping, and three air wings; unique because the Marine Corps can launch amphibious operations virtually anywhere in the world, at any time, under any conditions. Such power projection capability, made famous during WW II and demonstrated more recently in Grenada, must maintain its strength and sophistication. To keep pace, the Marine Corps is currently involved in a modernization program that includes extensive improvement of its air arm.

"We are combat ready and working hard to be even



Lt. Gen. William Fitch, USMC Deputy Chief of Staff for Aviation, is pictured here in a General Dynamics F-16/79. He has flown more than 6,000 hours in tactical aircraft.

more ready," Lieutenant General William H. Fitch, USMC Deputy Chief of Staff for Aviation, told the Senate Armed Services Committee recently.

The reason for such strides to improve the quality and quantity of Marine Corps Aviation is to better protect ground troops in combat. This is the primary reason for a Marine Aviator's existence. It's his creed. Because of it, he has to be a specialist in close air support (CAS), which is the attack on ground objectives by aircraft employing any or all available weapons — bombs, machine guns, smoke, rockets — often within less than 200 yards of front-line troops. Additionally, the Marine Aviator must place tremendous emphasis on air-to-ground coordination, especially during the critical ship-to-shore phase of a landing attack.

For the Marine Corps to do its job in today's continuously changing warfare environment, it needs aircraft and weapon systems that are up-to-date, reliable and, above all, capable of performing the mission. Among these aircraft are the F/A-18 *Hornet*, AV-8B *Harrier*, EA-6B *Prowler*, A-6E *Intruder*, OV-10 *Bronco*, CH-53E *Super Stallion*, and the AH-1T *Sea Cobra*.

Some of the older aircraft types, which will eventually be replaced or updated, continue to perform well. They are the A-4 *Skyhawk*, F-4 *Phantom*, KC-130 *Hercules*, CH-53A/D *Sea Stallion*, CH-46E *Sea Knight*, UH-1N *Huey* and AH-1J *Sea Cobra*.

Among the most prominent "smart" weapon systems on



The A-6 Intruder is an all-weather attack aircraft capable of delivering up to 15,000 pounds of ordnance with pinpoint accuracy.



A CH-53E Super Stallion, seen here carrying a 16-ton cement block at MCAS(H) New River, S.C., can lift far more weight than any other type of Marine helicopter.

Sgt. Hugh Hawthorne

the Marine Corps' want list are precision-guided munitions (PGMs) like *Laser Maverick*, *Hellfire*, and the *Imaging Infra-Red (I²R) Maverick*. These missiles, which will revolutionize the Marine Corps' present ordnance inventory, are necessary not only to increase combat effectiveness, but to give aviators the option to shoot-and-leave rather than remain vulnerable while guiding missiles to targets.

The Jets

A major development in Marine Corps Aviation has been the modernization of its fighter/attack forces — the most exciting being the arrival of the F/A-18 *Hornet* and the scheduled augmentation of the AV-8B *Harrier*.

The *Hornet* is a twin-engine, supersonic, single-piloted, digital, fly-by-wire fighter/attack aircraft. The Marines have three F/A-18 squadrons at MCAS El Toro, Calif., and by the 1990s hope to have 12 — many of which will replace squadrons presently flying the aging F-4 *Phantom II*.

General Paul X. Kelley, Commandant of the Marine Corps, is impressed with the F/A-18, and recently described the jet as the "Corps' most potent anti-air weapon."

"This is an aircraft that can gain and maintain air superiority within the amphibious objective area and over any modern battlefield," he recently told the Senate Armed Services Committee. "At the same time, its ability to navigate, locate targets and accurately deliver ordnance provides a tremendous force multiplier and, as such, enhances support for the ground commander."

Added Lt. Gen. Fitch, "Equipped with state-of-the-art ordnance delivery systems and a night as well as under-the-weather capability, the *Hornet* represents a quantum leap over the venerable F-4."

Among the many advantages the *Hornet* has over the 20-

year-old *Phantom* is its ability to survive in a high-threat environment. It can carry a significant payload to a target, yet retain its superior turning and air-to-air fighter capabilities — assets which far exceed either the F-4 or the aging A-7 *Corsair*. In addition, the F/A-18 is compatible with all of the current conventional, precision-guided and stand-off weapons which will make it superior in the amphibious objective area.

The vertical/short takeoff and landing combat jet AV-8B *Harrier* was developed to modernize the Marine Corps' light attack force by replacing the 1960s' vintage technology contained in both the conventional A-4M *Skyhawk* and early V/STOL AV-8A. The AV-8B has a ferry range of more than 2,000 nautical miles and can carry more than 9,000 pounds of ordnance — capabilities which far exceed those of its predecessors.

"It's the greatest aircraft of its kind in the world today," said Gen. Kelley. "The *Harrier's* ability to operate from grass fields, roads, ships or prepared airstrips permits the Marine Air Ground Task Force commander to position this critical fire-support element close to the front lines," he added. "This same flexibility may well result in the AV-8B being the only fixed-wing support available during or immediately following the assault."

The *Harrier* was designed to provide effective CAS and in low-threat air environments will enable Navy aircraft carriers to redeploy for other missions at an early stage in an amphibious operation. Its combined avionics, weapon systems, advanced composite material airframe component construction and improved vectored thrust power plant make the AV-8B uniquely qualified to fulfill the CAS mission.

"The *Harrier* is a long-awaited and very needed weapon system," said Lieutenant General John H. Miller, Commanding General of Fleet Marine Force, Atlantic, recently. "We need a lot more of them and we need them soon."

So far, pilot production for the AV-8B is progressing on schedule.

"VMAT-203, our *Harrier* training squadron, accepted the first AV-8B on January 12 and is projected to have eight AV-8Bs on hand by August," said Lt. Gen. Fitch.

The Marine Corps plans to have 33 *Harriers* by 1985, when the first squadron becomes operational at MCAS Cherry Point, N.C.

In addition to the AV-8B, however, Lt. Gen. Fitch told the committee that in order to have a safe and efficient transition to an all V/STOL light attack force, the Marines must have the TAV-8B, a two-seat trainer version of the new *Harrier*. The TAV-8B is needed because it maintains the control and handling characteristics of the AV-8B, which makes it easy for a pilot to switch to the *Harrier* after training. Current funding schedules predict the TAV-8B will be delivered in FY 87 in time to meet the Marine Corps' second year of *Harrier* training in 1986.

The Marine Corps is continuing to operate the world's only all-weather, day/night attack aircraft, the A-6 *Intruder*.

The subsonic A-6, a twin-engine, low-level attack bomber whose ungainly shape is packed with advanced electronic equipment including a digital computer, radar and inertial navigation system, is important to the Marine Corps because it can deliver almost every type of airborne ordnance (up to 15,000 pounds) in the Navy's inventory.

In spite of night or bad weather conditions, the *Intruder* crew can navigate and deliver its weapons with pinpoint accuracy. Such seeing-eye capability makes the A-6 ideal as a bomber and as a pathfinder for other aircraft which lack such advanced electronic equipment.

"It's a superb aircraft," said Lt.Gen. Fitch, who skippered an *Intruder* squadron in Vietnam and received a Silver Star for a successful single A-6 night strike against a North Vietnamese target. He urged the committee to support the procurement of six *Intruders* in the Department of the Navy's 1985 budget.

The EA-6B *Prowler*, one of the Free World's best electronic warfare aircraft, continues to be the key in daily Marine Corps operations, training and contingency planning, according to Fitch.

Designed to disrupt enemy radar and communications with high-powered electronic countermeasures, the *Prowler* is indispensable also in screening strike force aircraft from surface-to-air missiles and in protecting amphibious surface ships from cruise or other land-based missiles.

"The importance of this aircraft grows daily in view of the Soviet electronic order of battle, which features an ever more sophisticated and dense AAA, SAM, fighter and electronic warfare threat," said Fitch. He added, however, that the Marine Corps' 15-plane EA-6B *Prowler* squadron, VMAQ-2, cannot meet all of today's necessary operational requirements and that procurement of more such aircraft is vital to ensure success on the electronic battlefield of the 1980s and 1990s. VMAQ-2 is scheduled to receive three more *Prowlers* by 1988.

Helicopters and JVX

Modernization of the Marine Corps heavy-lift helicopter community is progressing "extremely well" with the introduction of the CH-53E *Super Stallion*, according to Fitch.

"With two complete 16-aircraft squadrons now oper-

ating, one at MCAS(H) Tustin and one at MCAS(H) New River, we are regularly supporting Marine ground units at Camp Pendleton, Calif., and Camp Lejeune, N.C.," he said.

The CH-53E is a shipboard-compatible, heavy-lift helicopter that is capable of carrying a 32,000-pound payload (more than twice its predecessor) over a 150-nautical-mile radius. It can lift 93 percent of all combat-essential equipment for a Marine division, including towed artillery, prime movers, and other associated equipment. In addition, it is capable of retrieving — vertically lifting — all Marine tactical aircraft, including self-retrieval. No other Free World aircraft is capable of performing these tasks.

"As part of the Marine amphibious unit composite helicopter squadron, the CH-53E performed admirably in support of Marines in Lebanon," Fitch said. "In October 1983, we activated a CH-53E training element at MCAS(H) Tustin and they have already received their first of 10 aircraft. In October 1984, we will stand up our third CH-53E tactical squadron, also at MCAS(H) Tustin," he added.

Fitch told the committee that three squadrons would only marginally meet the Marine Corps' current heavy-lift requirements for ship-to-shore movement, so there is a need for three additional squadrons to support amphibious operations.

For many years, the Marine Corps has used the CH-46 *Sea Knight* as its primary medium-lift assault helicopter, each capable of carrying 17 troops or 4,200 pounds of cargo. But age is catching up with this aircraft and Lt.Gen. Fitch is concerned the Marines' declining inventory of CH-46s might result in a critical shortfall of medium-lift capability in the 1990s.

To avert this shortage, the Marine Corps is looking at the Joint Services Advanced Vertical Lift Aircraft (JVX), or tilt rotor. "As a replacement for the CH-46E, JVX provides assault transport that is self-deployable worldwide," said Fitch. "Capable of lifting 24 Marines 200 nautical miles [or an external payload of up to 10,000 pounds], the JVX will be capable of rapidly penetrating deep into enemy rear areas, and bypassing adverse terrain and weather threats," he added. "It represents a quantum leap in strategic mobility for conventional forces where its global self-deployability provides the responsiveness to rapidly marry-up airlifted Marines with, for example, pre-positioned equipment in Norway and maritime pre-positioned ships."

According to Fitch, JVX meets the need for increased stand-off distances, further enhancing over-the-horizon amphibious assaults with its 250-knot speed (300-knot dash), high transport productivity and ability to execute a two-wave assault at a 50-110 nautical-mile radius without refueling. The JVX will be the first transport aircraft to be constructed of all-composite material and built with fly-by-wire controls. In addition, it will have provisions for self-defense missiles, guns, night vision, advanced navigation/communications systems, and its tactical versatility will complement both the landing craft air cushion (LCAC) and the CH-53E. The Marine Corps anticipates a requirement for 552 JVXs in the 1990s.

One of the most versatile helicopters in the Marine aircraft stable is the small, agile AH-1T *Sea Cobra* (see page 10). An assault helicopter, the *Sea Cobra* gives Marines a ground-attack capability far beyond that of its predecessors which flew during the Vietnam conflict.



The AV-8B Harrier, lifting off here with 9,120 pounds of ordnance, is the best aircraft of its type in the world today.



Sgt. Bill Dasher

A multimission OV-10 Bronco, from Marine Observation Squadron Two, taxis down a road during an operation.

"The *Cobra*, a true multimission aircraft, provides armed escort for our troop assault aircraft, antiarmor capability with TOW and *Hellfire*, and close-in fire support for ground forces with forward-firing rockets and a 20mm gun," said Fitch. "The AH-1T has been further modified to develop a self-protection capability with the addition of an AIM-9 *Sidewinder* capability."

Fitch added that these modifications have resulted in a weight increase of 1,000 pounds, which has left the *Cobra* "substantially underpowered" with its current T400 engine. He favors the installation of the GE T700 engine, which is in the FY-85/FY-86 procurements. The GE T700 will increase the operational capability of the *Sea Cobra* substantially as well as improve aircraft safety, according to Fitch.

"The *Cobra* community, due to weapon system versatility, remains our most heavily committed aviation community," he said. "FY-85/FY-86 procurement is vital to alleviate existing critical inventory shortfalls in our four AH-1 squadrons." The Marine Corps has asked for 44 additional *Sea Cobras* to augment its attack helicopter force.

A unique aircraft in the Marine Corps air wings is the multipurpose OV-10 *Bronco*. The first plane designed specifically for counterinsurgency operations, the *Bronco* offers mission flexibility tailored to the tactical requirements of the Marine air-ground team in close-quarter battlefield action, paradrop missions, gunfire spotting, helicopter escort, visual reconnaissance, light close-air support and forward air control (airborne), and medical evacuation.

It is designed to fill the performance gap between jets, which are too fast for some aspects of the modern battlefield, and helos which may be too slow or vulnerable for some missions.

With its short takeoff and landing (STOL) capabilities, rough field landing gear and low-support requirements, the OV-10 can be based where the action is for rapid support of ground units. It can fly as slow as 84 knots or as fast as 325 knots. Provision for carrying extra fuel has increased the *Bronco's* maximum ferry range by 500 nautical miles to an unrefueled distance of 2,100 nautical miles for all OV-10s.

The *Bronco's* armament system permits a mix of various weapons including a 20mm gun pod, four 7.62mm machine guns, rockets, miniguns, stores, and optional wing stations for AIM-9 missiles. The cargo bay can carry 3,200 pounds of cargo or four to five combat-equipped Marines — or two litter patients with an attendant.

Smart Weapons

Because of the magnitude of the Soviet armor threat, Marine Aviation is devoting a great deal of attention to weapon systems that can successfully engage enemy armor at stand-off distances.

"We feel that precision-guided munitions can best meet our antiarmor requirements for close air support," said Lt.Gen. Fitch. "Two of these systems are *Laser Maverick* and *Hellfire* — both of which can meet and defeat the threat head-on without unacceptable attrition of friendly aircraft."

Laser Maverick is a derivative of the current Air Force *Maverick* family of missiles that uses a laser seeker for guidance. The 650-pound forward-firing missile carries a 300-pound blast/flash penetrator warhead for use against a wide range of targets.

"This laser-guided munition is compatible with the F/A-18 *Hornet* and AV-8B *Harrier* as delivered, and we are modifying the A-6E *Intruder* and A-4 *Skyhawk* to give all our fixed wings the same type of aircraft stand-off survivability," Fitch said. "The key element in the optimization of *Laser Maverick* for the CAS environment is the ability of the ground commander to both select and designate the greatest threat to his unit or mission," he added. "With its warhead, even a near miss will damage both hardened surface targets and the most heavily armored Soviet tank."

"This weapon will provide the first stand-off direct-fire, precision-guided munition for use by Marine tactical aircraft against land targets," said Lieutenant Colonel Bill Egen, ordnance program coordinator for the Marine Corps Aviation Weapons Requirements Branch. "We've had no similar system available prior to this."

Lt.Col. Egen added that the emphasis *Laser Maverick* provides in continuity and coordination in the CAS arena is that it works with ground-based modular universal laser equipment (MULE), the ground designator.

"The missile searches and acquires automatically the laser-designated target and tells the pilot where the target is," said Egen. "He doesn't have to pick out the target and lock on — the missile does it for him."

Laser Maverick is also designed to provide the crucial margin of safety for friendly troops in CAS operations because the missile has the capability to disarm itself. This is the first time the Marines have had a weapon that could accomplish this. In addition, the missile's shoot-and-leave performance provides aircrew safety.

Laser Maverick has been in procurement since 1983 and the first weapon will be fielded by the Marine Corps in mid-1985."

Hellfire [a 100-pound missile] is the new laser-guided PGM being procured for use by our attack helicopter force, where it represents both a major improvement over and a complementary option to TOW," said Lt.Gen. Fitch. "It affords the option of a shoot-and-leave operation, unlike [the Vietnam-vintage] TOW which requires the

helicopter to remain vulnerable while the missile is guided in flight."

"Like *Laser Maverick*," he added, "the ground commander can select and designate the threat, and the helicopter after firing *Hellfire* can depart before entering the enemy's anti-aircraft kill zone."

The general stated that with the FY-86 initial operational capability (IOC), *Hellfire* will provide the ground commander with a much needed increase in tank-killing punch (which is the missile's primary function). *Hellfire* will be installed first on the Vietnam-era AH-1Js, which currently have no antiarmor capability. The AH-1Ts will carry both *Hellfire* and TOW.

A complementary weapon to *Laser Maverick* is the *Imaging Infra-Red (I²R) Maverick*, a deep air support air-to-ground weapon, which is scheduled to be carried by the F/A-18, A-6E and eventually the AV-8B.

The *I²R Maverick* is a variant of the *Maverick* program, and the only difference between the two systems is their "seekers," according to Egen.

"Lacking the ability to discriminate between friend or foe heat signatures, the *I²R Maverick* is not suited to the CAS arena; however, it is ideally suited to interdiction missions against armored targets beyond the fire support coordination line," said Lt. Gen. Fitch. "Sharing its warhead with *Laser Maverick*, [the *I²R*] represents a less expensive, tank-killing alternative for deep enemy target areas." Production of this weapon starts in 1985.

Other Weapons

Additional developments in aviation weapons include the GAU-12 25mm gun pod, *Gator*, and HARM.

The GAU-12 is a five-barreled Gatling gun designed specifically for the AV-8B. It shoots 3,600 rounds a minute and provides the *Harrier* with air-to-ground and air-to-air capability. According to Lt. Col. Egen, the gun will stand up with the first tactical AV-8B squadron in 1985. The smaller, less effective GPU-5A 30mm gun pod will be tested to support an FY-87 IOC as an enhancement of Marine reserve A-4 *Skyhawks* and F-4 *Phantom* CAS capabilities.

Gator is a spinoff of a joint Army/Air Force program. It is an air-deliverable, antitank mine used to deny or reduce the effectiveness of approaching armor.

"A pilot drops a canister of *Gator* [there are 60 explosives in each canister] and they provide scatterable mine emplacements from tactical aircraft," Egen added. "So you can keep him out of an area you don't want him in, or make him move to a place where you can concentrate on using the rest of your ordnance on him."

Because it's a free-fall explosive device, like *Rockeye*, *Gator* can be used by all USMC tactical aircraft. The Marines plan to employ this weapon in 1984.

The high-speed, antiradiation missile (HARM) is another air-to-ground weapon currently in production for the Navy and Marines. HARM is an effective set suppression weapon which will allow tactical aircraft to put down an enemy radar umbrella so it can work with other ordnance and aircraft in the battle area.

"HARM [which weighs about 800 pounds] looks for emitters on the battlefield two ways," said Lt. Col. Egen. "It either hits them and kills them, or it forces the enemy to shut down his radar because he knows the threat of HARM is there, thus achieving HARM's mission."

The Marine Corps plans to modernize its F/A-18s and A-6s to accommodate HARM starting in 1985.

All these weapon systems will be a major advancement over the weapon systems the Marines are using right now, according to Egen. "We're buying new *Harriers* and *Hornets* and there are plans for improving the *Intruder*, but in the past we haven't been keeping pace with the development of new ordnance." He added that these new systems will take time to implement and will cost a lot of money, but they will make Marine aircraft much more effective. ■

Marine Corps Aviation Squadrons and Aircraft Summary

Tactical Fixed-Wing Squadrons — 30

Type	Number
Fighter	144
All Weather Attack	50
Light Attack	120
ECM	15
Reconnaissance	21
Tanker	40
TAC(A)	29

Land Force Aviation Squadrons — 29

Type	Number
Heavy Lift	128
Medium Lift	180
Attack	72
Utility	72
Observer	36

Fixed-Wing Training Squadrons — 4

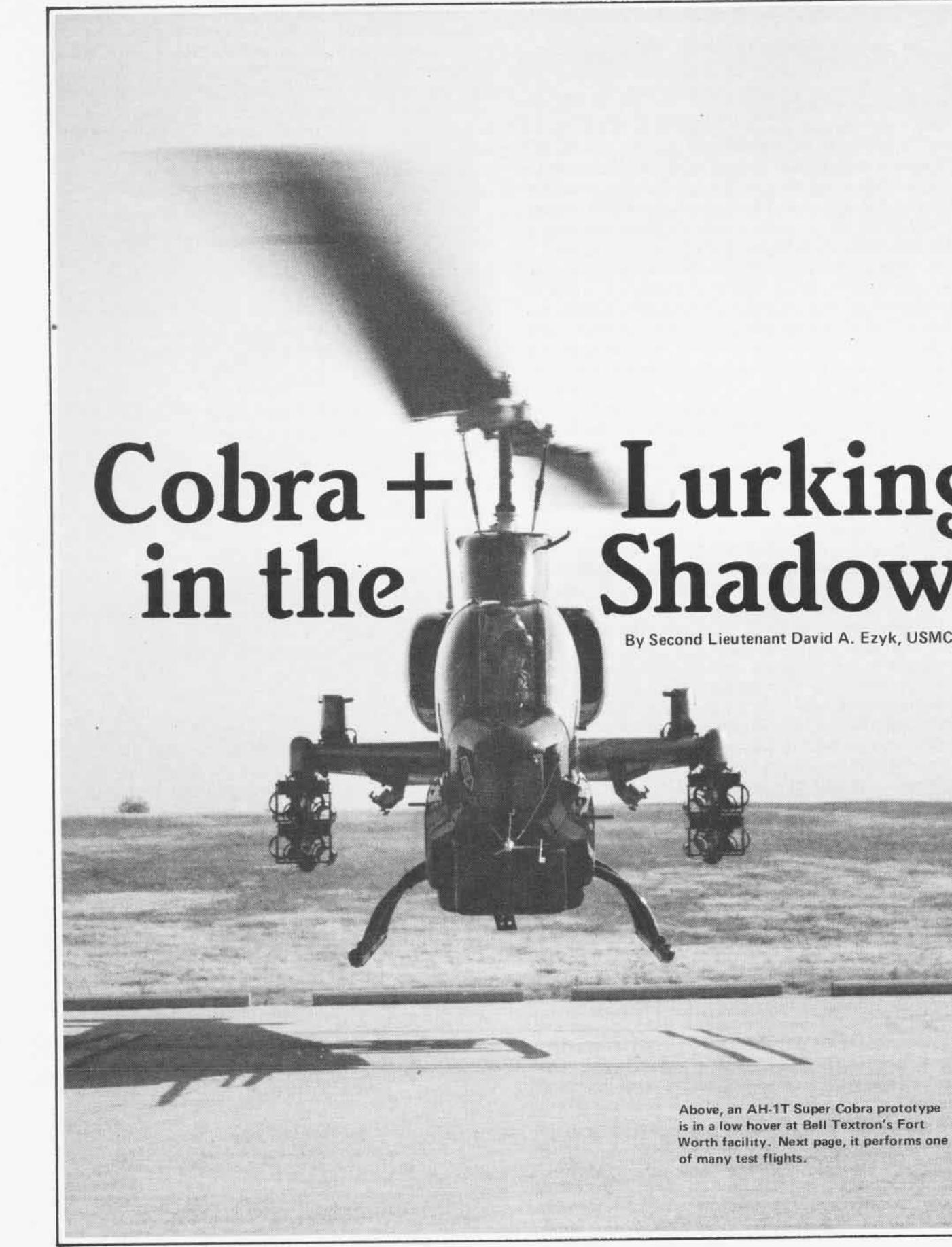
Type	Number
Fighter	27
All Weather Attack	15
Light Attack	37

Land Force Aviation Training Squadrons — 3

Type	Number
Heavy Lift	32
Medium Lift	20
Attack	12
Utility	8

Base and Command Support — 1

Type	Number
VP-3A	1
C-9	2
CT-39	5
UC-12	12
HH-46	12
H-1	4



Cobra + Lurking in the Shadows

By Second Lieutenant David A. Ezyk, USMCR

Above, an AH-1T Super Cobra prototype is in a low hover at Bell Textron's Fort Worth facility. Next page, it performs one of many test flights.



Cobra is the official name for the AH-1 attack helicopter. Its presence in the battlefield is welcomed by the Marines on the ground because of its firepower and ability to strike a lethal blow swiftly and unexpectedly. Perhaps that's why those who enjoy its protection call it the *Snake*.

However, as good as it is, the *Snake* — the AH-1T — is getting better.

The Marine Corps is well on the way to acquiring an improved version of the combat-proven AH-1T *Cobra* in the coming years and its name is *SuperCobra* — the AH-1T plus. If the present *Cobra* is so great, why then is the Marine Corps acquiring this so-called *SuperCobra*?

The Navy's first *Cobra* helicopter, the AH-1G *Huey-Cobra*, was initially fielded by the Marine Corps in April 1969 with VMO-2 in Vietnam. Its mission was, and still is, to provide armed escort for transport helicopters during airborne assault operations. Other tasks assigned to this unique battlefield aircraft include close-in fire support, armed reconnaissance and destruction of threatening enemy armor.

In 1971, the single-engine AH-1G evolved into the AH-1J which had two engines, and greater reliability and maintainability improvements. The AH-1T, with its improved dynamic components, is being flown in the fleet today by the Marine Corps.

The major difference between the present *Cobra* and the AH-1T+ *SuperCobra*, which the Marine Corps has under development, is the replacement of the current engine with the General Electric T700. During high-altitude operations in a hot environment, the *Cobra* is limited in payload, especially when required to hover out of ground effect (HOG E). With the T700, the *SuperCobra* can hover out of ground effect at 3,000 feet and 91.5 degrees with a payload of 3,750 pounds (fuel and ordnance). This compares with 1,500 pounds for the *Cobra* under the same conditions. Single-engine performance is especially notable, i.e., the prototype demonstrated the ability to maintain 120 knots while climbing at 600 feet per minute at a gross weight of 14,000 pounds. Being a new technology engine, the T700 delivers this increased power without an increase in fuel consumption.

The addition of the T700 to the *SuperCobra* is not a new idea. In 1980 Bell Helicopter funded an independent effort under which commercial T700 engines were installed in an AH-1T. The results were impressive enough for the Marine Corps to press for a full R&D program aimed at refining the installation and culminating in a production incorporation.

The T700 engine has proven capable in a number of other military helicopters as well. It is currently being used in the Army's AH-64 *Apache* and the Navy's SH-60B *Sea-hawk*. The engine commonality that will exist between these aircraft cannot help but reduce the logistic strain attendant on the incorporation of a new system.

It is important to remember, however, that the T700 is being added as a means of enhancing high/hot performance and providing a true single-engine capability. A by-product of this modest increase in power is an increase in airspeed, but it is not the primary reason of this effort.

Other features of the *SuperCobra* include a heads-up display, the *Hellfire* missile system and *Sidewinders*.

Hellfire will allow the AH-1T+ pilot to take on heavy armor with a high probability of kill. The missile's lock-on-after-launch capability avoids unnecessary exposure while engaging targets with pinpoint accuracy at significant standoff ranges. Another significant point is that the *Hellfire* warhead is capable of defeating all known enemy armor. Additionally, *Hellfire* can be employed in a ripple mode which would allow destruction of as many as eight enemy tanks in a matter of minutes. As initially fielded, *Hellfire* will rely on a remote laser designator that is situated on either the OV-10D *Bronco* or a ground-based spotter device such as the Modular Universal Laser System (MULE). There is, however, potential to integrate a laser range finder/designator into the aircraft in order to provide an autonomous firing capability.

A notable change in the helicopter's airframe is the widened ammunition bay. This modification was incorporated in order to improve the overall weight distribution (balance) of the aircraft by moving the TOW avionics forward from the current location in the tail boom. The result of this shift is an improvement in the aircraft's handling qualities.

A number of modifications are being proposed for the *SuperCobra* that will enhance its combat survivability even more. Noteworthy among these are the composite rotor blades, composite control rods, improved aircrew armor and increased protection for fuel. Improvements that may be realized further downstream include fly-by-wire or fiber-optic flight controls and increased use of composite materials throughout the airframe.

Last January a Navy Preliminary Evaluation was done with very impressive results. In early summer 1984, the AH-1T+ is expected to complete its initial operational test and evaluation, which will open the door for additional funding to keep the program going. The first *SuperCobra* is scheduled to be delivered to the Marine Corps in June 1986. After that, two per month will be built and delivered to Marine squadrons until the contract for 44 AH-1T+s is completed. ■

Bell Helicopter Textron Inc., according to an announcement on May 3, has been awarded an advance acquisition contract by the Department of the Navy for the first 22 U.S. Marine Corps AH-1T+ *SuperCobras*, deliveries to begin in March 1986.

F4U



U-BIRDS



The year 1938 was marked by crisis in Czechoslovakia and diplomatic defeat at Munich, and a show of force was becoming the most persuasive international arbiter.

In that year, one of the most formidable Navy-Marine Corps airplanes was the Grumman F3F-2 bi-plane fighter. Also flying were the F2F, the SOC and the TBD. Howard Hughes flew around the world in 91 hours at an average speed of 206 miles per hour, demonstrating how the air-

plane could dominate time and space. The success of his flight suggested that the feat of a scientific flying expedition could be duplicated by military aircraft loaded with explosive destruction. The Navy set about procuring an aircraft with performance far in advance of what was then considered the top, and a remarkable fighter was conceived.

On June 11, 1938, the Bureau of Aeronautics gave Chance Vought Aircraft the go-ahead to build the fastest

Above, Marine F4Us over Pacific in WW II. Below, Navy Corsair fighters line up for launch from Task Force 77 carrier during Korean War. In foreground are Panther fighters.

fighter in the world, the XF4U-1 *Corsair*. Two years later, the bent-wing *U-Bird* took to the air and zipped over a measured course at 405 miles an hour, faster than the 400-mph goal which had never been attained by previous fighter aircraft. It was as graceful as it was deadly, and as swift as it was tough.

After observing the record-making flight, Rear Admiral John H. Towers, then Chief of the Bureau of Aeronautics, told witnesses that they had just seen a demonstration of the fastest, most powerful fighter ever produced in this country.

This was the F4U's first superlative. In its lifetime, the *Corsair* tallied many other firsts, among them the distinction of remaining in service as a first-line combat aircraft longer than any other fighter.

Down through the years, the *Corsair* demonstrated its adaptability to various roles and its receptiveness to improvement by surviving 981 major engineering changes and 20,000 pro-



duction changes. It served as fighter, interceptor, dive-bomber, fighter bomber, escort airplane, attack airplane and night fighter. During World War II, a number of modified versions appeared. Among them were a clipped-wing tip version, the F4U-1B for the British, the cannon-packing F4U-1C, the improved bomb-carrying F4U-1D and the F4U-1P photo plane.

The *Corsair's* distinctive inverted gull wing was designed to serve three good purposes: It raised the fuselage so that the 2,000-hp Pratt & Whitney R-2800 could swing the huge 13-foot Hamilton Standard prop, the largest ever used on a single-engine airplane when the *Corsair* first flew; it permitted use of a short, hence sturdy, landing gear capable of being retracted straight aft; and it cut drag by presenting to the airstream a 90-degree, wing-fuselage intersection.

The production F4U-1 which first flew in 1942 showed some marked changes from the prototype. The cockpit had been moved three feet aft to make way for self-sealing fuel tanks in the fuselage, replacing integral wing tanks in the "X" model. Four .50-caliber machine guns fitted in the wings replaced a .30 and a .50 firing through the prop, and two .50s in the wings which had originally been planned. Fuselage lines of the whole airplane were changed to accommodate the new canopy, and extensive armor plating was installed. The production F4U had a maximum speed rated at 415 miles an hour, a sea-level climb rate of 3,120 feet per minute, and a service ceiling of 37,000 feet. In tests, it was found that because of the long nose and big power plant, the pilot's visibility was poor. So, the seats were raised and bulged canopies installed, remedying the defect.

Deliveries began in October 1942, and it was a Marine Corps squadron, VMF-124, that took the *Corsair* into action for the first time in February 1943 at Bougainville. Once the *Corsair* pilots gained experience in the new plane, they acquired a mastery over the Japanese fighters which they never relinquished.

Before long, Japanese pilots began referring to the *Corsair* as Whistling Death and after the war Japanese senior officers said that they feared

F4Us more than any other aircraft.

One of the *Corsair's* toughest battles in WW II was not against the enemy. It was getting aboard carriers. "Program Dog," designed to improve the oleo characteristics of the landing gear, was quickly initiated. It was rushed to completion in 10 days and successfully removed the *Corsair's* built-in bounce which had been giving the trouble — putting the F4U into business as a shipboard fighter.

Proof that the F4U was no longer a beast when it came to landing aboard carriers occurred in operations off Okinawa. On a 30,000-foot patrol in *Corsairs*, three Marines wandered several hundred miles out to sea. They were almost out of gas when *Yorktown* heard their distress signals and directed them to land aboard. None of the Marines had ever made a carrier landing. One of them, after setting down perfectly on the deck, asked, "What was that man doing waving those paddles back there?"

"Brother," they told him, "that was the landing signal officer giving you a waveoff!"

By war's end, the *Corsair*, which had begun its operational career chiefly with the Marine Corps, had joined the Navy in a big way. Produced by Goodyear Aircraft (the FG series) and by Brewster Aeronautical Corporation (the F3A series), as well as by Chance Vought, the *U-Bird* was one of the top carrier-based fighters, a versatile battle-proven veteran. In 1946, with the war over and jets looming on the horizon as the aircraft type of the future, the Navy nonetheless prudently ordered 300 F4U-5s on the theory that a top piston fighter was needed to tide the fleet over the uncertain days of jet development. Later,

night-fighter and photo-recon versions of this high-altitude fighter were also added.

When the Korean War flared, it was good to have these aircraft on hand, for the *Corsair* moved quickly and easily into the role of attack plane, a type much in demand in almost all phases of the war in Korea. Navy and Marine Corps squadrons in Korea flew various models of the *Corsair*. Most were later models with more horsepower and fire power than the WW II versions, but some were veterans.

Operating from carriers and from land bases, F4Us resumed a type of warfare they had pioneered against a different enemy in the Marshall Islands years earlier. They hit the Korean landscape with rockets, bombs and 20mm cannon shells. Winterized versions (F4U-4NLs) operated in the frigid Korean winters, while night fighters (F4U-5Ns) struck enemy troops and convoys after dark. One Marine Corps squadron, flying F4U-4Bs, an aircraft designed as a high-altitude fighter, flew more than 1,100 close-support sorties in one month.

The *Corsair* was of clean and functional line. Pilots praised its ruggedness, high performance and ability to carry out just about every mission it was tasked with.

The F4U-7 completed the *Corsair* line, with the last plane leaving the Vought plant in December 1952, ending more than a decade of F4U production.

The honor of being the last *Corsair* squadron was held by VC-4, which flew its last F4U-5N in December 1955. By the end of June 1957, the last of the *Corsairs* — the AU-1 attack version — had disappeared from the Reserve inventory. ■

Marine F4U Corsairs on ground for maintenance.





Uniquely Missioned

VQ-4 Wins a CNO Safety Award

Story and Photos by JO2 Timothy J. Christmann

Fleet Air Reconnaissance Squadron Four (VQ-4), one of eleven* AirLant squadrons singled out for a 1983 CNO Aviation Safety Award, is tasked with a mission its personnel hope they will never have to carry out. As a mobile backup for the Navy's shore-based communications stations, the squadron's flight crews are responsible for providing the crucial message link between the Commander in Chief and U.S. Navy submerged, ballistic missile submarines during a national emergency.

Twenty-four hours a day, 365 days out of the year, at least one of the squadron's eight specially modified Lockheed C-130 *Hercules*, home-based at NAS Patuxent River, Md., is airborne over the Atlantic. VQ-4's counterpart, VQ-3, stationed at NAS Barbers Point, Hawaii, performs the same mission over the Pacific. Each aircraft carries the complex TACAMO communications system, which is the best and most survivable system of its kind for contacting U.S. submarines.

Since being established as an independent command on July 1, 1968, VQ-4 has accumulated more than 139,000 accident-free hours in 19,000 sorties, and today boasts a reliability status of 99.9 percent. Such efficiency has garnered the squadron many awards, including the Battle E in 1974, 1978 and 1980; the CNO Aviation Safety Award in 1978; and the Meritorious Unit Commendation in 1971 and 1976. VQ-4 was given its second CNO Safety Award for flying 11,000 accident-free hours in 1,500 sorties last year. Vice Admiral Robert F. "Dutch" Schoultz, Deputy Chief of Naval Operations (Air Warfare), was so impressed with their performance that he flew to Pax River on May 2 to personally commend them.

"The significance of his taking a day out of his schedule to present the award to us, I think, revealed to everyone the importance of having safe operations," said one VQ-4 crew member. "It was a boost for our morale."

In a speech before most of the squadron's 600 officers

A reflective VAdm. Robert F. Schoultz en route to NAS Patuxent River, Md., to present award. Right, VAdm. Schoultz congratulates several VQ-4 safety petty officers during his visit.



*See Awards, page 1.

and enlisted men, VADM Schoultz said that 1983 was another record-setting safety year for Naval Aviation. The admiral added, however, that if the entire Naval Aviation community was as safety conscious as VQ-4, it would be in far better shape.

"Naval Aviation's mishap rate decreased from 4.66 and 90 mishaps in 1982 to 4.33 and 87 mishaps in 1983," he stated. "It was our fourth record safe year in a row and it shows us we are headed in the right direction."

Recovering from a shaky start this year, Naval Aviation is operating more safely than ever before with 2.62 and 22 mishaps compared with 4.11 and 36 mishaps this same time a year ago, according to Schoultz.

Last year "we failed to meet the CNO mishap rate goal of 4.0, and we still have a way to go," said VADM Schoultz. "The CNO's goal is not a *pie-in-the-sky* goal but a realizable objective indicated by the performance of AIRPAC and CNATRA."

"For the past four months we have been operating well below our goal of 4.0," he stated. "In fact for three of the past four months we have been below 3.0. This again proves we can do it."

VADM Schoultz, who congratulated VQ-4 on their "superb achievement," said he was telling them about the Naval Aviation safety record because he didn't want his "safety pros" to become complacent.

"Don't take shortcuts. . . don't rely on the other guy. . . follow the checklist implicitly. . . know and follow the SOPs. . . don't let the syndrome of 'we've always done it that way' keep you from being innovative," he warned. "The bottom line is attention to detail and professionalism. This doesn't only apply in the air — we need to exert safety consciousness throughout our daily routine. If we lose one of our experienced personnel through any accident, whether it be in an automobile, on a motorcycle, while operating power tools, or simply slipping in the bathtub, it is the same loss as if it were in an aircraft mishap," said Schoultz. "Don't think that *it can't happen to me*, because the Safety Center archives are filled with the ghosts of those who believed that. Don't let complacency be part of your life — the Navy can't afford it and neither can you."

To avoid indifference, VQ-4 plans to continue employing the same methods that won them recognition in 1983 — leadership and attention to detail.

"The primary reason we won the CNO Safety Award was because we had strong leadership from the C.O. [Captain Paul R. Fletcher] on down," said Commander Donald Dawson, VQ-4's safety officer since September 1983. "The C.O. didn't just give lip service to safety. He was serious about it, and his attitude permeated the squadron."

"What we've done is to provide stability to aircrew planning and scheduling, and pay particular attention to errors that we've made," said Capt. Fletcher, who's been C.O. since 1982. "Being a communications squadron, we are able to communicate very well amongst ourselves. We are able to honestly report to one another when we have a problem, and we rectify our deficiencies before they turn into catastrophes."

Another reason for VQ-4's accident-free record is the attention to detail they apply during their monthly depart-



VADM. Schoultz, accompanied by Capt. Paul R. Fletcher, speaks to VQ-4 officers and enlisted men during his visit May 2.

ment head safety reviews. They meticulously search for safety hazards in all areas, but pay particular attention to the squadron's weaker areas, according to Cdr. Dawson.

"I have never been associated with a squadron which tracked safety factors with such meticulous care," he said. "Thanks to the dedication, attention to detail, hard work (especially by our safety petty officers), and successful battle against apathy, the program has paid off."

VQ-4's safety petty officers have been a tremendous asset to the squadron's success, according to Capt. Fletcher. In addition to their regular jobs, they perform myriad safety-related tasks which include monitoring training records; ensuring shop safety; supporting the quarterly safety reviews; checking the hangar bay for improperly stowed gear; and distributing safety-related material. "They are very professional and a super source of feedback for me," said Dawson. He added, however, the VQ-4's safety record has been an all-hands effort. "Everyone contributes."

"Squadron personnel don't just pass off safety as being someone else's job," said Aviation Structural Mechanic First Class Richard S. Johnson, VQ-4's leading safety petty officer. "Instead they either correct the problem themselves or bring the discrepancy to someone else's attention — namely a safety petty officer."

Unlike many operational squadrons, VQ-4 does not have the luxury of planning safety stand-downs. They can't just shut down operations and coordinate the type of training that is necessary to their mission, because a third of their flight crew is deployed at any given time. So, instead of standing down, VQ-4 uses videotapes to inform squadron personnel about safety matters. These tapes are updated quarterly so that returning flight crews can receive the latest material.

No matter what their job, VQ-4 personnel are well aware of the squadron's mission and its importance to national security. But, it wasn't always that way.

Previously, VQ-4 personnel were told, "Hey guys, your mission is very serious," said Dawson. But its importance didn't register until squadron members began to cross-train with people at submarine stations and military command centers. "Only then did they see themselves in the overall big picture," he added. "It's heartening for me to see them work the way they do on a day-to-day basis just to meet the squadron's commitment."

Although VQ-4 is more safety conscious now than ever before, squadron personnel can't sit back and rest on their laurels, because the job goes on and complacency could result in something much more disastrous than a bad safety record. ■

This spring, Secretary of the Navy John Lehman delivered to Congress a *Total Force* report outlining present efforts and ongoing plans to enhance the role of the Naval Reserve by closer integration with active Navy assets and operational commitments. The report is, at the least, described as an ambitious proposal that will expand the mission of the Naval Reserve Force far past any previous level, and is designed to improve readiness in both reserve and active communities.

The 175-page document, nearly a year in the making, described a number of proposals that will affect reserve and active Naval Aviation assets, as well as the surface warfare communities. Some, such as modernization of reserve carrier wings, have already begun. Fighter Squadron 301 at NAS Miramar is already training and will begin receiving the F-14 *Tomcat* in late 1984. Sister squadron VF-302 will follow, and is expected to go operational in 1986, a year after VF-301.

Strike Fighter Squadron 303 at NAS Lemoore began flying the F/A-18 *Hornet* this year. To ensure adequate phasing of the F/A-18 forces with deploying carriers, and to speed integration of this new, multimission aircraft into the Reserve Force, VFA-303 will initially train and operate in VFA-125 *Hornets* until receipt of their own F/A-18s in 1986. A second reserve F/A-18 squadron, VFA-305, will be established in 1986.

Efforts are already under way to upgrade the aircraft squadron augment units (SAUs), to allow them to operate more closely to and in the same type aircraft they would fly if mobilized. On the West Coast, SAU VF-1485 trains, using F-14 *Tomcats* belong to Fleet Readiness Squadron 124 at NAS Miramar, while VF-1486 at NAS Oceana on the East Coast flies VF-101 *Tomcats*. A similar arrangement in the attack community has SAU VA-0686 flying A-6E *Intruders* in coordination with active Navy squadron VA-42 at Oceana, while

JOC Kirby Harrison



VA-0689 flies *Intruders* assigned to VA-128 at NAS Whidbey Island. Integration of the SAU manpower assets into the nondeploying fleet replacement squadrons is a program that offers both the reserve and active

components advantages and is working well.

In the E-2C community, SAU VAW-0285 trains, using RVAW-110 aircraft at NAS Miramar.

The Navy also has \$9.4 million

available with which to transfer some of the P-3C antisubmarine warfare mission to the reserve by forming three P-3C master augment units (MAUs) in the Reserve Force, and to provide 12 P-3C aircraft for training. The P-3C MAU established last October at Brunswick is the first of these, and the first step in implementation of the program. Similar MAUs will be located at NAS Jacksonville and NAS Moffett Field, standing up by 1988. Eventually, 24 crews will be trained at each of these sites. A total of \$40.4 million has been earmarked for the overall program.

Also in the reserve long-range patrol/ASW community, plans call for upgrading of the older P-3A and P-3B aircraft with the tactical and navigational modernization (TacNavMod) kit, with an expected increase in performance of approximately 75 percent. The final lot of 27 TacNavMod kits will be received this year, with installation to be completed in 1986. Additional modernization for the reserve P-3 community between now and 1989 includes: AQA-7 improvements with triple Vernier; ALR-66 ESM capability; Infrared IRDS; APS-80 reliability improvement; R-1651 OTPI; and Parkhill communications equipment.

Improvements are also planned in the ASW helicopter community, with a proposal to introduce LAMPS MK I to the reserves, with transition of two squadrons to the newer SH-2F *Sea-sprite* by 1985.

Additional squadron changes cited in the report show E-2C *Hawkeye* aircraft already assigned to VAW-78 in Norfolk, and it is expected that the VAW force will be fully equipped with the newer "Charlie" model *Hawkeye* in VAW-88 by 1988. Attack Squadron 205, presently flying the older A-7B *Corsair II* will switch to the A-7E in 1985, three years earlier than originally expected.

To improve availability of land-based tankers, the report calls for procurement of four used, land-based aircraft, similar to the tanker configuration in use by Canadian forces. "Price-performance return on used commercial aircraft, modified for the tanking mission, is impressive," noted the report. The authors gave as an example a converted Boeing 707, a

tanker that could operate as a pathfinder escort as well as a tanker between Oceana, Va., and Rota, Spain, more than 3,000 miles.

Such a tanker could transfer 93,000 pounds of fuel to trail aircraft, and carry repair parts and maintenance personnel to support those aircraft. The report estimated an increase in manning of 464 billets for four such aircraft, "providing a capability where none previously existed," with the formation of two land-based reserve force tanker squadrons.

Establishment of two reserve squadron augment units to support carrier on-board delivery efforts is a step the report says could result in an estimated peacetime manpower cost savings of approximately \$1.2 million, in addition to providing valuable assets in ready manpower in an emergency situation. Formation of the augment units is planned to coincide with additional C-2A *Greyhound* procurement.

An expansion of reserve Naval Aviation assets is also expected in the airborne mine countermeasures (AMCM) community. The report calls for continued support of the two reserve airborne mine countermeasures augment units based in Norfolk, HM-1486 and HM-1686. There are further plans, with receipt of the new MH-53E AMCM-dedicated helicopters by the three active squadrons, to form a new reserve AMCM squadron to fly the RH-53D.

To accommodate proposed modernization and expansion, the reserve flying hour program was increased in FY 85 by \$24.9 million, to improve aircrew readiness. And an additional \$38.4 million has been budgeted to forestall any Naval Air Reserve aircraft maintenance backlog.

In the Sea and Air Mariner (SAM) program, FY 85's budget adds \$3.2 million specifically for recruiting and advertising. Another \$274.8 million has been allotted to expand SAM agenda and more rapidly fill the reserve need for lower-rated enlisted personnel.

The report singled out several instances where reserve assets have already been integrated into active Navy forces for operations, and in actual rapid response to world tensions.

The aviation logistics community, already 100-percent manned by reserve and TAR personnel, had a major part in the Grenada rescue operations. Fleet Logistics Support Squadron (VR) 56 played "...a crucial role by positioning the force commander, combat troops, State Department personnel and support staff on Barbados," said the report, and with less than 12 hours advance notice. Other VR-56 aircraft transported Jamaican military forces to Barbados for "D-Day" operations. Another reserve squadron, VF-58 out of NAS Jacksonville, also supported Grenada operations, along with VR-56, making numerous flights to and from the island from October 26 through November 5.

In Lebanon, within 40 minutes of the terrorist bombing of the Marine headquarters at Beirut in 1983, a Naval Reserve C-9B from VR-56, manned by reservists from Norfolk, launched for Beirut from NAS Sigonella with a naval medical team aboard, and brought back the first 12 Marine wounded to Naples for hospital care.

The report also cited numerous other instances of integration of Naval Reserve assets into active forces during exercises. Among these were 11 long-range patrol squadrons providing ASW support to the fleet during operations off Bermuda, Lajes in the Azores, and Cubi Point, Philippines. In addition, reserve P-3 crews and aircraft flew numerous missions in support of the Vice President's drug interdiction program.

With the continued growth of the Navy toward a level of 600 ships and 15 carrier battle groups, the report's authors noted in an executive summary that the Navy proposes to "...maximize contributions of both the active and the reserve components of the Total Force."

Their comment reflected the statement of Secretary Lehman in a message to the entire Navy in 1984. "We will continue to seize on...opportunities to ensure that the Naval Reserve will be a fully combat-ready element of the Total Force. The initiative, resourcefulness and total commitment of *all of us* will ensure that the Navy remains at the tip of the spear in our national defense." ■



Cdr. Charlie Sapp, Officer in Charge.

Biggest Little NARF in Europe

Those who make it run sometimes refer to the Naval Aviation Logistics Center, European Repair and Rework Activity as "the biggest little NARF in Europe." But the Naples, Italy-based activity isn't actually a NARF (naval air rework facility), although they often perform many of the same tasks. The 20-person activity, known as NERRA, is a vital component in the aviation maintenance system, keeping U.S. naval aircraft flying in Europe, the Mediterranean, Middle East and North Africa.

"The miracle glue that holds this operation together is the people," says officer in charge Commander Charlie Sapp. "The people who work here are not only very reliable but also extremely versatile. They work well on their own, make decisions independently, and yet are able to adjust to rapidly shifting priorities that demand the utmost in teamwork."

Those in the aircraft inspector and field team leader billets are examples of this type. They may spend as much as 200 days of each year on the road, and there have been occasions where the entire staff was on the road at the same time.

In fiscal year '83, NERRA personnel completed 117 aircraft inspections at locations as far away as Denmark, Lajes, Cyprus, Bahrain and the Ivory Coast, returning 85 of them to service in short order, says Sapp. They received a letter of commendation from the Secretary of the Navy for this work.

Although many of the aircraft repairs are relatively simple, some can be very complex. In one difficult job, major structural bulkheads in two A-7E *Corsair II* aircraft had to be replaced, requiring that both attack planes be literally broken in half to allow access by workers.

The principal workload for NERRA centers around aircraft damage assessment and repair, standard depot level maintenance (SDLM) for European theater logistics aircraft and the repair and overhaul of aviation ground support equipment.

Aircraft inspection/damage assessment is carried out by a complement of two aviation structural mechanic senior chiefs and one civilian employee, all assigned to the main office at Capodichino Airport, Naples. The three also conduct aircraft tour extension inspections.

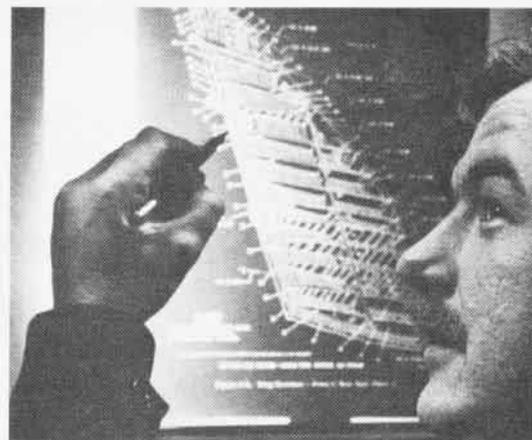
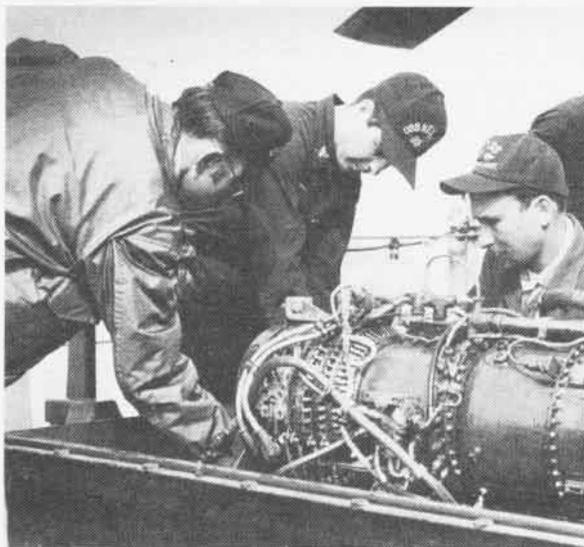
When it has been determined that aircraft damage is beyond the repair capabilities of the squadron or the aircraft intermediate maintenance department, NERRA's European aerospace contractors become involved. If the repairs needed are extensive but the plane is flyable, it is often more cost-effective to fly it to the contractor's facility. Otherwise, the repair crew goes to the aircraft. Structural repair field teams are normally made up of two civilian contract structural mechanics and a NERRA field team leader. The field team leaders not only function as



NERRA field team members and helo crewmen work on an SH-2 helicopter aboard the battleship *New Jersey* in the Mediterranean.



AK2 Diana Mobbs, above, is NERRA's contract/financial coordinator. Center, a field team and USS New Jersey crewmen work on an SH-2 helicopter engine aboard the battleship.



Above, AMS1 Harry Valinsky checks parts of an A-4 wing section at NERRA headquarters in Naples.



Above, Lt. Cdr. Steve Anderson, NERRA's business manager, manages a smile during a busy work schedule.

escorts for foreign national structural mechanics while aboard U.S. military installations (including ships at sea), but also act as contracting officer technical representatives, and accept and verify the completed work. Three aircraft structural mechanics first class are assigned to these billets.

NERRA works with European contractors home-based in Munich, Germany; Venice, Brindisi and Rome, Italy; and Lisbon, Portugal. The SDLM program for C-2 *Greyhounds*, C-130 *Hercules* and C-131 aircraft permanently assigned to the Mediterranean is conducted by OGMA, the Portuguese Air Force Rework Facility located in Lisbon. NERRA maintains a branch office (NERRA Rep Alverca) at Lisbon.

In recent years the Lisbon branch office has gained importance. According to Cdr. Sapp, on-site contract administration, supply and production support provided by the seven-man rep office there enable rapid response to drop-in emergency (unscheduled) maintenance requirements.

He points out that significant in-depth structural work is done in Lisbon on Fleet Air Reconnaissance Squadron Two aircraft based in Rota, Spain. The squadron's EP-3A and EA-3B aircraft, says Sapp, are showing their age and con-

tinue to develop unpredictable structural problems. To send them back to the U.S. for the work or deploy teams from the States would be extremely expensive. Lisbon is only a 45-minute flight from Rota, and has the experience and personnel to correct a majority of the defects. "In fact," says Sapp, "during my three-year tour, we have fixed them all in-theater."

In addition to the work on previously described land-based aircraft, the Lisbon contingent offers the additional advantage of extensive Portuguese experience on their own A-7P attack aircraft. "This makes them the logical choice and an invaluable asset in working on our own A-7Es," explains Sapp. "They were trained in the States and really know the *Corsair*."

The SH-3G *Sea King* SDLM program is conducted at Industria Aeronautica Meridionale in Brindisi, Italy. As part of the Agusta (Bell) consortium, they are tied directly to the only company in the world still manufacturing a variant of the SH-3 aircraft, under license from Sikorsky. The NERRA Rep Brindisi is a small office staffed part-time by one civilian.

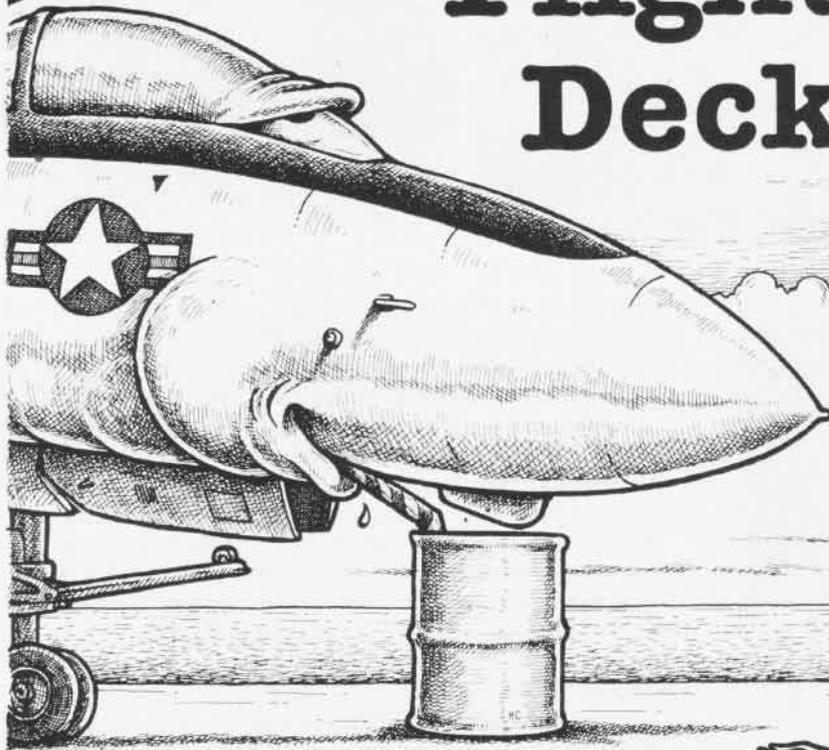
To support the repair efforts, the Naples home office has an extensive technical library, containing a broad range of publications and drawings, covering all aircraft operating in-theater, from the EA-3B *Skywarrior* to the new F/A-18 *Hornet*. A civilian aeronautical engineer with extensive NARF experience is assigned to this office to develop and authorize repairs which exceed guidance available in the various aircraft structural repair manuals.

NERRA's ground support equipment maintenance program is at a contracting facility in Ciampino, near Rome and is staffed by an aviation support equipment technician senior chief and one aviation storekeeper second class.

"We provide the nucleus upon which any war-fighting maintenance support would be built in the European theater," says NERRA's officer in charge. "But, if we had a motto that reflected our day-to-day activity and the fun part of the job," he says with a grin, "it would be something simple like 'We Fix Airplanes.'"

In an operating theater that has seen increasing activity by U.S. naval aircraft in recent years, fixing aircraft is no small thing. ■

Flight Deck



"GRAPEJUICE"
[PURPLE SHIRT]



Seabirds

By Hank Caruso

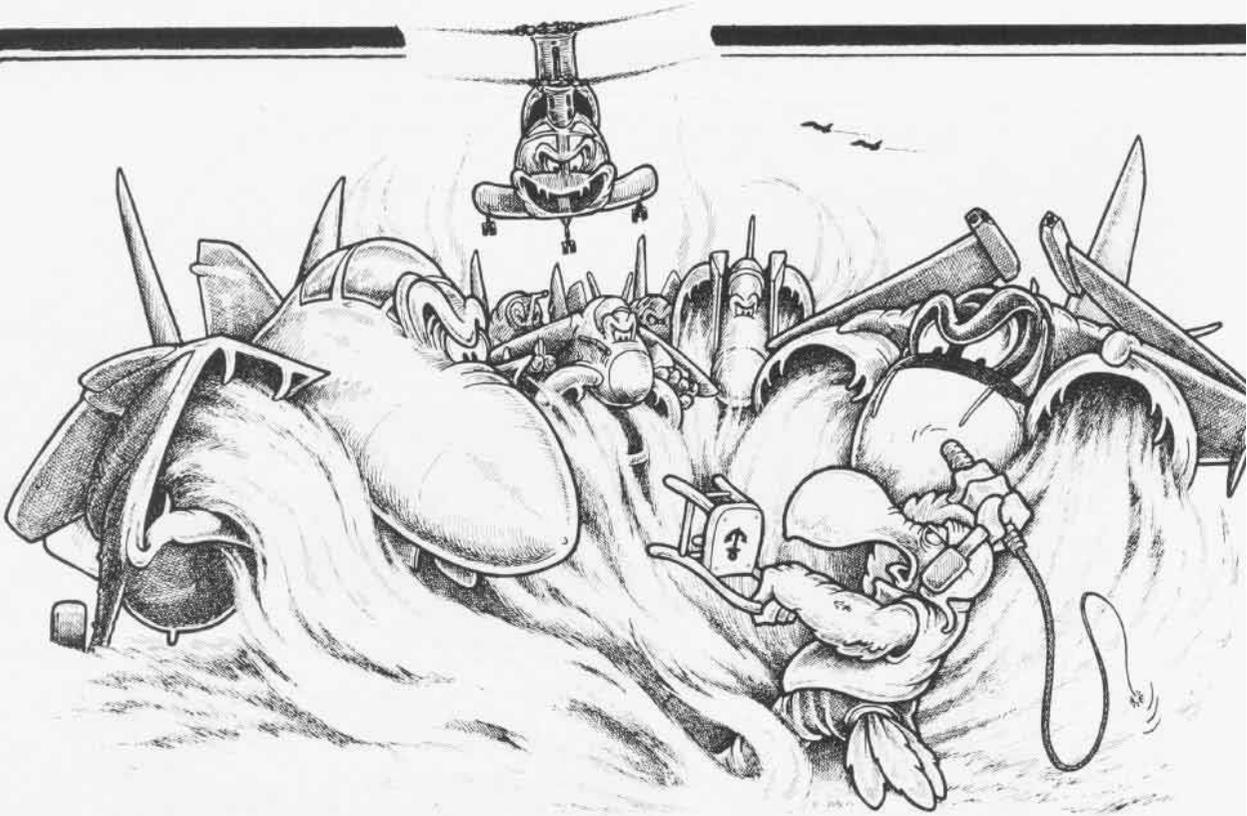


"PLANE CAPTAIN"
BROWN SHIRT

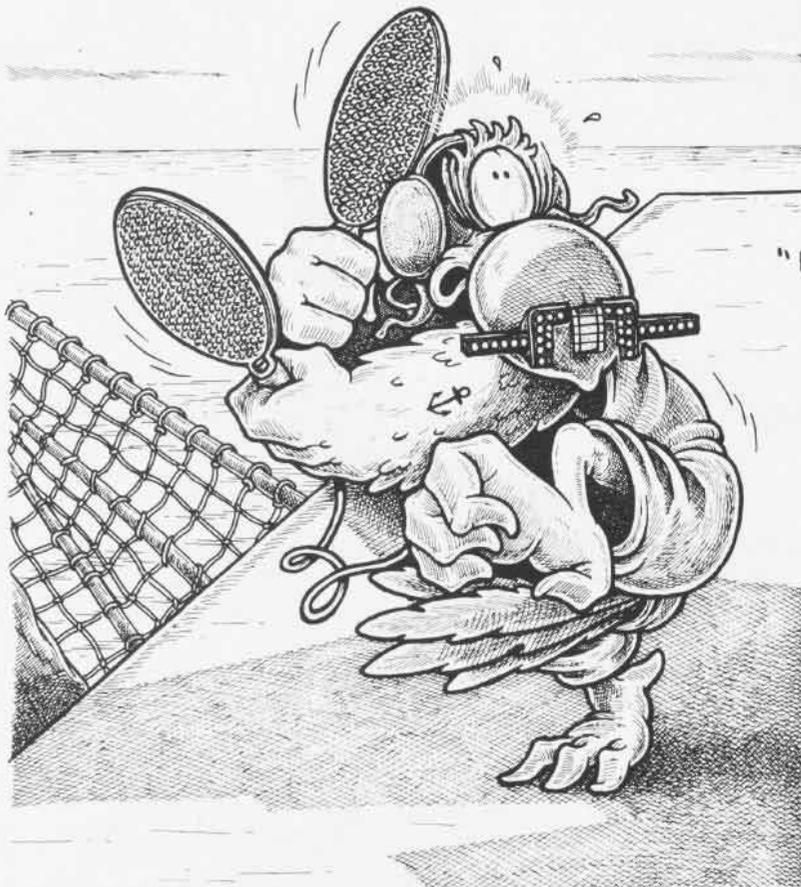
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"GREENSHIRT"



"YELLOWSHIRT"

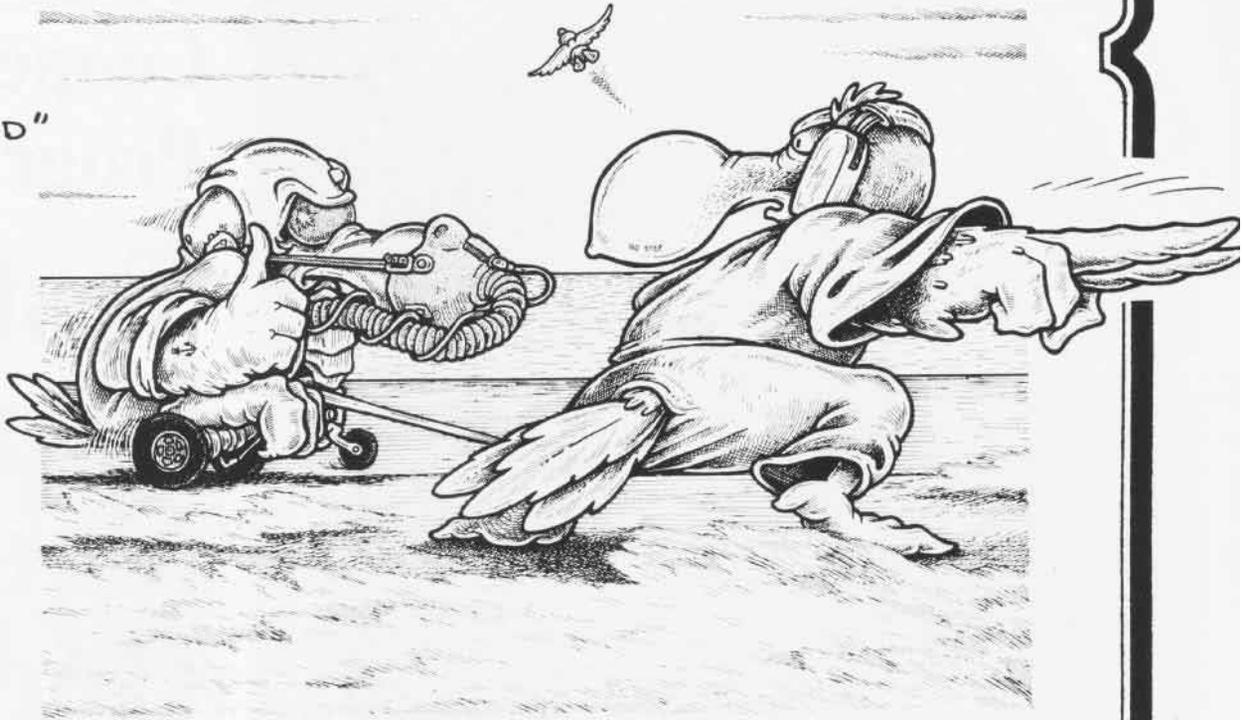


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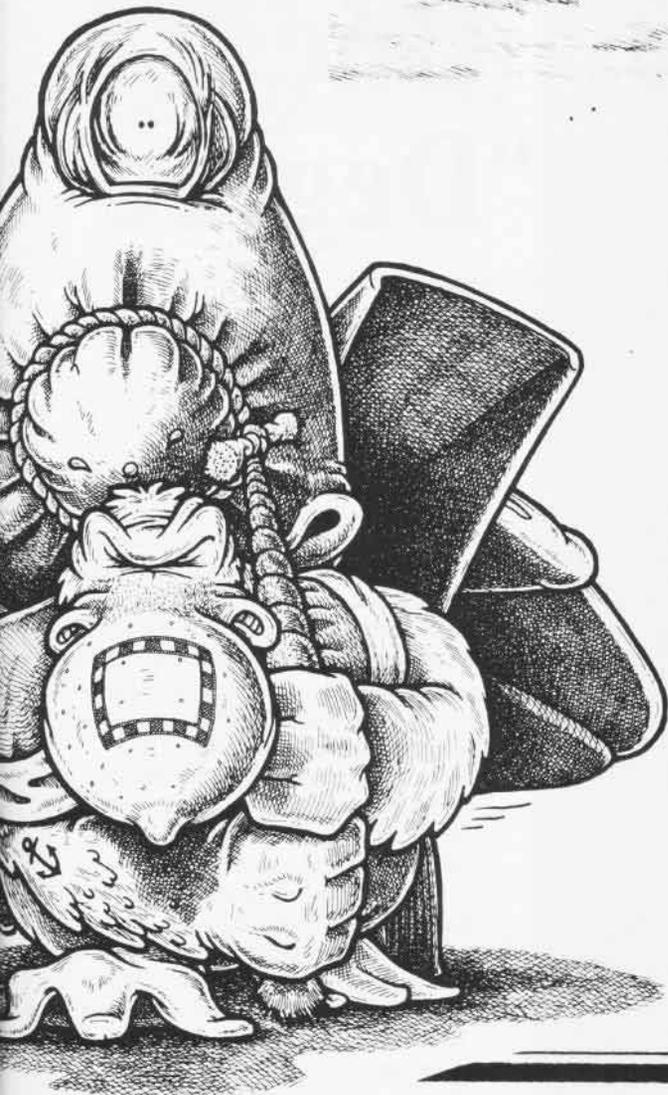


"BW6SHIRT"

"CATBIRD"



"B.B. STACKER" "RED SHIRT"



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TPS/NPS Cooperative Program

Test Pilots Made One “Degree” Better

By JO2 Timothy J. Christmann

A-6 pilot Lieutenant Carlton Jewett used to be solely a stick-and-throttle man. Strap him inside an *Intruder* cockpit and he'd soar, turn, dive and land as proficiently as any skilled Naval Aviator. Flying was exciting and fun, but Lt. Jewett wanted to know more — not only about his own plane but about all U.S. naval aircraft.

“I took for granted the simple things about airplanes,” said Jewett, “like how they fly and why they are designed the way they are.”

Fortunately, Jewett's squadron C.O. at VA-35, Commander John M. Luecke, now skipper of VA-42, told him about Test Pilot School (TPS) at Patuxent River, Md. Luecke, a former TPS graduate, said the training offered there would not only familiarize Jewett with a multitude of aircraft,

JO1 John Haley Scott

but satisfy his curiosity and benefit his career.

Jewett applied for TPS at the same time that a special program was being implemented for top quality Naval Aviators, which included attending the Naval Postgraduate School (NPS) at Monterey, Calif.

Since the early 1970s, the Departments of Aeronautics at NPS and TPS endeavored to coordinate a program merging both of their curricula. This was essential because of the increasing number of Navy billets requiring graduates from the two schools. Their



JOI John Haley Scott

efforts resulted in the NPS/TPS Cooperative Master's Degree Program in 1981.

"This program picks the best pilots to attend NPS for one year, then follow on to TPS for 11 months," said Commander Bill Siegel, aeronautical engineering curricular officer at NPS. "Afterwards, aviators spend two years in a test directorate [as test pilots]."

"I wish this program had existed when I was a lieutenant," said Commodore R.H. Shumaker, Superintendent, Naval Postgraduate School, in a speech recently. "It's a tough program, but one that is personally rewarding and which precisely fits the need of Naval Aviation."

Lt. Jewett, who graduated from the U.S. Naval Academy in 1976, became the first aviator to go through this dual program. He began NPS in October 1981, finished course instruction in September 1982, and three months later began TPS. Today, the 29-year-old *Intruder* pilot is currently a test pilot in the Strike Directorate at NAS Patuxent River, and holds a Master of Science degree in aeronautical engineering — along with the dual subspecialty codes XX71P and XX73G

— for successfully completing NPS and TPS. Although a newcomer to the Strike Directorate, Lt. Jewett is a project officer with plans to test-fly the updated A-6E *Intruder* and F/A-18 *Hornet*. His NPS/TPS training has been so beneficial and his qualifications are so high, that Jewett recently went to the Johnson Space Center, in Houston, Texas, to be interviewed for acceptance into the space program. He wasn't one of the six aviators chosen by the Space Center, but Jewett's background gave him "as good a chance as any of the other 38 pilots interviewed." In addition, he is eligible to compete for the program the next time the Johnson Space Center selection board meets to decide on new candidates.

"The Naval Postgraduate School program is an add-on to the normal Test Pilot School selection process,"

Left, Cdr. William M. Siegel. Bottom, NPS students find some free time to discuss the grueling curriculum.

said Cdr. Siegel. "Every TPS selection board [which meets every six months] picks two people for the cooperative program to start NPS at the completion of their present tour."

Siegel added that all students must have a strong engineering undergraduate background. There are no exceptions. And, because entrance qualifications are geared to accommodate students with high grades, competitive averages typically fluctuate between 90-100.

The Naval Postgraduate School, established in 1909, ranks academically with the best graduate institutions in America. It is fully accredited by the Western Association of Schools and Colleges with specific engineering curricula authorized by the Accreditation Board for Engineering and Technology, Inc. Eighty percent of the students in NPS programs study at Monterey, while the remaining 20 percent attend 50 civilian universities in various parts of the U.S. More than 1,500 officers in the Navy, Marine



John Haley Scott



Left to right, Lt. Cdr. Charles H. Johnston, and Lt. Beth Hubert, James Jones and Bruce Remick.

Corps, Army, Air Force and Coast Guard and U.S. Government civilians, as well as officers from 25 allied countries, are being educated at NPS. The variety of programs offered at the school includes computer science, oceanography, management, national security affairs, communications, electronics and engineering.

There are currently 240 Naval Aviators attending NPS at Monterey, only a dozen of whom are involved in the cooperative program. Three of these aviators graduated in June. One of the 12 students is Lieutenant Beth Hubert, the first woman to be enrolled in the NPS/TPS syllabus.

For these students, "NPS provides the technical instruction which allows them to better manage the procurement of naval weapon systems in the Naval Air community," said Cdr. Siegel. "They are provided graduate education in all areas of aerodynamics, which includes gas dynamics, propulsion, structures and computer methods in aeronautics," he added. "This training will also allow an aviator to interface better, later in his/her career, with engineers and industry."

According to Cdr. Siegel, the cooperative program "is an outstanding incentive for the most qualified officers to get two of the Navy's finest schools - NPS and TPS."

Test Pilot School (see *NA News*, July-August 1983, pages 6-13) is the second half of the cooperative program. It involves classroom academic studies and test flights in up to 15 different aircraft. Each pilot is tasked with completing 50 project flights and submits more than 22 comprehensive and detailed reports. The curriculum is geared to teach aviators how to effectively evaluate airplanes and helicopters to the point where they can

fly virtually any type of aircraft. According to Rear Admiral Edward J. Hogan, Commander, Naval Air Test Center, TPS training is the "ultimate level of participation in aviation."

Unlike TPS, students don't fly at Naval Postgraduate School. Although they miss it, all agree that the one-year layoff will not affect their ability to handle the aircraft once they get back into the cockpit.

One student, who used to be an A-7 Corsair flight instructor for VA-174 (the RAG), said he worked with aviators who had spent a year at post-graduate school and found their flying skills weren't hampered by the layoff. "It's like riding a bicycle," he said. "You never forget how."

Added Lt. Jewett, "For me, not flying for a year wasn't detrimental."

Normally, it takes 21 to 24 months to finish NPS but, because it is imperative to get aviators back into the cockpit and into assigned billets which utilize their education, the cooperative program is condensed to 12 months.

According to Lt. Jewett, the curriculum is "canned," i.e., there is no flexibility in the program. "There are so many courses to take in order to meet the criteria for a master's degree, you end up with only one elective," he said.

"The course load is heavy and demanding," added Lieutenant James A. Jones, Jr., an F-4 Phantom pilot formerly assigned to VF-151 aboard *Midway*. Although he was an aeronautical engineering major at the Naval Academy, Lt. Jones added that the course load at NPS is still "quite tough" and will probably intensify before he graduates in September.

"NPS classes begin at 8 a.m. and typically run until 4 p.m., according to Lt. Jewett. Afterwards, "you go home, visit with your wife for a little while, then lock yourself in a room and study for the rest of the night."

"The biggest shock upon arriving here in Monterey is getting back into the study mode," said Lt. Beth Hubert, an A-4M *Skyhawk* pilot formerly assigned with VX-5 at China Lake, Calif.

"That's the hardest thing about the Postgraduate School," added Lt. Jewett, "getting back into the academic environment. I was out of the Naval Academy six years, and trying to get back into a study routine was difficult."

Lt. Hubert, who majored in mechanical/nuclear engineering at Washington State University, added that the



Classroom scene at NPS.

Monterey area is beautiful and the R&R would be great, except that you end up spending most of your time doing course work.

"You have to come to NPS with an open attitude," she said. "You have to be ready to buckle down and discipline yourself — to get back to the discipline needed to sit down and study."

Added Lt. Jones, "You have to be willing to work hard and apply yourself."

Lt. Hubert joined the Navy as a step toward her ultimate goal — getting into the space program. It's a noble ambition, especially when considering that 25 well-known astronauts, including John Glenn, Charles Conrad, Richard Gordon and Alan Shepard went a similar route. They joined the military and attended the Test Pilot School. Today, many TPS alumni are involved in the Space Shuttle program, and a selected few, including Captains John Young, Frederick Hauck and Dan Brandenstein, have flown shuttles *Columbia* and *Challenger*.

By law, Lt. Hubert, who is qualified to land on aircraft carriers, cannot be permanently assigned to operational squadrons which are deployed aboard flattops. It's a regulation she regrets. "It's frustrating to be able to fly the aircraft but not be allowed to do with it what it's designed to do — fly on

and off carriers," she said. "After all, that's the ultimate in Naval Aviation. It is what this business is all about."

Despite this obstacle, Lt. Hubert is looking forward to attending TPS and afterwards being assigned to a test and evaluation area at the Test Center.

"NPS is teaching us things you normally get from a master's degree and technical curriculum, a lot of theory to expand the way you look at things," said Lieutenant Commander Charles H. Johnston, Jr., an A-7 *Corsair* pilot. "However, I think the Navy's push in this type of education leans toward making you think more practically."

Lt. Cdr. Johnston, who started at NPS last September, was a flight deck officer aboard *John F. Kennedy* prior to his arrival. He's been in the Navy ten-and-a-half years and has a B.A. in Aerospace Engineering from Mississippi State University.

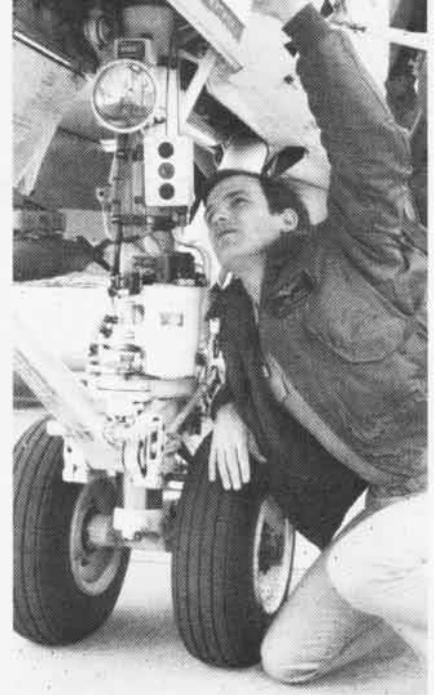
"I think NPS will make me a better aviator," Johnston remarked. "After all, the better you understand everything going on in the airplane, the better you can control those things. I'm not saying this education will make me a better stick-and-throttle pilot," he added, "but part of flying involves executing missions, and knowing the limits of an airplane and how they change with varying conditions. NPS training will definitely help you get a feel for these things."

Lieutenant Bruce Remick, an S-3 *Viking* pilot who started at NPS in April, agreed. "I think any time you can increase your understanding of why airplanes fly, it will make you a better aviator," he said.

"There are a lot of pilots who don't do anything but fly — that's their only skill," said Lt. Jones. "I feel this training will benefit the Navy because it will make me more valuable and viable. Getting a subspecialty is always advantageous for promotion later on."

Cdr. Siegel said that the cooperative program will help an aviator's career because the training gives the aviator a capability that other fleet pilots do not have.

"The student not only has operational expertise gained through fleet experience but also technical expertise and demonstrative potential to do more than just operate airplanes," he said. "He now can function in two



Lt. Carlton Jewett examines an aircraft wheel well at NAS Patuxent River, Md.

areas, both the operational environment and the research and development test and evaluation environment. For this reason he's a more versatile person and more valuable to the Navy."

Aside from the space program, which is the golden dream of many qualified aviators, there are hundreds of jobs available to either NPS or TPS-trained pilots. But the cooperative program is qualifying people for the few billets that require education from both schools. These include billets in test and evaluation of aircraft and weapon systems at NAS Patuxent River, and management and procurement of weapon systems at the Naval Air Systems Command. Other billets include a variety of jobs at naval procurement offices and naval air rework facilities.

Cdr. Siegel is satisfied with the program and said he receives nothing but "glowing reports" on his students.

With the growth of the cooperative program, aviators will not only receive NPS/TPS training earlier in their careers, but they will be able to apply what they've learned over a longer period.

"It's going to be a definite asset," said Lt. Jewett. Such comprehensive training will enable pilots to provide better feedback during test and evaluation of aircraft and weapon systems. This will enhance the performance of the final product, and keep costs minimal. ■



PH1 Lon Lauber

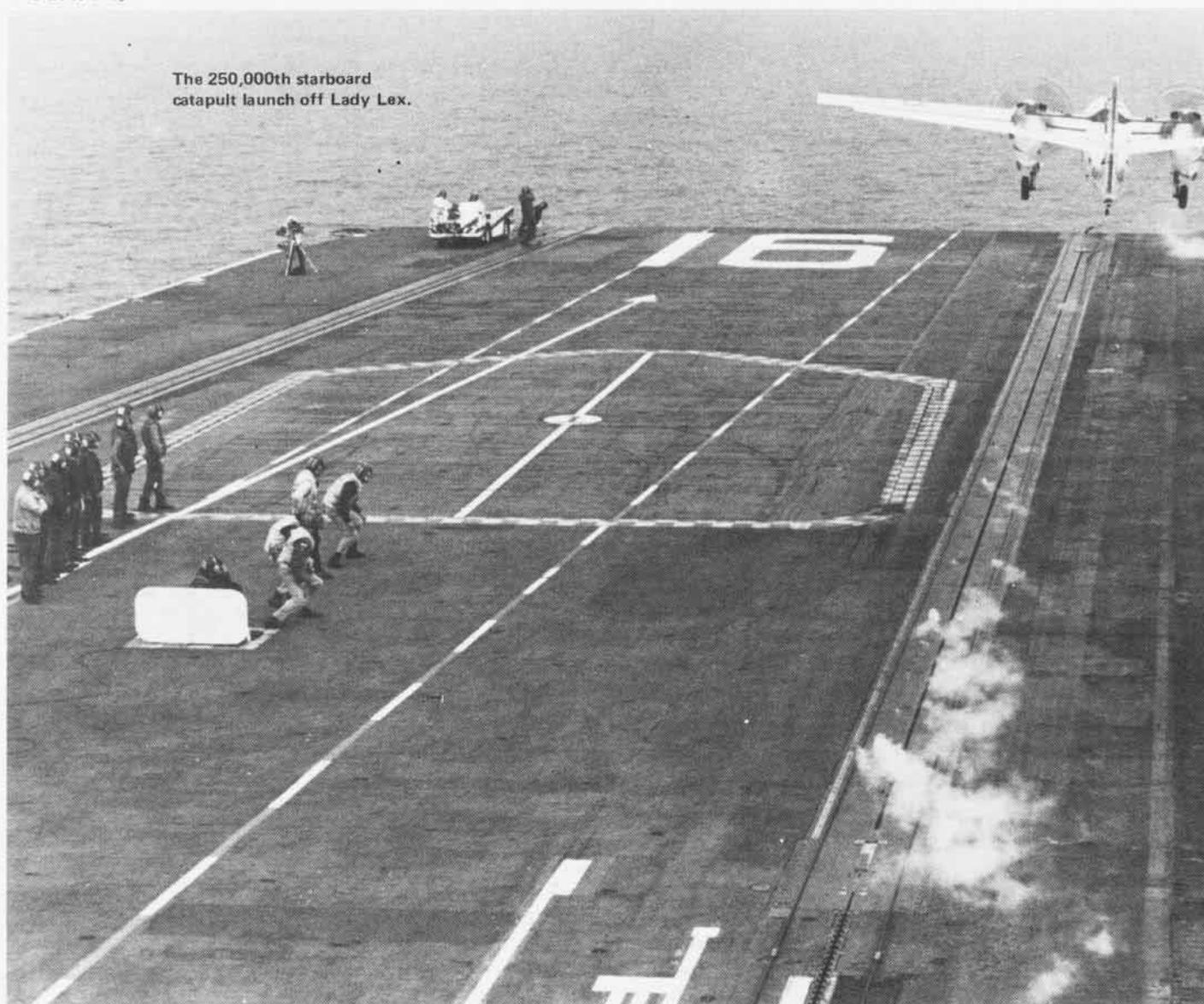
The sound of Lady Lex's catapult firing can be a bit unnerving to a flight student in the advanced jet pipeline. But when it was heard last February 24, there was reason to celebrate. It was on that day she recorded her 250,000th shot on the starboard catapult. That works out to more than 30 shots a day for 21 years. Lexington has averaged more than 20,000 launches a year in the last 21 years in her role as a training carrier.

The remarkable success Lexington

(AVT-16) has enjoyed over the years can be attributed in large measure to the long-term reliability of her catapults — those incredible steam-driven devices built into her flight deck that have been launching naval aircraft for decades. Her steam catapults have been in service since 1955.

While she has nearly 20 years on most of the student Naval Aviators she helps to train, she seems to never tire of her mission. But there is more to her legacy than her catapults.

PH1 D. J. Gray



The 250,000th starboard catapult launch off Lady Lex.

A Busy Lady

30+ catapult shots a day for 21 years!

By Helen Collins

Lexington is the fifth U.S. naval ship to bear the name that is woven into the pages of American history. Five ships of the fleet have carried the name since the famous Revolutionary War battle at Lexington, Mass., on April 19, 1775.

The first *Lexington* was an 86-foot, 16-gun brig purchased by the Continental Congress and commissioned in March 1776 to protect colonial shipping from British men-of-war. In company with the brig *Reprisal* and the cutter *Dolphin*, she harassed British commerce in the English Channel and along the coast of France, capturing 18 vessels before being captured herself on September 19, 1777.

The second was a 691-ton sloop of war with 18 guns. Commissioned June 11, 1826, *Lexington* transported troops and assisted in blockade duty during the Mexican War. She was a stores ship for Commodore Perry's expedition to Japan in 1853 and was decommissioned two years later.

The third *Lexington*, commissioned in August 1861, was an ironclad, side-wheel steamer with seven guns that was purchased by the Army and transferred to the Navy in 1862. She took part in several engagements in the Western Flotilla during the Civil War and was decommissioned June 2, 1865.

CV-2, the fourth *Lexington*, was

commissioned December 14, 1927. Identical to her sister ship *Saratoga* (CV-3), she had a 900-foot flight deck and displaced 33,000 tons. Her fighting career in WW II was brief but it packed in plenty of action before it ended. *Lexington* and her aircraft fought in three engagements with the Japanese, inflicting heavy damage on the enemy before she was sunk on May 8, 1942, during the Battle of the Coral Sea.

Today's *Lexington*, the fifth in the proud tradition, was born to avenge the death of her namesake. While CV-2 was fighting off enemy planes in the South Pacific, another aircraft carrier was under construction at the Fore River Shipyard in Quincy, Mass. When the workers learned of the sinking of CV-2, they petitioned Frank Knox, then Secretary of the Navy, to pass the name *Lexington* on to the new carrier. It took one day for SecNav to approve the request and the new *Lexington* (CV-16) was commissioned February 17, 1943.

Before the end of WW II, she had exacted a full measure of retribution, destroying over 850 aircraft, sinking 300,000 tons of shipping and damaging another 600,000 tons as she took part in nearly every major battle in the Pacific. *Lexington* was the only carrier not camouflaged at the time, maintaining her original blue-gray color. As she prowled the Pacific in search of the enemy, the Japanese reported her sunk at least four times, only to see her blue-gray hull steaming



into battle again. She acquired the nickname of the "Blue Ghost," the ship that couldn't be sunk.

With the cutback in the armed forces after the war, *Lexington* was decommissioned October 11, 1946, and placed in the reserve fleet in Bremerton, Wash.

Lady Lex came out of retirement in August 1955 as CVA-16 and, complete with a new angled deck, steam catapults and other modern equipment, returned to her former battleground in the Pacific. As part of the Seventh Fleet, her mission was to help preserve the peace. She alternated between Far East deployments and West Coast carrier qualifications until mid-1962.

In July of that year, *Lexington* sailed from San Diego, Calif., for the last time, headed for the naval shipyard in New York for a short overhaul. In October the carrier (redesignated CVS-16), with two weeks of repair work still uncompleted, was ordered to the waters off Florida for operations with other Navy units during the Cuban missile crisis.

Lexington finally arrived at her new home port in Pensacola, Fla., December 20, 1962, to begin her career as the training carrier for the Naval Air Training Command. (She was redesignated CVT-16 in 1969 and received her present designation of AVT-16 in 1978.)

Lady Lex operates primarily in the Gulf of Mexico off Pensacola, Corpus Christi and Key West, qualifying approximately 1,500 students each year.

She carries a crew of about 75 officers and 1,500 enlisted personnel. Around 145 of the enlisted and 13 of the officers are women. Displacing over 40,000 tons, the carrier is 180 feet wide and 910 feet long, more than three football fields. She is a self-contained floating city with all the facilities of a civilian community, in addition to those required for her military mission.

Lexington boasts all the capabilities of a medium-sized airfield, including an air operations tower, hangar



USS Lexington in action during WW II in the South Pacific.

space, a ground control approach unit (carrier control approach aboard ship) and a meteorological station. Her repair and maintenance shops make her relatively independent of shore-based repair facilities.

Besides supporting the Training Command, *Lexington* is also used to a lesser degree for fleet and reserve pilot qualification training. She can currently accommodate all of the Navy's training aircraft, and all fleet aircraft except the F-4, F-14 and F/A-18. When she is out of service for maintenance, selected restricted availability or overhaul, the Navy uses Atlantic or Pacific Fleet carriers, as available, for training.

Besides her training mission, *Lady Lex* serves as an aid in recruiting and is also one of the Navy's best public relations tools, maintaining a cruise tour program and open house for civilians, hosting over 50,000 visitors annually. Her public relations program is a means of demonstrating U.S. Navy carrier aviation to the general public.

Lexington was scheduled to be retired a second time from active duty, and *Coral Sea* was to take her place. However, she received a reprieve and will stay in the fleet until at least 1989. This permits the Navy to maintain the largest possible number of operational carrier battle groups. As a training carrier, *Lexington* is under the operational control of Chief of Naval Air Training and the administrative control of Commander Naval Air Force, U.S. Atlantic Fleet. Captain Harold J. Bernsen is her commanding officer. ■



A former crew member and plank owner, Hurley Oberlin, Jr., visited *Lexington* last year, seeing her again for the first time in 37 years. He had served aboard from her commissioning in 1943 until she was mothballed in 1946. He related how his station aboard ship was Gun 8 on the port side and how he had spent many nights sleeping beside his gun mount because of recurring general quarters, when Japanese pilots would swarm over the carrier like "flies over sugar," many in kamikaze attacks. He said, "We lost all track of time and learned to just take what came, as it came. . . . During her day, *Lexington* headed the greatest armada of any navy on the seas. She led the way, setting records that will never be broken." This is one old timer's opinion, but *Lady Lex* is still setting records as she lives up to her motto, "We do the most more often and, most of all, we do it best." ■

Steam Catapults

From Carrier Deck to Fighting Altitude — in a Hurry!

Stream catapults were developed by the British about 1950 in response to the increasing energy requirements of heavier aircraft and the limitations of the hydraulic catapults then in use. A U.S. Navy version of the British steam catapult, called the C11, was retrofitted in many ships in the mid-fifties, along with the installation of the angled deck.

The C11-1 catapults on *Lexington* are 200 feet long and develop 35-million foot-pounds of kinetic energy, enough to throw a Volkswagen Beetle nearly six miles in the air.

The cross section of the steam catapult resembles a double-barreled shotgun. Each of the 18-inch, slotted cylinders contains a piston assembly connected to the shuttle, which in turn is attached to the aircraft. Pistons

and shuttle propel the aircraft from zero to flying speed by high-pressure steam through specially constructed launch valves from a steam accumulator. After the aircraft has been launched, the mass of pistons and shuttle is arrested by water-filled cylinders called water brakes, and reeled back to the original position by a retraction engine, and made ready to launch another aircraft.

The steam catapult has proved to be durable and is one of the most reliable systems in the Navy today.

We wish to thank the Naval Air Engineering Center at Lakehurst, N.J., for this condensed, simple explanation of a very complex system.

Lexington, seen here in the Gulf of Mexico, set a new record in one two-week carqual period in March-April of 1,627 traps, 277 of them at night.



Naval Aviation's Safety Lab

By Mr. Leo C. Forrest

The Aircrew Survival Equipment Project, NWS Yorktown, evaluates procedures and survival equipment to ensure that they will work and save lives.

SOPs — standard operating procedures — in Naval Aviation have proven to be the foundation for high operational readiness and safety. It's a concept that works because going by the book pays off by being able to complete the mission without mishap.

SOPs are found everywhere in Naval Aviation from maintenance and bookkeeping to training, but none are more important than the emergency procedures pilots, flight officers and aircrewmembers use to take care of themselves when something goes wrong while in the air.

Emergency procedures, however, don't just happen. Initially, they are the result of somebody's idea followed by lengthy, careful testing. Once the new procedure has proven its worth, it becomes "standardized" and is used throughout the fleet.

Let's take a look at one emergency procedure that has gone through the mill and become SOP.

Last December, the Chief of Naval Operations sent a message (161720Z DEC 83) to the fleet that established policy on aircrew emergency overwater post-egress procedures. The message said that after ejecting, "early release of the parachute canopy release fittings overwater is not recommended." The idea is to avoid becoming entangled in the parachute's canopy and shroud lines during water entry.

A staff of engineers and Naval Aviation technical experts at the Naval Weapons Station, Yorktown, Va., Aircrew Survival Equipment Project, tested and demonstrated what would

likely happen to an aircrewman who did not follow the recommended parachute release procedures — that is, release at approximately flight deck height prior to settling in the water. They were tasked to do the series of tests by the Naval Air Systems Command via the Naval Air Development Center, Warminster, Pa.

The Yorktown team is sort of Naval Aviation's answer to the Consumer Product Safety Commission.

The first step in the evaluation was to prepare a set of rigidly controlled engineering tests to simulate the free-falling condition of an airman who had released his parachute and inflated his life preserver at flight deck level after bailing out. Next, the engineers designed a laboratory test fixture that would be used to position an articulated mannequin at flight deck level overwater.

Soon after the first few simulations were conducted, it became obvious to the engineers that early release would cause significant personal injury to the flyer using it. In one test, the right hand of the articulated mannequin was torn off at the wrist. In another, the left leg and right arm were twisted and broken.

In addition, the LPA/LPU series life preservers were torn and ripped in almost every test. Upon impacting the water, life preservers were so severely damaged that they became inoperable. Typically, the air flotation bladders ruptured and D-ring snap hooks straightened out. In short, the test mannequin was slowly pounded to pieces during the free-fall tests from flight deck level.

The feeling at Yorktown about the

evaluation was that "it was better that it was tried on a test mannequin instead of an aviator who requires years and almost two million dollars to train and who may have lost his life."

The results of the Yorktown tests concurred with similar findings at the Naval Weapons Center, China Lake, Calif.

With the LPA/LPU evaluation completed, the Yorktown engineers turned their attention to working on other problem areas in aircrew survival equipment needing answers.

Throughout the past decade, the engineers have evaluated a wide variety of survival equipment problems, both electronic and mechanical. Typical ones involved the AN/PRC-90 emergency survival transceivers, AN/URT-33 emergency survival beacons, and AN/PRT-5 life raft emergency beacons. Antennas, batteries, ear-phones and squadron-level test equipment also have been subjected to close scrutiny and evaluation. Included in the list are the LRU-13/A seven-man life raft, LPU-21/P aircrewman's inflatable life preserver, and the QD-1/CWU-16/P antiexposure suit.

One special project involved designing a fully automated, computer-controlled laboratory evaluation and data analysis system — one of a kind — for conducting transceiver and beacon evaluations. With this, they can determine technical measurements of complex waveform patterns, sweep rates, modulations, selectivity and sensitivity. Using this system, the engineers were able to detect and solve an electrical problem with the AN/URT-33 beacons which were being rejected because of apparent low output power. The engineers determined that the beacons were being rejected in error because of a mis-

match problem between the beacon and fleet test equipment. The engineers designed a prototype load adaptor and recommended that it be used by fleet units. The Naval Air Systems Command then directed that fleet units use the load adaptor and it is today being fabricated at Yorktown.

At the present time, four computers are used by the engineering team to establish data bases and to manipulate and display large quantities of information on many items of survival equipment. The automated equipment makes it possible for the engineers to conduct simultaneous evaluations.

Computers and the special transceiver/beacon evaluation system are just two of the many tools used by the engineering team to answer questions about survival equipment.

Yorktown's environmental conditioning facilities and radiographic capabilities also have been important tools. For example, because Yorktown had the environmental facilities to produce altitudes to 50,000 feet, a pressure-related altitude defect that rendered the AN/PRC-90 transceiver useless was discovered.

With Yorktown's capability to simulate temperature shock from -95 degrees F to 350 degrees F in 15 seconds, environmental and service life deficiencies were detected in survival beacons and beacon/transceiver batteries. The defects were corrected.

Other equipment in use at the Yorktown facility includes environmental systems, such as conditioning ovens that produce sustained temperatures to 2,000 degrees F, and salt fog/salt spray generators.

Vibration and shock conditioning systems that simulate the environments aboard an aircraft are used to determine if an item like a transceiver or beacon will operate after being

exposed to aircraft-simulated shocks and vibrations.

In the near future, Yorktown's engineers will have additional capabilities in the form of an oxygen analysis system to perform detailed evaluations of on-board oxygen generating systems.

With a record of 10 years of evaluating aircrew survival equipment for fleet aviators, the Aircrew Survival Equipment Project engineering team is well qualified to conduct objective, independent field evaluation of new operational procedures and survival hardware.

Under the sponsorship of the Naval Air Systems Command (AIR-4114C), the mission of the engineering team is to save lives by evaluating aircrew survival equipment and doing everything technically possible to ensure that the best, most reliable equipment is available to fleet aviators.

When an aviator is forced to leave his disabled aircraft, survival is his paramount concern. And regardless of the conditions, at sea or on land, in a combat or noncombat environment, aviators must have survival equipment that operates properly the first time, and use tested and proven emergency procedures that will aid his survival.

Specialized engineering expertise and sophisticated high-tech equipment come together at Yorktown with lifesaving results.

If the Aircrew Survival Equipment Project at Yorktown succeeded in saving just one life, it was worth the time and effort. ■

Awards

We Never Outgrow Our Need for Strokes

Actions speak louder than words. This is true both for the action itself and the praise earned for its beneficial results. Outstanding performance deserves public recognition and praise, and more.

In the naval service there are lots of ways to pass out "strokes" and "attaboys" but none is more meaningful than a bonafide award presented at a formal ceremony. Whether it's at morning muster or a change of command, the good feeling enjoyed by the recipient for being appreciated for hard work and superior performance is the same in both cases.

This is a list of the awards currently available to individuals and commands in the Naval Aviation community on a regular basis. A great deal of effort went into compiling the list so, if we missed a few, please write and help us fill in the gaps.

Award	Sponsor	Frequency	Recipients and Criteria
AEW Excellence Award	Grumman Aerospace Corporation	Annual	The AEW squadron that excels in operational readiness, safety, retention and contributions to tactics and weapon systems development.
Ancient Albatross Award	Coast Guard	As appropriate	The active duty Coast Guard pilot who has held his wings for the longest period of time.
Battle Es	Chief of Naval Operations	Annual	Atlantic and Pacific Fleet and Reserve Force units that are outstanding in combat readiness efficiency and excellence.
Bronze Hammer Award (Self-Help)	Chief of Naval Operations	Annual	Those activities which have made the most progress in self-help improvements, using available resources.
Arleigh Burke Fleet Trophy	Chief of Naval Operations	Annual	The ship or squadron in the Atlantic and Pacific Fleets demonstrating the greatest improvement in battle efficiency.
Admiral Joseph P. Clifton Award	Litton Industries	Annual	The most outstanding fighter squadron in the Navy. Recognizes operational performance and safety, administrative excellence, and effective aircraft maintenance.

Award	Sponsor	Frequency	Recipients and Criteria
Edwin Francis Conway Trophy	Chief of Naval Reserve	Annual	The reserve naval air station, naval air facility or naval air reserve unit judged to be the most effective in the performance of its primary mission.
Chief of Naval Operations Aviation Safety Awards (CNO Safety Awards)	Chief of Naval Operations	Annual	The major commands that contribute the most toward readiness, high morale and economy of operations through safety.
Alfred A. Cunningham Award	Marine Corps Aviation Association	Annual	The outstanding Marine Corps aviator of the year.
Noel Davis Trophy	Chief of Naval Reserve	Annual	The top Naval Air Reserve squadrons based on excellence in mobilization readiness.
F. Trubee Davison Award	McDonnell Douglas Corporation	Annual	The Naval Air Reserve tailhook squadron which excels in combat readiness and carrier proficiency.
Leonardo Da Vinci Golden Helix Award	Navy Helicopter Association Sikorsky Aircraft Co.	As appropriate	The Naval Aviator serving on active duty with the U.S. Navy, Marine Corps or Coast Guard, who bears the earliest date of designation as a qualified helicopter pilot.
Admiral James H. Flatley, Jr. Award	Rockwell International	Annual	Aviation ships for superior operational readiness, an outstanding safety record and significant contributions to the field of aviation safety.
Major Joseph Foss Award	American Fighter Aces Association	Annual	An American military student pilot for excellence in the air combat maneuvering stage of flight training.
Vice Admiral Robert Goldthwaite Award	Rockwell International	Annual	The top training squadron in recognition of outstanding achievement in the training of Naval Aviators and Naval Flight Officers within the Naval Air Training Command.
Gray Eagle Award	LTV Aerospace and Defense Company	As appropriate	The Naval Aviator on active duty with the earliest date of designation as a Naval Aviator.
Gray Owl Award	Grumman Aerospace Corporation	As appropriate	The Naval Flight Officer on active duty who has held that designation for the longest period.
Robert M. Hanson Award	Marine Corps Aviation Association	Annual	The best Marine Corps fighter squadron of the year.
David S. Ingalls Award	The Navy League	Annual	The top instructor in the Naval Air Training Command for flight safety, officer-like qualities, character, personality and leadership.
Captain Arnold J. Isbell Trophy	Lockheed-California Company	Annual	Those squadrons judged to be the best in air antisubmarine warfare during each 12-month competitive cycle.

Award	Sponsor	Frequency	Recipients and Criteria
Thurston H. James Memorial Award	General Commandery of the of the Naval Order of the United States	Annual	The outstanding graduate of the Naval Flight Officer program.
Rear Admiral Clarence Wade McClusky Award	LTV Aerospace and Defense Company	Annual	The best attack squadron in the Navy for maintenance, operational safety and administrative excellence.
AVCM Donald M. Neal Award (Golden Wrench Award)	Lockheed-California Company	Annual	The best ASW and patrol squadron for aircraft maintenance excellence on the East and West Coasts, and in the reserve community.
Vice Admiral Robert B. Pirie Award	ATI-Eaton Corporation	Annual	The top Navy air traffic controller for outstanding professionalism, exceptional performance of duty and sustained individual excellence as an air traffic controller.
Robert Guy Robinson Award	Marine Corps Aviation Association	Annual	The outstanding Marine Corps Naval Flight Officer of the year.
Admiral James S. Russell Naval Aviation Flight Safety Award	Order of Daedalians	Annual	The major Naval Aviation command that has demonstrated excellence and effectiveness in aircraft accident prevention.
Lawson H. M. Sanderson Award	Marine Corps Aviation Association	Annual	The top Marine Corps attack squadron of the year.
Secretary of the Navy Energy Conservation Awards	Secretary of the Navy	Annual	The aviation commands that are outstanding in their efforts to reduce energy costs and promote responsible energy management.
Sikorsky Helicopter Rescue Award	Sikorsky Aircraft	Ongoing	Search and rescue aircrewmembers for skill and courage in helicopter rescue operations during life-threatening situations.
Silver Falcon Award	Association of Naval Aviation San Diego Squadron	As appropriate	The senior Marine Corps Reserve Naval Aviator or Naval Flight Officer.
Silver Hawk Trophy	McDonnell Douglas Corporation	As appropriate	The Marine Corps Naval Aviator on active duty whose date of designation precedes that of any other Marine Corps Naval Aviator.
Villard C. Sledge Memorial Maintenance Awards	Chief of Naval Operations	Annual	Intermediate maintenance activities for outstanding accomplishment in the repair of jet engines.
Admiral Jimmy Thach Award	Lockheed-California Company	Annual	The outstanding carrier-based VS or HS squadron based on superior ASW performance.
Vice Admiral John H. Towers Award	Order of Daedalians	Annual	The training squadron with the best mission-oriented safety record.
Orville Wright Achievement Award	Order of Daedalians	Biannual	Outstanding graduates of U.S. military undergraduate training programs for flight proficiency, academic achievement and officer-like qualities.

Awards

San Diego-based HC-3 was recently awarded the Commander in Chief, U.S. Pacific Fleet 1983 Golden Anchor Award in recognition of its dynamic retention program. The award was established in 1970 and is given annually to qualified units in the Pacific area to recognize excellence in career motivation programs. HC-3 and her sister squadron, HC-11, jointly display the Golden Anchor in front of their squadron spaces, having together won the retention award four out of the past five years.

VP-62, a reserve P-3 squadron home-ported at NAS Jacksonville, Fla., has been awarded the Chief of Naval Reserve Battle E for 1983. This represents a year of outstanding performance by the squadron in every department, and places VP-62 above the other 13 reserve P-3 squadrons throughout the U.S. VP-62 is under the direct command of Commander Reserve Patrol Wings, Atlantic, stationed in Norfolk, Va.

The *Black Panthers* of VA-35, NAS Oceana, Va., won the 1983 NavAirLant Battle E for the East Coast medium attack community; based on operational readiness, retention, bombing proficiency, safety, maintenance of aircraft and significant contributions to both the A-6 community and the Navy. VA-35 received the highest grade in CVW-8 on the mid-cruise aircraft material condition inspection during their 1983 seven-month Med deployment. Most of the cruise was spent off the coast of Lebanon in support of the international peacekeeping force. VA-35 also won the 1983 Hughes Trophy (for the second consecutive year) awarded annually for excellence in the employment of the A-6E, and the 1983 Medium Attack Wing One Intruder Bombing Derby.

AD1 James E. Strausbaugh and his family, NAF Washington, DC, were recently presented the Great American Family Community Award by the American Family Society. First Lady Nancy Reagan is honorary chairman of the society's award program. The Strausbaughs have a record of community service dating back 13 years.

AW1 James McCrosky, a *Kennedy* sailor, has been selected as Commander Naval Air Forces, Atlantic Fleet's Sailor of the Year. *Kennedy* recently completed a seven-month deployment to the Mediterranean. In addition to his Navy duties, AW1 McCrosky has earned a B.A. in psychology during his off-duty time.

Three members of the Naval Air Test Center's staff were honored at the 36th annual reunion and symposium of the Naval Test Pilot School last April: Marine Corps Capt. Christopher L. Becker was named Test Pilot of the Year; Navy Cdr. Alfred G. Harm, Jr., Test Naval Flight Officer of the Year; and Franklin G. Dawson, Test Project Engineer of the Year.

VA-22 has won the 1983 Ltjg. Bruce Carrier Award, sponsored by Capt. William Carrier, Jr., USN(Ret.), in memory of his son. The award is presented to the squadron with the best maintenance department in ComLAT-WingPac.

Rescues

A Naval Research Laboratory P-3A *Orion* flight crew was commended by authorities in Denmark for their swift action in the rescue of a Danish fishing vessel. On February 25, the *Orion* crew was asked by Danish air controllers on the island of Bornholm in the Baltic Sea to help locate the vessel *Per Dahl*, which was in distress. Thirty minutes later, the crew sighted *Per Dahl*. A Danish ship proceeded to the scene and rescued the vessel's crew moments before *Per Dahl* sank. The crew would undoubtedly have perished from exposure in the near-freezing waters of the Baltic. The flight crew members included: Lt.Cdrs. John Wells, Mark Peterson, and Jim Jarvis; Lts. Francis Hiser and Bob Nibbert; ATCS John Ullrich, ATC William Davis; AMH1 John Defevers; AO1 David Rowlinson; AX2 Rex Wilde; Mr. Vern Horsley; and Mr. Joal Newcomb.

AD1 Christopher A. Mitchell received the 1984 Navy League Civic Award from the Pensacola Council recently for outstanding individual community service. The Naval Aviation Schools Command sailor was selected from among 19 Navy men and women, E-2 through E-6. Mitchell, who is a rescue swimmer at the Naval Aviation Schools Command, devotes 30 to 35 hours a month to working with youth. He provides counseling to the city's youths through street ministry and film presentation programs relating to interfamily relations, growing up, coping under stress and self-worth.

An HT-18 crew from Whiting Field recently demonstrated the Navy's quick response to an emergency. Capt. Gary Fife, USMC, and two students while on a crosscountry training flight were over Lake Charles, La., when they learned that a private plane was making a crash landing. They reached the crash scene and found four adults with two children, one with head injuries. The injured child and his mother were flown to a nearby hospital, while one student remained to assist the others until additional rescue means arrived. The helicopter and its crew then resumed the training flight when their assistance was no longer needed.

NAS Key West's SAR team often has a busy week but some weeks are busier than others. The first incident had to do with a student pilot, Wayne Thompson, lost at night over water. He was vectored by an Air Canada jet liner to Miami, and by Miami controllers to Key West where a SAR team swung into action. Crack radar controllers led by PO1 Michael MacGregor guided him to the air station, to runway seven where the lights were turned up to maximum intensity. There a SAR helo escorted him down to safety.

Then the SAR team learned of a shrimper approximately 60 miles to the northwest who had lost his left index finger in an accident. SAR crewman PO3 T. O'William went aboard the shrimp boat to prepare the injured man for transfer to the Coast Guard surface effects ship *Shearwater* and from there he was hoisted to the helicopter, flown to the air station and transferred to the hospital.

Later, a Key West SAR helo joined the Coast Guard in the rescue of Tom Mount and his fiancée Patti Schaefer who had ditched in their Cessna between Grand Cayman and Florida when both engines malfunctioned simultaneously. The two were injured, Patti critically. Fifteen large sharks were sighted in the area and a specially trained Navy swimmer jumped into the water to assist in the rescue. Aboard the helo, the two injured received emergency treatment on their way to the air station and from there to the hospital.

It was only a speck in the ocean but to the members of reserve squadron VP-60 it was the highlight of their active duty for training. While on a routine patrol in their P-3 *Orion* in the Western Pacific, they saw a small delapidated boat with 54 Vietnamese refugees crowded aboard, signalling an SOS. The P-3 crew contacted a Danish cargo ship and stayed at the scene until everyone had been picked up.

Three Navy commands recently pooled their efforts to save six people in two boats who had been adrift for six days off Florida. The larger of the two power boats had taken the smaller one in tow after its engine failed, and then became disabled itself. A VP-56 crew flying a P-3 located the disabled craft, and *John Hancock* (DD-981) was directed to the scene by the Fleet Area Control and Surveillance Facility in Jacksonville. Aboard ship, the survivors had their first full meal in almost seven days.

Honing the Edge

HAL-5, one of two Naval Air Reserve Force squadrons tasked with providing quick reaction, close air support for Navy special warfare groups and other forces, participated in simulated wartime exercises at North Island in April with SEAL teams, special boat units and the Navy's basic underwater demolition school. The realistic training included insertions, extractions, rappelling and hoisting from special boat unit patrols, with live firing evolutions.

In March, VMA-231, flying AV-8 *Harriers* off *Inchon*, took on the mission of protecting the task force in Exercise *Teamwork 84* in the Atlantic, when the assigned carrier battle group escort was unable to steam with the task force because of other commitments. The exercise involved a war-at-sea scenario with a British *Sea Harrier* group aboard *HMS Illustrious*.

More than 150 NATO ships and 300 aircraft participated in *Team Work 84*, a NATO training exercise which took place in the North Atlantic, North Sea and Norwegian Sea. Units from Britain, the Netherlands and the U.S. conducted a combined amphibious assault in support of Norwegian forces operating in northern Norway. H&MS-31 deployed 70 Marines to support flight operations performed by VMFAs 122 and 251.

HSL-35, NAS North Island, received the latest model SH-2F *Seasprite* last April. The new SH-2F has an improved fuel system, main gear box, tail rotor drive system, data link and radar systems, as well as other improvements. The *Seasprite* was flown by a squadron crew from the Kaman Aerospace Corporation in Connecticut to North Island.

With the arrival of its new helo, HSL-35 transferred an older SH-2F to HSL-84, the Naval Air Reserve's first LAMPS MK I squadron.

VMFAs 251 and 122, MAG-31, participated in Operation *Team Work 84* earlier this year, the largest NATO exercise held so far in the North Atlantic. The weather during the exercise was dominated by ice and snow but both squadrons flew 24 to 30 missions daily. The squadrons provided simulated close air support and barrier combat air patrols.

NAS Norfolk's VAW-121 took part in Exercise *Readex 1-84* off NS Roosevelt Roads, P.R., in April. The *Bluetails* and CVW-7 assumed the role of enemy forces flying raids against the USS *America* battle group.

The *Sunday Punchers* of VA-75 returned to Norfolk on May 2 from a deployment aboard *John F. Kennedy* which began last September and took them first to the South Atlantic and then to the Eastern Mediterranean off Lebanon. There, they operated in support of the multinational peace-keeping force. The cruise also marked completion of four years of accident-free operations and their being named one of the winners of the CNO 1983 Safety Awards.

VP-31, NAS Moffett Field, is busy these days transitioning patrol squadron VP-4 from the P-3B to the C model. VP-4 will complete the process in July and, in September, VP-1 will begin the transitioning cycle. In addition to handling the increased number of students and training evolutions, VP-31 continues to train replacement crew members for fleet squadrons.

Maneuvering a KC-130 *Hercules* with a wingspan of 132 feet through narrow mountain passes near El Toro, Calif., was just part of the annual two-week training for VMGR-23, Glenview, last March. While at El Toro, squadron personnel also received KC-130 simulator refresher training, as well as experience in refueling helicopters from HMH-465, Tustin, and in air delivery of troops and equipment, etc.

H&MS-49 reservists from Willow Grove spent two weeks of active duty training last spring beside their active duty counterparts in H&MS-16. They completed nuclear, biological and chemical training at El Toro; some qualified as corrosion control specialists and

others received explosive ordnance disposal team training. The EOD team also had familiarization classes on the weapons systems of the F/A-18 *Hornet*.

The *Lions* of VP-90 returned to NAS Glenview at a high level of ASW readiness after completing five weeks of active duty for training last spring at NAS Barbers Point, Hawaii. Their training completed a 12-month transition of aircrews and maintenance personnel to the P-3B TacNavMod aircraft.

Records

The following individuals marked personal milestones recently:

VS-30: Cdr. Sam Houston surpassed 2,000 flight hours in the S-3 *Viking*.

VP-19: ADC Emmett E. Crocker marked 10,000 flight hours in the P-3 A/B/C *Orion*.

VF-2: Cdr. Harry Hunter chalked up over 2,000 hours in the F-14 *Tomcat*. Lt.Cdr. Bob Willard went over 1,500 hours while Cdr. Bob Thomas and Lt.Cdrs. Brian Dempsey and Brad Rath flew over 1,000 hours in the F-14.



VF-2 Tomcat in flight.

VF-14: Lt.Cdr. Jon Ault logged 2,000 hours in the F-14 *Tomcat*.

VA-93: Cdr. Mike Detchemendy surpassed 3,000 hours in the A-7 *Corsair II*.

VAQ-136: Cdr. T. J. Ford logged 2,000 hours in the EA-6B *Prowler*.

VAQ-131: Cdr. Jim Kennedy achieved 2,000 hours in the EA-6B *Prowler*.

The following individuals from VF-151 recorded personal milestones: Cdr. Dean L. Steele; Lt.Cdrs. David J. Svajda and Donald S. Sieja; and Lts. Timothy P. Sullivan, James J. Convery II, Stephen R. Howell and Stephen M. Hunt became double centurions aboard *Midway*.

The following squadrons marked accident-free flight hours: VF-124, 35,000 hours; HMT-303, 10,000; VA-75, 20,000; VQ-2, 56,000; HSL-30, 20,000; HMM-161, 15,000; HMA-169, 20,000; MAG-39, 75,000; HMH-363, 15,000; HMH-465, 7,000; HML-267, 85,000; VMA-311, 20,000; VR-24, 41,000; and HMH-361, 30,000.

Established

CVW-13 was reestablished on March 29, 1984, at NAS Oceana, with Capt. J. P. Gay as commander. The air wing is assigned to *Coral Sea*, home-ported in Norfolk, Va., and includes VA-55, flying A-6E *Intruders*; VFA-131, VFA-132, VMFA-314 and VMFA-323, operating F/A-18 *Hornets*; VAW-127 and its E-2C *Hawkeyes*; and HS-17 flying SH-3D *Sea Kings*.

Anniversaries

The following celebrated anniversaries in January: VA-15, 47 years; HSL-41, 1 year; and *Independence* (CV-62), 25 years.

The Navy Astronautics Group, a tenant command of the Pacific Missile Test Center at Point Mugu, celebrated its 22nd birthday on April 10. The activity was established in 1962 to operate and maintain the satellites of the Navy Navigation Satellite System, and has provided accurate worldwide navigational positioning fixes without interruption since 1964. The group is now an integral part of the new Naval Space Command with headquarters in Dahlgren, Va.

Et cetera

NARF North Island and the United Kingdom are working together to modernize 15 F-4J *Phantoms* which the British purchased from the U.S. Navy in 1983. The air rework facility is also training technicians and pilots of the Royal Air Force in the maintenance of the aircraft. Later this year the first group of three *Phantoms* will be flown to England by RAF pilots and navigators.

U.S. Navy Memorial Design Approved



The U.S. Navy Memorial Foundation has received final approval from Congress for its design concept and the fund drive is officially under way. Rear Admiral William Thompson, USN(Ret.), center, President of the U.S. Navy Memorial Foundation; Secretary of the Navy John Lehman (l.); and Chief of Naval Operations Admiral James D. Watkins (r.) view a model of the memorial. Ground breaking for the memorial took place last May.

The Foundation is a private organization dedicated to preserving the memory of America's Navy men and women by building the memorial, which will be located on Pennsylvania Avenue in the heart of Washington, D.C. While primarily an amphitheater and ceremonial site, the two-square-block complex will comprise many features and fully express Navy history and symbolism. Construction of the first phase — everything except the two buildings — is expected to be completed during the summer of 1985.

By congressional mandate, all funds for building the U.S. Navy Memorial must be raised by private, tax-deductible contributions. No government funds will be used.

Navy planes and aircrews, working closely with the U.S. Customs Service, Navy ships and the Coast Guard, are helping to stop the flow of illegal drugs into the U.S. Recent incidents involved a P-3 from NAS Glenview's VP-60 and an E-2C *Hawkeye* of VAW-116, NAS Miramar. In both interdictions, the crews intercepted drug smugglers and were instrumental in the seizure of the drugs.

Navy petty officers in the ratings Aviation Electrician's Mate (AE), Aviation Electronics Technician (AT)

and Machinist's Mate (MM) can now register as apprentices in the civilian trades of Airplane Electrician, Electronics Mechanic and Maintenance Mechanic, respectively. These ratings have been added to the National Apprenticeship Program, managed by the Chief of Naval Education and Training in cooperation with the U.S. Department of Labor. Beginning with petty officer third class, individuals may be granted 1,000 hours of work experience for each full year that their service records validate service at or above that rank up to a total of 4,000 hours. Registrants must be graduates of an applicable A or C school to be eligible. Additional information on the National Apprenticeship Program for active duty personnel can be obtained from the Chief of Naval Education and Training (Code N-2), NAS Pensacola, Fla. 32508. Auto-vo 922-4201, commercial (904) 452-4201.

VFP-206, one of the two Naval Reserve photoreconnaissance squadrons based at NAF Washington, D.C., will provide the *Blue Angels* with photographic support for their 1984 air shows. The squadron will photograph 38 airfields in the U.S., Canada and Mexico, which will give the *Blues* up-to-date visual references and checkpoints needed to perform their intricate aerial displays.



An RF-8G from VFP-206, one of the Navy's two remaining Crusader squadrons.

With the addition of an LB-30 camera pod, VF-151's F-4 *Phantoms* are now capable of air-to-air as well as air-to-ground photography, supplementing their strike-fighter role. They have been demonstrating their new capability while deployed to the Indian Ocean by taking a wide variety of photographs including the battleship *New Jersey* and *Sparrow* missiles launched from camera-carrying aircraft.

Reenlistments have become a tradition over the past 12 years for AZCS Ronald Alonzo, who has been sworn in four times by the same officer, now retired Cdr. John T. Distad.



1972: AZ1 Alonzo, VA-305, Point Mugu, reenlisted for two years, with squadron personnel officer, Lt. Distad, officiating.



1974: AZ1 Alonzo, VA-305, reenlisted for four years by Lt. Distad, then squadron operations officer.



1978: AZC Alonzo, CVWR-30, Alameda, reenlisted by Lt. Cdr. Distad, now a reservist, who flew from Point Mugu to Alameda for the ceremony.



1984: AZCS Alonzo, Naval Air Reserve Center, NAS Patuxent River, reenlisted by Cdr. Distad, now a stock broker and C.O. of reserve squadron VA-1476, Point Mugu. Cdr. Distad flew

3,000 miles to Willow Grove and drove the rest of the way from there to Patuxent River for the ceremony.

NAF Washington, D.C., was the site of the National Oceanic and Atmospheric Administration's (NOAA) Year of the Ocean display in March. The Year of the Ocean officially began March 10, marking the first anniversary of President Ronald Reagan's proclamation creating a 200-mile-offshore "Exclusive Economic Zone." NOAA's modified P-3 *Orion* made three demonstration flights from NAF for the local and national news media over the Atlantic Ocean while the scientists on board conducted experiments. The P-3's normal duties include studying ocean currents, observing arctic ice developments and monitoring hurricanes and severe storms.

Fifty years ago last winter, a six-plane formation of Consolidated P2Y-1s surprised the aviation world by completing the longest nonstop formation flight from San Francisco, Calif., to Pearl Harbor, Hawaii. A previous squadron with the designation VP-10F, completed the 2,150-nautical-mile journey which began January 10, 1934, in 24 hours and 35 minutes — 40 minutes less than the old San Francisco to Hawaii speed record set by the Army in 1927. Today, VP-10 operates nine P-3C Update II ASW aircraft. The squadron is a winner of the Captain Arnold J. Isbell Trophy for ASW excellence in 1983.

Change of Command

USS *Forrestal*: Capt. Daniel P. March relieved Capt. B. C. Lee.

HC-11: Cdr. Martin L. Chamberlain relieved Cdr. Terry C. Lackey.

H&HS, MCAS Yuma: Lt. Col. Leonard R. Fuchs, Jr., relieved Lt. Col. Jerald R. Agenbroad.

H&MS-31: Lt. Col. George M. Kralovec relieved Lt. Col. D. M. Bassett.

HS-6: Cdr. Miles M. Staley relieved Cdr. Lewis D. Madden.

HSL-32: Cdr. John A. Grove II relieved Cdr. A. J. Olmstead, Jr.

NavFitWepScol: Cdr. Joseph S. Daughtry, Jr., relieved Cdr. Christopher T. Wilson.

PMTC: Como. John R. Wilson relieved RAdm. J. B. Wilkinson.

VA-204: Cdr. Kenneth A. McCluskey relieved Cdr. Joseph A. Chronic.

VAW-121: Cdr. Johnny L. Roberts relieved Cdr. Terrill J. Wendt.

VF-102: Cdr. Marc A. Ostertag II relieved Cdr. William W. Copeland, Jr.

VMA-513: Lt. Col. G. S. Kuzniewski relieved Lt. Col. J. E. Sabow.

VMA-311: Lt. Col. Gordon R. Jefferson relieved Lt. Col. Michael D. Smith.

VP-1: Cdr. Denis W. Delear relieved Cdr. Michael D. Haskins.

VP-5: Cdr. Mark B. Baldy relieved Cdr. Norbert R. Ryan, Jr.

VP-24: Cdr. Laurence E. Johnson relieved Cdr. Wayne M. Vickery.

VS-37: Cdr. Donald B. Roulstone relieved Cdr. Donald A. Minor.

VT-21: Cdr. Paul G. Habel relieved Cdr. John W. Davison.

VT-24: Cdr. Gerald E. Mittendorff relieved Cdr. Michael J. Concannon.



A crowd gathers at the seaplane landing in Pearl Harbor on January 11, 1934, to greet the crews of VP-10F after their historic flight.

FLIGHT BAG

Corrections to "Naval Aviation Wings," March-April 1984, page 1: Naval Aviation Observer and Flight Meteorologist wings have a plain anchor vice a foul anchor, and, in addition to Marine Corps enlisted personnel, Combat Aircrew wings are presently being worn by some limited duty and warrant officers who qualified for them previously.



Above insignia were recently approved by the Insignia Board.

Patch Wanted

A few years ago, I published an article in the *Journal of the American Aviation Historical Society* on the *Hurricane Hunters*. Since that time, I've been searching for a squadron patch from VW-4, the Navy's hurricane recon squadron which was decommissioned in April 1975. I know there must be an extra VW-4 patch somewhere.

Gary F. Frey
Box 588
Destrehan, LA 70047

Reunions, etc.

Fourth reunion of **USS Ommaney Bay (CVE-79)** and embarked composite squadron **VC-75**, and families of deceased members, August 30-September 2, in Long Beach, Calif. Contact Lloyd Beighley, 3620 Lloyd Place, San Diego, CA 92117.

WW II U.S. Navy Carrier Aircraft Wanted

The Curator for the Navy is conducting a nationwide search for a WW II U.S. Navy carrier aircraft. It will be featured as a major artifact in a WW II exhibit at the Navy Memorial Museum in the historic precinct of the Washington Navy Yard.

The permanent exhibit, when completed, will occupy nearly one-third of the 40,000-plus square feet of the former Gun Shop. An authentically restored SBD, F4F, F6F or F4U will highlight the major role of Naval Aviation in achieving victory at sea during WW II.

If you have any information that may help in this search, please contact Captain Manny Sousa, USN, action officer, who is Deputy Director of the Naval Historical Center, Washington Navy Yard, Bldg. 57, Washington, D.C. 20374, (202) 433-2379/2553.

NAS Grosse Ile reunion of personnel either stationed or formerly employed at the base, September 22, 1984, at the old Officers Club at NAS Grosse Ile. Contact Orville Ritchey, 14341 Dundee, Riverview, MI 48192, (313) 284-3117.

Aviation Boatswain Mates Association symposium, July 18-21, Airport Hilton, Philadelphia, Pa. Contact Lt.Cdr. P. Jones, (804) 444-3381 (East Coast); ABCM Charlie Wyatt, (619) 437-5864 (West Coast); or write Aviation Boatswain Mates Association, P.O. Box 228, Lakehurst, NJ 08733.

USS Langley (CVL-27) reunion. Anyone interested, please contact A. Nick Chagaris, 11 Bourn Ave., Hampton, NH 02842.

USS Cabot (CVL-28) annual reunion in Las Vegas, Nev., Sept. 5-9, at Union Plaza Hotel. Contact USS Cabot Association, 5023 Royal Ave., Las Vegas, NV 89103. Phone: (702)873-9841.

VA-35 Black Panthers will hold a 50th anniversary and first reunion, June 29-July 1, at NAS Oceana, Va. For information call (804)425-2211, ext. 406, or write VA-35, NAS Oceana, Virginia Beach, VA 23460.

The 13th annual **National Stearman Fly-In** will be held at the municipal airport in Galesburg, Ill., Sept. 5-9. For further information call Mr. Ted McCullough, 2310 Monmouth Blvd., Galesburg, IL 61401. Phone: (309)342-2298.

USS Wasp (CV-18) and **WW II Air Groups 14, 81 and 86** reunion, Feb. 1985, in Honolulu, Hawaii. Contact Bob Hansen, 3142 Coit, N.E., Grand Rapids, MI 49505.

VP-14, VB-102 and VPB-102 (WW II, Pacific) reunion in Sacramento, Calif., Oct. 18-21. For information call Gordon A. Miller, 3416 Strolling Hills Rd., Shingles Springs, CA 95682. Phone: (916)677-5215.

USS Cowpens reunion, June 20-24, in Cowpens, S.C. For information write Mrs. W. Dearybury, P.O. Box 10, Cowpens, SC 29330.

A joint **Covered Wagon Association USS Langley (CV-1/AV-3), USS Whipple** and **USS Pecos** reunion in Omaha, Neb., Sept. 21-23. Contact E.L. Dixon, 1075-275 Space Parkway, Mountain View, CA 94043. Phone: (415) 968-5172.

USS Hancock (CV/CVA-19) reunion and museum room dedication in Charleston, S.C., Sept. 27-29. Contact Edmund Orchowski, 5427 Bossart St., Pittsburgh, PA 15206. Phone: (412)441-6019.

USS Antietam (CV/CVS-36) reunion in Pensacola, Fla. Contact Robert E. Craig, 230 Mosswood Circle, Winter Springs, FL 32708. Phone: (305)327-0979.

USS Shangri-La (CV-38) reunion, Aug. 3-5, in Columbia, Md. Send business-size, self-addressed, stamped envelope to Bob Ketenheim, 26 Magnolia Circle, Shrewsbury, PA 17361.

VR-24 Association 14th annual reunion, August 16-19, 1984, in San Diego, Calif. For further information, contact Pete Owen, 24633 Mulholland Highway, Calabasas, CA 91302. Phone: (213) 348-4056.

All former **Blue Eagle/World Traveler** officers interested in attending tenth annual **World Travelers' Ball** at Cedar Point Officers Club, NAS Patuxent River, on July 14, 1984, write Lt.Cdr. Glen Akins or Lt. Deb Winter, VXN-8, NAS Patuxent River, MD 20670, or call (301) 863-4562/4711.

Parachute Rigger reunion, August 23-25, at Lakehurst, N.J. Contact PRCM R. L. Bryant, autovon 624-2687 or (201) 323-2687; or PRC M. A. Trugler, autovon 624-2477 or (201) 323-2477.



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