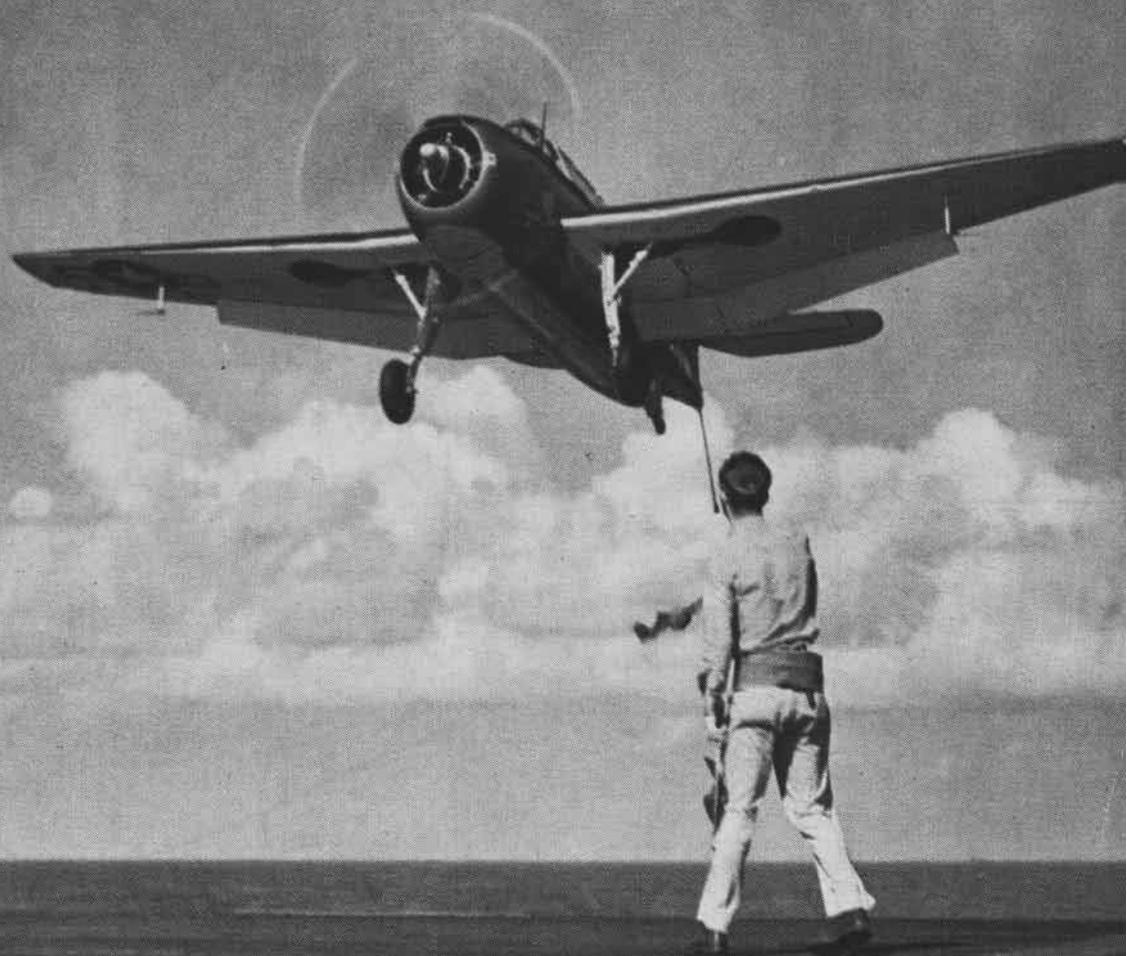


NAVAL AVIATION

# NEWS



Carrier Landing Signals  
Island Fighter Strip  
Philippines: A P I Study

Jan. 1, 1945  
RESTRICTED





1944  
A Victorious Year

THE YEAR 1944 made great history in Naval Aviation, for it was then that the terrific striking power of the Naval Air Force was unleashed in all its fury on our enemies.

BEGINNING WITH the conquest of the Marshalls, the U. S. Fleet with its mighty air complement forged a path of steel westward to the Marianas and Palau, skirting Truk, and, with U.S. land forces, cracked the strongly held Philippines bastion.

IN THE GLORIOUS TRAIL blazed by Naval Aviation, credit goes not only to the daring pilots and aircrewmembers for their relentless pounding of enemy shipping and strongholds, but to deck and ground crews as well, and to every man and woman whose individual job, no matter how small, made the over-all drive triumphant.

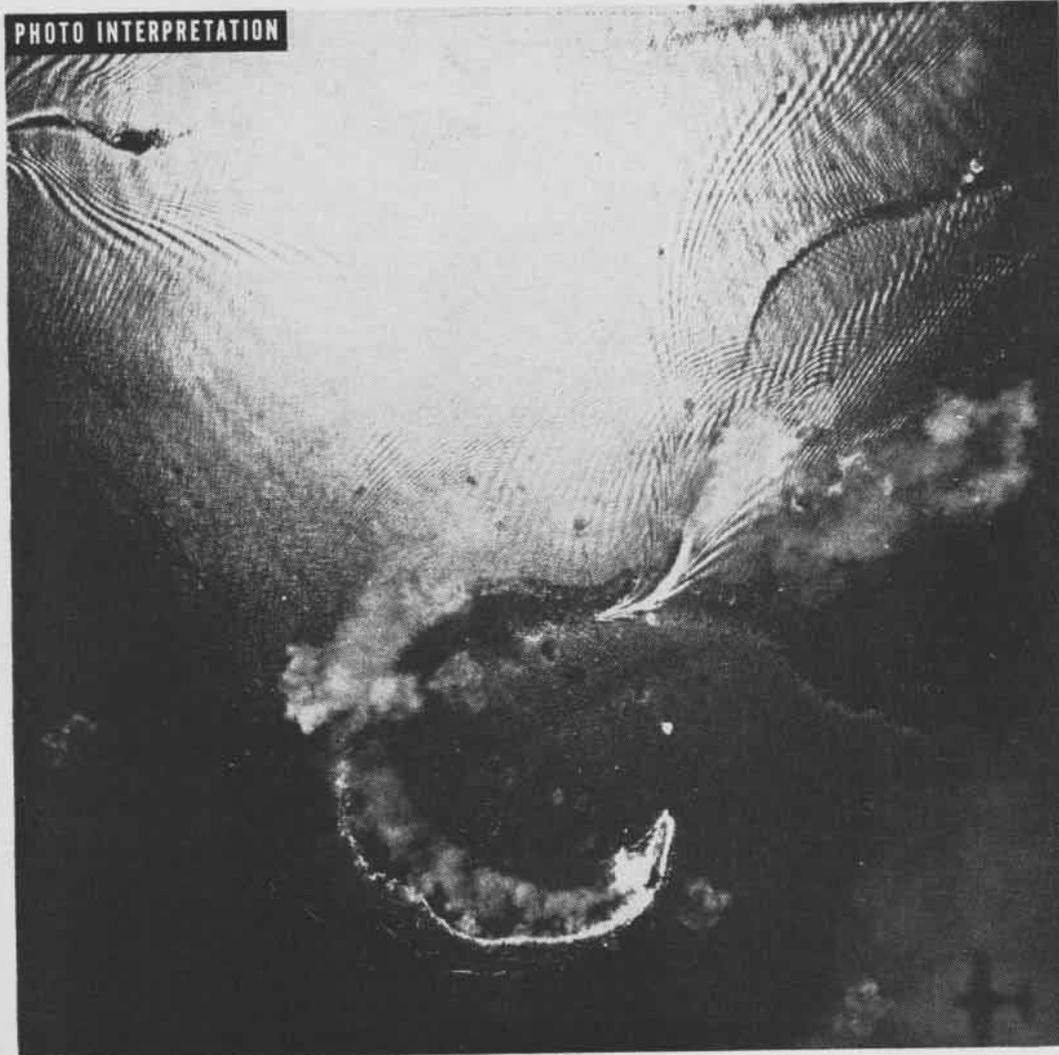
THUS FAR the battle has been carried to the enemy with brilliant success, not without its sacrifice in lives and blood. So, with our eyes on final victory, let us go forward in teamwork, meeting and smashing the enemy at every turn, until that sacrifice has been avenged and the victory won.

FOR THE YEAR that made history we say, "Good Work!"—and for the challenging year ahead, "Good Hunting!"

*Arthur L. Oster*  
Assistant Secretary of Navy  
for Air

*Cubley White*  
Vice Admiral, USN,  
Deputy Chief of  
Naval Operations (Air)

*D. C. Ramsey*  
Rear Admiral, USN,  
Chief of Bureau of  
Aeronautics



## THE PHILIPPINES

THE PHILIPPINE Archipelago represents the high lands of the extremities of the Asiatic shelf of a once-great continent that occupied the space filled by the entire East Indies. Practically every island consists of a mountain area rising in the center with valleys laid into the mountain mass. People living in the islands may be said to face "outward" and, in consequence, have been prone to develop tribal characteristics and hold communication only with their neighbors along the coast. Most of the islands are hilly and, with the exception of Luzon, culminate in high altitudes that gradually recede to narrow coastal plains. But few of the peaks exceed 8,000 feet. The islands also are densely wooded, with about two-thirds of the total area covered by

forests, a large percentage of which is virgin country. This hilly wooded terrain complicates U.S. assault.

THE FIRST landing, on Leyte in the central Philippines, brought U.S. forces within 300 miles of Manila and focused action in the Pacific in the direction of Formosa and the China Coast. Leyte is 700 miles from Formosa and 850 miles from China, situated astride the lifeline of the Japanese Empire, connecting many of Japan's island outposts with the homeland. The landing was preceded by heavy Navy blows against Jap installations, shipping, planes and airfields built in many parts of the islands. This greatly reduced efforts of the Jap airforce to interfere with the landing operations.



TOWN OF TACLOBAN, CAPITAL OF LEYTE ISLAND IN CENTRAL PHILIPPINES, WAS CAPTURED BY U.S. FORCES SOON AFTER INVASION STARTED

## LEYTE IS 8TH LARGEST ISLAND IN ARCHIPELAGO OF THE PHILIPPINES

THE ISLAND of Leyte, focal point of U.S. attack on the Philippines, is one of the Visayan Islands which compose the central group of the Philippine Archipelago. These islands extend for over 350 miles southeastward from Lubang Island near the entrance to Manila Bay to Siquijor Island on the edge of Mindanao Sea. The group of eight major and several hundred minor islands includes around 24 percent of the total land area of the Philippines but is in-

habited by more than 33 percent of the estimated population of the entire Archipelago.

Leyte, situated between Cebu and Samar, is the eighth largest of the Philippine Islands. Mainly volcanic in origin, it is generally mountainous with several large fertile valleys. The central mountain range has elevations up to 4,000 feet.

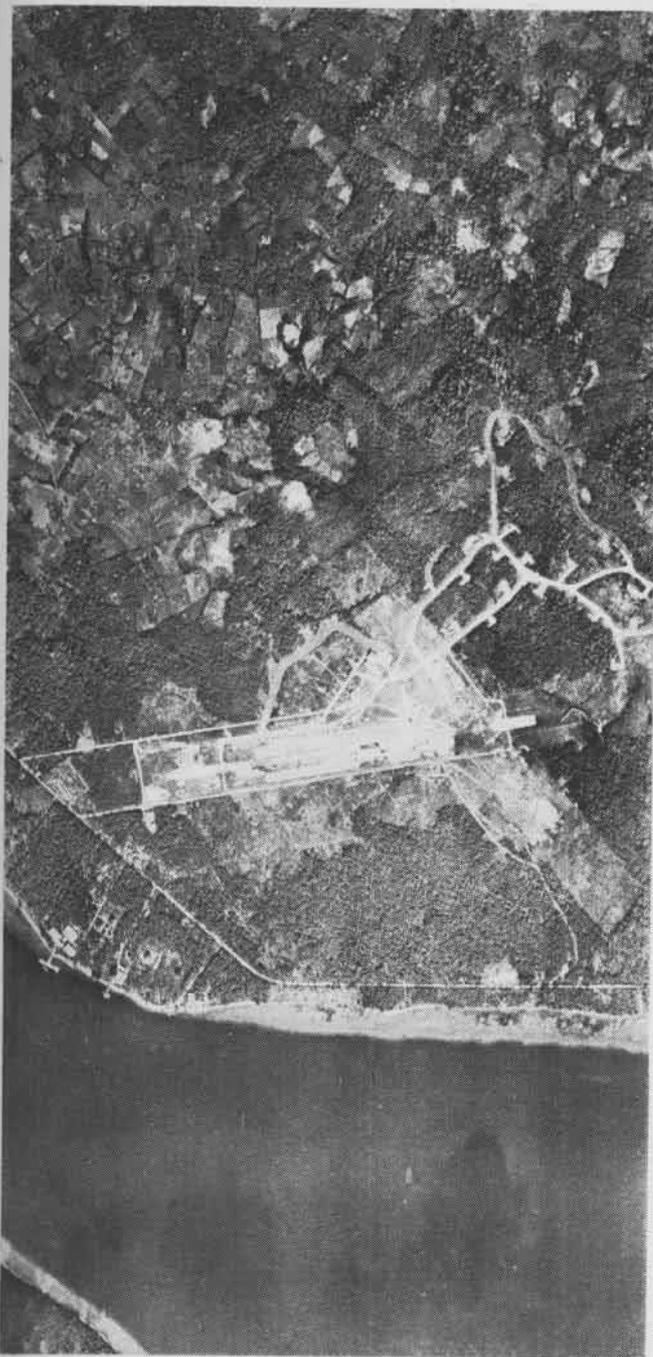
Importance of Leyte in peacetime was due to its agricultural advancement, fairly well developed harbor at Tacloban, and the town of Tacloban, which was the provincial capital and metropolitan center for the eastern Visayas. The town is located on the northern end of the eastern side of Leyte, built across the neck of a small peninsula, and consists of 20 or 30 blocks of commercial buildings near the harbor and houses of frame construction or bamboo.



Peaceful pre-war atmosphere of Philippines is reflected in this view of Palo municipality on Leyte Island. Buildings are typical



Native huts on Leyte show method of building with local materials and elevating houses on pilings. Roofs are thatched of palm



**Navy** reconnaissance camera photographs airfield built by Japs in Philippines. Even at 30,000 feet tiny planes are visible on ground

## JAPS LOST LITTLE TIME BOOSTING DEFENSES ON PHILIPPINE ISLANDS

**P**RE-WAR photographs of Leyte give the impression of a peaceful tropical town sprawled in the sun. Native sailboats ply the harbor, and the bay beyond Tacloban is filled with fish traps that look from the air like arrows on the surface of the water. But aerial reconnaissance photographs taken at 30,000 feet over the Philippines just prior to the American invasion give a different impression. The Japs have lost no time in strengthening defenses of the islands. Vertical photos of two airfields under construction are typical testimony of rushed military preparations for defense.



**High** altitude verticals of enemy installations like this airfield make analysis of Jap strength possible. Note planes in shelters

Photo Interpreters analyzing Jap airfields point out the incomplected runways that are being graded and surfaced, but already are operational. Around the runways elaborate systems of taxiways and plane revetments are in various stages of completion. Plane hides have been dispersed as much as possible in a curvilinear pattern through the wooded areas to minimize destruction of planes on the ground. Some planes were dispersed in these revetments at the time these photographs were taken, while others were lined up along the runways. At this high altitude they appear as tiny black dots against light surfaced areas.

A system of clearly defined roadways connects airfield areas to nearby ammunition storage and personnel barracks. Verticals of this type are highly valuable in planning an attack against the enemy, as they provide the interpreter with a measureable picture of the enemy's strength and activity.



Typical 75 mm. gun position is well camouflaged with palm fronds reinforced with coconut logs. Gun can be quickly withdrawn



Twenty-five-foot ditch near landing beach slowed progress of the U.S. tanks coming ashore. Water is from old river bed adjacent

## AMERICAN INVASION CAUGHT JAPS WITH LEYTE DEFENSES UNFINISHED

As U.S. forces moved inland from landing beaches on Leyte, they found signs that the Allied invasion had developed before all Japanese preparations had been completed. Unmounted guns were found near empty emplacements and there had been little effort to construct offshore barricades that had to be dealt with in earlier landings.

Essentially, Jap defenses in this area were well constructed from materials obtainable in the immediate locality, with coconut logs playing an important part in construction of tank barriers, pillboxes and revetments. Pillboxes were well concealed, built low to the ground. Gun positions were constructed of coconut logs and sod, with entrance through a trench at the rear. The 75 mm. gun (*above*) could be moved quickly into position from the rear, or withdrawn

just as quickly if necessary for use in another position.

Mined coconuts were scattered around the position and the entire area well camouflaged with palm fronds. This and similar guns had cut no arc of fire through surrounding trees, and photo interpreters were robbed of one of the best indications of heavy gun emplacements.

The anti-tank ditch near one of the landing beaches had an average width of 25 feet with depth of 3 or 4 feet below the ground level and sides built up 3 to 5 feet. Stumps of coconut trees were left standing in the ditch, though in some places they had been dug up. Trench systems were elaborate with concentrations of communications and firing trenches terminating in pillboxes on the beaches.

Prior to and during the invasion of Leyte, Navy carrier-based planes attacked Jap installations in many parts of the Philippines, blasting airfields, shipping and military positions, weakening the enemy's strength to fight back. As Navy planes fly overhead (*below*) dense clouds of smoke rise from runways and badly battered Jap planes caught on the ground before they could take off or be parked in hides.



Heavy smoke rises from runways of badly battered Jap airfield as Navy carrier-based planes soften up installations before invasion

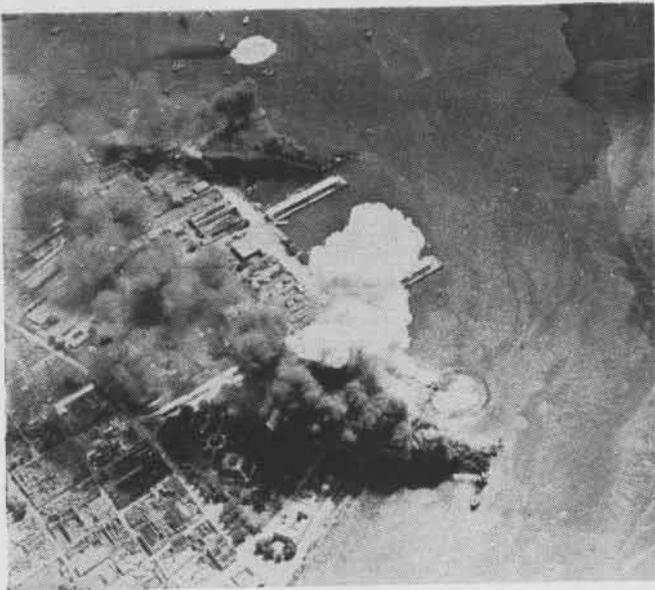


Navy TBM Avenger formation passes over enemy airfield during raid on the Philippines. Jap planes smoke in revetments below



**Manila Bay** was crowded with Jap shipping as the first wave of Navy dive bombers and torpedo planes struck at the heart of the Philippines, taking Jap defenders completely by surprise. This first attack on Manila Bay was successfully carried out on 21 September, leaving many ships burning and sinking in the harbor. This oblique photograph taken by a Navy photographer during the attack provided interpreters with important

information concerning new types of Jap merchant ships. In the immediate foreground, sandwiched between two bomb bursts, is the new standard type tanker of 5,200 gross tons. Further to the rear can be seen one of a new class of ore carriers recently put into use by the Japs. The harbor city of Manila, which can be seen in the background, was not bombed during this action, a destructive attack on Jap shipping.

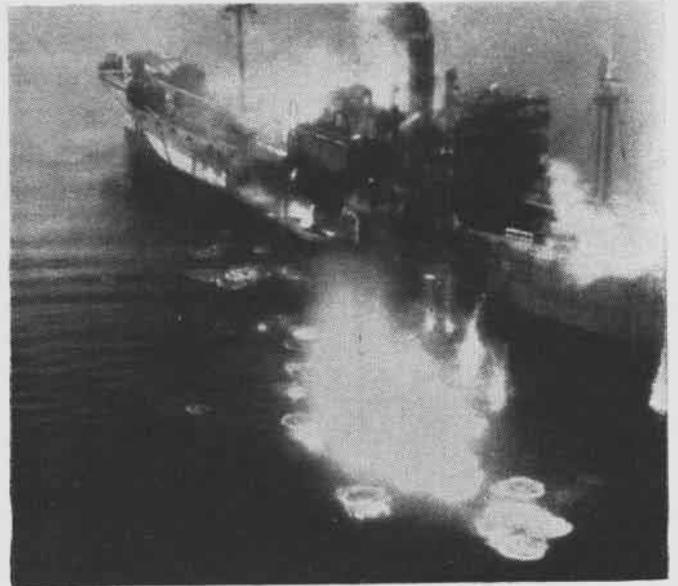


Plumes of smoke testify to accuracy of Navy bombing in direct hits scored on Cebu Harbor installations. Jap ships were left sinking

## INTERPRETERS STUDY PICTURES OF EQUIPMENT USED BY JAPANESE

ONE OF the most important things the Navy must know about the enemy is the kind of equipment he is using to fight the war, where this equipment may be expected to make an appearance, and what it looks like when met face to face in the field. When a new piece of enemy equipment appears on the scene, information concerning it must be circulated to all battle fronts as quickly as possible, and this requires a lot of cooperation from plane crews, reconnaissance photographers, photo interpreters and men in Naval Intelligence who are specially trained to translate reconnaissance information into graphic form.

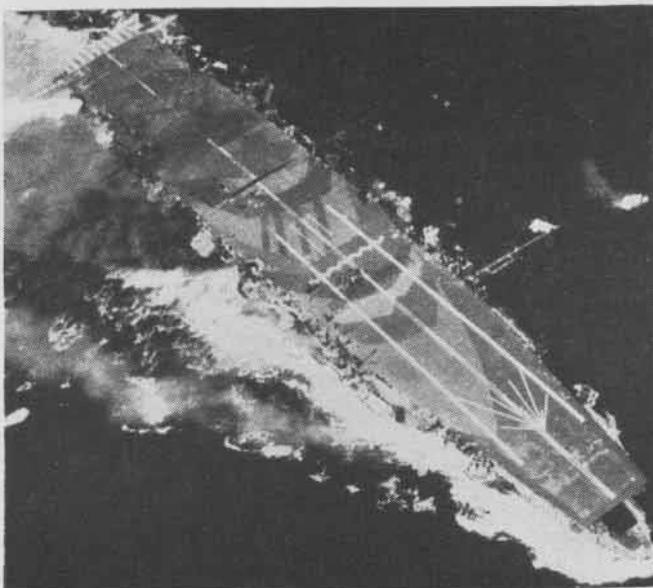
A naval photographer, flying with a bombing raid in Japanese waters, brings back pictures of enemy vessels in the Jap force to his ship. These pictures are processed in



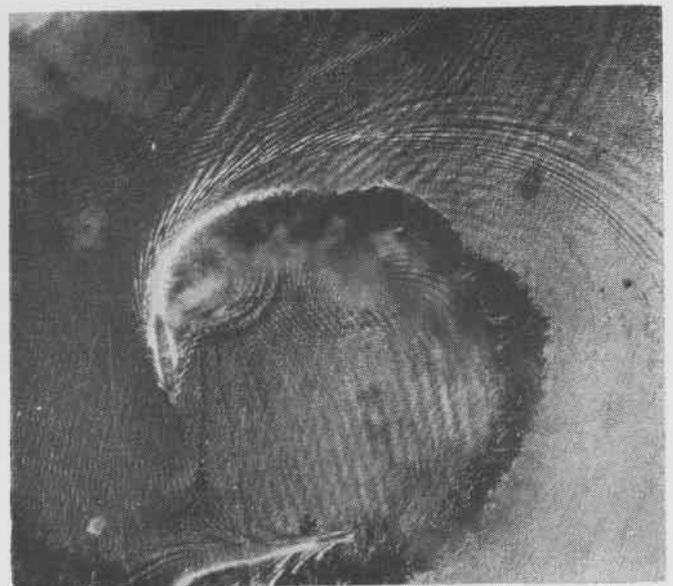
Her deck smoking and fore and aft holds afire, this Japanese freighter-transport is photographed at mast height by attack plane

the lab and turned over to Navy Photo Interpreters for study. These specially trained men are in a good position to keep up with any new developments in the enemy's fighting equipment because they are constantly analyzing reconnaissance photographs of enemy activities, recording new types of installations or military equipment observed. When a new type aircraft or warship appears, they must spot it and report on its characteristics for future identification purposes. When a new ship is discovered, a photographic interpretation report is written describing the ship, giving approximate dimensions, displacement, and types of armament, based on an analysis of the photographs available.

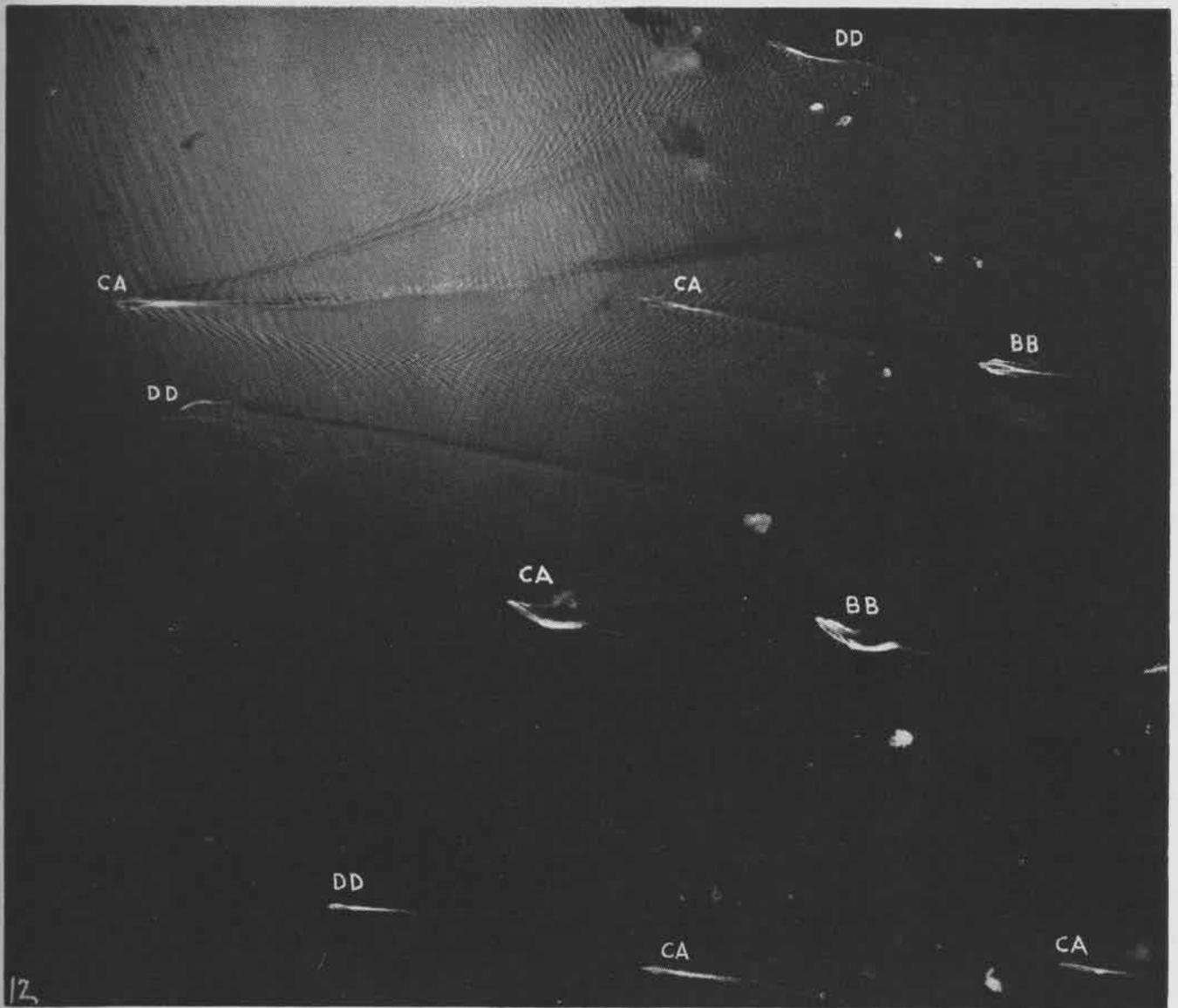
This report, along with photos, then is sent to Intelligence, to men experienced in graphic work and familiar with interpretation. The job of these "ship processors" is one of reconstruction, and they often are able to develop, from information of a tenuous nature, graphic material that represents or closely approximates the appearance of hitherto unknown vessels. This information is rushed back to the Fleet and corrected or added to as information is available.



Zuiho class Jap carrier with flight deck camouflaged to appear like battleship is in sinking condition after taking Navy torpedoes

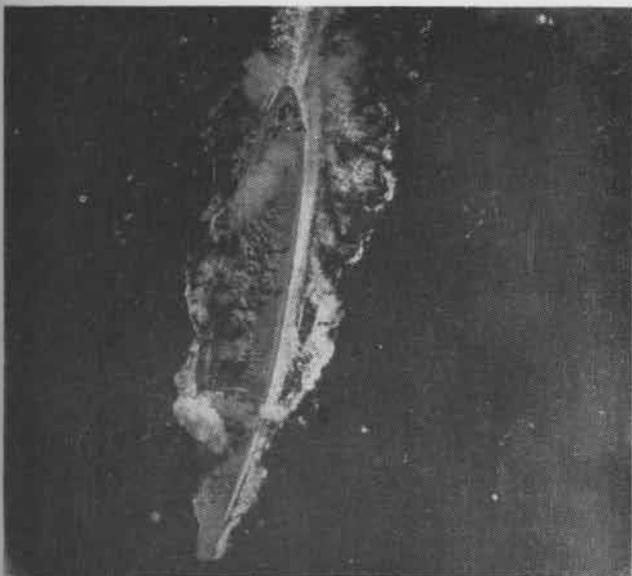


Striking photo shows Jap battleship of Yamato class in circular maneuver as it tries vainly to escape attack in Philippine battle



Vertical photo taken by Navy plane over Japanese fleet off Philippines shows ten of the Emperor's warships silhouetted against

the dark water. Interpreters point out two battleships, five heavy cruisers and three destroyers in this array of Jap sea power



Close aerial view of this Yamato class Jap battleship shows billows of dark smoke pouring out of the deck near forwardmost turret



Setting sun silhouettes this Jap cruiser as Navy bombs and torpedoes drop around it. Battle took place 23 October off Philippines

# GRAMPAW PETTIBONE

## Painter's Blackout

In a certain vsb squadron, all gasoline selector valve quadrants were painted so that the color black would indicate the main tank, yellow the auxiliary tank and red the "off" position. In one airplane, the painter apparently became confused, and did not hold to the original color scheme. His originality was not appreciated a couple of days later when a pilot flying this airplane shifted tanks in the landing circle and immediately thereafter experienced a total engine failure. The subsequent forced landing in rough terrain resulted in all but complete destruction of the plane.

An investigation into the engine failure showed that, while the selector valve was positioned on a black quadrant (supposedly a main tank), in reality the valve was on "off."

 *Grampaw Pettibone says:*

Of course, you might get someone to check the painter, but he might need another checker to watch him. The only sure way to protect pilots from this type of accident is to teach them the touch system of cockpit control through frequent blindfold tests.

## Look Before You Land

Failing to note that the landing course had been changed 180 degrees

since his take-off, a student pilot made a down-wind landing at night. At the same time, another student was landing correctly—into the wind. This latter student suddenly saw the other plane coming at him. Fortunately for both pilots, he was able, by drastic action, to prevent a head-on collision. The tips of the opposing wings did not clear, however, and extensive damage was done to both aircraft.



## Patrol Plane Doctrine

Upon returning to base from a patrol flight, a PB2Y pilot (2127 hours) commenced a landing approach into the bay without contacting the tower or circling the landing area to check the wind. As a result, his guess on wind direction was in error and he made a down-wind approach in a healthy 12-knot wind.



A "hot" landing was made. Immediately on contact the nose dug in, causing the aircraft to flip over on its back. The pilot and four of the crew were killed; all others were critically injured.

Investigation disclosed that at the time of landing the c.g. was 0.8% forward of the maximum allowed limit.

▶ The following recommendations were placed in effect in that squadron, to preclude recurrence of similar accidents:

1. If contact with the tower cannot be established, pilots should circle the landing area to determine wind direction.
2. So-called "hot" landings should be discontinued. Pilots either should stall the airplane in or make a normal power landing, with speed no higher than necessary to maintain good control.
3. Before commencing a landing approach, check to insure that the plane is within the safe limits of balance.

 *Grampaw Pettibone says:*

"Hot" landing in big boats being a pet hate of mine, I've got to sound off. I know it's a thrill to burn 'em on. It makes you feel you are a smooth pilot—

but it should disqualify you as a PPC. There is no excuse for the unnecessary risks involved, not to mention the popped rivets and the wrinkled skin which may result from the extra strain. Then, too, it's a mighty poor habit, as all who have operated in rough water can testify.

One other thing, don't pass up that advice about "balance." That is something we didn't used to have to worry about; it was always safe to fly anything you could get into the air—but not so with the horsepower available today. The remarks of a *Liberator* squadron skipper recently brought this home to me. While raving about how easy it was to take off in the overload condition, he said, "... but I didn't dare let anybody go aft the first two hours after take-off." See T.O. 97-44 and get weight-and-balance-control conscious.

## Button Up Your Overcoat

Before departing on a routine gunnery flight, the pilot of an F6F noted that two of the Dzus fasteners on his port wing gun cover were loose. He reported this to the plane captain, who attempted to secure them but was unable to do so. The plane captain then told the pilot that he thought the gun cover would hold even though two of the fasteners were loose. Being in a



hurry, the pilot considered the problem no further and took off.

A short time later, upon recovering from an overhead run, the gun cover tore loose and seriously damaged the tail section. The airplane immediately was thrown out of control. After falling through the overcast, the pilot managed to recover and subsequently effected a safe landing.

To prevent recurrence of such an accident, the investigating board recommended a closer check and replacement of all defective Dzus fasteners by plane captains and engineering crews. This unit now prohibits any flight unless all such fasteners are secured.

▶ *Comment*—Since one loose fastener may completely wreck an airplane, frequent check and replacement of all inoperative fasteners should be a 'must'.



Crewman checks tiedowns of three Avengers lined up across the deck of Independence class carrier operating in a combat area



## Damage to Private Property

Settlement of claims for damage to private property growing out of the operation of naval aircraft often are seriously delayed through improper handling by cognizant naval activities.

In numerous cases, property owners have been advised to make claim for such damages direct to the District Commandant, SecNav, JAG, etc. It is the responsibility of the operating unit to insure that damages are investigated immediately and claims properly prepared and submitted. See BuAer Manual, Art. 13-142, and instructions on the back of NavAer Form 422. Copies of this form should be carried in the extended flight packet.

When damage is minor or for other reason property owners do not wish to claim damage, the owner's signature to

that effect should be obtained on the form, if possible, and submitted to the Department. Large claims and those from public utilities should be itemized. Even though the amount of the claim exceeds \$1,000.00, the maximum amount the Navy now is authorized to pay, the claim should be investigated carefully and submitted.

Such claims often end up as private bills in Congress with the Navy being requested to investigate and report fully whether the claim is just and reasonable. Where extensive damage to orchards, forests, etc., are caused by aircraft accidents, the government agricultural agents in the district or the Forest Service representatives should be requested to aid in estimating the damage. Public works officers are often well qualified to figure the cost of re-

pairing damaged buildings and other installations.

In general, the operating unit concerned is the government's representative in these cases and should insure that its interests are protected. At the same time, claimants are entitled to prompt justice. Careful investigation should accomplish both these objectives. When unreasonable claims are presented, an attempt should be made to have them corrected at the source, if practicable. Units should not, however, refuse to accept claims, even if property owners persist in claiming unreasonable amounts. In such cases, the investigating officers' remarks and commanding officers' forwarding endorsement should specify clearly and fully wherein the property owner's claim is considered unreasonable or unjust.

## Enemy Victories

Here are two of many accidents which occur because pilots deliberately attempt unnecessarily dangerous maneuvers:

1. An N2S pilot (390 hours) performed a roll at 100 feet altitude. Something went wrong. He crashed, killing himself and his passenger.

2. An experienced F6F pilot saw a boat-load of girls on a lake. He couldn't resist the impulse to show off. On his second dive he squashed-in during his pull-out. Luckily, he missed the boat by 50 yards.

 **Grampaw Pettibone says:**

A couple of fine contributions to the war effort! Enemy agents would have received medals for accomplishing these same results.

## To Jump or Not to Jump

After a mid-air collision at 2,000 feet during dual formation training, an N2T fell into a steep dive, out of control. When it appeared that recovery could not be made, the instructor apparently ordered the student to jump and then started over the side at an altitude under 1,000 feet.

The student didn't hear the order to jump but, upon seeing the instructor leave the plane, pulled himself up in the cockpit. Believing there was insufficient altitude to effect a safe jump, he decided to stake everything on another attempt to recover control of the aircraft.

The plane did respond to the controls and leveled off at about 150 feet. Due to the damaged surfaces, altitude could not be gained, so the student picked out a clearing and made a safe landing.

 **Grampaw Pettibone says:**

The student's quick decision in

this case evidently saved his life; the instructor was killed because his chute didn't have time to open. The whole thing was unnecessary, however. The instructor's life would have been saved and the student wouldn't have had to depend on a lucky

## GRAMPAW'S SAFETY QUIZ



*All aviators should know the answers to these questions. In the air, the penalty for not knowing may prove fatal. If you miss an answer on the ground, penalize yourself by looking up the reference.*

1. When two aircraft are on crossing courses at approximately the same altitude, which one has the right of way?
2. If necessary to bail out in a spin, in which direction should you leave the cockpit? Why?
3. If you are able to limp back to base with a crippled plane or engine, should you bother the tower with a call informing them of your predicament? Why or why not?
4. In a 70° dive with a speed of 300 knots, about how much altitude would you lose during a normal 5 "G" pull-out?
5. How much more altitude is required to recover from a flaps-up dive than from one with diving flaps split?—all variables constant, i.e., same model plane and loading, same altitude at start of dive and start of pullout, same angle of dive, and same "G" during pull-out.

Answers to Quiz on Page 48

break, if the decision to jump had been made while there was still altitude.

There are many cases on record where pilots and passengers have failed to jump in time or have crashed with the airplane, without making any apparent effort to jump. Many of these would not have been fatal had the pilots sized up the situation sooner and bailed out immediately. After a midair collision, for instance, there is usually more damage to the planes than is obvious to the pilots. It is up to them to attempt to regain control. Once this fails, however, no time should be wasted in getting over the side.

This is a tricky subject to discuss because it is impossible to lay down exact rules. No one wants to jump and wash out a perfectly good airplane. But in cases like this where there is only time for a hasty decision, it is much better to play safe and jump than to stay with the plane until too late.

## Case of the Careless Mech

Early one morning the plane captain of an F6F climbed into the cockpit to start and test his engine. The engine failed to fire on the first attempt and on the second and third fired only briefly before stopping. He then left the cockpit to help pull through on the propeller.

After the prop had turned about four blades, the engine suddenly caught and turned up to high RPM. The plane captain tried to get back to the cockpit, but was blown off the wing. The plane jumped the chocks and careened down between two rows of parked aircraft, colliding head on with another F6F.

The mechanic at work on the second F6F was fatally injured.

 **Grampaw Pettibone says:**

Don't wait for this to happen in your outfit! Take immediate steps to insure that correct starting procedures and precautions are in effect. Then be sure that everybody in the squadron knows about the precautions and that they are observed.

# DID YOU KNOW?

## Naval District Will Issue Rations New Method Saves Time, Transportation

Furlough rations will be issued directly to transient naval personnel in San Francisco by panels of naval officers.

This streamlined system of direct rationing is designed to save time and local transportation for personnel involved. Necessary arrangements were made by the Commandant of the Twelfth Naval District and regional Office of Price Administration officials.

Ration currency for leave allowances of gasoline and temporary food rations will be issued under authorization of the commandant.

## Gunnery Units Outgrow a Title Free Gunnery Becomes An Aircrew Unit

Title of the Aviation Free Gunnery Units recently was changed by the Navy to Combat Aircrew Training Units, more accurately to describe their functions. Since the units were first established at various naval air stations in March of 1942, there has been a tremendous expansion in these functions.

A part of the original free gunnery training units were subsequently designated Naval Air Gunners Schools. The rest continued to operate as free gunnery units while their functions expanded to meet needs of the fleet.

From units originally intended to train enlisted men of the aviation branch in free gunnery, the Combat Aircrew Training Units now furnish instruction for pilots as well as aircrewmembers. The training takes in subjects of recognition, communications, oxygen, survival, ordnance, free gunnery and fixed gunnery.

## CAA Amends Civil Pilot Rule

### Amendment Made For Military Personnel

Dated military pilots may obtain civil pilot's certificates on a military competence basis while on active duty through a recent amendment to Civil Air Regulations. Previously military pilots could not obtain a civil pilot's certificate until released from duty.

The amended regulation insures that qualifications of the pilot for the rating sought are at least the equivalent of those fixed by Civil Air Regulations.

Reasons for amending the regulations are to facilitate issuance of civil pilot's certificates to military personnel so they may legally fly civil aircraft while still in the service. The change also will

eliminate some of the confusion and delay that would occur from the inevitable flood of applications if issuance of civil pilot's certificates on a military competence basis were withheld until hostilities end.

## Combat Experiences Are Recorded

### Special Devices Lists Newest Features

One of the newest features of "off-the-record" training methods developed by BuAer's Special Devices Division is the recording of combat experiences of Naval and Marine Corps personnel.

The recordings, which consist of word-for-word reports made by airmen to the Air Intelligence Group, Division of Naval Intelligence, primarily are prepared to acquaint aviation students

*Strikes on Truk and Saipan, The TBF Tries Masthead Bombing, Dumbo Does It Again, and Box Score.*

Other recordings now are being produced on fighter direction procedures, aircraft interior communications procedures, cockpit checkouts for the SC-1, F4U-4, PV-2, PV-1 and PBJ-1, instructional recordings for the SC-1 turbo-supercharger maintenance trainer, the BuMed hospital rehabilitation program, and ditching procedures for all types of naval aircraft.

Recordings also have been produced for a varied list of instruments, cockpits, ordnance items, radio communications procedures for civil airway traffic, and the weather.

Advantages of instructional recordings are: complete discussion of subject, standardization of presentation, ease with which they are followed, timeliness, and assistance they afford the instructor. Recordings are revised regularly to include late information.

## Leathernecks Get Gunnery Work Rifle Range is Hottest And Lowest

The battle of Devil's Oven rages daily at MCAS EL CENTRO in what is probably the hottest and lowest level rifle range in the world.

Nicknamed Devil's Oven because of the heat, the range at this air station in the heart of the Imperial Valley is more than 100 feet below sea level. A sizzling desert sun rockets temperatures to 105° even in the late fall and as high as 130° in mid-summer.

Aviation Marines fire salvo after salvo in this inferno carved from sagebrush, sand, chaparral and cactus in a flat-bottomed canyon walled by sheer cliffs some 40 feet high. They shoot sufficient rounds of ammunition to familiarize themselves thoroughly with their rifles and to "zero in" their sights.

Pilots, flight crews and others who are issued pistols fire a familiarization course with the .45 caliber pistol and .38 caliber revolver at the new pistol range adjoining the rifle range. The 500-yard, 300-yard, 200-yard and 150-yard firing lines all have been rebuilt, and more targets added. There are now 15 targets, on both rifle and pistol ranges.

The improvised rifle target racks are unique, swinging on wooden hinges from upright target position to horizontal marking position. These racks were constructed out of discarded lumber.



RECORDINGS FEATURE AIR COMBAT EXPERIENCE

and training personnel with work being done by naval aviators and to show how important lessons learned in the aviation training program can prove in actual operations. The original reports were CONFIDENTIAL. Recordings are RESTRICTED.

The recordings can be played on any standard phonograph. Series One consists of six interviews, each with a musical introduction. They are: *The Long Arm of the Navy, What Can You Do When Forced Down at Sea?, The*

## Carriers

LET NANNEWS  
HEAR FROM YOU!



## BEST ANSWERS

### Island Geography

Pick the best choice to complete the statements below, then check your answers on page 48.

1. The world's five largest islands are—

- a—Greenland, Japan, Borneo, Madagascar, New Zealand (South Island)
- b—Greenland, New Guinea, Borneo, Baffin Island, Madagascar
- c—Borneo, New Guinea, Madagascar, England, Japan
- d—Borneo, Greenland, New Guinea, Sumatra, Japan

2. Among the five major islands of the East Indies, approximately two-thirds of the population is concentrated on—

- a—Java
- b—Sumatra
- c—Borneo
- d—New Guinea

3. The Philippine Archipelago comprises approximately—

- a—25 islands
- b—250 islands
- c—1,000 islands
- d—7,000 islands

4. The wild animal life on Borneo includes—

- a—tigers
- b—kangaroos
- c—rabbits
- d—orangutans

5. The most universal mammals of the Central Pacific Islands (Polynesia and Micronesia) are—

- a—rodents
- b—seals
- c—marsupials
- d—otters

6. An island on which poisonous snakes are found is—

- a—Madagascar
- b—New Zealand (South Island)
- c—Hawaii
- d—Luzon



PUSHING "PICKLES" across a carrier deck in Task Force 58, crewmen ready belly drop tanks for Hellcats preparatory to a strike against Jap forces. Extra tanks extend range of fighter planes many miles and are practically standard equipment for water operations in the far-flung Pacific. Occasionally these tanks serve other purposes, such as the time a Navy pilot dropped his on the deck of a Japanese ship, sending it to the bottom.

### The Visual Quizzer Goes to Brazil

#### Brazilian Air Force Will Use Tests

Several films for the VISUAL QUIZZER, Device 5-X, have been translated into Portuguese by the Department of State for shipment to Brazil by BuAer's Special Devices Division.

The films, selected for use in the Brazilian Air Force training program, are:

*Aerology, Know the Parts of Your Plane, Parachutes, Armament, Basic Electricity, Aviation Technician—Machinist's Mate, Seaplanes, Aerodynamics, What Airplane, Life Saving and First Aid, Thunderstorms and Ice Formation on Aircraft, Flight Instruments, Aircraft Power Plant, Weather Map Symbols, Navigation, Radio Aids to Navigation, Survivor at Sea, Survivor on Land and Uniform Identification.*

Cards for the AUTOMATIC RATER, Device 5-0, also have been translated into Portuguese. Still other cards on which the Brazilians may add their own data have been made available for

use with the automatic rater device. [Questions in NANews' regular feature, PIX QUIZ, are from VISUAL QUIZZER Films]

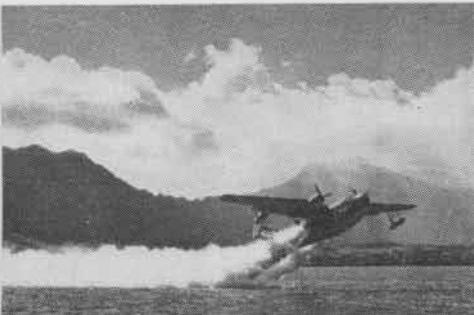
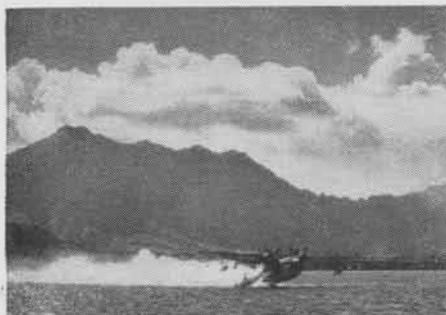
### Midwesterners View Navy Show

#### "Pacific Theater" Aids Bond Campaign

Midwesterners got a glimpse of what the Pacific war theater is like recently at the Sixth War Loan Exhibit, Navy Pier, Chicago.

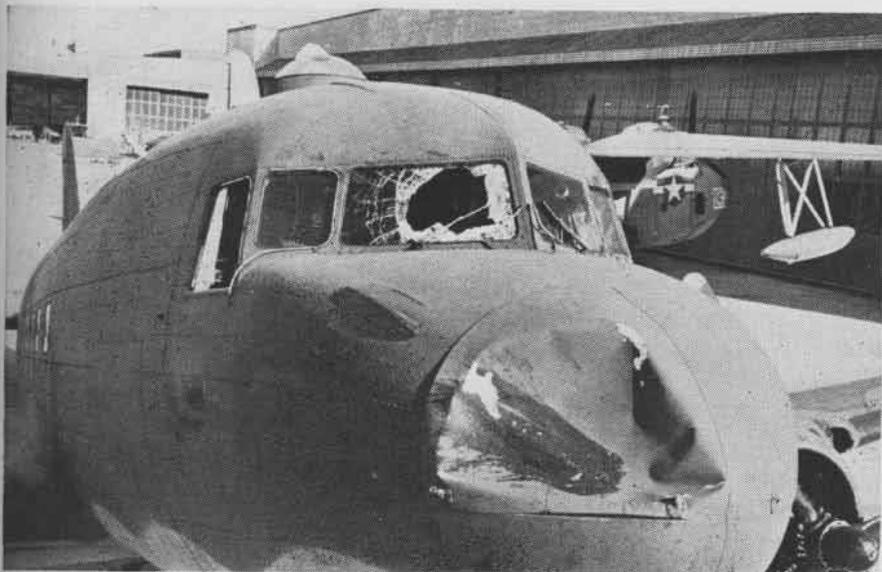
Interior exhibits contained many types of naval ordnance, including shells, rockets, torpedoes, bombs and depth charges; electronic devices and captured Japanese equipment. Exterior exhibits featured displays of carrier-based planes including the *Hellcat* and *Helldiver*; a captured *Zero*, naval guns ranging from 5-38 all-purpose deck guns to machine guns, and other heavy weapons.

In a glass tank divers submerged, in full equipment, to demonstrate underwater welding. On the lake a Coast Guard helicopter participated in daily simulated air-sea rescue demonstrations.



## JET-ASSISTED TAKE-OFF

By hooking a motor to a K-20 aerial camera, a Navy photographer catches a spectacular series of pictures on jet propulsion usage



THIS R4D RETURNED SUCCESSFULLY TO BASE AFTER DAMAGING ATTACK BY WEST COAST DUCKS

## Ducks Mimic Japs—Try Hara-Kiri Fail To Break Away In Attack on R4D

**RESCUE SQUADRON FIVE**—While engaged in a routine training flight, one of this squadron's R4D's was attacked by a flock of disorganized ducks. The big plane was in a climbing attitude at 1200 feet when the ducks made an uncoordinated attack from one o'clock low. The pilot was unaware of the attack until the bandits had closed to point blank range. Before he could begin jinking or take evasive action of any kind they pressed home their attack.

Either through a fanatical desire to commit aerial hara-kiri or freezing at the controls, the ducks failed to break away. To the pilot's utter consternation they shattered the starboard windshield, cracked the port windshield, shattered the port landing light and dented the leading edge of the port wing tip.

Under the impact of the attack the flat-top antennae carried away, the hydraulic reservoir sight gauge in the cockpit was shattered and three pounds of Mallard wedged between cylinders.

The pilot received a lacerated thumb from flying glass driven through his leather glove. Both co-pilot and navi-

gator were cut about the face. One duck flattened a crewman, giving him a magnificent shiner as a souvenir. Other crew members were showered with feathers, blood and guts.

This was the first case in which members of this squadron deviated from their primary function of evacuating wounded. A medical corpsman aboard the plane administered first aid. The ducks were beyond medical attention. None was salvaged for dinner.

## Pilot Must Check All Passengers Crew Should Know Abandon Ship Bill

**VP-21**—This squadron recommends that before each flight the pilot should carefully check all crew members on employment of the abandon ship bill.

One crewman absent on any flight, or a newly indoctrinated substitute, may result in only partial fulfillment of emergency bills. Failure to check the abandon ship bill can result in important emergency equipment being left.

Pilots should insist on this check in all airplanes that carry two or more.

**Typographical error:** The article "Navy Wings" in the Oct. 1 issue of *NANews* listed 1,000 hours in the air as one prerequisite for the designation Naval Observer, instead of 100, which is correct.

## PUBLICATIONS

The following Flight Safety Bulletins, Aviation Circular Letters, Technical Notes and Technical Orders have been issued since 1 November 1944. Copies are available on request to Publications Branch, Bureau of Aeronautics.

### AVIATION CIRCULAR LETTERS.

- 91-44B Aviation Circular Letter 91-44—Revision of.
- 99-44A Aviation Circular Letter 99-44—Correction to.
- 113-44 Aircraft and Aircraft Engines Awaiting Reconditioning or Overhaul—Disposition of.
- 114-44 Tractors and Jeeps with Spare Parts and Equipment for Aircraft Carriers—Outfitting and Replenishment of.
- 115-44 Self Sealing Fuel Cells—Stowage of Spares on Aircraft Carriers or Seaplane Tenders.
- 116-44 Post Flight Weather Reports.
- 117-44 Aircraft Engines—Policy of Redistribution Following Overhaul.
- 118-44 Hose: Automatic Resistant, Specification AN-ZZ-H-166A, Manufactured by Republic Rubber Division, Lee Rubber and Tire Corporation—Defects in.
- 119-44 Supplement to National Policy of Air Defense, Regulations, and General Flight Rules.
- 120-44 Hamilton Standard and Curtiss Electric Propellers—Overhaul Periods for.
- 121-44 Incorporation of Modifications in Aircraft—Policy Regarding.
- 122-44 Technical Publications—Compliance with Instructions Contained therein.
- 123-44 Aircraft Maintenance and Repair Work to be Accomplished at Naval and Marine Corps Air Stations and Facilities Designated as Class "C".

### TECHNICAL NOTES

- 94-44 Distribution of Torpedo Starting Lanyards for all Torpedo Carrying Aircraft.
- 95-44 Operation and Maintenance Information on Airplane Mooring Reels.
- 96-44 AN/APS-3 Pulse Cable Modification.
- 97-44 Switlik Type Parachute—Information Concerning.
- 98-44 Class 88 Instrument Dial Markings.

### TECHNICAL ORDERS

- 129-44 Lubricating Oil Drain Internal.
- 130-44 One-Man Parachute Type Life Raft Cylinder valves—Inspection of.
- 132-44 Life Raft Corner Reflectors—Installation of
- 133-44 R-28/ARC-5 VHF Receivers, Removal of Unsatisfactory Units.
- 134-44 Life Vests—Inspection and Maintenance of
- 135-44 Model SC-1 Airplanes—Restrictions and Permissible Maneuvers.
- 136-44 Test Oscillators, \*TS-24/ARR-2 and \*TS-24A/ARR-2, Elimination of Parasitic Oscillations in.
- 137-44 Mark 5 Series Rocket Launcher Installations.
- 138-44 Model PV-2, -2C, -2D Airplanes—Restrictions and Permissible Maneuvers.
- 139-44 Model N2S-1, -2, -3, -4, and -5 Airplanes—Restrictions and Permissible Maneuvers.
- 140-44 Model F7F-1 Airplanes—Restrictions and Permissible Maneuvers.
- 141-44 Shipment of Damaged Model SNB and JRB Airplanes



The PBM leaps into the air with 60 percent less run, with the JATO units acting like projectile rockets, each with about 500 hp.



Shooting five 4x5 negatives in two seconds, camera records tremendous thrust given by the two jet units as the Mariner soars off



After the airplane is airborne, burned-out units are jettisoned. Jet propulsion enables shorter take-offs on land or aboard carriers

# FLIGHT SAFETY



TRIALS AND errors of a novice pilot on a carrier are depicted in the above poster, developed as a training aid by VB-81. Qualification landings take plenty of skill and teamwork with landing signal officer.

## Steam Box Aids Washing Problem

### Equipment Made of Salvaged Materials

NATB CORPUS CHRISTI—Enlisted personnel are operating individual live steam boxes for washing clothes at Rodd Field. Each box handles a complete change of clothing. Clothes, soap and cold water are placed in the box, and water and steam are turned on. Agitation is created by action of the steam. After two minutes, clothes come out clean and ready to dry. A complete washing operation requires about five minutes.

The installation consists of a heavy box with a sloping baffle board inside at the back, and valves for adjusting



BLUEJACKET MANIPULATES STEAM BOX WASHER

steam and water pressure. Boxes are 30" long, 18" deep and 12" wide. Essential material, built entirely from scrap equipment, includes lumber, a few feet of pipe and two valves for each box. Ninety to 100-lb. pressure gives most efficient operation of washer.

If you ask him why an aircraft crashed, a certain type of pilot will forget his scientific training and turn to superstition. He will tell you "Joe's luck ran out," or "Tom's number came up," or even "Three in a row, you know!"

These pat and unscientific explanations, if taken seriously, would obstruct the promotion of aviation safety. Safety has little to do with superstition.

Establishing the causes of crashes and then taking action to prevent their recurrence is the scientific way set up for the newly established Aviation Safety Boards in naval commands. It is their job to discover the causes of accidents, and then to act so that identical crashes are not repeated.

Aviation Circular Letter No. 50-44 directed those training and operational commands outside of advanced combat areas which did not have Aviation Safety Boards to set up such groups. All commands concerned now have functioning Aviation Safety Boards.

A typical Aviation Safety Board includes a senior member, medical investigator, recorder, crash investigators, research and administrative assistants, and squadrons' representatives.

The senior member supervises: 1. Investigation of all crashes and analysis of accident reports, 2. Co-operation with other safety organizations in developing protective policies and practices. The medical investigator aids in determining human factors contributing to the accident and personnel injuries sustained. Preparation of general data and periodic reports is assigned the recorder and his assistants. Crash investigators and research assistants are concerned primarily with finding out causes of accidents and recommending ways to prevent their repetition.

Inquiries from some of the newly established Aviation Safety Boards indicate that they visualize their function solely as "super Trouble Boards." This is not the case. While a board can step in when the initial investigation of a single accident or related series of crashes is defective or seems to warrant additional inquiry, such action is not necessary in all cases. When advisable, a board can either 1. obtain revised reports correcting the deficiencies or 2. conduct their own investigation.

A primary duty of Aviation Safety Boards, especially of higher echelons,

is always to keep the general picture in view so that trends may be observed.

These boards analyze accident reports, maintain an accident index, make recommendations to correct accident causes and co-operate with the Flight Safety Council and other safety groups.

An index of aviation accidents and their causes within a command will provide comparisons as to types of aircraft and as between squadrons.

How investigation can correct the cause for a rise in the accident rate is illustrated by an incident which recently occurred in qualification landings aboard a carrier. The number of crashes rose rapidly. An investigation by the responsible Aviation Safety Board brought out that a new signal officer had assumed duty aboard the carrier. The board recommended that he be replaced. Carrying this out brought a consequent drop in the number of accidents.

The Naval Air Training Command at Pensacola says of this procedure:

"The ideal of accident prevention is to so analyze the component causes of a given accident and set up such corrective measures that an identical accident will never recur. This means, in effect, that action must be taken immediately to forestall recurrence of a given type of accident.

In practice it means that a pilot who has had an accident, say a groundloop, should not be allowed to fly again until he has analyzed (or had analyzed for him) the causes of the accident and been properly checked on so that he will never have a similar accident. This ideal is seldom met but approaches to the ideal can be made."

This goal can be attained in proportion to the labor and interest of all connected with naval aviation and, in particular, flight safety. Instruction in use of safety devices for all pilots should be given and these devices kept in perfect working order in all the command's planes. While the Aviation Safety Boards do not do this instruction, they can insure that it is done by checking on the various squadrons.

Aviation Safety Boards already have proved their value in at least one training command. After such a board had been in operation for only three months, the fatal accident rate was reduced 47 per cent and fatalities dropped 29 per cent.

**THIS IS THE THIRD IN A SERIES OF REPORTS ON WHAT THE NAVY IS DOING IN AVIATION SAFETY**



MEN GATHER AROUND R4D TRANSPORT, FIRST AIRPLANE TO LAND ON ISLAND AIRSTRIP COMPLETED BY SEABEES ONLY A FEW HOURS EARLIER

# Island Fighter Strip

SEABEES all over the Pacific will say there is nothing unusual about this story. In fact, they maintain it is commonplace, that it has been repeated scores of times, that they have built landing strips whenever the Navy needed them. But this story of how the Seabees built a landing strip on still another newly won Pacific island is typical of the "Can Do" attitude of the Naval Construction Battalions.

Some credit must go to the Army Combat Engineers. They started preliminary work when they moved into the atoll with the amphibious Army group that took the island from the Japs. They lacked heavy equipment, however,

## TROPICAL JUNGLE GIVES WAY TO CORAL RUNWAY IN TWELVE DAYS ON ISLAND

and the job of hacking an air strip out of the tropical jungle covering the island was turned over to Seabees newly arrived in the tropics from Alaska and the Aleutians.

The first echelon came ashore a few weeks later. As soon as they had established camp, the Seabees began reconnaissance, planning, surveying and unloading supplies. When the Army

left, the Seabees took charge. Twelve days later the first plane landed.

Work didn't get into full swing until needed heavy equipment arrived, but it continued 24 hours a day until the last roller and scraper were cleared from the strip just before the ETA of the first transport.

### *Seabees Add a Tower, Huts and Chapel*

The Seabees went on to add an operations tower, a hut for operations, communications and aerology and one for the galley. In their spare time they also completed an impressive palm-thatched coconut-log building, the "Doughboy Chapel," begun by Army.

# Seabees Show What "Can Do" Means on Captured Isle



AIRSTRIP PLANNED BY SEABEES WILL FOLLOW PRIMITIVE ROADWAY



SOON, STRIP FROM SEA TO ATOLL LAGOON IS CLEAR FOR SURFACING



TRUCKS DUMP CORAL ON STRIP; SCRAPERS, BULLDOZERS SPREAD IT



AT CORAL PIT ALONG SHORE, POWER SHOVEL LOADS STREAM OF TRUCKS



CORAL-FILLED CRIBBING PROTECTS WARM-UP APRON FROM THE SEA



BIG TAG PLANE, FIRST TO LAND, FINDS TAXIWAY CLOSE SQUEEZE

## SEABEES LICK OBSTACLES IN RACE TO TURN ISLAND INTO A MARINE AIRBASE

**F**irst the strip had to be cleared of trees. Men chopped down giant coconut palms; tractors snaked them away to be used for cribbing at the end of the strip where the Seabees pushed back the waters of the Pacific to make more room for the warm-up apron. Bulldozers grubbed out stumps and cleared away underbrush. Behind them came trucks and carryalls dumping coral on the strip, while bulldozers and scrapers spread and smoothed the surfacing. Hundreds of thousands of yards of coral were spread on the strip, smoothed and rolled before it was completed.

A swamp stretched across the interior of the island. It had to be filled before the strip could cross it. Barrels of gasoline and oil and every item for food and shelter for the men, as well as supplies for constructing the base, had to be ferried from ships off shore. Then a tropical typhoon swept away many of the small boats, further complicating supply operations.

### **TAG Transport Is First Plane to Land**

At 1000 one bright morning, trucks, rollers, scrapers were cleared from the field. Shortly afterwards a plane appeared out of the north. It swung low over the field, circled and came back for a closer inspection. Although the strip ran the entire width of the island, it looked short for the heavily loaded R4D transport. Carefully, the pilot made his approach, bringing the plane down at the very edge of the runway. It rolled to an easy stop near the far end.

Only then was it found that taxiways were too narrow for the big transport with its 95-foot wingspread. It had to stop while bulldozers uprooted more palm trees and cleared undergrowth to permit it to pass. Within an hour, four more transports had landed. The Navy's newest airstrip was in operation.

### **PBY "Dumbos-In" MDAG Fighter Planes**

Two days later, fighter planes for the Marine Defense Air Group landed on the field. They were followed by the PBY that had dumboed them in from another advanced base. Marine pilots took over the job of protecting the atoll from Jap air-sea attack.

Daily Transport Air Group (Marine) air service now links the island with NATS Pacific and ATS, bringing in passengers, priority cargo and mail. The work of the Seabees is completed on this distant outpost in the Pacific. The "Can Do" boys have done it once more.

## Even Minus Japs, Atoll Is No Paradise



POWER CRANE UNLOADS LSVP'S AND OTHER CRAFT, SWINGING AROUND TO LOAD TRUCKS



TROPICAL RAINS COMPLICATE SUPPLY, CONSTRUCTION AND ADD GENERAL DISCOMFORT



FIRST DAY ASHORE, MARINES DRINK JAVA AROUND FIRE IN BIVOUAC UNDER PALM TREES

# PIX QUIZ WHAT DO YOU KNOW ABOUT FIGHTING FIRES?

PROBABLY no emergency demands any quicker thinking and swifter action than fire-fighting. Fire hazards are numerous in naval aviation, and constant vigilance must be maintained at all times. Try these questions, then see answers on page 48.

[QUESTIONS FROM BUAAER SPECIAL DEVICES VISUAL QUIZZER FILM No. 60, FIGHT THAT FIRE]

Write your answers here

- |         |         |
|---------|---------|
| 1. .... | 4. .... |
| 2. .... | 5. .... |
| 3. .... | 6. .... |



**Question 1** Fight deep-seated fires with:

1. Water fog.
2. Foam.
3. Carbon dioxide.
4. Solid water stream.

**Question 2** On oil fires, solid stream will—

1. Cool area quicker.
2. Not extinguish fire.
3. Substitute for foam.
4. Cool area easier.

**Question 3** Fight fires like this with:

1. Solid stream.
2. Salt water only.
3. Carbon dioxide.
4. Gasoline or naphtha.

**Question 4** To approach hot fire, or to approach from lee side, use:

1. Low velocity fog.
2. Solid stream.
3. Foam.
4. High velocity fog.

**Question 5** With fires of this kind, first thing to do is to:

1. De-energize circuits.
2. Batten all hatches.
3. Ventilate compartment.
4. Remove shoes.

**Question 6** This stream (at 100 lbs. pressure with 1 1/2" nozzle) is projected:

1. 65 ft.
2. 35 ft.
3. 25 ft.
4. 105 ft.

# SHORE STATIONS

▶ **NATB PENSACOLA**—An A&R overhaul emblem, sea blue and white circular design, is being stamped on all planes repaired here so that workers may receive full credit for their standard of work.

▶ **MCAS MOJAVE**—A Woman Reserve here caused quite a stir half-way around the world without doing a thing. Her fiancé had to move out of his tent on one of the Southwest Pacific islands on the double—leaving much of his gear. Soon afterward, another group of Leathernecks moved in, and rummaging through the tent, found a photograph of the wr. They had never seen a woman Marine, and anyway the girl was pretty, so they sent the photo back to the States to be tracked down.

Eventually, it reached Mojave and the girl supplied the requested data. When she wrote her fiancé about the incident, he hit the stratosphere, and has been doing duty there ever since.

▶ **NAAS GREEN COVE SPRINGS**—Indicative of the times is the following story of a lovely girl who drove up in front of the senior BOQ in a sleek limousine. "Wow!" exclaimed one officer in admiration, "she certainly has beautiful tires, hasn't she?"

▶ **NAS CAPE MAY**—The moose season recently got under way here, and credit for the first kill goes to an unusual hunter. Long hikes, frost-bitten hands and feet, and the usual hardships, so often associated with big game hunting, were missing. A chief bagged his prize in the lounge room of the new CPO quarters with a dart. The moose head tumbled from the wall, pinning "the hunter" to the floor.



▶ **ZJ-1**—Reporting from a tropical island, personnel compare their overlapped traffic circles to an artist's idea of post-war aviation on a Sunday afternoon. Surrounded by a seaplane base and a large landplane base, one lighter-than-air man was tempted to paraphrase Lord Tennyson thus:

"Hellcats to right of him,  
Venturas to left of him,  
Dodging a TBSP  
Dove the King 'Eighty."

▶ **NATB PENSACOLA**—All previous production records were smashed during November, when A&R turned out a total of 65 planes overhauled, assembled, flight tested and delivered.

▶ **NAS HUTCHINSON**—With limited telephone facilities badly overtaxed, a campaign to eliminate unofficial telephone calls was inaugurated with great success. Switchboard operators were instructed to ask whether an outside line was for official

use. Reduction in calls in 10 days was equal to installation of two trunk lines.

▶ **MCAS MOJAVE**—Two officers got together with the fire department and worked out a scheme which combines business with business. Instead of soaking the desert with its periodic tests of hose and equipment, the fire department now has a new routine. They dash out to where the station water line taps the famous Los



Angeles aqueduct and turn the powerful hose into the fish trap, cleaning it thoroughly.

The stunt not only helps keep the water supply pure, but gives the nozzle-wrestlers something to aim at, aiding practice in hose control.

▶ **FAIRSHIPS ATLANTIC**—Newly designed ice boxes for airships, built by NAS Richmond A&R, were tested successfully. The boxes are constructed similar to the old-fashioned home ice box, with a completely separate section in the top for the ice. In flight, ice cream bricks stayed hard 16 hrs.

▶ **NAS FLOYD BENNETT FIELD**—Following is the account of an eight-pound son born to an AMM and his wife: "ETA was 1500 Sunday, but with a good tail wind the new model landed on instruments at 1422. It's a jet-propelled job, working solely on the intake and outtake principle. Has retractable landing gear, extraordinary sound equipment and remote control fixtures. A night-fighter, known as Richard."

▶ **NAS SHAWNEE**—A Gripe Box is located near Ship's Service at this station. Anyone who has a legitimate and reasonable gripe or any recommendations concerning the SS department may write them on an unsigned card and deposit them in the box. The SS officer answers through the station newspaper, *Sunline*.

▶ **NAS NEW ORLEANS**—Since 1942, when the salvage and conservation program was started, sales have jumped from \$55.35 to more than \$670 in 1944. All salvageable items from garbage to wood, are saved.



## Carriers

LET NEWS  
HEAR FROM YOU!

▶ **NAS GREEN COVE SPRINGS**—An AMM in the Engineering Department has decided that he rubbed elbows with Fate once too often during his two-year tour in the South Pacific. Once he skinned his nose on a whirling propeller blade. Later, he walked away from a water barrel at the edge of an airfield revetment seconds before a Douglas bomber crashed on the spot. And finally, alone in a home-made motorboat, he tangled with an eight-foot stingray only to have the ray lose interest and swim away.

▶ **NATB PENSACOLA**—"Free haircuts (at your own risk)" are offered at the enlisted men's barber shop where Ship's Service is training new barbers after regular shop hours. Work is under supervision of experienced barbers, who act as instructors.

▶ **NAS OTTUMWA**—The only woman on the station with an SB2c rate is Mabel—Saint Bernard, second class. She reported aboard early in the station's history, and survived an "all dogs off the station" edict because she was in sick bay.

▶ **NAS PENSACOLA**—The last class of RAF pilots graduated recently. About 1,800 English pilots have come and gone since the training program started in July.

▶ **NAS NEW ORLEANS**—Converted from a barracks, the new recreation building has facilities for dancing, playing ping-pong, pool and other games, pursuing hobbies, such as model airplane building, making fudge in a candy kitchen, and other recreational activities.



▶ **NAS CAPE MAY**—The mail clerk here sprayed his office thoroughly a short time ago only to find that he had been using paint remover.

▶ **MCAS MOJAVE**—A fighter pilot at this station has to keep on the ball or face a sizzling letter written on asbestos stationery. The Marine is an officer, but if he doesn't toe the line, he will hear from a certain sergeant.

The flyer, luckily or unluckily, is the nephew of the Marine Corps' living legend, MCGySgt. Lou Diamond—and that's a lot to live up to, as he will readily testify.

▶ **NAS FLOYD BENNETT FIELD**—The greatest amount of blood ever taken in a single day by a single mobile unit in the United States and the world was donated to the Brooklyn Red Cross Mobile Unit recently on this station. At a rate of one-and-three-quarters pints per minute 850 donors moved steadily through the sick bay for examinations, donations and refreshments.

# TOKYO TALKS

## TO THE UNITED STATES

"Hull has resigned from his office on the excuse that his physical condition is bad. But the real reason for his resignation must be traced to the fact that his relations with President Roosevelt, which have not been going smoothly for many years, have at last hit a snag. He made a mess of it in the South American policy, and especially in the Argentine problem, and has of late been badly treated by Roosevelt." Morgenthau, and not Hull, was invited to the Quebec conference on post-war measures.

## TO JAPAN

Faced with the continuing might of the United States Navy, the Japanese government has decided, at the cost of lowered construction capacity, to convert small shipyards into repair shops for wooden ships and sampans. Decreased construction capacity "is being augmented by building better ships with better capacity."

## TO THE PHILIPPINES

Military circles in Tokyo believed the appointment of Edward R. Stettinius, Jr. to succeed Hull would "advance greatly" the "Yankee imperialistic policy" because of Stettinius' economic position."

## TO JAPAN

Failure of workers to report for health training has contributed to absenteeism in Japanese factories. One-third of those who were absent explained they were suffering from beri-beri or pneumonia.

## TO THE UNITED STATES

Continued raids on Tokyo by B-29 Superfortresses serve "to heighten the fighting spirit of the Japanese and strengthen the unity of the nation."

## TO JAPAN

Officials of Welfare Ministry, seeking to "cope with the health" of children evacuated from metropolitan areas as a precaution against air raids, intend to protect them from colds by "exposing them to cold." Soldiers on the "northern front" at the present time are experimenting with the idea with marked success.

## TO THE UNITED STATES

Saburo Kurusu, Tokyo's special "peace envoy" to the United States in 1941, warned enemy America on the third anniversary of his mission to Washington that Japan "has 100,000,000 Patrick Henrys who are fighting for their country's freedom with heart and soul."

## TO JAPAN

United States Marine Corps is composed of a "bunch of roughnecks" and "ruffian soldiers" who "don't give a hang about their lives and so land recklessly in landing operations."

"Since the Marine Corps is a conglomeration of such ruffians, it is said in America, 'Tell it to the Marines.' This has the same meaning as 'Don't be silly.' That is to say, the marines are all so ignorant that they may believe you, when the general public

would not. We can imagine easily from this what ignorant ruffians the men of the Marine Corps are."

## TO JAPAN

Miss Sachiko Furuno, YWCA worker and former University of Chicago sociology student, "witnessed women in enemy America who spend \$200 for uniforms, work a little, consider themselves working for the country, and then drink beer. The women of Japan are small in size," she commented, "but are not cowards like American women."

## SHOW ME THE WAY TO GO HOME



## Interception Radius of Action

You, as navigator of a patrol plane, depart at 1020 at flight altitude 3,000 ft. from over Cape St. George Lighthouse, Lat. 48° 28' N, Long. 59° 15' W, with orders to intercept a convoy which at 1000 was in Lat. 46° 32' N, Long. 55° 47' W, on cus 048°, speed 11 k, stay with the convoy as long as possible and return to your base at Lat. 48° 25' N, Long. 59° 30' W, at 1630. The wind is from 350°, force 26 k. You have a TAS of 125 k.

1. What is your TH to intercept? \_\_\_\_\_
2. What is your DRM? \_\_\_\_\_
3. What is your cus to intercept? \_\_\_\_\_
4. What is your ETI? \_\_\_\_\_
5. What is your EPI? \_\_\_\_\_  
Lat. \_\_\_\_\_  
Long. \_\_\_\_\_
6. What is the cus and speed of your fictitious ship? \_\_\_\_\_  
cus \_\_\_\_\_  
spd. \_\_\_\_\_
7. What is your TTT to return to your base? \_\_\_\_\_
8. What is your position of turn? \_\_\_\_\_  
Lat. \_\_\_\_\_  
Long. \_\_\_\_\_
9. What is your TH to base? \_\_\_\_\_
10. What is your SRM in? \_\_\_\_\_
11. What is your DRM in? \_\_\_\_\_
12. What is your cus in? \_\_\_\_\_
13. What is your GS in? \_\_\_\_\_

(Answers on page 48)

# PHOTOGRAPHY

## Navy Develops Hand Held K-25 Camera

A limited supply of kits that can be used to convert the K-25 aircraft camera to a hand held camera have been procured and are now in Photographic Supply Depots under Stock No. 18-K-183-150.

The kit consists of a sight and two handles that may be attached to sides of the camera. One handle contains a switch. When the switch is held down the K-25 produces at approximately 2½ exposures per second and will run at that rate as



HANDLE CONTAINS SWITCH FOR THE K-25 CAMERA

long as the operator continues to hold down the switch. The operator may press the switch at intervals, getting only one exposure at a time.

The camera so adapted should prove invaluable for flight deck carrier work, certain phases of combat photography, and special test jobs.

Due to the present limited supply of kits, distribution will be held to urgent requirements. Further procurement of kits will be determined by established value in the field.

## BuAer Desires Report On F-56 Lenses

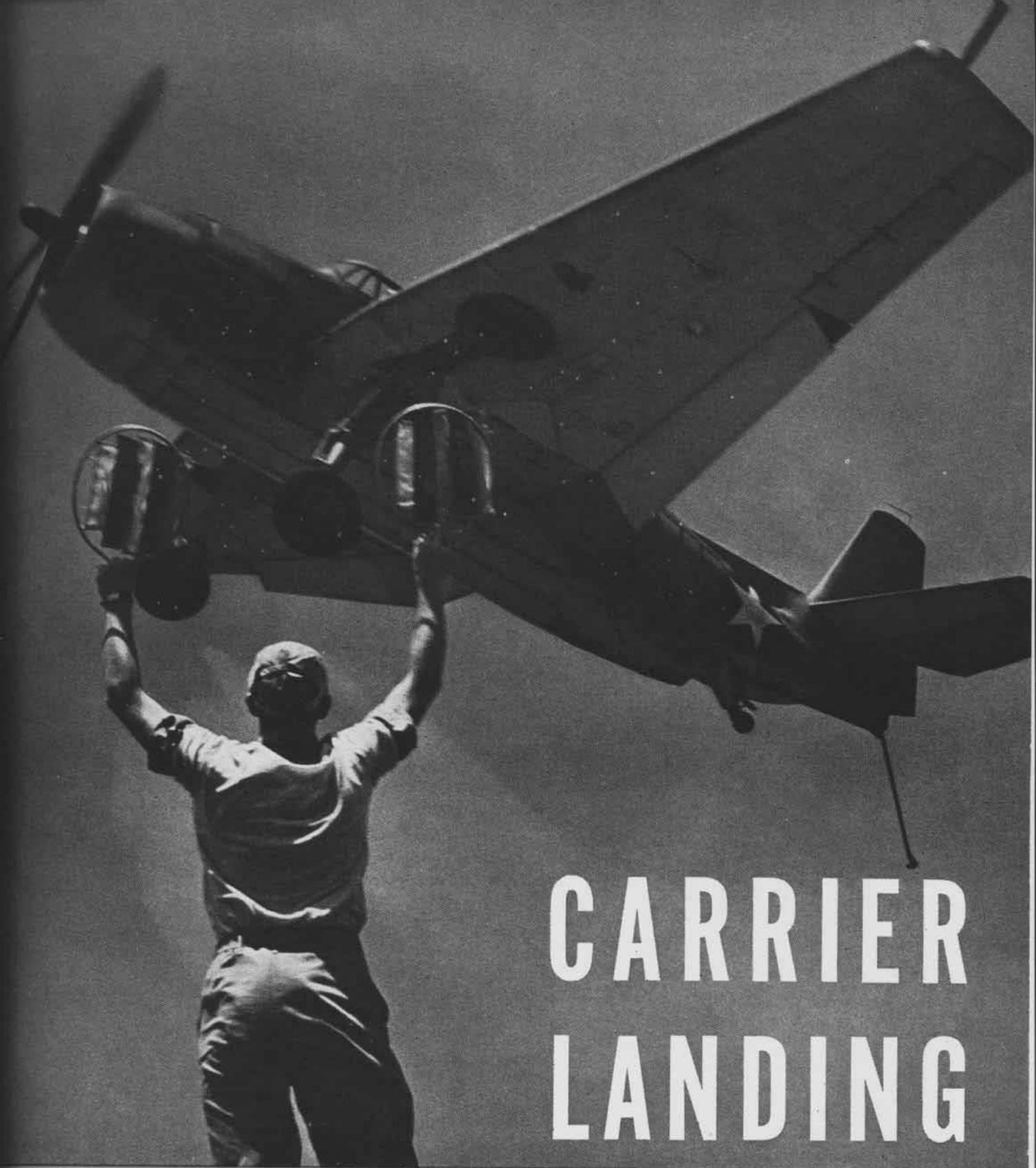
Synthetic cement is used in the B & L lenses of the F-56, 20" aircraft camera. Units having those cameras should inspect the lenses for any sign of deterioration and report any serious defects to BuAer. Report should state whether or not cameras have been subjected to abnormal climatic or storage conditions.

## Choice of Subjects Requires Judgment

An official of the Navy Department, upon returning after an inspection tour, states that while he personally did not object to giving photographers the time required to record necessary news photographs, as a layman he observed the job was, in many instances, being overdone.

BuAer hesitates to criticize photographers on this point. The Navy Department does want good photographs of events that merit recording. It is true that, due to misunderstanding, some photographers overemphasize the importance of visiting dignitaries and neglect some commonplace but worthy scenes of Navy men at work or in action.

It is hoped that good judgment by all hands will serve to relieve this situation.



# CARRIER LANDING SIGNALS

**NAVY landing signal officers, key men on carrier decks, use standard signals to guide plane pilots aboard to rearm and refuel for new aerial action**

PROCEDURE 



DIVE BOMBER GETS CUT FROM LANDING SIGNAL OFFICER; FIELD CARRIER LANDINGS INDOCTRINATE PILOT IN HOW TO MAKE APPROACH ON CARRIER DECK

# LANDING SIGNAL OFFICERS



THE BIG carrier headed into the 20-knot wind to take aboard its fighter planes for refueling after a strike at the Jap task force. One *Hellcat* came in too high and the landing signal officer perched on his port stern platform gave it the wave-off.

The pilot, disregarding the signal, dropped his plane in on the deck, burying the prop in the planking and ripping up several feet of it.

Before any of the landed fighters could take off, the deck had to be cleared of the wrecked *Hellcat* and repaired. Slowed down to eight knots to permit landings, the carrier was easy meat for a Jap torpedo squadron which suddenly appeared from the clouds. The carrier, unable to launch its fighters to defend it, took torpedo hits and sank.

The above case is purely fictional. But it could hap-

pen. It demonstrates the vital job the landing signal officer has to play in carrier and fleet operations. There are few more exacting and responsible jobs in the fleet than the LSO. A few miscues can sink a carrier. Lack of cooperation with him can foul up deck operations, slow down a whole task force's landing operations and bring reprimands to everyone from the admiral down.

ON THE shoulders of this one man, who might be compared to a quarterback on a football team, rests the great responsibility of keeping things rolling as landings progress. He is as nearly his own boss as he is likely to be in the Navy. He is supreme in his bailiwick on the ramp. His judgment as to when to bring planes in or wave them off has to be fast and right. The only man on a carrier who can judge correctly the approach of the planes, the LSO is one of naval aviation's key men, especially when an action is going on.

# LSO 'QUARTERBACKS' THE NAVY'S FIGHTING TEAM ABOARD CARRIER



FIRST aircraft landings aboard ships were made entirely by the pilots, with no one on the flight deck to coach them in. As plane speeds increased, landing signal officers were stationed on the rear with bright flags. In a stiff breeze, these flags nearly were invisible as they flew in a horizontal position. Today the LSO uses circular paddles with streamers of cloth to make them easier to hold in stiff winds. For night landings, wands lighted by neon tubes or flashlight bulbs are used, or luminous cloth paddles and suits.

The landing signal officer's job has erroneously been regarded by some as a haven for low ranking pilots. Except for a few non-flying LSO's, all of the Navy's paddle-wielders today are pilots in their own right. The idea that they are poor pilots who dislike their jobs is incompatible with the importance of those tasks on a carrier, where they are key men in the fighting team. The LSO, as much as any one factor, contributes to the smooth running efficiency of a flat-top and no one knows it better than the commanding officer and air officer of that carrier.

Candidates for the job of landing signal officer either may be fleet pilots or graduates of operational training nominated from various air stations' OTU's. Training of the monthly quota of about 30 LSO's starts at NAS Jacksonville at a school operated by NAOTC. Both LSO's, who usually are lieutenants, and assistant LSO's get one month at the school learning signals and fundamentals of their jobs. They make field carrier landings themselves, with half the class wielding the paddles and others piloting, then trade places.

Being pilots, they appreciate the problems a flier has in bringing his plane down over the ramp. The LSO gets to know each pilot and his flying eccentricities. The better he knows them, the more safe the landings. He has to be something of a psychologist, close to the pilots. He must listen to their why landings are sour and offer a remedy.

To assist pilots in getting used to arresting gear, numerous shore stations now have ground installations that accustom them to the sudden shock before they attempt a landing aboard a ship. Landing signal officers help bring them in.

After they finish this training, LSO's spend two months with some operational training unit, perfecting their "quarterbacking." Assistant landing signal officers then get one to two weeks with the Carrier Qualification Training Unit at NAS Glenview. Here they observe and qualify as pilots, making a few landings on the *Wolverine* or *Sable* for the feel of it, but doing no paddle-wielding. They then are assigned to fleet air commands for training and fleet billets.

Landing signal officers, before going to Glenview, get a third month with an OTU, working a different type of aircraft, then follow this with two months at CQTV for ship-board training and qualification.

CARRIERS commonly carry an LSO and an assistant, with some having three. A few air groups carry their own signal officers, although this is not a common practice.

The LSO has to have the teamwork of all pilots in the approach circle to speed up the landing job. They must have the correct landing interval and must strive with the signal officer to make a smooth, constant approach instead of the old "throttle pumping, catch-the-same-wire-every-time."

The landing signal officer must not be sloppy in giving signals. He must make up his mind quickly, give positive proper signals the pilot can see and understand with ease.



Arrestor gear at Fleming's Island gives pilot first taste of how it feels to be stopped suddenly by the cable on a carrier deck



New luminous cloth suits and paddles get tryout to increase visibility of landing signal officer during night carrier operations



Landing signal officer aboard U.S.S. *Wolverine* in Lake Michigan, clothed for chill winds, brings CQTV pilots aboard for landings

# DAY



## AIRCRAFT CARRIERS USE STANDARDIZED SIGNALS

**Thirteen signals assist LSO in his vital job of bringing aircraft on carrier deck for a landing after dark**

**CUT SIGNAL**—This is a mandatory signal. 1. Pilot cuts throttle immediately. 2. He takes his eyes off the signal officer for the first time and looks at the deck for alignment. 3. He relaxes right rudder pressure. 4. He allows the plane to go ahead, nose goes down. 5. Pilot pulls back on the stick and makes three-point landing. This signal is given sharply just before the plane passes the LSO on the stern platform.

**WAVE OFF**—This signal also is mandatory. The LSO crosses paddles over his head in a vigorous movement. Pilot answers by: 1. Adding full throttle to regain speed. 2. Gaining altitude. 3. Turning left. The pilot must not land under any circumstances.

**ROGER**—This signal is the letter R in the semaphore alphabet and means the plane is in the proper attitude and altitude at the time it is given. As long as the plane remains right, this signal is given. The moment it is out of position, the signal is changed accordingly to indicate to the pilot what he is doing wrong.

**HIGH**—This signal indicates the plane is high and the pilot should reduce altitude. He eases the nose slightly, then the throttle. As soon as the LSO comes to roger, the plane nose is raised sufficiently to maintain the new altitude. If necessary, throttle may be added.

**LOW**—This signal indicates the plane is too low and the pilot should add throttle first, then climb until the signal roger, then level off and ease the nose down slightly to stop the climb. Final step is to reduce the throttle to maintain proper speed.

**LOW DIP**—This signal indicates that the plane attitude is slightly nose down. It is answered by the pilot's easing the plane nose up. No throttle is added. It may follow a FAST signal. Arms start at ROGER and return after dipping.

**HI DIP**—The signal indicates that the plane is slightly high and the pilot should ease the nose off slightly and return immediately to original

attitude. This will cause the plane to drop 10 to 20 feet. There is no throttle change.

**FLAPS DOWN**—This signal indicates that the pilot's plane landing flaps are not down. Paddles are opened with a whole arm motion and closed with a flapping motion.

**FAST**—This signal indicates to the pilot that his plane is too fast. He answers it by: 1. Easing throttle off. 2. Pulling the nose up slightly so that the plane does not lose altitude. This sometimes is a difficult signal to answer.

**WHEELS**—This signal indicates to the pilot that his wheels are not completely down. It is made by the LSO taking both paddles in one hand and rotating them in a wide circle at one side of his body, mimicking the old hand-crank method of getting wheels down.

**HOOK**—This signal, a chopping movement toward the deck with both paddles, tells the pilot that his hook is not down. The signal on a field carrier landing is to tell the pilot to land and stay on the ground.

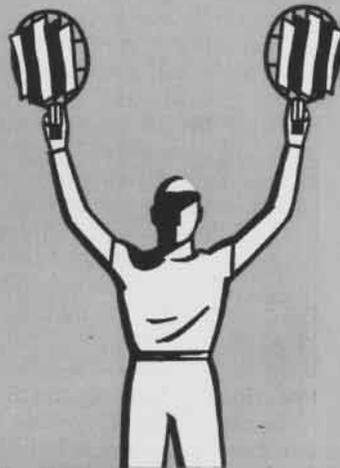
**SLOW**—This signal sometimes is called the "come on." It indicates the pilot is slow. It is given by a rowing motion in the ROGER position. The pilot answers the signal by adding throttle as indicated by the rapidity with which the LSO gives the signal. He should not climb his plane any.

**SLANT**—This is an attitude signal given by holding the arms at ROGER, then inclining them to left or right. It indicates that the rate of turn into the groove is not sufficient. The pilot increases the rate of bank to the left. It also is used close aboard to have the pilot get his wings level.

**AGITATED SIGNAL**—When the landing signal officer gives a signal he may shake paddles in an agitated manner. This indicates the pilot is in a dangerous position and should take immediate and positive action to remedy the situation to avoid trouble. Used with any of above 13 signals.



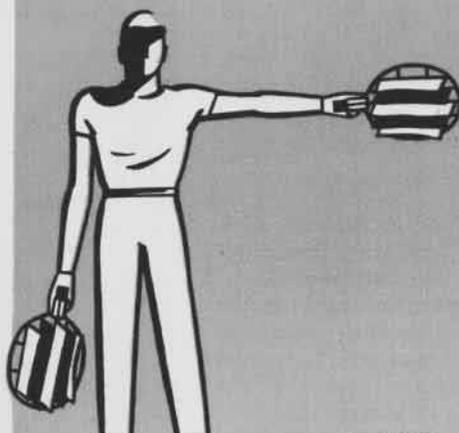
**CUT**



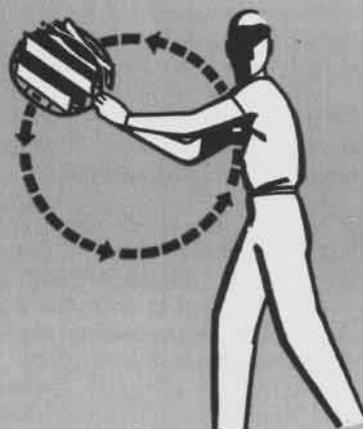
**HIGH**



**FLAPS  
DOWN**



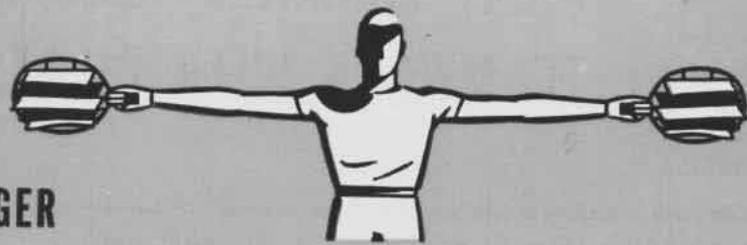
**FAST**



**WHEELS**



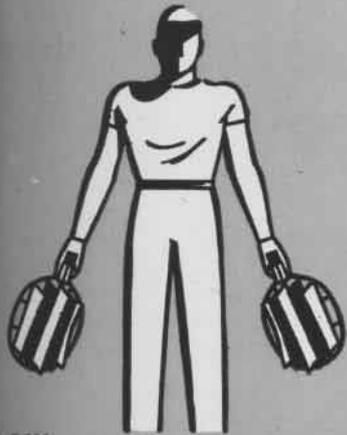
WAVE  
OFF



ROGER



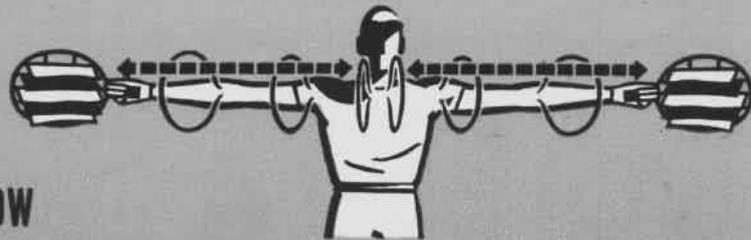
LOW DIP



LOW



HI DIP



SLOW



HOOK



SLANT

# NIGHT

## NIGHT LANDINGS REQUIRE TEAMWORK WITH PILOTS

*Landing signal officer uses lighted wands or luminous paddles to bring plane aboard ship after dark*

NIGHT operations are growing more common as the war nears the Japanese mainland. Not all pilots will have searchlights to guide them to landings, as was done in the battle of the Eastern Philippines sea. They will have to rely ordinarily on their night vision and the illuminated wands of the LSO. The newest development for possible night landing use a luminous cloth which is used on paddles and on the front of the LSO's uniform.

A pilot coming in for a night landing usually pays considerably closer attention to the LSO than in the daytime, when visibility is better. Standard signaling equipment in the past for night operations has been varied, some using neon wands two or three feet long, others with several colored flashlight bulbs in them.

Tri-colored wing lights on all planes—red, amber and green, according to the angle of view—help the landing signal officer determine the attitude of the plane as it comes in for a night landing.

Since the pilot comes in day or night at only 7 to 10 knots above stalling speed, any rough manipulation of the controls might prove disastrous. Because of limited carrier deck space, espe-

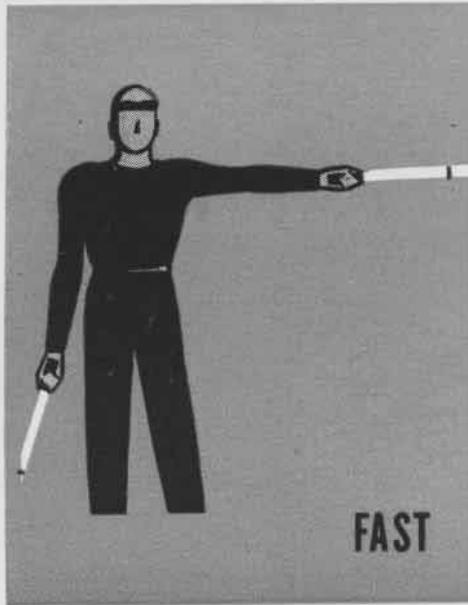
cially on CVL's and CVE's, the LSO must bring him in with precision. He has to hold the speed down and line the pilot up with the center of the deck.

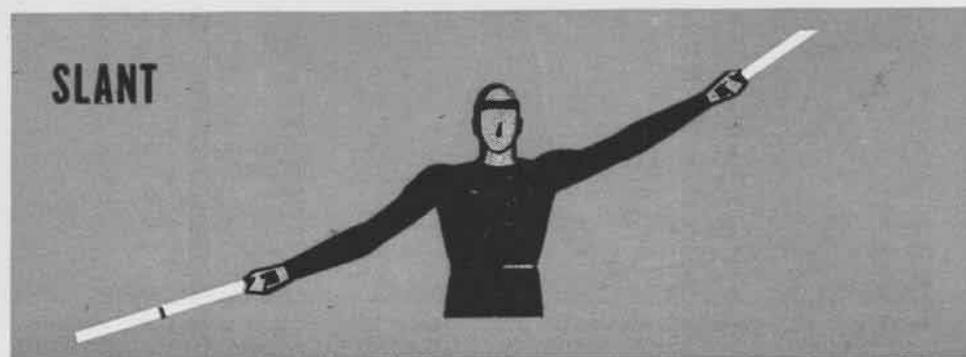
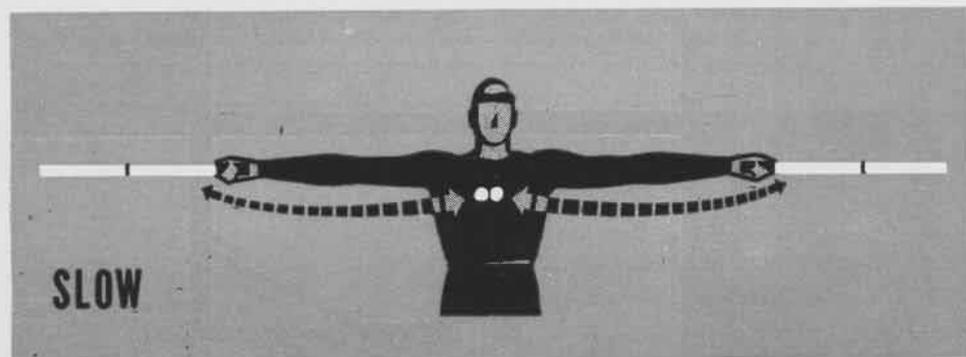
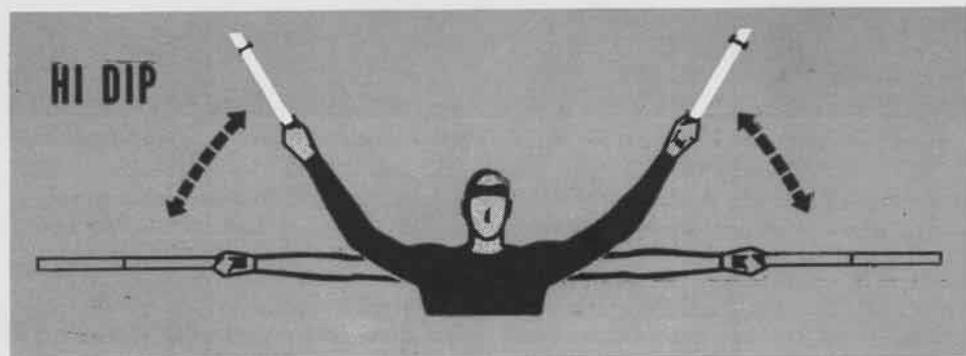
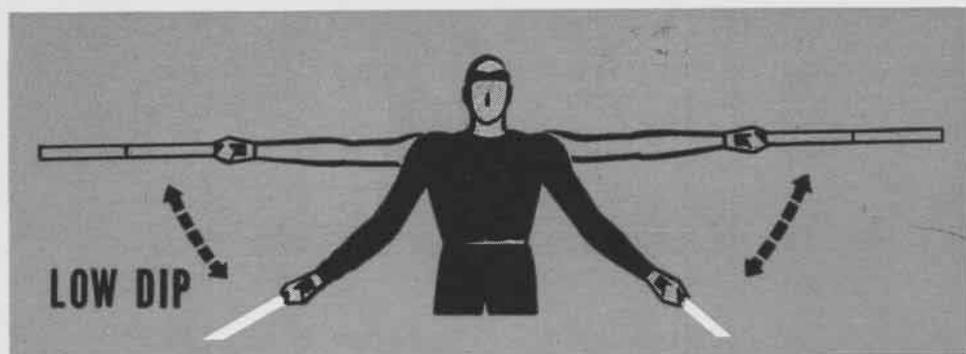
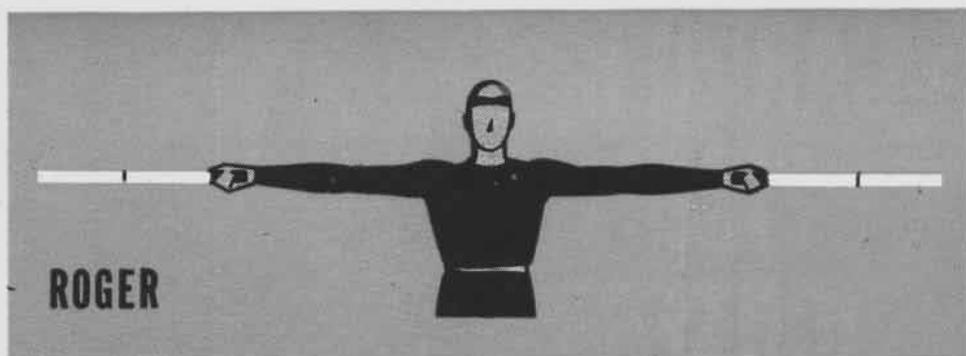
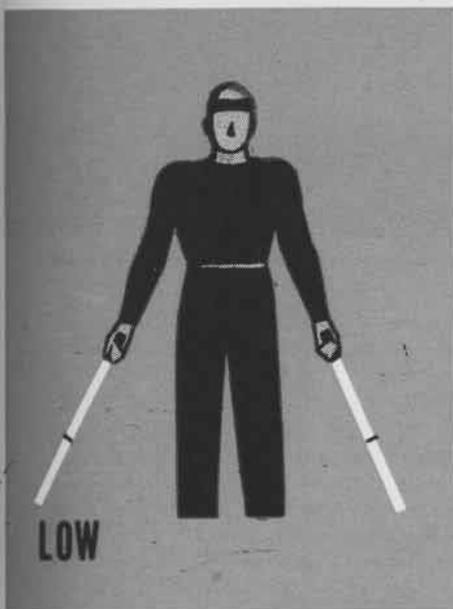
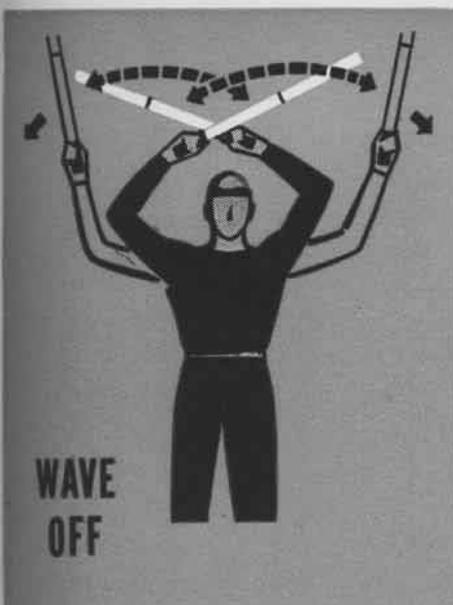
Some common errors made by pilots include over-correcting for signals, failure to answer signals or slowness in carrying them out. Coming in flat and fast is just as bad as settling too low—one can strain the arrestor gear and the other might be hard on the ramp of the flight deck and the nose of the plane.

COMING up the groove, the pilot should not have excessive altitude or pump his throttle. If he tries to rectify poor approaches by climbing just short of the ramp, he is likely to soar up at an angle over the deck and plop down hard if the signal officer decides he is not too far gone for a cut to bring him in.

On these pages, NANews presents the 13 most commonly used landing signals. Others sometimes are used in field carrier landings. These include signals to bring the cross-leg approach in or out or to show a reversed crossleg.

Naval aviation film libraries have available a confidential movie—MN-15a, *Carrier Operations—Landing Signals*.





# CARRIER FIRE FIGHTERS



FLAMES BOIL UP UNDER HELLCAT'S PORT WING FROM BURNING AUXILIARY GASOLINE TANK. CIRCLING AIRPLANE WAITS FOR CLEAR DECK

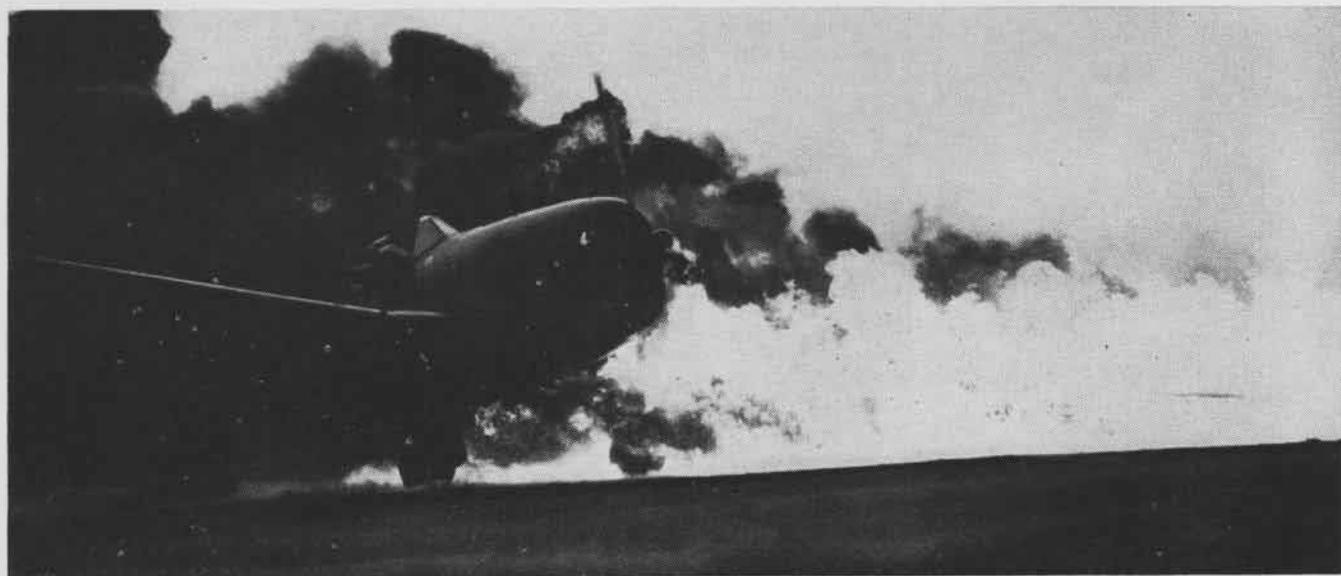
CARRIER damage control fire fighters move with split-second efficiency when airplane crash fires occur. An alert Navy photographer, on deck when the auxiliary gas tank of a landing F6F broke loose and ignited, recorded this U.S.S. *Ticonderoga* damage control party in action.

Personnel in burning planes must be rescued, fires put out and decks cleared

to take aboard waiting aircraft. Seconds count. When Fire Call sounds, damage control crews are on the job. Fire fighters in asbestos suits stand by when planes are launched or taken aboard. Hose lines are always racked and connected for instant use. In this case fire fighters were swinging into action even before pilot realized his plane was afire.

Because inherent fire hazards of car-

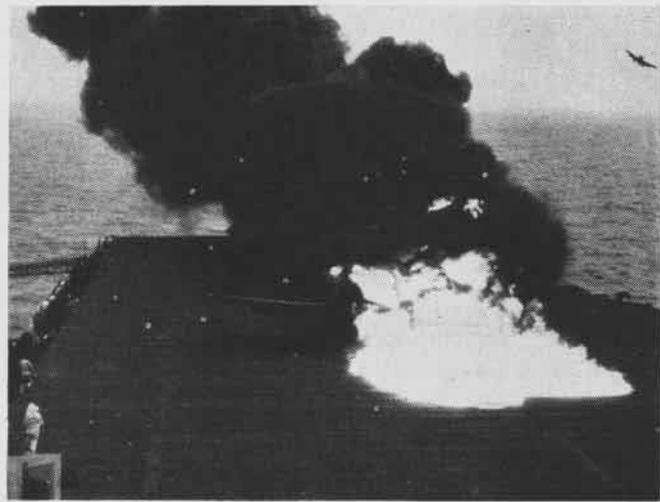
riers are fully realized, it is considered imperative that all hands receive training at Navy Fire Fighter schools, where actual fire fighting in simulated ship sections is taught. Even chaplains and doctors usually receive damage control training. Officers and men of the damage control parties receive more extensive training at one of the Navy's many shore based fire fighter schools.



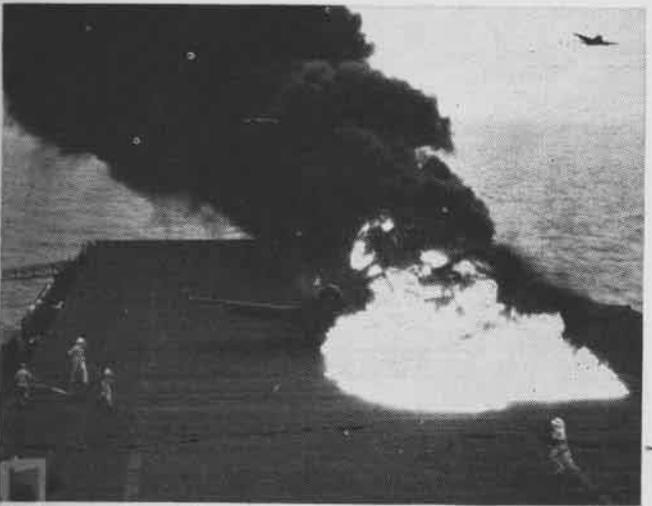
HELLCAT PILOT PLUNGES OVER SIDE OF COCKPIT AWAY FROM FLAMES AND ESCAPES INJURY. THOUGH ENGINE IS CUT, PROP STILL SWINGS



Auxiliary gas tank under F6F's port wing, torn loose as arresting gear halted forward momentum of landing plane, ignites when thrown through *Hellcat's* propeller. Flames and gasoline spray out from tank onto carrier deck, shrouding the port wing



Fire and smoke boil up around cockpit as pilot struggles to free himself and escape. Fire fighter in asbestos suit, in foreground, rushes to post. Another airplane circles overhead as damage control party swings into action to combat dangerous fire



Pilot escapes from behind starboard wing. Damage control officer, left foreground, races along deck to direct operations. One 2½" low velocity fog line, already broken out, is moved in toward fire. Fire fighters are breaking out other lines for use



Flames and smoke drift across burning *Hellcat*. Damage control parties have broken out five hose lines. The pilot still wearing flight gear, can be seen in foreground. Four hose lines now are ready for use against high-octane fed flames. No move is wasted



Seconds after tank ignited, carrier fire fighters have blaze under control. Eight lines are readied for use. On right side of deck crewmen battle blaze with high-velocity fog. In center, foam is used. Men on left play low-velocity fog stream



The fire out, crewmen push damaged *Hellcat* to one side as deck is cleared to take aboard planes that were circling for landing when fire occurred. Port wing, elevator and rudder are badly damaged. Burned-out gasoline tank lies in front of the plane

# COMBAT MAY MAKE YOU LAZY

*This story by Maj. Walker M. Mahurin is reprinted with permission from the November Air Force, as many of the points it makes are applicable to the Navy.*

HE WAS a good guy. I'd known him in England and I'd flown with him. I knew he was a fine pilot, a good flight leader and a reasonably eager lieutenant. But here he was in the States, assigned to the kind of a job he used to gripe about not having—and he was miserable. Most of the time he was sore, sore inside, and the rest of the time he did a lousy job as assistant base operations officer.

Somehow his reports, schedules, forms were always days behind; he could never be found when he was needed. After three months in this job he still didn't know all the personnel working directly under him.

What's more, the people he worked and lived with didn't like him. They resented his arrogance, his sloppiness, his I've-been-winning-the-war-and-risking-my-neck-while-you've-been-taking-it-easy-in-the-states attitude. Overseas, he had been a popular member of his group, always the center of a happy gang in the local pub. But in the States he was playing a lone wolf role, acting as though nobody around was worth his time. I'd seen him in the PX or the canteen talking to no one and looking as though he'd snap off your head if you so much as said "hello" to him.

I wish I could say he was the only one of his kind, but after I had visited a few more bases I noticed quite a few like him. And I heard hints in conversations. A base CO once remarked in my presence, "One thing I don't want any more of is guys just back from combat. We have too much work to do to take time off to pamper them," he explained. Well, I resented that.

HOWEVER, I knew that this CO was an honest, hard worker who meant nothing spiteful. Not that I hold any brief for those in the States who are obviously in no hurry to fight although they were trained for combat duty. There are guys like that and there are people who are just plain reluctant to give a combat man a chance to adapt himself—co's who don't want to disrupt their nice, neat little outfits for anybody.

However, most of the men who haven't been overseas are kept here because they have particular specialties that make them more valuable behind the lines than in them. The CO who made the remark was this kind of man—one of the best—and I thought about what he said. Then, when I got my new assignment and tried to settle down in a job I found there were certain tendencies in me that I had to fight. I can't swear honestly that I've beaten them all yet, but at least I can tell you men still over seas what to be careful of and I

can give you my ideas about our trouble.

First, in combat jobs, no matter how many hours they give us on the ground gadgets and no matter how many lectures S-2 arranges, most of us don't have enough to do when we are not flying. Particularly in theaters like the ETO, where weather can keep you on the ground sometimes for days and days, a guy gets into the habit of lying flat on his back a good deal of the time. We became students of the horizontal but we know it's all right. We rationalize it to ourselves by saying we risk our necks and deserve plenty of leisure when we are not operational.

Well, in a combat zone, that attitude is all right. Fighting is what we're there for and if we do our fighting OK that attitude makes sense. But back in the States where there isn't much dying tomorrow or even the next day, it gets a little silly. The habit of thinking of yourself as a kind of superman who deserves the best the world has to offer without working for it persists—but the reason is gone. It's foolish then for us to lie on our backs and pretend we're winning the war just by wearing ribbons.

ANOTHER thing, we sometimes have chips on our shoulders for men who have been in this country sweating out gasoline rationing while we've been trying to de-luft the Luftwaffe. We don't realize that a lot of these guys are honestly as sore as boils

understand the problems, into training and administrative jobs should mean that those jobs will be done better.

But obviously this entire plan falls apart if even a small percentage of the returnees are uninterested or are lazy. Their attitude will work a hardship on all of us.

I'M TRYING to lay off preaching, but, as I see it, those of us who meet this problem have just got to settle down, grit our teeth and go to work. When we were aviation cadets we had to do a lot of dull, routine, irritating things. We wanted our wings and we took what was dished out in order to get them. Now we're big boys and many of us have our wings plus a few Jerries or Nips. And we've got to go to work again.

This time there isn't a pair of shiny wings hung out ahead of us like a frankfurter in front of a bulldog, but there's plenty to be gained, nevertheless. As for the ground men with overseas stripes, they can write their own analogies. This goes for them as much as for aircrew members.

The kind of work we can do—those of us who have "had it"—is showing up at many airfields in the States where returnees have rolled up their sleeves and have performed to the best of their abilities.

When you're overseas you hate to think that somebody at home might be doing a bad job because he read someplace that



COMBAT MEN FREQUENTLY HAVE TROUBLE FILLING BILLETS IN THE STATES. ONE PILOT WHO DOWNED 21 NAZIS TELLS WHY

Illustration by T/Sgt. D. Brockell

because they've been stuck in this country when they wanted to see action.

Well, it's their chance now. If there's any real justice in the AAF redistribution program or in various personnel rotation projects, combat men have to be able to take over jobs at home while those who have been here all the time go out to meet the Nips.

This should be a good thing. It gives people with lots of missions behind them a chance to settle down and live forever, free from the dangers of combat. It gives men who have been griping their heads off in Kansas a chance to collect a couple of stories to tell their grandchildren. And it should be good for the AAF. Getting people who know what it's all about, who

the war is over. Well, no matter what the newspapers say, we know there's plenty of war still to be fought. Those of us who have tangled with the enemy should know that better than anybody else. Yet the amazing fact is that many of those returned combat men are the worst offenders.

When you return you will be well treated, probably will have your picture taken and get a nice long leave. But after the shouting is all over you will find there's a lot of work to be done and you're expected to help do it.

In other words, you still have a war to fight. Sorry, but that's the gen. Combat may make you lazy. If you know that and watch it, maybe you'll have an easier time than some of the rest of us. Good luck.

# TECHNICALLY SPEAKING

## Lip Mike Frees Hands of Pilot

To provide hand-free communication at non-oxygen altitudes, a new-type lip microphone now is under procurement and soon will be available to the Fleet.

The microphone has noise-canceling properties that make it relatively insensitive to sounds originating some distance away, such as engine noise, exhausts, propeller sounds and other

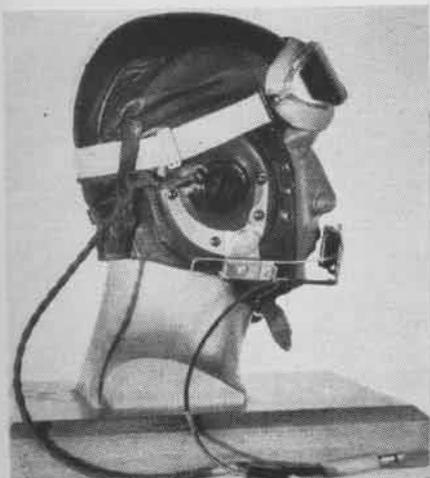
from take-off to landing, removed entirely by sliding boom from bracket.

Extension cords used with this new-type microphone are the same as those used with the mask microphone CX-41/AR with switch or CX-42/AR without switch. Study of a simplified installation for all types of planes now is under consideration.

It is not intended to remove the T-

The signal can be changed from white to red or vice versa by a flick of the wrist. The new signal device is much faster than the flag signal method previously used. From Fly II and Fly III it is seen more readily than a flag.

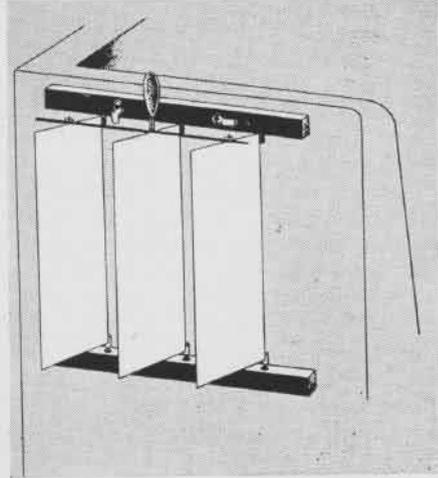
► **BuAer Comment**—The device seems to be a very good one to replace red and white flags which are hard to see by Fly II and Fly III because of the wind mak-



PROFILE VIEW OF LIP MIKE IN USE POSITION



LIP MIKE IN REST POSITION WITH SWIVEL UP



FLICK OF WRIST CHANGES NEW SHUTTER SIGNAL

disturbances created by an airplane in flight. It is, in this respect, superior to the hand-held microphone.

The lip microphone (M-5A/UR) is supported by a sliding boom and bracket fastened to the helmet or headband earphone socket by split rivets furnished with the kit. For the rest position the boom may be swiveled up or down as the wearer wishes. Either movement requires that the boom be pulled outward its full length to clear the forehead or chin and nose without bending the supporting structure.

When returned to the use position, the microphone is brought close to the mouth by sliding the boom to an adjustable stop by thumb and finger tabs. The stop must be pre-set for the individual wearer so that the microphone lightly touches the lips. Position is highly important. More than one-quarter inch separation between microphone grid and mouth results in marked speech cancellation, and poor intelligibility.

At oxygen altitudes, the mask microphone must be used. The low altitude boom microphone then can be swung to the rest position or, if mask is used

38 type hand-held microphone as standard equipment, although in many instances the jack normally used for this microphone may have to be used with the CX-41/AR extension cord for the lip microphone.

The M-5A/UR microphone should be obtained as personal gear rather than as radio-radar equipment. To allow ready use of one microphone on more than one helmet or headband, additional brackets should be obtained.

## Fly Control Develops New Signal

U.S.S. MAKASSAR STRAIT—A new and effective signal device for Fly Control has been developed aboard this ship. One side of a shutter device is painted red and the other side white. The device replaces the white and red flags.

ing them trail fore and aft. A duplicate device should be installed on forward side of fly control for catapult officer to see.

## Generator Fuse Troubles PBY-5A

VPB-61—An investigation of recent troubles in generator circuits of PBY-5A planes assigned this squadron disclosed the Buss type fuse, NAF 1034-6-80 installed in the generator circuit to be the source of difficulty.

Apparently when fuses were manufactured excess flux used in the soldering temperature was excessively high, causing crystallization and oxidation of solder. The heating effect of current carried in service by the fuse seems to further the oxidation process and forces excess flux to the surface, forming a copper colored scale. The scale either stops the flow of current or causes a pulsating direct current. A continuity meter test will show fuse to be in order.

► **BuAer Comment**—If trouble in generator circuits is due to faulty fuses as stated in this report, it is recommended fuses be removed and circuits made continuous. Elimination of generator circuit protection in naval aircraft is considered desirable by BuAer and is now being accomplished.

**Carriers**

LET NANNEWS  
HEAR FROM YOU!



# OIL DRAINAGE

**T**O DRAIN or not to drain engine lubricating oil is the question asked by all aircraft engine operators. Determination of the effect of the engine oil drain interval on engine maintenance requirements and upon lubricating quality and stability requires exhaustive laboratory and operational service tests. Evaluation of the effect of increasing the oil drain interval is complicated by development of new airplane-engine combinations with increased engine ratings and higher performance.

Results of tests conducted at NAS San Diego during 1940 using F2A, PBV, SBD and TBD airplanes and doubling the previously authorized oil drain interval, resulted in extension of oil drain intervals to 120 hours for VR, VJ, and VPB type airplanes and to 60 hours for other types.

For the past year, several service tests have been under way at operational training bases in Florida and at primary training stations in the Midwest area to determine the effect of a "no oil drain interval" on engine lubricating oil characteristics and general internal engine condition.

Samples of used lubricating oil were taken at periodic intervals from the test airplanes which had the oil change at 60-hour intervals and also from airplanes which were operating on a no-oil-drain interval. Results of the analysis of over 500 used oil samples indicated that there was no consistent difference in used oil properties. As a typical example, samples of oil taken from R-2600-8 engines installed in TBF-1 airplanes after 650 hours of no



oil drain evidenced no change in viscosity, the amount of sediment, and general lubricating oil properties and compared well with those of samples obtained after 60, 120, 360, etc., hours of engine operation.

The internal condition of those engines which had operated on a no-oil-drain interval were compared to the condition of similar engines which had

## Navy Prolongs Time Oil May Be Used in Aircraft Engines; Tests Show It Has Long Life

the oil changed after each 60 hours of operation. No consistent difference in engine deposits, piston ring wear, combustion chamber deposits, or conditions of the valves could be determined. No malfunctioning of the engine or lubricating oil system was reported for any of the test planes operating on a no-oil-drain interval.

From data obtained during conduct of these tests, it appears that new oil properties are altered rapidly as engine time is accumulated up to 30-60 hours of operation. At such time used oil characteristics stabilize at reasonably constant values. In some cases, as engine operating hours approached the



limit, a slight improvement in these used oil characteristics was noted.

It is because of high normal oil consumption, and frequent additions of stable lubricating oil as make-up oil, that in actuality the engine oil in the airplane is "changed" approximately twice during the 60 hours of operation between present oil changes. A balance between rate of new oil addition and rate of contamination of engine oil in the oil system is established, resulting in stabilization of used oil properties.

**B**ASED on results of these service tests and numerous tests carried out at Aeronautical Engine Laboratory in Philadelphia, together with information on general service performance of present lubricating oils, Technical Order 98-43 is being revised to increase oil drain intervals specified for various types of naval aircraft. Revision of this technical order will permit commanding officers to modify specified drain intervals in the event such is

found necessary during unusual operating conditions. The following general comments in this regard may be of assistance to operating personnel.

1. Operation of certain training-type airplanes during cold weather may result in accumulation of water within the engine requiring frequent oil changes.



2. Operation from areas where dusty field conditions are encountered or in geographical areas where conditions are such that the atmosphere contains high concentration of dust particles will result in accumulation of dirt in the oil and corresponding high engine wear. Under such conditions, oil changes should be made at periodic intervals.

3. When the oil dilution system is first employed on an engine which has been in operation, solvent action of the fuel will tend to loosen sludge previously accumulated within the engine and oil changes should be made.

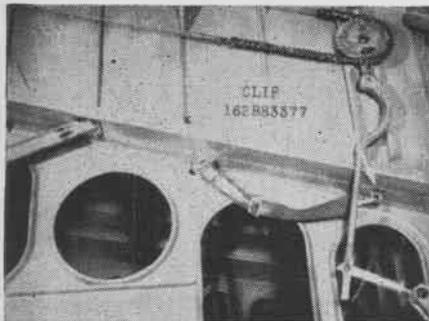
The best general information available indicates that if oil dilution is carelessly or infrequently used, sludge difficulties will be encountered, whereas if continually used during cold weather periods, little difficulty will be experienced with sludge formations. Similarly the procedure of flushing the engine with a mixture of lubricating oil and gasoline may also loosen these sludge deposits which may result in subsequent oil strainer collapse after a short period of operation with new oil. Such practice is not recommended.

4. In general, additions of different brands of Navy symbol oil as make-up oil to tanks of a particular aircraft should be avoided, since such mixing of different "brand name" oils may possibly result in increased sludging of the oil. However, no specific information is available to indicate that such practices would result in serious operating difficulties.

5. Use of re-refined or reclaimed oil for flight purposes by any naval activity is not authorized. Re-refined specification oil to flush out compounds used for engine preservation in storage is used as ground run-up oil by naval contractors as a special conservation measure. Presence of any re-refined Navy symbol oil branded as specification oil in any naval activity should be communicated to the Bureau of Aeronautics.

## Relocate PBM Safety Strap Clip

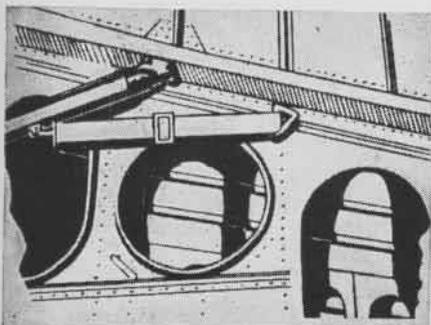
Model PBM-5 airplanes are being delivered currently with bomb-bay door safety strap stowage clip removed from the aft spar and relocated on the channel brace. The relocation was found desirable to eliminate chafing against the under side of the bomb-bay rear



SAFETY STRAP STOWAGE CLIP ON AFT SPAR

spar by the bomb-bay door safety strap when the doors are open in flight.

Strap stowage clips, part No. 162B-83377, located on the aft spar in each bomb bay, are relocated on the channel brace. Two holes are drilled with a



STOWAGE CLIP IN PLACE ON CHANNEL BRACE

#10 (.1935) and the clip is mounted in place with screw, part No. AN515-DD10-8; nut, part No. AN365-D1024; and washer, part No. AN960-D10.

## Oil Cap Lock Cuts Down Leakage

VPB-44 — In early months of this squadron's operations, several patrols and one trans-Pacific flight were forced to return to base because of loosening of the oil cap, with a resulting drain of oil. To combat this hazard an oil cap lock was devised.

During the time this lock has been in use, a period covering several hundred flights, the squadron has had no recurrence of the trouble. The lock nut is used to lock the snap on the oil and gas cap locking device in the down position.

► *BuAer Comment* — PB5-5 Change No. 154, PB5-5A Change No. 145, and PB5-5B Change No. 36, issued 13 March 1944, reroutes the oil line so that oil returning to the tank is not discharged on the bottom of the filler cap. Accordingly, loss of oil and possible forced landing of the airplane will not occur because of some mechanic's failure to secure the filler cap.

# SCREEN NEWS

**Horrible example:** Now comes a talking slide film spotlighting the importance of the enlisted man in aviation quartermastering:

SH-4336 *The Aviation Quartermaster Series—Wilbert* (Restricted), 34 frames, 8 min, in color

Dedicated to the proposition that it takes a dope to catch a dope, the film uses a dubious character called "Wilbert" to ridicule inefficiency, laziness and stupidity in performance of vital aviation supply duties. Wilbert is a combination of all wrong-way guys who ever unconsciously sabotaged a supply line. His portrait is drawn and quartermastered with considerable humor and effectiveness.

Wilbert snores through lectures, plays bull-in-a-china-shop with fragile packages, invents his own "streamlined" system for labeling materials, is allergic to work and partial to Superman comics. His worried superiors send him from job to job, but give up when he fails to safeguard vital supplies during enemy action. Working his way down through the ranks, Wilbert finally comes to rest in a permanent assignment—releasing 1,000 potatoes a day for active duty.

They say that Wilbert knew all the rules in the supply book; he had to, to get around them.

Other films get down to serious business:

SH-4337 *The Aviation Quartermaster Series—Storing and Packing of Aviation Material* (Talking slide film, restricted, 61 frames, 11 min.)

SH-4266 *Procurement of Aviation Material* (Talking slide film, restricted, 47 frames, 10 min.)

MA-4504 *Aircraft Hoisting* (Motion picture, restricted, 25 min.)

**Keep cool.** As every aviation mech knows, the oil temperature regulator won't work right unless the oil cooler tubes are in good operating condition. Hence the film:

MN-4185b *Replacing Oil Cooler Tubes* (Unclassified, 11 min., revision of MC-4185a)

**COVERS:** Testing and replacing oil cooler tubes in the oil temperature regulator.

**Unscrambled Lights.** When confusion of unstandardized lights at airports reached the point where pilots began to wonder whether they were approaching a landing strip or Times Square, the situation got action. What was done about it is effectively demonstrated in the colored slide film:

SN-3734 *Setting 'Em Down at Night* (Unclassified, 27 frames)

The film presents standardized colors, layouts and equipment currently used in airports to help homing flyers set 'em down on the right runway. **SHOWN:** permanent beacons, lighted wind indicators, obstruction lights in approach and take-off zones, brightness control, lights with restrictive hoods, movable reference beacons.

To make sure all pilots get a gander at this practical picture, the slide film is being shown in ready rooms on continuous-opera-

tion projectors such as the Visual Quizzer. Showings also are being arranged for Operations personnel and maintenance crews.

**Cat's Eyes.** Seeing things at night has progressed from a peacetime nightmare to a wartime science. Additional data for those who scan the skies at night is contained in:

G.I. Movies Weekly #34—*Release on Night Vision* (Unclassified, 6 min.)

**DISCUSSED:** principles of seeing in the dark, comparison of eye construction with camera, effects of looking at light, preparation for night scanning by use of red light and goggles, method of scanning instead of looking directly at an object.

**What goes there?** As long as itchy "trigger fingers" get ahead of good recognition sense, tragic results will follow and recognition films will continue to play their vital role as aids to memory:

MA-2286a *Recognition of the CG-4A Glider* (Restricted, 6 min.)

Stop frames are used to emphasize the blunt nose, long straight wings mounted high and braced with struts, capacious fuselage, high rounded fin and rudder, and the tail plane which is a miniature of the wing. Use of the glider is briefly discussed.

MN-3197i *Aircraft Recognition Test No. 9—U. S. Navy, Army and Japanese aircraft* (Restricted, 21 min.)

MN-3197j *Aircraft Recognition Test No. 10—U. S. Navy, Army, British and Japanese aircraft* (Restricted, 21 min.)

## Confidential Films Shipped:

MA-4680 *Target for Today* (103 min.)

MN-1006f *Fighter Direction Series—The Radarman* (32 min.)

MN-1006k *Fighter Direction Series—Typical Intercepts—Reconnaissance* (9 min.)

MN-1006L *Fighter Direction Series—Low Visibility* (11 min.)

SN-2732a *AN/APS-3 Radar—Typical Installations* (50 frames)

SN-2732b *AN/APS-3 Radar—How to Work* (42 frames)

SN-2732c *AN/APS-3 Radar—How to Interpret Scope Patterns—Part I* (69 frames)

SN-2732d *AN/APS-3 Radar—How to Interpret Scope Patterns—Part II* (60 frames)

SN-2732e *AN/APS-3 Radar—Beacon Homing and Summary* (57 frames)

**Where to get 'em:** The above films are being distributed to Aviation Film Libraries at:

ComAirPac	NAS Seattle
NAB Navy #140	NAS Alameda
NAB Navy #926	NAS San Diego
Navy #3233	NAS Norfolk
ASD Navy #3205	NAS Patuxent
Hedrons 4, 10, 12, 16, 17	NAS New York
FAW 7, 15	NAS Quonset
NAOTC Jacksonville	NAS Atlanta
NATB Pensacola	NAS Clinton
NATB Corpus Christi	NAS Moffet
NATEC Lakehurst	NAS Navy #115
MCAS Cherry Point	NAS Navy #116
MarFairWestCoast	NAS Navy #117
MCAS Navy #61	NAS Navy #720
	4th MBDWA

Attention is called to new libraries at NAB Navy #926 and Navy #3233.

# OVERHAUL

## Centralized BuAer Scheduling

**B**uAer's problems in figuring workloads of A&R departments are complex and difficult. After a continuous study of new deliveries, attrition, training requirements and other factors, DCNO furnishes BuAer's A&R department a reconditioning or overhaul requirement for each type of aircraft and engine.

Activities required to overhaul a specific type of aircraft or engine, as well as accessories and other components, must be properly designated. Convenience of location must be considered in making designations. It would not be desirable or possible to designate NAS BUNKER HILL as an overhaul point for PBV aircraft.

► It is desirable to designate an overhaul activity convenient to the contractor's plant, such as NAS SAN DIEGO for the FR-1. Because of the necessity of utilizing facilities of all naval air stations to the fullest extent, geographical location, in some cases, is entirely disregarded.

## A&R Facilities Determine Assignments

Size and capacity of the A&R facility are highly important in determining designations. It is usually desirable to give an overhaul activity both a large and a small plane to work on, since most A&R shops have one section of assembly floor with a large span and height and another section of small span and height.

► Capacity of individual stations, feeder shops and personnel available must be considered carefully in assigning overhaul schedules to the various A&R Departments.

## Experience of A&R Personnel Important

Number of personnel available and skills they have developed must be considered. Organization of the activity, executive staff available and backlog of skilled workmen that can be drawn upon in case of expansion, all are important.

► The know how of an individual activity

is a factor in designating engine overhaul assignments. What an activity has done in the past should be considered before designating it as an overhaul activity for a new model aircraft.

## Transportation Is Obstacle to Backlog

Maintenance of a proper and usable backlog at each activity is a difficult and ever present problem. Transportation is the greatest obstacle in maintenance of backlog. Because feedback of aircraft is subject to many variable factors, stations in



SHOP MECHS ASSEMBLE AN OVERHAULED ENGINE

the continental limits suddenly may find themselves out of aircraft or engines. It is virtually impossible to maintain a steady flow of work to A&R departments. Feedback backlog fluctuations are reflected immediately in A&R loads. It is highly necessary that equipment be moved back where it can be worked on.

Getting the work done is most important of all scheduling functions. An analysis of weekly and monthly reports of work accomplished by various continental activities is made. Weak spots are noted immediately and steps are taken to bolster

up poor production at individual points. Reports are analyzed in respect to backlog, and necessary readjustment or redistribution are made continually.

► Reports of spares, equipment or personnel shortages responsible for drops in production, with suggested remedial actions, are immediately passed on to cognizant sections, branches, or bureaus.

## BuAer Establishes Maintenance Offices

Continental A&R departments are divided into Eastern, Central, and Western districts. There is a district desk in BuAer for AIRFRAMES, ENGINES, LIGHTER-THAN-AIR, ACCESSORIES, ORDNANCE, RADIO-RADAR, and INSTRUMENTS. These desks make every effort to see that their districts get out the work. AN OVERALL LIAISON between the three district desks is maintained so a complete picture is readily available at all times. BuAer maintenance offices are maintained at San Diego for the western district, at Pensacola for the central district, and at Norfolk for the eastern district. Plans are being formulated for additional offices within districts to facilitate liaison between BuAer, fleet and training commands, and assembly and repair departments.

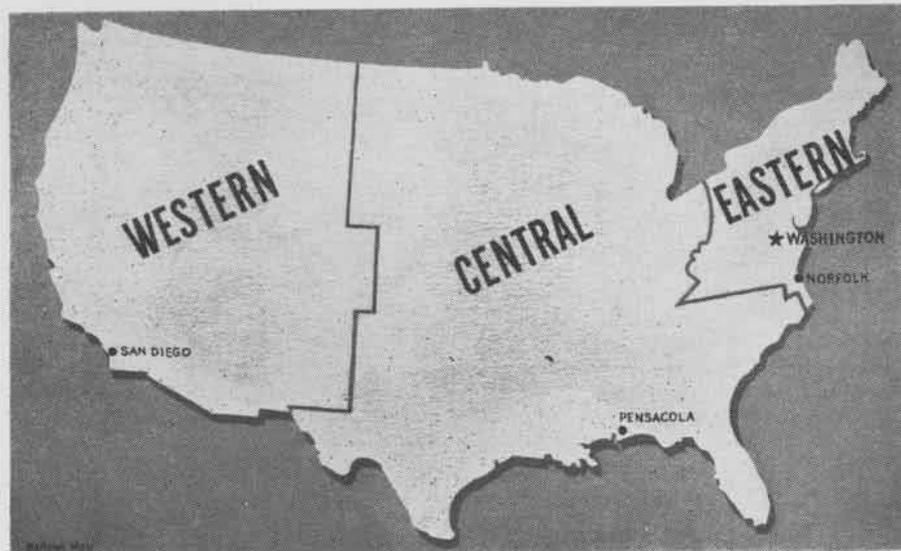
► Facilities of district offices always are available for furtherance of relations between field activities and BuAer.

## Section Governs Manufacturing Control

Another section in BuAer, with manufacturing control over A&R departments, receives all requests for manufacture resulting from nonavailability of parts through supply channels. Requests are carefully screened and the activity best suited to do the work is given the job. Manufacturing control is necessary to insure that every possible attempt has been made to procure parts before they are made in an A&R department.

► Once a station has been set up to make a jugged or highly tooled part, it is desirable to have this part always manufactured there. In some cases where manufacturing is simple, an activity that requests a part later may be designated to manufacture the item for itself.

Final benefits of centralized BuAer scheduling and manufacturing control will not be apparent for many months. Results to date are encouraging. With cooperation of all concerned, centralized control will go a long way toward alleviating the maintenance problem that is now confronting the entire naval aeronautical service.





Life vest must fit like this, inflated. If the collar pulls head down it is too tight



His life vest fits correctly. Crotch strap requires more than 5" of slack, deflated



If this man were in water he wouldn't be able to swim. Crotch strap is too tight

## It's a Life Vest When It Fits

**T**HE TIME for pilots and aircrewmembers to adjust their life vests to fit is the day gear is drawn from the storeroom. It's too late to make adjustments in the water with life vest inflated.

Survivor reports from combat areas indicate, in alarming frequency, that flying personnel do not properly familiarize themselves with their life vests. At the time a life vest is issued the wearer immediately should take these three steps to insure a fit. The suggestions can save his life:

1. Inflate vest to maximum capacity through the two oral tubes.
2. Put on inflated life vest, adjusting all three straps to fit comfortably.
3. Be sure side of vest to which straps are attached is next to wearer's body.

If a change is made in the weight or amount of clothing worn during flight

### AVIATION PERSONNEL MUST ADJUST GEAR ON THE DAY IT'S DRAWN FROM STORES

operations, personnel concerned immediately must make allowance in life vest adjustments to insure a proper fit.

A life vest that fits comfortably uninflated, when filled with air can render a strong swimmer virtually helpless in the water. "Almost cut me in two," reported one survivor who inflated an improperly adjusted life vest. Though a strong swimmer, this man was able to take only a few strokes. Chafing can result if vest is not properly fitted.

Because a loose strap had fouled on

an instrument light, slowing his escape, one *Corsair* pilot, in his survivor report recommended wearing the waist, crotch and back straps fitted snugly. It is natural this pilot should remember he was pulled six feet under water while disengaging the loose strap. Had he followed his own advice, his predicament might have well been more serious.

**L**IFE VESTS must be inspected and tested periodically. It is the wearer's life that will be saved or lost. Connections should always be carefully checked for leaks. Oral inflation valves are not self-closing. Except during actual inflation by mouth, these valves should remain in a closed position. If not closed, gas will escape when the lanyards are pulled in any emergency.

# RAPID PROCESSING OF FILM

**T**WO DEVICES to facilitate more rapid processing of film and to permit better assessment of gunnery runs have been developed at NATB Pensacola to keep pace with rapid expansion of the gun camera program.

First of these is the gun camera film feeder. The film feed-in and the film assessing devices have been operated successfully in the cv specialized fixed gunnery training program and are being improved on the basis of experience.

Continuous development of film in a lighted room is permitted by the film

trough. The brake then is released and film flows through trough into reservoir.

While the magazine is being changed, and flow through the trough is at a standstill, the Houston developer is fed from the reservoir in the big cabinet. This reservoir consists of a series of rollers mounted on two shafts, the upper shaft moving vertically in a five-foot frame. The rollers, six in each shaft, are threaded with film, moving from left to right.

When flow from the trough into the reservoir is stopped to change maga-

zines, the developer draws film from the reservoir by taking up the film between the two shafts, pulling the upper series of rollers toward the bottom. When the brake has been released and a new roll of film feeds into the reservoir, a counterweight outside the cabinet draws the upper series of rollers back to the top of the cabinet, still without halting flow into the developer. And thus the reservoir is filled to capacity, awaiting the next change of magazines.

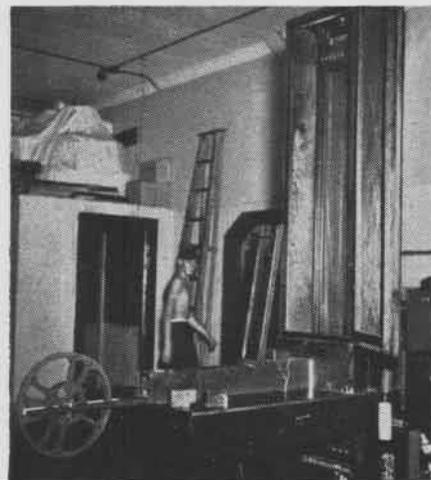
The only modification to the KIA is removal of the brake where film formerly fed from the flange into the machine and tightening of the first two rollers in the first tank.

The second development is in gun

camera film assessing. The film assessing device is designed to permit instant analysis of range, firing angle, mils lead, and line of sight, at any point during a gunnery run, and to present this information to flight students.

Processed film is projected through a Mk I Film Score Viewer. The viewer is mounted above the table top in a six-inch platform to permit rotation of the film on the screen by the erector prism. A wire model sleeve 3.2" by .45" (1.72), inside measurement, is mounted vertically on a movable standard.

The projected target sleeve is turned to a vertical position by the erector prisms and the wire model target sleeve is moved to a point on the table where



OIL CAP LOCK PREVENTS LUBRICANT LEAKAGE



FILM ASSESSING GEAR AIDS GUNNERY STUDENT



CABINET PERMITS DEVELOPING IN LIGHT ROOM

feed-in device designed to give faster service and to provide a more extensive gun camera program. The device consists of a five-foot light-tight cabinet which acts as a reservoir for feeding a constant flow of film to the KIA Houston Developer; a long, light-tight trough which feeds film to the reservoir; and a small light-tight box in which exposed film from the AN6 magazine is inserted.

The small box is constructed so that when the film has unwound, contacts are made that energize a solenoid brake in the trough and halt the flow of film, leaving a small strip protruding from the trough. A new box containing another magazine of film then is inserted, and the lead on the new magazine is stapled to the strip extending from the

its shadow encompasses the projected sleeve in width. The wire model sleeve is rotated in its vertical plane until the length of its shadow coincides with the length of the target sleeve. When the wire model sleeve completely encompasses the target sleeve in width and length, then range, firing angle and mils lead may be interpreted readily.

Range is interpreted from the width of the sleeve and is read from the calibrations on the table opposite the small pointer on the moving base of the assessing device. Firing angle is interrupted from the length of the sleeve and is read from the 90 degree to 0 degree dial opposite the model target sleeve. Mils lead and line of sight are interpreted by inspection of the frame.

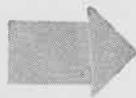
The second development is in gun

## ATOLL MAINTENANCE

Beneath the blazing sun of a shell-torn central Pacific isle, its palm trees shredded by explosives, a CASU mechanic works to keep the power plant of a Navy *Liberator* in fighting trim. Lives of its crew depend on his efficiency. Poised on the coral landing strip in the

distance are many other PB4Y's being readied for strikes against the Japs on nearby atolls. Maintenance of aircraft at advanced bases is in the province of Carrier Aircraft Service Units, working with Acorns which furnish the materials to make such bases as self-sustaining as possible. Major overhauls naturally cannot be made by small operations, but mechs can perform many tasks re-

quired to keep the Navy's bombers flying from the base. Ingenuity of the men often makes up for the lack of precision tools needed to perform a job. Size of the giant Pratt & Whitney engine compared with the mech portrays the teamwork required of man and machine, the big genie obeying the dictates of his master.





### Olathe Makes Rudder Horn Tools

NAS OLATHE—Installing rudder horn reinforcements on N2S aircraft has been turned into a one-man job at this activity because of a new former and pliers developed by two machinist mates. In



BLANKS CAN BE INSERTED IN TWO POSITIONS

approximately 15 minutes the blank can be formed and placed on the horn ready for welding at a saving of more than 50 percent in man-hours of labor.

The blank can be inserted in two different positions on the former to fit either right or left hand reinforcement. The tapered pliers also fit either horn, holding metal snugly on leading edge without pulling or forcing. Since no heat has been previously used, perfect rosette welds can be achieved.

[DESIGNED BY H. L. NEEDHAM, AMM3c AND J. A. REINS, ACMM]

► **BuAer Comment**—It is believed these easily constructed tools can be of service to other activities doing similar work.



TAPERED PLIERS HOLD METAL SNUGLY TO HORN

### Fuel Pump Jig Saves Man Hours

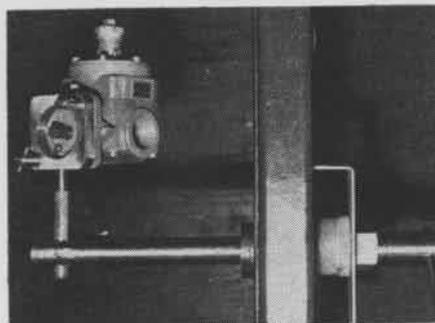
NAS PEARL HARBOR—A fuel pump assembly jig developed by an enlisted man under the Navy's beneficial suggestion program, has saved many man hours at this activity. The jig, by replacing a conventional clamping jaw

vice, eliminates damage to fuel pump housings and burring of gasket surfaces.

Use of the jig eliminates any possibility of damage during assembly. Once the fuel pump is mounted on the jig it can be completely assembled and safety wired without removal from plate.

The jig incorporates an upright shaft protruding above the bench top and fitted through a sleeve extending below the bench. On the lower end of the shaft, below the bench, is the tension handle to control rotation of shaft. That portion of the shaft extending above the bench is drilled to receive the mounting plate arm. The arm rotates through an arc of 360°. A locking stud is provided to secure the plate in any desired position. The idea may be easily adapted for use in assembly of other small base accessories. Engineering plans may be procured from the Beneficial Suggestion Committee, NAS Pearl Harbor.

[DESIGNED BY CLYDE R. SHARROCK, AMM 1c]  
► **BuAer Comment**—The jig is a simple device for holding engine driven fuel pump and should make it easy for personnel to work on pumps. The jig further reduces



NEW JIG HOLDS FUEL PUMP OFF OF BENCH

possible trouble due to dirt that may be accumulated on a work bench.

### MOTG-81 Designs Preserving Unit

MOTG-81—This Marine Group has fabricated engine pre-oiler and preserving oil and paralkatone units.

The engine pre-oiler consists of a cart and cradle made of 2" lumber 60" x 36" x 39". The cradle is cut to fit an ordinary 55 gal. drum. It is mounted on four swivel castors for maneuverability. Handle attachments are fitted at both ends and unit is equipped with handle.

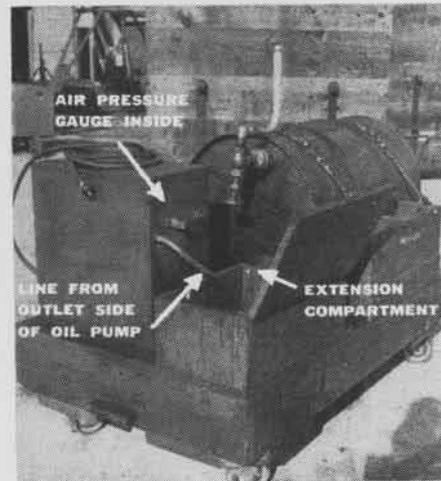
A motor and pump are covered with metal cover to exclude dust, dirt and moisture. This keeps the inside of the unit free from all harmful grit during the pre-oiling operation.

Fittings are made for the ordinary 55 gal. drum. The top fitting has an air vent attached with a double thickness of fine wire mesh screen. When not in use, the vent line is turned down and the gate valve closed. The lower fitting consists of a gate valve with line leading from the valve to the suction side of the pump via the metal cover.

The unit utilizes a 1/3 hp. motor

turning 1725 rpm. and has an oil gauge registering up to 300 lb. A non-aircraft geared type oil pump is attached to the motor. The unit will pre-oil an R-2600 engine in approximately five minutes.

The preserving oil and paralkatone

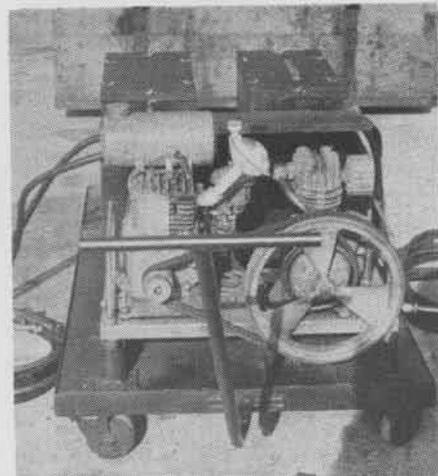


ENGINE PRESERVING UNIT SERVICES PBJ CRAFT

engine preserving unit consists of a cart manufactured of 3/16" angle iron frame gusseted at the four corners with 2" wood deck 50" x 30" x 28" on which is mounted all of the equipment. The unit has four full swivel castors to allow for maneuverability. Handle attachments are fitted at both ends.

Equipment consists of one small portable gasoline engine driven air compressor Model 518D with a gauge recording up to 300 lbs., two standard ammunition boxes with metal liners and a box for hoses and guns.

The box to hold hoses and guns is



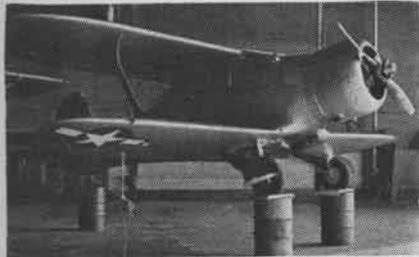
THIS UNIT PRE-OILS AN ENGINE IN 5 MINUTES

mounted between the oil tanks and air compressor. Two standard ammunition boxes with fitted leak-proof metal liners are utilized for oil tanks. One tank is to hold preserving oil and the other paralkatone. Each of the two guns has two lines from compressor and preserver.

## Drums Lift Plane Above Floods

NAS ANACOSTIA—When threatened with flooded hangar conditions last fall, the engineering department of the station improvised the "airplane on a drum" method of protection from high water.

With help of a crane car capable of raising light transports, 25 such planes (GB's, GH's, JRC's, one JRF) were safely placed on water-filled oil drums in 2½



GB PERCHES ON OIL DRUM ABOVE FLOOD LEVEL

hours. High water failed to materialize.

## Black Lines Promote Range Safety

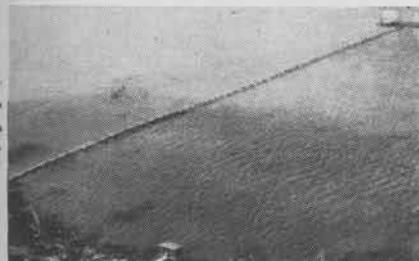
NAS MEMPHIS—T-shaped markings consisting of two-inch black lines have been painted on the deck in the individual firing positions of the indoor gunnery range. These markings serve to restrict students properly to the rear of the booths, thus minimizing noise and confusion, and are expected to further ideal safety conditions.

The intersection of the lines serves as a guide in correcting stance of the individual student, for a glance at the lines suffices to show relationship between foot position and target.

## CASU Boresights On Water Range

CASU-13—To provide the best in boresighting, a 250-yard range was constructed by this activity over water. It was necessary to set the frames in water just off shore because of lack of space on the island. The water also gave the added advantage of unrestricted range for test-firing the boresighting.

The entire project was constructed from scrap of all kinds, such as packing



CATWALK TO SCREEN FLOATS UPON FUEL DRUMS

box wood and fuel drums. Piling for the frame platform and catwalk was set in drums filled with coral. Drums also were used for the pontoon bridge over the channel between shore and screen.

# AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

## Additional Chemical Tank is Available

One Army type gravity flow airplane chemical tank, the Mk 10 Mod 0 was described in NANews, 1 August 1944. Another such type tank, the AN-M33A1, is being made available for Navy use.

The airplane smoke tank, AN-M33A1, is simply an Army M33 tank with universal suspension bands which can be adjusted for suspension on bomb racks or shackles with either 14" or 30" spacing between hooks. This tank is designed for installation in the bomb bays of PBJ and PB4Y type aircraft, the installation being either left hand or right hand by use of the Dis-



AIRPLANE CHEMICAL TANK NOW IS AVAILABLE

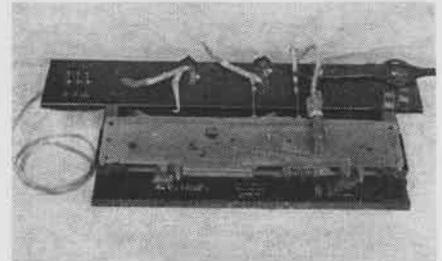
charge Elbow M2 mounted on the discharge line. The tank is not designed for catapulting or arrested landings.

When empty, the tank weighs about 175 lbs. and has a fillable capacity of approximately 70 gals. of chemical agent. This chemical agent can be discharged in 7 or 8 seconds after rupture of the glass seals by electric detonators. The air inlet portion of the discharge assembly opens into the direction of flight, thus providing an "air scoop" effect. Air enters this inlet after the simultaneous breaking of the glass seals to the air inlet and discharge closure plates.

The tank is available at supply points under Stock No. 3-T-210. Ordnance Pamphlet 1125 provides all the instructions.

## Inspection Jigs for Bomb Racks Ready

Deliveries of inspection jigs for testing bomb racks, Mk 50 and Mk 51 types shown



HANDY TOOL HELPS TO LATCH BOMBS

and referred to in NAVORD OTI V16-44, now are being received from the contractor. The test jigs are being procured for distribution to all overhaul and tending activities and to all Bureau of Aeronautics Representatives, if desired. They provide a ready means for making complete shop tests of electrical and manual operation of Bomb Racks, Mks 50 and 51 types.

The inspection jigs have overall dimensions of about 23" by 11" by 6", weigh approximately 16 lbs. and require a 24-volt circuit to test the electrical operation.

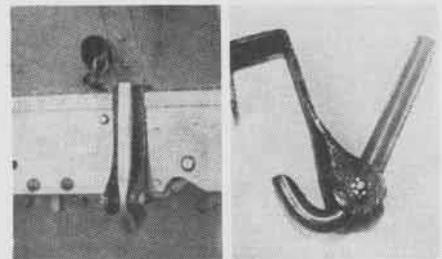
An initial supply of inspection jigs is being distributed to all major supply points for further distribution. Activities desiring to obtain test jigs are requested to requisition them from their nearest source of supply under stock number 3-J-285.

## Latching Tool for Bomb Rack Mark 50

A handy tool for latching bombs to Mk 50 type bomb racks in certain installations has been developed by Blimp Headquarters Squadron Four, Detachment 42-6.

The latching tool can be manufactured locally if desired. It is made from ¾" scrap boiler plate, ½" toolsteel or cold roll rod and a 3/16" bolt and nut.

To latch the bomb rack the tool is placed on bomb rack frame just aft of the manual arming cable so that hook-shaped end of the hinged rod is in line with underside of



LOCATION OF LATCHING TOOL ON MK 50 RACK

the suspension hook adjacent to its bearing surface for engaging the release pawl.

By pulling down on the extended arm of the hinged rod, the hook is forced upward into the latched position. The tool is removed from rack after latching operation.

## Log Entries Should Be Adequate

Power Plants Branch of BuAer Maintenance receives many RUDM's containing a statement that the cause of failure could not be determined and a request that copy of the disassembly inspection report be forwarded to the activity turning in the engine. When A&R departments receive these engines, the request in some instances is lost sight of because

somebody neglects to reference the RUDM in the log book or to give the detailed reason for removal of engine, which is required in part 4 of the log.

RESULT—the engines when overhauled lose the benefit of careful and thorough inspection of suspected weak points. In the case of both overhauled engines and engines to be stricken, no report is submitted giving data on de-

fects or damage found and comment as to cause of failure—all of which may go a long way to assist operating activities in analyzing failures and determining procedures that would minimize chances for recurring troubles.

In all cases when a report is requested by the operating activity, care should be taken to send a copy to BuAer so that it can correlate the data with other RUDM's and be in a position to give pertinent information to other activities operating similar equipment if necessary.

In other instances an RUDM is submitted involving undetermined cause of failure and the overhaul activity makes no effort to submit another report, believing the first RUDM is all that is required. Result—the Bureau has to follow up the RUDM requesting a further report on the result of the disassembly inspection.

Overhaul activities are reminded that submission of RUDM's by operating activities does not make it unnecessary for them to turn in an additional RUDM on the same equipment where disassembly inspection reveals unsatisfactory or defective detailed parts or assemblies.

### Lack of Report Results in Yellow Cross

It is of special interest to note that because of the failure of overhaul activities to furnish reports where needed, some operating activities have issued local directives to paint a large yellow cross on the nose section of an engine being turned in on account of undetermined failure. They have notified A&R departments that engines so marked represent those on which a report of pertinent information, discovered at time of disassembly inspection, should be forwarded to the activities turning in the engine and to BuAer.

While immediate circumstances may necessitate a painting operation, there should be no need to make it permanent if both operating activities and overhaul stations observe log book instructions and directives concerning submission of RUDM's.

Painting of markings on engines to cope with local conditions is not considered a healthy practice as it may add to confusion in the event of transfer of equipment or personnel to other activities. This will be true especially if other activities resort to a different kind of marking for various sets of conditions.

(Succeeds List of 1 November 1944)

1 December 1944

## LATEST AIRCRAFT SERVICE CHANGES AND BULLETINS

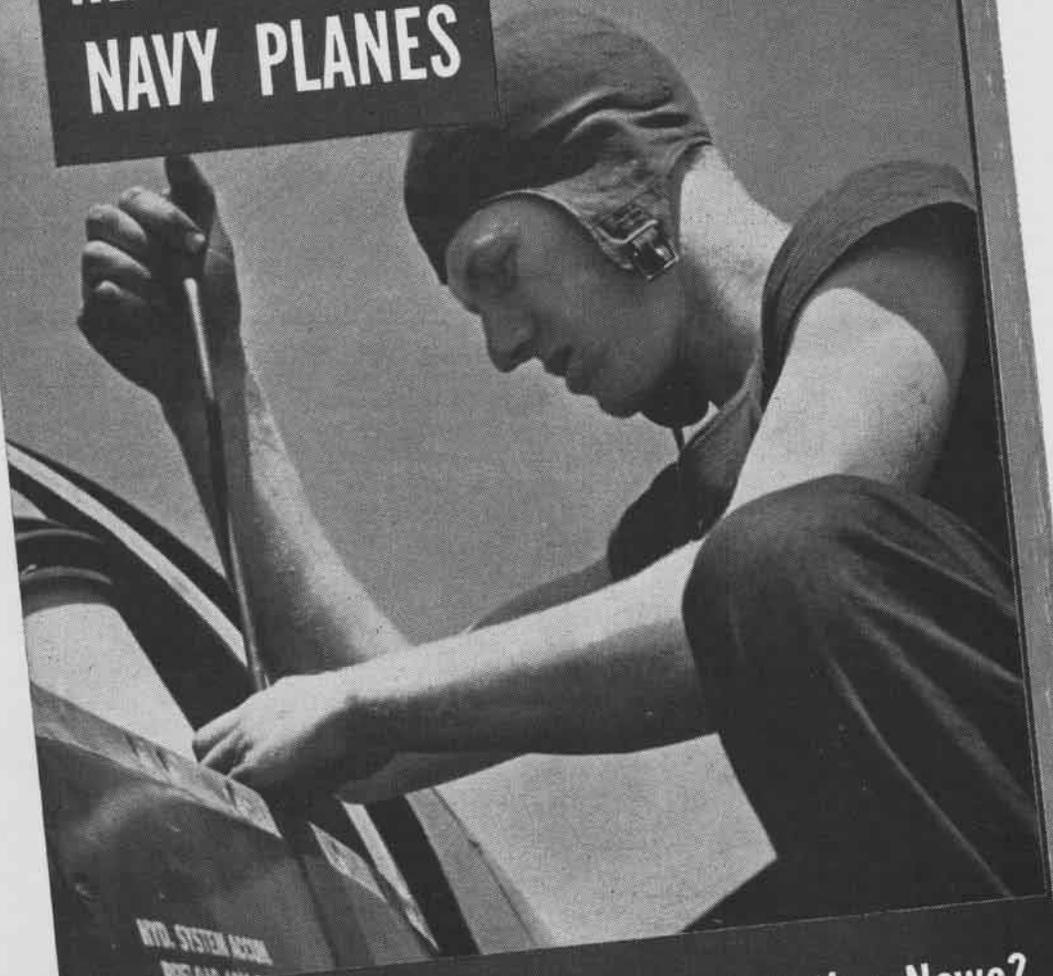
Airplane	Bulletin	Date	Change	Date
F6F	73	11-21-44	82	11-8-44
FM-2	24	11-21-44	29	11-17-44
F4U-F3A-FG	128	10-30-44	202	11-2-22
GB-2	9	10-27-22	10	8-28-43
JM-1	36	10-9-44	23	11-13-44
JRB-1	18	10-27-44	14	8-5-44
JRB-2	17	10-27-44	15	8-24-44
JRB-3	5	11-16-44	3	8-23-44
JRB-4	5	11-16-44	1	8-24-44
N2S-5	9	10-14-44	11	8-14-44
OY-1	1	8-24-44	3	10-7-44
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PV-1	81	11-10-44	154	9-18-44
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PBY-5	63	11-15-44	170	11-14-44
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PBY-5B	13	8-31-44	37	11-14-44
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PB4Y-1	91	11-18-44	122	9-19-44
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R50-2	13	11-20-44	19	4-25-44
R50-3	15	11-20-44	22	11-20-44
R50-4	12	11-20-44	15	6-9-44
R50-5	12	7-26-44	12	6-9-44
R50-6	8	11-20-44	4	6-13-44
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SB2C-3	71	11-10-44	81	10-28-44
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SBF-1	57	11-16-44	55	11-17-44
SBF-3	44	11-11-44	20	10-30-44
SBF-4	5	10-4-44	0	
SBW-1	55	10-20-44	71	10-23-44
SBW-3	55	10-20-44	60	11-22-44
SBW-4	5	10-4-44	0	
SB2C-SBF-SBW	96	11-7-44	121	11-3-44
SNB-1	23	11-1-44	23	8-24-44
SNB-2	22	11-1-44	16	8-24-44
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SNJ-5	12	10-26-44	10	8-8-44
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For a complete list of Aircraft Service Changes and Bulletins see Navy Aeronautical Publications Index NavAer 00-500.

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# CLEAN THAT WINDSHIELD!

**T**HE PILOT (1,414 hours) of an HE-1 was attempting a landing on a road-way to pick up a doctor and transport him to the scene of a crash. Everything was okay until the airplane ran off the side of the road during the landing run.

"The pilot said that his vision was impaired by a dirty windshield and that he could not see exactly what he was doing. The windshield had been wiped with an oily rag."

This item appeared in September 1 issue of NANews. Grampaw Pettibone said the trouble board assigned 100 percent carelessness to the pilot for taking off with a dirty windshield. However, he suggests that 1 percent of that, plus a few hours extra duty, should be assigned to the plane captain as a reminder that when his plane is certified as ready for flight this should include a clean windshield.

Grampaw Pettibone also tells this story: "One day, near the end of a combat patrol flight, a fighter pilot saw two planes in the distance. Knowing they could only be enemy, he signaled his wingman and gave chase. He was unable to close the range, however, and was almost out of gas before he discovered that the two enemy planes were but dirt specks on his windshield."

Although these particular stories concern only the windshield, the moral applies to all transparent enclosures, especially the greenhouse, to wit: "Keep transparent surfaces clean. Use only a soft clean cloth, chamois or sponge for this cleaning."

In assigning responsibility for the crash to the pilot in the first case, the trouble board emphasizes the fact that it is the duty of the pilot to assure himself before accepting the plane that it is in satisfactory operating condition. However, BuAer agrees with Grampaw Pettibone in his suggestion that the plane captain put in a few hours extra duty for his share in the mishap.

## Plane Captain Must Keep Plastic Clean

Especially in cleaning transparent plastic enclosures, the pilot must rely on his plane captain to use proper cleaning methods. Because plastic material is relatively soft, its surfaces are easily scratched. Effect of surface scratches is to diffuse light and reduce visibility through the materials.

Therefore, although the enclosure may have been washed clean each time the pilot accepts the airplane, visibility through the enclosure is gradually deteriorating owing to the cumulative ef-

fect of minute scratches. Washing alone is inadequate to maintain transparent plastic enclosures in best condition. Polishing and waxing are essential.

Photographs accompanying this article demonstrate how severely visibility may be reduced because of inadequate care of the plastic and also to what extent the surface may be restored by hand treatment. The part shown is a sliding panel removed from an airplane because of the severe parallel scratches which covered the center portion of the panel.

The extreme left of the panel shows results of inadequate and insufficient daily care. The right side has been improved by using a 600-grit wet sandpaper (ASO Stock No. R42-P-1130) to remove deep scratches and then several applications of plastic cleaner (ASO Stock No. R52-C-1316) which removed most of the sandpaper scratches left.

## Wax Fills Scratches, Aids Visibility

The polished surface then was given a coat of wax (such as Simoniz), which filled in remaining scratches and protected the surface against further marring. Complete instructions regarding correct maintenance methods and recommended materials are given in AN-OI-1A-12 "Maintenance and Repair of Transparent Plastics" which is being distributed. Additional copies may be obtained from Bureau of Aeronautics.



FIRST STEP IN CLEANING OF PLASTIC ENCLOSURE IS FLUSH WITH PLENTY OF CLEAN WATER

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**Sanding Machine Cuts Brake Band**

FAIRWING TWO — The headquarters squadron has devised a portable-type sanding machine for cutting down beaching gear brake bands that have expanded owing to overheating. The mounting attachments make it possible to remove a smooth even cut from the expanded brake pads. Interchangeable bearing blocks and the radius adjusting screw make it possible to dress all types of patrol aircraft main gear bands.

[DEvised BY R. J. COWART, AMM3C]

►BuAer Comment—BuAer has suggested the brake Doktor in PB4Y-1 Airplane

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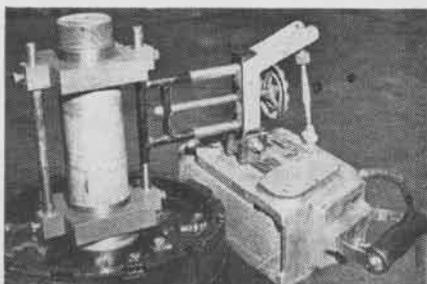
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**Y**

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Bulletin No. 73 to do the same work. For a home-made arrangement this should be a good machine and might be capable of



PORTABLE SANDING MACHINE GRINDS ON BAND

doing more brakes in one day than the Doktor. The latter heats up and can not be used continuously. This machine should be good for any expander tube brake made by Hayes Industries and used on F3A, F3F-3, SBC-3-4, SB2C-1-1C-3, BTD, SBD, SB2D, SBN, SBW, PBM, P2V-1, PBV-1-2-3-4-5-5B, PB2Y-1-2-3-3R, PB4Y-1-2, JRM, J2F, J4F, SOC, SON, and JRF.

**BuAer to Cut Electrical Parts**

Bureau of Aeronautics and Aviation Supply Office have worked together for the last six months to eliminate duplicate, inferior, and non-standard equipment from Class 17 stock. Items affected are aircraft electrical parts, such as circuit breakers, clips, clamps, conduit fittings, connector plugs and receptacles, fuses and holders, insulating materials, lamps and lights, resistors and rheostats, switches, terminals and tools.

Results from this program, now about 70% complete, indicate that between 60 and 70% of the above items now carried on stock records no longer need be procured in the future. As these items are used up from current stocks "maintenance standard" will be substituted.

In most cases these substitutions can be made with no changes whatever in manner on installation in the aircraft. In a few cases, however, relatively simple changes in mating parts or in mounting will be required. However, every precaution is being taken to continue to supply items to meet all maintenance requirements without undue changes in existing installations.

As these programs for various types of items are established, circular letters are being issued by Aviation Supply Office, directing all supply activities as to maintenance standard items which will be supplied on future procurements. The ASO catalog also is being revised to show standard items in bold face type and items eliminated in light.

**Parts Will Be Cut from 5,000 to 1,800**

Technical aspects of these programs are being covered by articles appearing in Aircraft Electrical Maintenance Notes published by Airborne Coordinating Group. Articles already printed in the Notes cover standardization of terminals and tools, conduits and fittings, and lamps.

It is expected that within the next six months virtually all airborne electrical items in Class 17 will be covered by the above publications. As present stocks of non-standard items are used up, the number of airborne electrical items to be stocked will be reduced from about 5,000 parts to about 1,800.

It is therefore desirable and necessary that supply and maintenance personnel consult Aviation Supply Office catalog, Aircraft Electrical Maintenance Notes, and the ASO Circular Letters so they will requisition only parts available.

# LETTERS

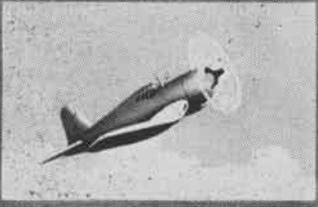
SIRS:

The fourth picture in the Pix Quiz on page 39 of the November 1 issue of NA-News shows a Corsair climbing on a north heading.

The question "What will the compass indicate?" apparently refers to the northerly turning error as, unless the deviation and local variation was given, the actual indication of the compass can't be guessed at. With this assumption, and assuming that the plane is not banked, answer number 3, i.e. "no error" is correct.

However, the illustration is misleading; the angle from which the photograph is taken makes it appear that the plane is banked slightly to the right, or east. If this were so, there would be a compass error, but from the data given, it would be impossible to state what the compass would indicate. The compass indication in an easterly turn would either be "less east" or actually west depending on the follow-

4 Plane is on north heading; compass will indicate:



1. 3° turn east      3. No error  
2. 3° turn west      4. 6° turn west

ing factors: amount of bank, time in the turn, latitude, and characteristics of the particular compass.

Washington, D.C. Lt. (jg) Bureau of Aeronautics  
¶ NANews agrees picture may mislead.

SIRS:

In the October 1 issue of NANews, authorized Navy Wings were featured. It is requested that information pertaining to qualified Marine parachutist wings and the wearing be clarified.

Since the paramarines have been disbanded, many of the pharmacist mates who served with the paramarines were returned to naval activities. While serving with the Fleet Marine Force, the wearing of the silver parachutist wings was authorized. Is it so with naval activities?

PhM1c, us.  
¶ Attention is directed to BuPers Manual, Art. D-5331. As noted in subparagraph five of this reference, "... officers, warrant officers, and enlisted men of the Navy and Marine Corps who have been designated as parachut-

ists pursuant to these regulations are authorized to retain permanently and to wear such qualification badges as parachutists, as may be prescribed by the Secretary of the Navy."

SIRS:

The tire changer illustrated on page 41, October 1 issue of NAVAL AVIATION NEWS, has been successfully adopted by this squadron.

The changer is saving time, material and labor. Originally, trouble was encountered in breaking the casing on the tire or the web of the wheel. Attachment of adaptor rings to a hydraulic jack simplified operation in removing tires without damage. The four adaptor rings are gauged to fit any size tire.

VMTB-144      COMMANDING OFFICER  
Marine Fleet Air West Coast

SIRS:

In regard to the photograph on the rear cover of the November 15, 1944 issue of NAVAL AVIATION NEWS, would you be so kind as to identify the Jap plane "headed for watery grave after vain attack on U.S. carrier?"

Although I have had considerable training in recognition I don't seem able to place it as Japanese. Could it possibly be an FM-2, Wildcat?

NAS Glenview      SEAMAN, 1c



¶ Doomed Jap was a twin-engine bomber, probably a Frances, as close study of tail structure will indicate.

SIRS:

In the November 15, 1944 issue of NAVAL AVIATION NEWS on page 14, you have a quiz entitled "Math Miniatures." In question 3 I find that someone (no doubt much more intelligent than myself) decides that "the length of the diagonal in a 1-inch cube is about 1.7 inches."

Personally, I could never doubt the answers on page 40—or has my education been all in vain!

NPFS Chapel Hill AVIATION CADET, USNR  
¶ Math experts say that 1.7 inches is correct. Could AvCAD have been thinking of the diagonal in a 1-inch square?

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## ANSWERS TO QUIZZES

### ● PIX QUIZ (p. 18)

1.4 2.2 3.3 4.4 5.1 6.1

Films available from BuAer, Special Devices, for showing in Visual Quizzer, Device 5-X. Standard slide film version may be obtained from Training Films, BuAer.

### ● NAVIGATION PROBLEM (p. 20)

- |               |              |
|---------------|--------------|
| 1. 115°       | 7. 1437½     |
| 2. 128°       | 8. 47° 07' N |
| 3. 124°       | 54° 51½' W   |
| 4. 1139       | 9. 302½°     |
| 5. 46° 44½' N | 10. 70 k     |
| 55° 27' W     | 11. 287½°    |
| 6. 301°       | 12. 292½°    |
| 39½ k         | 13. 109 k    |

(Tolerances of 2 or 3 miles or 2 or 3 degrees from ans. are considered correct)

### ● BEST ANSWERS (p. 12)

1.b 2.a 3.d 4.d 5.a 6.d

Detailed information on islands and areas of the Pacific is contained in a series of talking slide films (in color), available at Aviation Film Libraries. Ask for Theaters of War Series, SN-1538 a through it.

### ● GRAMPAW'S QUIZ (p. 10)

- Plane that has the other on its left has the right of way. Reference: CAA Regs 60.3401.
- Toward the inside of the spin; to avoid the tail surfaces which will be on the outside of the spin. Reference: Page 90, Parachute Sense, also Chapter 6, Parachute Manual.
- Yes; so they can clear the field and be ready to render any assistance necessary. Reference: common sense. (You'd be surprised how frequently this is neglected—often with serious results.)
- Approximately 2,400 ft. Reference: Fig. 1 of TN 72-44.
- Up to three times as much altitude, due to extra speed built up when diving flaps are not used (type plane involved and length of dive affects this speed). Reference: Fig. 1 of TN 72-44, using speeds which would be obtained with and without flaps.

# "I'll Land Her Myself"

Radioman Harrison D. Miller had one long chance before hitting the silk. He grabbed the stick, jammed it into dual control and shouted through the intercom... "I'll land her myself..."

Using one hour of stick time for theory and a personal revival meeting as moral support, Miller successfully landed the OS2U in the briny sea.

The incident occurred when the Marines made their initial landing on Kwajalein in the Marshalls. Miller flew over the enemy-held territory as aircrewman in an OS2U. The ceiling was very low, and they were flying at 900 feet to take a "look-see". The pilot's voice came through to Miller... It sounded remote.

"They got me... Bail out."

Miller knew the pilot couldn't handle the Kingfisher, but, as a radioman he had never landed a plane. He started to mutter... What he said, or what happened between then and the time they hit the water, will never be remembered. In those forgotten minutes, he brought the plane down at 90 knots.

Miller cut the engine and made a dive for the pilot. The Kingfisher lurched forward, rolled over completely, and slowly sank to the bottom.



Aircrewmembers have what it takes

# NAVAL AIR IN ACTION

**A**ERIAL and sea attacks on Jap island 'tentacles' by American task forces chop chain of supply to combat areas further to south. Raids hit Kazan and Ryukyu island bases to slash reinforcing planes and troops headed for Jap installations in the Philippines

FIRES BURN ON IWO JIMA AIRFIELD AMONG PARKED PLANES BLASTED BY BOMBARDMENT FROM HEAVY CRUISERS; JAPS DISPERSE PLANES POORLY  
TWO AIRFIELDS ON IWO JIMA TAKE PASTING FROM NAVY BOMBERS

CARRIER-BASED PLANES SINK JAP CARGO SHIP NEAR THE RYUKUUS

