



Vance Vasquez

First SLAM-ER Launched

The first Standoff Land Attack Missile Expanded Response (SLAM-ER) was fired at the Naval Air Warfare Center Weapons Division, Point Mugu, Calif., sea range on 18 March. An F/A-18C *Hornet* from Naval Weapons Test Squadron, China Lake, Calif., launched the missile on its 12-minute, 100nm flight. The SLAM-ER program is on budget and on schedule, with the 13-missile flight test program set to conclude in September 1998.

Above, a Naval Weapons Test Squadron F/A-18C *Hornet* departs Naval Air Warfare Center Weapons Division, Point Mugu for the first launch of the SLAM-ER. Below, the SLAM-ER is loaded and ready for flight.



Darren Galarza

Super Hornet News

The last of seven F/A-18E/F flight test aircraft arrived at NAS Patuxent River, Md., on 1 February. On 21 February an F/A-18E made its first flight with weapons, carrying AIM-9 missiles, high-speed anti-radiation missiles and MK 84 bombs. The 62,400-pound gross weight was the heaviest takeoff load to date. The Pentagon authorized the purchase of 62 *Super Hornets* on 26 March, the first of which will be delivered in 1999.

NAWCAD Designs Helo Control Station

Naval Air Warfare Center Aircraft Division (NAWCAD) engineers used the manned flight simulator at NAS Patuxent River, Md., for an unusual purpose: to test design options for a standardized helicopter control station (HCS) for use aboard future ships. The engineers produced simulated HCS interiors with which fleet personnel could interact, and recorded their reactions and suggestions. Continuing evaluations may soon lead to a final design, which

would reduce the need for retraining helicopter control officers and maintainers who transfer from one platform to another.

Osprey Milestones

On 15 March, the first V-22 *Osprey* built to production standards flew from Bell Helicopter Textron's facility in Arlington, Texas, to the Naval Air Warfare Center Aircraft Division, Patuxent River, Md. Following on the heels of the V-22's first flights in helicopter and airplane modes (on 5 February and 6

March, respectively), flight testing at Pax River will bring the aircraft one step closer to the fleet. The Bell Boeing tilt-rotor team was awarded an \$82.3 million contract modification in March to build an additional *Osprey* this year, bringing the total to five. The first V-22s are scheduled to be delivered to the Marine Corps in 1999.

The first production V-22 *Osprey* arrived at Naval Air Warfare Center Aircraft Division, Patuxent River, Md., for testing.



IFLOLS Passes Muster

On 1 March, the first aircraft trapped aboard a carrier using the Improved Fresnel Lens Optical Landing System (IFLOLS). A Naval Strike Aircraft Test Squadron F/A-18 *Hornet* marked the beginning of IFLOLS carrier testing when it made a perfect three-wire landing aboard *George Washington* (CVN 73).

NASA Liaison Officers

The National Air and Space Administration (NASA) now has two Navy liaison officers on board to coordinate Naval Aviation and NASA aeronautics efforts. The Navy representative on fixed-wing programs at NASA Langley Research Center, Hampton, Va., and rotary-wing programs at NASA Ames Research Center, Moffett Field,

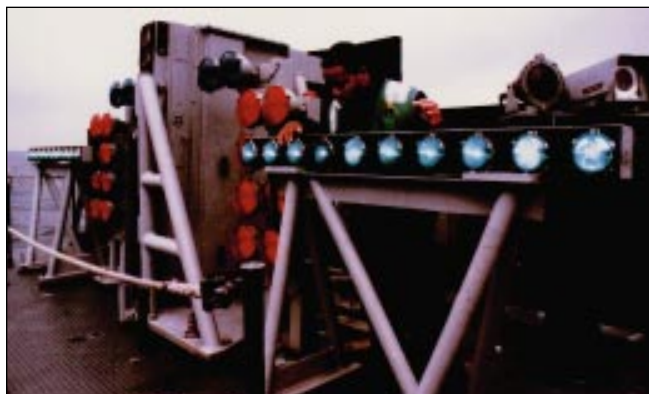
Calif., will ensure that Naval Aviation's future needs are addressed during planning stages, and also help avoid redundant research in today's austere budget climate. Points of contact: (fixed wing) Cdr. Robert Struth, Jr., at 757-864-1758, e-mail r.g.struth@larc.nasa.gov; and (rotary wing) LCdr. J. G. Scott at 415-604-2002, e-mail jrscott@mail.arc.nasa.gov.

NASA Adopts NALCOMIS

The National Aeronautics and Space Administration (NASA) included the Naval Aviation Logistics Command Management Information System (NALCOMIS) in its aircraft maintenance program in January. NALCOMIS tracks total flight time for each aircraft and automatically notifies personnel of required periodic maintenance. The Navy Management Systems Support Office of the Space and Naval Warfare Systems Command tailored NALCOMIS, designed for the Navy and Marine Corps, to meet NASA's maintenance structure.

Adaptive Rotor Takes Flight

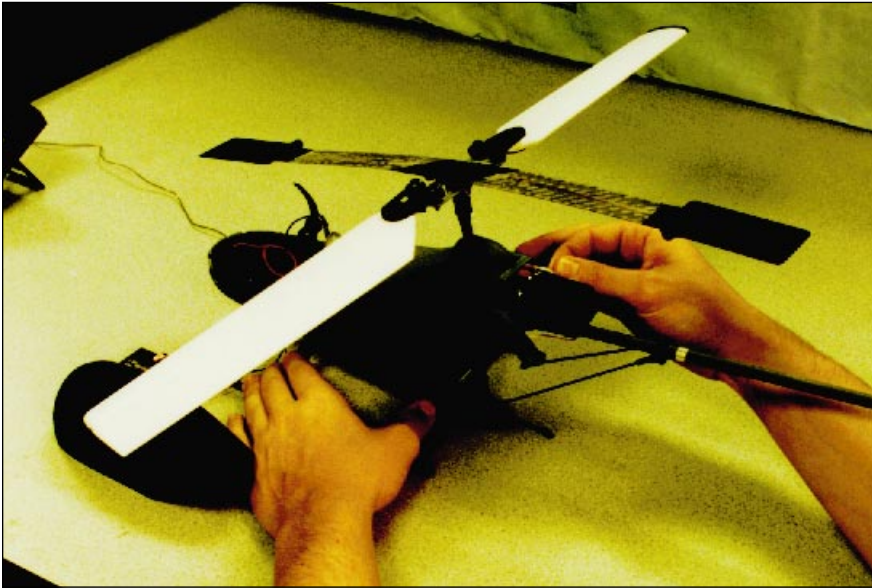
The future of rotary flight took wing in December 1996, when Auburn University's Adaptive



Left, the Improved Fresnel Lens Optical Landing System, installed on *George Washington* for testing, brings an F/A-18 *Hornet* from NAWCAD Patuxent River, Md., in for a successful landing (below).



PH3 Kris White



The Solid State Adaptive Rotor-equipped test helicopter's electronics are checked before flight. Note the piezoelectric strips along the rotor servopaddles, the key feature of Auburn University's patented system.

Aerostructures Laboratory flew a miniature helicopter using its patented Solid State Adaptive Rotor (SSAR). The adaptive rotor employs piezoelectric strips to twist the rotor servopaddles during flight, thereby changing the pitch. Eliminating the need for complex hub assemblies, the SSAR could revolutionize future helicopter design.

Speaking of Piezoelectricity . . .

The Office of Naval Research announced that researchers at Pennsylvania State University have discovered crystals that are able to change their shape by more than one percent under electric control. These crystals promise dramatic improvements in acoustic transduction compared to conventional piezoelectric ceramics in use today. Piezoelectric materials are the heart of most sonar transducers, responsible for generating the sound pulse from an electric signal for transmission and converting acoustic echoes to an electric signal on reception. Further research will determine if this new technology will find its way into the fleet.

Carrier Overhauls

Newport News Shipbuilding, Va., completed an 18-month overhaul of *Dwight D. Eisenhower* (CVN 69) and returned her to service on 28 January. The overhaul of *Ike's* propulsion equipment, combat systems and elevators had been scheduled to take two years.

Enterprise (CVN 65) entered a six-month maintenance period on 13 February in which radar, berthing, elevators and propulsion systems will be upgraded.

***Enterprise* arrives at Newport News Shipbuilding for maintenance.**



Jim Hemeon

Mishaps

An AV-8B *Harrier* of Marine Attack Training Squadron 203, MCAS Cherry Point, N.C., crashed at Bogue Field, N.C., on 18 February. The pilot, Capt. Grant Fukuda, ejected and was medevaced to a local hospital for treatment of minor injuries.

On 27 February, a Marine Fighter-Attack Training Squadron 101 T-34C *Turbo-Mentor* crashed 11 miles northeast of MCAS El Toro, Calif. Lt. John Bush and Lt. (j.g.) Michael Moffatt, Jr., were killed.

On 1 April, the right wingtip of an E-2C *Hawkeye* of Airborne Early Warning Squadron 115 landing aboard *Independence* (CV 62) struck the rotor blades of two SH-60F *Seahawks* on deck. No personnel were injured, but the helos' main and tail rotors were damaged, and an S-3B *Viking* also sustained minor damage from flying debris.

Also on *Independence*, a catapult operator was injured on 2 April during the launch of an F/A-18 *Hornet* of Strike Fighter Squadron 27. The *Hornet's* port main landing gear collapsed, causing the weapons pylon to strike the waist catapult center deck hatch, which closed on the catapult operator. ABAN Fred Watson III was medevaced to a hospital in nearby Sydney, Australia, for treatment of two broken legs and a broken arm. The pilot was unhurt upon landing his crippled plane at a Royal Australian Air Force Base in Williamstown, but the *Hornet* was severely damaged.

Deactivated

VMFA-451 Warlords

Marine Fighter-Attack Squadron (VMFA) 451 was deactivated in a ceremony on 31 January 1997 at MCAS Beaufort, S.C. Lt. Col. James E. Hunter was the last CO of the *Warlords*, who were the fourth of four planned post-cold war reductions of Marine Corps F/A-18 squadrons.

The squadron was originally activated on 15 February 1944 at MCAS Mojave, Calif., as Marine Fighting Squadron (VMF) 451. Equipped with the F4U-1D *Corsair* fighter, the *Blue Devils*, as they were then known, deployed to the western Pacific in January 1945 as one of three F4U squadrons with Carrier Air Group 84 on board *Bunker Hill* (CV 17). The squadron participated in strikes against Japan in February, followed by support of the landings at Iwo Jima, and further strikes against Japan and Okinawa. The squadron shot down 11 enemy aircraft on one day and 16 on another. Maj. Archie Donohue, VMF-451 XO, shot down five aircraft in one day. The squadron scored 34 aerial victories during this deployment before *Bunker Hill* was severely damaged by Japanese aircraft on 11 May and knocked out of the war.

VMF-451 sat out the rest of the war at MCAS El Toro, Calif., and was deactivated on 10 September 1945. The squadron was reactivated as a reserve unit on 1 July 1946 at NAS Willow Grove, Pa., this time as the *Fightin' Phillies*, flying F6F-5 *Hellcats*. VMF-451 was called to active duty in the Korean War on 1 March 1951 and moved to El Toro to operate F9F-2 *Panther* jet fighters. On 30 April, the squadron was redesignated Marine Fighter



McDonnell Douglas



An F-4J *Phantom II* from VMFA-451 takes off with afterburner. Note the bicentennial markings on the fuselage.

Squadron (VMF) 451. After switching to the FJ-2 *Fury* in 1954, the squadron became the *Warlords*.

VMF-451 moved to Atsugi, Japan, in October 1954, and in 1956 became the first Marine squadron to upgrade to the FJ-4. After returning to El Toro in June 1957, the *Warlords* went back to the western Pacific in September 1958, deploying to Ping Tung, Taiwan, to protect the island during the Formosa Strait crisis. Returning to Atsugi in February 1959, the squadron moved back to El Toro that November.

At El Toro, VMF-451 switched to the F8U-2 *Crusader*, then upgraded to the F8U-2N (F-8D) when it was redesignated Marine All Weather Fighter Squadron (VMF(AW)) 451 on 1 July 1961. In January 1962, VMF(AW)-451 used aerial refueling to become the first squadron of single-seat jets to make a transpacific flight. The squadron moved to MCAS Beaufort, S.C., in February 1963, and in April 1965 provided patrols and reconnaissance escort flights during the crisis in the Dominican Republic. Later that year, the *Warlords* deployed to the Mediterranean for seven months as part of Carrier Air Wing 8 on board *Forrestal* (CVA 59).

In 1967, VMF(AW)-451 received F-8E *Crusaders*, but gave them up for F-4J *Phantom IIs* when the squadron was redesignated VMFA-451 on 1 February 1968. After workups in 1976, a planned Mediterranean deployment on board *Forrestal* was canceled. Never

deploying to Vietnam, the squadron maintained a normal peacetime routine until January 1980 when it began rotational six-month deployments to Iwakuni, Japan, as part of the Unit Deployment Program.

In September 1987, VMFA-451 switched to the F/A-18A *Hornet* strike fighter and in May 1989 deployed to the Mediterranean as part of Carrier Air Wing 13 on board *Coral Sea* (CV 43). During this cruise, the squadron covered the evacuation of the U.S. embassy in Beirut, Lebanon.

In August 1990, VMFA-451 deployed to Bahrain in response to the Iraqi invasion of Kuwait. The *Warlords* flew patrols in support of Operation Desert Shield and in January 1991 participated fully in Operation Desert Storm, becoming the first Marine unit to attack Iraqi forces. The squadron returned to Beaufort in April 1991 after flying 736 combat sorties and expending over two million pounds of ordnance on enemy targets, with only one squadron F/A-18 damaged.

Returning to the Unit Deployment Program, VMFA-451 came back from Iwakuni for the last time in July 1996, preparing for deactivation upon return to Beaufort.

VMFA-235 Death Angels

A 14 June 1996 ceremony at NAS Miramar, Calif., marked the deactivation of Marine Fighter-Attack Squadron (VMFA) 235. The *Death Angels* comprised the third

Marine Corps F/A-18 *Hornet* squadron to be deactivated as part of the post-cold war drawdown.

The squadron was originally activated at MCAS El Centro, Calif., on 1 January 1943 as Marine Scout Bombing Squadron (VMSB) 235, equipped with SBD-5 *Dauntless* dive-bombers. Then known as the *Flying Wolves*, VMSB-235 entered combat in September 1943, operating from Guadalcanal before moving on to Bougainville in April 1944. The squadron flew missions against Japanese targets on Bougainville and the Bismarck Archipelago, including the bastion at Rabaul on New Britain Island. After a return to California in May 1944, the squadron went back briefly to Bougainville in June, moving on to Green Island later that month to continue operations against New Britain. Withdrawn from combat in September, VMSB-235 transferred to Marine Corps Aviation Depot (MCAD), Miramar for deactivation on 10 November 1944.

The squadron was reactivated in 1946 as Marine Fighting Squadron (VMF) 235, a reserve unit. VMF-235 was called to active duty in the Korean War on 18 September 1950 and stationed at MCAD Miramar with its F4U-4 *Corsair* fighters. The squadron was redesignated Marine Fighter Squadron (VMF) 235 on 30 April 1951. In 1952, the squadron traded its *Corsairs* for F9F-2 *Panther* jet fighters, then upgraded to the FJ-2 *Fury* in 1954. The *Death Angels* were posted to NAS Atsugi, Japan, that year, upgrading successively to the FJ-3M and FJ-4. The squadron transferred to MCAS Cherry Point, N.C., in January 1957, then moved to Beaufort, S.C., by the end of the year for transition to the supersonic F8U-1 *Crusader*.

The *Death Angels* upgraded to the F8U-2N (F-8D) in February 1962, as the squadron was redesignated Marine All-Weather Fighter Squadron (VMF(AW)) 235. In February 1963, the squadron began a year-long deployment to Atsugi, upgrading to the F-8E upon return to Beaufort.

VMF(AW)-235 made two deployments to Da Nang, South Vietnam, during the Vietnam War, the first beginning in February 1966. Most of the squadron's missions involved close air support of Marine ground units. The squadron lost two aircraft at Da Nang to enemy rocket fire, and three aircraft were lost to enemy fire during close air support and interdiction missions. One pilot was killed and one pilot was taken prisoner in North Vietnam.

The *Death Angels* rotated to MCAS Iwakuni, Japan, in November 1966 but returned to Da Nang in



A VMFA-235 *Death Angels* F-8U *Crusader* sits on the tarmac prior to a launch, circa 1958.

February 1967. The squadron remained in-country during the intensive operations of the 1968 Tet Offensive. On this deployment, the squadron lost four aircraft to enemy fire, with two pilots being killed in action. In May 1968, the squadron returned to Iwakuni for four months before its transfer to MCAS Kaneohe Bay, Hawaii. The last F-8 squadron in the Marine Corps, VMFA(AW)-235 was redesignated VMFA-235 on 6 September 1968 and received the F-4J *Phantom II* fighter. Although VMFA-235 made no deployments to Vietnam, the squadron did send crewmen and aircraft to augment VMFA-212 during

its April 1972 emergency deployment to Nam Phong, Thailand, in support of Operation Linebacker I.

From 1977 until 1996, VMFA-235 participated in the Unit Deployment Program, rotating with other squadrons in six-month deployments to support the First Marine Aircraft Wing at Iwakuni, and occasionally at NAF Kadena, Okinawa. The squadron upgraded to the F-4S in November 1981, and as the Marine Corps' last VMFA F-4 squadron, switched to the F/A-18C *Hornet* strike fighter in August 1989.

With the Iraqi invasion of Kuwait in August 1990, VMFA-235 became

part of the 70 percent of Marine Corps aviation that deployed to the Persian Gulf region supporting Operation Desert Storm. The *Death Angels* flew more than 800 sorties and expended more than two million pounds of ordnance during Operation Desert Storm in January and February 1991, losing no aircraft to enemy action.

After a deployment to Japan, VMFA-235 moved to MCAS El Toro, Calif., in August 1994. Following their final deployment to Japan, the *Death Angels* moved again to Miramar in 1996 in preparation for deactivation.



A formation of five F-4J *Phantom IIs* from VF-142. The *Ghostriders* proved their mettle in the *Phantom* by downing one MiG-17 and three MiG-21s during the Vietnam War.

Disestablished

VF-142 *Ghostriders*

A 7 April 1995 ceremony at NAS Oceana, Va., marked the disestablishment (officially 30 April) of Fighter Squadron (VF) 142 after more than 47 years of service. Cdr. John W. Miller was the last CO of the *Ghostriders*.

The *Ghostriders* originally were established at NAS Alameda, Calif., as VF-193, equipped with the F8F-2 *Bearcat* fighter. The squadron's first western Pacific (WESTPAC) deployment, with Carrier Air Group (CVG) 19 on board *Boxer* (CV 21), ended just before the North Korean invasion of South Korea, causing the F8F to miss out on that war. VF-193 switched to F4U-4 *Corsairs* upon return and made two combat deployments to the Korean War zone on board *Princeton* (CV 37), striking enemy troops and logistic networks.

After moving to NAS Moffett Field, Calif., in 1952, VF-193 upgraded to F2H-3 *Banshee* jet fighters in 1953. The squadron made two WESTPAC deployments on board *Oriskany* (CVA 34) and one with *Yorktown* (CVA 10) before switching to the F3H-2 *Demon*. Flying the *Demon*, VF-193 completed four more WESTPAC deployments on board *Bon Homme Richard* (CVA

31) in 1963.

On 15 October 1963, VF-193 was redesignated VF-142 as part of CVG-14, and upgraded to the F-4B *Phantom II* fighter. Now based at NAS Miramar, Calif., VF-142 made its first deployment on board *Constellation* (CVA 64), flying into combat in August 1964 as part of the Pierce Arrow strike against North Vietnam in retaliation for the Tonkin Gulf incident. The squadron returned to the war zone in December 1965 on board *Ranger* (CVA 61), followed by three more combat deployments aboard *Constellation*, the last one after upgrading to the F-4J in 1969.

In 1971, VF-142 rode *Enterprise* (CVAN 65) around Cape Horn, deploying to the Vietnam war zone later that year. This deployment included an excursion into the Indian Ocean in response to the 1971 Indo-Pakistani War. A second combat deployment in 1972 brought the squadron to the war in support of Operation Linebacker II before the aerial campaign against North Vietnam ended in January 1973. During seven deployments in eight years of war, the *Ghostriders* lost five aircraft to hostile action, with two flyers killed and two taken prisoner. VF-142 crews proved their skill in aerial combat, downing one MiG-17 and two MiG-21s in 1967, and

one MiG-21 in both 1970 and 1972.

After the war, VF-142 deployed three times to the Mediterranean on board *America* (CV 66), once with Carrier Air Wing (CVW) 8 and, after switching to the F-14A *Tomcat* fighter, twice with CVW-6. The switch to CVW-6 involved a move from Miramar to Oceana on 1 April 1975. In 1978, VF-142 began a long association with CVW-7 on board *Dwight D. Eisenhower* (CVN 69). After one Mediterranean cruise, VF-142 deployed in 1980 for a record-setting voyage around the Cape of Good Hope to the North Arabian Sea in reaction to the Iranian hostage crisis, making only one port call during an eight-month deployment.

Over the next seven years, VF-142 made four more Mediterranean deployments on board *Eisenhower*, interspersed with short cruises to the North Atlantic and Caribbean. In 1989, VF-142 and sister squadron VF-143 upgraded to the improved F-14A+ (later F-14B) version (becoming the first squadrons to deploy with that aircraft), taking it to the Mediterranean in 1990. On station when Iraq invaded Kuwait in August 1990, *Eisenhower* entered the Red Sea via the Suez Canal. From the Red Sea, VF-142 provided patrols in support of Operation Desert Shield, returning home in September 1990.

After one more Mediterranean/Indian Ocean deployment on board *Eisenhower*, VF-142 moved with CVW-7 to the newest carrier, *George Washington* (CVN 73). The *Ghostriders* embarked on their last deployment in May 1994, commemorating the 50th anniversary of the Normandy invasion before proceeding to the Mediterranean in support of Operation Deny Flight over Bosnia, and then to the Persian Gulf in support of Operation Southern Watch over Iraq. Upon return home, the *Ghostriders* made preparations for disestablishment, making their final flight on 17 March 1995.