

NAVAL AVIATION

NEWS

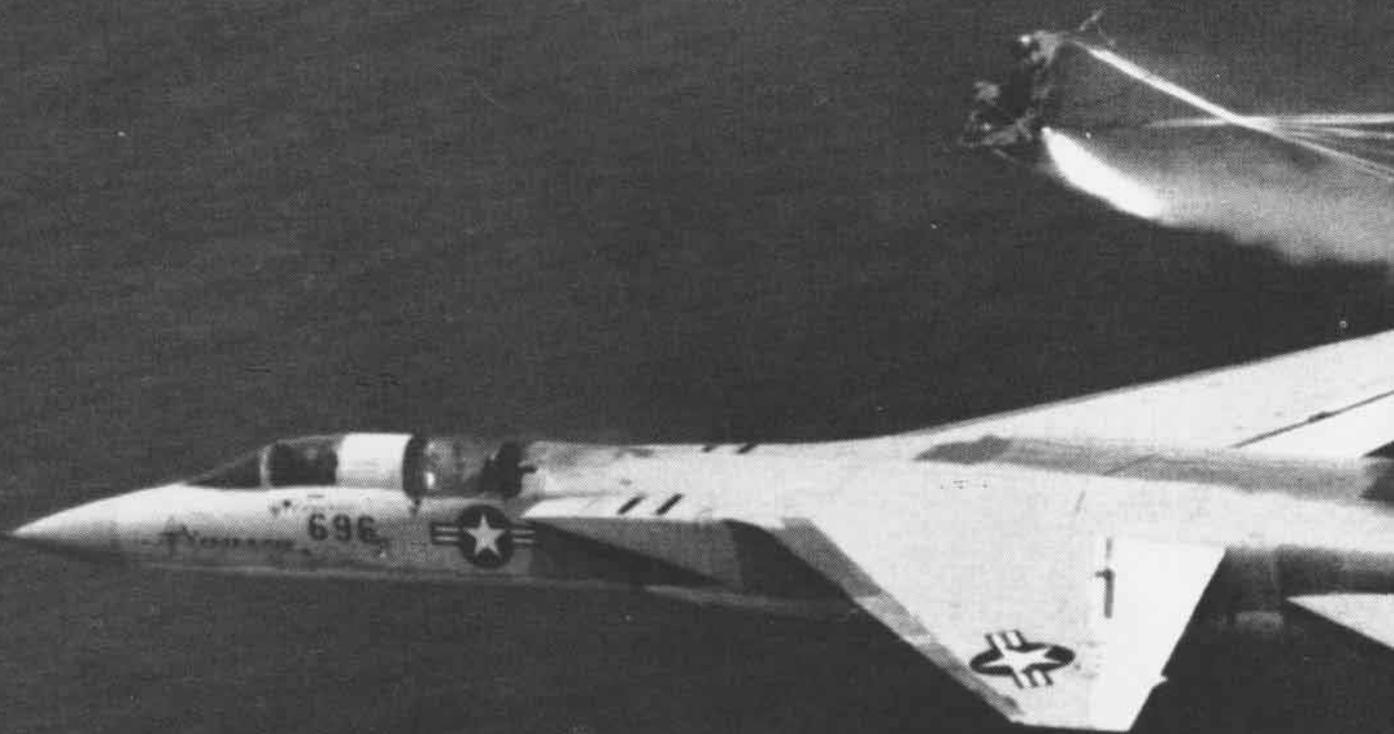


43rd Year of Publication

JULY 1962

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ROCKETING TO SAFETY

Unlike the boy jumping from the garage roof with an open umbrella, today's supersonic airman has little time to reflect on the wisdom of jumping. A split second of hesitation can ruin one's whole day, particularly at low altitudes. Through extended research and development of ejection seats, the Navy and industry have built into today's naval aircraft an escape capability second to none. For a quick look at the U. S. Navy's low level escape systems, see pages 19-21.

FORTY-THIRD YEAR OF PUBLICATION JULY 1962

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■ THE STAFF

Cdr. George F. Rodgers Head, Aviation Periodicals Office



Cdr. Paul Jayson	Editor
Izetta Winter Robb	Managing Editor
LCdr. Robert J. Massey, Scot MacDonald, JOC	Associate Editors
Cdr. Oliver Ortman, Harold Andrews	Contributing Editors
Janis C. Burns	Assistant Editor
James M. Springer	Art Director

Issuance of this publication was approved by the Secretary of the Navy on 3 April 1961

■ COVERS

On front cover, in the pilot and co-pilot seats of the 2F-66 weapon system trainer (details in the story on pp. 9-11) are Lt. Thomas C. Pestolis and Dil Grissom, AT2. . . . Picture above of a low-altitude, high-speed ejection from an A3J was made available by North American Aviation.

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NAVAL AVIATION NEWS

Outstanding Crews Picked Individual Members Recognized

Crew One of Airborne Early Warning Squadron 11 has been selected as the Outstanding Crew of the Barrier Force Atlantic's two AEW squadrons. RAdm. Robert B. Moore, Commander Barrier Force Atlantic, presented the trophy to Cdr. C. C. O'Hearn, Plane Commander of Crew One.

Each crew member received an Outstanding Crew Award Certificate.

To qualify for the trophy, a crew must fly a minimum of 12 barriers during the six-month scoring period. Crews are judged on every operational flight for the effectiveness of their radar, electronic countermeasures equipment, communications, and their ability to perform well their mission.

F8U NATOPS Test Issued 'Yardstick' for Pilot Evaluation

The first NATOPS (Naval Air Training and Operating Procedures Standardization) Supplement has been issued for fleet evaluation. This supplement provides test questions and grading criteria for the oral, written and OFT/WST portions of the annual proficiency check given to all pilots flying the F8U *Crusader*.

The supplement was issued as a provisional change to activities selected to evaluate it. Eventually, Standardization Evaluation Supplements will be issued for every NATOPS manual.

Several hundred test questions and proficiency demonstrations are included, most with a reference to the manuals where points are covered. The Standardization Instructor or Standardization Evaluator administering the test may select questions from the list. No prescribed number of questions are required for any check. If the tester feels the pilot is weak in any particular

area, he can increase the number of questions or demonstrations.

Publications where answers may be found include the *NATOPS Manual*, *Flight Manual*, *Handbook of Maintenance Instructions*, *NWP's*, *NIWP's*, *Pilots' Pocket Check List*, *Supplemental Flight Manual*, *Weapons System Tactical Handbook*, and *Handbook of Servicing Instructions*.

Issue of the evaluation supplements is an important step in the NATOPS program, since it permits the "closing of the loop"—the annual proficiency check to be given every Naval Aviator in each model he is qualified to fly. Since these evaluation supplements provide the "yardstick" against which to measure proficiency, it was not feasible to begin the checks prior to the availability of the supplements.



RETURNING A VISIT of the USS *Essex* to Hamburg, the German Navy's training ship, *Gorch Fock*, enters New York Harbor. *Essex* officers and men arranged entertainment for personnel of the three-masted 1860-ton ship.

USS Midway Edits Glossary Available to Visitors on Carrier

USS *Midway* (CVA-41) has brought out a pamphlet entitled "Glossary of Naval Terms." It is designed for the uninitiated visitor who may find such words as JP-5, ComNavAirPac, CHOP and brownbagger as foreign as another language.

Recognizing that the field is large, the *Midway* editors have selected "only those words, phrases and abbreviations which a visitor could immediately encounter in a short briefing of shipboard operations and procedure and which are essential to a general understanding of life on the *Midway*."

Also included in the glossary are lists of ranks, ratings and insignia of the U.S. Navy, duties of ratings, divisional duties and responsibilities, *Midway* combat aircraft, and Japanese words and phrases.

Twelve Years of Safety NAS Pensacola Accident Rate Low

An outstanding record of 31,503,745 man-hours with an accident rate of only 1.83 in calendar 1961 has earned for NAS PENSACOLA its 12th consecutive Secretary of the Navy Safety Award.

RAdm. Magruder H. Tuttle, Chief of Naval Air Basic Training, presented the award certificate to Capt. Porter F. Bedell, commanding officer of the air station, at a special ceremony.

The frequency rate of accidents is based on the number of disabling injuries per million man-hours of exposure. NAS PENSACOLA was awarded its certificate for 1960 with a frequency of 2.4 for a total of 24,693,544 man-hours exposure. The year 1961 showed an increase of exposure of nearly 7 million man-hours, and a decrease of frequency to 1.86.



A HIGHLIGHT of the Armed Forces Day "open house" at NAS Olathe, Kansas, was the dedication of Flatley Field in honor of the late VAdm. James H. Flatley, commanding officer of the station from July 1950 to July 1952. The dedication ceremonies were attended by Mrs. James Flatley and three of her sons, Lt. James H. Flatley III, USN, Patrick, and David. Another son, Brian, a midshipman at the U.S. Naval

Academy, was unable to attend. Adm. C.V. Ricketts, Vice CNO, was the guest speaker for the dedication. In left-hand picture above, Capt. R.C. Dailey, C.O. of the air station, introduces Adm. Ricketts who was Adm. Flatley's classmate at Annapolis. Seated next to the admiral is H. Roe Bartle, Mayor of Kansas City, Mo. Above, Mrs. Flatley presents her husband's sword to Capt. Dailey as a permanent trophy.



Corpus Claims New Record Radar Center Logs 150,000th GCA

The Radar Center at NAS CORPUS CHRISTI reached what the center believes to be a record May 10 when they logged their 150,000th Ground Control Approach (GCA) since their commissioning back in 1946.

The Radar Center, which has both Navy and FAA personnel, controls all air traffic passing through the area, acts as a radar approach control center for Corpus Christi's commercial International Airport, and is the radar control for the Navy's air traffic.

The 150,000th approach was made on a routine training assignment by Lt. T. J. Spencer who was flying at the time a Grumman S2F Tracker for Training Squadron 28.

James L. Lord, AC1, and Donald W. Cothier, AC2, were the radar operators who "talked" the pilot down.

Navy Opens a New Unit Satellite Command is Announced

The Navy has established its first space satellite command at Pacific Missile Range Headquarters, Point Mugu, Calif. PMR is commanded by RAdm. John E. Clark.

The new command, the Navy Astronautics Group, will operate the navigational satellite system which the Navy is developing for the Department of Defense. The Group will maintain and operate astronautics sys-

tems assigned by the Chief of Naval Operations, including spacecraft, ground-based components and sub-systems.

In addition to the headquarters at Point Mugu, the command will eventually encompass a satellite command and injection station, computer center, operations control center, and satellite tracking facility, all at Point Mugu; and other tracking facilities at Winter Harbor, Maine; Minneapolis, Minn.; and Wahiawa, on the island of Oahu, in Hawaii, all associated with the Navy navigational satellite system.

The Group's first commanding officer is Cdr. James C. Quillin, Jr., of Hartford, Ala. Capt. Robert T. Tolleson, now assigned to the Astronautics Branch, CNO, will assume command of the group in August.



SECNAV Fred Korth congratulates three Navy test pilots, NATC, Pax River, who flew the HSS-2 helicopter to FAI-certified speed records. They are: Cdr. P. L. Sullivan, Capt. Bruce K. Lloyd and Lt. Robert W. Crafton.

Flight Regulations Ready First Part of FAA Rules Released

Part I of the new Federal Aviation Regulations have been issued by N. E. Halaby, FAA Administrator, under the agency's recodification program.

The new regulations are rearranged and simplified, including the Civil Air Regulations and the Regulations of the Administrator. The recodification has been done simply to make the rules easier to understand and use. There is no change in their substance or legal meaning.

The regulations are issued in 8 x 10½-inch loose-leaf form to permit easy replacement of appropriate sheets.

The new Part I, "Definitions and Abbreviations," contains approximately 100 aviation terms used by FAA and the aviation industry. The new definitions will apply only to new parts as they are published. They do not apply to the existing regulations where current definitions apply until the part is recodified.

The new parts will be issued in the next 12 to 18 months. FAA has arranged with the Government Printing Office to sell the regulations, changes, and revisions by single purchase or subscription to one or more parts.

Part I, however, has been distributed without charge by GPO. Part I became effective May 15, 1962. The recodification program is proceeding on schedule, with July 1963 now designated as the completion target date.



GRAMPAW PETTIBONE

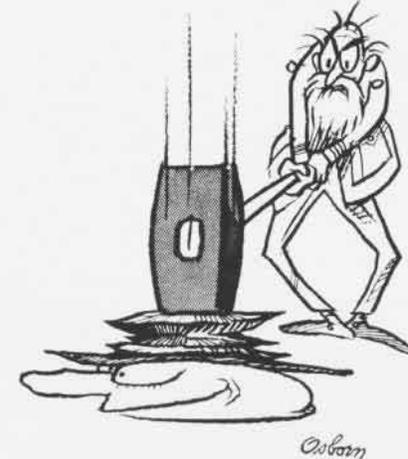
Sand Blasters

Two young pilots were southbound in a T-28 en route to the home station. The rear seat passenger had just completed a lengthy survival training course, and the pilot had flown up to Georgia to give him a ride home, the usual transportation by government air.

The flight was uneventful and via airways until they passed Jacksonville, but they detoured directly over to the ocean beach area and made an immediate descent from cruise altitude. A real hop from here on.

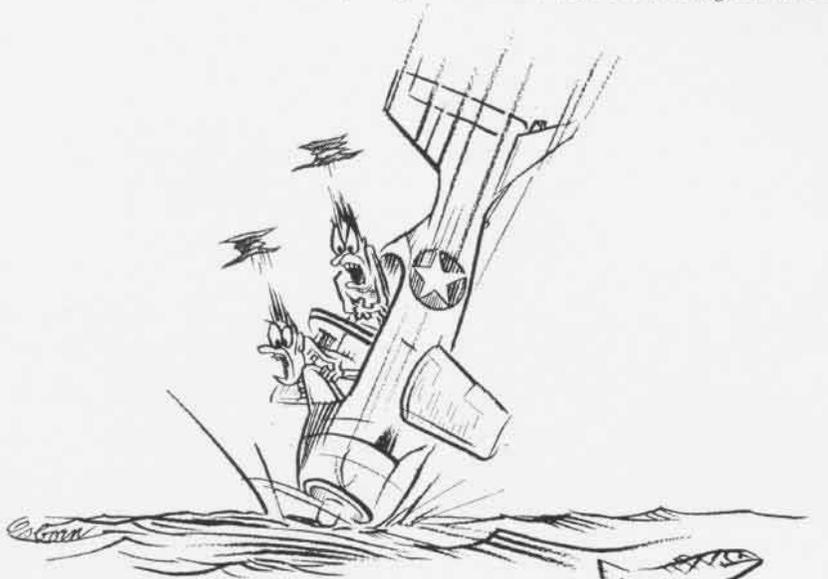
Flying over the sand and inboard of the water's edge, they cruised at from 100 to 200 feet altitude until they approached the more populated resort areas. Now they REALLY lowered her down and followed the beach contours, flying at about 10 to 20 feet, waving to bathers and fishermen. A lifeguard reported the T-28 passing down his beach, the prop wash tossing up sand.

A woman sitting on the porch of her country store saw only the aircraft canopy pass by over the intervening 20-foot sand dunes. Two young



women lying on the sand sun-bathing saw it coming and, jumping up, ran for the dunes. They reported that the pilot smiled and waved to them as he passed by at eye level.

He must have decided to take another look, for he immediately pulled up into a steep climb and wingover to the left. The T-28 climbed to about 200 feet, turned, faltered, and plunged steeply into the water, striking about 100 yards off shore. Both men rode it in. There wasn't time to get out of it.



It's the MOMENT of TRUTH for the FLATHATTERS!



Grampaw Pettibone says:

Great balls of fire, what a WASTE! Two fine well-trained young men lost because they had to "impress" a bunch of bathers and fishermen! EVERYONE knows that flat-hatters get hacked but good, so why do a few toss those wings away so lightly? The main trouble is—most of 'em end up DEAD and very few get before a board.

We lost one a short time ago who went in inverted while buzzing his own home. Another spun in out of an attempted formation immelman. The first survivor who gets caught at it will now get hung higher'n a horse thief. OF Gramps sits on the Big Board and believe me, the only discussion is not whether to hang the flat-hatter up to dry, but HOW HIGH!

Heavy-Footed Birdmen

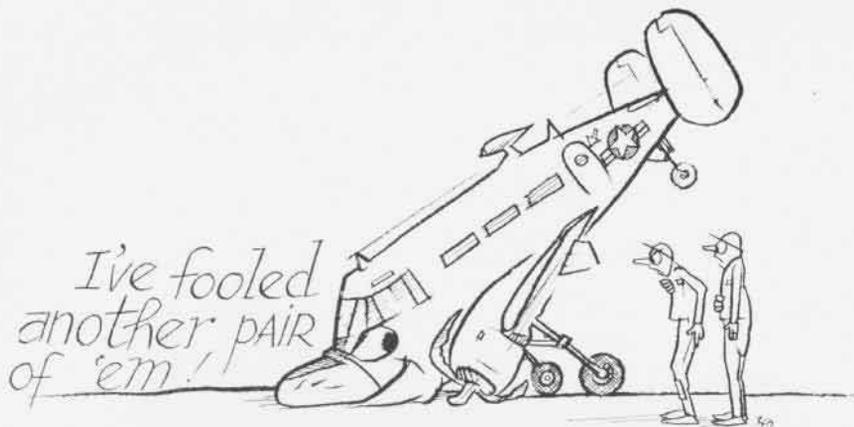
A couple of old hands were out logging some time in their trusty SNB. They had an uneventful flight in beautiful weather, but upon arrival at their destination, they found only one runway open, all others being closed by construction work in progress. A good steady 12 knots of surface wind was blowing and would give them a 70° crosswind from the left on landing. This was no sweat though; they had plenty of experience.

The landing gear was lowered and flaps set at 30° on the downwind leg. The check-off list was completed as they slowed to 85 knots on final approach. The pilot corrected for the crosswind on final approach and after the touchdown during the rollout.

The tail settled to the runway after they passed an intersection where heavy construction equipment was working, and immediately the Beech swerved hard to the left! The pilot used left throttle and right brake and hard right rudder to stop the swerve, and then as the SNB straightened out, chopped the throttles, pulled the yoke all the way back and applied hard full brakes!

The SNB's nose tilted forward and down as the locked brakes took hold, and it ground to a stop tilted up at a

ILLUSTRATED BY *Osborn*



45° angle on its props and nose section, a dead bird.

Carefully unstrapping and securing all switches, the two pilots climbed up the seats to the rear door and slid down over the wing to the ground below. The Beech had scored again on two more heavy-footed birdmen.



Grampaw Pettibone says

Doggone cantankerous beast! You've gotta have a lot of respect for the old SNB and not abuse it, or it'll put the bite on you for sure. Heavy-footed brake-busters won't last long in the Beech or for that matter in the AD either. A little less flaps on the landing, say 15°, and judicious use of throttles will do more for you than hard braking.

It's also a good thing to remember that in a severe crosswind, say 70 to 90 degrees, the upwind wing has more lift as the flaps are retracted. The fuselage pretty well blanks out the downwind wing and away you go in a wing-high downwind swerve. A crosswind landing is never over until you've taxied off the runway.

Close Interval

A four-plane division of AD-6's arrived upwind over the duty runway at their home base, stacked up in a right echelon and ready for the break. After clearance was given by the tower, they broke at six-second intervals and tailed in one behind the other, gear and flaps down, ready for landing.

While they were on the downwind leg, the tower changed the runway from 5R to 5L, and the interval between planes tightened up, owing to the shortened pattern.

The first plane landed on the right hand side of the runway, the second

plane to the left and very close behind. The third man, also very close behind and holding 95 knots over the numbers, suddenly felt his left wing drop sharply. He added power plus right aileron and rudder, but the wing wouldn't come up, remaining at 45° of bank.

He added more power, more rudder—still couldn't get the wing up although the AD leveled off at about 20 feet of altitude while still veering radically off to the left. It was a fight to stay airborne now. The left wing tip hit the ground several times as the turn continued, and he couldn't gain another inch of altitude.

Trees loomed up ahead and feeling sure he'd never clear them, he cut the power. Very nose high and with the left wing coming up to a level attitude the AD crashed into a dense growth of scrubby trees and stopped almost instantly.

During the last 50 feet of rending slide, a banner tow cable which was draped over the dense tree thicket scraped over the windshield, entered the cockpit, slammed into the pilot's hard hat and then cut into the seat headrest as the AD stopped.

Picking the wire carefully away, he cut all switches and climbed out, unhurt—and lucky.



Grampaw Pettibone says:

Too close an interval on landing or take-off can be disastrous if anything happens to the plane ahead—like a blown tire or a gear collapsed. It usually ends up in two scrambled birds and no more insurance premiums for someone.

The phenomenon which got this man was the swirling vortex of air from the planes ahead, possible only because of the close landing interval

here. The combination of prop wash and left wing tip vortices of the lead plane and the right wing tip vortices of the second plane were more than he could overcome with aileron and rudder. Once the angle of bank was established at slow speed, he was through. Even the AD's power couldn't pull him out of it.

All Bashed Up

A WV-2 had just returned from deployment to Iceland. The entire flight crew was following the usual custom of cleaning the aircraft before securing for the day. Everyone was pretty well pooped out, for they had averaged eight hours of flight time per day for the last 12 days. In fact, they had been in the air for 20 of the last 30 hours.

During clean-up, all the aircraft hatches were open, including a 2x2-foot hatch located dead center in the deck of the passageway leading aft.

The arrival at the plane of long-awaited mail was a welcome break, and all hands crowded around as it was passed in through a forward hatch.

One young aircrewman was handed a letter from his girl friend in the States and opening it immediately, walked slowly aft while he read it. He was completely preoccupied, never saw the open hatch and stepped right into the opening! KABOOM! Fortunately, his momentum carried him forward and, as he slammed into the side of the hatch opening, he hung there, half in and half out. X-rays showed no broken bones, but he'll be laid up for a while.



Grampaw Pettibone says:

Sufferin' catfish! They say "love is blind," and it sure proved out in this case. Even in that big Connie, you gotta watch where you're goin' or you'll get bashed, one way or another.

Fatigue is a murderous sneak. It creeps up on an otherwise disciplined and well trained man and allows him to make errors he would NEVER make under normal circumstances. The biggest factor is not HOW MUCH hard work you've had to do but HOW LONG! Somewhere around 16 hours since waking up is about the limit of a man's mistake-free expectancy. After that, you could become a statistic at any time.

Seems like a big WV outfit could scrape up a working party to take over clean-up chores from a tired flight crew.

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FIVE CENTS

CARPENTER ORBITS EARTH 3 TIMES SAFELY, BUT OVERSHOOTS LANDING AREA 250 MILES; FATE IN DOUBT AN HOUR, HE IS FOUND IN RAFT

The Weather

Today—Mostly sunny with high near 85. Tonight—Fair and cool with low in upper 50s. Saturday—Fair and somewhat warm. Thursday's high, 80 at 4:15 p. m.; low, 67 at 9:15 a. m.
Weather Map and Details on Page B11.

The Washington Post

Times Herald

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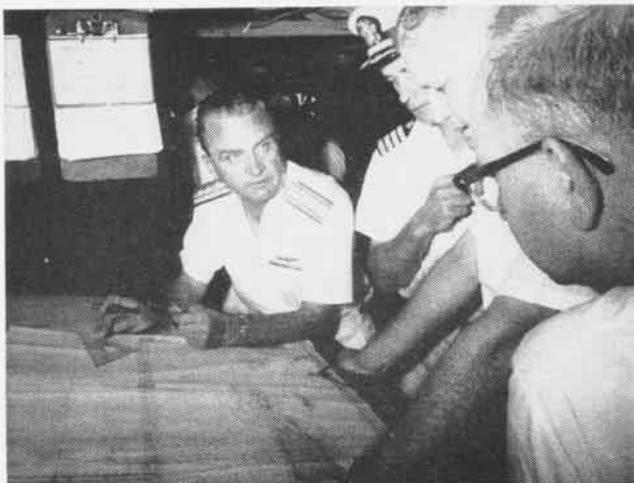
FRIDAY, MAY 25, 1962

WTOP-TV (9) Radio (1500)

TEN CENTS

Carpenter Is Rescued After 3 Orbits; Fate in Doubt for Hour on Re-entry

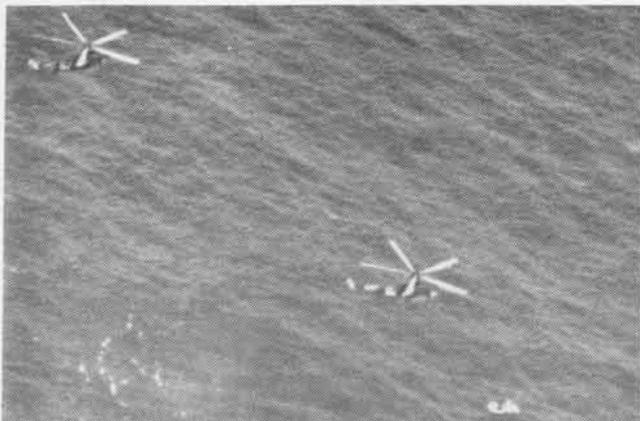
NEPTUNE CREW FINDS ASTRONAUT CARPENTER



ADMIRAL EASTWOLD and recovery force staff ponder pickup plans as search starts for astronaut Carpenter, down at sea after his flight.



PATRON EIGHTEEN Neptunes zeroed in on signal from SARAH beacon in Aurora 7 flight vehicle, beaded straight for rendezvous at sea.



TWO HSS-2 SEA KINGS hover over capsule to effect pickup of Carpenter and two paramedics, leave vehicle for later pickup by ship.



LEGS DANGLING during hoist by "horse collar" from helicopter, Carpenter is taken aboard HS-3 aircraft for trip to the Intrepid.

TO AMERICA'S second man in orbit LCdr. Malcolm Scott Carpenter, the familiar silhouette of a P2V *Nep-tune* flying overhead must have been as welcome as meeting "an old friend from home."

For NASA astronaut Carpenter—bobbing in the Atlantic for 40 minutes, out of communication with the world after his space vehicle overshot the planned recovery area—the P2V represented his first visual contact with man after three dazzling circuits around the earth.

As a former P2V plane commander (VP-6, 1951-54, based in the Pacific), Carpenter must have reflected, at least momentarily, on the days when he flew over-water, anti-submarine, mining and surveillance flights in a similar plane.

In retrospect the finding of Carpenter in the sea was accomplished in

relatively uncomplicated fashion. However, in the fever of the moment, the watching world, glued to television and radio sets, was worried and excited by the unplanned extra mileage logged by *Aurora 7*, Carpenter's space capsule. To the spectators, it seemed as though he had dropped off the edge of the world for 40 long minutes.

But if the landing point was the result of a miscalculation, the recovery was not. For every manned space shot, a tremendous force of men is standing by for assigned duties.

The recovery portion of the Carpenter flight, then, proved how thoroughly the American program is planned from start to finish. It proved that a 250-mile overshoot was not really cause for alarm.

Heroes of the day were a "little black box" and several P2V crews of

Patrol Squadron 18, an Atlantic Fleet Air Force unit which had six aircraft assigned to recovery forces in the Mercury program. Under the squadron C.O., Cdr. R. F. Lyons, VP-18 had six crews deployed to Roosevelt Roads, Puerto Rico, ready to fly search missions. Since 1958, VP-18 had been taking part in space recovery missions, such as the Able-Baker and Ham primate shots. In earlier manned vehicle recoveries, the Jacksonville squadron had been in the assigned recovery area, but had not been needed for search duty.

On May 24, the crew of VP-18's Number Six aircraft, Lt. Jimmie Hickman, plane commander, was involved in a drama all its own. Shortly after departing Roosevelt Roads, while Carpenter was in his third orbit, the crew of Number Six experienced gas fumes within the aircraft, the re-



PRESSING HEADPHONES inside borrowed helmet to get better earful of radio chatter, astronaut rides homeward in Navy helicopter.



SAFELY ABOARD Intrepid America's second intrepid man in orbit strides toward carrier's island for initial debriefing and rest.



COMFAIR JAX, RAAdm. J.M. Carson, center, waits with families to greet VP-18's Number Six P2V following completion of recovery.



CREW OF NEPTUNE which made contact with astronaut relaxes at Jax. Pilots Hickman and Goldner are kneeling in front of the nosewheel.

sult of a leak in an auxiliary bomb bay gas tank. To get rid of fumes, the astrohatch in the navigator's compartment was removed. This caused a rush of air out of the hatch, creating a noise problem in interphone communications between the pilot and navigator. Lt. Hickman already had decided to return to base, calling by radio for a relief aircraft, when word was passed that Carpenter was in the water after overshooting the planned recovery area.

Deciding to stay on patrol, the plane commander turned toward the estimated landing point of the capsule. (The aircraft navigator, Lt. David Evans, later said the estimated position of the capsule, as relayed from Cape Canaveral, proved to be within 15 miles of the actual landing position.)

At the time he started for the impact point, Lt. Hickman estimated he was 150 miles away. With the firing up of both auxiliary jet engines, the P2V indicated 260 knots en route to the rendezvous with Carpenter.

Meanwhile, VP-18's crew Number Nine, which was to have relieved Number Six on station, picked up a weak electronic signal on its SARAH beacon receiver. (SARAH—an acronym for the phrase, Search And Rescue And Homing equipment—is a lightweight [44.5 ounces, including batteries] beacon which was keyed automatically by the *Aurora 7* capsule during the re-entry phase of the orbital flight.)

Carpenter went into the ocean at approximately 1340 EDT, and the datum estimate was delivered minutes later. Number Six aircraft, starting

its jets at 1342, soon had burned the auxiliary tank fuel below the leak level and thereby solved its fumes problem. (The aircraft could have dropped the tank at any time but decided to keep it in case the fuel was needed for a long search.)

Crew Number Nine picked up the first SARAH signal at 1345, and Number Six heard it 13 minutes later. Both aircraft reported the signals "dead ahead" on the bearing indicators. At 1414 EDT, crew Number Six arrived over Carpenter. The copilot, Lt. Robert Goldner, spotted a green dye marker on the water and yelled, "Hey! There he is!"

Dropping down to 500 feet, Number Six's crew saw the downed astronaut wave, giving the first indication that he had survived the trip without trouble. Within one minute, VP-18's Number Nine Crew, Lt. James Wicke, plane commander, was overhead. Within another 30 minutes, the overhead aircraft count had reached six, including four P2V's and two U.S. Air Force S/R aircraft.

The remainder of the recovery found everyone ready. A U.S. Air Force C-54 dropped two parachuting men, rafts and flotation gear for the capsule. One of the VP-18 aircraft, Number One, Lt. G. W. McDonald, plane commander, departed at 1456 to escort the USS *Intrepid's* pick-up helicopters, two HSS-2's to the scene. They arrived at 1633, made the lift of Carpenter three minutes later. The return trip to the *Intrepid* took approximately one hour.

Number Six crew stayed on station until 1727 when the USS *Farragut*

arrived to take up the vigil over the capsule. The USS *Pierce* arrived later to take the capsule aboard.

A fourth VP-18 crew, Number 11, which took off from Roosevelt Roads later than the other squadron aircraft, contributed an important bit of information to the search. While flying to the area, Number 11 obtained a SARAH bearing which crossed the bearings given by the other aircraft, definitely fixing the position of the capsule.

Flying with Lt. Hickman, Lt. Goldner and Lt. Evans in Crew Number Six were Ltjg. John Cain, Jr., third pilot; F. W. Disbrow, ADR1, plane captain; J. E. Blythe, AN, second mechanic; J. L. Riley, ATN3, first technician; D. L. Van Brocklin, AT3, technician, who received the first SARAH indication for the crew; C. V. Baji, AE3, technician, and J. A. Robinson, A03, ordnanceman.

HSS-2 *Sea Kings* were given the job of picking up Carpenter as the result of the overshoot. Original plans had again called for shorter-ranged Marine helicopters to make the pick-up if the capsule landed in the prime recovery area, near the USS *Intrepid*, flagship of RAdm. E. R. Eastwold, Commander, Carrier Division 16. The *Intrepid* was more than 250 miles away, too far for Marine recovery.

The two *Sea Kings* picked up Carpenter and the two paramedics who jumped into the sea to place a rubber flotation device around the capsule. Pilot of the Carpenter pick-up helicopter was Cdr. John Wondergem, C.O. of HS-3. Hoisting the astronaut was Ltjg. W. J. Shufelt.



THE FREEZE IS ON. Training session in the 2F-66 weapon system trainer is "frozen" as crewmen await comments of an observer on their performance during simulated mission. This "stop-go" capability alone is said to increase advantage of trainer over actual aircraft 50 per cent.

S2F-3 Weapon System Trainer

ASW SIMULATOR 'PAYS FOR ITSELF'

AN ACCELERATED and intensified training program for Navy aircraft crews engaged in anti-submarine warfare is being carried out at San Diego on a "double-time" basis in preparation for battles that hopefully never will take place.

Site of the training program is an electronic classroom built for the U.S. Naval Training Device Center, Port Washington, N.Y., by ACF Electronics, a division of ACF Industries, Incorporated. User of the device is the

Fleet Airborne Electronics Training Unit, Pacific.

The classroom, a flight and tactics simulator of the four-man, twin-engine S2F-3 aircraft, is one of two. (The other simulator is being used at NAS Key West, Fla., by the Replacement Air Crew Training Squadron, VS-30.)

Technically, the device is known as the "2F-66 weapon system trainer." It is said to be operating "double-time" because the training unit, located on

North Island, has crewmen training on it approximately 16 hours a day.

The realism provided by the simulator is such that even the most hard-bitten of pilots emerges from a "flight" with an expression of disbelief. In short, this non-flying version of the aircraft not only exactly reproduces all details of the aircraft itself, but "feels" as though it really is flying.

Capt. Elton L. Knapp, commanding officer of the Naval Training Device Center, said the combined savings

in lives, dollars and time through use of the simulator is "overwhelming" when compared with use of the actual equipment.

"Were the actual equipment—including an airplane and a submarine (acting as the target)—to be used for training on a schedule equal to that of the simulator, the cost differential between the two forms of training would completely pay for the simulator at the end of three months," Capt. Knapp said.

He added that sonobuoys expended at this rate during one year of training on the real equipment would cost approximately \$8,000,000. "This amount, plus expenses of an airplane, submarine and necessary crews are eliminated through the use of one simulator," Capt. Knapp said.

His views were echoed by Capt. Arthur F. Farwell, commanding officer of the Fleet Airborne Electronics Training Unit, Pacific. Capt. Farwell said that crews training under his command "have none of the time-loss problems such as are caused by inclement weather that grounds airplanes."

This, plus time saved in not having to fly to and from training sites—in this case, over the water—adds to the dollar savings incurred through use of the simulator, Capt. Farwell said in speaking of the device.



CREWMAN GETS ready to select a sonobuoy to pinpoint a target that has been located.

Capt. Farwell stressed, however, that dollar savings to taxpayers are more than matched by the improved training of crewmen: "The simulator allows us to train each of the four crewmen individually, and then as part of a smooth-working team that trains as

a unit, to intensify training on particularly difficult procedures and to stop-start during a training session in order to round out the instruction. The pilot and his crew thus receive considerable experience in a relatively short time and are much more capable of taking over an actual airplane after safely forming their flight habits in the simulator."

The simulator is self-contained in two mobile commercial van-type semi-trailers. One of the trailers contains the 32-computer-circuit "brain" that makes the simulator "go." The other trailer contains the simulated aircraft and stations for the two-man instructor and operator team that trains the "students." Installing the simulator in vans eliminates the need for a special building and permits the placement of the training device near the flight line.

The "students"—a pilot, co-pilot and two ASW operators—are right at home in the aircraft after "flying" the simulator. For all practical purposes, the trainer cockpit is exactly the same as the aircraft interior. The pilot and co-pilot, provided with all instruments and controls they would have at hand during an actual flight, receive simulated responses identical to those received in the aircraft.

Since the aircraft must perform its mission on an all-weather basis, it is considered important to train the pilot and crew in the tactical use of the aircraft under instrument conditions. For this reason, the simulator comes equipped with a translucent windshield and all training is conducted under either day or night instrument conditions.



COMPUTER RACKS, the backbone of the trainer, are periodically checked by inspectors.

Two ASW operators also "fly" under perfectly reproduced conditions. They look for potential enemies with the help of actual control panels, instruments and scopes that provide them with simulated responses from radar, electronic countermeasures, advanced detection systems, and other electronic devices.

Every instrument functions in true relationship with other instruments in a simulated flight. Airspeed changes as flaps and landing gear are raised during the take-off. Instruments reflect changing characteristics such as fuel load, altitude, attitude and speed (power).

In addition to the "normal," the pilot and his crew can be presented with practically every conceivable emergency by the instructor and his assistant, the operator. All that is needed is a flick of the wrist as the training team puts the students through their paces.

The instructor has in front of him a duplication of all the instruments and indicators in the cockpit. In addition, he is provided with numerous telltale lights that indicate incorrect procedures; these and the cockpit instruments permit him to monitor both the "flight" and "ASW mission" from the instructor's station.

Failure input controls and switches are used by the instructor and operator to introduce partial or complete "failure" of components. These can be in the form of engine failure, decreasing oil pressure, icing, inflight fires and other emergencies.

The instructor also can alter physical flight conditions by supplying "clouds," "thunderstorms," and similar effects by means of crew seats that bounce during "rough-air" conditions, vibration and engine sputter during engine trouble, the screech of tires during touchdown and the variable-shadow effect of clouds.

Cold cathode lighting tubes produce simulated lightning flashes. The effect of flight in and out of clouds is produced by rotating discs with openings that are mounted in front of lighting fixtures to cast light and shadows on the cockpit windows. Two speakers, one behind the pilot and one behind the co-pilot, transmit tire screech, flight sound and engine noise, including both normal combustion and sputter from a faltering engine.

The instructor is the boss in a

training session. He primarily monitors progress of the "flight," observes the crew's reaction to problems and establishes problems to be given the crew. The simulator operator manages the controls for the training session. Emergency procedures and other problems too dangerous to cope with in a training mission in a real aircraft can be practiced in the device.

The instructor can vary problems as crew proficiency increases; he also has freeze and reset controls that permit him to freeze action in the simulator to analyze an incorrect action and then either reactivate or eliminate the problem. This "stop-go" capability alone is said by the Navy to increase the advantage of the trainer over the actual aircraft by 50 per cent.

A plotting board presents the instructor the path and location of the aircraft and submarine at any moment of a mission. It also records event chronologically for debriefing. The instructor originally positions the aircraft and submarine targets on the plotting board, then controls evasive actions of the submarine as it attempts to escape the searching aircraft. He also can control speed, position and depth of the submarine as well as the origination of radio or radar transmissions from the submarine and the variances of complicated wind and sea conditions.

The simulator crew, "airborne" over the ocean, presumably is on a search plan. The instructor, freed from the responsibility for the safety of a crew under actual flight conditions, is able to devote 100 per cent of his time to training.

As many as three "targets" may be tracked at one time. The crew is provided with radar (that "sees" the targets), electronic countermeasures (that "detect" electronic transmissions from sources outside the aircraft and present them on a display scope) and advanced detection equipment.

Once the target is accurately located, a system of explosive echo ranging is brought into play. With this system, small depth charges are dropped. The student operator measures the time from blast to receipt of the blast echo from the target through a recorder in the aircraft. Radio receivers also permit the pilot and co-pilot to listen to the transmissions of these sonobuoys.



THERE'S TROUBLE ahead for the 2F-66 pilot as instructor injects "engine malfunction" into the problem. "Hen tracks" on screen are picture of simulated aircraft and "target"—a sub.

Throughout the exercise, two other means of detection operate to help pinpoint the target. One is MAD (magnetic anomaly detection), a sensitive magnetic airborne detector capable of measuring changes in the earth's magnetic field. (When the magnetic field surrounding a submarine changes the normal characteristics of the earth's magnetic field, this variation is detected in the MAD equipment which amplifies the signal received and presents it as a deflection on a recorder in the cockpit.)

The other means of detection is *Sniffer*, a device that samples air from the local atmosphere 1000 times a minute to detect the presence of a submarine's exhaust fumes. The air is pulled into a special chamber and is processed and evaluated by the system.

Once the target is zeroed in, an intervalometer is activated in the aircraft (simulator) and automatically times and drops weapons to kill the target. The intervalometer determines the rate and distance between weapons to be dropped.

Weapons in the system are advanced homing torpedoes and an atomic depth charge. So realistic is the simulation of the weapons that explosions of these devices, as "heard" by sonobuoys that have been dropped, actually are heard by the crew flying the simulator.

The pilot and co-pilot have a plotting board in the cockpit of the simulator that gives them a continuous display of their "aircraft's" position within a designated area. Depending upon the phase of the mission, the board may be controlled to represent

1, 4 or 20 square miles per square inch.

Position of the aircraft on the plotting board is indicated by a "bug" that marks the flight path and moves from the center of the panel in the direction the aircraft is moving. For tactical use, the range and bearing of the suspected target may be entered into the system. Using this latter information, the "bug" traces a course to the target area, marks it and returns to the aircraft position on the board. This enables a pilot to fly the aircraft to the area and continue with other ASW procedures.

An armament control panel controls the switches for arming and selecting the stores to be dropped and for operating the torpedo bay doors. It is on this panel that the intervalometer and rocket selection devices are located. A speed or interval drop of weapons is provided for by a control (also on this panel) for entering the ground-speed of the aircraft into the system.

The sonobuoy indicator panel in the cockpit contains 32 indicator lights divided into two groups of 16 each; the lights become illuminated as sonobuoys are released. A radio control set is used to receive signals from sonobuoys that have been dropped and are being used to locate the position of an enemy submarine. Operation of channel selector switches determines which sonobuoys are to be monitored.

Two different sonobuoys are used in detecting underwater sounds. They contain a hydrophone and a transmitter for relaying detected sounds to receiving equipment in the "aircraft."

AIR SUPPORT FOR POLARIS SUBMARINES



USS PROTEUS AND TWO OF HER BROOD OF SUBMARINES, NAVY CARGO SHIP AT RIGHT

EARLY IN MARCH 1961, a Navy-manned C-118 *Liftmaster* landed with little fanfare at Scotland's Prestwick airport, some 30 miles south of Glasgow. Designated simply as mission number "141," the four-engined Military Air Transport Service (MATS) plane carried no passengers, nor did her cargo attract unusual attention.

Yet, despite its everyday look, this mission warranted recognition—possibly as one of the most significant ever undertaken by the Navy in MATS. Indeed, it marked the beginning of a vital, new MATS transport assignment, designed to move manpower

By Robert E. Wood, JOC

and equipment in support of our country's recently-formed weapons system, the *Polaris* missile submarine fleet based at Holy Loch.

Since that first *Polaris* support mission, more than 230 similar flights have been flown by crews of the Navy's Atlantic Air Transport Wing and the Air Force's 1611th Air Transport Wing from McGuire Air Force Base near Trenton, N. J. Cargo trips are normally assigned to Naval units who fly a typical payload which often spans the gap between nuts and bolts, and the *Polaris* missile's highly com-

plex guidance system. Passengers scheduled for this flight are personnel destined for the submarine tender USS *Proteus*, mother ship to the nuclear-powered missile fleet at Holy Loch.

Transportation of Navy men headed for duty aboard *Polaris* submarines is the job of the 1611th Air Transport Wing. These passengers are members of the Navy's unique "Blue and Gold" crew concept, the system that provides submarines with two complete, alternating crews. Military Air Transport squadrons of the 1611th Air Transport Wing shuttle entire "Blue and Gold" crews between McGuire and Prestwick. The submarine crew returning stateside continues training at the Navy's submarine school in New London, Conn. This unusual application of manpower furnishes maximum operational effectiveness to each *Polaris* submarine.

The Prestwick "anniversary run" was logged this year on March 2nd without formality. Its crew consisted of MATS Navy men from Air Transport Squadron Three, a unit of the Atlantic Navy Wing, who helped complete a year of airlift operations that saw close to a million and a half miles of *Polaris* support flown without an accident. The safety-conscious MATS organization is proud of the record achieved with this Air Force-Navy partnership.

The Navy did not inherit the *Polaris* cargo business simply because submarines are operated by the Navy, but rather, because it is assigned a daily



MEMBERS OF THE SUBMARINE USS PATRICK HENRY 'GOLD' CREW BOARD PLANE AT MCGUIRE AF BASE FOR FLIGHT TO PRESTWICK, SCOTLAND



PRIORITY-1 AIR FREIGHT IS LOADED ABOARD

MATS schedule made up primarily of cargo flights. Cargo moved to the *Polaris* submarine fleet during the past 12 months added up to over 1,300,000 pounds, most of it top priority material. The average MATS cargo mission leaving McGuire AF Base carries about 10 per cent priority one-type air freight, whereas 90 per cent of the "141" payload is given this high precedence.

"Blue and Gold" crews also are assigned a top priority. Since early in May 1961, when the first complete crew was flown from Prestwick to the United States, squadrons of the 1611th Air Transport Wing have transported some 3700 *Polaris* missilemen. Many of these Bluejackets, of course, have made the trip more than once. While the c-118 *Liftmaster* can accommodate approximately 60 passengers, the normal "Blue and Gold" submarine crew consists of 135 men. Consequently, when a crew is scheduled for movement, three *Liftmasters* are required to do the job. The importance of the entire *Polaris* support mission is further emphasized in that it represents the only regular air logistics support for the submarine fleet operating out of Scotland's Firth of Clyde.

Before the *Polaris* airlift series was launched, various problems in the handling of its special cargo had to be solved. None was more perplexing than the one posed by the *Polaris* missile's sensitive component parts. These delicate instruments, which constitute the brains of each missile, demand considerable care during each phase of the journey to Holy Loch. As a result, transport planes assigned cargo duties

in the *Polaris* program required the installation of a special electrical power manifold which would assure a continuous supply of current to these critical parts. Maintenance men of VR-6, also a unit of the Navy Wing, set to work to design and manufacture this equipment. To complete their task however, it was necessary to locate a particular type cannon plug. The hunt for this elusive item might well qualify as a separate story in itself.

MATS officials scoured McGuire for this plug without luck. Telephone calls to various agencies throughout the country produced no results. Finally, the Navy's Bureau of Supplies and Accounts helped end the search. Sixteen such plugs, they said, were located at the U. S. Overseas Airlines Maintenance Facility in Wildwood, N. J., normally a two-hour car ride from McGuire. With the coming test flight scheduled only days away, MATS was able to "borrow" four of these plugs—but only after an eight-hour drive through the winter's worst snowstorm. With the plugs safely in hand, the "141" series was ready.

The trial flight departed from McGuire on January 23, 1961. Equipped with mock-ups of the various pieces of equipment the *Polaris* submarines would need and carrying also the various military and civilian observers to monitor procedures, the *Liftmaster* made the trip successfully and once again proved MATS' capability to do the job.

Three times a week a "141" trip departs with cargo, and twice a month "Blue and Gold" submarine crews take off from McGuire. Average flying time to Prestwick totals just under 13 hours, and covers about 2950 miles of land and sea. The schedule calls for a single stop, that at Harmon AF Base in Newfoundland where the plane refuels and makes preparations for the long over-water haul that lies ahead.

Polaris support flights terminate the next morning in Scotland, where both cargo and submarine crews are off-loaded for the *Proteus*, 43 miles away at Holy Loch. This 600-foot-long tender thereby replenishes her stock of an estimated one million spare parts and 120,000 blueprints. Submariners will go directly to their "boats" or remain with the *Proteus* until a suitable rendezvous can be made.

To accomplish its job of upkeep and repair, the *Proteus* is manned by some

960 men, many of them skilled technicians who provide their brood of "underwater boats" with nearly every imaginable service.

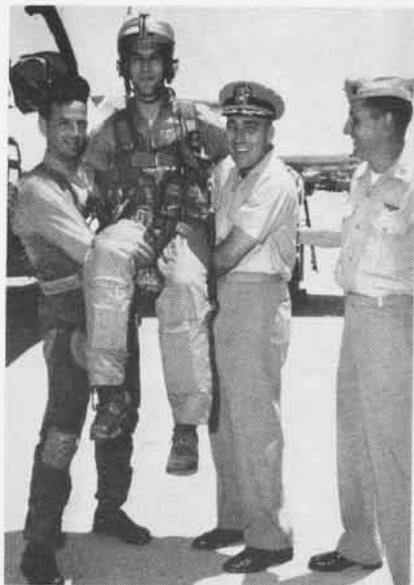
Working on an around-the-clock basis, the *Proteus* has been in Holy Loch waters since the *Polaris* program was implemented there last year. Her vigorous schedule, coupled with the essential logistics support she receives, gives our *Polaris* submarine fleet a self-sufficiency almost unmatched in Naval history. For this reason, *Polaris* submarines need return to the states only once in three years for major overhaul.

MATS fliers and maintenance men at McGuire AF Base realize the value of their contribution to the *Polaris* program. With uninterrupted support, *Polaris* submarines will continue on station, alert and ready to support our nation's concept of "Power for Peace."

Flight Crew Scores High VP-8 Unit Topnotch Three Years

Crew Three of VP-8, based at NAS PATUXENT RIVER, has completed the 1962 AirLant competition with 100% scored on all competitive exercises for three years.

Crew members have changed during the last three years, but the current team has maintained the outstanding record of its predecessors. LCdr. R. S. Zeisel is Patrol Plane Commander.



LT. H. R. HEALY, flight instructor who flew last hour of VT-9's 10,000 accident-free flight hours since commissioning, is carried by Capt. T. E. Morrow, USMC, and Cdr. D. J. Birdsong as Capt. P. H. Sallade, USMC, looks on.



USS BENNINGTON (right) and antisubmarine DD, USS Epperson (left), maneuver into position for refueling by the British auxiliary, HMS Fort Dunvegan. Thirty-four ships of six SEATO nations participated on a split-second schedule for a rendezvous-replenishment operation at sea.

SEVENTH FLEET SHIPS IN SEATO DRILL

ON THE TWENTIETH anniversary of the opening of the Battle of the Coral Sea, the South East Asia Treaty Organization (SEATO) brought to a close a three-week ASW exercise called *Sea Devil*.

Units of the Seventh Fleet, commanded by VAdm. W. A. Schoech,

carried out their missions with aircraft and ships from New Zealand, Pakistan, Thailand, Australia and the United Kingdom, as well as other units from the United States.

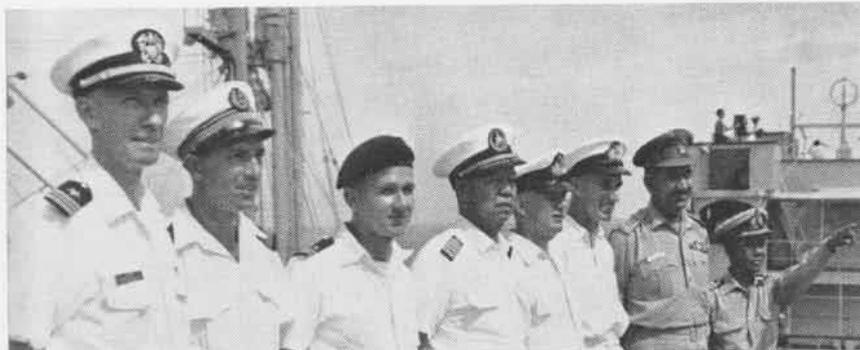
The USS *Bennington* (CVS-20) served as the main coordinating and tracking station. The anti-submarine

destroyers—*Radford*, *Shelton* and *Blue*—joined with similar ships of the SEATO navies. Anti-submarine destroyers *Epperson* and *Collet* were used for air defense with their opposite numbers in other navies. The anti-submarine destroyers, *Renshaw*, *Philip*, and *Lyman K. Swenson*, formed a protective screen around the convoy.

Fleet oiler USS *Hassayampa*, in the convoy proper, added her cargo to that of eight supply ships.

Four submarines, including USS *Sabalo* and USS *Catfish*, acted as enemy for the exercise. Teamed with the submarines were strike aircraft which made simulated attacks on the convoy. They operated from the USS *Hancock* with Royal Australian Navy jet interceptors flying from the Philippines during the exercise.

USS *Pine Island* (AV-12) served as headquarters for long range aircraft flying out ahead of the task force.



REPRESENTATIVES of all eight SEATO nations—left to right, U.S., France, Australia, Philippines, New Zealand, U.K., Pakistan and Thailand—get together on deck of HMAS Melbourne.



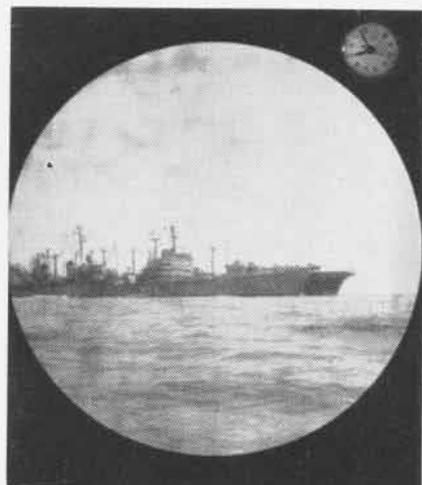
AT MANILA, the Australians and U.S. "dressed ship" in honor of Queen Elizabeth's birthday. Photo by HMAS Melbourne shows Bennington.



THE HUNTER and the hunted get a look at each other at exercise's end. Shown are USS Catfish, HMAS Melbourne and an Australian Gannet.



ABOARD USS BENNINGTON at sea, VIP's from the Republic of the Philippines and other SEATO nations listen to their tour guide and observe five-inch rockets attached to an S2F Tracker.



SUBMARINER'S DREAM comes true as USS Catfish catches tanker refueling Melbourne.



MINUTES AFTER LCdr. Vince More, USN, landed his S2F on HMAS Melbourne, he caught LCdr. Pat Stewart, RAN, painting kangaroo on it.



TWO AUSTRALIAN Navy petty officers (left and center) give a few pointers to USN CPO on the nose wheel of a Gannet anti-sub plane.



THE OPERATION of the navigation bridge on the USS Lexington (CVA-16) is explained to some young people who came aboard.



ON A GOOD WILL visit, children are especially welcome. Here officers and men assist the teachers in guiding children up the ship's gangway.

LEX HAS BUSY FIVE DAYS IN KOBE



A STUDENT, one of the 50 members of the International Students' Association who visited the ship, sits in the cockpit of a jet fighter.

A U.S. NAVY aircraft carrier makes a six-month cruise in the Western Pacific. What is in store for the more than 3000 Navy men aboard the huge attack ship when they make a good will visit?

One answer to this question is illustrated by pictures taken during a five-day visit of the USS Lexington at Kobe, Japan. With the gangway in place, the ship was open for visiting, and a full schedule of activities gave the people of Kobe a good look at the U.S. Navy.

In the five-day period, the Lexington worked at renovating two barges which serve as the home for 14 Kobe Anchor Scouts. They painted the Lexington's hull number, 16, on the barges at the request of the Japanese scouts.

Lexington crew members donated blood—227 pints—the largest donation ever received by the Kobe Blood Plasma Corporation, a non-profit organization.

Parties were sponsored on the carrier, and in turn the Lexington crew was taken on a privately sponsored tour.



DARK EYES shining, a little girl tries on pilot's helmet during the Lexington "open house."



LEXINGTON CREW members in numbers answered the call for blood donations at Kobe.



THIS KOBE Anchor Scout was the leader of his fellow scouts when they visited the Lexington.

NAVAL AVIATOR #8 HAD GREAT CAREER

VICE ADMIRAL Patrick N. L. Bellinger, Naval Aviator #8, died May 29th in Clifton Forge, Va., after a short illness and was buried with military honors in Arlington National Cemetery June 1.

A graduate of the Naval Academy, class of 1907, he served with the surface and submarine forces, but in 1912, he became a Naval Aviator and began a career marked by "firsts."

On June 13, 1913, Ltjg. Bellinger, flying the Curtiss A-3 at Annapolis, set an American altitude record for seaplanes, reaching 6200 feet. In August and September, he flight-tested in the Curtiss C-2 flying boat a Sperry gyroscopic stabilizer (automatic pilot).

In 1914, he joined the USS *Mississippi* and was in charge of the Navy's Aeroplane Section at Veracruz, Mexico, during the occupation of that port. On flights over the enemy's territory, young Bellinger was under fire by ground troops, and his was the first American aircraft fired upon in combat.

On April 23, 1915, he set a seaplane altitude record of 10,000 feet. In November 1915, he was one of the first flyers to be launched by ship catapult.

In the summer of 1915, he was assigned to a special aviation detail and piloted, spotted, and signalled solo in a Burgess-Dunne AH-10. This was the first instance of a Navy aircraft spotting actual gun or mortar fire.

LCdr. Bellinger won the Navy Cross when, in May 1919, he participated in the first trans-Atlantic flight as commanding officer of the NC-1. His seaplane was forced down near the Azores, and he was picked up by a Greek steamer.

Nearly 30 years after becoming a Naval Aviator and after many and varied assignments, he was ordered in November 1940 to Honolulu to assume command of Patrol Wing Two with the rank of Rear Admiral. In May 1942, he was ordered to duty as Commander Patrol Wings, Pacific Fleet, and in August 1942, was appointed Deputy Chief of Staff to the Commander in Chief, U.S. Fleet. In March 1943, he was designated Commander, Air Force Atlantic Fleet, and on October 5 of the same year, he was made a Vice Admiral.

VAdm. Bellinger was awarded the



LT. BELLINGER AT CONTROLS OF AH-3

Distinguished Service Medal in 1946 with a citation commending him for his "keen foresight and sound judgment" in World War II in organizing and expanding the Atlantic Fleet air components.

He was transferred to the retired list on July 7, 1947, in the rank of vice admiral.

In addition to the Navy Cross and the Distinguished Service Medal, VAdm. Bellinger was accorded many decorations, including the Mexican Service Medal, the WW I Victory Medal, the Croix de Guerre with Palm as well as the Legion of Honor.

Argentine Ship at Norfolk Entertained by USS *Greenwich Bay*

The *Independencia*, Argentina's only aircraft carrier, recently spent a two-week training period in the Hampton Roads area. During her inport period



INDEPENDENCIA WAS ONCE BRITISH CARRIER

at NAS NORFOLK, the USS *Greenwich Bay* (AVP-41), under the command of Capt. H.L. Harty, Jr., acted as host ship for the officers and crew of the aircraft carrier.

The *Independencia* was purchased by the Argentine government from Great Britain in July 1958, and the name was changed from HMS *Warrior* to ARA *Independencia*. Her 695-foot hull was laid in 1942 and work was completed in 1946. With a peacetime complement of 1076 men, the carrier can handle a maximum of 35 aircraft.

During the ship's stay in Norfolk, she participated in various operations off the Virginia coast with three Argentine destroyers purchased earlier from the United States.

Freedom Award Announced South Weymouth Wins Recognition

Capt. Vincent L. Hathorn, commanding officer of NAS SOUTH WEYMOUTH, and LCdr. Richard S. Rutkowsky, former leadership officer at the station, have received a Freedoms Foundation award for the station's Operation *Patriotism*, an American flag project.

Goal of the program was twofold: to get a new 50-star American flag for display purposes into the home of each person attached to the air station, and eventually to get a flag into every home in New England.

Upwards of 3000 American flags of all sizes were distributed aboard the air station. Offshoot units of the air station project were started by civilian groups, and many are still going strong.

Shangri-La Aids in Greece Orphanage, Kindergarten Helped

USS *Shangri-La* (CVA-38) contributed greatly to the People-to-People program during time spent in Rhodes and Athens.

While the ship was at Rhodes, Marine Fighter Squadron 251, a member of CVG-10, contributed clothing and bedding to the children of the Queen Sophia Orphanage.

When the carrier anchored off Piraeus, Greece, members of the ship's crew spent a full day painting—they used over 30 gallons of paint—and making repairs to the facilities of the Moschatou kindergarten, in the town of the same name.



BRITISH AND AMERICAN naval aircraft from the attack carriers, HMS *Scimitar* and two *Sea Vixens*. The A4D Skyhawks were from Attack Ark Royal and USS *Hancock*, joined forces at NAS Cubi Point, Philippines, for a mock strike. Left to right are four Skyhawks, a Squadron 212. The *Sea Vixens* represent British Fighter Squadron 890, and the *Scimitar* belongs to British Fighter Squadron 800.

Intrepid to Become a CVS Completes 8 Yrs. Continuous Duty

Eight years of continuous service as an attack aircraft carrier have ended for the USS *Intrepid* (CVA-11). She is to become an anti-submarine support aircraft carrier.

In March, a little more than one week after she arrived back in the U.S. from a tour of duty with the Sixth Fleet in the Mediterranean, *Intrepid* moved to the Norfolk Naval Ship Yard, Portsmouth, Va. For the next three and a half weeks, shipyard workers riveted, welded, cut, hammered and pounded the "Fighting I" into shape for her next at-sea period.

Machinery which had become worn out or broken during the past deployment was overhauled, repaired or replaced. Ship's supplies were replenished and *Intrepid* was made ready for immediate operations.

These included her latest task as a member of the recovery team for Astronaut Scott Carpenter at the end of his three-orbital flight. He was brought to the deck of the *Intrepid* by helicopter, and his first debriefing was held in the captain's cabin.

Later this year, the *Intrepid* will again enter the shipyard. When she emerges some months later, she will have undergone her fourth post-war period of major overhaul and conversion. She will be fully ready for undertaking her ASW support job.

Medical Assistance is Given USS Valcour Aids Merchant Seaman

Seaplane Tender USS *Valcour* (AVP-55) went to the aid of an injured merchant seaman from the tanker, SS *Manhattan*, in the Persian Gulf.

A message received, from the *Man-*

battan, which was en route from Kuwait to Long Beach, stated that seaman Walter Nance was seriously injured in a 20-foot fall from the tanker's stack.

Medical assistance was requested from the *Valcour*. *Manhattan's* 60-foot draft prohibited her from navigating in the coastal waters surrounding Bahrain Island, the nearest place with medical facilities. The tender and tanker rendezvoused within 2½ hours. Seaman Nance was transferred to the *Valcour*, then transported to Bahrain Government Hospital.

Commanding Officer of USS *Valcour* is Capt. William W. Jones.

Air Shoe Shortage Solved Flight Safety Boots for all Flyers

High-top flight safety boots, formerly available only to selected units owing to limited supply, were released for issue to all flight personnel July 1, 1962. They may be drawn on log-book issue as part of personal flight gear. The new boots will cost squadrons and other activities approximately \$10.50 per pair.

Most flyers who have worn the new boot consider it superior to the N-1 field shoe it replaces. The boot is extremely soft on the inside, being leather-lined in soft calf, but it pro-

vides good protection with its rugged waterproof exterior and steel-cap protected safety toe.

During preliminary tests, Service Test Division pilots at NATC PATUXENT RIVER reported the boots comfortable, both flying and walking. They also found it compatible with stirrups and rudder pedals of the 20 models of aircraft flown during the evaluation.

An earlier version of the boot had a zipper up the side. In this model, the zipper has been eliminated.

Constellation Acquires Art Namesake Paintings Put on CVA-64

Two paintings of the U.S. Frigate *Constellation* in battle with the French Frigate *Insurgente* have found a home in the world's largest conventionally-powered carrier—USS *Constellation*.

Cdr. Charles K. Ruiz, executive officer of the carrier, ordered the portrait of the two ships for his stateroom after visiting an art show. The painting, done in vivid colors, so impressed the commander, that he commissioned the artist, Albert Drake, to do another painting, which now hangs in the officers' mess hall.

The paintings show *Constellation* gaining victory over the *Insurgente* while under command of Capt. Thomas Truxtun, who supervised her construction at Baltimore.

The first *Constellation*, launched on 7 September 1797, is now resting in Baltimore, where it is undergoing extensive restoration.

The new *Constellation* recently returned from a shakedown cruise in the Caribbean where she became the first aircraft carrier to fire a *Terrier* guided missile. She has been undergoing an eight-week yard availability period at the New York Naval Shipyard.



PILOTS LIKE THE NEW BOOT FOR FLIGHT



THIS FAMOUS PICTURE OF A PILOT BEING SAVED IN SPITE OF SINK RATE, LOW SPEED AND ALTITUDE DRAMATIZES NAVY PROGRESS

NAVY BETTERS LOW LEVEL ESCAPE ODDS

IT WAS NOT long ago that ejection below a thousand feet was little more than a futile gesture. Now, thanks to Navy progress in low level escape systems, that dire picture has changed.

Navy jet pilots ejecting now from level or climbing flight have optimistic survival odds at low altitudes—down to runway level with some systems. In 1961, 29 Naval Aviators who ejected below 1,000 ft. survived to fly again.

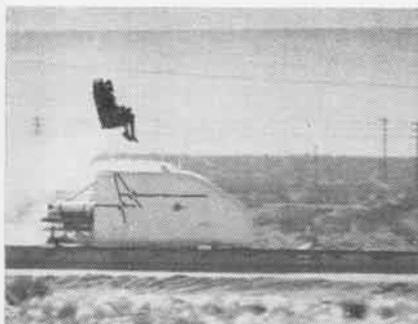
Behind that gratifying progress lies

years of hard work and research (see NANews, Oct. 1961, pp. 7-11). The pictures on these pages are from some of that research. Significant development work has been done by Naval Air Material Center, Philadelphia; Naval Ordnance Test Station, China Lake, Calif.; Naval Parachute Facility, El Centro, Calif.; Naval Weapons Laboratory, Dahlgren, Va.; and aircraft builders.

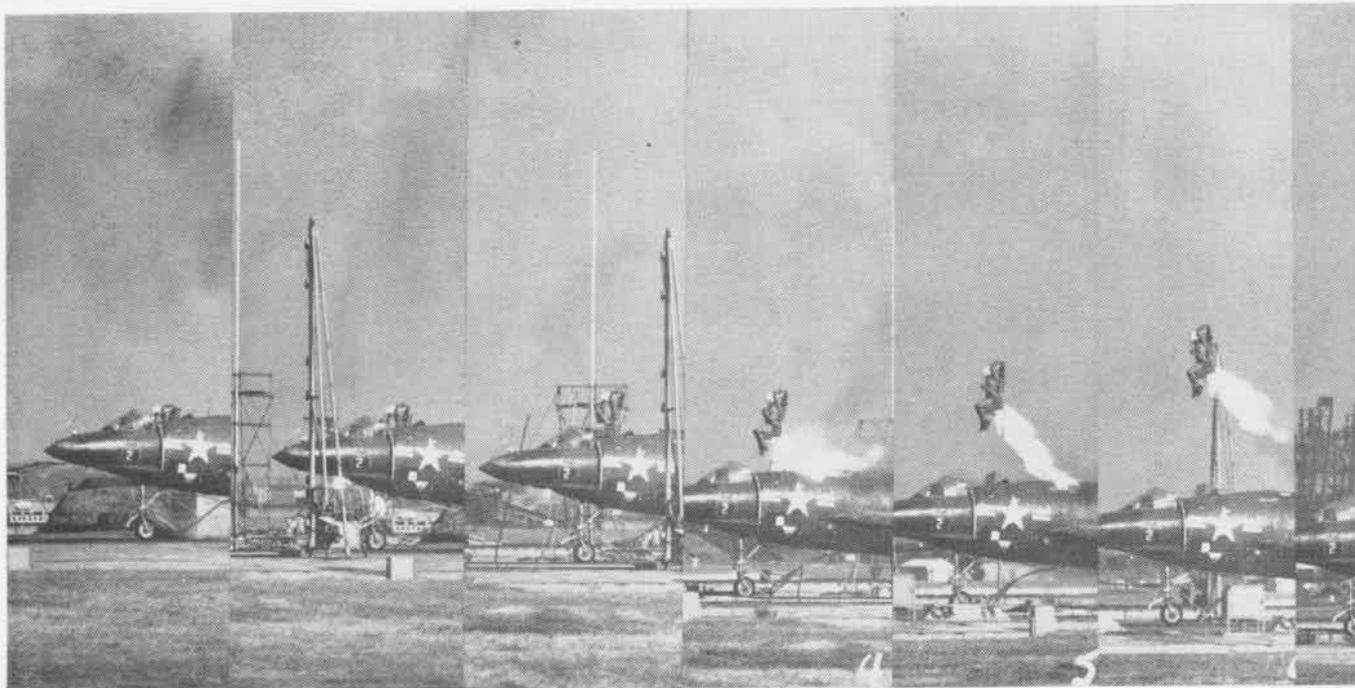
Five different escape systems, with varying degrees of low level ejection

capabilities, are now in Navy service: a standard seat with zero-delay lanyard, Martin-Baker seat, Douglas RAPEC I seat, North American Rocket Ejection seats, and a system installed in early models of the F8U *Crusader* series.

All ejection seat-equipped Navy jet aircraft not having one of the more modern systems have been equipped with zero-delay lanyards. This system gives pilots good escape odds down to an altitude of about 200 feet.



A DUMMY IS BLASTED FROM A ROCKET SLED AT 400 KNOTS IN 1958 TESTS OF THE RAPEC I EJECTION SYSTEM AT NOTS CHINA LAKE



RAPEC III ROCKET CATAPULT LIFTS 232-POUND DUMMY AND MARTIN-BAKER MK-A5 SEAT FOR /

THE MARTIN-BAKER seat was the first low level escape system installed in any naval aircraft. It has been, or is being, incorporated in all F8U-1-2, F3H-2, F4D-1, F9F-8T, F9F-8B, F11F, T2V, and FJ-4B series aircraft, and is original equipment in the A2F and newer F4H's and F8U's.

The Martin-Baker system will give a true ground-level escape capability at take-off speed for most planes. With the heavier seats required in the supersonic F8U's and F4H's, it has a capability of about 50 ft. at 130 knots at

the present time. However, some currently planned changes in the drogue and personal parachute systems, in the drogue gun, and in time release mechanisms will give the seat a true on-the-deck capability in those aircraft.

The pre-Martin-Baker *Crusaders* had a built-in feature which was tied in with the two-position wing. When the wing was in the up, or take-off and landing position, the seat was snubbed on ejection by nylon lines attached to the aircraft. This system provided almost instantaneous pilot lap

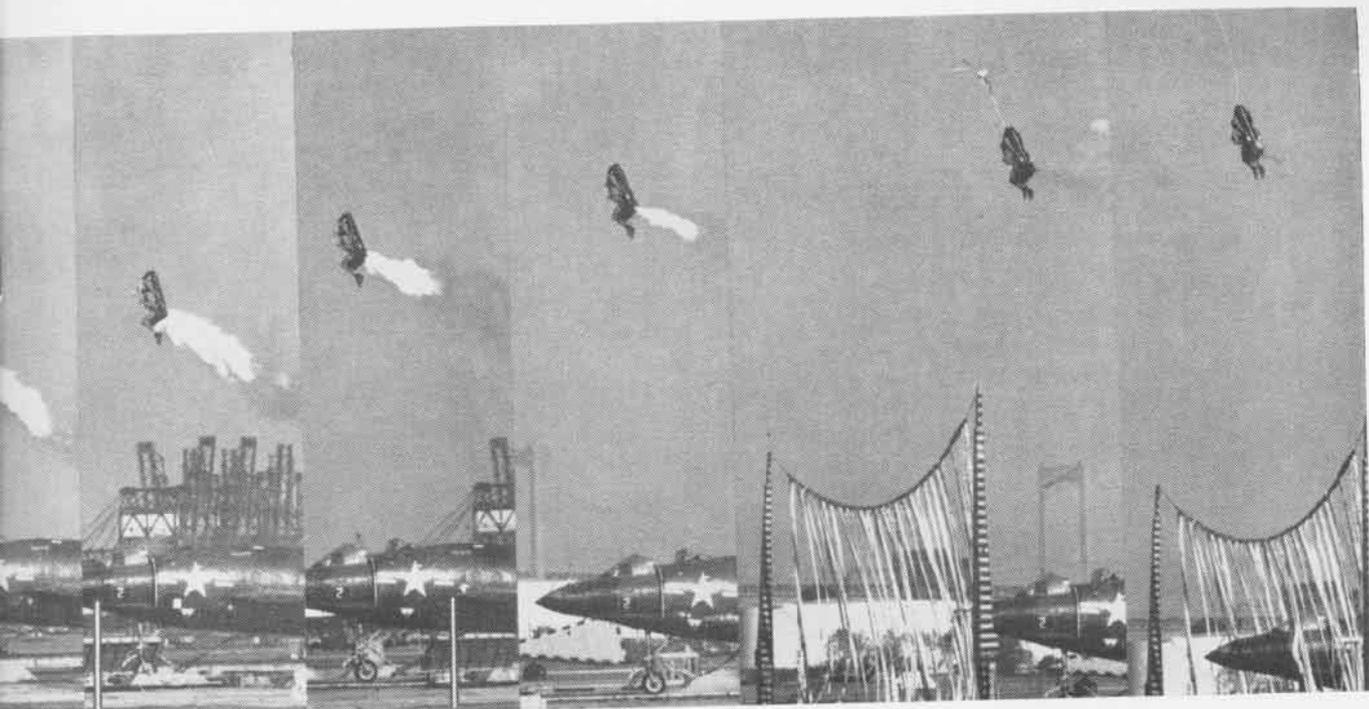
belt opening and seat separation and gave an escape capability down to about 150 feet.

The RAPEC I (Rocket Assisted Personnel Ejection Catapult) system is installed in all A4D series aircraft and provides a ground level escape capability down to 90 knots IAS.

The T2J *Buckeye* and A3J *Vigilante* are both equipped with rocket-propelled ejection seats. The ground-level capabilities of these systems are 100 knots for the A3J and 75 knots for the T2J with the lighter seat.



THESE GROUND-LEVEL TESTS OF THE ROCKET SEAT IN THE T2J BUCKEYE WERE PART OF NORTH AMERICAN AVIATION'S TEST PROGRAM



SH RIDE—118 FT. APOGEE—IN RECENT TESTS AT NAVAL AIR MATERIAL CENTER IN PHILADELPHIA

All the above figures assume level or climbing flight. All figures are conservative, but based on averages with quite a bit of variation in individual cases. The weight of the pilot, the weight of the seat in the particular aircraft, and other factors influence two critical elements: altitude gained by the seat in the ejection and time for the chute to fully deploy.

Ejections have been successful well below the above minimums. For instance, on May 25, 1961, Marine Capt. H. R. Smith successfully ejected from

a T2J at what he estimated to be 60 knots as the plane was going off the end of the runway at Kingsville.

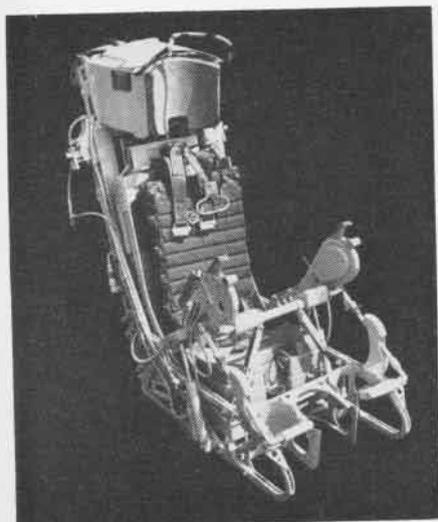
The capability of the Martin-Baker system in F4H, F8U and A2F aircraft will be greatly improved when the new RAPEC III rocket catapults take the place of the present cartridge catapults. These systems are now in an advanced stage of testing.

RAPEC III will give the Martin-Baker system an improved capability for ground level and sink rate conditions, while at the same time substan-

tially reducing peak G loads on the aircraft pilot.

As a direct consequence of the higher ride provided by RAPEC III, it is possible to equip the Martin-Baker seat with a larger parachute and thus give the pilot a slower descent.

Since the larger chute takes longer to deploy, it could not be used with the cartridge ejection catapult now standard with the Martin-Baker series seats. Thus this new development neatly reverses the old truism: "The higher they go, the harder they fall."



THIS A3J SEAT PACKAGES ESCAPEE FOR SUPERSONIC ROCKET RIDE. IT CAN BE TRIGGERED BY FACE CURTAIN OR ARM REST SQUEEZE GRIP

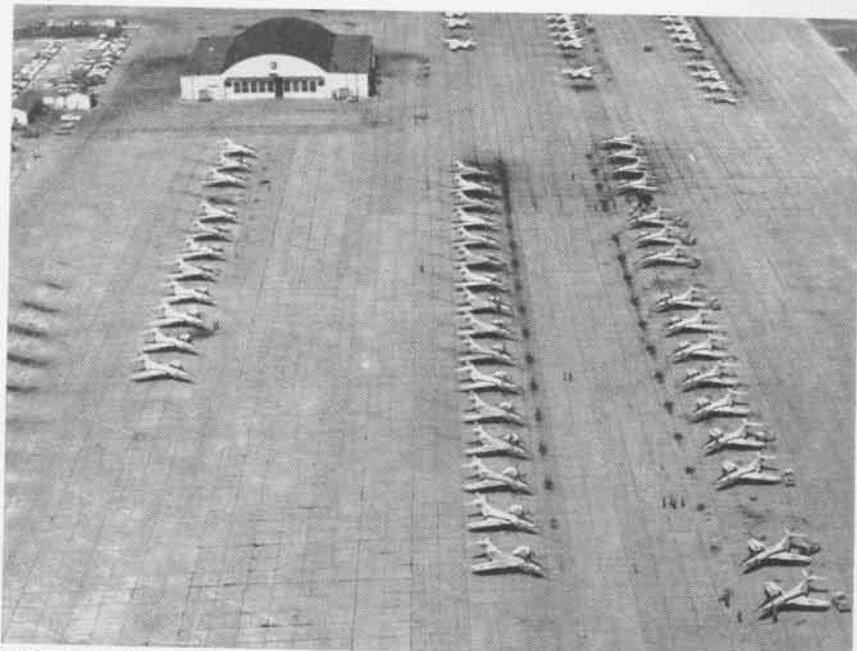
STANDARDIZATION MAKES FOR SAFETY

THAT INSATIABLE searcher for truth in Naval Aviation safety matters, Grampaw Pettibone, was still seeking answers to the question, "How did a training squadron reach and pass 100,000 hours without a major accident in more than a year of teaching flight students?"

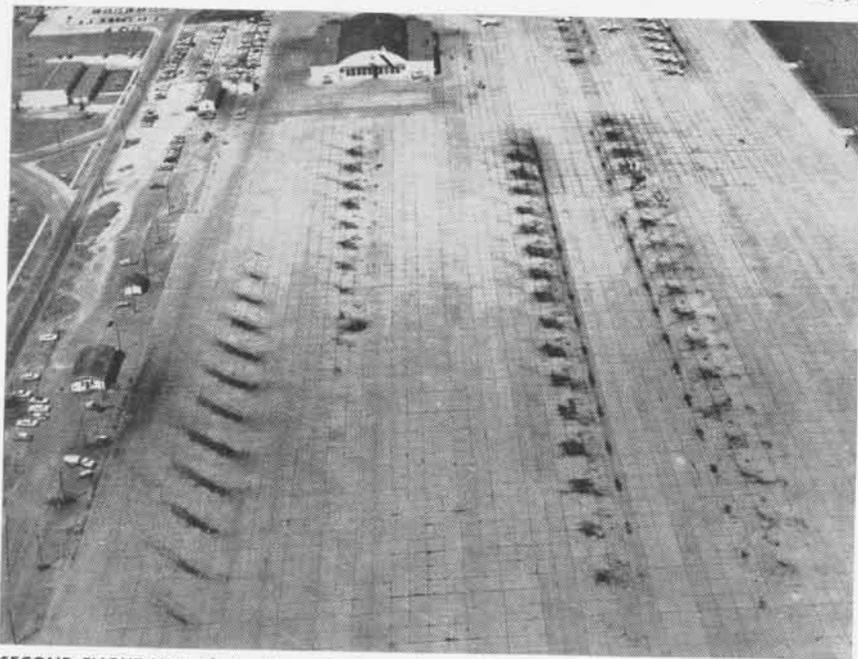
"Give me 100 airplanes," said Pettibone, "and let us assume that these aircraft are in perfect mechanical and structural shape. Then give me 100 instructors and 100 students and just one hour of perfect Florida or Texas sunshine. Put the airplanes, instructors and students into the air for one hour and I'll find you at least a couple of hairy stories for my files.

"When you put the human element into the flying machine, you open up a box full of intangibles and pretty soon, 'Up pops that old gremlin!' He'll 'think' some student into a corner real fast, and there goes your accident rate."

While VT-3 was rolling along at a



FLIGHT LINE PHOTO, before start of training period, represents hour-by-hour challenge to all maintenance personnel. "Will they all be flyable?" Training schedules require high availability.



SECOND FLIGHT LINE photo, taken 16 minutes later, shows empty VT-21 line. Matching of student training and maintenance schedules is all-hands effort in Naval Air Training Command.

500-hours-per-day clip leading up to the 100,000-hour mark, they did not claim complete elimination of all troubles in their maintenance or training programs. During the 12 months of accident-free flight, VT-3 had more

than 100 rough-running engines, 53 sump warning lights, seven fires and numerous other emergencies.

What Grampaw was really asking was the question, "So if you get a sort of Quality Control over material

and maintenance failures, how do you get control over the human element in Naval Air Training?"

VAdm. Fitzhugh Lee, Chief of Naval Air Training, places principal credit for improvement of the human element to an all-inclusive word, *Standardization*.

"Standardization is not a new subject to the pilot training program," Adm. Lee declared. "For years we have had a well established and very effective standardization program within that part of the Training Command. Of primary importance in pilot training has been the standardization of instructor techniques. This, of course, has been continued with the adoption of the Naval Air Training and Operating Procedures program. It is not mere happenstance that the Navy-wide NATOPS program, established by the Chief of Naval Operations, is almost identical with that program long in effect in pilot training."

NATOPS is an effort, directed by CNO, to standardize pilot and crew techniques in all aviation units. Separate operating manuals for each type of aircraft are now either available or in the publication stage. The check-rein on pilots to make sure they ad-

here to the standard procedures is the requirement for the annual standardization flights in each type they fly.

In the training commands, standardization extends to instructors and students alike.

When a Naval Aviator checks into the Basic Training Command for duty as an instructor, he has at least four years of sea duty behind him and has, on the average, logged 200-250 carrier landings.

Basic sends the prospective instructor to the Flight Instructors Indoctrination Group (FIIG) for a course of instruction to sharpen up his technical knowledge and to teach him the rudiments of instruction techniques. In 103 hours of classroom instruction, the FIIG student receives 48 hours in Applied Aerodynamics, much of it new material even for a fleet pilot. Other courses at FIIG cover oral communications, Naval Leadership and Instructor Orientation.

In three weeks at FIIG, the prospective instructor receives an appreciation of the fact that "no student ever becomes completely predictable." A summation of years of instructor safety tips is handed to the FIIG student to keep him aware of pitfalls in the job he is about to undertake.

Having completed FIIG, the instructor-designate finds he is starting the standardization trail in the Basic Air Training Command.

RAadm. Magruder H. Tuttle, Chief of Naval Air Basic Training, has on his staff a primary duty Standardization Officer, who in turn has five staff inspectors assigned to monitor the standardization program at the many



Gramps Says:

**THIS
MAKES
ME FEEL
GOOD!**

squadrons in the Basic complex.

At the squadron level, primary duty standardization officers are selected from among the most senior and most experienced flight instructors. On the squadron level, the standardization officer and the squadron C.O. are members of a squadron standardization board, which keeps its eye on instructor and student programs. Each squadron instructor is given a written examination each quarter and a flight check every six months. Results of the squadron's program are checked by Basic during staff inspections.

Staff and unit efforts are "married" into an integrated program for CNABaTra by the command's Flight Standardization Board, which meets quarterly to monitor the command-wide program. Members of the command board are all unit standardization officers, staff maintenance officers, safety officers, medical officers and the staff training officers. All problems relating to standardization are discussed and recommended solutions are sent to CNABaTra and CNATra.

When the FIIG "graduate" moves to his assignment at VT-4, for example, he starts as a "beginner" himself, regardless of his fleet experience. Before he climbs into a VT-4 T2J Buckeye, the instructor receives in-

struction in T2J maintenance systems trainers. Combined with the NAMT training are lectures and demonstrations in engineering, safety, and course rules. Tests are given after each course.

Before hopping into the T2J on the flight line, the instructor receives four Operational Flight Trainer (OFT) simulator flights to learn procedures. Satisfactory completion of the OFT course is the final factor in qualifying the instructor on the ground. He follows with an "in-flight" (type familiarization) training syllabus and finally passes into the Instructor-under-Training syllabus at the squadron level.

The pilots assigned to instruct in the multi-engined training squadrons in the Naval Air Advanced Training Command, under RAdm. L.J. Kirn, are treated similarly on standardization before permission is given to fly student training hops.

In VT-28, where the s2F Tracker is the training aircraft, the new instructor receives up to 30 hours of flight time in the instructor training syllabus. In the P2V/P5M training squadron, VT-31, the newly reported Instructor-under-Training is required to complete a 10-week syllabus covering everything from aircraft systems to flight rules, and takes 40 hours of flight instruction before his qualifying flight as a plane commander. Generally, the complexity of the aircraft and its systems governs the amount of training the instructor must complete.

Having proved his ability to fly and teach flying, the instructor finds himself teaching a student who also has received standardized ground instruc-



LANDING GEAR SYSTEM is explained to students during a pre-flight indoctrination at the Advanced Training Command's Kingsville base.



EJECTION SEAT systems trainer provides instructors and students chance to learn all phases of emergency evacuation systems.

tion in all phases of the assigned syllabus.

Pettibone is quick to warn everyone in the training command that too much standardization can be dangerous. "You've gotta throw in a pinch of common sense trainin' in there, too, to make the product better, like addin' spice to a stew."

Widely-quoted in the training command is an article by a former Saufley Field commanding officer. The article, published in 1960, says:

"Why do we have silly crashes? I have only one suggestion. We have tried to assume the student's respon-

come a competent T-34 driver, perform any maneuver of which the T-34 is capable, and he should be able to handle any emergency professionally. We are here to teach, demonstrate, encourage and correct. The student is here to learn. If he cannot, or will not, we will get rid of him—with no tears."

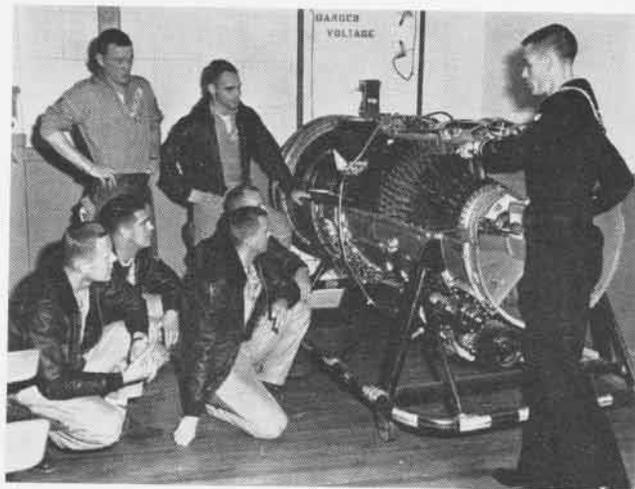
Since that piece was written, the system at Pensacola and Corpus has gone through many changes and shifts. Implementation of the training squadron concept was made in 1960, giving more responsibility to the squadron commander and direct relationships

standardized training from instructors who also are standardized, there is still room for improvisation and individual initiative in the training process.

One advanced training squadron has posted a progress board on the results of instructors' weekly safety quizzes. The heading on the board is "How safe are you?" Another squadron has an Enlisted Aviation Safety Council which discusses both air and ground safety. Two-way flow to and from the squadron commander is accomplished through the council. One squadron asks student pilots to fill out a form on completion of the train-



PERSONAL FLIGHT GEAR inspection by VT-25 safety officer, flight surgeon and C.O. assures that students have best available equipment.



CUTAWAY ENGINE model provides "inside" view of jet engine as student pilots receive check-out by experienced mechanic-instructor.

sibility; we are trying to do the learning for him. We have tried to establish a hothouse environment where the student is bathed in aeronautic know-how until he is completely 'standardized.' Then we gently pin on a pair of wings and send him off to the Fleet in the hope that he will draw a squadron commander who will 'wet nurse' him through his obligated service.

"Those students deserve a better break. They arrive in Pensacola with visions of becoming an Eddie Rickenbacker and a Joe Foss combined with Buz Sawyer. They are tigers. They find this is the place with a 'procedure' for everything. After a couple of months, the student aviator comes to regard himself as an IBM machine. We punch the buttons, and he is supposed to produce from his memory cells the right answer.

"My solution is not radical. . . . It is proposed that we tell the student frankly that the learning process is his responsibility. Here he should be-

between the instructors, maintenance personnel and student training officers. Standardization and NATOPS manuals lay down the rules, what to do and how to execute every maneuver in the manner that has proved best through past experience.

The command-wide leadership program has its effect in promoting safety. As one C.O. stated it, "Generally the attitude of the squadron pilots is a reflection of the attitude of those in direct supervision of the program. Someone must do the selling, and the quality of his product must be the best available.

"A successful standardization program is one in which all participate. Each pilot not only uses the selected procedure, but he also understands why it is the best. He becomes a salesman of that particular procedure. He wants to sell it to his students and he wants them to understand why it is the best 'buy.'"

Although the students receive

ing period, with safety suggestions flowing from individuals to the aviation safety officer, and to the safety councils.

In VT-27, student pilots are subjected to a "Safety Point System" to keep them on their toes. Each student pilot is assigned 100 points at the beginning of training, is docked a set scale for each safety mistake in the syllabus. When the student is down to 50 points, he gets a hearing before a safety board and recommendations are made to the commanding officer. The C.O. decides whether to let him continue. If a student loses all 100 points, he appears before a Disposition Board.

Some training command units hold All Pilots' Meetings daily, others once a week. One unit publishes emergency procedures (for a given set of circumstances) in its daily schedule, repeating each procedure every two weeks. Safety officers make flight line checks, ride student hops, give fre-



RUNWAY DUTY unit monitors T-34 landings at Saufley Field, site of first flight for Naval and Marine aviator candidates in Pensacola area.



LOCALLY FABRICATED cart eases the strain for Corpus Christi runway duty officer as he monitors touch-and-go landings of trainees.

quent lectures and generally try to prevent accidents by noting trends and near-miss situations. Instructors and students in the advanced training stages often are scheduled for regular OFT hops, given checks on their adherence to procedures.

The Runway Duty Officer is now an accepted member of the safety team. He sometimes spots dangerous habits and "un-standard flying" while serving as a constant check on the important take-off and landing phases of training. If an approach "looks" dangerous, he can give a wave-off; there is no way of knowing how many accidents have been prevented by RDO's.

VT-3, which has as its motto, "Student Quality is our policy—Safety is our approach," requires students to pass a safety exam with a perfect mark before they enter the cockpit for their first flight. Instructors and students think safety at all times. The 12-month run to the 100,000-hour safety mark produced 10 instructors with 1200 accident-free hours, 12 with 1000 hours and 31 more who passed the 500-hour mark. Lt. Marty Schuman, a 1500-hour accident-free instructor, said, "This is a serious business we're in and only a fool would risk his own neck through carelessness."

For many years the training units have been passing out Accident-Free Performance Awards to instructors; Student-of-the-Month certificates to selected cadets and officer flight students. Enlisted men receive Man-of-the-Month awards at many stations. Additional awards, such as VT-3's

Old Pro award, given for prevention of accidents, act as morale builders around the command.

The Training Command story—encompassing the Pensacola and Corpus Christi areas, varying aircraft types, thousands of students, instructors and maintenance/support personnel—is a day-by-day story of people at work trying to produce a continuing flow of quality pilots for the Navy.

As one C.O. stated it, "If the most important part of the program had to be singled out, I believe it would be the active cooperation of all echelons within the squadron working together to find the best way to accomplish the mission in the safest manner."

To which Grampaw says, "As long as we have manned aircraft, there will always be two sides to safe flying . . . on one side MEN and the other MACHINES.

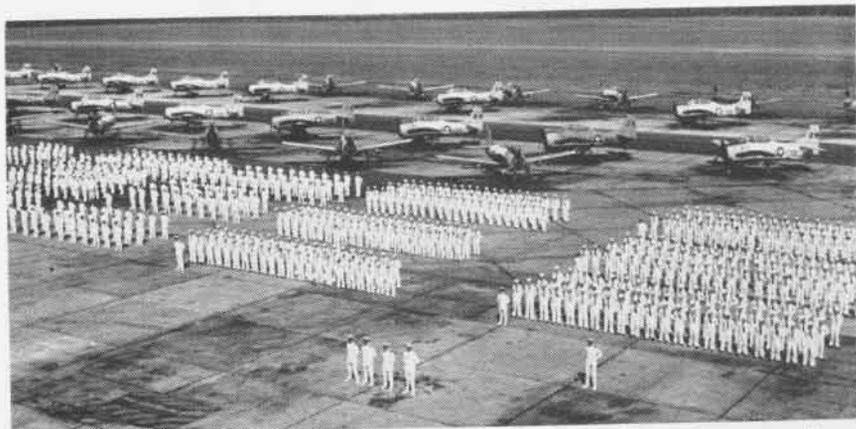
"If every maintenance man would

work on his job just like he wants the dentist to work on his teeth, or like he wants the yeoman to work on his leave requests, or like he wants the paymaster to work on his pay record, we'll have a lot safer aircraft to fly. And if every instructor judges his students carefully, asking himself if he'd like to have the man flying on his wing in the Fleet, we'd keep the quality of pilots way up there."

Editor's Note to Gramps—"Somebody down South has been reading what you've been saying for almost 20 years. How about easing up on the boys now?"

Grampaw's Note to Editor—"Never!"

The dramatic and nearly unbeatable record by Training Squadron Three was broken on May 31 at 125,896.2 safe flight hours. The T28 involved in the accident was a strike, but the student pilot escaped uninjured.



TRAINING SQUADRON THREE, fresh from over a year of accident-free flying, assembles at inspection marking its 100,000-hr. safety record, Unit has won 4 CNO Safety Awards in a row.

U. S. NAVY AIRCRAFT FROM 1921 TO 1941



NAVY PURCHASED a number of European types for evaluation in the early '20's. Among them was British Blackburn Swift torpedo plane.



DAYTON-WRIGHT WA-1 prototype was one of first Navy amphibians. This observation type was equipped with a 325-hp Wright Hisso.



FLYING BOAT development in the early and mid-Twenties was carried on by the Naval Aircraft Factory. Progressive improvement in hull de-

sign, construction, engines and other features led to the first model with air-cooled engines, the twin-tailed PN-11 of 1927. Two were built.



PROTOTYPES of three designs for observation amphibian types to replace the Vought Corsairs were built in 1934, including this X02D-1.



CURRENT NAA FJ Fury series have the same designation as Berliner Joyce fighter prototype of 30 years ago; XFJ-2 version is shown here.



VOUGHT CORSAIR biplanes were built under many designations. XSU-4 was one of the last models. Like other SU's, it was a carrier scout.



CIVIL TYPES were purchased in small quantities for administrative flying. This Stinson Reliant saw service as XR3Q-1 in mid-Thirties.

THE APPEARANCE of William T. Larkins' new book, entitled *U. S. Navy Aircraft, 1921-1941*, serves to emphasize that not all of the basic models of naval aircraft were illustrated in the series of historical sketches presented in *Naval Aviation News* last year. While every effort was made to include illustrations of each basic model developed for and/or used by the Navy and Marines, this was not always possible.

On these two pages are shown a few of those of the colorful 1921 to 1941 period which were omitted. Except for the two Vought models, none of these were built in quantity for use in the Navy.

A final installment of our series, covering research types, gliders, piloted drones, and other odds and ends, is planned for an early NANews issue.



VOUGHT SB2U-3 was 1941 production carrier type, convertible to twin floats. Float versions of other contemporary carrier types were tested, but were not put into production.



NAVAL AIRCRAFT FACTORY production turned to designs of other manufacturers in late Thirties. Last NAF-designed conventional aircraft

prototype was 1941 XN5N-1 primary trainer. Design was not produced, but modernized prototype was later used as a glider towplane.

RESERVES FORM FOURTH MARINE AIR WING

A REORGANIZATION of the Marine Corps Organized Reserve program started on July 1, affecting all 86 Marine Aviation units and almost half of the Corps' 218 ground units.

Organized Marine units will form major elements of the Fourth Marine Aircraft Wing and Fourth Marine Division under the revised reserve structure. Some 45,000 Marines now participate in the Organized Reserve.

According to Gen. David M. Shoup, Commandant of Marines, the designation of Marine Reserve units into elements of the air-ground team will "enhance realistic long-range training and provide for rapid unit response in event of mobilization."

Major units of the Fourth Marine Aircraft Wing, which will be formed within the structure of the Marine Air Reserve Training Command, Glenview, Ill., are:

Marine Wing Headquarters Group-4
NAS GLENVIEW, Ill.

Marine Wing Service Group 47
NAS LOS ALAMITOS, Calif.

Marine Air Group 41
NAS DALLAS, Texas

Marine Air Group 42
NAS ALAMEDA, Calif.

Marine Air Group 43
NAS WILLOW GROVE, Pa.

Marine Air Group 44
NAS MINNEAPOLIS, Minn.

Marine Air Group 46
NAS GROSSE ILE, Mich.

Under the plan, Commander, Marine Air Reserve Training (COMART), would become Commanding General, Fourth Marine Aircraft Wing, upon activation of the Wing. Formation of the Wing does not affect the present training sites of Marine Air Reserves now attached to 17 Marine and Naval Air Reserve training units and stations from coast to coast.

The Fourth Aircraft Wing was one of five air wings established by the Marine Corps for service during World War II. Commissioned in 1942 as Marine Base Defense Air Wing, the Fourth originally was positioned in Hawaii, Midway and Samoa with air defense, search-patrol, air-sea rescue



FIRST SKYRAY is welcomed aboard NAS Olathe following delivery from the Fleet. Two Naval Air Reserve and two Marine Air Reserve squadrons will utilize the "Ford" in weekend training.

and shipping escort missions. In 1943 it moved to Tarawa and was shifted from a defensive to an offensive wing during operations in the Marshall Islands. Its title was changed with the change in missions. In 1945, the Fourth Wing was spread across the Pacific at Kwajalein, Majuro, Engebi, Guam, Tinian, Iwo Jima, Ulithi and Peleliu. Its decommissioning came soon after war's end.

Ground units of the Fourth Marine Division are the 25th Marine Regiment, composed of infantry battalions from New York, Massachusetts, New Jersey, New Hampshire, Connecticut, and Ohio; the 24th Marine Regiment (infantry) from Michigan, Illinois,

Mississippi, and Louisiana; the 23rd Marine Regiment (infantry) from Texas and California; the 14th Marine Regiment (artillery) from California, Texas, Alabama, Tennessee, Pennsylvania and New Jersey, and several reconnaissance, engineer, anti-tank, rifle and medical companies scattered around the nation.

NRA Honors Reserves

The Naval Reserve Association, national Naval Reserve officer organization, has presented special plaques to all 18 Naval Air Reserve squadrons recalled for active duty during the 1961 Berlin crisis. To each of the 13 destroyer and 27 destroyer escort crews

recalled, the NRA presented a set of steak knives. The gifts were made as tokens of appreciation for the emergency service performed by air and sea reservists. (For a statement from Secretary of the Navy Fred Korth, see inside back cover.)

Skyray Assigned to Olathe

Marine Fighter Squadrons 113 and 215 at Olathe will be first Marine Air Reserves to train in the F4D *Skyrays*. Two Navy squadrons also will fly the delta-winged aircraft.

BGen. L. B. Robertshaw, Commander of Marine Air Reserve Training, heralded the May arrival of the *Skyrays* as another increase in the mobilization potential of the Marine Air Reserve. Navy and Marines will fly the new aircraft on alternate week-ends of the month.

4.0 With GCT Exam

Olathe recruiters signed up a recruit who registered a perfect score on the General Classification Test, first time in memory that the 4.0 mark has been achieved at the Kansas air station. Michael Shanick, of Shawnee, Kansas, the recruit, was assigned to VF-881 as an Airman Recruit. His announced plan is to complete two years of college training and then join the Navy flight training program.



RECENT NAVAL RESERVE enlistee, Jon Holzappel, receives family sword from his father, Capt. V.G. Holzappel, C.O., NAS Dallas. Sword was worn by Jon's grandfather on USS *Texas*, USS *Maine* and in WWI.

Double the Pleasure

Almost doubling the normal workload, GCA Unit #5 handled 1140 approaches during the month of March, setting a new local high for a one-month period at Los Alamitos. The usual monthly approach total ranges between 500 and 600.

In 14 years, the unit has accomplished some 72,441 approaches.

East Coast Office Closes

After five years of work in public information and public relations programs, the Radio City offices of the Naval Air Reserve closed down June 30. Work previously done by the office is being handled out of Glenview CNAResTra headquarters or through the C.O. of NAS NEW YORK. A similar liaison office on the West Coast, based in Hollywood, closed earlier in the year.



HOLDING GIRL be saved in April 1961 by administering artificial respiration, F.D. Gurtler, AE3, VS-891, Seattle, accepts telephone company's Vail Award from official. Squadron C.O., Cdr. Walter Ring, observes.



SECNAV FRED KORTH receives plaque from Capt. Roger Mulcaby, Naval Reserve Association vice president. NRA is presenting plaques to all Naval Air Reserve squadrons recalled to duty.

NAS New York Adds Chapel

Built by volunteers working in off-duty hours without appropriated funds, a chapel was dedicated by NAS NEW YORK personnel late in April. The heretofore churchless air station partially reconstructed what had been a WW II mess hall, a building which had been unused for years.

"All hands" were praised by Capt. W. D. Bonvillian, C.O., for the voluntary work that made the chapel transformation a reality. Special congratulatory greetings arrived at the dedicatory service from VAdm. Fitzhugh Lee, CNATra, and RAdm. William I. Martin, CNAResTra. The chapel will serve all faiths.

Dallas High Scorer

William S. Cook, AR, set a record at Dallas May 12 by making a perfect score in a General Classification test and an arithmetic examination.

CRUSADERS MEET 'A FRIEND INDEED'



PICTURE YOURSELF in this situation: in a 1000-mph jet over your destination airfield, temporarily closed because of a crash, with weather variable above and below GCA minimums—and not enough fuel to reach an alternate. Would you be . . . well . . . apprehensive?

Some Marines played out this little drama over MCAS IWAKUNI and reported it was “no sweat”—thanks to some GV-1 *Hercules* which happened to be in the area.

It all started when a dozen Air Group 14 aircraft were trying to get back to their carrier, the *Lexington*, from Atsugi. They waited most of the afternoon with the weather bad at the ship. Since the ship was sailing southwest, it was decided to move down to MCAS IWAKUNI on the Inland Sea to be ready to intercept the ship the next morning.

Iwakuni weather was predicted to be 1000 to 1500 overcast, visibility $\frac{3}{4}$ to a mile in light rain and fog for the ETA of around 1700 local time.

By LCol. O. R. Davis, USMC
Aviation Safety Officer, 1st MAW

Tops were 15-17,000 with solid overcast in the approach areas.

When the 12 planes, an A4D *Skyhawk*, an FJ-4 *Fury*, and 10 F8U *Crusaders* of VMF-323, led by their C.O., LCol. Frederick T. Watts, Jr., arrived over Iwakuni, the weather was actually a little worse than the prediction and quite variable. The first aircraft broke out near GCA minimums of $\frac{3}{4}$ miles and 250 feet. Later planes reported as high as 800 feet and one mile visibility.

Capt. T. R. Moore with a flight of four *Crusaders* called in at 1655. He was assigned an expected approach time of 1720, with the rest following at five-minute intervals.

When Capt. Moore, in 211, got to GCA minimums at 1732, he was still in the stuff with the field not in sight, so he executed a missed approach.

The second plane, 207, could not contact GCA on the assigned channel, and so made a TACAN approach. At

1745, 207 broke out but found the runway fouled because of a *Crusader* in the pond off the end of the runway. The accident happened just moments before.

By the time 207 had climbed back on top, he was down to about 1800 pounds of fuel. The pre-flight briefing called for the *Crusaders* to start for their alternate of Atsugi, which was VFR, with not less than 3200 pounds.

He could have diverted to Itazuki Air Base, 96 miles away, but the weather there was about the same as at Iwakuni.

When the other two planes of the flight, 208 and 210, heard the leader waving off at GCA minimums, they stayed on top. At the time the accident temporarily closed the field, they were a little below the briefed fuel for returning to Atsugi, but probably could have made it with enough reserve fuel for a safe landing.

However, for 207, with his 1800 pounds, the situation would have been tight except for the GV-1's on another

exercise. Although these particular transports did not have their fuselage refueling tanks aboard, thanks to the Navy-wide policy of carrying the wing refueling pods at all times, they were able to share their own reserve fuel with a 'friend in need.'

The *Crusader* in need found a friend in GV-788, piloted by Capt. A.R. Rehbock of VMGR-152 who, though rather short himself, let 207 have 1800 pounds. This took the pressure off. Maj. Don Argo of VMGR-352 in GV-890 then invited 207 over for a drink and gave him another 1500 pounds before the now well-fueled *Crusader* set out for Atsugi.

The two planes who had stayed on top, 208 and 210, joined up with GV-891, piloted by LCol. John Urell of VMGR-352 and drew 3000 pounds between them. Capt. Moore in 211 borrowed 2000 pounds from GV-792 piloted by Maj. George Cullen before returning to Atsugi. The last of Capt. Moore's flight left the Iwakuni area at 1815 local time, 17 minutes before sundown and about 40 minutes before full darkness.

It wouldn't be strictly accurate to say the GVs saved the flight from "certain disaster," but, on the other hand, it also wouldn't be true to say the *Crusader* pilots weren't glad to see the GVs.

The lowest plane, 207, had enough fuel for two GCA's at Iwakuni. The runway wasn't actually blocked, and the field could have been opened if he had to try the extra passes. The rest of the planes probably would have been able to make it to Atsugi.

The GVs ability to deliver fuel at any time has been used in the First Marine Aircraft Wing before. In fact, using this capability to improve the safety odds is a routine procedure.

When the *Hercules* arrived in November, 1961, tests were made to see how fast one could be airborne in an emergency. It was found that with the tanker crew on the alert, it could be off the ground in five minutes and, thanks to its high rate of climb, at refueling altitude in 15 minutes.

It is a matter of interest that not one of the pilots in Capt. Moore's flight had ever hooked up with a GV-1 before, though all of them had refueled from A4D's and FJ's with buddy stores. The "no sweat" way this incident was handled reflected the professional abilities of all the pilots involved.



ONE OF HS-10'S HELICOPTERS WITH A DESTROYER PRACTICES TRACKING A SUBMARINE

HELICOPTER SQUADRONS TRAIN IN HSS-2

BEFORE ITS DEPLOYMENT to the Western Pacific on the USS *Hornet*, HS-2, based at NAAS REAM FIELD, Imperial Beach, Calif., engaged in two 10-day cruises with the HSS-2 helicopter aboard the carrier. On the second ten-day cruise, the squadron accumulated approximately 400 hours of flight time with an average aircraft availability of 81 per cent.

For the five HS squadrons based at Ream Field, Sikorsky turbine-powered HSS-2 replaces the piston-engined HSS-1N. HS-10, the replacement air group squadron, also has been phased into the new aircraft, and other HS squadrons will also be equipped with it.

A significant advance over the older HSS-1, the new turbocopter can fly a four-hour mission in all kinds of weather. Holding the helicopter record with a speed of over 210 mph, the HSS-2 has an extra margin of safety for over-water operation with its twin engines and boat hull.

At sea the helicopter's mission is to work with fixed-wing aircraft and destroyers in tracking submarines. A typical mission might find a Grumman S2F making an initial contact with its radar. Helicopters are quickly sent to localize and assist in tracking the sub. Any member of the ASW team—helicopter, S2F or destroyer—

will then make the kill. Another phase of this ASW mission for the helicopter is to provide a sonar screen around a steaming task force.

Training at Ream Field is directed toward perfecting this basic mission. Many, many hours are spent in the classroom and in the air to forge the squadron personnel into a proficient ASW team. Cdr. Owen R. Toon, HS-2 skipper, says that his men made "a good transition" from the HSS-1. Each HS-2 pilot had 120 flight hours in the HSS-2 before he was fully qualified as an ASW plane commander.

Integrating a new aircraft into a squadron is a complex task. The training program must be developed, a new maintenance support effort set up, and a tight training schedule met.

Director of replacement training at Ream Field is Cdr. William L. Bennett, C.O. of HS-10. HS-10 puts pilots through a RAG syllabus to train them in aircraft familiarization, instruments and ASW tactics. About a third of the syllabus is spent in night flying, including night carrier landings.

• RAdm. James R. Reedy, USN, now serving as ComCarDiv 20, has been named successor to RAdm David M. Tyree, USN, as Commander U.S. Navy Support Force, Antarctica, head of the Navy's *Deep Freeze* polar operation.



DETACHMENT 43 of VAW-33, based aboard USS *Saratoga*, flew 361 hours in one month in its three AD-3Q's. Det. 43 provides active and passive airborne ECM services and training for U.S. and NATO fleet and shore units.

10,000th Buoy is Dropped Maine Range Mark Passed in May

The Navy's no-nonsense sonobuoy test program reported in the *NANEWS* February 1962 issue (*To Build a Better Buoy*, pp. 32-33) passed a milestone at 1630, May 21, 1962 when the 10,000th buoy was tested on the Pemaquid Point, Maine, range.

The record drop was from an NAS BRUNSWICK P2V, piloted by Lt. Dick Williams of the station aircraft maintenance department. The record buoy passed its tests with flying colors.



ALMOST DWARFED, USS *Kearsarge* (CVS-33) slowly steams into the world's largest drydock at Puget Sound Naval Shipyard, Bremerton, Wash. The 14-acre dock (DD-6) is 1180 feet long, 180 feet wide, 61 feet deep, and has a water capacity of 88,000,000 gallons. The "Mighty K," which had the honor of participating in the dedication ceremonies, recently completed a six-month conversion at the yard. Capt. L.E. DeCamp is C.O., and home port is Long Beach.

From each lot of sonobuoys the Navy buys, a random sample is tested on the Maine range. If more than a certain percentage of the test samples is defective, the Navy does not accept the lot until the manufacturer has corrected the defects at his own expense.

The test program is conducted jointly by the NAS aircraft maintenance department and Vocaline Corporation which conducts the actual testing.

Britannia Award for Marine VMF-334 Lieutenant Given Trophy

At MCAS EL TORO, 1st Lt. Robert W. Spackman of VMF-334 was honored by the Royal Navy when VAdm. William G. Crawford, KBE, CB, DSC, Commander of the British Navy Staff, presented to him the Britannia Trophy for 1961. Lt. Spackman was the third consecutive Marine pilot to win the annual award.

The Britannia Trophy is given to the Navy or Marine Corps student undergoing advanced flight training who attains the highest total weapons score in bombing, aerial gunnery, rocketry and missilery in a calendar year.

The award was established by the Lord Commissioners of the Admiralty

of the United Kingdom in appreciation of the assistance rendered by the U.S. Navy in training British naval pilots from 1952 through 1956.



VADM. CRAWFORD, RN, GIVES AWARD

New Seats Ease Flight HS-7 Flew Over 1000 Hrs. in April

Prior to departing on a routine ASW cruise aboard the USS *Randolph* (CVS-15), Cdr. J.R. LeTourneau, commanding officer of Helicopter Anti-Submarine Squadron Seven, instructed his aviation equipment officer to install new sponge rubber seats in the squadron's HSS-1N aircraft to replace the hard seat pan.

HS-7 pilots found themselves delighted with the comfort and chalked up 1003.4 hours in the month of April.

With the pilots practically refusing to leave their new seats, the squadron began to run out of its allotted money. ComNavAirLant granted permission to exceed by 200 flight hours the regular allowance, and the comfortable pilots continued to fly.

Med Bombing Derby Held Saratoga Pilots Win Top Awards

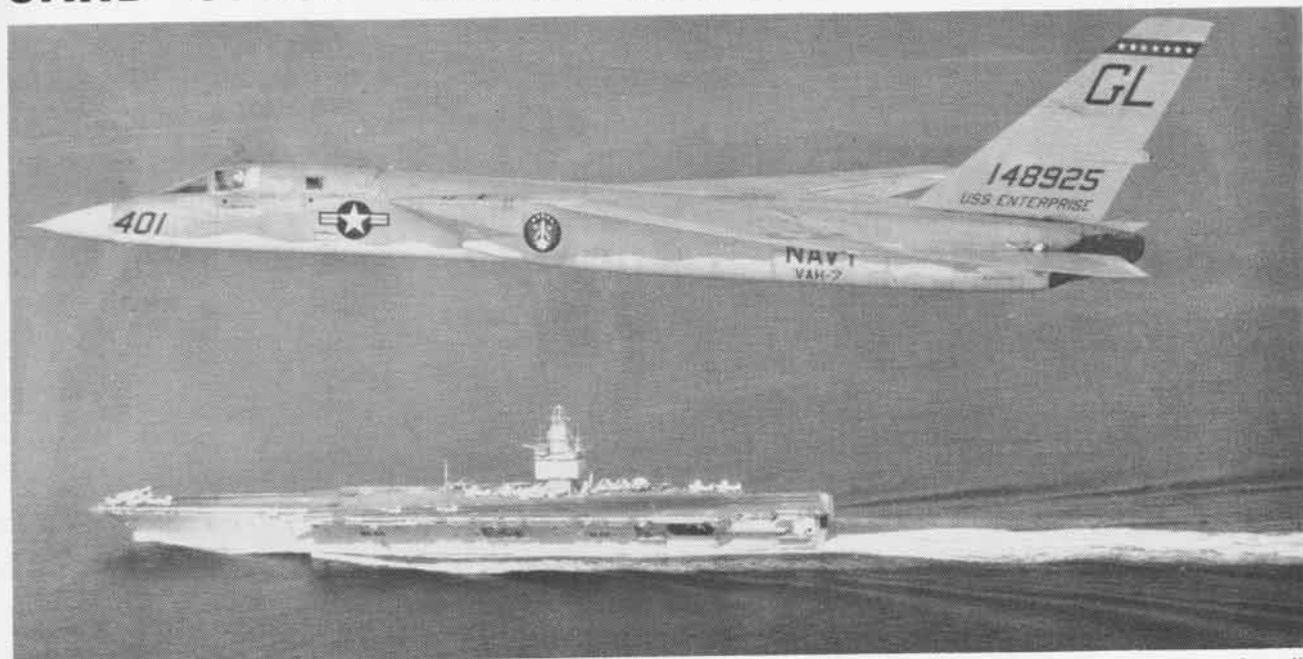
Pilots of CVG-3, aboard the USS *Saratoga* (CVA-60), out-bombed a selected Royal Hellenic Air Force team to claim top awards in the second annual Bombing Derby held at Tanagra Air Base, Greece.

The closely contested event matched pilots of VA-34 and VA-36, flying the A4D *Skyhawk*, against pilots of RHAF Strike Squadron 335, who flew the F-84F *Thunderstreak*. The winning Navy pilots led by Cdr. G. L. Ayers, C.O. of VA-36, were LCdr. J.H. Wynn, Lt. K.R. Cameron, Lt. D.M. North, of VA-36; Lt. T.J. Linehan and Lt. D.C. Brown of VA-34.

"Top Bomb" award went to Lt. K.R. Cameron, who posted the top score for the day's competition.

'YOUR DEAL, CHIEF'

CARD SHARP MAINTENANCE YIELDS BONUS



VAH-7 VIGILANTE soars by *USS Enterprise, CVA(N)-65*, its seagoing base. This magnificent ship is unarmed except for its planes, and its planes cannot fight when they are down for maintenance. Author tells how "Card System" and sound planning help cut "down time" to bone.

WELL, it's your deal, Chief." Sounds like a card game is getting started, doesn't it? Well, you're right. Only it's a new game you probably haven't played before. Here are a few of the basic rules:

1. No chips are used; all wagering is with tools, equipment and knowledge.

2. No bluffing is ever permitted.

3. The stakes are the highest possible: life and defense capability, or, if you prefer, safety and time.

Most card games have interesting histories. So does this one. Perhaps its real beginning can be traced to the days just prior to fleet introduction of the first Navy jet. How many of us remember this reassuring remark? "Maintenance problems are over. New airplanes have just a few moving parts." Well, believe it or not, that was the story not too long ago. We know now that this was more than optimistic. It was pure hogwash.

The fact is that as the airplane became more sophisticated and its performance increased, the maintenance requirements multiplied at an astounding rate. Notice how the check sheet

LCdr. Edward J. Kingsbury, Jr. Maintenance Officer, VAH-7

grew from a few pages, which could be completed in a couple of days, to a volume that could run into weeks before the job was done. Add to this trend a few dollars and cents considerations, such as the cost of keeping a complex weapon system (such as VAH-7's A3J-1 *Vigilantes*) out of commission, and the necessity for making the best possible use of the time

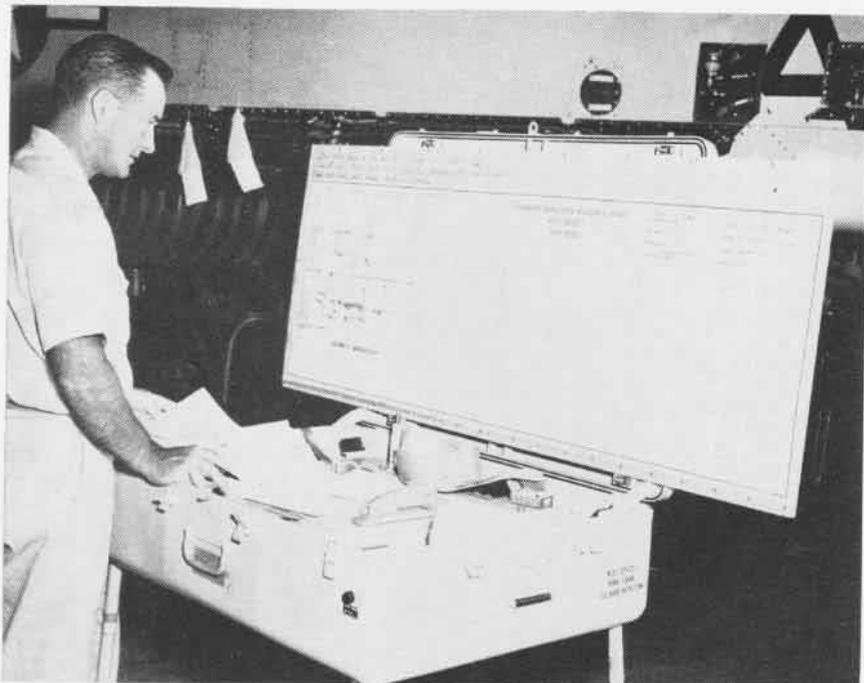


SZECHY, AQCS, studies "band" of the cards his squadron uses to win a "pile" of time.

of the trained men available will be evident.

The fact that we need to get the most defense out of what the country gives us to work with is nothing new. However, the new way of dividing the Defense Budget (see *Naval Aviation and Program Packages*, *NANews*, December 1961, pages 14-15) has emphasized the need. Cutting the time a weapon system is out of commission improves its cost/effectiveness rating and helps it compete for its share of the Defense Budget. Under the new system, defense dollars will more than ever tend to flow to the programs and weapon systems where they will buy the most defense. Down airplanes have *high cost, but no effectiveness*.

The costs of having an aircraft "down" can mount at a truly amazing rate. Here is a little cost problem. Figure it out for yourself. Take the cost of an airplane and divide it by its average life, say 3500 days. Call the resulting figure "daily depreciation." Add to that the salaries of all the people contributing to that airplane's support. Call the figure "overhead." Now



SEQUENCE CHART provides a pre-planned order for accomplishing the work on the cards and helps achieve smooth workflow where parts, people, and equipment needs are fully coordinated.

assume you are aboard a carrier that is the roost for about 100 birds. Take one-hundredth of the daily cost of the carrier and call the figure "rent."

Each day this airplane is not ready



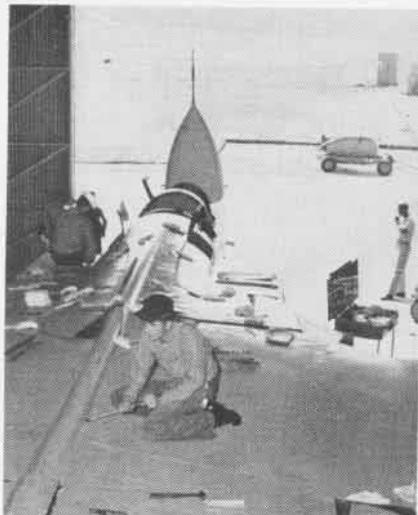
ACCESS DOORS are opened only once each inspection under the planned work sequence.

to fly and fight, we spend the same money and get nothing for it. As professionals in the nation's defense forces, we must exert every effort to minimize these lost defense days.

The logical place to start saving time is in the periodic or scheduled

maintenance field. Here, with careful planning, we can shorten the time down for periodic maintenance. By keeping quality at a peak, we can reduce unscheduled down time. These are the aims of periodic maintenance procedures now in use in VAH-7 with the A3J-1 weapons system.

Vigilante's maintenance needs were carefully studied so that we would neither waste time and parts on unneeded inspections nor neglect anything really important. Decisions on



PLANNING helps to keep all check-crew men working steadily without mutual interference.

what periodic maintenance was to be done, when and by what maintenance level, were made after an extremely thorough part-by-part study of the A3J. The analysis also determined the parts, people, tools, technical information, etc., needed to do the jobs.

From this study are developed the Maintenance Requirement Cards and the Calendar Inspection Sequence Chart (see *WRAP Unwrapped*, NANews, April 1962, pp. 32-35).

Each maintenance card shows:

- Work card number. This symbol identifies the card for sequencing in the deck, scheduling in the sequence chart and assignment of personnel.
- Rating recommended for the job.
- Estimated elapsed time to accomplish the job.
- Power requirements, electric and hydraulics.
- Additional personnel required.
- All tools, equipment and materials to perform the task properly.
- Estimated man-minutes to accomplish the task.
- General airplane work area.
- Access door or opening in the airplane; i.e., the specific place on the aircraft where the work will be done.
- The task write-up that directs the action of the crew members performing the job.

The back of the card may contain a photograph or illustration of the work area. This is used to assist in defining the work to be done.

Each card contains complete, valuable information for both the planner and the worker. The cards are designed to answer questions which normally come up when a maintenance task is assigned. The written instructions and diagrams help eliminate the confusions and misunderstandings which sometimes result from verbal instructions.

The secret of cutting "down time" to the bone is in making the best use of the time and talents of skilled maintenance men. When it takes a mechanic or technician eight hours to get a two-hour job done, it usually isn't because he is incompetent, lazy, or on the wrong side of the cold war. His lack of productivity can more often be traced to time lost just waiting—waiting for an airplane to work on, waiting for parts, waiting for completion of other work which must be done before he can do a job. For example, an AT waits for the AME's to remove the ejection seat. Coordina-

tion is the key to cutting wasted time to the minimum. Sound planning produces coordination.

The Calendar Inspection Sequence Chart provides a pre-planned sequence for accomplishing the work on the cards. This sequence has been carefully engineered to give the best compromise in terms of these considerations.

- Manpower leveling. When a man finishes one job, he should be able to start right in on another.

- Work separation. Work is scheduled so that people do not get in each other's way any more than necessary.

- Work requiring a specific condition accomplished at one time. All the work which must be done when there is power on the hydraulic system, for instance, is scheduled at the same time. Oxygen system work can't be done when the aircraft's electrical power is on.

- All work in one area completed with one opening of the accesses.

- Coordination of use of support equipment and test equipment.

Since the same sequence chart is used for each aircraft of the model, and for every periodic inspection, it was economical in working out the sequence chart to spend, say 100 hours of the time of factory and industrial engineers and maintenance experts to save 30 minutes of an AD1's time on each check.

The sequence chart does not eliminate the need for planning within the squadron, however. Let's run through the procedure for getting a check underway. Here we go. . . .



CARD SYSTEM helps make better use of time of the trained and experienced technicians.

Three of four days before the calendar inspection is due, a team consisting of the Maintenance Officer, the Maintenance Supervisor, and the Planning, Quality Control, and Material Divisions review all requirements. A list of total maintenance, manpower and material requirements is prepared, covering: (1) Scheduled maintenance to be performed, (2) personnel support to be provided; (3) material required; (4) support and test equipment required; (5) service changes or other unscheduled maintenance to be performed along with the periodic inspection.

The decisions from this conference give the Maintenance Supervisor the guidelines for his detailed planning. Incidentally, this Maintenance Super-

visor has to be quite a man. Here is an outline of his functions:

- Plan, organize and control the Calendar Inspection.

- Schedule the "unscheduled" work into the Sequence Chart.

- Assign the work cards to individual members of the check crew.

- Maintain accurate record of work progress and juggle the schedule when necessary.

- Schedule repair work for discrepancies found during inspection.

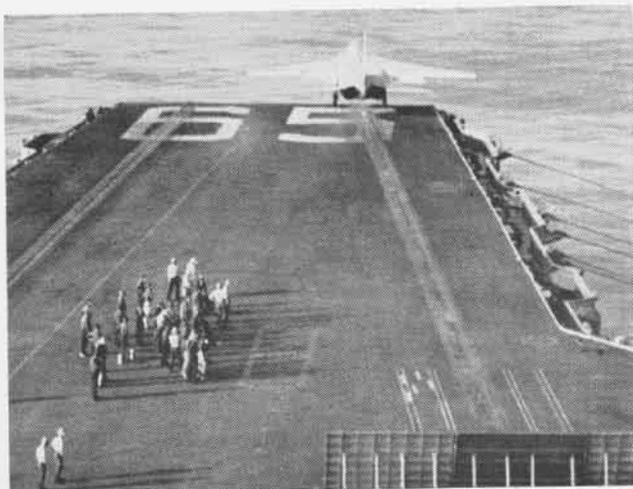
- Order the parts needed for this work.

- Initiate FUR's on discrepancies.

- Have all known supplies and parts on board before the check starts. Sounds like a full-time job, doesn't it? It is.

If all goes as planned, the check will proceed without a hitch. Unfortunately, this never happens. It seems that when you're right *on schedule*, doing nicely, a hydraulic power cart fails or some other unforeseen factor comes up. Then the beauty of this system really shows. With the handy flexibility of the sequencing system, the manpower is immediately repositioned and gainfully employed while the delayed cards are returned to the work-pending file for re-issue when the equipment is ready.

There is a bonus with this system that is not written in any directive—morale. Good morale stems from the fact that every man knows he is working effectively on an important job. This gives him a real feeling of pride in his work, and pride in one's work is the "key to quality."



END RESULT of well planned and effective maintenance is a plane ready to carry out its mission with minimum time lost for periodic inspection.

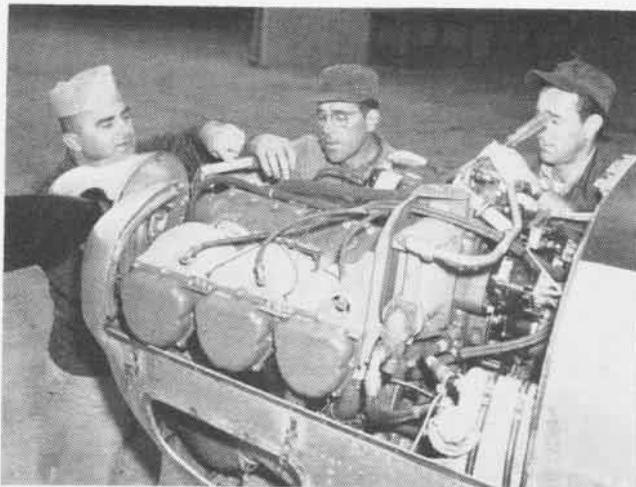


'GOOD BIRD,' Skipper Louis B. Hoop notes on return from post-check flight as author, under the guns, beams. NAA Reqs and B/N look on.

FLYING CLUBS REPORT ON THE T34



ISLAND HOPPING in the sunny Caribbean is a favorite sport for members of the San Juan, Puerto Rico, flying club and their dependents.



NAS ROTA club employs a full-time Spanish mechanic (c). Other clubs keep their Mentor up with member labor or hire it done.

OVER TWO DOZEN flying clubs affiliated with naval activities have, at no government expense, accepted the invitation extended in OpNav Instruction 1710.2 and have borrowed Navy T34 Mentor trainers for club use. Here are certain details of the program and reports of the experiences of clubs in operating the Mentor.

To be eligible to borrow a T34, a club must have its organization, by-laws and regulations set forth in writing and approved by the activity commanding office. The OpNav instruction contains a sample club constitution, by-laws and flying regulations.

Clubs operate as self-supporting rec-

reation activities, legally organized as "instrumentalities of the Federal Government." This last provision gives the clubs a break on insurance requirements, though they are still required to carry full liability coverage. As self-supporting activities, the clubs are not eligible for subsidy by recreation funds.

Membership in the clubs is open to members of the Armed Forces, their dependents, and Navy civilian employees and their families.

The borrowed aircraft stay on the Navy inventory and are subject to recall. However, they must meet all Federal Aviation Agency regulations and are operated as though they were civilian planes.

Clubs with T34's aboard range as far east as Rota and Port Lyautey, north to Argentia and Adak, west to Cubi Point, and south to San Juan.

In continental U.S., clubs normally fly from civilian fields handy to the base. However, if a suitable field is not available, application may be made to base aboard the station, provided operations do not interfere with the mission of the station and no additional expense to the government is involved.

Most of the clubs responding to NANews queries reported they were generally happy with the arrangements, but emphasized that clubs should not underestimate the expense and problems involved.

One of the first problems is modifying the aircraft control system to meet

FAA requirements. This change involves incorporating a change kit which costs a little over \$300 for parts. Some clubs installed the kits with member labor and others had it done under contract. Clubs were able to obtain an FAA waiver for a one-time-only ferry flight from Litchfield Park or Pensacola, where the surplus aircraft are available, to the club's home base. However, the kit must be installed before the aircraft can receive the necessary FAA license.

Another problem is insurance. The clubs must carry liability insurance. Though the cost is only a little over \$200 per year for most locations, be-



INSURANCE regulations require T34 pilots to have 100 flight hours and 10 hours in type.



DAN KAUFFMAN of Corpus Christi works on the starter. Parts are available but expensive.

cause of the retractable landing gear, insurance companies require all T34 pilots to have at least 100 hours total flight time and 10 hours in type. For most clubs, which generally have other aircraft, this requirement makes the majority of members ineligible for T34 solo flight.

Many clubs were surprised at the cost of operating the T34. The club at NAMC JOHNNSVILLE has made extensive calculations on both direct operating costs and the pro-rata share of maintenance and overhaul. They figure costs for gas and oil at \$4.20 per flight hour. For recurring expenses the NAMC club set aside \$1.40 per hour for maintenance inspections, \$1.00 per hour for spare parts, and \$3.00 per hour for engine overhaul. In addition, fixed charges for insurance, aircraft tie-down, and a few other expenses are estimated at \$84.00 per month and are covered by membership dues.

At first glance, the reserve for engine overhaul may appear excessive. However, regulations specify that planes available to clubs shall be aircraft "awaiting overhaul." Normally the engines have several hundred hours on them.

Johnsville's expenses for getting the club and its T34 in operation totaled \$1180 which was raised by a \$100 membership fee. The \$1180 covered the conversion, ferry expenses, licensing the plane and the first year's liability insurance. This club is limited to 12 members, each of whom must have at least 100 hours flight time to fly the T34, the club's only aircraft. Johnsville members charge themselves a straight \$10 per hour which, according to their accounts, just about covers the expenses and reserves.

Most clubs reported good availability once the plane had been converted. Some clubs use straight member maintenance; some have it performed under contract. The NAS ROTA club has its own Spanish mechanic, Manolo Del Gado, who—with the help of maintenance manuals in Spanish borrowed from the Spanish Air Force which also operates the *Mentor*—performs most of the maintenance on club aircraft.

Several clubs reported spare parts to be something of a problem. Though the parts are available from commercial sources in the United States, most people who are used to just filling out a requisition when they need a part were surprised at how expensive they



HARD WORK and hard cash are needed to make a surplus Navy T34 ready for its FAA airworthiness certificate. At NAS South Weymouth, members turn to on their T34 Mentor.

are. The Rota club has applied for and been granted permission to draw parts from the supply system on a reimbursement basis.

Even though the problems of providing a foster home for a spare T34 should not be minimized, clubs report the benefits well worth the trouble. Several clubs have applied for a second aircraft.

The San Juan Club reports "island hopping" as a favorite sport of its members. Flying is the only convenient means to get from island to island. "The club planes and pilots make frequent trips to the nearby islands of St. Thomas, St. Croix, Vieques, Mona, etc., sometimes carrying dependents or friends."

Many of the clubs reported cross-country flying as a favorite use of the T34. Many of the Johnsville members use the plane when traveling on government business. They report the cost is less than commercial transportation, while many hours are saved. The NAAS WHITING FIELD club reported its T34 off on cross-countries about two weekends a month.

Johnsville members have taken their T34 to the Bahamas several times. They also use the plane on business trips which allows the members to get flight time during the week when the plane would normally be idle.

The Rota club is a member of the Spanish Aero Club Organization and thus gets special port of call privileges at all Spanish airfields. The aircraft are licensed under the FAA and operated under Navy, FAA, Spanish, ICAO and NS ROTA rules.

Club members have become traveled connoisseurs of such exotic places as Casablanca, Tangier, Lisbon and Madrid. The club has a waiting list of prospective members and has received the loan of another T34 *Mentor*.

BUWEPs officials in charge of this program advise people thinking of providing a foster home for a T34 to "look before they leap." Unless all club members have at least 100 hours and plenty of money, they will probably find a light civilian plane cheaper and better. However, for a going club with a stable of planes, the T34 may be near ideal as "top of the line."



WHITING FIELD club planes line up at a civilian field near base: left to right, Cessna, T34, Champion and Cessna. Most clubs have other planes, but prefer T34 *Mentor* for cross-countries.

SEALS SIGNIFY QUALITY ASSURANCE

VF-124, the FSU squadron in the Pacific Fleet's Replacement Air Group 12, has come up with a new wrinkle in the never-ending search for highest possible reliability of the Martin Baker ejection seats installed in squadron aircraft.

Several of the seat mechanisms and



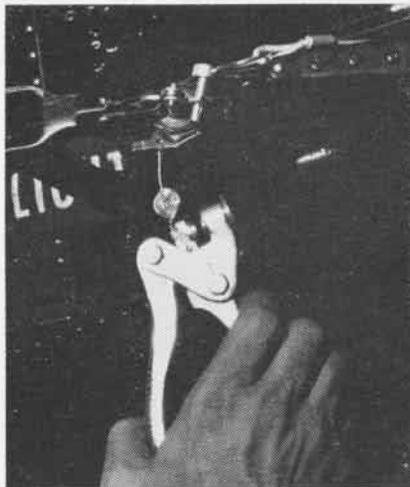
W.R. SMOOT, AMS2 of VF-124, imprints seal of quality on guillotine-firing mechanism.

fittings, some of which contain explosive charges, must be lock-wired in accordance with the Handbook of Maintenance Instructions. New Martin Baker seats, as well as those overhauled by an O&R, have the twisted ends of lock wire joined by a drop of brittle paint, which serves as a seal. If the paint seal is intact, it indicates the explosive charges have not been disturbed since installation.

Periodic inspections and other seat maintenance make it necessary to remove the lock wire and the paint seal. After reassembly, VF-124 has been installing a unique lead seal to the new lock wire with a special pair of pliers.

These special pliers (Press, Lead Seal FSN CX-5120-301-1078) have distinctive dies on the pressing faces, so that a "signature" is left on the face of the seal. Each quality control inspector has his own personalized die. When he "squeezes" off a job, the mark on the seal tells pilots and supervisors the identity of the man standing behind the guarantee of quality work.

Lock wire and lead seals are used



DIES IN JAWS of hand press inscribe seal with "mark" of man certifying work quality.

in the following locations on the Martin Baker ejection escape units:

- Primary firing head.
- Upper secondary cartridge.
- Guillotine firing mechanism.
- Drogue gun barrel.
- Time release mechanism "G" plug.
- Time release mechanism barostat.
- Time release mechanism inspection cover.
- Drogue gun trip rod "PIP" pin.
- Time release trip rod "PIP" pin.
- Top latch mechanism.

According to the endorsements forwarded with the story from San Diego, CAG-12, ComFair/ComNABS-11, and ComNavAirPac heartily endorse the idea of "personalized" quality assurance.

BUWEPs also favors this approach to seat safety certification. In fact, Aviation Clothing and Survival Equipment Bulletin No. 57-61, "Martin-Baker Ejection Seats, Lock Wire or Lock Wire and Lead Seals, installation of," will provide essentially the same system as that already in use in VF-124. BUWEPs expects the bulletin to be in the Fleet by late August or September.

Martin Baker Seat Memo

VF-124 has also developed a convenient "Pilot's Pre-Flight Check-off List" for the Martin Baker unit. This check-off list is printed on a 3½" x 4½" card which is laminated in clear

plastic and secured to the face curtain safety pin. During the flight, the check-off list is stowed with the safety pins in the stowage bag on the port side of the seat.

These are the check-off points:

1. Drogue gun-cocking indicator for proper extension.
2. Drogue gun trip rod pinned to bulkhead.
3. Link line passed through guillotine trap and securely connected to parachute withdrawal line.
4. Top latch knurled nut tightened. Hex nut properly recessed within knurled nut.
5. Drogue chute withdrawal line routed atop all others.
6. Canopy interrupter mechanism clean and canopy lanyard attached.
7. Drogue shackle retained in scissors shackle.
8. Pin at top of time delay mechanism not free to slide or allow scissors shackle to open.
9. Time delay mechanism trip rod pinned to bulkhead.
10. Emergency harness release handle stowed and attached to guillotine cartridge sear.
11. Bailout oxygen-pressure (1800 psi) and lanyard secured to cockpit deck.
12. Parachute & harness attached securely. Harness in sticker clips.
13. Face curtain canopy override handle, parachute D-ring and alternate firing handle properly stowed.

Forrestal Visits Trinidad Calypso Land Welcomes Carrier

USS *Forrestal* (CVA-59), serving with the Second Fleet in the Atlantic, visited Port-of-Spain, Trinidad—land of calypso, limbo and steel bands.

The three-day stay was primarily a period of rest and relaxation. At the same time, the crew strengthened good will with our West Indian neighbors during the visit.

In keeping with the People-to-People program, over 1000 Trinidadians were given guided tours of the big attack aircraft carrier.

Other special events were arranged, including a boxing exhibition, band concert and a round robin softball tournament. Members of a church group attended services aboard the *Forrestal*.

RAdm. R.D. Hogle, ComCarDiv Four, and Capt. D.M. White, C.O., hosted a luncheon aboard the carrier for Mr. William Christensen, U.S. Consul General, and Mr. Harvey de Costa, who is the acting Governor-General of Trinidad.

NORFOLK SIMULATES OPEN SEA LANDINGS



LATEST TECHNIQUES in artificial respiration are demonstrated for Navy pilots at NAS Norfolk's Underwater Survival Training Program.



WATER CRASH simulation in the Dilbert Dunker is a tested method of teaching procedures for escape from a submerged and inverted cockpit.

A "CASUAL" WALK under water is part of a Water Survival Training Program being conducted at NAS NORFOLK by the Medical Department. The word "casual" is appropriate, because the intent of the underwater stroll is to convince pilots that, with proper equipment and knowledge, they can survive a dunking under water.

In a six-hour course Naval Aviators receive lectures, demonstrations of survival gear, parachute escape tips, life-saving drills, swimming tests and view water survival films. But the meat of the program is the individual pilot checkout in the equipment he uses in his daily flying chores.

Donning the parachute harness type which is part of his flight gear, each aviator is lifted above the pool for a

practical water entry demonstration. Those who fly on oxygen are given a portable oxygen cylinder and mask, and told to walk across the pool submerged. Those who fly in the regions above 50,000 feet and must wear the full pressure flight suit, don the flight suit and learn to live with it in the water element. The full pressure suit is buoyant. Pilots learn that underwater vision is excellent and that breathing oxygen is effortless. Suited pilots also are dropped into the pool in aircraft seats, giving additional practice in escaping underwater. A ride in the familiar Dilbert Dunker, wearing oxygen equipment, is another means of building up the pilot's confidence in his breathing apparatus. Such underwater exercises help the pilots "keep cool."



STRAPPED INTO ejection seat, pilot is given experience in releasing harness mechanisms.



SIMULATED WATER-ENTRY from parachute rigging gives pilot a "feel" of water landing.



CABLE DRAGS PILOT along the surface of the pool to stimulate parachute drag of open sea landings. While being dragged, the pilot learns to release himself quickly from the harness fittings.

LETTERS

SIRS:

The Twentieth Anniversary of the founding of the WAVES will be celebrated July 26-29 in Washington D.C. with headquarters of the convention at the Statler-Hilton Hotel. The celebration is open to all WAVES, Regular or Reserve, active or inactive.

Registration for the Convention may be made on either of two plans: \$20.00, which covers the entire convention weekend, or \$10.00, which is for the Saturday evening banquet at the Sheraton-Park. Registration should be mailed to the WAVES' Twentieth Anniversary Convention, 1616 K Street Northwest, Washington 6, D.C.

IRENE WOLENSKY, CDR., USNR
Convention Chairman

SIRS:

770.7 hours! That's what an all-hands effort can do. The *Screaming Eagles* of VF-51 who just the month before had flown a 570-hour month, outdid themselves and flew 770.7 hours in April.

The first three weeks of the month were spent in a gunnery deployment at NAAS FALLON where we launched 485 sorties, flying a half day Saturday, none on Sunday and no night flying. Following our return to Miramar, we flew better than 40 hours each day for the remaining weeks, launching only 16 sorties per day.

The squadron aircraft complement with which this job was accomplished was composed of 11 Chance Vought's newest F8U-2NE aircraft. However, we had three aircraft in a MOD program at all times and that does not include checks!

We think that these figures speak for themselves in displaying what a concerted effort by all-hands and an outstanding maintenance

department can do. While we realize there may have been higher F8U-flight-time months, although not in recent records, we sure couldn't find anyone who did it with *eight* aircraft.

J. L. FINLEY, LT.
Fighter Squadron 51

ABOUT THE AUTHORS

LCdr. Edward J. Kingsbury, Jr. (*Card Sharp Maintenance Yields Bonus?* pp. 33-35), entered the Naval Academy from enlisted status in 1942 and was commissioned Ensign in 1945. After three years of general service shipboard duties he went to flight training.

As a member of various fighter squadrons, he acquired tailhook experience flying from *Midway*, *Coral Sea* and *Franklin D. Roosevelt*.

The professional training leading to his present assignment has been so lengthy and intensive that it has delayed his promotion. LCdr. Kingsbury was selected for commander effective July 1, 1961, but will have to wait until November of 1962 to complete the required sea duty.

This lengthy training included aeronautical engineering at the Naval Postgraduate School, Monterey, Calif., as well as over two years of intensive training at the Columbus, Ohio, Division of North American Aviation where the A3J's are built. While at Columbus, Cdr. Kingsbury helped formulate the A3J maintenance program he writes about in this issue and carries out as maintenance officer of Heavy Attack Squadron Seven.

Journalist Chief Robert E. Wood (AIR SUPPORT FOR POLARIS SUBMARINES, pp. 12-13) is now located at the Headquarters, Commander, Naval Air Transport Wing, Atlantic, McGuire AF Base, New Jersey.

A New Englander by birth and background,

NATOPS NOTICES

Latest Manual Changes Issued

HSS-1	Change I
FJ-3	Change I
F3H	Change I
FJ-4B	Change I
F4D	Change I
P5M	Change I
A3D	Change III
F9F-8T	Change III

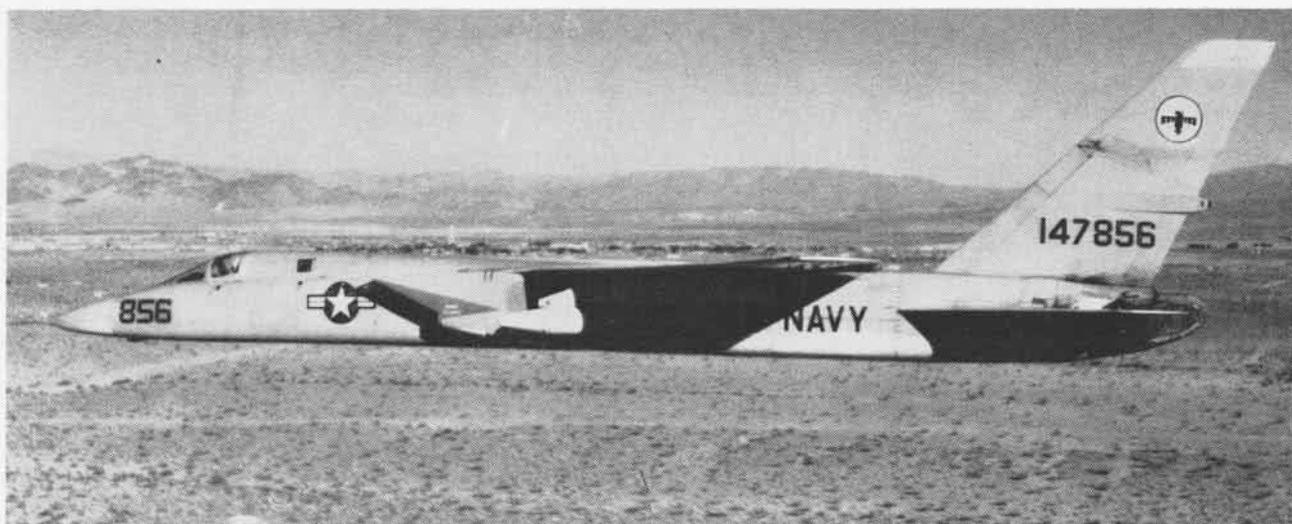
Watch this box for notice of changes to NATOPS manuals.

he has since 1945 seen a great deal of the world. He has filled assignments in the Far East, Pearl Harbor, served aboard the cruiser, USS NEWPORT NEWS in the Mediterranean, and at Bermuda.

Chief Wood regards as his most significant assignments: public information duty with the United Nations truce team in Panmunjom, Korea, prior to and including the signing of the armistice in 1953; duty with the USS *Springfield* operating with the Seventh Fleet in the Far East; and duty on the staff of Commander, Cruiser Force, U.S. Atlantic Fleet, which included public information work in connection with the selection of the Unknown Soldier of WW II.

PHOTO CREDIT

The photo of the SBC-4 on page 29 of the June 1962 issue of *Naval Aviation News* was made available by Peter M. Bowers, a member of the American Aviation Historical Society.



'THE VIGILANTES ARE HERE,' reports the White Sands Missile Range in southern New Mexico. North American A3J-1's at the Naval Weapons Evaluation Facility (NWEF) at Kirkland AF Base, Albuquerque, streak across the desert at near sonic speed, then climb rapidly into the clear blue sky while executing loft maneuvers and delivering practice

bombs on instrumented targets. The A3J's are flown by NWEF flight crews in prosecution of projects assigned that activity and by flight crews of Air Development Squadron Five, Detachment Alfa, who are developing operational tactics for use by fleet Vigilantes. Above, one of the A3J's is being flown by LCdr. Joe Akins, OinC Detachment Alfa.



THE SECRETARY OF THE NAVY
WASHINGTON

24 April 1962

MEMORANDUM TO ALL NAVAL PERSONNEL

Subj: The Naval Reserve

We have witnessed during the past several months officers and enlisted personnel of the Naval Reserve once again responding to a call to build up the active forces of the Navy.

The willingness with which the officers and men answered the call to duty is worthy of special recognition. It demonstrates the effectiveness of the Naval Reserve program and emphasizes the well known fact that the Naval Reserve can be depended upon to carry out its assigned mission.

Many of the officers and men have served on active duty during war or national emergency. As voluntary members of the Naval Reserve they pursue training by attendance at weekly or week-end drills. They perform active duty for training each year in ships and on stations of the active Navy. The Naval Reserve training ships and Naval Air Reserve squadrons have been included in exercises with regular fleet units. The skill that they are demonstrating today and will demonstrate in the future depends in considerable measure on the training that has been and will be received during the periods of active duty for training.

Officers and men of the active forces can take justifiable pride in the results of their efforts to provide training for Naval Reservists when reporting for active duty. I urge each and every one of you to continue these efforts not only to provide training but to encourage continued participation in the Naval Reserve when the reservists return home.

To all Naval Reservists, may I extend the heartfelt appreciation of a grateful Navy for your responsiveness to emergency situations. To those of you in the active forces who contribute so much to the effectiveness of the Naval Reserve, a hearty "well done."

FRED KORTH
SECRETARY OF THE NAVY



TWENTIETH YEAR FOR WOMEN IN BLUE

On July 30, 1942, President Roosevelt signed a bill authorizing formation of the WAVES—'Women Accepted for Volunteer Emergency Service.' At the peak of World War II, 80,000 WAVES were on duty, freeing an estimated 50,000 men for sea billets in a rapidly-expanding, fiercely fighting Fleet. Naval Aviation put WAVES to work as parachute riggers, tower operators, training and gunnery instructors, mechanics and aerologists. In 20 years, 1942-1962, there have been 138,727 WAVES. Today they are respected members of the Regular Navy and Naval Reserve aviation teams. Naval Aviation News salutes the WAVES, past and present, on this anniversary.



NAVAL AVIATION
NEWS