The Navy & Marine Corps Aviation Maintenance Safety Magazine

Mech

Winter 2010-11
www.public.navy.mil/navsafecen/

Special Issue
Flight Deck Awareness

The Navy & Marine Corps
Aviation Maintenance Safety Magazine
Winter 2010-11, Volume 50 No. 1

Naval Safety Center (757) 444-3520 (DSN 564) Dial the following extensions any time during the greeting

Publications Fax(757) 444-6791

Mech Staff

Lt. David Robb	**Editor**
david.c.robb@navy.mil	Ext. 7220
Derek Nelson	**Editor-in-Chief**
derek.nelson@navy.mil	Ext. 7243
Allan Amen	**Art Director**
allan.amen@navy.mil	Ext. 7248
John Williams	**Graphic Artist**
john.w.williams1@navy.mil	Ext. 7254
LCDR Paul Wiley	**Graphic Artist**
paul.wiley@navy.mil	Ext. 7252

Analysts

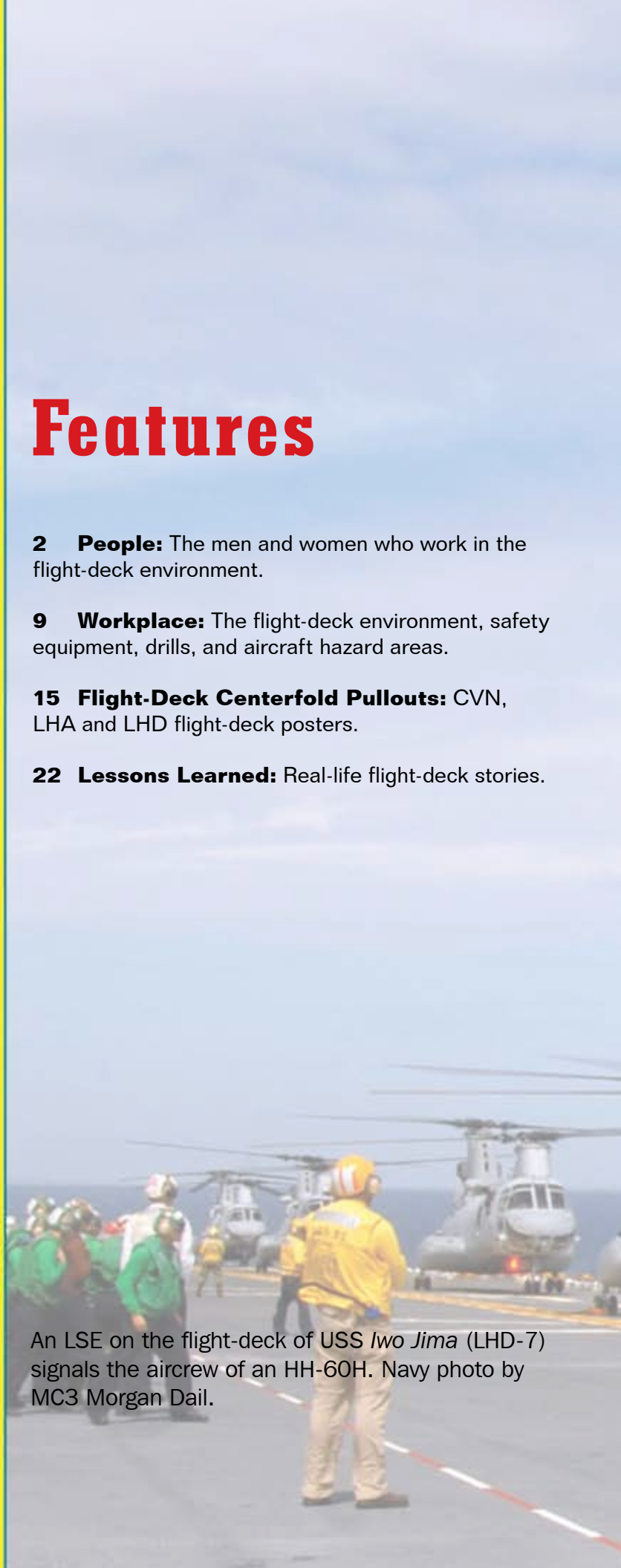
Maj. Anthony Frost	**Aircraft Maintenance and Material Division Head**
anthony.frost@navy.mil	Ext. 7223
AFCM Kevin Wilhelm	**Maintenance Master Chief**
kevin.p.wilhelm@navy.mil	Ext. 7269
MGySgt. Arthur Hagans	**Avionics/QA**
arthur.hagans@navy.mil	**Ext. 7276**
CW05 Daniel Kissel	**Avionics/ALSS/Analyst Department Head**
daniel.kissel@navy.mil	**Ext. 7278**
CWO3 S. T. Cruzpena	**Aircraft Maintenance Branch Head**
sigfrido.cruzpena@navy.mil	Ext. 7258
GySgt. Edward Rivera	**Airframes/Hydraulic**
edward.rivera2@navy.mil	Ext. 7285
AMCS Raymond Nichols	**Airframes/Hydraulic/QA**
raymond.nichols@navy.mil	Ext. 7293
AMCS Charles Walter	**Airframes**
charles.walter@navy.mil	**Ext.7222**
ADCS Ron Taylor	**Power Plants**
ronald.e.taylor@navy.mil	**Ext. 7221**
ADCS Charles Clay	**Power Plants**
charles.clay@navy.mil	Ext. 7218
GySgt. John Hess	**Power Plants**
john.hess3@navy.mil	Ext. 7190
ASCS Mark Tangney	**Support Equipment**
mark.tangney@navy.mil	Ext. 7239
GySgt. Robert Linn	**Logs and Records/TD/CTPL**
robert.m.linn@navy.mil	Ext. 7074
AZC Gainer Clark	**Logs and Records/TD/CTPL**
gainer.clark@navy.mil	Ext. 7812
ATCS Thomas Crook	**Avionics**
thomas.crook@navy.mil	Ext. 7280
AMEC Eric Wickham	**Egress/Environmental**
eric.wickham@navy.mil	Ext. 7292
PRCS Rich Young	**ALSS/Aircrew Equipment**
richard.a.young1@navy.mil	Ext. 7219
AOCM Craig Trute	**Ordnance**
craig.trute@navy.mil	Ext. 7171
Lt. Rey Stanley	**Facilities Branch, Fuels, CFR/ARFF, BASH**
reynaldo.stanely@navy.mil	Ext. 7281
ABCM Lance Hands	**ALRE/Air Terminal**
lance.hands@navy.mil	Ext. 7279
ABECS Hubert Chambers	**ALRE/Air Terminal**
hubert.chambers@navy.mil	Ext. 7282

Mishaps cost time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness. This magazine's goal is to help make sure that personnel can devote their time and energy to the mission. We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is hazardous; the time to learn to do a job right is before combat starts.

Mech (ISSN 1093-8753) is published quarterly by Commander, Naval Safety Center, and is an authorized publication for members of the Department of Defense. Contents are not necessarily the official views of, or endorsed by, the U.S. Government, the Department of Defense, or the U.S. Navy. Photos and artwork are representative and do not necessarily show the people or equipment discussed. We reserve the right to edit all manuscripts. Reference to commercial products does not imply Navy endorsement. Unless otherwise stated, material in this magazine may be reprinted without permission; please credit the magazine and author. Periodicals postage paid at Norfolk, Va., and additional mailing offices.

POSTMASTER: Send address changes to Mech, Naval Safety Center, 375 A Street, Norfolk, VA 23511-4399.
Send articles, BZs and letters to the address above, or via e-mail to the Mech staff, SAFE-Mech@navy.mil. Visit us on-line at www.public.navy.mil/navsafecen/

Features



An LSE on the flight-deck of USS *Iwo Jima* (LHD-7) signals the aircrew of an HH-60H. Navy photo by MC3 Morgan Dail.

Foreword

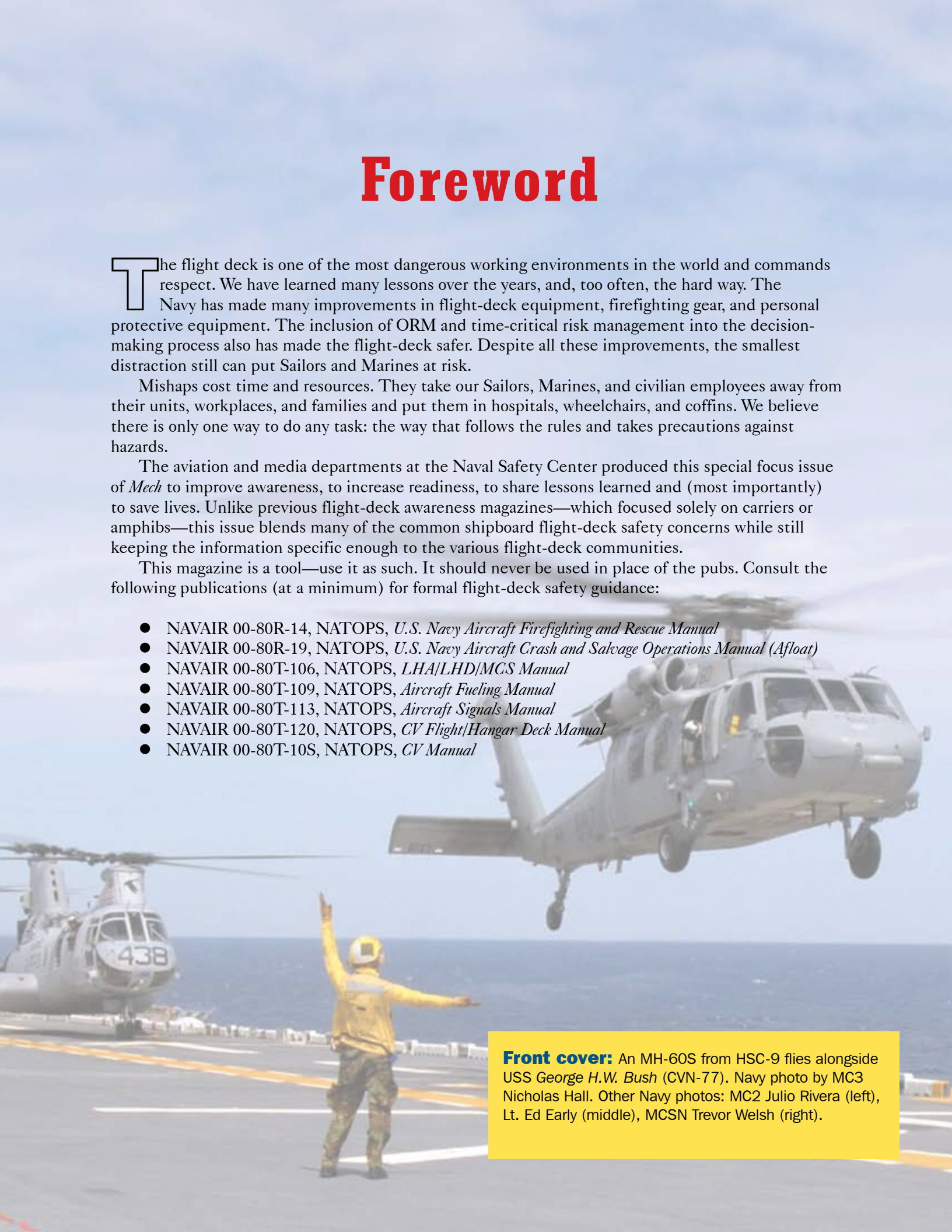
The flight deck is one of the most dangerous working environments in the world and commands respect. We have learned many lessons over the years, and, too often, the hard way. The Navy has made many improvements in flight-deck equipment, firefighting gear, and personal protective equipment. The inclusion of ORM and time-critical risk management into the decision-making process also has made the flight-deck safer. Despite all these improvements, the smallest distraction still can put Sailors and Marines at risk.

Mishaps cost time and resources. They take our Sailors, Marines, and civilian employees away from their units, workplaces, and families and put them in hospitals, wheelchairs, and coffins. We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards.

The aviation and media departments at the Naval Safety Center produced this special focus issue of *Mech* to improve awareness, to increase readiness, to share lessons learned and (most importantly) to save lives. Unlike previous flight-deck awareness magazines—which focused solely on carriers or amphibs—this issue blends many of the common shipboard flight-deck safety concerns while still keeping the information specific enough to the various flight-deck communities.

This magazine is a tool—use it as such. It should never be used in place of the pubs. Consult the following publications (at a minimum) for formal flight-deck safety guidance:

- NAVAIR 00-80R-14, NATOPS, *U.S. Navy Aircraft Firefighting and Rescue Manual*
- NAVAIR 00-80R-19, NATOPS, *U.S. Navy Aircraft Crash and Salvage Operations Manual (Afloat)*
- NAVAIR 00-80T-106, NATOPS, *LHA/LHD/MCS Manual*
- NAVAIR 00-80T-109, NATOPS, *Aircraft Fueling Manual*
- NAVAIR 00-80T-113, NATOPS, *Aircraft Signals Manual*
- NAVAIR 00-80T-120, NATOPS, *CV Flight/Hangar Deck Manual*
- NAVAIR 00-80T-10S, NATOPS, *CV Manual*



Front cover: An MH-60S from HSC-9 flies alongside USS *George H.W. Bush* (CVN-77). Navy photo by MC3 Nicholas Hall. Other Navy photos: MC2 Julio Rivera (left), Lt. Ed Early (middle), MCSN Trevor Welsh (right).

Navy photo by MC3 N.C. Kaylor

Air Officer (Air Boss or Boss) — Is responsible to the ship's commanding officer. Supervises and directs primary flight-control operations, aircraft-launch-and-recovery equipment (ALRE), aviation fuel systems, aircraft handling on the flight deck and hangar deck, aircraft firefighting, and crash, salvage and rescue operations.

Navy photo by MC3 Kathleen Gorby

Navy photo by MC3 Jason Poplin

Assistant Air Officer (Mini Boss) — Aids the Air Boss by making sure that his plans, orders and instructions are carried out.

Aircraft Handling Officer (ACHO or Handler) — Exercises overall supervision of embarked aircraft and assists the Air Boss in conducting of flight operations.

Yellow Jerseys

Flight Deck Officer — Is responsible for safe and timely operations, training of personnel, readiness of aircraft handling support equipment and overall maintenance and condition of the flight deck.

Arresting Gear Officer (AGO or The Hook) — Responsible to the Air Boss via the Handler for the safe and efficient operation of the recovery equipment and crew during recovery operations. The AGO also enforces operational precautions.

Navy photo by MC2 David Kolmel

Plane Directors — Provide visual signals to cockpit crews (pilots) in guiding aircraft movements.

Navy photo by MC3 Brent Thacker

The Flight-Deck Chief — The principal assistant to the flight-deck officer, provides supervision and technical expertise to support flight operations.

Catapult Officer (Shooter) — Is directly responsible to the Air Boss, via the Handler, for the safe and efficient operation of launch equipment, and for the crew's performance during launches. He has the ultimate responsibility for safety in launching of all aircraft from the catapults.

Navy photo by MC3 Yesenia Rosas

Aircraft Crash and Salvage Officer (Air Bos'n) — Supervises crash crews and fire parties in handling of aircraft emergencies during flight operations and general quarters. The Air Bos'n also ensures the readiness of assigned personnel, firefighting, and salvage equipment. The crash-and-salvage officer also is responsible for the overall training of air department and air wing's flight-deck personnel in aircraft firefighting and crash and salvage operations.

Navy photo by MC3 Travis Kuykendall

Navy photo by MC2 Julio Rivera

Navy photo by MC3 Morgan Dial

The Vertical/Short Takeoff and Landing (V/STOL) Launch Officer — Is thoroughly familiar with the NATOPS flight manual and shipboard operating bulletins for the specific types of aircraft and must be able to recognize proper and improper aircraft characteristics just before launch.

The Landing Signal Enlistedman (LSE) — Responsible for visually signaling the helicopter, thus assisting the pilot in making a safe takeoff or approach and landing. Responsible for directing the pilot to the desired spot and for ensuring general safety conditions of the flight-deck area, including control of the flight-deck crew.

White Jerseys

Safety Officer/Safety Petty Officers — Oversee flight operations to make sure all activities follow the rules. They continuously assess risk, provide training in mishap prevention, monitor surveillance programs and investigate in-house hazard reports.

Landing Safety Officer (LSO) — Ensures that each aircraft remains within safe parameters during landing approach through radio communications and light signals. LSOs are stationed portside aft. They waveoff aircraft that are outside the safe-landing envelope.

Navy photo by MCSN Philip Morrill

Navy photo by MC2 Adrian White

Squadron Plane Inspectors (Trouble-shooters) — Are responsible for safety and final inspection of aircraft before launch.

Medical: Flight-Deck Corpsmen — Positioned in the flight-deck battle dressing-station (BDS) to provide immediate medical assistance and treatment to flight-deck personnel.

The Combat Cargo Officer (CCO) — Is responsible for the safe and orderly flow of troops, passengers, mail and cargo. This officer's duties include compiling troop and passenger manifests, doing a preflight brief for troops and passengers, and making sure people transiting the flight deck do not cause a FOD hazard and are escorted.

Navy photo by MC3 David Cox

Green Jerseys

Navy photo by MC2 Marc Rockwell-Pate

Squadron Maintenance Personnel — Are responsible for doing scheduled and unscheduled maintenance on embarked aircraft.

Topside Safety Petty Officer (TSPO) — Ensures that holdbacks and repeatable-release assemblies are installed, and that the aircraft's launch bar is seated in the shuttle spreader. For bridle aircraft, the TSPO makes sure the bridle is engaged with the spreader and the aircraft's tow fittings. They are the last people to exit from under the aircraft.

Catapult Safety Observer — Directly represents the launching officer and makes sure people follow launch procedures and precautions.

Holdback Personnel — Install repeatable-release assemblies, tension rings and bars, and holdback assemblies. They also verify position.

Centerdeck Operator — Communicates with catapult control, relaying aircraft type, gross weight, side number, and capacity selection valve settings for the launching officer.

Navy photo by MC3 Philip McDaniel

Jet-Blast Deflector (JBD) Operator — Raises and lowers the jet blast deflectors for each aircraft. The JBD prevents jet blast from hitting personnel and aircraft aft of the catapult launching area.

Navy photo by MC2 James Evans

Navy photo by MC3 Peter Merrill

Topside Petty Officer (TPO) — Supervises the arresting-gear topside crew. Responsible to the AGO for ensuring topside arresting-gear equipment is in good working order.

Deck-Edge Operator — Retracts the arresting gear after recovery of each aircraft. Is stationed in the catwalk.

Hook Runners — Ensure cross-deck pendant and purchase cable have been disengaged from the aircraft tailhook. When the landing area is clear, they give the retract signal to the deck-edge operator.

Weight-Board Operator — Verifies the aircraft gross weight with the aircrew as a final check before launch. Each plane requires a different catapult CSV setting based on aircraft weight.

Deck Checkers — Ensure the landing area is FOD-free, the wire is in position for aircraft recovery, and all personnel are clear of landing area.

Photographers — Capture still and video images of flight operations for documentation and media requests with a safety rep.

Red Jerseys

Navy photo by MCAN Jonathan Chandler

Explosive Ordnance Disposal (EOD) — Are available on the flight deck during all launch and recovery operations when aircraft are carrying weapons or ordnance. They dispose of, disarm and neutralize ordnance involved in an aircraft crash or fire or that is otherwise defective.

Ordnance Handlers — The "BB Stackers" move, load, and unload ordnance on aircraft.

Crash and Salvage – The flight-deck "fire department" operates all mobile firefighting vehicles and aircraft salvage equipment. They are responsible for providing initial aircraft fire-fighting efforts, aircrew or personnel rescue, and aircraft salvage on the flight-deck and hangar deck.

Ordnance Officer — Responsible for the movement, handling and loading of aircraft ordnance.

CAG Arm and De-arm Team — Ordnance personnel assigned to the carrier air wing for arming and de-arming weapons.

Navy photo by MC3 Matthew Hepburn

Blue Jerseys

Aircraft Handling Crews/Chock-and-Chain Personnel — Commonly called "blueshirts," they are responsible to the aircraft director for installing and removing chocks, tie-downs and other aircraft-handling equipment.

Navy photo by MCSN Mikesa Ponder

Tractor Drivers — Responsible for the pre- and post-operational check out and operation of SE, including tow tractors and mobile electrical power plants (MEPPs).

Elevator Operators (EOs) — Operate aircraft elevators, under the supervision of a safety observer, to move aircraft and equipment from the flight and hangar decks as needed. They also assist the Handler in maintaining the aircraft spotting and status boards in flight-deck control.

Navy photo by MC1 Richard Doolin

Purple Jerseys

Aviation Fuels Officer — The "Fuels Bos'n" is responsible to the Air Boss for efficiently and safely operating aviation-fuel systems and for managing the aviation-fuel quality-control program.

Navy photo by MC3 Casey Kyhl

Aviation Fuels Crews — Commonly known as "grapes," they are responsible to the Fuels Bos'n for the safe operation of the aviation-fuel system. They fuel and defuel squadron aircraft from stations located on the flight and hangar decks.

Navy photo by MC3 Bryant Kurowski

Brown Jerseys

Plane Captains — Make sure aircraft are inspected and serviced before and after each flight. They supervise start-up procedures and are responsible for the cleanliness and general condition of their aircraft.

Navy photos by MC2 Kilho Park

The flight deck is filled with activity: aircraft taxiing, engines starting, people running, whistles blowing, and sirens wailing. It is so busy that everyone must maintain situational awareness at all times. Aircraft are launching and recovering, catapults are shooting no-loads, mechanics are doing engine turns, people are re-spotting and parking aircraft, "grapes" are refueling airplanes and helos, and other Sailors are handling ordnance. More than a hundred jobs can be going on at the same time. Unfortunately, each flight-deck task has the potential to end in a mishap.

Sailors and Marines armed with the knowledge of places to avoid, things to look for, and sounds to be aware of are more able to manage risk. Aviation Sailors and Marines must know the flight-deck rules, understand flight-deck markings, learn how to maneuver about the deck, and be familiar with the work environment.

The Safety Environment


Navy photo by MC3 Marie Brindovas


Navy photo by MC3 Jared Benner

FOD (Foreign Object Damage) Walkdowns

These are held before, during, and after flight operations. Squadron, air wing, and ship's company air-department personnel participate by forming a line across the width of the flight deck, and they slowly walk from bow to stern. The purpose is to search out loose objects on the deck that, if ingested into aircraft engines, would result in costly repairs. Flight-deck crews have been seriously injured by FOD that has been blown by jet blast. FOD always is a major safety concern on all Navy air-capable ships.

Flight-Deck Drills

The two most common flight-deck drills—flight-de firefighting and barricade drills—exercise the crew's ability to prepare for two deadly flight-deck scenarios: fire and emergency (crash) landing.


Navy photo by MC3 Trevor Welsh

FOD is one of the leading reasons why we have to prematurely replace aircraft engines. While the obvious sources of FOD are aircraft fasteners, safety wire and other flight-deck debris, personal items are a growing problem: earring backs, coins, keys, jewelry, pens, pencils and unauthorized pocket knives. Many of these items migrate to the flight deck in the pockets and flaps in flight-deck clothing and flight suits. Recent feedback from the fleet indicates an increase in finding hairpins during FOD walkdowns.

Preventing this type of FOD requires aggressive, deckplate-level leadership, ensuring personnel adhere to the command's FOD policy. Every Sailor and Marine must be indoctrinated in FOD prevention and potential FOD sources.

Units that operate aircraft, engines, or SE, or that directly support flight operations, must have a FOD-prevention program manager and a command FOD-prevention/investigation team (which includes members of the safety department and QA Division).

COs of aviation-capable ships, aviation stations and other commands supporting aircraft operations or maintenance have other FOD-prevention responsibilities. At least one person from each aviation department that has personnel working in aircraft operating/maintenance areas must be a member of the FOD-prevention/investigation team.

Refs: COMNAVAIRFORINST 4790.2A, Chapter 10, para. 10.11.2.3 and 10.11.2.4.

Flight Deck Fire and Firefighting Symbols

AFFF Station Markings

A green stripe is painted up and over the deck-edge wheel-stop coaming. A white "AFFF" is painted in the center of the stripe. At locations where coaming is not installed, the stowage location is marked by a green square painted on the flight deck with white "AFFF" letters painted in the center of the square. AFFF is the primary extinguishing agent for aircraft fires on all Navy air-capable ships.

CO_2 Bottle Stowage Marking

A red stripe is painted up and over the deck-edge wheel-stop coaming, and a white "CO_2" designation is painted in the center. Where coaming is not installed, the deck edge is marked with a white circle with a red "CO_2" designation in the center.

Purple K Powder (PKP) Stowage Marking

A red stripe is painted up and over the deck-edge wheel-stop coaming, and a white "PKP" painted on the center of the stripe. Where coaming is not installed, a white circle is painted on the flight deck and marks the stowage location. A red "PKP" designation is centered in the circle.

Salt-Water Station Marking

A red stripe is painted up and over the deck-edge wheel-stop coaming, and a yellow "W" painted in the center. Where coaming is not installed, the station is marked by a red triangle painted on the flight deck. A yellow "W" is centered inside the triangle.

Halon Marking

The Halon agent is found only in the P-25 mobile firefighting and rescue vehicle.

Navy photo by MCSN Mahlon Miller

Flight-Deck Basics

The Do's of flight-deck safety:

1. Know your limits. Fatigue is deadly.
2. Wear a complete and proper flight-deck uniform when working on the flight deck. This includes a cranial, pre-oped Mk-1 life preserver, flight-deck safety boots, flight-deck jerseys and gloves.
3. Be FOD-free.
4. Always enter the flight deck from the island.
5. Keep your head on a swivel.
6. Watch out for your shipmates.
7. Know the location of the nearest firefighting equipment.
8. Know how to operate firefighting equipment.
9. Know aircraft danger areas.
10. Stay alert!

Navy photo by MC2 Adrian White

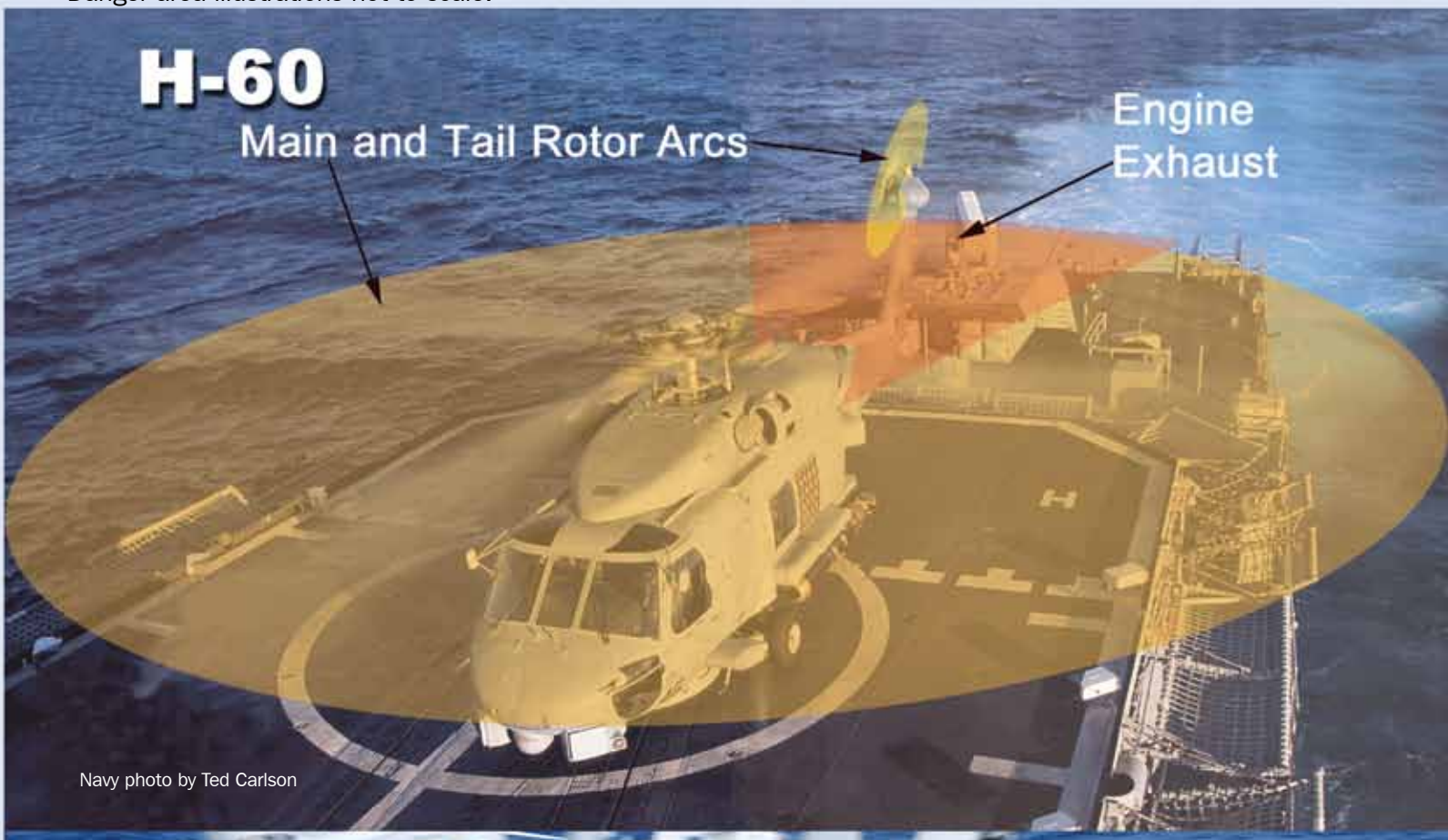
The Don'ts of flight-deck safety:

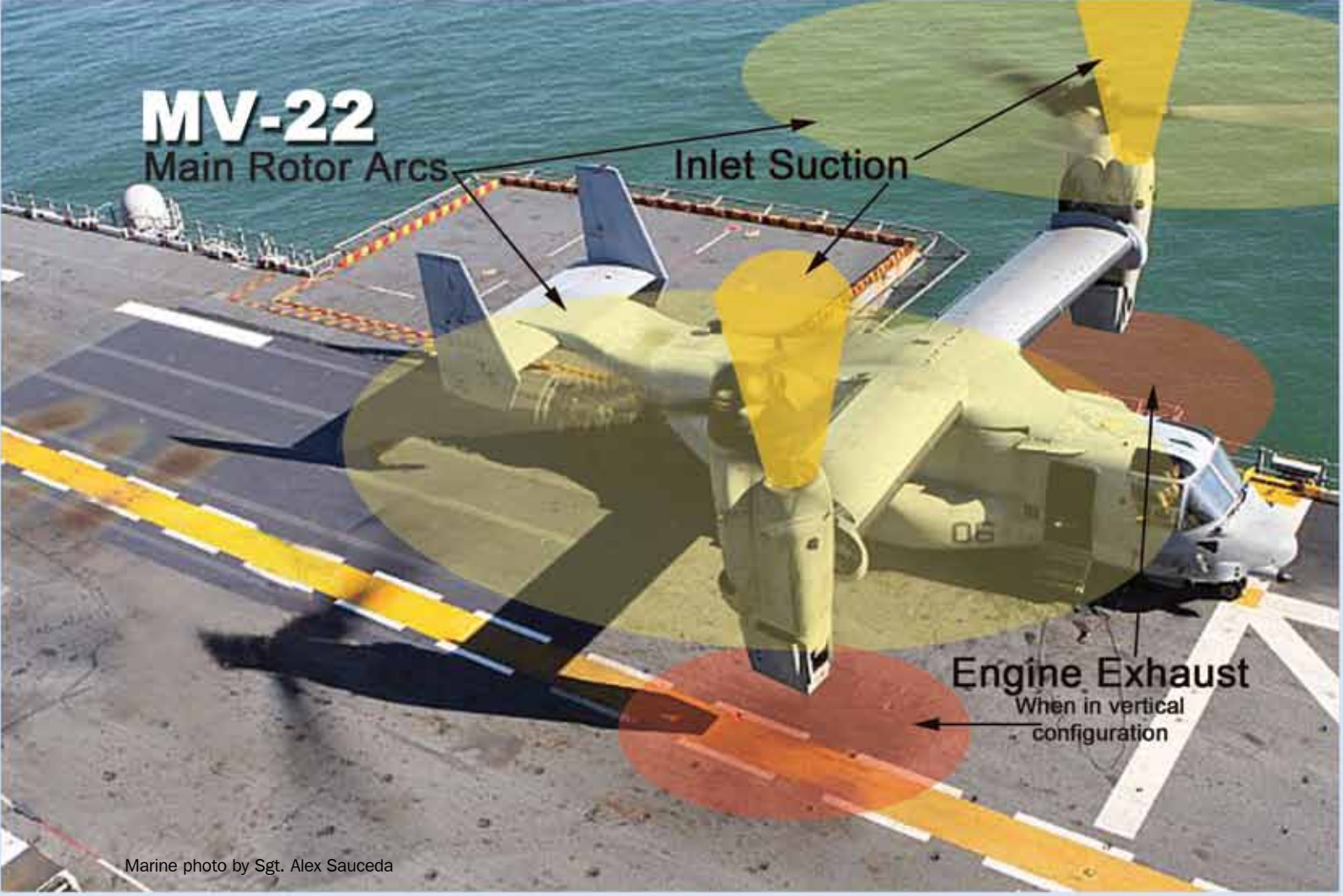
1. Don't come onto the flight deck during flight operations unless you have a job to do there.
2. Don't come onto the flight deck without the complete flight-deck uniform.
3. Don't wear jewelry (such as neck chains, wrist bracelets, or rings) while working on the flight deck, in the work center, or on aircraft.
4. Don't walk onto the flight deck from the port side during flight operations.
5. Don't turn your back to aircraft that are landing or taking off. These are the most dangerous times, and you must be ready to respond.
6. Don't sit anywhere on the flight deck during flight operations. If there is an emergency, you must be ready to respond.
7. Don't sleep on the flight deck.
8. Don't stand in front of mobile firefighting equipment. In an emergency, you could get run over.
9. Don't cross elevator stanchions when they are raised.

Personnel Flight-Deck Hazards

Danger areas around various aircraft.

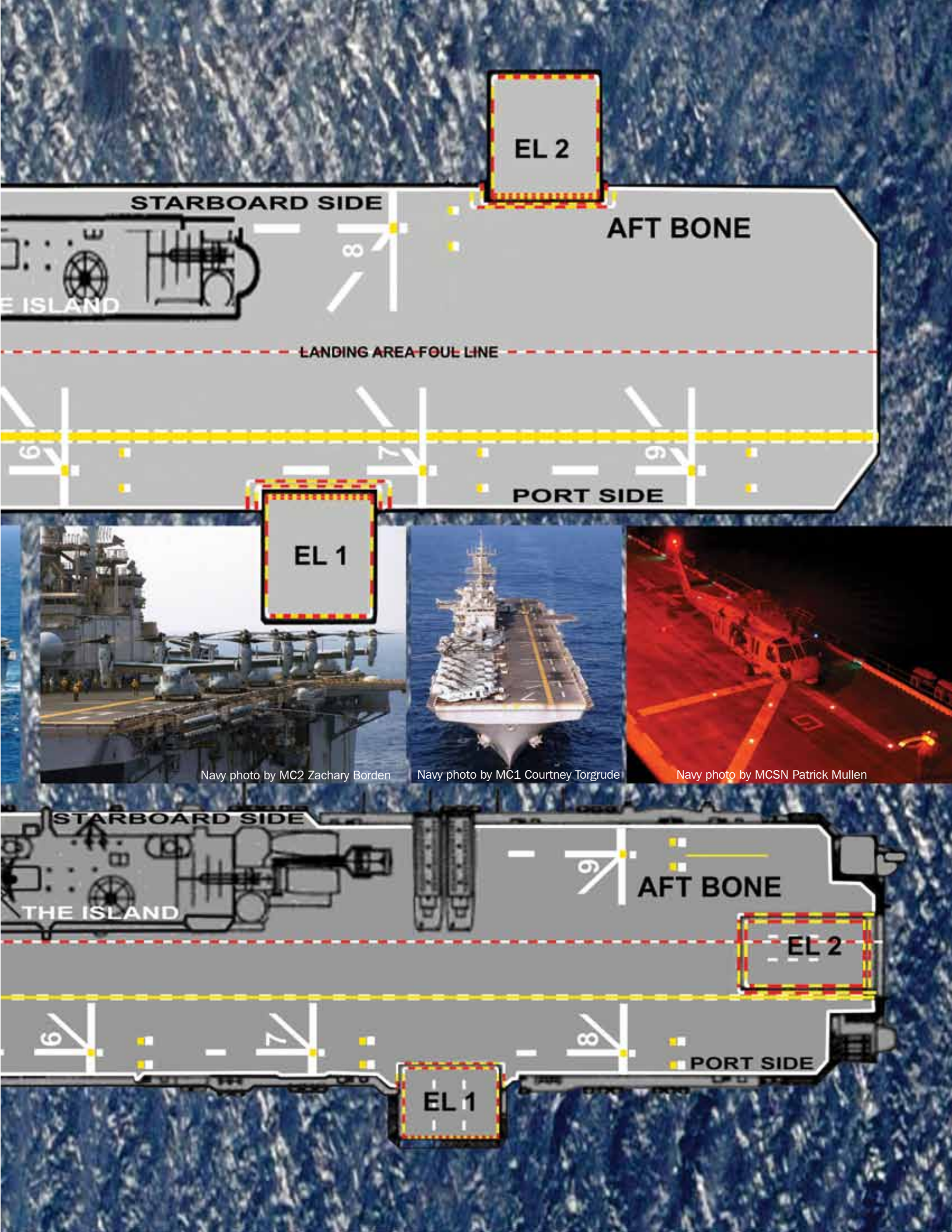
*Danger area illustrations not to scale.





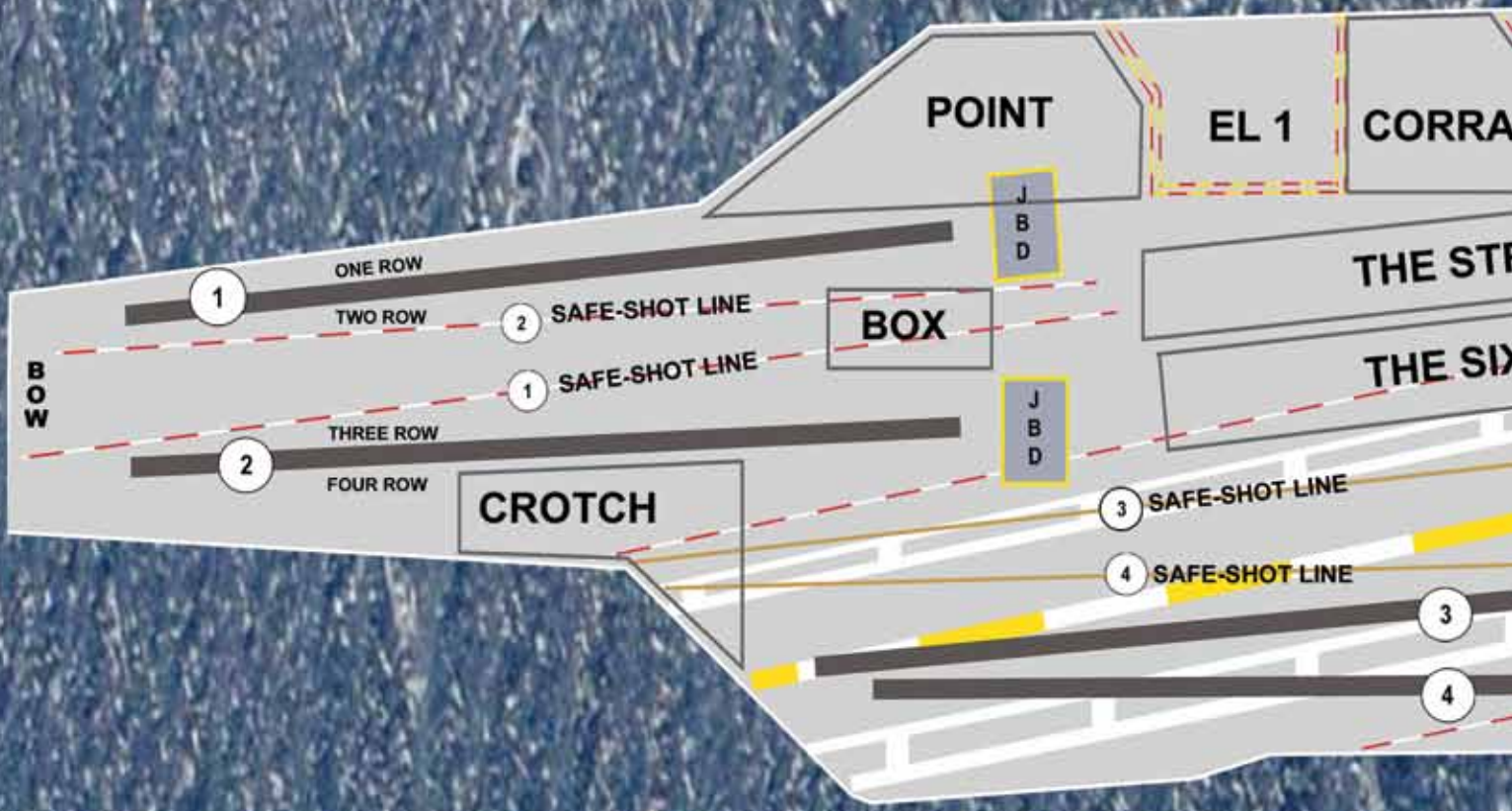
Marine photo by Sgt. Alex Sauceda

Navy photo by MC2 John Siller


EL 2
STARBOARD SIDE
AFT BONE
8
E ISLAND
LANDING AREA FOUL LINE
6
7
9
PORT SIDE
EL 1
Navy photo by MC2 Zachary Borden
Navy photo by MC1 Courtney Torgrude
Navy photo by MCSN Patrick Mullen
STARBOARD SIDE
9
AFT BONE
THE ISLAND
EL 2
6
7
8
PORT SIDE
EL 1

Navy photo by MC3 David Cox

Navy photo by MC2 Matthew Williams



Navy photo by MC2 Kilho Park

Navy photo by MC3 Jacob Moore

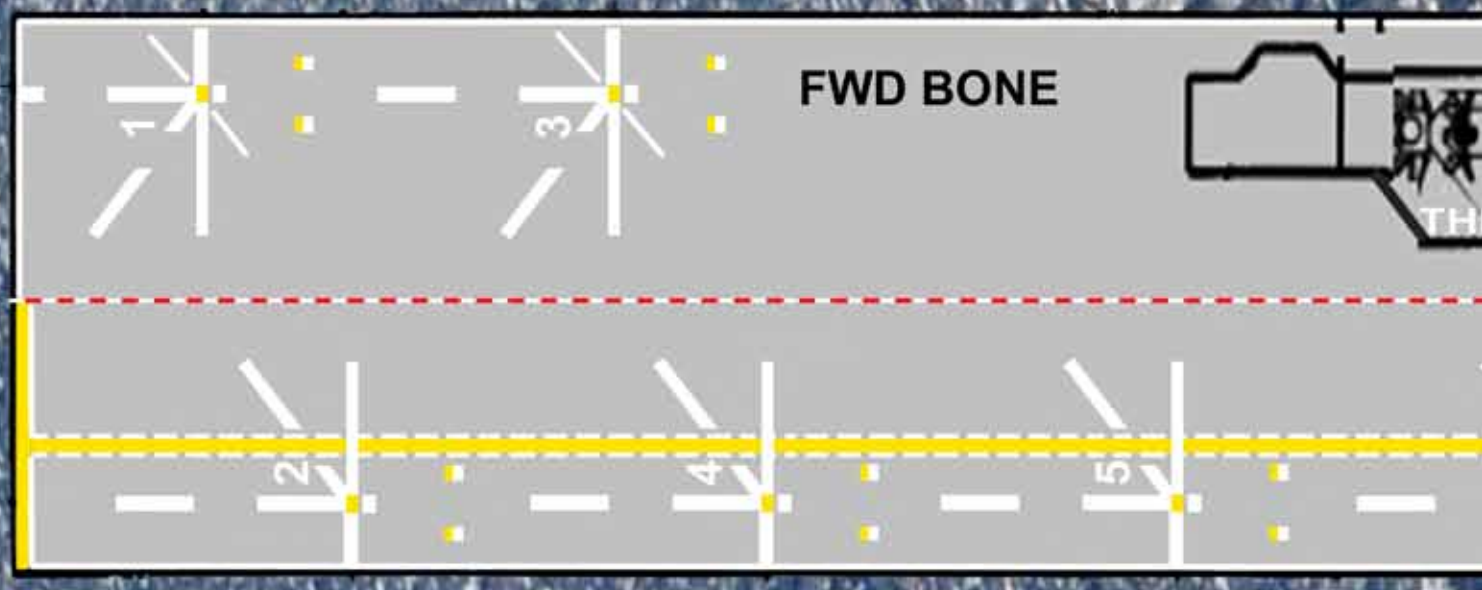
Navy photo by MCSN Dandra Pimentel

Navy photo by MC3 Spencer Mickler

Navy photo by MC3 David Cox

Navy photo by MC3 Charles Oki

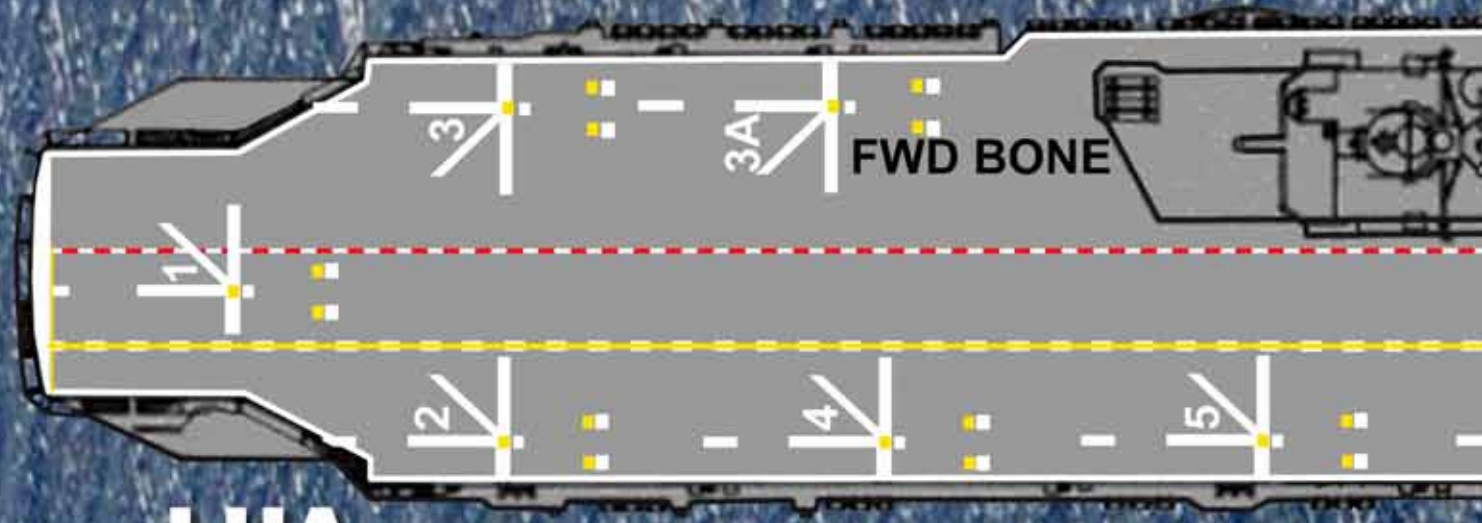
LHD



Navy photo by MC2 Andrew King

Navy photo by MC2 Mark Patterson

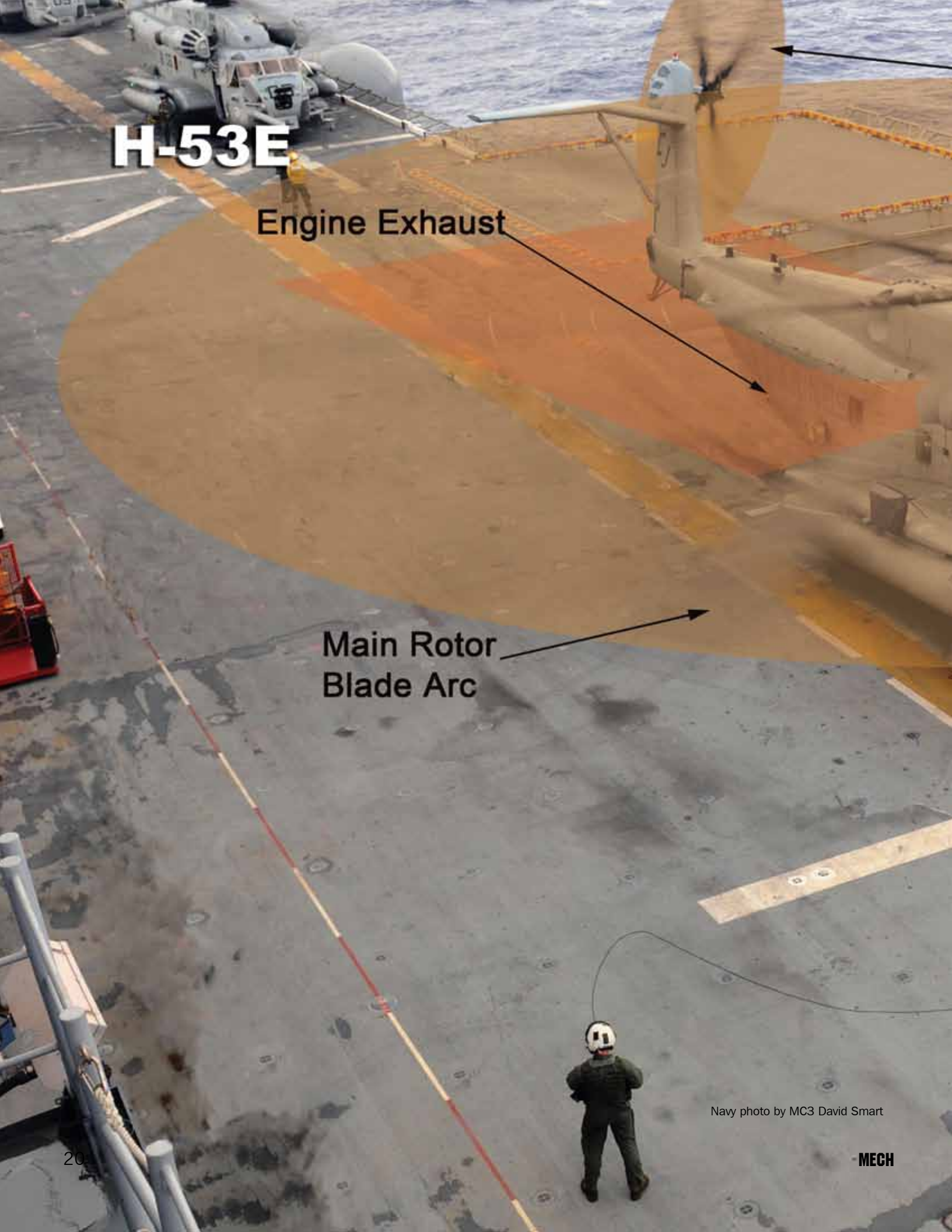
Navy photo by MC3 Foster Bamford



LHA


FA-18
Navy photo by MCSN Leonard Adams
504
504
Engine Exhaust
APU Exhaust
Inlet Suction


EA-6B
Navy photo by MC2 Jesse Dick
Engine Exhaust
Inlet Suction



Navy photo by MC3 David Smart


Tail Rotor Blade Arc
Turbine Blade Failure
APP Heat Exhaust
22

FROM ALMOST HOME TO ALMOST DEAD

By AN Aaron Broussard

November 21st was like any other day aboard USS *Harry S. Truman* (CVN-75). Ship's company was working hard, while the air department launched and recovered aircraft. Six months into a deployment, conducting flight operations was second nature to Carrier Air Wing Three.

As for me, I had just completed three months TAD in the mess decks; the flight schedule was new to me again. While completing my TAD, even the simplest of things about the flight deck were lost on me as washing dishes and sorting silverware became my job and focus.

Once my TAD was finished, I was anxious to check out and tackle the flight deck again. I was still a PC in training, a rookie among seasoned Sailors. I had been working on the flight deck for about a week, and had spent a few days at my chief's side regaining flight-deck awareness. Things slowly starting coming back to me. I was doing the same tasks over and over again and getting more comfortable. But on this particular day, I went to the flight deck with my head full of thoughts and concerns from home.

One of our squadron's EA-6B Prowlers recovered. The taxi director positioned the aircraft on fighter row, a dangerous spot because it's so close to the foul line. The nose of the aircraft was sitting directly on the foul line, facing aft. Once the aircraft was in position, the director gave the signal to chock and chain the aircraft.

I was standing on the port side of the aircraft, right next to the PC, but I knew that I would have to "catch" fuel on the starboard side of the plane once the right engine was shutdown. When the chain signal was given, I went directly for the nose landing-gear to chain and secure the aircraft. Once I finished, I thought about

how quickly I had fastened the chain from the aircraft to the deck. It may have taken me only five seconds—a personal best.

Without thinking, I crossed in front of the nose of the aircraft, going wide to stay clear of the intake. It was my normal route of travel around the airplane, except I had not recovered an airplane on fighter row since I had returned from TAD. I hadn't had to worry about the foul line before.

As I was making my way toward the starboard engine, a taxi director was waving frantically and started running toward me. My daydream of home vanished immediately as I looked down and realized I was well past the foul line and deep into the LA. I turned around, looked aft and saw an FA-18 Hornet about fifteen feet above the deck. I ran toward the foul line but before I got there the jet was waved off by the LSO and passed behind me.

I was then escorted to flight-deck control where the handler had some "nice" words for me before I headed for a chat with the Air Boss. Once I got back to my work center, it hit me like a ton of bricks. Everything happened so fast. If I had been three seconds slower at chaining down the plane (very ironic considering I thought it to be my personal best), the Hornet would have already caught the wire and there would have been no opportunity for an LA incursion and an LSO wave off.

After I had time to collect my thoughts, I realized that I could have been seriously injured or killed because I didn't stay focused on the flight deck. I had been getting too comfortable doing the same tasks over and over. I guess I didn't have the experience or proficiency to recognize when things were different. Everyone should constantly remind themselves that it is not always your shipmates or aircraft to be wary of on the flight deck. Sometimes the danger lies with you, and that can be the biggest danger of all. Always step onto the flight deck with a clear head and tackle every mission like it's your first—or it could be your last.

Airman Broussard works in the line shack at VAQ-130.

BLADE RUNNER

PROP GUARD SAVES THE DAY

"One morning during flight ops, I saw something I never will forget."

By AE1(AW) Jerry Jimenez

The carrier had come out of the shipyard recently and was conducting flight operations for the first time in more than two years. Our squadron, VAW-123, had a small detachment onboard to support flight-deck certification and carrier qualifications. One morning during flight ops, I saw something that I'll never forget.

A plane captain gave the "ready" signal to a handler and relinquished control of an E-2C. The handler in charge of the aircraft waited until the deck was clear, signaled us to pull chocks and chains on the E-2C, and began to direct the aircraft. As a precaution, final checkers stand "prop guard" while ABHs direct taxiing E-2Cs to the catapult; this ensures all hands remain clear of the spinning props.

One of those final checkers, AD3 Charles White, was standing prop guard on the starboard side of the aircraft when—out of the corner of his eye—he noticed a blue blur whiz by. Fortunately for this oblivious blueshirt, AD3 White was on top of his game. Acting quickly, White intercepted him and prevented what could easily have been a fatal mishap. There were only about five feet to spare between the blueshirt and the Hawkeye propeller.

This incident was a reminder of why prop guards on the flight deck are so important. When a carrier has been in the yard for a long time, it's easy for the flight deck crew to lose situational awareness.

Petty Officer Jimenez works at FRCMA, Norfolk, Va. Petty Officer White works in the power plants shop at VAW-123.

Navy photo by MCSN Justin Losack

THE HAZARDS OF A GREEN DECK

(*Mech*, Winter 2009-10)

By AM2 John Curtis

The ship recently had come out of the shipyard and was conducting flight operations for the first time in more than four years. It was another beautiful day at sea aboard one of our nation's finest aircraft carriers. Our squadron, VAW-123, had a small maintenance detachment aboard to support flight-deck certification and carrier qualifications. Another E-2C Hawkeye squadron and a C-2A Greyhound squadron also were conducting carrier qualifications. I learned quickly that three squadrons of big-wing, prop aircraft—all conducting simultaneous shipboard operations—significantly increase the risks of working on the flight deck.

Although I'm a Hawkeye maintainer, at the time of the incident, I was assisting as a final checker for a Greyhound that was preparing to launch. Since E-2C and C-2A aircraft are similar airframes, final checkers from embarked E-2C squadrons qualify on both aircraft and help with C-2A man-ups and launches.

The C-2A plane captain gave the "up and ready" signal to the ABH and relinquished control of the aircraft. The yellowshirt waited for aircraft 602, an E-2C, to trap. When the deck was clear, he signaled for us to pull chocks and chains. The C-2A began to taxi out of the "hummer hole" and forward into the "street" (the area in front of the island). As a safety precaution, final checkers stand "prop guard" while E-2Cs and C-2As taxi, ensuring all hands remain clear.

While the Greyhound was coming out of the "hummer hole," 602 taxied from the landing area and turned aft to park. As a result, two spinning props were heading toward each other, and, apparently, neither ABH was aware of the other's actions. As the two aircraft started closing on one another, I saw the starboard prop of 602 heading straight toward the ABH controlling the C-2A. I immediately ran over and pulled him away from the spinning propeller.

Though I have been in the Navy for five years (including two deployments), I never had seen someone come so close to being hit by a prop. This incident was a sobering reminder of why "prop guards" on the flight deck are so important.

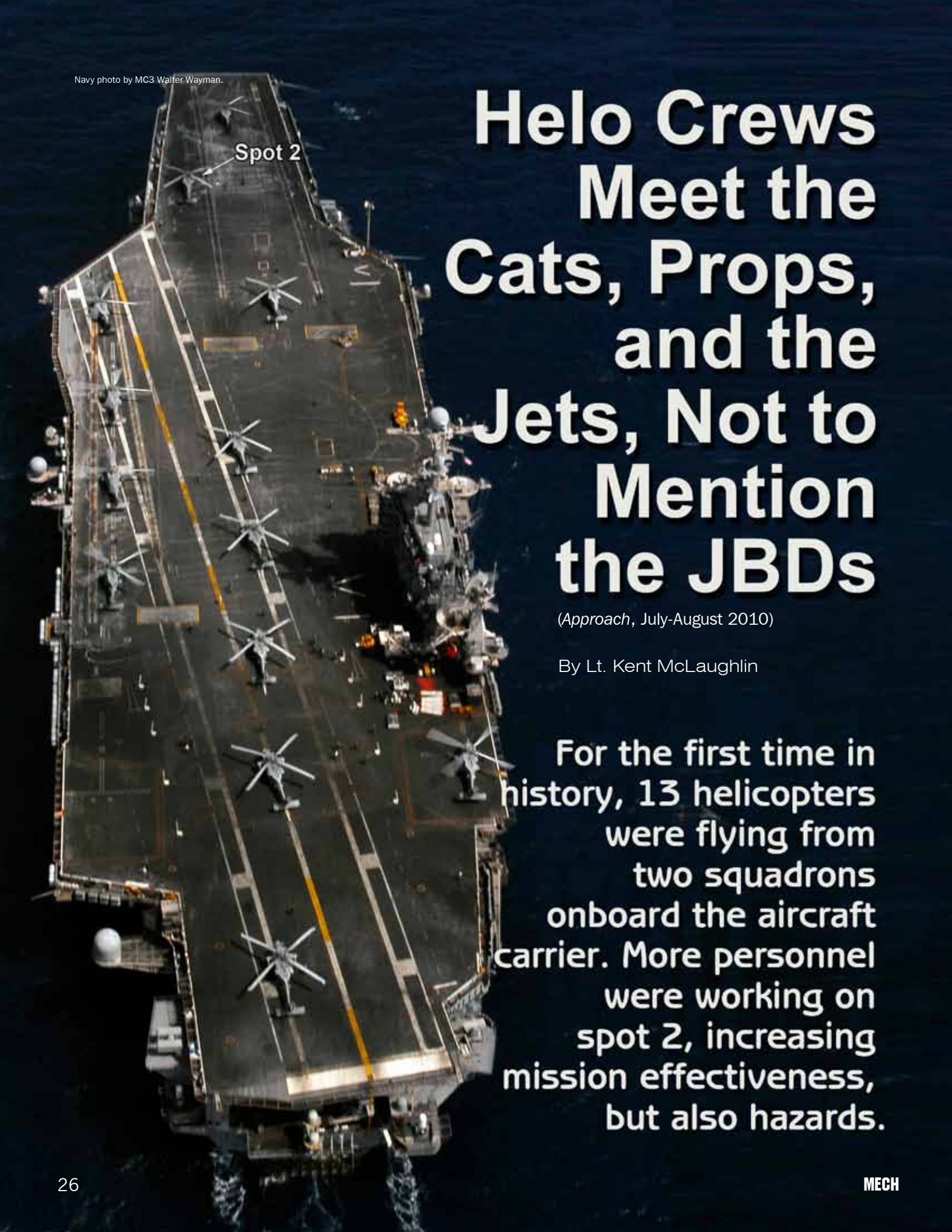
When a carrier has been in the shipyard for an extended period of time, the flight-deck crew loses its proficiency in handling aircraft. Even with TAD stints to operational ships to maintain certification, it takes time for any crew to regain that proficiency.

All crew members on the flight deck must maintain SA—for themselves, as well as others—at all times.

Petty Officer Curtis works in the airframes shop at VAW-123.

Analyst Comment: Time in the yards or time at sea is irrelevant. I've seen this exact scenario during the closing weeks of a months-long deployment. Everyone (the flight deck crew, squadron troubleshooters, pilots and aircrew) survives by respecting the hazards and watching out for each other, at all times.
- ATCS(AW/SW) Thomas Crook

Navy photo by MC2 Kilho Park



Navy photo by MC3 Walter Wayman.

Helo Crews Meet the Cats, Props, and the Jets, Not to Mention the JBDs

(*Approach*, July-August 2010)

By Lt. Kent McLaughlin

For the first time in history, 13 helicopters were flying from two squadrons onboard the aircraft carrier. More personnel were working on spot 2, increasing mission effectiveness, but also hazards.

Carrier life is changing. During CVW-9's work-ups and WestPac 2009 aboard USS *John C. Stennis* (CVN-74), HSC-8 and HSM-71 learned a lot about coordinating multiple-helicopter operations while jets launched and recovered. Flight ops became more complex with the use of helicopter spot 2. This spot enabled helo crews to preflight and startup while fixed-wing aircraft launched from cats 1, 3, and 4; it also cleared the landing area for recovery. Our increased use of spot 2 identified several safety issues and produced numerous lessons learned that can help future air wings as they transition to the HSC(CVW)and HSM model.

One of the major changes in carrier life is the addition of a helicopter maritime strike (HSM) squadron, which adds 11 helicopters to the carrier-strike group, five of which are based on the carrier. As a result, more than four helos often fly at the same time. They require more space, landing spots, and personnel to be on deck, between and during fixed-wing launch and recovery cycles. The increased use of spot 2 is a method the CVW-9 and CVN-74 team used to generate additional helicopter sorties with minimal impact on fixed-wing operations.

The largest obstacle was the lack of experience of helicopter flight-deck crews using spot 2. This issue was apparent when a Sailor came out on the port catwalk on the way to spot 2, forcing an FA-18 to wave off, which created a dangerous situation for that individual and for the Hornet flight crew. Also, helo maintainers and pilots were not accustomed to spending a significant amount of time on the flight deck during fixed-wing flight ops.

We also identified more hazards on the transit to spot 2 versus the traditional spots on the waist. A pilot with HSC-8 described the situation, "The first time I was on spot 2, we had to wait to hot pump and crew swap, while they launched Hornets off cat 1 and a COD off cat 3. Because the helo safe line and cat 1 foul line overlap, we had to wait for clearance from the yellowshirts to enter our own rotor arc." Building the situational awareness of flight crews was a major concern.

Ship flight-deck crews also had to adjust to the greater number of helicopters on deck, and the additional landing spots required to launch them. In one evolution, a helo was incorrectly spotted between two FA-18s on spot 2. The helicopter was placed less than two feet outside the wheel boxes, but crossed over the foul line when the rotors were spread. This relatively minor mistake was enough to delay flight ops until the helo could be moved, compressing an already tight cycle. As a result, squadron maintenance personnel were included in future aircraft moves to spot 2.

HSC-8, HSM-71, and the ship's air department held several joint standardization meetings to mitigate the hazards created by spot 2's increased usage. In-depth ORM helped the squadrons institute standard procedures and routes to make the safest transit to the bow and spot 2. Personnel were directed to walk in front of the six-pack, past the crotch, around JBD 1, then around the foul line. This routing allowed crews and troubleshooters to maintain situational awareness on the deck, and provided a well-lit route during night operations, past most of the hazards of the busy flight deck.

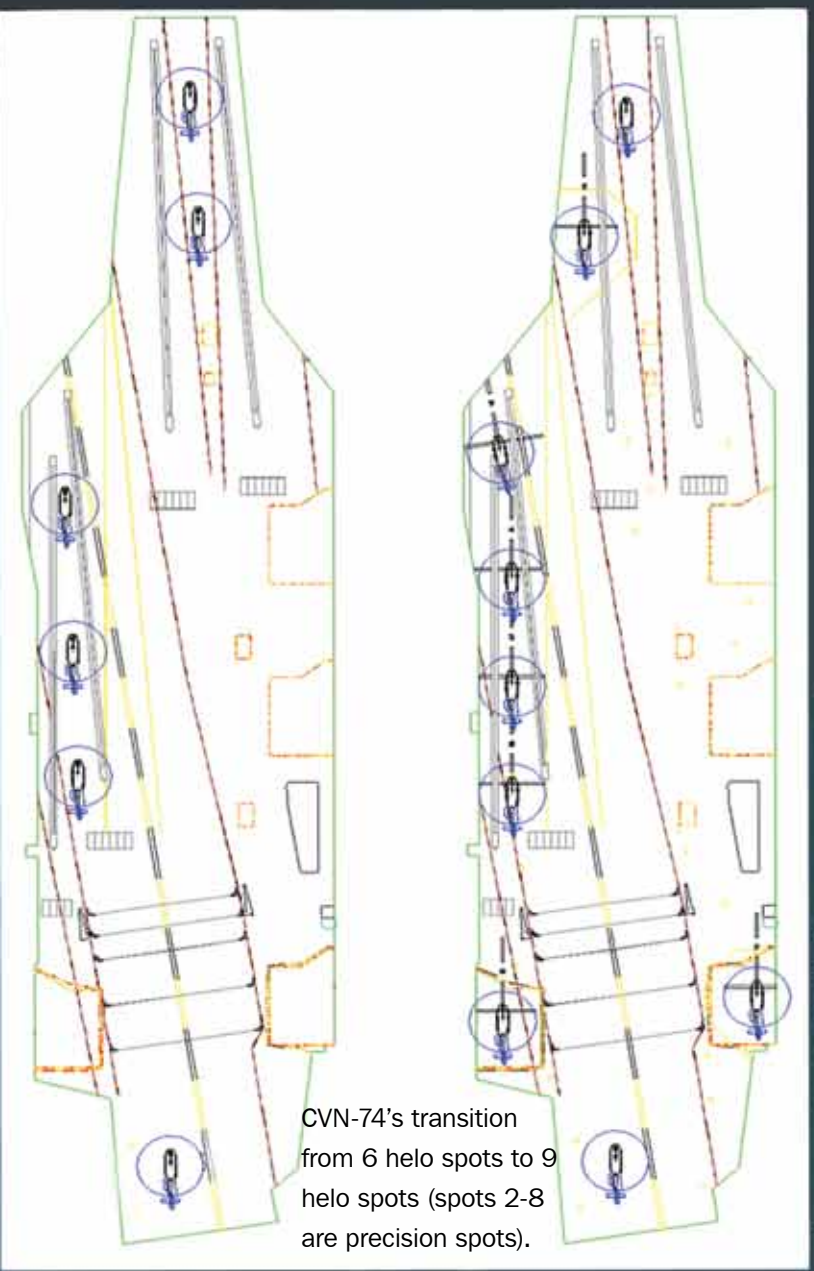
Hazard reduction required more than just a standardized route. Training was designed to teach flight crews and maintainers more about the deck-marking lines and hand signals given by flight-deck personnel. A solid crew brief made the transit to the helo much more predictable and safer.

The HSC-8 pilot described their plan to mitigate risks during the long transit to spot 2: "We knew we'd have a long transit to our helo, and during the ORM portion of the brief, we always included our route to the bird. This definitely set us up to be safe on the flight deck, and keep an eye on the yellowshirt's signals." The in-depth briefs instructed the junior flight-crew members, and reminded the more experienced personnel of the dangers of the flight deck.

Squadron maintainers also had to implement new procedures to mirigate the risks presented by operating from spot 2. "The addition of a blue T on the cranials of those who were in training on the flight deck identified who to look out for and pay special attention to," said AEC Michael Tuck, the HSC-8 flight-deck coordinator (FDC).


Navy photo by MCSN Rachel Hatch

Navy photo by MC3 Frankie Colbry



CVN-74's transition from 6 helo spots to 9 helo spots (spots 2-8 are precision spots).

This blue T identifier allowed flight-deck leaders to quickly build situational awareness (SA), and make time-critical-ORM decisions. AEC Tuck said, "I had to assess the risks every time I sent people down to their shops to get tools or parts." The FDC's SA was critically important because so many people were in different places on the flight deck, and not always within view of each other. "The whole flight deck was changing, and we continually had to remind people of the increased dangers of adding more spinning rotors to the flight deck," said AEC Tuck.

The CVW-9 and CVN-74 team mitigated any serous issues whenever a new hazard was identified. Communication between aviation and ship personnel allowed outstanding cooperation on the flight deck. Everyday ORM allowed the squadrons to work together and integrate into the first HSC- and HSM-capable carrier air wing, while keeping the flight deck as safe and efficient as possible for CVW-9 and USS *John C. Stennis*.

Lt. McLaughlin flies with HSC-8.

Navy photo by MC2 Elliott Fabrizio

Head on a Swivel, Feet in the Air

By ADAN Reinaldo Batista

Most who've read a *Mech* magazine or two have probably read a clichéd story about a young airman or petty officer getting injured on the flight deck because his head wasn't in the game; he wasn't focused on the 2.5 acres of dangerous flight-deck territory. Though I have read many a story like this, I never thought of myself as one of "those" maintainers—until now

We were about two months into our 2010 deployment aboard USS *Abraham Lincoln* (CVN-72), and days were flying by because of our heavy workload. It was my turn to be up on deck to final check and troubleshoot any gripes with our aircraft.

The day had been uneventful until shift change. An external fuel-tank was leaking fuel onto the flight deck, and the sky was getting darker by the minute. Although the problem was an easy fix, I needed to go down to the shop to confer with my supervisor.

While walking aft along the "hummer hole" (the area of the flight deck where yellow shirts park E-2Cs), I heard the Air Boss come over the 5MC: "Fixed-wing recovery complete." As usual after such an announcement, everyone started walking out onto the landing area (LA). I thought, "Well, everyone else is walking in the LA, it must be okay." Besides, cutting across the LA would get me to my shop just a little bit faster.

As I stepped over the foul line, I didn't realize that the arresting cable was still retracting. Nor did I notice that I had just stepped only six inches aft of it. In fact, the first hint I got that I was in the wrong place was when the arresting gear cable started to rub against my boot.

I jumped straight into the air immediately, just in time before the cable retracted further and would have taken out my legs. Lucky for me nothing happened, but I had learned a valuable lesson about inattentiveness and complacency on the flight deck.

Airman Batista works in the power plants shop at VFA-137.

A Close Call on

By Ltjg. Frederick Grant

As the newest PQM (pilot qualified in model) with HSM-71, I was excited about our two weeks underway aboard USS *John C. Stennis* (CVN-74) for SUSTEX 09. Before getting underway, our squadron did an all-hands review of flight-deck safety. A key area was the precautions when transiting to and from aircraft. We heard a lot of information that you could sum up with this statement: "New pilots, stay with the rest of your aircrew when you're on the flight deck." Once aboard, the pilots new to the carrier received further familiarization training out on the flight deck itself. It seemed straightforward. The person indoctrinating us pointed out the nine helicopter landing spots, elevators, and the red-and-white foul line. The warning to not cross the foul line while aircraft were landing seemed obvious enough and easy to follow.

Unfortunately, the flight deck at night in the middle of a recovery cycle proved to be a little more confusing than a flight deck fam on a sunny San Diego afternoon in port.

A week into the SUSTEX I was starting to feel more comfortable operating on the carrier. I'd flown every day and had done one night event. As I prepared to head up to the flight deck to hot-seat for a night event, our SDO told me the flight crew spinning on spot 7 had forgotten their nav bag. I volunteered to take it up to them since I was already heading that way.

My crew got up to the flight deck and met at the base of the island with the other helo crews waiting for the recovery cycle to complete. There I told my aircraft commander that I needed to take the nav bag over to the aircrew on spot 7. I made the mistake of acting like I knew exactly what I was doing, compensating for my inexperience. I would have been better off if I had just asked, "How do I get there?"

I headed off behind the helicopters at the base of the island. I knew that I would need to go through the maze of equipment in the "junkyard" to get to spot 7. My eyes hadn't adjusted to the nighttime flight-deck environment. Once out of the direct path of the lights from the island, the dark flight deck turned pitch black as I neared the junkyard. I considered using my flashlight but wasn't sure if there was a rule against using lights during the jet landing cycle. It didn't take long for me to trip over one of the chains securing a helicopter adjacent to "tilly", the large crane staged in the junkyard.

I managed to keep from falling on my face in the dark and realized if I went any farther away from the landing area (LA), I would be hopelessly

Navy photo by MC2 James Evans

the Way to Spot 7

lost. I saw four Sailors standing near the nose of an E-2C Hawkeye parked aft of Tilly. I felt relieved to have found someone who could help me get to the aircraft on spot 7.

I approached them and asked them how to get to spot 7. "Just go that way" one explained as he pointed aft, parallel to the foul line.

"Is it safe?" I asked, unsure about the whole situation and still adjusting to the darkness. They assured me that it was, and I started down the foul line. In the darkness, the red-and-white foul line that had been so obvious during the day appeared to be just a white dashed line; the red completely blended in with the black flight deck.

I paralleled the white dashed line in the darkness and had only taken a couple of steps when someone grabbed me from behind and pulled me back. Just as they were asking me what in the world I was doing, an FA-18 caught the 3-wire right beside me. I realized how close I had been to being killed.

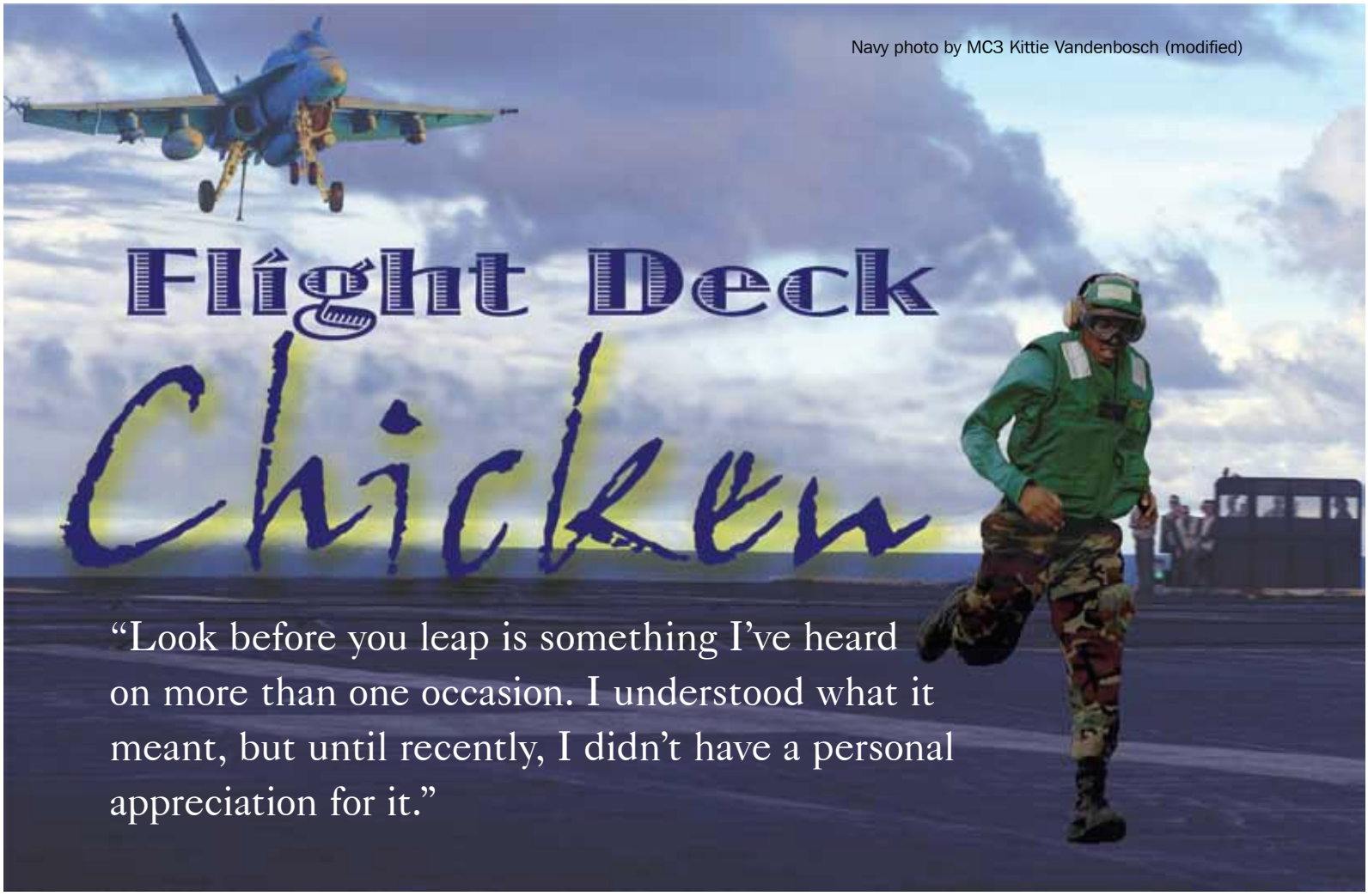
Shaking but still not fully aware of how close to disaster I had been, I repeated my request for directions to spot 7. The person who had grabbed me directed me to a single red light, which turned out to be the plane captain in front of the helo. I knew it was close since I could hear the rotors turning but I could not see anything in the darkness. I cautiously made my way to the light and passed the nav bag to the plane captain (PC). "This bag needs to get to the aircrew in spot 7," I said. "Now, how do I get out of here?" I had enough sense to realize that my situational awareness was really low and that there were still aircraft landing and rotors spinning around me.

The PC directed me to another red light belonging to one of the flight-deck personnel between the aircraft and the junkyard. He guided me around the back of the junkyard, outboard of the LA, to the base of the island.

What had just happened started to sink in as I realized I could have gotten myself (or someone else) killed or seriously injured. I had misinterpreted the directions given to me by the flight-deck personnel near the E-2; they hadn't intended to send me down the foul line and into harm's way. I was lucky this time and am grateful to the vigilant individual who grabbed me before something tragic happened.

Operating off a carrier at night with limited lighting adds additional challenges to maintaining SA and staying safe. Pilots—and anyone else who's new to the environment—should always err on the side of caution and speak up when they are uncomfortable or unsure of what is going on.

Lieutenant (j.g.) Grant flies with HSM-71



By ADAR Chase Garrett

I had been in VAW-115 aboard USS *George Washington* (CVN-73) for almost two months. I was comfortable with the flight deck, maybe a little too comfortable. All of my flight-deck experience had been during day check. I had only been on night check for a week.

One evening I was tasked to bring our engine test-set to the flight deck for some routine work. I grabbed the test set and hurried out the door. My shop is directly below the landing area (LA) on the forward end of the port side. My intent—moving with a purpose so as not to delay the aircraft from its launch—was good, but in this case it was my downfall.

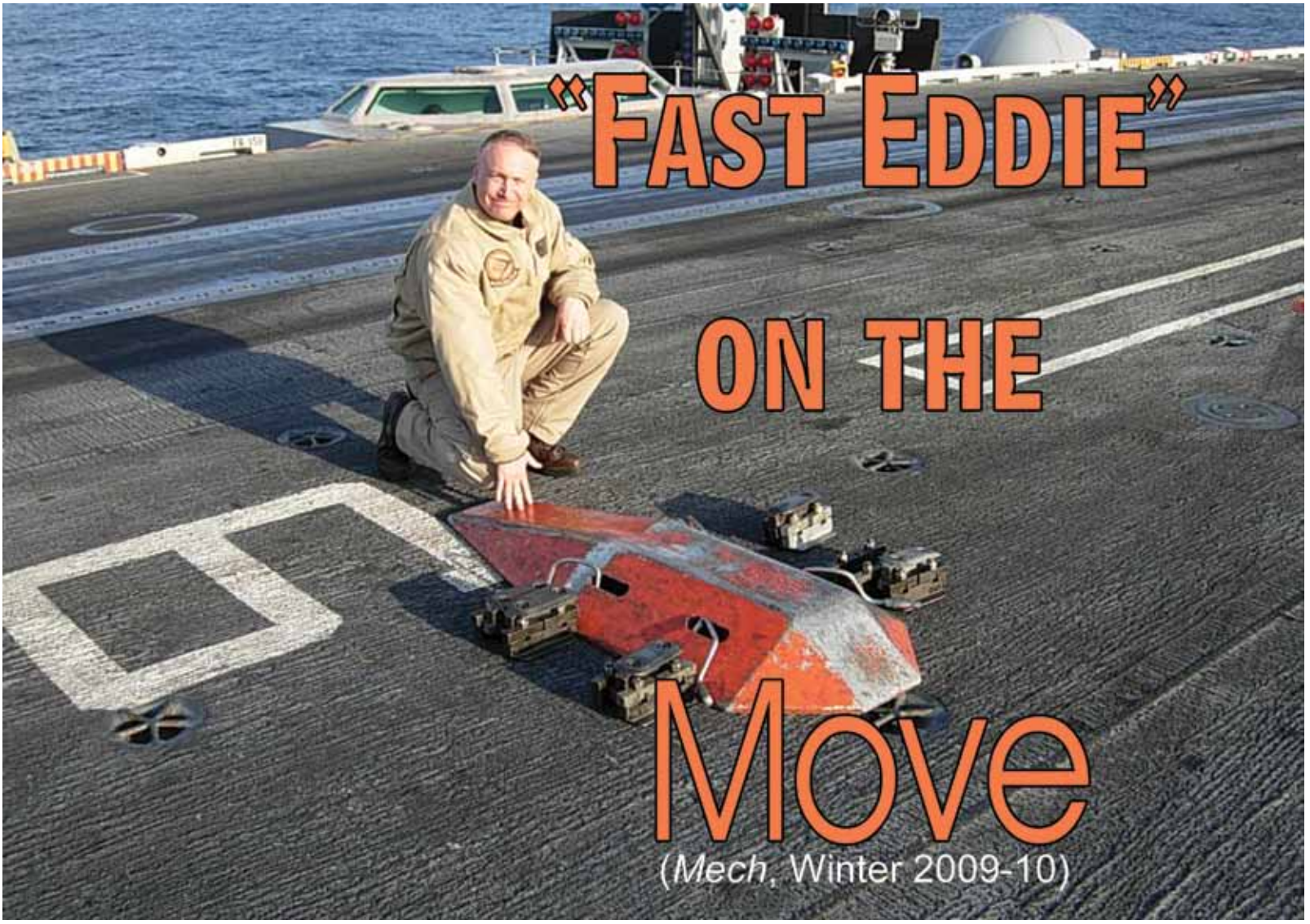
Without thinking about the fact that the ship was recovering aircraft, I exited the port-side catwalk and, with test set in hand, looked for the arresting-gear officer who would give me permission to cross the LA. I didn't see him right away, so I boldly began to cross the LA. When I was about halfway across, I turned to my right to see an FA-18 heading straight for me.

Adrenaline and instinct took over at that point. This was a game of chicken I had no intention of playing. I bolted across the rest of the LA like my heels were on fire and was met by a plane handler on the other side.

I began to explain myself to the handler, but I didn't have much of a rationale for my actions. I had messed up, period. I didn't follow the rules taught to me during flight-deck familiarization. I was in new territory and hadn't taken the time to think things through. I was just grateful that, thanks to my reflective PPE, the LSOs spotted me in time and waved off the jet.

I learned a lot that night. Unfortunately, it was at the expense of my flight deck qual and reputation. Moving with a purpose is an excellent mentality, but if you don't slow down and look before you leap, the consequences can be dire.

Airman Garrett works for VAW-115.



"Fast Eddie" on the Move

(*Mech*, Winter 2009-10)

By ADC(AW) Christopher Forster

It was only our tenth day of cruise, but the squadron seemed to be operating flawlessly on the flight deck. The weather was sunny, with gusty winds. I was standing next to the unmanned, spare aircraft parked aft of the No. 4 elevator on the finger when I received a call over the radio that a pilot would be manning that jet. As I surveyed the flight deck, it was obvious that we were beginning to recover aircraft.

While waiting for my pilot, I leaned against the starboard side of the aircraft—just aft of the nose cone—and watched the recovery. The wind seemed to pick up and swirl around in different directions. As aircraft landed, there was one particular pass I never will forget.

I watched an approaching jet quickly drop out of the sky and touch down aft of the No. 1 wire and left of centerline. The aircraft caught the No. 1 wire and continued down the landing area (LA); I lost sight of it behind another jet on the finger.

I continued to lean against the spare when suddenly I heard the Air Boss yell over the 3MC: "Look out, 'Fast Eddie' on the move!" Hearing this, I knew something was wrong. I took a step forward and looked under the nose of the aircraft just in time to see "Fast Eddie" coming right at me. I jumped backward immediately, as "Fast Eddie" flew by and crashed into a stack of tow bars stowed against the scupper just forward of the LSO platform.

"Fast Eddie" is a 3-foot long, 50-lb metal cover shaped like a teardrop. It covers the No. 3 catapult shuttle during recoveries. The landing aircraft's exhaust had blown it off the shuttle, propelling it down the LA and nearly hitting the jet and me. If it had struck me, my lower legs could have been injured severely.

Situational awareness is crucial to all hands operating on the flight deck. Situational awareness (courtesy of the Air Boss' 3MC call) and my alertness and quick reaction saved me. No matter how much experience you have, you haven't seen it all.

Chief Forster is the line division LCPO at VFA-146.

Navy photo by MC3 David Cox