

# NAVAL AIR IN THE PACIFIC

**N**AVY planes raiding Saipan in the Marianas were supported by a task force standing by for their return while fighting off sanguine Jap attempts to destroy the waiting flattops. These scenes are evidence of the sharp welcome barked out by the carriers' AA guns as Jap torpedo planes, and some fighters, closed in for the kill, only to be shot down without fulfilling their mission. The Navy now has traversed the entire boundary of the Japanese mandated island kingdom in daring thrusts at distant Palau, just a few hours' flight from the Philippine coast.



JAP FIGHTER, ACTING AS BOMBER, ATTEMPTS TO DIVE ON NAVY CARRIER



BLACK COLUMN OF SMOKE MARKS SPOT WHERE A JAP BETTY MADE ITS WATERY GRAVE AFTER FUTILE STRIKE AT U. S. FLATTOP AND COMPLEMENT OF PLANES RESEMBLING HEAVY CLOUDS ABOVE, SMOKE IDENTIFIES DOWNED JAP PLANE

COLOSSUS OF SMOKE SITTING ON SEA SHROUDS WRECKAGE OF ENEMY CRAFT





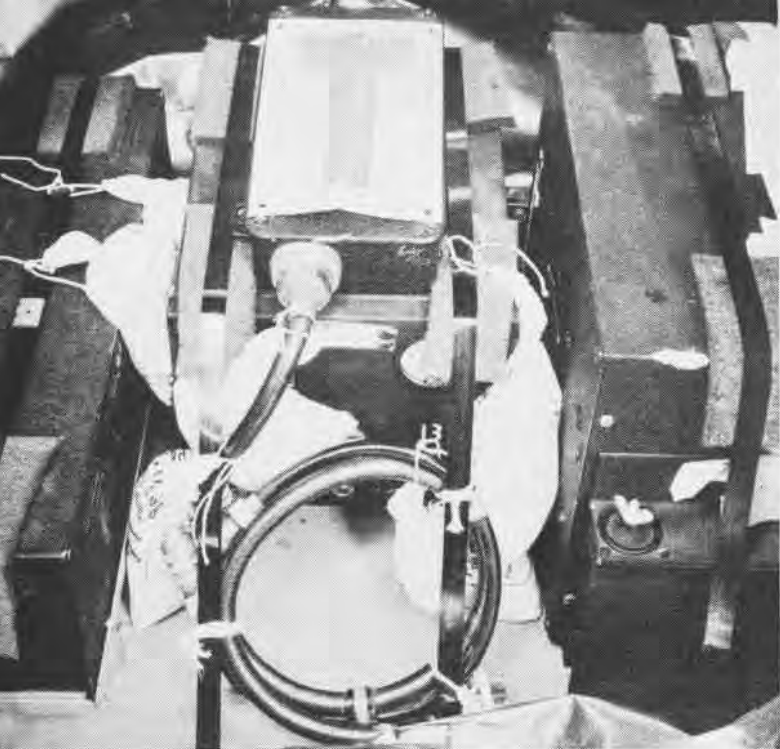
## AIRCRAFT CORROSION

**C**ORROSION of aircraft engines and vital spare parts for combat use has been reduced by the Bureau of Aeronautics through preservatives and special packing techniques for shipment to theaters of operations. A few dollars spent on such measures is worth more than hundreds of dollars spent on repairs to rusted and damaged engines. The problem is as old as the airplane, and BuAer's technique is the product of many years of experimentation and study.

Danger of corrosion is heightened greatly in regions of high humidity, especially in the South Pacific. Salt water spray and tropical dampness are enemies of aircraft engines with finely machined working parts and close tolerances. Spare parts also are highly important.

Manufacturers of engines and other aircraft parts take proper prevention measures in accordance with specifications drafted by Equipment and Materials section of BuAer, the Army and Naval Air Experiment Station, Philadelphia, so they leave the country in good shape.

**F**OUR general types of preventive steps are taken. Where possible, the parts are given resistant paints, platings or enamels to protect them from corrosion. The second step is cleaning off all extraneous material so the third step, applying a preservative coat of oil or grease, can be taken. A fourth type of protection is use of bags and other containers to keep out air and moisture. A chemical agent may be included to keep the interior dry.



Bags of dehydrating agent suspended around radio equipment help keep moisture content down after packaging, while humidity indicator (T) in center tells moisture content by color changes



Aircraft engine being hoisted aboard NATS plane is packaged in pliofilm bag, with numerous containers of silica gel dehydrating agent inside to absorb moisture. A rusty engine would be useless

## BUAER DEVELOPS PRESERVATION METHODS FOR PLANES AND PARTS

**B**EFORE an engine or part can be treated for preservation, it must be cleaned thoroughly to remove any perspiration, soldering bits, cutting, cooling or grinding compounds. To put the preservative on before such materials were cleaned off the engine or part would nullify advantages from the protective coating or covering. There is no universal method of cleaning metals, the usual ones being by immersion, scrubbing or spraying, using solvents, alkalis or emulsion sprays. If it is desirable to use a removable preservative compound, either a special thin film, light oil, or grease type may be applied by completely coating surfaces and allowing sufficient time for the film produced to "set up."

Many types of preservatives are used. Oils or greases are applied to some equipment, wax-like compounds may be sprayed upon them or they may be protected by baked enamel, paints or plating. Upon arrival at their destination,

the preservative coat may be removed with gasoline or other solvent if necessary.

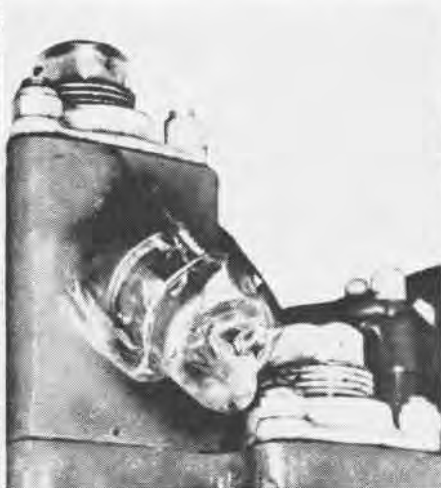
In the case of engines especially, large bags of transparent pliofilm are used, with small bags of dehydrating agent, such as silica gel, inside to keep the elements under control as much as possible until the engine is used. Laminated metal-film bags of leadfoil paper are used to pack some types of parts, as well as enclose important shipment papers.

Although manufacturers apply the required protection, it sometimes is necessary to inspect shipments occasionally and even repack and represerve them on long trips. Chemicals which show relative amount of moisture inside a pliofilm bag are used. When they indicate a certain amount is present, the bag is opened and new dehydrants installed. Corrosion will not occur at relative humidities under 30 percent.

**A**NOTHER problem of protection is caused by such a little thing as corners of wrapping paper or protective material rubbing against the part until the soft preservative grease is scraped off and the metal exposed to moisture. Special washed paper also is used, since acid in some papers is sufficient, if dampened by moisture, to corrode the part.



SLUSH CYLINDER THROUGH SPARK PLUG HOLE



FILM ENVELOPE GUARDS OIL SCAVENGE OPENING



CYLINDER DEHYDRATING PLUG KEEPS INSIDE DRY

# GRAMP AW PETTIBONE

## VJ-13 Swears This Happened

"One of our pilots was making touch-and-go landings at night (a practice which is frowned upon and no longer permitted in VJ-13, even in the daytime) in an SBD. On his first landing which was greased in, he reached for his flap lever—got the landing gear lever instead, and as luck would have it, he was just on the verge of being airborne again; consequently, when his wheels went up the plane only settled about a foot. Believe it or not, this pilot succeeded in very neatly machining about 1½" off the tip of each propeller blade—using the runway as a machine tool.

"By this time the plane was back in the air, but since strange noises were heard and many sparks flew, the pilot was aware that something was wrong. No vibration was evident and the pilot reasoned that something must have happened to his landing gear, so he called the tower for an emergency crash landing clearance. When he came in, much to his surprise, the landing was effected in a normal manner. The pilot taxied to a stop, got out and made a thorough inspection of his plane—engine still running. After finding nothing wrong, he climbed back in, took off and *flew around for forty minutes longer.*

"The stubby props were discovered shortly after the plane came in! *Total cost: One prop and one bottle of smelling salts for the pilot.*"

## SNJ Landing Gear Collapse

The student pilot of an SNJ-4 lowered his wheels for a landing, but the warning horn continued to blow. He raised the gear and lowered it again, but the horn continued sounding. He then assumed that the horn was faulty and, upon receiving the signal to land, did so. The right wheel collapsed when he turned off the runway at the end of the landing run.

The Trouble Board stated that an inspection of the landing gear revealed the locking pin for the right wheel strut was worn, preventing it from going into place.

►COMMENT—There are several angles to this accident. Of course, the underlying cause rests with the maintenance crew for failing to make proper inspection of the locking pin and for not keeping it in good working order. The immediate cause, how-



ever, was considered to be pilot error in failing to use the emergency procedure for engaging the locking pin. It wasn't clear from the report whether the pilot was, or was not, familiar with this mechanical equipment on the SNJ, but it was clear he didn't use it. No one should be checked out in this plane until he knows exactly how it works. If there is any pilot now flying SNJ's who doesn't know exactly how this mechanical locking device works, he shouldn't wait for a personal invitation to correct this deficiency.

An error in operating procedure was also involved in this accident. Note that the right wheel didn't collapse until a *turn* was started at the end of the landing run. In a large percentage of cases where the landing gear fully extends, but will not lock, it will not collapse until a turn is made. For this reason, the following procedure should always be followed when trouble of this nature is experienced:

- a. Pilot should notify tower of difficulty.
- b. Tower should control the landing, as necessary, directing pilot where to land and warning him *not* to turn at end of landing run, but to stop and await crash crew.
- c. Crash crew should be sent out to make an immediate inspection of the locking pin. This simple procedure will often prevent extensive damage. (It is equally applicable to all airplanes in which the landing gear is lowered laterally.)

One other safety measure has been provided to prevent this type of accident. Bureau Changes (SNJ-2, 3, 4 and 5, Nos. 18, 24, 23 and 6, respectively) provide for a transparent cover plate over the locking pin to permit the pilot to make a visual inspection before landing. This change should be incorporated as soon as practicable and pilots instructed as to its use. These inspection windows should be replaced when they become scratched.

## Remember Your Life Raft Lanyard

An F6F recently went over the side during a carrier landing. The pilot was

seen to clear the cockpit, but was dragged down with the plane when it sank.

Investigation disclosed that the pilot, who was wearing a seat type chute with life raft attached, had unfastened his parachute harness, but had failed to unsnap the life raft lanyard from his life jacket. When the parachute pack or the harness became fouled in the cockpit, he was dragged down by this lanyard.

►COMMENT—In order to avoid this hazard, pilots using this particular equipment should remember to unsnap their life raft lanyards when they unfasten their parachute harnesses prior to making carrier landings.

However, when the life raft might be needed if there is a dunking, pilots using this equipment should leave the parachute harness and life raft lanyard securely fastened until clear of the plane. This procedure would apply to any carrier landing where an escort vessel is not immediately available to pick up the pilot. Of course, it also applies to all forced landings made outside of the immediate vicinity of a rescue vessel.

## Parachute Technique

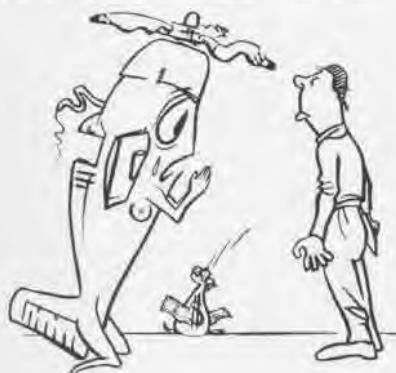
During gunnery practice, an FG-1 pilot reported loss of oil pressure and his engine immediately began to smoke. He was ordered by his flight leader to return to base but soon thereafter his engine froze completely. At 8,000 feet he parachuted and descended safely but did not get out of his chute upon striking the water. A sixteen-knot wind caught the parachute canopy, billowed it and dragged the pilot through the water, causing death by drowning before rescue craft could reach the scene. It was discovered that the pilot had inflated his life jacket under the parachute harness, thus apparently making it impossible for him to unfasten his chest strap and to extricate himself from his chute harness.

►COMMENT—Personnel should insure that parachute chest straps are unbuckled before life jackets are inflated.

Parachute chest straps and even leg straps can be unbuckled before striking the water if there is sufficient altitude. Where this is attempted, however, great care must be taken to insure you are not spilled out before you get down. Review your *Parachute Manual* and the pamphlet *Parachute Sense* for more complete information.

## Engine Trouble (?)

After rendezvousing at 11,000 feet for gunnery practice, an F6F pilot with total flight time of 544 hours radioed the flight leader that he was having engine trouble and requested permis-



sion to return to base. Permission was granted. He then descended to a low altitude and proceeded toward base, *doing slow rolls*. A few minutes later he crashed and burned at a point six miles from the field.

## Put It on the Yellow Sheet



*Gram paw Pettibone says:*

Do you make a notation on the "yellow sheet" after each flight stating any material defects you observed?

Word occasionally trickles through that this is not always done. And some fatal accidents can be traced to this neglect.

How can you expect defects to be corrected if you don't report them? A word to the mech when you land isn't enough. Put it in writing. And if it is serious enough to probably ground the plane, talk to the engineering or maintenance officer about it.

Don't shirk your responsibility in this matter. Give your squadron mates the same consideration that you have a right to expect from them.

If you neglect to report defects on the yellow sheet, you may be indirectly or directly responsible for getting somebody bumped off; and since you may possibly fly the same plane again yourself, you may even be the one that gets bumped.

*Then you would be sorry!*

## Look How Smart I Am

The irate engineering officer of a squadron at an advanced naval base in the Pacific submitted the following report when one of his planes was damaged beyond local repair facilities:

"The pilot with 260 hours in SBD's made a normal take-off, but retracted his wheels too soon. In his effort to show his admiring friends how quickly he could get off, he neglected to gain sufficient flying speed and as the wheels of the SBD-4 retracted the plane settled to the runway. This plane accident was one hundred percent cockpit trouble."

## Night Low Level Bombing Accident

During a practice night low level bombing attack, a TBM was seen to fly into the water.

The squadron commander made the following comments in his administrative report of this accident: "In view of this and other similar accidents, it is possible that improper technique is being employed by torpedo plane pilots during low level bombing. They may be setting the elevator trim tab controls for level flight for the approach speed condition of the airplane. As soon as the bomb bay doors are open this speed is reduced and the nose of the plane starts dropping shortly thereafter. Pilots are generally attentive to the target at this particular time and may lose altitude unknowingly in spite of the absolute altimeter warning light."

In his forwarding endorsement, COMPAIR West Coast stated that squadron commanders have been directed to impress their pilots with the importance of attention to instruments in night work, and to be alert to counteract the bomb bay effect which occurs when the bomb bay is opened at high speeds.

## Self-Analysis

An SBD pilot, operating from a CVL during a shakedown cruise, had what he termed "quite an experience." We agree. His report, which is interesting as well as instructive, is quoted in part:

"Because of several deck wave-offs, mine was the last plane in the air. My engine was heating up from excessive use of full power, and I kept my cowl flaps open, except while approaching the ramp. On my last approach I neglected to close the cowl flaps, however, and that contributed to my losing sight of the signal officer just prior to the cut. When I again saw him, I realized it was too late to take the cut as I would have landed on the planes and men on the fore deck. Perhaps I was wrong, but I committed the unpardonable sin of attempting a wave-off after a cut. I knew as soon as I poured on the coal that she wouldn't take it;

and torque, cocked up attitude, and lack of speed, all contributed to my spinning over the port side.

"The plane struck the water in a vertical position, flipped over on its belly, and sank in three pieces. I went down with the plane but was able to extricate



myself without much difficulty, and popped to the surface much to the captain's relief—not to mention my own. I suffered only a cut chin, a skinned knee, and an injured pride.

"There are three lessons, it seems to me, to be learned from my mistakes.

"*First*, and what I consider most important: I had my shoulder straps on and secured as tightly as I could jam them, which is the only reason that I survived the crash. It is evident that since the engine was broken off, since the plane was split through the gunner's cockpit, and since the full length of the leading edge of the wing was pushed back like an accordion for at least a foot and a half, my head would surely have been smashed against the gunsight or instrument panel if I had not used my shoulder straps to their best advantage.

"*Second*: though 'cowl flaps' is not on the check-off list, I should have been aware that they were obstructing my vision somewhat, and perhaps I would not have lost sight of the signal officer, had I realized this fact. This can be chalked up to lack of brain work.

"*Third*: I did not have my parachute shoulder straps removed, though the chute was unbuckled, so that when I left the cockpit the chute went with me. However, this did not hamper me to any extent, for which I was probably just fortunate."

## F4U Hydraulic Failure

The hydraulic system of an F4U failed after take-off before the tail wheel had been fully retracted. The pilot thought of lowering the gear by means of the emergency release, but he couldn't locate the proper lever and was forced to make a belly landing.



*Gram paw Pettibone says:*

A good dose of *Pilot's Handbook* and a cockpit checkout prior to soloing this F4U would have saved the Navy thousands of dollars and a badly needed plane.



# DID YOU KNOW?

## Ship Recognition Made Easy Work Buttons; Get Right Answer

NAS BUNKER HILL—Ground school at this station has developed a ship recognition display box which operates



SHIP RECOGNITION BOX MADE AT BUNKER HILL

like an amusement park device and discourages guesswork in identifying ship models.

Four contact buttons indicate nationality; five indicate type of ship, and 100 metal contacts indicate the proper class name. To light up the RIGHT sign, the student must identify nationality, type and class correctly. If the proper combination is secured, a light and audible signal operate.

For those who guess wrong a buzzer

sounds and a picture of Dilbert with the words THE AXIS CAN USE YOU lights up. Odds against guessing correctly run about 2,000 to 1. The box uses Navy issue 1-1200 scale ship models. Power is supplied by a 110-6 volt transformer.

(DEVELOPED BY LOWELL C. STANLEY, SP(T)1c)

## Plotting Board Attachment Insures Straight Lines on Map

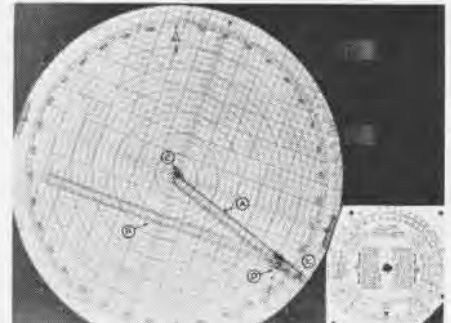
NAS JACKSONVILLE—The Commanding Officer of a VO-VCS squadron has devised a simple adaptation to a plotting board to help pilots who have difficulty drawing track lines while flying.

A straight track line improves navigation by making the plot easier to read and check, and by assuring more accurate position reports which some day may save the plane and its occupants. Some pilots use a piece of ruler on a string, some draw wavy freehand lines and others keep a triangle in the case.

The device consists of a six-inch plastic arm (A) pivoting at the grommet of the Mark III plotting board, and a nine-inch arm (B) pivoting on a metal sleeve, which slides freely up and down the first arm. The pilot can adjust these arms quickly to draw a straight line in

any direction anywhere on the board.

The arms are of  $\frac{1}{8}$ " plastic,  $\frac{5}{16}$ " wide. The one attached to the grommet has a hole bored through a curved extension (C) so that one edge of the arm leads directly to the center of the



ADAPTER ARM FOR PLOTTING BOARD DEVISED

board. The second arm is riveted to a stainless steel sleeve (D) which slides along the first arm. Through the free end of the first arm is a short rivet (E) which serves as a rest and also keeps the sleeve from sliding off.

The grid, the board, and the first arm are fastened at the grommet by a flat-head 8-32 machine screw, held on the under side by an elastic lock nut. For further convenience, the long arm may be graduated in the scale as on grid.



"SILENT COMMUNICATION" would make a fitting name for the Navy's homing pigeons, who are doing a 4.0 job with lighter-than-air units. WAVE Pigeon Specialists, trained at Lakehurst, handle this vital means of communication, frequently used be-

tween blimps and the home base when radio silence must be maintained. A crate of pigeons is loaded aboard every blimp and free balloon that leaves an LTA station. When contact is desired, a message is inserted in a small container strapped to pigeon's leg.



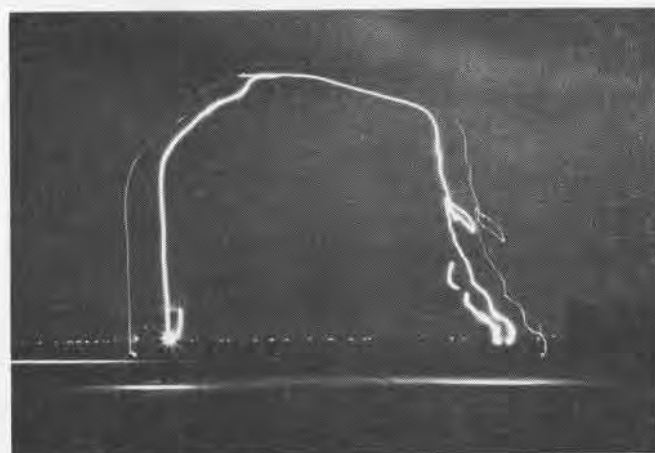
HELICOPTER HOVERS AFTER TAKING OFF FROM SHIP; ROTOR HEAD OF SECOND HNS-1 MODEL IN FOREGROUND SHOWS COMPLEXITY OF MECHANISM

# NAVY HELICOPTER

Odd machine can hover or fly backward

EXPERIENCED NAVY and Coast Guard pilots are learning the intricacies of flying helicopters at the Coast Guard air station, NAS New York, experimenting with wartime uses to which the odd-looking craft may be put.

Model HNS-1 in the illustrations is used for training purposes, but later-improved models show promise of being adaptable for air-sea rescues and U-boat detection. The wingless plane can do many flight antics an ordinary aircraft could not—fly backward, rise and descend vertically or spin like a top. It can be mounted on floats for water landings.



Running light pattern of helicopter in photographer's time exposure reveals how the machine can take off or land vertically



Helicopter can hover a few inches from "practice deck," which can be made to roll, simulating landing conditions on a ship



Tail rotor on helicopter compensates principally for engine's torque; gets power from same engine that drives main rotor

## Handy Cabinet for Library Training Literature on Display

Imagination and initiative turned out an efficient training literature cabinet



PUBLICATIONS AVAILABLE IN COMPACT CABINET

for use in the ComAirPac library. The cabinet is doing a three-way job:

1. An eye-level reminder of the correlation of devices, films and literature in the training program
2. Clever utilization of the visual advantages of illustrated training literature
3. Compact and convenient stowage

Naval air station carpenter shops can duplicate cabinet shown in photograph.

## Keep NATS Planes Flying Increase in Flight Hours Shown

Seaplanes and landplanes flown by Naval Air Transport Service are gathering little rust, thanks to the heavy demand for air travel and freight transportation. A recent report from CNO indicated that during February, VR-2, PAA Pacific and PAA Atlantic, all operating flying boats, reported average utilization of 7.8, 7.8 and 7.7 hours per airplane per day for all PB2Y-3R and B-314 aircraft assigned to them.

These records were one hour a day better than those for January operations. Highest reported utilization of other types operated by NATS in February were: R5D-1, VR-11, 7.5 hours per plane; R4D, VR-1, 7 hours; PBM-3R, PAA Pacific, 6 hours. The records were made despite limited night operations conducted over most of the seaplane routes operated by Naval Air Transport.

## Navy Wins Air Supremacy Downs Japs by 13-to-1 Margin

The age-old technique of surprising enemy aircraft on the ground is helping naval aviators destroy Japanese aircraft at the phenomenal rate of 13 to 1 in the current Central Pacific offensive.

Air groups from carriers in major actions since powerful task forces began roaming the area last November have destroyed more than 600 enemy aircraft, with the loss of only 45 Navy planes. These figures cover pre-invasion and invasion blows on the Gilbert and Marshall Islands, and strikes on Truk and the Marianas Islands.

Nearly 40 percent of those destroyed were caught on the ground and bombed or strafed before they could get into the air and fight. An example of this saw 15 twin-engine torpedo planes and 30 Zeros sent in to reinforce Saipan after a carrier task force had struck. The Japs parked the fresh aircraft on the runways, thinking the raid was over. Naval aviators hit Saipan a second time and smashed the reinforcements on the ground. Jap losses on the ground at Truk were 74 planes and 92 were wiped out in the Gilberts and Marshalls.

## Guadalcanal Given Plaque New Escort Carrier Receives Gift

When the *Guadalcanal*, an escort carrier, sails into action, it will carry with



GUADALCANAL NATIVES GIVE CARRIER A PLAQUE

it an inlaid plaque presented by natives of the island of Guadalcanal in appreciation for the part played by American forces in evicting the Japanese in 1943. It is inlaid with native mother of pearl and constructed of Ivatu wood from a giant sandalwood tree, enclosed in a case made of native woods. Presentation was made by the British Resident Commissioner of the South Pacific islands.



NAVY AIRCREWMEN aren't all down in the South Pacific fighting the Japs. Here are two strolling down a London street with an English girl on their arms. Behind them is Big Ben, famous clock which is as much a landmark of London as the Empire State Building is in New York City. Aircrewmens in England could be readying for invasion, working with escort carriers, or in from the arctic for some warmer weather. The girl with them is English but works for and wears the uniform of the American Navy Drivers organization.





PBY PILOT BECAME NAVIGATOR OF APAMAMA ISLAND, ORIENTED AND CORRECTED 1844 CHARTS

## ISLAND NAVIGATOR

One of the strangest assignments ever given a PBY pilot was that drawn by a Navy lieutenant. Ordered to the Staff of Commander Aircraft, Apamama, he was completely mystified when told his were to be the duties of navigator. So was ComAir, Apamama, but in due course the nature of the duty of navigator to an island air commander was unfolded.

Charts of Apamama were found to be inadequate, so the navigator was told to prepare a usable chart. This was done with the assistance of a S2c. Then came the day when the navigator announced that after two weeks of effort, true north had been established, and the old charts were oriented ten degrees to the left. The navigator had taken transit sights with the Seabees' theodolite and worked them out with a 1903 edition of the British equivalent of Bowditch.

The intelligence data tide tables (error plus or minus two hours) ran out on Jan. 1, which caused the navigator no little trouble, inasmuch as the air commander demanded an accurate tide table for swimming purposes, not to mention that the Seabee coral haul-

ing shifts were adjusted to the same data. The navigator had high hopes when a survey ship installed a tide gauge, but these hopes were dashed when the survey ship departed hurriedly for other waters. So the navigator had to design and install his own tidal gauge, and protect it from the ravages of Seabee dredges.

Prior to the arrival of the survey ship, a native pilot had been located. This pilot was not only a seaman and ship handler—he could look at any part of the lagoon and tell the depth of water by its color, as the navigator verified by lead line borrowed from an LST. It was a great day when this pilot, assisted by the Patrol Plane Commander, brought his first Liberty ship into the lagoon and anchored her off the unloading beach, inasmuch as all intelligence had indicated that ships no larger than half that size could enter.

The navigator formed a pilot corps, consisting of a BM1c, a Lt. (jg) and himself, to take care of small fry escort vessels, and to this day the formerly carefree PBY pilot is still busily engaged in all sorts of activities foreign to his job of piloting a *Catalina* flying boat.

## BEST ANSWERS

### FIRST AID

Pick the best choice to complete the statements below, then check your answers on page 40.

- The first aid treatment for toothache when there is no cavity is—
  - a—oil of cloves
  - b—hot or cold applications
  - c—sulfa drugs given by mouth
  - d—bichloride of mercury
- In case of a bite by a "black widow" spider the—
  - a—bite is fatal in about 60 percent of the cases
  - b—primary symptoms are not present until the following day
  - c—victim's abdomen may become "as hard as a board"
  - d—first aid treatment is the same as for poisonous snake bites
- A seaman has been afloat in a small boat for a long time and has become extremely thirsty. His lips have cracked open and sores have developed. Best first aid treatment for the sores is application of—
  - a—compresses of warm epsom salt solution
  - b—zinc oxide ointment.
  - c—baking soda paste
  - d—cold cream
- When a person has been exposed to cold weather conditions over a long period, parts of his body are likely to become frozen. Proper treatment of the victim depends on the degree of the condition. In second-degree frostbite the—
  - a—frozen part is pale, stiff and brittle
  - b—skin is bright red and there are blisters
  - c—skin is a dark red color and the part is painful
  - d—frozen part is blue in appearance
- When survivors are rescued after being afloat on a raft over a long period, a good rule to follow is to—
  - a—keep the survivors lying down with their heads low and their feet raised
  - b—keep the survivors lying down with their heads raised and their feet lowered
  - c—apply cold applications to the heads of the survivors
  - d—administer stimulants and morphine and aid breathing by artificial respiration



Airmen and ground crews at Adak Island have become accustomed to and expect the worst kind of weather for flight and servicing operations. Here crew members of a PV-1 carefully check their plane before a night take-off into an Aleutian snowstorm



Reception committee, composed of Adak officers, men and mascot, awaits arrival of first plane to land on new runway



Snow swirls up from propeller blast as PV-1 prepares to take off from Adak Island on a night photographic mission

1



- 1. German
- 2. Norwegian
- 3. Italian
- 4. Canadian

2



- 1. Japanese
- 2. Chinese
- 3. Filipino
- 4. Netherlands East Indies

3



- 1. Polish
- 2. French
- 3. Belgian
- 4. British

4

- 1. Rumanian
- 2. Russian
- 3. German
- 4. Czech



5

- 1. Burmese
- 2. Filipino
- 3. Chinese
- 4. Japanese



6

- 1. Russian
- 2. Finnish
- 3. Danish
- 4. Norwegian



**PIX QUIZ**

WHAT DO YOU KNOW ABOUT

**UNIFORM IDENTIFICATION?**

**I**N THE early days of the war two newspapermen dressed themselves in Nazi uniforms and walked unchallenged about the streets of one of our largest cities. Just imagine how many steps these masqueraders would have taken in London after Dunkirk! Uniform identification is important behind the lines as well as the front. See how many you know, then see page 40.

[QUESTIONS FROM VISUAL QUIZ FILM NO. 63, UNIFORM IDENTIFICATION]

Write answers here

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



NAVAL AVIATION

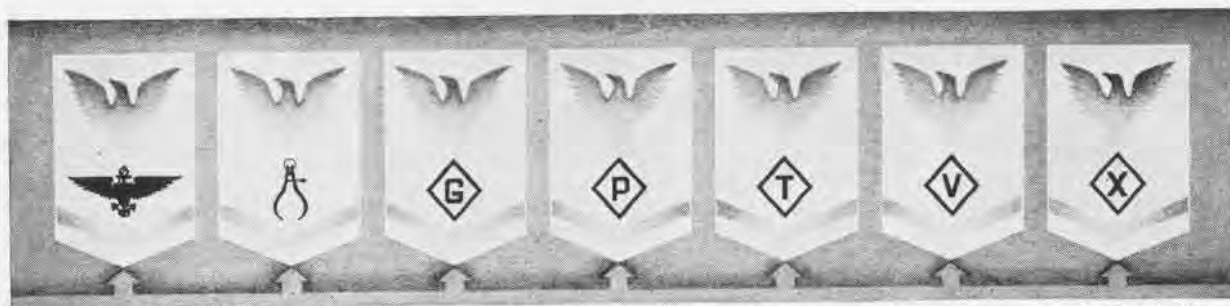
# NEWS



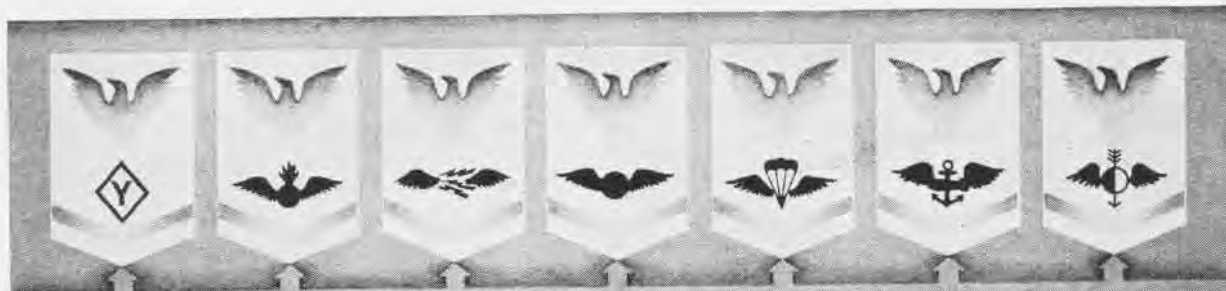
Aircraft Corrosion  
Truk • Air Bombers  
Grampaw Pettibone

May 1, 1944  
RESTRICTED

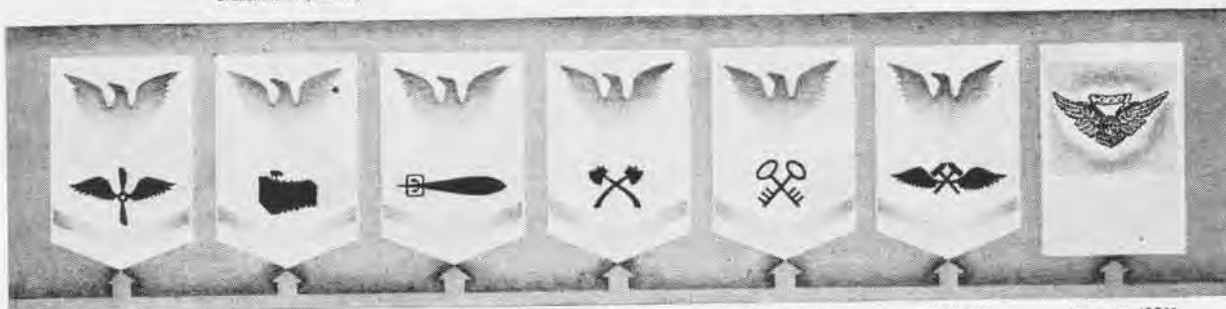




Aviation Pilot      Special Artificer Devices  
Special Artificer Optical      Free Gunnery Instructor  
(Sp)      Photographer (Sp)  
Motion Picture Production  
Photogrammetry      Link Trainer  
(Sp)      Transport Airman  
(Sp)      Visual Training Aids (Sp)  
Operations Chart Work  
(Sp)      Pigeon Trainer (Sp)



Control Tower Operator  
(Sp)      Ordnanceman  
Ordnanceman (Bomb-  
sights)  
Ordnanceman (Turrets)      Radioman  
Radio Technician      Electrician's Mate      Parachute Rigger      Airship Rigger      Aerographer's Mate



Machinist's Mate  
(Engine Overhaul)      Photographer's Mate      Torpedoman      Painter      Storekeeper      Metalsmith      Aircrewman (AOM,  
AMM, or ARM)

Machinist's Mate (Carburetors) • Machinist's Mate (Flight Engineer) • Machinist's Mate (Hydraulics) • Machinist's Mate (Instruments) • Machinist's Mate (Propellers)

# AVIATION INSIGNIA

THE NAVY HAS added numerous specialist classifications to augment enlisted men's ratings in aviation. With the addition of airship rigger and special artificer, it now has 21 different ratings in 13 general classifications, plus 17 specialist classes, ranging from pigeon trainer to optical gunsight repairman.

Most specialists wear distinguishing letters inside diamond insignia, although three wear the newly created calipers of the special artificer. They are the men who repair special training devices, those who work with the Mark I machine gun trainer and optical gunsight repairmen. They are called SAD's or SAO's.

Initial letters designating their specialty are added after some classes, such as SP(X)(PI), which indicates the man is in the Specialist X group and is an expert in pigeon training. He wears the X in a diamond the same as the rest in that group of specialists.

The "designators," as the extra letters are called, are especially valuable in indicating a man's specialty on paper so that it will be readily apparent to personnel officers. Two of the specialists do not have their own sleeve insignia. The Aircrewman and Air Bomber wear the silver Aircrewman's wings and their regular rating insignia—ordnanceman, radioman or machinist's mate in the case of the former and ordnanceman in the Air Bomber's case. The two classes have special combat qualifications.

OTHER AVIATION activities under the Specialist X classes are air stations' operations desk (time shack), operations plotting and chart work, and visual training aids. Specialists in aviation who wear the P in their diamond may be photogrammetrists—men who assemble aerial photographs into maps—laboratory workers, or motion picture production men.

Other aviation specialist classifications are aviation free gunnery instructor, Link trainer operator, transport airman, visual aids and control tower operator.

# SHORE STATIONS

► **NAS HUTCHINSON**—Add to hail, sand, fog, snow and ice a new hazard to flight above the Kansas prairies. Wild ducks swarming northward ahead of hot air from the gulf have had several encounters with Stearman's recently. There were casualties on both sides. Farmers working in their fields were surprised to see duck hamburger, garnished with feathers, come floating from the skies. A&R has had to work out new techniques for repairing duck damage.



The duck who surprised the Stearman jockeys most was the one who knocked a cylinder off a Stearman engine. Impact of the mid-air collision broke three studs and loosened others. When the plane taxied to a halt, the cylinder fell out. Puzzled mechs found blood, feathers and broken bones on the cooling fins.

That was a mild case. There was another duck-Stearman bout in mid-air which damaged both wings of both contestants. The duck landed a one-two wallop on the center section. The blow crushed the leading edge and deposited the duck in the gas tank which was badly bent. The duck was a dead duck as a result of his lack of discretion, but the Stearman lived to fly again—after A&R had put in 216 man-hours of work on the ship.

► **NAS BANANA RIVER**—Some months ago a newspaper columnist printed the question, "What do they do at Banana River, grow bananas?" No, they don't grow bananas, but down on this once swampy beach of nothing but sand, salt air and palmettos, the public works department has grown 16 large buildings in the past 15 months. New buildings include an operations building and tower overlooking both the landplane field and seaplane landing area, an air-conditioned ground training building, a seaplane maintenance hangar for PBM's, gymnasium, quarters for WAVES, and even a brig.

Also under the heading of expansion comes the A&R shop and engine test-cells building which covers an area larger than a city block. Yes, we have no bananas, but this station now has the modern scientific equipment to train men in the latest and best methods of air warfare.

► **NAS OTTUMWA**—The bowling team of this station claims a national record for war bond sales at a single "no-name" bowling match. Without a single big shot of bowling on the team, the station pin-men met the Don Pease civilian team in a match game at Burlington, Iowa, recently.

At the close of the match the Navy men aided in auctioning off bowling pins decorated with drawings of Stalin, Roosevelt, Churchill and others. The pins netted \$70,000 in war bonds, with one pin going for \$50,000.

► **NAS NEW YORK**—Figures rescued from the conservation officer's wastebasket reveal that: During the last two months, 17 tons of scrap aluminum, 30 tons of scrap metal and 1,500 plywood boxes have been rescued and put to work fighting the war. In the same period the Navy also has received \$1,000 in cash from the sale of waste paper, scrap lumber, empty tin cans, egg cases, vegetable crates, bones, waste fat and used aircraft engine oil collected on the station.

► **NAS NORFOLK**—So many reports had reached this naval air station about the B-26 and how hard it was to handle, that Navy pilots were a little fearful when they learned they were to get JM-1 *Marauders* for tow-target planes in the very near future.



Finally the day arrived for the first of several planes to be delivered. Pilots watched as the plane streaked in for a perfect landing and was taxied up to the line. Their fears were dispelled when out stepped the ferry pilot, a mere slip of a girl, barely 5 ft. tall, the sole occupant of the so-called "hot" plane.

► **NATTC MEMPHIS**—Collection of scrap paper on this station has reached the rate of 60 tons a month, baled and sold for reuse in the war effort and bringing in an income of \$1,045 in a recent month. Other salvage items, including glass, metal, greases, fats, wood and clothing swell this total to between \$2,500 and \$3,000 monthly.

Two paper salvage trucks making the station rounds gather an average of 2½ tons of paper daily. Cardboard and fibre board are sorted out and the paper baled. Red, white and blue salvage cans, located all over the station and in every building, aid in the collection of salvage material.

► **NATC CORPUS CHRISTI**—Recognizing that aviation safety is a matter of advance planning, training officers and aviation cadets here are working together to promote principles of safety in the air. The NATC aviation safety board, recently established and now in operation, is composed of aviation training officers, flight surgeons and squadron safety officers. The board is concerned with the broad problem of safety at this center. Supplementing the board, a cadet aviation safety board is being formed to collect information about crashes as well as near misses, and to exchange ideas and information on accident prevention. Neither board will be concerned with disciplinary actions. They will collect and study facts, make suggestions and advise anyone who has safety problems or ideas.

► **NAS NORMAN**—Although it takes from 30 to 40 tedious hours to turn a worn file blade, a few scraps of plexiglas, brass or copper into a commando fighting knife, two A&R crewmen on this station have made a dozen of them as gifts for shipmates headed for combat zones.

Spring steel is sometimes used to fashion the 7½" single-edge knives, so popular with Army-Navy commando units. All work is done during spare time.

► **NAS NORMAN**—There is a dive-bombing duck in the vicinity of this station who is carrying on a private war with the aerology department. Local recognition experts have failed to establish the breed, whether mallard, teal or some other branch of the duck family.



Recently aerology released a balloon for observation. The balloon was followed through the theodolite in routine fashion to an altitude of 4,000 ft.

At that point a formation of ducks appeared out of the south, headed due north. The ducks were in V-formation with considerable altitude advantage over the balloon. The duck on the port side peeled off into a power dive with full throttle and made a direct hit amidship of the balloon. The violence of the explosion hurled the duck into the equivalent of a 12-g pull-out. The duck didn't lose its wings, but it did black out, going into a flat spin. After approximately four turns it regained consciousness, pulled out of the spin and began climbing to rejoin its squadron. Intelligence is uncertain as to whether the duck is a saboteur or a duck who is given to the practice of flat-hatting. An investigation is under way. All relevant expert duck testimony is welcome.



**ADVANCE BASES!**  
LET NANews HEAR FROM YOU...

► **NAS NORMAN**—With a large number of rates being transferred to sea duty, the seamanship school here has received an enthusiastic response. Young bluejackets are learning the highlights of the ship's wheel and the compass, sending and receiving Morse code by both blinker and semaphore flags, how to lash a hammock, how to tie the basic knots, and are obtaining background knowledge from lectures and discussions. The school is conducted by a chief who has spent 41 years in the Navy. Two WAVES were among the first graduates of the school.

► **NATTC MEMPHIS**—The station gardening program got under way last month. The station garden has been increased from 80 to 100 acres, planted principally to sweet corn and sweet potatoes to be consumed on the station. This is in addition to the 100 x 25 ft. victory garden plots farmed by individual enlisted and officer personnel for their own use. Under the victory garden program, the Navy plows and harrows the land and furnishes the seed and fertilizer. The individual gardener takes care of the little items, such as planting, watering, weeding, harvesting and eating.

► **NAS JACKSONVILLE**—Attendance at the four movie centers aboard this station reaches the amazing total of 1,126,178 yearly, according to a survey by the *Jax Air News*. More naval personnel attend movies than all other entertainment combined ten times. The free station shows beat civilian theaters to the gun on new pictures and often get them before they are released in New York and Hollywood. The Navy policy has been a daily change of films, but owing to wartime curtailment of motion picture production, it soon will be necessary to present some old shows a second time.

► **NATTC JACKSONVILLE**—One hundred percent participation in buying War Bonds under the Navy payroll savings plan is the record set by civilian employees of NATTC. This perfect mark was reached for the first time as a result of the recent bond drive and gives the civilian personnel a higher percentage than any other NATTC station. The average bond investment is high as well, being over 13 percent of the total civilian payroll. This figure does not include cash sales.

► **NATTC MEMPHIS**—More than one ton of food has been saved each day at this station since cooks have been posted at GI cans in the galleys to take the names of those wasting food. An average of 2,208 pounds per day, excluding all trimmings, bones, etc., has been saved in the campaign.

ADVANCE BASES!

LET NANews  
HEAR FROM YOU...



## TOKYO TALKS

—To JAPAN  
Despite the fact that the Japanese gained rich oil-producing areas in occupying the Netherlands Indies and Burma, the Tokyo radio indicated recently that Premier Hideki Tojo's government was having difficulty in getting sufficient quantities of high-grade lubricants to run Japan's war machine smoothly. A clear indication of oil troubles was contained in the official Japanese announcement that the Tojo cabinet had designated the fuel oil industry as a critical war industry, placing it on priority with Japan's five key industries—aviation, shipbuilding, coal, iron and steel, and transportation.

—To JAPAN  
The Japanese Ministry of Education has ordered the introduction this month of newly designed curricula for secondary schools to provide compulsory training in more military subjects for boys and in air raid defense and labor service for girls. The curricula will serve "to cope with the pressing war situation" of the Jap empire.

—To JAPAN  
Tokyo radio told its listeners that the Allies had "completely crushed into our air mastery sphere" in the Southwest Pacific and that Allied raids on the key Japanese base were "increasing in intensity," with the attacks now centering around fighter-escorted "large-type bombers" instead of mainly fighters. "The fact that the enemy is now attempting to advance by using fighters and large-type bombers indicates, we must consider, that the rear supply of the enemy has been considerably solidified. Therefore, the battles in the future can be carried out on the basis of how many of these large-type bombers can be shot down."

—To JAPAN  
Tokyo quotes Premier Tojo as saying the British and U. S. people, blinded by their leaders, are the only ones who do not know that Japanese achievements are unparalleled in military history. Britain is exhausted, while Japan grows stronger. Britons and Americans are becoming distressed and dissatisfied. Japan is prepared for a long war, while the Allies are impatient to get it over with. Tojo then calls for greater production of steel, light metals and coal, the strengthening of labor, improvement of transportation, and an increase of food production.

—To JAPAN  
A Japanese correspondent broadcasting over the Tokyo home radio indicated that at least a portion of the Japanese home front had doubted "official" Japanese reports of huge naval successes off Bougainville last autumn by declaring that "I wish to reaffirm the accuracy of the reports which some of you have questioned. The enemy keeps coming in spite of this toll we take. Now the enemy has landed at Cape Merkus and at Cape Gloucester. We met him with too few planes." The speaker said Rabaul could be held by Jap forces "if they have sufficient planes," and appealed to the nation to continue "the present rate of increase" in plane production.

[Between last Oct. 17 and Nov. 17 the Japanese claimed they had sunk or damaged 166 Allied ships and shot down more than 514 Allied planes in the Bougainville area. These claims were ridiculed by Allied sources which stated that Jap claims covered engagements which had not even taken place.—Ed.]

—To JAPANESE AREAS  
In appealing for the production of more Japanese aircraft, a Japanese major said recently: "Large formations of Consolidated bombers and the new crack P-40's, P-43's and P-47 fighters raid our bases, with all types participating. In connection with the newest crack P-47, even though it is an enemy plane, we must admit that the armor and fire power of the fighter displays admirable qualities and efficiency. Furthermore, the courageous fighters attack our ground forces, who need several times the present number of anti-aircraft guns and are gnashing their teeth with vexation. Most of the enemy fliers are young student officers, and we must not underestimate their fighting spirit."

### SHOW ME THE WAY TO GO HOME



### Relative Sector Search

Use Mark 3A Board  
Mid-Lat. 32° S      Mid-Long. 178° E

The 0400 position of the U.S.S. *Saratoga* is Lat. 31°-02' S, Long. 176°-10' E, on cus 070°, speed 28 k. You leave the ship at 0400 with orders to scout a relative sector search from 190° to 220° and return at 0700. Wind at flight level is 32 k. from 286°, TAS 134 k.

Required:	1st Leg	2nd Leg	3rd Leg
TH	.....	.....	.....
SRM	.....	.....	.....
Cus	.....	.....	.....
Mi. on cus	.....	.....	.....
Min. on leg	.....	.....	.....
PGS	.....	.....	.....

What is the plane's 0615 DR position?  
Lat. ....  
Long. ....

(Answers on page 40)

# SHELTER

A NATURAL ROCK SHELTER AND A LEAF BED—A LITTLE INGENUITY WILL GIVE YOU ADDITIONAL PROTECTION FROM WIND, RAIN, COLD AND INSECTS

## Like food, shelter is a necessity in the wilds

THE ABILITY to provide yourself with adequate shelter will increase your chances of surviving in the wilderness and greatly reduce your physical hardships. Shelter and sleep are as necessary as food and water. You will tire as quickly from loss of sleep as you will from lack of food.

When lost or stranded, begin to look for a camp site at least two hours before sunset; don't wait until dark. Consider these factors in selecting your camp:

1. Available food
2. Good drinking water
3. Enough level ground for your bed
4. Protection from winds and storm
5. Bedding and shelter material
6. Protection from floods, wild animals, rock falls, high tides, wind and cold
7. Concealment from enemies

### SURVIVAL HINTS—NO. 8

*This is the eighth in a series of articles condensed from How to Survive on Land and Sea, new U. S. Naval Institute textbook issued by Aviation Training Division of CNO. Individual copies may be purchased from the U. S. Naval Institute, Annapolis, Md.—Ed.*

8. Absence of insect pests
9. Firewood

A ravine or narrow valley collects cold, heavy air at night and will be colder than surrounding heights. A natural terrace, a clump of bushes, a small depression, or a large rock on the leeward side of a hill will break the wind and make a comfortable camp site.

When you find your site, examine it well. Crevices and caves may harbor poisonous snakes; trees and logs may contain ticks, mites, scorpions or stinging ants. The time you spend making yourself comfortable for the night will pay good dividends the next day.

WITH A LITTLE TIME and effort a brush shelter can be made of two poles leaned against a log and covered with boughs or palm fronds. A more elaborate lean-to can be built. Tie cross pieces to the uprights with vines or bark. Cover the frame with evergreen boughs, elephant grass, palm or banana leaves, or strips of bark, depending on the available foliage. Start the boughs at the bottom row and work up to top in regular shingle-fashion.



# LEARN TO PROVIDE THE COMFORTS NEEDED FOR A GOOD NIGHT'S SLEEP UNDER ANY CONDITIONS

**I**N A COLD CLIMATE a shelter should break the wind and retain the heat from your fire and your body. The shelter should be small, windproof and as nearly closed as possible.

A snow cave meets these requirements and is easy to construct. Select a spot where the crust is firm or where the snow covers the low-hanging evergreen boughs. Scoop or kick a tunnel beneath the crust or limbs.

If you build a fire, there will be the danger of carbon monoxide poisoning, so a more open shelter is necessary. Dig a trench in a low drift or bank. Line the floor and roof the trench with boughs. Build a fire at the entrance and reflect heat inward with a reflector of logs, boughs or snow blocks.

Make the roof strong to support a layer of snow. This will help hold the warm air in. If you do not have a fire, cover the entrance and don't worry about air. You will get plenty. If you insulate your body from direct contact with the snow and prevent circulation of air, you will keep warm.

In a desert country you are concerned with protection from sun and heat, although wind is important and cold often is disagreeable at night.

Natural shelters such as vegetation, overhanging rocks and depressions will offer shade, provided you shift with the sun. A cave or covered trench is practical where sand or soil is loose.

To insure a maximum of warmth

throughout the night, spread a coat parachute or blanket of vegetation over the ground while it is still hot. This prevents rapid heat radiation and will

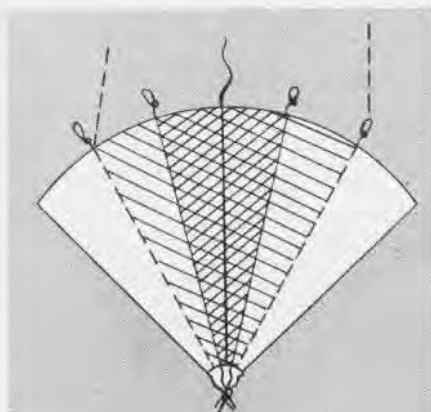


DIAGRAM FOR CUTTING CHUTE TO MAKE TENT AND HAMMOCK. CUT OUT FOUR SECTIONS AS SHOWN BY DOTTED LINES. FOLD DOUBLE TO MAKE HAMMOCK

help keep you warm through the night.

A good bed allows the body to relax completely and it insulates against ground chill. To do this it must be dry, smooth and free of insects.

**WARMTH**—The ground is cold at night and conducts body heat away. You need more insulation under you

than over you, as the ground is a better heat conductor than the air.

If it is cold and there is no snow, remove the ground chill by building a large fire over the spot you intend to sleep on. Spread the coals and stamp them into the ground; then make your bed over the heated area. In the open, however, several fires with reflectors may be necessary to keep you warm.

**SMOOTHNESS**—Hard, level ground is more comfortable than soft uneven ground. Avoid hummocks, small depressions, sticks and small stones.

**DAMPNESS**—Dampness is a problem in tropical forests during the wet seasons. It can be overcome by sleeping on a bed constructed off the ground. A platform can be made from vines and leaves or a parachute. The same section of a parachute used as a tent can be doubled and hung as a hammock.

**INSECTS**—A smudge produced by burning wet or green wood, leaves or grass will help keep mosquitoes and flies away, but the only real protection against mosquitoes is a net. Any place free of flies and mosquitoes, no matter how uncomfortable, is acceptable.

**A** GOOD WATERPROOF fabric can be made from the broad leaves of young banana trees. Build a hot fire on a flat stone or a platform of small stones. When they are hot, rake the coals off and place banana leaves one at a time on the hot stones. Let the leaf remain for a minute or two until it turns darker and becomes glossy. The heat "rubberizes" the leaf, making it more pliable and water-repellent. Leaves can be used to shingle a lean-to, make a poncho.

**IN THE NEXT ISSUE: SURVIVAL IN SPECIAL AREAS**

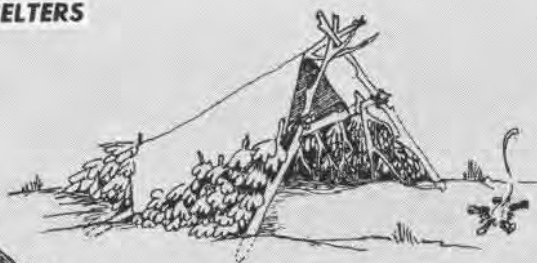


A parachute tent pitched high to give plenty of room. Use rest of chute for a blanket. Be sure to select your site with greatest care



A parachute tent pitched low to make a floor. For waterproofing and camouflage, cover with overlapping leaves, branches or bark

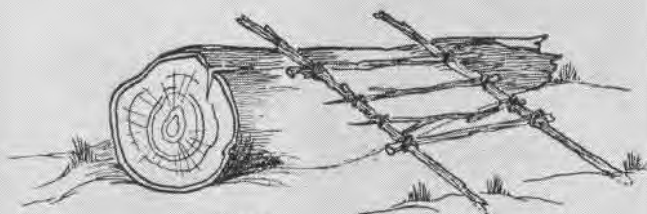
**SHELTERS**



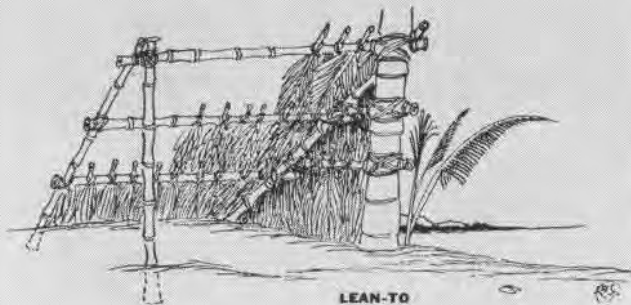
**TARPAULIN SHELTER**



**WINDBREAK SHELTER**



**LOG SHELTER**



**LEAN-TO**

**BEDS**



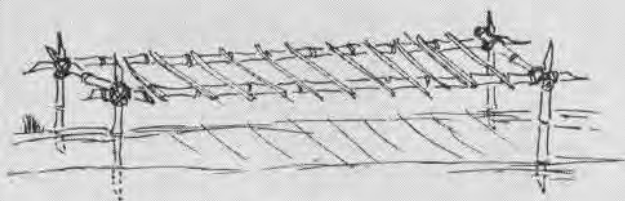
**BOUGH BED (INSERTED)**



**BOUGH BED (LAID)**



**JUNGLE BED**



**JUNGLE BED**



**Parachute hammock**—swing hammock with shroud lines. This is one of the best ways of sleeping in damp or insect-ridden country



**Plaiting palm leaves**—thatched leaves make good water-repellent shelters and comfortable beds. They are well worth the trouble

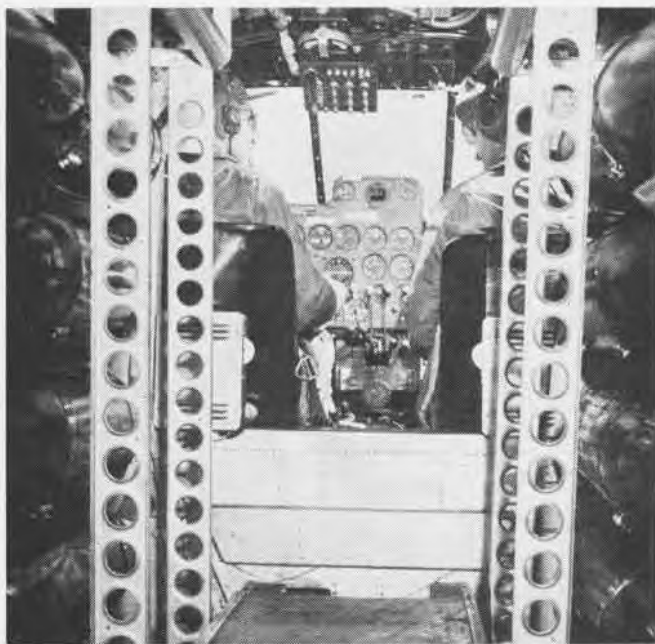


# AIR BOMBERS . . .

FUTURE PB4Y AIR BOMBERS PRACTICE AT BANANA RIVER WITH SNB'S, SALVOING THEIR BOMB LOAD ON MOVING TARGETS ON OCEAN FAR BELOW



Students at Banana River Training Unit practice use of bomb-sight in a 7-A-3 bombing and navigation trainer; ACI letter file from graduates in combat zone helps "bring the word" back to school on problems and activities of the air bombers



Eight practice bombs in bay of SNB en route to bombing range for a few "runs"; specially trained pilots fly the planes in which air bombers get their first practice; percentage of hits rises sharply as the men gather experience with their bombsights



Pilots and air bombers stand inspection prior to taking off on practice flights in snb's; accuracy of their operations can be sworn to by boat facility service at Fort Pierce which supplies maneuvering targets used by students at NAS Banana River

## ...Train Their Sights for Jap Shipping

**N**AVY LIBERATORS flying over Jap-held atolls in the Pacific are carrying many graduates of the Air Bombers Training Unit at Banana River, which recently passed its first birthday.

Both officers and men take the three-month training course, men coming from ordnance school and a few from bombsight school, while officers are gunnery training and intermediate training graduates. The ABTU is dedicated to the proposition that high level horizontal and glide bombing can be a deadly form of attack even against maneuvering targets, given proper training and cooperation between pilot and air bombers.

The unit has turned out a sizable number of crack navigator-air bombers since February, 1943, when the school started at NAS Jacksonville. Seven months later it moved to NAS Banana

River to take advantage of superior bombing weather of the Florida Coast.

Every month a new group of trainees arrives to go through the course. Some already have their pilots' wings; others, in the past, came from the air navigation school at Hollywood. After several weeks of ground school, which combines many lecture hours with intensive work on the latest synthetic horizontal bomber trainer, the neophyte bombers take to the air.

From this point on instruction is almost entirely in snb's and the specially equipped FBV which comprise the squadron complement of aircraft. Specially trained pilots fly the planes.

From the first trial drops until the final evasive approaches with live bombs, there is, except in a few cases, a predictable curve of steadily improving accuracy until finally the majority of

students are able to get results only slightly inferior to those of their instructors, many with long experience.

Under their tutelage, student air bombers at Banana River have dropped nearly a thousand tons of practice bombs in the last year, with a full share of direct hits from high altitudes on maneuvering targets. Automatic flight control equipment has been made to work so successfully that manually piloted bombing flights (the exception to the rule) are a matter of special scheduling.

Training in use of a special type of bombsight equipment, which was pioneered by ABTU, increases scope of high level bombing to a point where "horizontal" might be called a misnomer and potentialities of attack are greater than those considered to apply to high level horizontal bombing. Graduate air bombers can wear Aircrewman wings.



DATA SHEET FOR ANALYSIS OF BOMBING DROPS



BIG AND LITTLE BOMBS ARE USED FOR "RUNS"



BOMBER HAS TO USE MANY INTRICATE DEVICES



## ALL IN A DAY'S WORK

### MARINE CORPS REPORT

*DURING every war there are outstanding battles—war heroes. But the fellows who go into day-by-day combat are frequently surprised to find themselves an ace. An attack is scheduled, the enemy met and conquered. It's their job, and they do it. A Marine flier, with a sizable number of Jap planes to his credit, tells how he scored three Zekes and two probables on a single mission. According to his story, the accomplishment sounds simple, almost incidental, but without such courage, teamwork and direct hits, major victories would be impossible.*

I WAS LEADING the second section. When we first made contact with the Zeros, we were weaving above the bombers and over the target area at 22,000 feet. The bombers went in on their target and retired toward their rendezvous area. We scissored and made a number of passes at the Zekes, chasing them off each other's tails.

I saw Lt. S. scissor to the right, pass under me, and shoot a Zero that had

just sneaked in on my tail. The smoking Zero dove about 1,000 feet and then burst into flames. Lt. S. pulled back into formation again.

We then saw a P-40 below us and close to the water. He was being chased by two or three Zekes, and I could see the Jap bullets hitting the water under him. Further to the rear was a lone Zero. I dove down behind, got on his tail, and fired at very close range. This Zero made a wing-over to the left and crashed into the water.

After putting that Jap to bed, I climbed back up to 8,000 feet, and there I saw two other F4U's, which I joined. A few minutes later, I noticed Zeros and P-40's dog-fighting below and behind me, so I turned to lend a hand. I made a high side run on a Zeke that was on the tail of a P-40. He burst into flames and went down.

There were about eight Zekes in the area so I regained my altitude, then dove down and trailed in behind a Zero that was off to itself. I fired right into its tail. However, I had such terrific speed that I overran it, but he rolled

over and dove straight down smoking from about 6,000 feet. I couldn't observe the Zeke further as he went down over the southwest portion of X island.

After this, one of the P-40's pulled out of the fight and I climbed to join on other friendly planes off toward the west. I went with him.

We were at this time flying at 9,000 feet, with the P-40's below us at 5,000 feet. The bombers were a good distance ahead of us. Zeros were trailing out of range. Suddenly I noticed that two Zekes below were trying to sneak in on the tail of the P-40. I dove down to 5,000 feet, and fired at the closest Zeke. He burst into flames, turned abruptly to the left, and spun down towards the water out of control.

The other Zero started to turn back, apparently having seen the first one go down in flames. I turned inside of it, and got on his tail. On closing in on this Zero, I gave him three or four shorts and, when in close range, I pressed the button for a good long burst. Only one of my guns would fire, but I saw smoke pouring from beneath his cowl around the forward area of the fuselage. He went down through a cloud, but I didn't follow him because of my weakness in fire power. I couldn't observe him further, so I rejoined my pals and returned to base with them.



# TRUK

In preparation for the strike at Truk, two Marine PB4Y's spent 20 minutes over the atoll on a photo reconnaissance mission, February 4. From these films, photo interpreters laid the groundwork for the first task force raid which followed February 16 and 17 when hundreds of Navy planes blasted the Japs



## GEOGRAPHIC IMPORTANCE OF TRUK

OCCUPYING a central position in the Carolines and situated midway between Saipan and Rabaul, Truk has served as the pivotal base for Japanese defense of the mandated islands and the primary base for all South and Central Pacific operations. Located 565 miles southeast of Guam, 1,125 from Wake, 1,060 from Jaluit, and 1,045 from Port Moresby, Truk had become one of the most important advanced operation centers for Japan's Navy and air forces, serving

as a supply and relay point for the delivery of planes.

Truk, the largest atoll in the Caroline group, consists of a group of about 84 coral and basaltic islands and is about 33 miles long and the same distance across at the widest point. A barrier reef, roughly circular in shape, encloses the larger islands of Dublon, Tol, Moen, Fefan, Udot and Uman, in a lagoon about 39 miles in diameter. Altogether there are 14 volcanic, basaltic islands and 25 small coral isles surrounded by the fringing barrier which consists of a low, palm-studded reef with shallow, sandy beaches. Several deep water passes lead into lagoon which has several splendid ship anchorages.



**T**HE ISLANDS of the lagoon are roughly divided into two groups. The islands belonging to the eastern group are called Shiki Shoto and include Moen, Dublon, Fefan, Uman and other small islands in their vicinity. The western group is called Shichiyo Shoto and includes Udot, Fala-beguets, Tol, Onamue, Ulalu and adjacent islands.

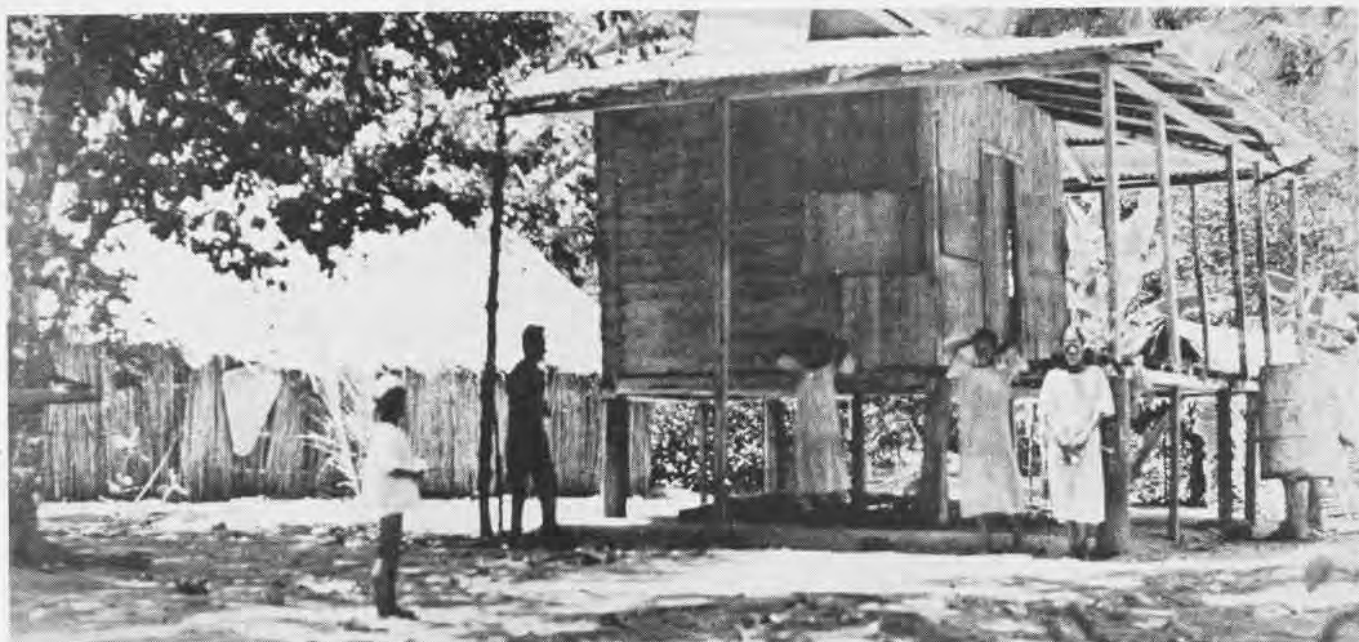
Also included in the Truk islands are the Kuop group to the south of the great lagoon. These consist of four small islets, called Givry, Hacq, Lauvergne and South Island, situated on the reef of a coral atoll 11 miles long and three miles wide. They are composed of coral sand and are cov-

ered with coconut palms but are of little strategic importance to the Truk group.

Population of Truk in 1935 was 15,292 natives, 1,032 Japanese and 24 foreigners. Dublon Town on the south side of Dublon Island was the home of the governor and headquarters for the Truk Branch Bureau which administered the Jap mandated group. Second city on Truk Atoll is Hanamachi on Moen Island.

An airman's view of Truk Atoll is presented in the drawing above which points out the principal islands, showing airfield installations and the passes navigable by large ships.





JAPANESE INFLUENCE ON TRUK NATIVES WAS NOTED LONG BEFORE WAR AS SHEET-IRON ROOFED WOODEN HOUSES BEGAN REPLACING THATCHED HUTS



IMPROVED ROADS BEGAN REPLACING NATIVE TRAILS AS JAPS TOOK OVER



COLONIZATION WAS NOT CONFINED TO STRICTLY COMMERCIAL ENTERPRISE

## CUNNING JAPS CONVERT PEACEFUL CAROLINES INTO FORMIDABLE BASE

**E**ARLY IN WORLD WAR I, when the Japanese seized the German Caroline possessions (October 1914), little significance was attached. The Carolines had been a German possession since 1899 when the Pacific islands were purchased from Spain. Following the war, the League of Nations confirmed Japanese possession by mandate which prohibited fortification of the newly gained territory.

While a German possession, Truk Atoll and others in the group had been open to world commerce for the limited products of the region. Principal items exported by the natives were copra, pearl, turtle shell and sea cucumbers. Boston missionaries were early on the islands, teaching na-

tives and translating the Bible. German missionaries joined them and, as a result, most of the islanders had been converted to Christianity.

As on most Pacific islands, native homes were square, roofed with palm leaves, walled and floored with bamboo. However, with Japanese occupation, a new culture was introduced. Wooden houses, set on piling to keep out moisture, with sheet-iron roofs and tanks to catch rain water, began to replace the native huts.

**O**THER CHANGES that followed were much more significant. Foreign trade was cut off and the islands practically closed to visitors. Harbors were deepened and improved. Although the Japanese admittedly were developing the commercial importance of the Carolines, other installations were of a purely military nature. In violation of the League mandate, the Japs were starting their long-range program of building Truk and the Carolines into a formidable naval base.



A NARROW STRIP OF WATER SEPARATES THE AIRSTRIP AND FACILITIES ON TINY ETEN ISLAND FROM DUBLON TOWN, CAPITAL OF THE TRUK ATOLL

## STRATEGIC IMPORTANCE OF TRUK

AS A NAVAL BASE, Truk has the best anchorage area in the mandated islands, as well as excellent natural defenses, but the Japs failed to equip it with very extensive ship repair facilities.

In addition to coast artillery, AA batteries, the Japs placed airfields at strategic points to aid in the defense of the atoll

as well as serve as operational bases and for relay points in the delivery of planes to other bases.

Strongest point in all the area and center of all activity on Truk Atoll is Dublon Island in the eastern section of the lagoon. Here are located headquarters for the central and eastern Carolines, main storage and repair facilities, sea-plane and submarine bases and main barracks. Other installations are airfields at Eten, Uman, Moen and Param. Main fortifications on Tol guard the western approaches to Dublon.

TERRAIN ON THE VOLCANIC ISLANDS IS SO ROUGH THAT ALMOST ALL LEVEL LAND IS USED FOR LANDING FIELDS, LIKE THIS ONE ON MOEN ISLAND



# NAVY PLANES RAID TRUK ATOLL

Approaching undetected to within 200 miles of the target, carrier-based planes soar aloft to strike at the enemy mid-Pacific stronghold. First to leave were F6F fighters to knock out enemy air cover, followed by dive bombers and torpedo planes to blast ships and installations





AS ONE AERIAL TORPEDO LAID BY TBF'S FINDS ITS MARK ON A JAPANESE TANKER, THE WAKES OF THREE OTHERS STREAK TOWARD THE DOOMED SHIP

## CARRIER-BASED PLANES STRIKE JAP SHIPPING IN TRUK LAGOON

**I**N THE BOLDEST MOVE made by the U. S. Fleet, hundreds of carrier-based fighters, bombers and torpedo planes struck at the heart of the Truk lagoon on February 16 and 17, sinking 23 Jap ships while six others were listed as probably sunk and 11 damaged. Included among the ships sunk were two light cruisers, three destroyers, an ammunition ship, seven tankers, two gunboats, eight cargo ships. Carriers and battleships found in Truk lagoon by reconnaissance planes February 4 were not there at the time of attack. It was presumed either they were withdrawn because of the reconnaissance or the carriers may have been ferrying planes. During the two-day aerial engagement, carrier pilots repeatedly returned to their ships to refuel, reload and strike again. Only one U. S. ship was damaged in the attack.



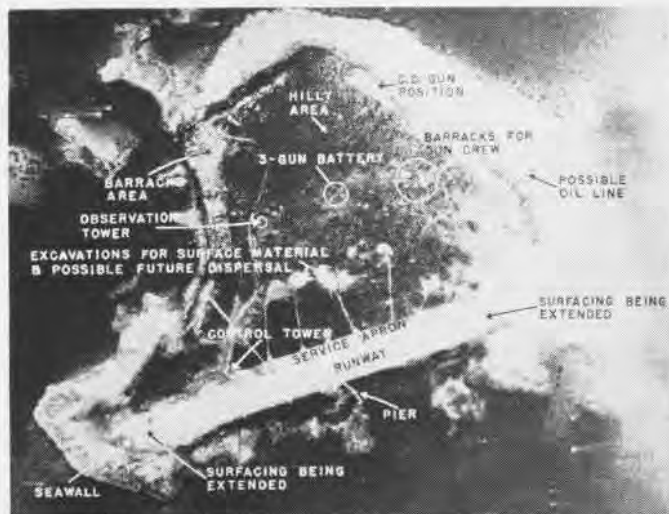
An F6F wings low over a beached Jap destroyer to strafe the gun crews which continued firing even though the ship had run aground on a coral reef in Truk lagoon while taking evasive action



Taken by surprise, Jap ships resting at anchor in the protected harbor get up steam to try to escape the swift thrusts of the carrier-based planes. Two, probably three, are already on fire



Two Jap ships burn fiercely following the attack by Navy planes in the anchorage just off well fortified Dublon Island. Most of the ships found in the lagoon are now resting on the bottom



This reconnaissance picture of Param Island was taken on February 4 and from it photo interpreters were able to identify important installations. From aerial views, plans for the strike were made



Seaplane base and installations on Dublon Island were blasted by Navy bombers during the two-day assault. Great fires were started and the picture shows more bombs on the way down

## SHORE ESTABLISHMENTS WERE A SECONDARY TARGET FOR AIRMEN

WHILE JAPANESE SHIPPING in the Truk lagoon was the principal target of the February strike, airfields and other shore installations came in for their share of strafing and bombing. Fighter planes were the first to take off from the huge U. S. task force which had approached within 200

miles of the Japanese fortress undetected. Swooping down swiftly on airfields, they knocked out 74 Jap planes on the ground while 50 others were so badly damaged they were never able to take off.

In aerial combat, 127 Jap planes were shot down for a total of 201 enemy planes destroyed and 50 damaged. U. S. plane losses were 17. So complete was the devastation of the Japanese air force that no aerial opposition was offered during the second day of the attack. Shore facilities on all the principal islands, including airdrome runways and installations, were thoroughly bombed and strafed in the raid.

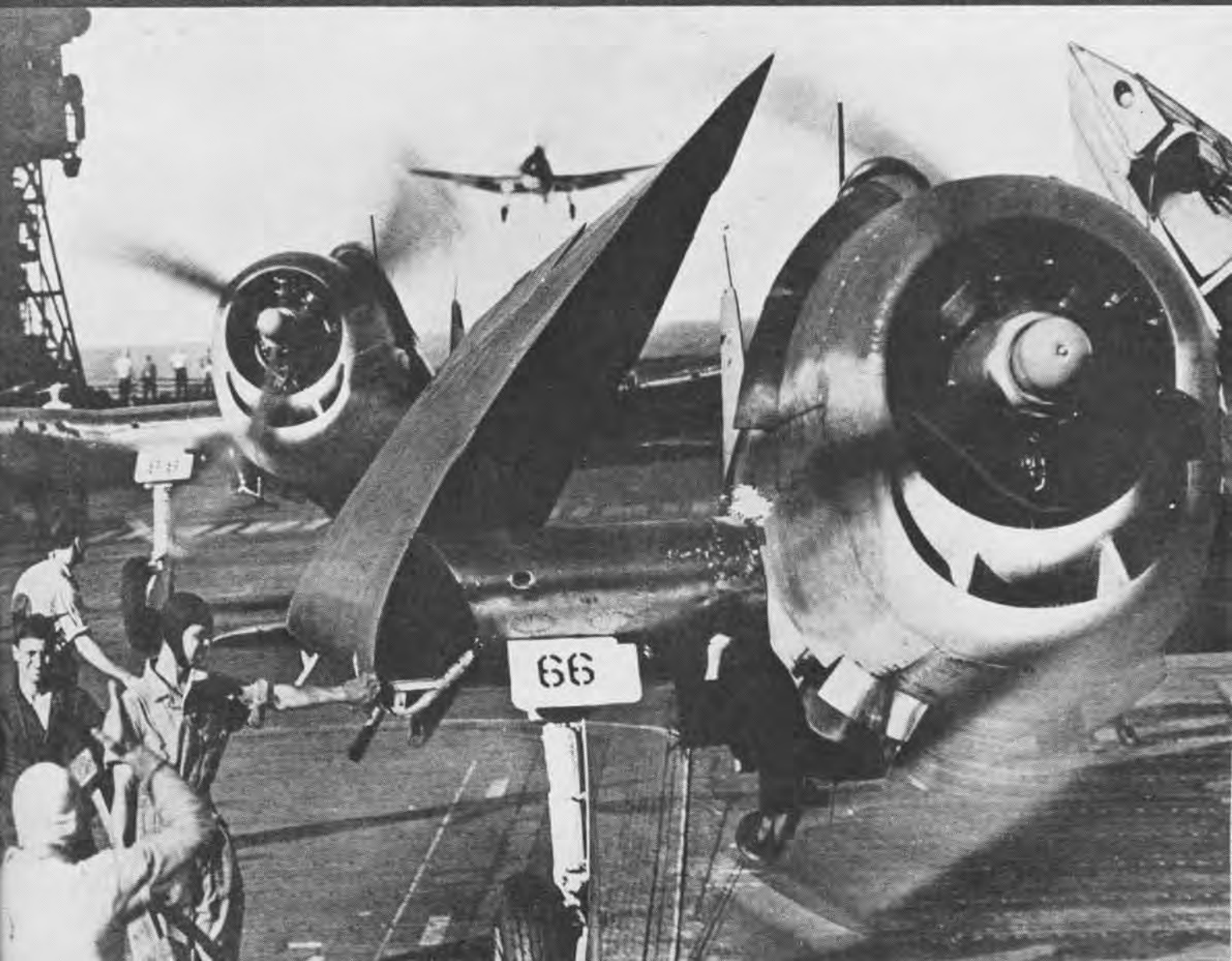


MOEN AIRFIELD, WITH BOMB-POCKED RUNWAY, WAS THE SPOT WHERE MANY JAP PLANES WERE DESTROYED OR DAMAGED ON THE GROUND DURING RAID



## MEANWHILE

LANDING IN TRUK LAGOON, A KINGFISHER PICKS UP A NAVY PILOT AND RETURNS HIM TO HIS CARRIER  
FLIGHT DECKS TEEM WITH ACTIVITY AS PLANES RETURN TO BE SERVICED FOR ANOTHER JAP ATTACK



# THE PBY AT WORK

**A**MONG the achievements of versatile PBY, none outshines the flying boat's ability to perform missions of rescue. From the South Pacific come these scenes of a mission in which a PBY picked up airmen adrift on life rafts and returned them safely to an Allied base.

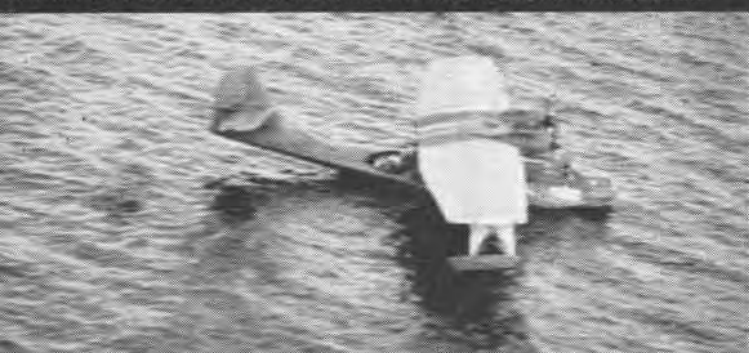
BELOW, FLYING BOAT SETTLES ON CALM SEA IN VICINITY OF DOWNED AIRMEN



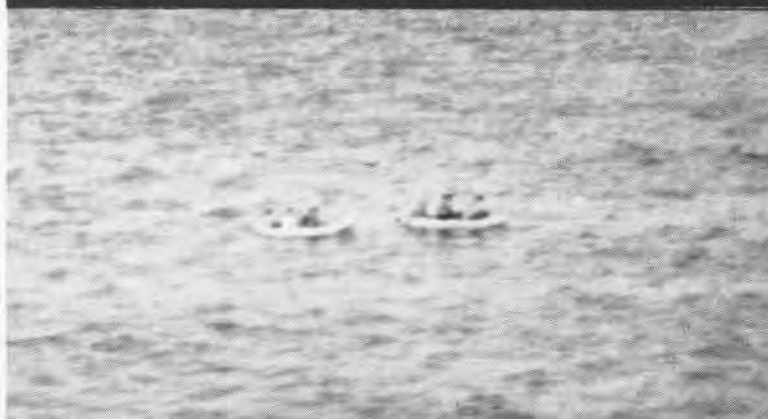
BELOW, RESCUE IS ONLY MATTER OF MINUTES AS PBY NEARS DRIFTING AIRMEN



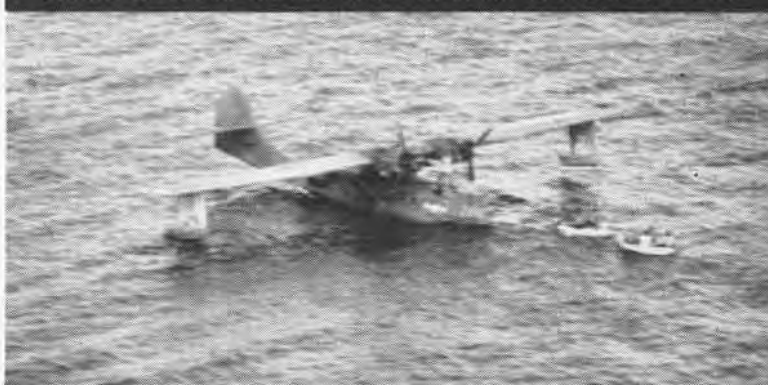
BELOW, OCCUPANTS OF RAFT HAVE CLIMBED TO SAFETY ABOARD RESCUE PLANE



SURVIVORS ON TWO RUBBER LIFE RAFTS AWAIT WELCOME APPROACH OF PLANE



CONTACT IS MADE AS DRIFTEES PADDLE THEIR WAY TO FLYING BOAT'S SIDE



PBY PREPARES TO TAKE OFF: PICTURES WERE TAKEN BY ESCORTING AIRPLANE



# TECHNICALLY SPEAKING

## Speed Painting of Wheels A&R Develops Masking Shield

NAS MINNEAPOLIS—A combination stand and masking shield for painting aircraft wheels has been developed by A&R here. It occupies a minimum of space and is constructed from scrap and non-critical material.

Two flanged rings 4" wide were constructed to fit snugly over the outside edge of the rim, thus masking off the



WHEEL MASKING SHIELD USED IN PAINT SHOP

tire. The rings are secured to each side of the wheel by using a short piece of 3/4" pipe with a sleeve for coupling and wooden plugs for bearings. The wheel and tire thus are quickly and completely masked off with the exception of the interior of the brake drum. The stand is constructed with a protruding horizontal arm waist-high so the shield with masking assembly may be mounted by merely sliding the hollow axle over the arm.

Wheels may now be masked and painted in only 10 percent of the time formerly required.

[CONSTRUCTED BY D. W. SCHEER, AM20]

## Suggest New Mooring Line BuAer Points Out Disadvantages

U.S.S. BOGUE—A new type of aircraft mooring line has been developed aboard this carrier, consisting of an offset hook at one end to engage the deck cleat,

another offset hook with an eye welded at its base at the other end and a 21-thread manila line. Both hooks are 3/4" stock, heat-treated. Advantages of this type of mooring line are:

1. Simplicity of construction
2. Quick securing
3. Adjustability
4. Ease of handling

The line is always reeved. Upper hook is secured to a plane part, lower hook secured to deck cleat and line



LINE IS PULLED TAUT AND QUICKLY SECURED



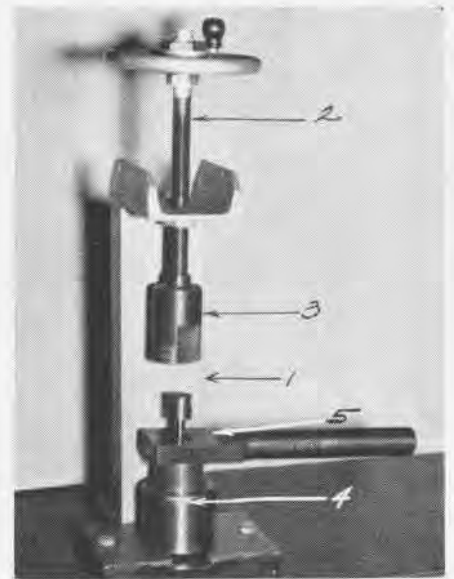
OFFSET HOOKS ATTACHED TO PLANE AND DECK pulled taut and secured with a rolling hitch.

[DEVELOPED BY JAMES E. FELL, BM10]

► **BuAER COMMENT**—The usual method of securing airplanes on flight decks is believed equal if not superior to this method. Possible disadvantages of *Bogue* system: Hook may not be sufficiently stiff to carry the load and may straighten out. Small diameter of stock used in hook imposes rough usage on securing lines due to sharp bends. The two metal hooks attached to each securing line are a hazard to matériel and personnel when blown about in slip streams on a crowded carrier flight deck.

## Jig Performs Difficult Task Manufacturer's Tool Unsuitable

NAS SAN DIEGO—A jig for removing and installing oil buffer cap from cylinder has been designed by a civilian employee here under the beneficial suggestion program. This operation is a difficult one because, in most cases, the cap is unusually tight. The tool furnished by the manufacturer for this purpose has proved to be unsatisfactory.



TOOL ELIMINATES SPOILAGE AND SAVES TIME

The new jig, which eliminates material spoilage and saves about 13 man-hours a week, functions as follows:

a. A buffer to be disassembled is placed in the chuck (4) of the jig. The chuck is so constructed that it prevents the buffer from turning when force is applied to the cap.

b. The wrench (5) is placed over the cap with its pins engaged in the holes of the cap.

c. Pad (3) is brought down to the wrench by revolving screw (2) by its handwheel. Pad is used to hold the wrench down to prevent it from slipping out of the cap holes when the initial pressure is applied to break the cap loose from its tight fit in the cylinder. Once the cap is started, the pad is screwed clear of the cap and wrench, and the cap may be unscrewed easily. No. (1) in photograph is frame of the jig. Entire assembly is built of scrap.

[DESIGNED BY M. E. BRAXDALE]





STUDENTS WORKING IN SMALL GROUPS, UNDER CAPABLE INSTRUCTORS, LEARN TO DISASSEMBLE AND ASSEMBLE THE SBD'S POWER PLANT, THE R-1820

# AIRCRAFT ENGINE SCHOOL

## NATTC gives specialized training in aviation maintenance

EVERY MONDAY MORNING, 30 Navy and Marine mechanics start on a 16-week training program in aircraft engines at NATTC Chicago, while a varying number of mechanics embark on a two-week engine short course.

Enrollees are given an opportunity to thoroughly study maintenance problems on the larger types of engines manufactured by Pratt & Whitney and Wright. The P&W R-1340, R-1830, R-2800, and Wright R-1820 and R-2600 are studied in detail. Plans for training on the Wright R-3350 are under way in order to have some men trained on this type before it appears in operation in the Fleet.

The greater percentage of men reporting for instruction have had varying degrees of experience in aviation maintenance. They report from carriers, advanced bases, CASU, PASU, HEDRON, A&R shops, primary and intermediate flight training centers and miscellaneous types of naval shore and Fleet activities.

In general the training points toward and emphasizes the maintenance aspect of the aircraft power plant, rather than overhaul, although the two are closely akin. Engines and accessories are completely disassembled and assembled on the basic assumption that a man can better maintain equipment if he knows it completely.

With this in view, students first study equipment in the shops and then their operation and installation in aircraft. Concentration at present is on the R-2600 installation in the TBF and SB2C and the R-2800 engine in the F6F and F4U. An effort is being made to include a maximum of trouble-shooting in this course.

Certain precision jobs such as grinding valves, fitting bushings, reaming, and the like, are performed by the men to impress them with the importance of accuracy in completing a job and to also give them experience in coordinating thoughts with use of tools. The cor-

rect use of mechanical tools is stressed throughout the course. Picked students, who are interested in instructing, are constantly being exchanged for staff members with extended shore duty.

Short courses of two weeks' duration have been established for specialized training in specific engine types. Included are courses on the P&W R-1830 and R-2800, also the Wright R-1820 and R-2600. Purpose of these courses is to give a man an opportunity to

### TRAIN MEN FOR RN

*Personnel in training in short courses at NATTC Chicago includes a group of officers and ratings of the British Royal Navy. These trainees are to be the nucleus of maintenance crews for British carriers flying U. S. Navy planes. In turn these officers and men will instruct others on correct maintenance and overhaul procedures for the American-built engines used in Fleet Air Arm operational aircraft.*

concentrate for a short period of time on one power plant. The latest equipment and information are available.

## Straddle Crane Very Useful Lightens Job of Engine Crews

NAS MIAMI—A straddle crane that enables two men to do 20 men's work in handling engine transfers has been designed and built by the torpedo bomber unit at this station.

It was intended primarily for hoisting, installing or removing torpedo bomber engines. Since its introduction to engine change, it has proved a prime



STRADDLE CRANE FACILITATES ENGINE MOVING

factor in loading and unloading engines from trucks, hauling engines in and out of quick-change mounts on the deck, and moving them about the hangar.

This "guillotine," as it was termed by VTB personnel, has replaced the use of chain falls suspended from the hangar roof.

[DESIGNED BY R. M. EZZELL, ACMEM]

► **BuAER COMMENT**—This hoist seems quite satisfactory. However, BuAer has under procurement suitable engine hoists designed especially for this purpose. These hoists are Tyler TE-2 turret and engine hoist; General Bronze Corp., portable tripod engine hoist. Both of these hoists are of the knock-down type construction, facilitating shipment. Capacity of the Tyler hoist is 4,200 lbs. and of the General Bronze hoist 4,000 lbs. Both are equipped with a hand winch and have a lifting height of approximately 22 feet on the Tyler model and 16 ft. on the General.

## Sort Bolts With Machines Useful in Salvage Departments

NAS PENSACOLA—Two assorting machines of different types have been submitted in the beneficial suggestion program after proving their worth in the bolt section of the salvage department.

These machines were built for gauging and assorting Q-screws and bolts. Q-screws are assorted to length and dash number or grip while the bolt machine is used to assort bolts from a small machine screw to a ½" x 6" bolt.

The Q-screw gauge operates by inserting the screw in a hole by light pressure of the finger. The screw actuates a plunger and gears are connected by proper ratio and spacing to a needle indicator. The needle indicator and

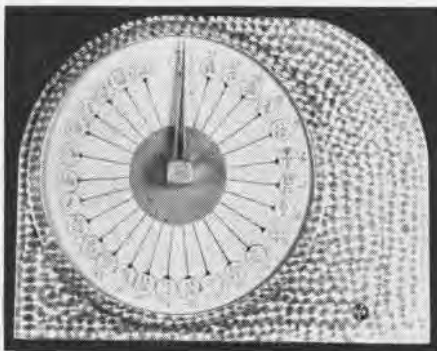


MEASURE LENGTH, DIAMETER ON BOLT MACHINE

dial are in full view of the operator, giving instant reading.

The bolt machine has a graduated reel instead of a needle indicator. Owing to inertia of the reel when put in operation, this machine is a little slower in action. It has a revolving diameter gauge on top as shown in photo. Three of these gauges are to be furnished with each machine, one for bolts from ⅜" to ½" diameter, one for round head machine screws in all diameters and one countersunk for flat head machine screws. In the lower front is a gauge for checking threads per inch on all bolts and screws from No. 4 to ½" NF.

[SUBMITTED BY HARRY L. BISHOP]



Q-SCREW SORTER INDICATES LENGTH ON DIAL

## PHOTOGRAPHY

### Gun Camera Program Is Changed

Cognizance of purchase and distribution of gun camera films has been transferred from BuOrd to BuAer. In an effort to improve quality of results, all gun camera film contracts will be altered immediately. Two new Universal films on a gray base, made by one manufacturer, which can successfully be developed either to a negative or positive image, will be supplied. Packaged developers to suit the new film, for all types of machines, are to be placed on the Standard Photographic Stock List.

Technical Bulletins with all details of the Universal film, the packaged developers and processing instructions will be distributed by BuAer. Stop-gap instructions for Houston K-1A processing machines are available on request for those units having machines.

### BuAer CL on Photographic Subjects

The following BuAer Circular Letters carry a wealth of information for photographic officers and photographer's mates:

BuAer CL 2-38, dated 15 January 1938, Aer-A-ML, P2-4, A4/VV, *Care of the Ears in Flying*.

BuAer CL 10-40, dated 20 November 1940, Aer-F-4-NMM, P11-1/F44, *Aerial Training of Photographers*.

BuAer CL 11-41, dated 6 June 1941, Aer-F-1-ILW, F49-4, A2-11/EN11, *Flight Equipment to Be Worn at All Times by Pilots of Fighter and Dive Bomber Types of Aircraft*.

BuAer CL 26-43, dated 7 September 1943, Aer-E-243-DM, L11-1, Ser. 138749, *Reports of Unsatisfactory or Defective Material*. (Paragraph 8 (d) explains photographer's concern in assembling the report.)

BuPers CL 173-43, dated 8 September 1943, and BuPers CL 22-44, dated 29 January 1944, *Air Crew insignia*.

Arrangements have been made with Publications Section, BuAer, to distribute the following books: *Photo-Lab Index*, with current information service; *American Cinematographer Hand Book and Reference Guide*; and *Photo Data Book*, a handy booklet published by General Electric on the use of exposure meters.

► Some excellent photographs of attacks on enemy shipping made with the torpedo camera have been received in BuAer. The photographs are valuable both for assessing damage and for interpretation study.

► Still Pictures Section, BuAer, reports that considerable value of some photographs is lost due to improper captioning. A new Technical Bulletin entitled *Official Motion Pictures and Still Photographs: Numbering, Captioning, Unit Designation, Classification and Forwarding* deals with this matter and covers subject thoroughly.

## Mock-Ups Wired for Sound

### Teach Procedure by Recordings

BuAer's Special Devices Division recently announced the availability of Pilot Cockpit Replicas With Instructional Recordings.

Each series of Pilot Cockpit Replicas represents the front cockpit of a particular airplane of the carrier-based class. These replicas, in conjunction with instructional recordings, are designed to

planted by the FM-2, while other models are being brought up-to-date to conform to latest service types. In addition, replicas and recordings of the TBV-2, BTD-1 and training type planes are soon to be available through Special Devices Division.

The structure represents the upper portion of the fuselage from the forward cockpit bulkhead to a station just abaft the seat and is constructed of wood covered with a plywood skin. The original windshield is faithfully copied.

fold and spread wings, how to operate radio equipment, and how to use oxygen equipment.

► **Checkouts.** Cockpit procedure from starting to landing with all check-offs thoroughly covered.

► **Emergency Hop.** Introduction of common failures and emergencies with standard solutions.

Pauses in the recording allow the pilot time to orient himself with controls and instruments, absorb directions and follow instructions in procedure. A special shelf is hung over the cockpit side to hold the phonograph and album. The pilot merely turns on the phonograph and plays the records in proper sequence. A headset, or loudspeaker for larger groups, may be used.

Recordings may also be used with Cockpitainers (Device 17-A) or in hangar instruction in operational plane.

## Shock Struts May "Freeze"

### Don't Overtighten the Packing

Maintenance personnel are cautioned against overtightening the packing glands on shock struts that utilize V-ring packings. When leakage is encountered in shock struts, usual procedure is to tighten the packing gland nut. This will reduce leakage if the packings are loose in the gland; however, if the packings are firmly seated, further tightening causes packing to overlap at the edges, resulting in excessive friction.

Instances are reported where packing glands have been overtightened and have then been overcharged with air in an attempt to extend the strut. This condition results in high losses in shock absorption properties and often causes the strut to freeze in extended position.

Certain model airplanes incorporate a mechanical landing gear downlock which is actuated by compression of the landing gear strut. When the strut is frozen in the extended position, the lock is rendered ineffective, thereby permitting inadvertent retraction of the gear during landing or on the ground.

## Tow Target Release on SNJ

### NAS Alameda Has Drawings

A new tow target release to be installed on the longitudinal centerline of the SNJ has been designed recently at NAS Alameda. Operation of the release is from the front cockpit. Installation and detail drawings are No. 62560 and 52561 respectively and can be obtained from NAS Alameda. Units requiring a tow target release for the SNJ should write the station for complete details.



STUDENTS LEARN FAMILIARIZATION AND CHECKOUT PROCEDURE OF OPERATIONAL TYPES OF PLANES

familiarize students and pilots with the location of instruments and controls. They may be set up singly or in multiple units for instructing several students simultaneously. Replicas and recordings for the following planes are now available:

Replicas	Recordings	Plane Types
12-Z-1	12-ZR-1	SBD-5
12-Z-2	12-ZR-2	SB2C-3
12-Z-4	12-ZR-4	TBF-1
12-Z-5	12-ZR-5	F4U-1
12-Z-6	12-ZR-6	FM-2
12-Z-7	12-ZR-7	F6F-3

The F4F-4 Replica is being sup-

An adjustable seat, lap and shoulder safety belt, and parachute mock-up are installed.

All instruments are represented by photographic or silk screen reproduction. Levers and knobs, such as tab and landing gear controls, are made of wood and non-strategic metals. Their range and movements are identical with those of the operational plane. However, no attempt has been made to duplicate the feel of stick and rudder pedals. The pilot's switch panel is equipped with real toggle switches accurately labeled and located.

Each album will consist of a series of instructional recordings. A typical set will consist of the following series:

► **Familiarization.** A complete checkout on location of all instruments and controls in cockpit with a brief description of each.

► **Radio and Oxygen, Wing Folding and Spreading.** Thorough instruction on how to

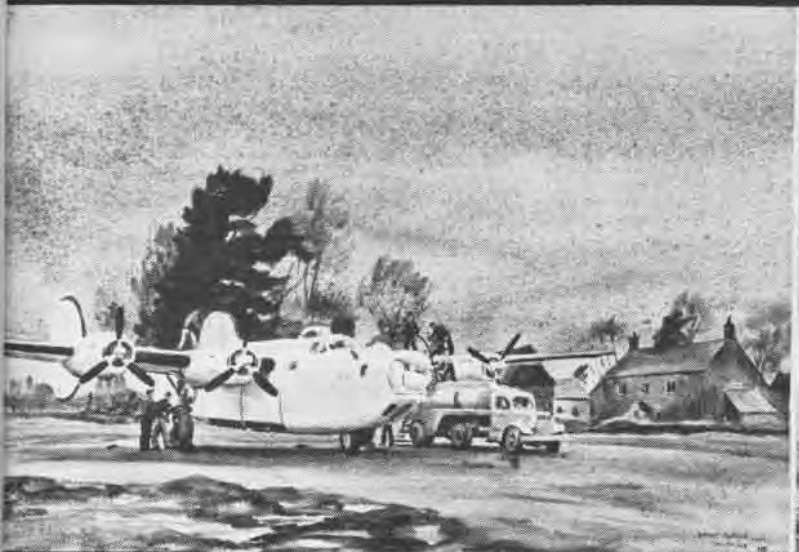
**ADVANCE BASES!**  
LET NANNEWS HEAR FROM YOU...



MAIN STREET OF FLEET AIRSHIP WING FEATURES OMNIPRESENT MUD



IN BACKGROUND NAVY COMBAT AIR INTELLIGENCE OFFICER BRIEF'S CREW



ON LANDING FIELD NEAR BRITISH FARM HOUSE LIBERATOR IS READIED



TAKING OFF FOR ELEVEN-HOUR HOP, LIBERATOR LEAVES BRITISH SOIL



ARTIST HAS DEPICTED DEPTH CHARGE STRADDLING, EXPLODING ON SUB



PILOTS AND CREW, TIRED, HUNGRY BUT RELAXED, DISCUSS SUCCESS

## NAVAL AVIATION IN ART

AS NAVY PLANES strike out at enemy ships in various theaters of sea warfare, the story of Naval Aviation is being told dramatically by Navy com-

bat artists assigned to duty at sea and advanced bases to depict these scenes. The pictures above tell something of the dismal, inclement weather under which

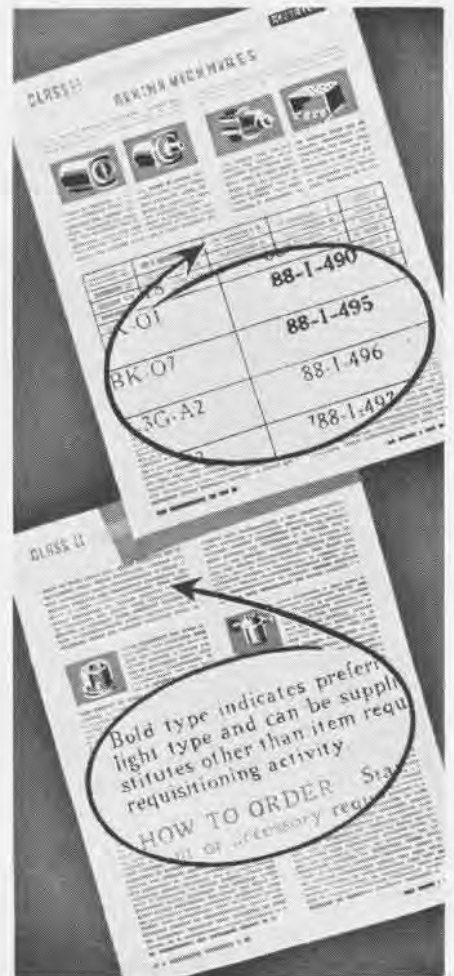
U. S. Navy Bay of Biscay air patrols operate in conjunction with the Royal Air Force's Coastal Command. This big body of water off the French coast is patrolled to destroy German U-boats that operate to and from bases there. Crews of Navy *Liberators* based on British soil have their bomb bays loaded.



Two indexes make it easier to find information. The name index shows main item and stock class, while the section index lists naval aviation material in more detail



Illustrations help quickly to identify spare parts, materials and equipment. On many important units, "exploded" views show the breakdown of various sub-assemblies



Bold face type usually has special significance as explained by notes on pages of catalog. For example, popular, new or preferred items are always listed in this way

# CATALOG HELPS SPEED AVIATION SUPPLIES

EXCERPTS from letters received from various activities reveal the need for the Aviation Supply Office Catalog in aiding the identification and requisitioning of naval aeronautical materials, spare parts and equipment.

"Please expedite all possible sections as the Catalog is the nucleus of the course of instruction at this school" . . . "the Catalogs have arrived and are of immense help" . . . "one of our greatest troubles is to insure proper identification of material" . . . "the most valuable Navy publication so far as this squadron is concerned" . . . are typical comments.

These quotations show that men charged with the responsibility of aviation supply recognize the need for placing catalogs in the hands of personnel who must do the actual work of identifying and requisitioning parts.

Copies of the ASO Catalog are available on request to all interested activities such as supply points, naval air stations, A&R shops, training schools and squadrons. Activities that do not have the Catalog or require additional copies may write direct to the Aviation Supply Office, Oxford Avenue and Martin's Mill Road, Philadelphia 11, Pa. This office, which procures and distributes naval aeronautical materials, spare parts and equipment, compiles and publishes the Catalog and has charge of its distribution to naval activities.



POPULAR AVIATION SUPPLY ITEMS ARE EMPHASIZED IN THE ASO CATALOG

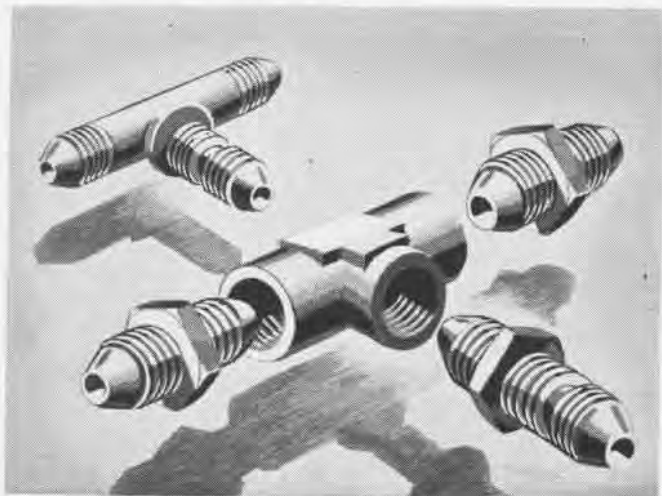
## HINTS FOR USING THE AVIATION SUPPLY OFFICE CATALOG



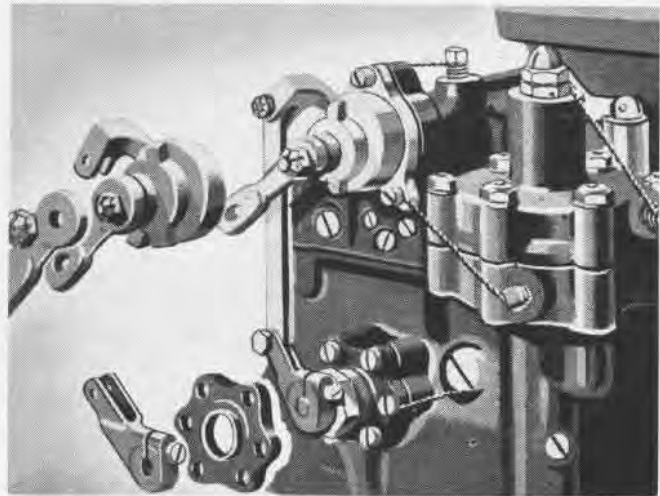
Place catalog in the hands of personnel who have the job of identifying parts and drawing up requisitions. It will aid them in locating part names and numbers, reduce errors, save much time



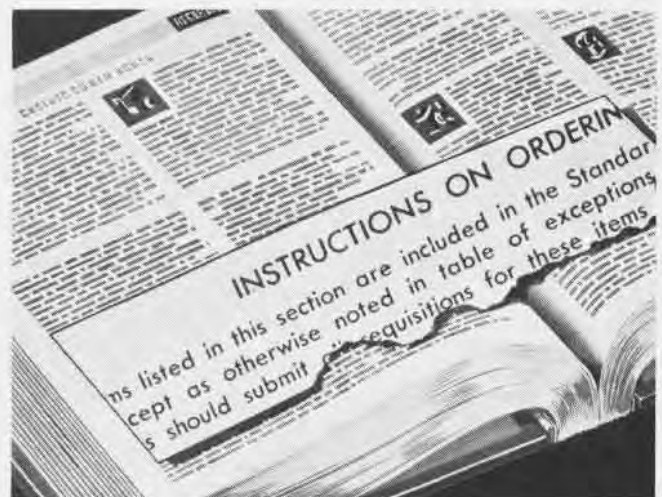
To find the listing of an item when the class is unknown, look in the name index. Cross references will lead to the proper class section even though the person using catalog is in doubt on name



Substitute parts and interchangeable items may permit immediate repairs to an aircraft. Always look for these listings if the particular part desired is not available and cannot be supplied out of stock



Minor parts may not be listed separately. If not, look for the next larger assembly unit containing the part you need. In ordering, it may become necessary to requisition this assembly to get part



In requisitioning items look for the special instructions found in the front section of each class or type of material. Complete details and all necessary information will be included in these instructions



For complete information it is important to have all issued sections of the ASO catalog. The same item may be referred to in several different classes and cross references will facilitate getting data

## POWER PLANTS

### Turn Auxiliary Fuel Pump Switch Off

A number of lower cylinder connecting-rod failures have occurred as a result of leaving the mixture control in the AUTO-LEAN position while engine is stopped. This is caused by inadvertent energizing of the electrical system with the auxiliary fuel pump switch on, which causes flooding of the lower cylinders with fuel and subsequently results in a hydraulic lock in the cylinders when starting is attempted.

Auxiliary pumps are not required for ground operation and should be turned off at the end of landing run or at least immediately prior to stopping engine. All ground crew personnel are cautioned not to turn on the main battery switch without first checking to make sure that auxiliary fuel pump switch is off and/or that mixture control is in idle cut-off.

It is recommended that a placard with wording similar to the following be installed adjacent to the main battery switch:

DO NOT TURN MAIN BATTERY SWITCH ON WHILE ENGINE IS NOT RUNNING UNLESS AUXILIARY FUEL PUMP SWITCH IS OFF AND/OR MIXTURE CONTROL IS IN IDLE CUT-OFF.

### Backfire May Be Due to Throttle Set

An investigation of starting and backfiring difficulties encountered at one activity revealed that much of their trouble was result of lack of attention to initial throttle setting. With too small a throttle opening, the engine will fail to start or will start and then die. With too great a throttle opening, the engine probably will start but is apt to backfire violently with some danger of blowing intake pipes. This applies to warm as well as cold engines.

The sequence of events leading to backfiring with too great a throttle opening are:

1. The engine starts but when it begins to pick up speed, the air flow increases more rapidly than the fuel flow, resulting in an excessively lean fuel air mixture. The leanness is aggravated by the fact that too high a throttle setting cuts out the idle fuel metering system which is operative only at low throttle openings.

2. This lean mixture, instead of burning smoothly and rapidly in the cylinder, will burn slowly and still be burning when the intake valve opens for the next cycle.

3. The still-burning mixture flashes back through the open intake valve, exploding all the mixture in the intake pipes and blower case and occasionally shooting flame out of the scoop.

Experience will show what throttle setting will start and run the engine at 800-1000 rpm when cold. This setting may run 200-300 rpm higher after engine warms up.

This setting should be marked with paint or tape on the throttle quadrant of each airplane since the correct setting will vary from one airplane to another owing to small differences in throttle rigging.

## Gyro Indicates Dive Angle Furnish BuAer Instrument Soon

NAS PATUXENT RIVER—When the Aircraft Armament Unit had a definite need for a dive angle indicator of reasonable accuracy, a standard directional gyro was mounted on its side instead of upright and adapted to this use.

The installation, which was tested on the ground and in flight, was made by cutting the instrument panel as required; however, the gyro may be mounted in any other suitable position without cutting the panel. The dive angle may be read directly if the directional gyro is mounted so that caging knob is mounted on port side of dial. Tests showed gyro to be correct within two degrees, when used as follows:

1. Set dial to indicate attitude of plane in flight position depending on the angle of the reference line to horizontal. This angle varies with speed and loading even though there is no change in altitude.
2. Uncage the gyro.
3. Enter dive by pushing over, not by rolling, as this will tumble the instrument.
4. Do not roll in dive.
5. Cage gyro after pull out as it will start to precess within a few minutes for the instrument was not designed to operate in this attitude.

This installation was made in an F6F-3 and tested for accuracy with the new Sperry Attitude Gyro, which was also installed in this plane. The directional gyro on its side gave an accurate dive angle on all tests when used with the limitations specified. Installation was made primarily to train pilots to recognize the correct angle for diving.

► **BuAER COMMENT**—Subject to the limitations noted, use of the directional gyro as a dive angle indicator will give good results. It should be noted that indicated dive as read from the indicator after it has been set to zero in level flight will be angular dive from level flight attitude and angle of attack of the airplane must be taken into account to obtain angle of dive with respect to horizon.

It is expected that introduction of the new attitude gyro, an instrument which indicates the attitude of the airplane with respect to a horizontal plane through any maneuver, will answer not only the demands for a non-tumbling gyro horizon but will serve as an excellent dive angle indicator as well. Production of the attitude gyro is expected to begin in July. Installations will be made first in the newer fighters and bombers but it is expected that a small number will be available for specialized uses such as training pilots to recognize a certain dive angle.

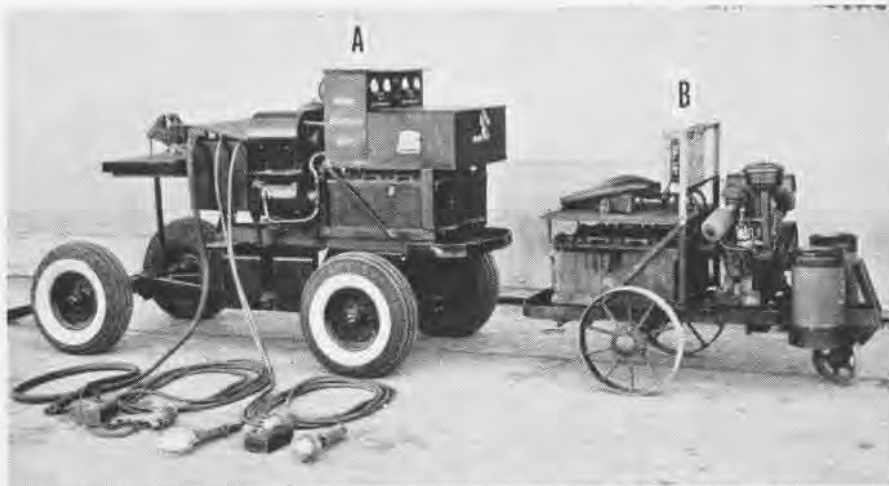
## Alter F6F Ammunition Box Eliminate Projecting Stop Lug

Some activities have experienced difficulty with the outboard and middle ammunition box handles on F6F-3 airplanes although modified in accordance with BuAer change No. 23. The difficulty now appears to be in the metal stop lug welded on the handle which projects above the upper edge of the side of box when handle is folded, catching on the wing rib and making removal very tedious.

Navy 128 has suggested removing the lug, drilling holes through the two handle angles and inserting a cotter pin as shown in the accompanying photograph. Grumman has remedied this situation in F6F-3 airplanes, BuAer Serial Number 26011 and subsequent planes.



ELIMINATE PROTRUDING STOP LUG WHICH MAKES REMOVAL OF F6F AMMUNITION BOXES DIFFICULT



ELECTRIC WORK SHOP BUILT INTO MOBILE UNIT TO PROVIDE POWER FOR MANY SQUADRON NEEDS

## New Unit Supplies Power Electric Work Shop Is Developed

FAIRWING TWO—Headquarters squadron at this base has developed a portable electric power unit to handle starting and battery-charging problems of the planes operating out of here.

A portable electric work shop, (A) in the accompanying picture, was built around a standard "Pony Express Co." unit (B). It was composed of a gasoline driven engine, 30-volt D.C. generator with two 12-volt heavy duty batteries to give 24-volt D.C. A shock-mounted base was built on a standard bomb cart to receive this unit.

A ½-hp D.C. motor was converted to a 120-volt, D.C. generator and connected by a belt to the gasoline engine to furnish a source of 120-volt, D.C. power. The two generators and the two 12-volt heavy duty batteries constitute the electrical power for the work shop.

In addition, an instrument box, containing a 30-volt, D.C. voltage regulator, relays and instruments; i.e. 0-15 amp. ammeter, 0-150 volt voltmeter, 0-50 amp. ammeter, and a 0-30 volt voltmeter; a tool box, a box for stowing power cables (24-volt D.C. cable with convenient outlets) and a 120-volt D.C. cable with outlets for operating hand drills, circular saws, soldering irons, lights, etc., and a work bench and vise are incorporated in the unit.

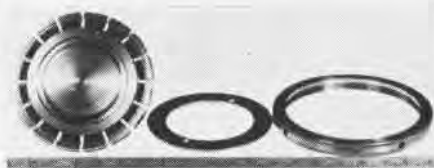
The unit is simple in design and operation and convenient in arrangement. Batteries supply power for starting the gasoline engine. Single-throw toggle switches are located on the instrument panel and on outlets to facilitate control of power.

## Jig Useful in an Emergency Can Salvage Oilite Shim Plates

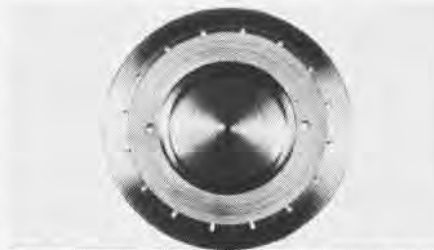
NAS CORPUS CHRISTI—A new facing jig for Hamilton Standard propeller

shim plates, in use at this station for several months, has been responsible for salvage and return to service of some 200 oilite bronze shim plates.

Oilite bronze, of which Hamilton Standard shim plates are made, is a highly critical material. Surfaces of the plates become unevenly worn during service, requiring frequent refacing so



VARIOUS PARTS OF FACING JIG DISASSEMBLED



TOP VIEW OF JIG WITH SHIM PLATE IN PLACE

that opposite sides are parallel to within .0005 inch. Prior to construction of the facing jig, this operation was attempted in an ordinary lathe chuck. This method requires an excessive amount of time. It was finally abandoned owing to unsatisfactory results. Many shim plates being repaired at this station were discarded because they became badly warped as a result of improper chucking.

When it becomes necessary to manufacture new shim plates, the new jig may be used to facilitate the machining of grooves in both sides of plate. It also assures accurate drilling of center hole. Facing of finished parts to specified tolerances is readily accomplished, thereby eliminating a bottleneck in pro-

duction when factory-made replacement shims are not available.

[DEVELOPED BY LEE A. HILL]

► **BuAER COMMENT**—When these shims are scored or pounded to the extent that they need refacing, under normal conditions, they should be replaced. This fixture would then be reserved for emergency use.

## Inaugurate Exchange Plan Provide Averagers for Sextants

During the past six months, sextants complete with averagers have been issued to the service. There are, however, a number of Pioneer sextants, Mark 5, FSSC 88-S-350, which have been issued without averaging devices attached. Averaging mechanisms are now available for attachment to these incomplete sextants. They will be stocked at NAS Norfolk, NAS San Diego and NAS Pearl Harbor and the A&R shops at these stations are being set up to effect the modification.

It is recommended that any activity possessing this type sextant, lacking the averaging device, forward the instruments to the A&R shop of the nearest station listed above, with instructions to have the averager attached, the instrument checked and collimated and placed in stock for reissue. It is the desire of BuAer that activities forwarding sextants do not request repairs and return but rather draw new instruments, complete with averaging devices, from stock.

This policy of exchange will enable activities to maintain a stock of sextants and will give repair facilities ample time for overhaul. Sufficient sextants will be available for replacements.

## Improve FM-1 Fuel Gauges BuAer Authorizes New Change

Numerous reports of faulty operation of fuel quantity gauges in FM-2 airplanes have been received by BuAer. In order to remedy the reported difficulties, the following changes are expected to be incorporated in this model in the near future:

1. Transmitter float is being changed to a roller type float to prevent malfunctioning caused by jamming by the tank liner.
2. Low fuel level warning is being incorporated.
3. Indicators and transmitters are being changed to an improved type.
4. Fuel tank with increased capacity will be substituted for the present tank.

Service airplane changes covering the above points are expected to be issued by BuAer in the very near future.



## Dolly Helps Remove Wings Bomb Trailer Makes Firm Base

SCOUTING SQUADRON 57—It was found necessary to devise a mobile jack-dolly to remove SBD wings, expediting frequent gas tank changes.

A MK-11 bomb trailer was built up and four small hydraulic jacks mounted, bearing padded cross members to sup-



BOMB TRAILER AND JACKS MAKE UP WING DOLLY

port the wing. This mobile jack-dolly facilitates removal of SBD wings.

[DESIGNED BY MARTIN E. MELDE, ACMM(PA); GEORGE T. KENNEDY, ACM(AA); FRANK J. URBAN, AMMLC, AND J. B. TRUSSELL, AMM3C]

► **BuORD COMMENT**—BuOrd believes this is a good idea and has a stock of these trailers available if desired for this purpose.

## Eliminate Creeping Controls Engine Mixture Device Is Handy

NAS NORMAN—Use of NH-1 aircraft at this station revealed the tendency of the "push-pull" mixture control to creep to the idle cut-off position, particularly during take-off or landing.

A simple contrivance was designed by an electrician's mate that effectively



ADAPTATION STOPS 'PUSH-PULL' FROM CREEPING

prevents this dangerous condition. The hand knob is removed from the control rod. A flat 9/64" deep is then filed 5/16" into the threaded portion of the rod. A half-round piece of brass is then mated into the flat, and reinstallation of hand knob secures the brass in place.

The push-pull control is then free to move to full rich position, where it is stopped by the brass insert. If idle cut-off is desired, slight finger pressure depresses the brass insert, permitting full control travel to idle cut-off.

[DESIGNED BY O. D. GILBERT, EM2C]

# AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

## Prepare Scrap and Overhaul Guide

The Bureau of Ordnance is now preparing a *Scraping and Overhaul Guide* which will assist salvage and overhaul activities to program intelligently the overhaul and scrapping of aviation ordnance equipment. It is expected that this information also will be useful to salvage crews and activities in advanced areas in planning the return or scrapping of aviation ordnance material.

## Bomb Rack Arming Failure Is Solved

BuOrd has received reports of electrical arming failures of bomb racks Mark 50 and 51 type because of improperly formed arming wire retainers.

The defective arming wire retainers have a rounded surface at the point where plunger of arming solenoid contacts retainer rather than a flat surface forming a sharp corner with the lobe of retainer. Analysis of the reported bomb arming failures shows that when bomb racks are electrically "armed," rounded contact surface permits retainer to rotate, camming the arming solenoid plunger upward sufficiently to permit "safe" drops.

A NavOrd OTI-V is now under preparation concerning defective arming wire retainers and will be issued in the immediate future. The OTI-V will request activities concerned with operation or maintenance of bomb racks to test the racks for defective arming wire retainers by inserting the loop or plate of an arming wire in arming hook of rack and applying a 25-lb. load to arming wire with arming solenoid energized.

If the arming wire is released under these conditions, retainer should be considered defective and electrical arming feature should not be used.

Replacement arming wire retainers (Stock No. 3-R-543) are under procurement and will be distributed to major supply points as promptly as possible. Until replacements are available, the following suggestions are offered for activities encountering bomb racks having defective arming wire retainers:

1. Replace racks if satisfactory spares are available. Turn in defective racks suitably tagged, to supply for shipment to nearest overhaul activity for correction.
2. Where necessary, install replacement retainers locally manufactured in accordance with the applicable Bureau of Ordnance drawing No. 328766-1.

## Gun Corrosion by Water Is Problem

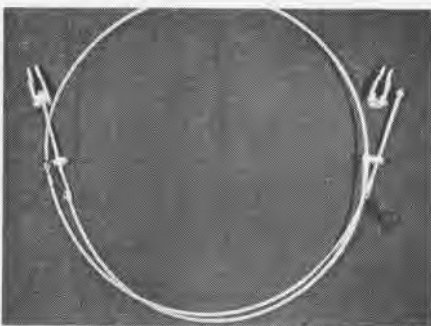
It has been noted that many planes salvaged from combat areas have arrived on the West Coast with aviation ordnance equipment still installed and corroded so badly that the ordnance equipment was beyond all possible hope of recovery.

To recover for service use the maximum amount of this needed equipment, it is imperative that all principal items of aviation ordnance equipment be removed from the aircraft and preserved prior to shipment from advanced areas.

When adequate preservatives and packing facilities are not available, all activities are encouraged to use whatever is at hand, even coconut oil, as that is better than returning equipment with no preservation at all.

## New Mark 15 Torpedo-Hoisting Sling

A new torpedo-handling device, the Torpedo-Hoisting Sling, Mark 15, has been developed by the Bureau of Ordnance and is expected to aid considerably in reducing the time required to install torpedoes in naval aircraft. The design finally decided upon is the result of much development work, during which many ideas were tested. It is expected that this device will



TORPEDO SLING IS EASY TO INSTALL, REMOVE

be enthusiastically received by the Fleet as suggestions for such a sling have been received in the past from several service activities.

The inherent advantages of a cable type torpedo-hoisting sling, ease of installation and removal, are readily apparent, but several notable safety features have also been built into the Mark 15, such as:

1. When the sling is properly installed, a torpedo may be hoisted until it is in a vertical position (nose up) without appreciable slippage of the cable.
2. Sling is sufficiently strong to permit hoisting a torpedo from only one of the sling's clevis fittings.
3. In the event that one hoist cable should break during hoisting, the sling will not unwrap from the torpedo, but will remain attached, restraining the torpedo in its fall by means of the remaining hoist cable.

As a result of the successful development of the Mark 15 Torpedo-Hoisting Sling, several designs of a similar nature for use in hoisting bombs are being investigated.

# LETTERS

# PUBLICATIONS

SIRS:

Enclosure (A), snipped from the April 15 issue of NAVAL AVIATION NEWS, is captioned thus: "Pilot and his rear gunner talk over strategy of attack; teamwork of plane crew is highly important when enemy planes appear."



Ignoring the scope of the "strategy" under discussion, information is requested, in view of the map title, as to whether "our team" is planning to raid Philadelphia, reconnoiter Richmond, or is simply "attacking" the U. S. Treasury to collect flight pay.

COMMANDER, USN

Washington, D. C.

¶ Shhhhhh, the enemy's listening! Must be Battle of the Potomac.

SIRS:

If possible, I would like to have my name added to the mailing list to receive regular editions of the NAVAL AVIATION NEWS.

In looking over this publication, I find it to be crammed full of useful and valuable information for anyone in the Navy.

ENSIGN (SC), USNR  
Supply Department  
Naval Air Station

Jacksonville

¶ Sorry, but it is not the policy of NAVAL AVIATION NEWS to address copies to individuals. NAS Jacksonville receives a regular quota of copies which is believed sufficient for the needs there. Copies should be available regularly through established distribution channels.



SIRS:

I have noticed in innumerable issues of NAVAL AVIATION NEWS including the issue of March 1, 1944, page 35, that scotch tape is recommended repeatedly as a water-proofing material.

It is possible pilots may accept this as a fact without test. If so, and they have occasion to be in the water for a short time, they will learn to their dismay, and probably discomfort, that the best grade of scotch tape will water-proof nothing for a period longer than several minutes.

One layer of tape will keep matches dry about four minutes; four layers, about 15 minutes. It peels under water.

A dependable method is to sew the object in one thickness of scrap plane fabric, then dope it; this will last indefinitely.

COMMANDER, USN

Air Group 18,  
U. S. Pacific Fleet

¶ NANews recognizes the shortcomings of scotch tape and it should be more correctly referred to as water repellent rather than waterproof. However, it will offer considerable protection to entrance of atmospheric moisture when not exposed to direct saturation.

The method proposed above will give greater protection than tape or any other material which must be wound on but doped fabrics will invariably become stiff and crack under pressure, thereby breaking the seal.

## ANSWERS TO IDENTIFICATION QUIZ on page 37

1.3 2.2 3.4 4.3 5.4 6.1

Visual quiz films are available from BuAer's Special Devices Division. Standard slide film versions may be obtained from Training Films.

## BEST ANSWERS

to questions on page 8

1.b 2.c 3.b 4.b 5.a

## ANSWERS TO NAVIGATION PROBLEM

on page 12

TH	226°	109°	007°
SRM	144 k	145 k	116 k
Cus	213°	108°	020.5°
Mi. on cus	130	93	179
Min. on leg	65	33½	81½
PGS	120 k	166 k	132 k

0615 DR position  
Lat. 32°-05' S, Long. 177°-04' E

(Tolerances of 2 or 3 miles or 2 or 3 degrees from the answers are considered correct)

The following Aviation Circular Letters, Technical Notes and Technical Orders have been issued since the last list was published in NANews, April 1.

## AVIATION CIRCULAR LETTERS

- ACL 14-44 *Aerological Sounding Balloons—Instructions for Treatment of, Prior to Use.*
- ACL 15-44 *Marking of Parachutes With Striking Date.*
- ACL 16-44 *Obsolete Aircraft—Policy for Maintenance and Disposition of.*
- ACL 17-44 *Aviation Equipment Officers, Training and Duties of.*
- ACL 18-44 *Fuel Systems—Self-Sealing Fuel and Oil Cells—Inspection of.*
- ACL 19-44 *Federal Airways Instrument Flying Qualifications and Instrument Flight Clearance.*
- ACL 20-44 *Used Radio Sounding Instruments, Disposition of.*
- ACL 21-44 *Direction of Commercial Aircraft by United States Navy Control Tower Personnel, Requests for and Revision of Comments.*
- ACL 22-44 *Aircraft Engineering Drawings and Technical Data Reproduced on 35mm Microfilm—Provision of.*
- ACL 23-44 *Aircraft Reservations and Danger Areas.*
- ACL 24-44 *Aircraft Radio Equipment—Microphones, Lip and Oxygen Mask Types as Personal Flight Gear, Improper Clearance of Aircraft, Destructive Stories, Information Relative to.*
- ACL 25-44 *Aviation Circular Letters—Cancellation of.*
- ACL 26-44 *Radio Sounding Performance, Improvement of.*
- ACL 27-44 *Propeller Log Books—Distribution and Handling of.*
- ACL 28-44 *Aviation Circular Letters—Cancellation of.*
- ACL 29-44 *Radio Sounding Performance, Improvement of.*
- ACL 30-44 *Propeller Log Books—Distribution and Handling of.*

## TECHNICAL NOTES

- TN 24-44 *Oxygen Familiarization Flights—Precautions Concerning.*
- TN 25-44 *Brushes for the Eclipse P-2 Generator.*
- TN 26-44 *Hose—Quick Attachable—Complete With End Fittings—Instructions for Assembly In.*
- TN 27-44 *Aircraft Automatic Pilots—Designation for.*
- TN 28-44 *Repeating of Pistons in Pesco Model 1H-437-F Hydraulic Hand Pumps.*
- TN 29-44 *One-Man Paracraft Protection Against Chafing.*

## TECHNICAL ORDERS

- TO 27-44 *Self-Sealing Fuel Tanks—Obsolete Construction—Withdrawal From Service Use.*
- TO 28-44 *Model PB2Y-3 Airplanes, Model PB2Y-3R Airplanes, Restrictions on Maneuvering.*
- TO 29-44 *Model R5D-1 Airplanes—Restrictions on Maneuvering.*
- TO 30-44 *Model F4U-1, F4U-2, FG-1, and F3A-1 Airplanes, Restrictions on Maneuvering.*
- TO 31-44 *Wheels, Brakes and Struts—Inspection and Replacement of H-3-101 Type 56-inch Hayes Wheels.*
- TO 32-44 *Oxygen Rebreather Apparatus—Instructions Concerning.*
- TO 33-44 *Approach Lights as Hook Latch-Down Indicator—Information Concerning.*
- TO 35-44 *War Emergency Power Operation.*
- TO 36-44 *VHF Communication Antennas.*
- TO 37-44 *General Use of Boss, CAP, and Tubing Seals for Aircraft Systems.*
- TO 38-44 *Model R5C-1 Airplanes, Restrictions on Maneuvering.*
- TO 39-44 *Inspection of Radio Lifesaving Equipment.*
- TO 40-44 *Self-Sealing Fuel Cells—Packing, Storage, Maintenance, Inspection and Repair of.*
- TO 41-44 *Aircraft Oxygen Cylinder Valve Outlets—Modification and Standardization of.*
- TO 42-44 *Modification of Eclipse Type NEA-5 (Type 1007-1A) Generators.*

# HOW YOU CAN HELP IMPROVE THE FIGHTING PUNCH OF NAVY PLANES

**SPECIFY MANUFACTURERS' DESIGNATIONS WHEN WRITING ACTION REPORTS!**



*Seems Like a Little Thing But*

## HERE'S WHY IT'S IMPORTANT!

That plane you fly is the product of many hundreds of factory workers—it's their baby too! What happens to their baby after it leaves the plant, the record it rings up, are of utmost personal interest to them. And the Navy has found that it pays off well in factory performance to flash back records of action telling how their planes stand up in combat.

The Navy also knows that it means a great deal to the finished plane if each worker takes a *personal* interest in the job of assembling that plane and getting it off the line in perfect finish. So every effort is made to have these workers on the home front feel that their plane, their baby, is right in there doing a job against the enemy.

## BUT THE TROUBLE IS . . .

Many AIRCRAFT ACTION REPORTS (ACA-1) coming in do not definitely describe the manufacturer. *For example*, the report says ". . . in which a Corsair took part." That does not tell whether the plane is a Corsair

manufactured by Chance Vought, Goodyear or Brewster. This lack makes it impossible for the Navy to use the report for incentive purposes among aircraft manufacturing employees.

*Another example:* A report may read ". . . two Avengers took part in the strike." Same trouble. The Navy cannot tell whether the Avenger was manufactured by Grumman (TBF) or by General Motors (TBM). And the chance is lost to tell the makers what a fine job their plane has done.

## WHAT REPORTING OFFICERS CAN DO

If you are a reporting officer, you can help produce the best performing planes by doing two things when writing out AIRCRAFT ACTION REPORTS: (1) Wherever possible, mention examples of good performance, (2) In all cases give the manufacturer's designation.

Where laudable performance is noted, the Navy will use these facts to disseminate among aircraft workers, thus keeping their *personal* interest in the next Navy plane at highest possible pitch. The Navy will benefit, pilots and crews will benefit, the war effort will be furthered, production improved!

## DON'T SAY:

CORSAIR

AVENGER

WILDCAT

## SAY:

CORSAIR F4U or  
CORSAIR F3A or  
CORSAIR FG

AVENGER TBF or  
AVENGER TBM

WILDCAT F4F or  
WILDCAT FM



**"WE WANT TO KNOW!"**

**PLEASE COOPERATE . . . DESIGNATE MANUFACTURER IN ALL AIRCRAFT ACTION REPORTS!**

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