

NAVAL AVIATION

NEWS



Japanese Antiaircraft
Aircraft Torpedo Rings
Crash Fire Rescue Units

Mar. 1, 1945
RESTRICTED



HIS JOB AS LSO

groomed him for
AIR COMMAND



“THE job of the Landing Signal Officer is just as important to success of the naval aviation team as any job performed in the air.”

So says Commander David McCampbell, USN, of Los Angeles, winner of the Congressional Medal of Honor and commander of the Navy's crack Air Group 15.

Commander McCampbell was LSO on the old *Wasp*, from her commissioning until she was sunk in 1942. When, in 1944, he took command of the Essex Air Group, he found his knowledge of ship and deck assignments, aircraft control and pilots—gained as LSO aboard the *Wasp*—groomed him to take over, train and supervise the Air Group.

“A Landing Signal Officer has more opportunity to get the feel of carrier life than most people,” Commander McCampbell explained. “He does work and shoulders responsibilities that pilots haven't the chance to

do. LSO experience has been a real aid to me.”

Commander McCampbell's squadrons rang up an impressive score against the Japs. Air Group 15 shot down 314 enemy planes, of which the Los Angeles ace personally bagged 34, nine of them in a single fight.

Credit for this substantial success, the Navy's top-scoring fighter pilot claims, goes to Teamwork. Nowhere, he adds, can a better feel for Teamwork be gotten than in the job of the LSO aboard a Navy flattop.

No. 1 of a series.





JAP ANTI-AIRCRAFT

A PRIME PURPOSE of Navy photography is to discover enemy anti-aircraft gun positions. Long experience in the Pacific involving pre-invasion aerial photos and ground shots taken after capture of Jap territory now enables the photographic interpreter to analyze accurately most pictures of Jap AA.

The enemy is installing heavier AA in many places, and U.S. interpreters are watching for new types of Japanese anti-aircraft guns. More adequate fire control equipment is being added to existing Jap guns in an attempt to improve their effectiveness. In some instances the enemy is utilizing British-made AA guns that were captured at Singapore or Hong Kong or taken from the Dutch in the East Indies. Japanese factories

also produce copies of British guns. The Japs have improved greatly their technique of making dummy gun positions, and these the photographic interpreter must be wary enough to spot.

THE U.S. Naval Photographic Intelligence Center soon will publish a book, *Japanese Guns, Anti-aircraft and Coastal Defense*, which summarizes photographic evidence on all known Jap AA and CD guns. It shows that patterns and appearance of enemy AA positions are usually similar from island to island, simplifying identification. Once located on photographs, these guns can be subjected to naval and artillery shelling and effectively bombed and strafed by American planes.



JAPS HASTILY MAN 75 MM HEAVY ANTI-AIRCRAFT GUNS NEAR WEWAK, NEW GUINEA. 75'S ARE MOUNTED ON FIVE OUTRIGGERS

JAPS BOOST EFFECTIVENESS OF 75'S BY BETTER FIRE CONTROL

THE 75 MM has been the principal heavy anti-aircraft weapon used by the Jap army. Well made, maneuverable and mobile, it nevertheless is considered an ineffective gun because of its obsolete on-carriage fire control system. A



Long the principal heavy AA guns of Jap army, most 75's have obsolete on-carriage fire control system that makes them ineffective

battery of Jap 75's can send up an effective anti-aircraft barrage, and this type of defense often is used by the enemy. In recent months U.S. troops have captured several batteries of 75's equipped with directors and cables for transmitting data. Fire control of this type improves the gun's effectiveness.

A quick identifying feature from the air is the mount of the 75, which consists of five outriggers, usually weighted at the ends with sandbags. The 75 is the only Jap gun that has a base with five outriggers. Unfortunately these often are buried and cannot be seen. Batteries of 75's usually are found in groups of four or six guns, occasionally in formations of two or seven. The normal arrangement is an arc. Several types of revetments are built for the 75, with shapes that are circular, five-sided, or circular with trenches leading off opposite sides. Captured 75 mm revetments vary from 18 to 22 feet in inner diameter. If the revetment is smaller than 18 feet, the Japs have to bury the ends of the outriggers in the revetment wall.

Some 75's Have Director Fire Control

Two types of fire control are found with the 75. The old on-carriage type includes a height or range finder, course and speed calculator, and binoculars, each set in a small separate revetment within the arc of the guns. The newer type has height or range finder, director, cables for transmission of data, binoculars, and auxiliary course and speed calculator. Each instrument is in a small separate revetment. The 75 mm has no shield. Because of its limitations, it is being replaced to a large extent throughout the remaining Japanese empire by the naval 120 mm AA gun.

The Japanese 76.2 mm is an old type modeled after a



FIRE CONTROL INSTRUMENTS ARE INSIDE THE ARC OF 75'S; 13.2 MM MACHINE GUNS ARE IN SMALLER REVETMENTS AT THE RIGHT

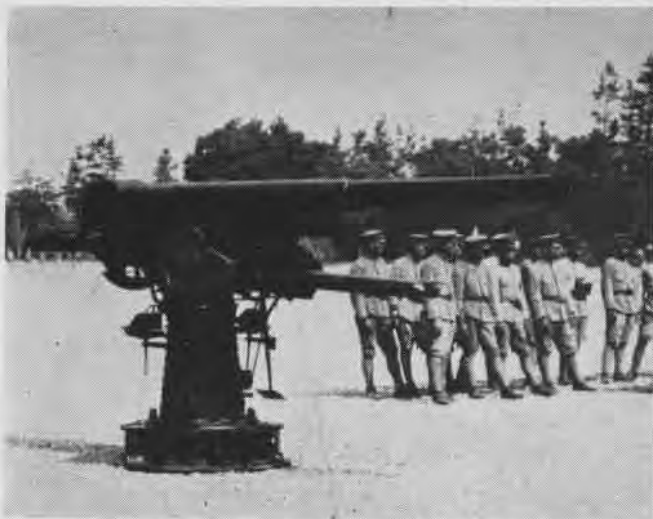
French anti-aircraft gun. Although still in use, it is seen much less frequently than the 75 and 120 and is not an effective weapon. For quick identification, interpreters watch for the large recuperator tube which is mounted above the barrel. The 76.2 often is found in batteries of three guns. Revetments on land have an inner diameter varying from 14 to 20 feet, and platforms for the gun when aboard ship are approximately the same size. Height finder and data computer are necessary for controlled fire, but the 76.2 may be used for anti-aircraft barrage and in that case only a range finder is necessary. The gun is mounted on a fixed pedestal base, with no outriggers, and has no shield. Although primarily a naval gun, it has been captured ashore in the Solomons, New Guinea and Saipan.

Japs Improve Technique In Constructing Dummy Batteries

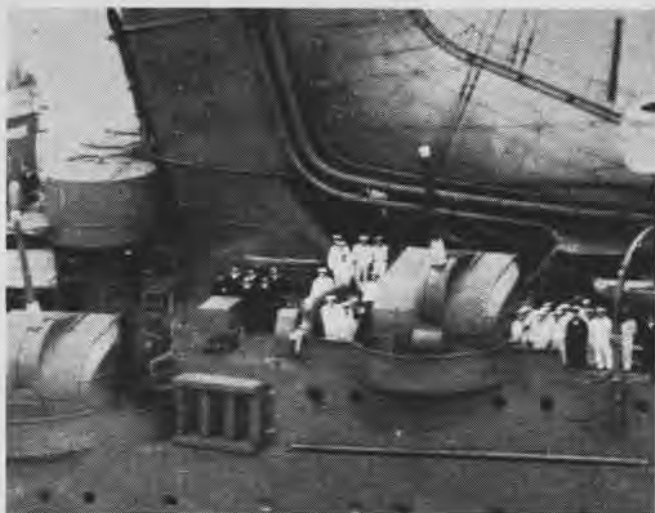
LARGEST known Jap army AA gun is the 105 mm. This has been reported in Dutch New Guinea and Burma but is not in general use. Six outriggers, weighted with sandbags at the ends, form a distinguishing characteristic of the 105 since it is the only Jap gun with this arrangement at its base. These often are buried and impossible to discern in photos. The 105 usually is found in batteries of two, four or six guns, arranged in a regular arc pattern. Revetments are approximately 25 feet in inner diameter. The gun has no shield in installations photographed thus far.

The enemy is improving his technique for constructing dummy gun batteries. In layout these are similar to real batteries except that tracks are conspicuously absent. Sometimes the Japs set out paths of white rock to simulate real tracks, but these usually end abruptly a short distance from the gun. Dummy revetments are not as well constructed

as real revetments, their walls often being sloping instead of vertical. Care is taken by the enemy to build realistic fire control instruments and revetments for them. Range finders, especially, are made with great detail. Dummy guns and mounts are excellent copies of real ones in measurement and appearance. In some instances scarecrow Japanese soldiers are built to man the dummy guns. These enemy tricks considerably increase the difficulty of obtaining accurate photo intelligence and complicate the job of air attack.



105 mm anti-aircraft gun is copied after Jap 75. Standard mount for the 105 consists of six outriggers weighted down with sandbags



Jap heavy cruisers use 120 mm for antiaircraft protection. Sliding canopy on left side of barrel is a conspicuous feature of gun

JAPS' MOST POTENT AA WEAPON AFLOAT OR ASHORE IS 120 MM

THE JAP 120 mm heavy antiaircraft gun, used extensively both afloat and ashore, is the most effective Japanese AA weapon to date. As a naval gun it is mounted on heavy cruisers of the *Aoba*, *Atago* and *Nachi* classes and also is found on tenders, minelayers and gunboats. The ship-mounted 120 has a shield which is roughly square, with a rounded left side. Made of $\frac{3}{8}$ " steel plate, this is designed apparently for psychological reasons, because captured shields have been thoroughly riddled by machine gun fire from U.S. planes. Aboard ship the 120 has a conspicuous sliding canopy to the left of the barrel. Occasionally, as at Kiska, the 120 mm is mounted ashore with shield and canopy, but usually photographs show that it has no shield when on land.

Batteries of 120's made up the principal antiaircraft defenses of Saipan, Guam and Tinian. Seventeen to twenty of these guns were found in use at Saipan, and there were 32 more in storage. Some 120's on Saipan were in covered emplacements, used only for coast defense. The gun is



Sometimes, as at Kiska, Japanese install 120 ashore complete with shield, canopy. It usually has no shield when land-mounted



Barrels of 32 unmounted Jap 120's lie in captured dump on Saipan, apparently having arrived too late for enemy to get them emplaced

particularly adaptable to a dual purpose role and often is used in that way by the enemy.

On land the 120 is mounted on a fixed pedestal base with a large base plate or spade buried in the floor of gun pit. Batteries of 120's are laid out in the regular arc pattern of Jap heavy AA, and are found with four or six guns in them. Revetments measure from 21 to 28 feet in inner diameter. When the 120 is in a covered emplacement, used only for coast defense, the battery consists of one or two guns. Covered emplacements for the gun in its coast defense role are built of reinforced concrete.

120 MM Has Good Fire Control Equipment

TWO types of fire control are found with captured 120's. The first type has a two-meter or three-meter base height or range finder, director, binoculars, and match pointers with cables for transmitting data. The second type has a similar height or range finder, possibly a course and speed calculator, binoculars, adjustable speed ring sight to get deflection angles and transmission of data either by voice or telephone. Good fire control equipment is essential to the effectiveness of this gun, and interpreters look for emplacements containing these instruments. In many places throughout Jap territory 120 mm batteries have been built to strengthen AA defense where 75 mm's were not adequate.



120's were chief AA weapons employed by Japs at Saipan, Guam and Tinian. Some, in protected spots, were used for coast defense



CAPTURED JAPANESE PHOTOGRAPH SHOWS 127 MM AT TARAWA. LARGE SHIELD HELPS IDENTIFY THIS AA GUN FROM THE AIR

DISTINCTIVE LAYOUT OF BATTERY IDENTIFIES 127 MM AA ON LAND

THE JAPANESE 127 mm twin mount heavy AA gun is a naval weapon frequently found ashore. It is used on Jap battleships and carriers and is believed to be a British pattern, perhaps Armstrong-designed. When on land, it can be identified by its distinctive battery layout and shield.

There are two guns in all 127 mm batteries. The most common layout has three similar revetments in a shallow arc, with the center revetment empty. Another type is the same except that the center revetment is quite small. (It probably contains a 25 mm light AA gun.) A third type consists of only two revetments, both of which are occupied.



Typical 127 mm layout has three revetments in an arc with the center one empty. Fire control building is opposite empty revetment

The 127 mm has a large rectangular fire control building located behind the arc of the revetments and approximately equidistant from them. On top of this structure, at the rear, is a circular platform for the height or range finder. A director is installed on the front center of the roof. Binoculars also are on top of the fire control building, and the ground floor contains electrical equipment.

127 Has Largest Emplacement of Any Jap AA Gun

THE 127 mm has concrete revetments, which have an inner diameter varying from 33 to 38 feet. Four to twelve ready ammunition lockers are set in the walls of the revetments. The gun is on a fixed pedestal mount, which is operated electrically. The large shield (15' x 4') has been found on every gun of this type captured to date. Length of barrel including shield and breech mechanism is about 20 feet. Batteries usually have a searchlight on each flank.



Twin barreled 127 is set on electrically operated pedestal mount. Concrete revetments have ready ammunition lockers set in walls



JAPANESE MACHINE GUNS EQUIPPED WITH AA ADAPTERS ARE RELATIVELY INEFFECTIVE FOR DEFENSE AGAINST STRAFING AIRCRAFT

MACHINE GUNS OFTEN ARE TAKEN FROM WRECKED AIRCRAFT FOR AA

THE LIGHTEST Jap AA weapons are the 6.5 and 7.7 machine guns. Although these are primarily ground guns, some of them are equipped with anti-aircraft adapters. They are, however, relatively ineffective in an AA role. The guns are laid out by the Japs in an irregular pattern and are seldom operated in batteries. Revetments for the 6.5 and 7.7 measure from six to eight feet in inner diameter and occasionally are built half-moon-shaped. Tripod and bipod mounts are used. There is no external fire control, but the guns have speed ring sights for use against air-

craft. Recently the enemy has used numerous 7.7 mm aircraft machine guns from wrecked planes for AA defense.

Slightly more effective is the 13.2 mm. This is a rapid-fire, air-cooled weapon built in single and twin mount. It frequently is used as protection for heavy AA or CD positions against low altitude strafing attacks. The Japs also mount the 13.2 in covered pill-boxes for beach defense. Batteries of 13.2's are arranged irregularly. Singles are found alone and in groups of one to ten guns, and twins are set up alone or in batteries of two, three and seven guns. Revetments for the 13.2 are built round, square, octagonal and elliptical, with an inner diameter of seven to ten feet for singles and nine to twelve feet for twins. A doubled-walled type revetment was used in the Solomon Islands. Sometimes a small height finder is employed to determine range at which to open fire. The gun has no shield.



13.2 mm batteries are used to protect heavier AA from strafing; Japs often mount 13.2's in covered pillboxes for beach defense



Aware of value of U.S. photographic reconnaissance, enemy is constructing more realistic dummies like this fake 25 mm on Saipan



Japanese employ 20 mm light AA gun to protect strafing targets and frequently mount it in pillboxes for use as an antitank weapon

JAPS USE LIGHT AA TO PROTECT HEAVY BATTERIES FROM STRAFING

A BATTERY OF Jap 20 mm light AA guns, containing four, five or six 20's in a regular arc, often is laid out near a heavy AA battery to protect it from strafing. Batteries of two or three 20's may be constructed near other strafing targets. The 20 mm has a tripod mount. Frequently the Japs set it in covered pill-boxes for use as an anti-tank weapon. On numerous occasions the enemy has removed 20 mm Oerlikon guns of disabled aircraft and used them as AA weapons. As a rule these are mounted on pedestals, but some are found in their original turrets.

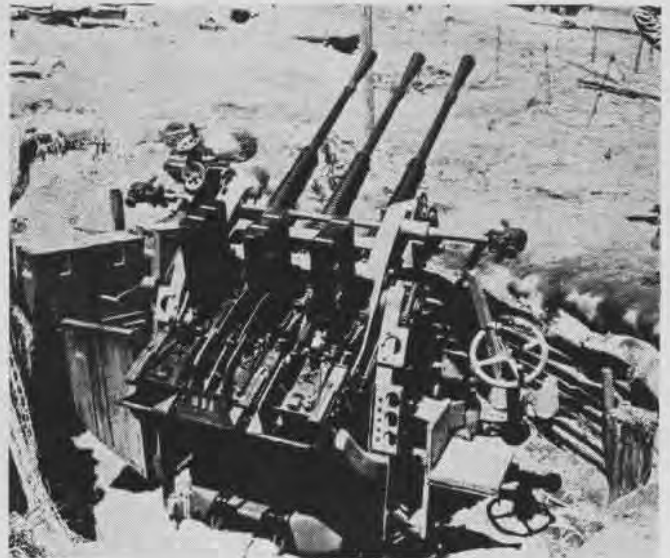
Probably the Japs' most important medium caliber gun is the 25 mm AA, a rapid-fire, air-cooled naval weapon of high muzzle velocity. It is made in single, twin and triple mount. Interpreters identify the twin and triple by the large bulk of the gun in the revetment and by the magazines, or clips, mounted on top of the breech, one to each barrel. These clips are sometimes visible in oblique photos when the barrels cannot be seen. A single 25 is more difficult to identify from the air than the triple or twin. The 25 has a small command post, with binoculars, and sometimes a small range finder. It is found in batteries of two, three and four guns. In the Solomons and New Ireland 25's were seen in double-walled revetments, and at Kiska hexagonal command posts of prefabricated steel plate were placed in two 25 mm batteries. Usually the 25 has a heavy pedestal base when in permanent position.

Japs Using British 40 mm Vickers and Bofors AA

THE Jap 40 mm is found in single and twin mount. Singles are British Vickers guns taken from the Dutch in the early days of the war. Twin 40's are a Japanese adaptation of the single mount. Batteries of 40 mm are laid out with two or three guns in an irregular pattern. Single and double-walled revetments are found, and normally there is one small additional revetment containing binoculars. Batteries of 40's are used as primary defense units against aircraft and also in a supporting role for heavier AA. Some captured British 40 mm Bofors guns are utilized by the enemy. Four large outriggers at right angles form a distinctive characteristic of this AA gun when photographed from the air.



Enemy removes 20 mm Oerlikon guns from wrecked planes and utilizes them for defense. This one on Tinian is in original turret



Large bulk in revetment and clips on top of breech identify 25 mm which has high muzzle velocity; is Japs' best medium caliber gun




Twin 40 mm is Jap adaptation of British Vickers gun. 40 mm batteries are used as primary defense units, also to support heavy AA

GRAMPAW PETTIBONE

Arm That Bomb!

One station reports that bomb disposal personnel are being unnecessarily endangered because pilots fail to arm their bombs prior to release. The report states, in part: "Many unarmed bombs are found buried in the range after each day's flying. Ordnance officers and bombing instructors believe the situation is due to plain carelessness on the part of the pilots, who forget to arm their bombs."

 *Grampaw Pettibone says:*

Undoubtedly, some of these pilots are the ones who, later on actual strikes, will gloriously fight their way to the target, bravely dive through heavy flak to make a direct hit and then scream like stuck pigs when they remember they neglected to arm their bombs.

The routine cure for this is better indoctrination. In addition, kick up such a general stink about it that it will help them remember. If that doesn't work, I suggest putting some identifying mark on each pilot's bombs before flight. Then, as a gentle reminder to the culprits, allow habitual offenders to help bomb disposal crews remove one or two of the duds.

Standby Crash Equipment

A group of ferry pilots noted that considerable variation exists in the location of crash equipment at air stations throughout the country. In a desire to obtain the best strategic location for such equipment at their home station, they requested information as to whether the standby location of crash crane trucks, fire and rescue trucks and ambulances had ever been standardized at other stations.

Since the factors governing the needs of crash equipment vary at different stations, it is impractical to issue definite orders on this subject. The main objective in spotting standby crash equipment is to locate it where it will reach the scene of the accident in the shortest possible time. Anything that will shorten this time interval will increase the effectiveness of crash rescue operations.



Certain large stations locate a fire and rescue truck near the up-wind end of the operating runway, while others prefer to station it near the center and off to one side of the operating runway. An example of special conditions exists at the Naval Aircraft Factory during catapult shots; the truck is placed at the side of the plane being catapulted and starts moving with the plane, to be immediately available if anything goes wrong.

At certain stations in cold climates, it frequently is necessary to keep trucks in a heated space. Temporary sheds now are being provided for this purpose at stations that do not have properly located, heated buildings.

Thus, each station must study its own problems and insure that rescue equipment is spotted where it will be most effective. Don't ever consider the problem completely solved, however. Continued study may indicate improvements, as experience accumulates. Also remember, a new type of operations may require a basic change in the entire rescue set-up.

The mobile training units, described on pages 9-11 of the Nov. 15, 1944 issue of NANews (Also see story on crash fire and rescue mobile units in this issue.) now are getting into the field and will discuss these problems and the various types of equipment with all naval aviation shore based activities.


Crystal-Clear Cockpit Commands

Misunderstood cockpit signals between pilots and co-pilots continue to cause a large number of unnecessary accidents. The following accidents occurred at various commands during a single four-day period:

Case 1. Just before becoming airborne, the co-pilot of a PB1-H closed the cowl flaps. Immediately thereafter, the pilot, not knowing that the cowl flaps had been closed, reached in the general direction of the cowl flap control handle. The co-pilot interpreted this motion as the signal for him to pull up the landing gear. The plane immediately settled toward the runway but the pilot was able to complete the take-off, circle the field and land. Ends of both propellers were found curled back about six inches from biting into the runway. Propellers and crankshafts of both engines had to be changed.


Case 2. On take-off, a JM-1 pilot signalled for the co-pilot to pull back on the yoke to get the aircraft airborne. The plane captain mistook this motion for a signal to raise the wheels, and acted accordingly. The plane bounced two times and slid to a stop. One engine caught fire but the blaze was extinguished by the crash crew. The landing, however, did major damage to plane.

Case 3. The co-pilot, misunderstanding the signals of his instructor, raised the landing gear of an SNB-1 too soon during take-off. The broken prop tip tore a large hole in the cabin, in addition to damage to propellers, engines.

 *Grampaw Pettibone says:*

This is an asinine type of accident and, as far as I'm concerned, is always the pilot's fault; no matter if the co-pilot or plane captain is the one who misinterprets the signal. It's up to the pilot to insure that this can't happen; to indoctrinate his crew and demand that only standard cockpit signals be used, as laid down in Flight Safety Bulletin 19-44 and Aviation Circular Letter 95-44.

Some squadrons have whipped the possibility of having accidents of the type listed above by simply issuing an order: "Pilots will not retract the landing gear on take-off until at least 50 feet altitude has been attained."

SAFETY IN FLIGHT: These photographs (right) are reprinted through courtesy of the Royal Air Force, with permission of Graham and Gillies, London, who produced the original poster series. 



Carriers

LET NANews
HEAR FROM YOU!



RAMSHACKLE CONSTRUCTION?

So it seems. (But he never forgets to lower his undercarriage when he comes to land.) The Stork goes on flying until he is 70, because he is master of his equipment, and doesn't take chances.



Steep Turn

No skid or slip—dead accurate. But look at the direction of his head. He remembers to look round to see if all is clear.

422



12,000 CONTROLS

Twelve thousand controls in the form of muscles are operated by the Ibis in working its feathers alone. That's a few more than you've got to worry about. The Ibis has to rely on instinct—not reason—but he never pulls the wrong lever. The Ibis is a good pilot.




OVERSHOOTING?

Not the gannet. If he comes in too fast or misjudges his glide, he can pull up and still get in. A pilot is not so well-equipped and must make up his mind early to go round again when there is the faintest chance of overshooting.

Mixture Control

Because of a sudden drop in the manifold pressure, an **sb2c** pilot returned to the field for an emergency landing. He was coming in satisfactorily and cut the ignition switch, but the engine kept running. He tried unsuccessfully to ground-loop the plane but it ran off the runway and overturned 500 feet beyond the strip.

Investigators, who praised the pilot's handling of the emergency in the air, pointed out that the mixture control should have been used to stop the engine.

 **Grampaw Pettibone says:**

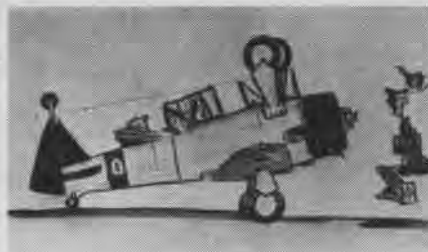
In the movies and the comic strips our hero always "cuts his switch," but in the more well informed and well indoctrinated circles of naval aviation the mixture control is used *first* and then the switch is cut.

Unconscious Brake Jammers


After making a normal landing, the pilot noted that his plane started to skid. He applied rudder, but the aircraft ran off the runway, turned over.

The pilot, upon being questioned, said he had no recollection of applying brakes. Tire marks on the runway, however, led the accident board to believe the pilot unconsciously applied pressure to the brakes during his landing.

They pointed out that this frequently occurs after a pilot has raised his seat to make a landing. This makes him stretch to reach the pedals and this position also changes the angle at which



his feet contact the brakes. There is then a natural tendency to touch the brakes with the toes without being aware of it.

 **Grampaw Pettibone says:**

The board is right, but there is a remedy!—Educate your feet. Keep enough of your mind on them to insure that they won't press down on the brake pedals unless you give them the word. In fact, keep your dumb feet off the brakes until you actually need them.

Every aviator is entitled to as much forward and downward vision as he can get during landing. There are two things you can do to increase this vision while at the same time remaining within easy reach of your pedals: 1. Before take-off, adjust the brake pedals so you can reach them comfortably with the seat raised, and 2. Put a cushion behind you, or if you are built particularly close to the ground, two cushions. The cushion system (not practicable in all types, due to cockpit design) pushes you forward where you can see over the cowling better and at the same time keeps you near the pedals. Again, be sure to keep your toes off the brake pedals when making approaches and landings!

"I Can Make It!"

When the weather became bad, a pilot flew up a mountain valley hoping to find a break so that he could cross the mountains to his home station. The fog also settled in the valley, however, and the pilot crashed into the side of the mountain when he turned back.

The Commanding Officer said, "This is evidently a case of border-line weather, with the pilot thinking 'I can make it' and going on. We are continually stressing to pilots that 'when in doubt' about the weather, a 180 degree turn is excellent life insurance."

Airport Traffic Danger

A transport plane was granted authority to make a turn contrary to normal traffic after take-off. At about this time a fighter requested permission to land but was directed to orbit and wait. Shortly thereafter there was a fatal collision between these two airplanes while they were in the traffic pattern.

Very evidently, both pilots were equally remiss in not keeping a sharp lookout for other aircraft in the vicinity of a busy airport.

The tower, also, was not on the job in this case. Common sense should have indicated the need for a special warning broadcast to all aircraft in the vicinity when a maneuver contrary to normal traffic was authorized.

▶ **Comment**—Whenever an accident occurs, the question immediately arises as to whether a flight regulation could be issued to prevent a recurrence of the conditions which caused it.

In reviewing this case, consideration was given to a regulation forbidding traffic control personnel from authorizing any maneuver contrary to the normal traffic pattern. It was decided, however, that such a restriction might do more harm than good. Circumstances occasionally arise which make a turn against the normal traffic circle the safest and best course of action. To forbid its authorization under such conditions would hamper control personnel in the proper performance of their duties.

Naturally, authorization for such maneuvers should be restricted to the minimum and should be granted only after careful consideration of *all* the circumstances involved. Once granted, however, other aircraft in the vicinity should be given immediate warning thereof. Control personnel *must* recognize their added responsibilities when rules are suspended.

GRAMPAW'S SAFETY QUIZ



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

1. If you are over a station and place the current "altimeter setting" on the pressure scale of your altimeter, what altitude will it then show?
2. If you then land at that station, what will be your altimeter reading upon landing?
3. For what maneuvers and under what circumstances should the electric fuel pump be used?
4. If, while flying according to CFR, you encounter weather below that required for CFR, what would you do if *not* currently qualified to proceed on instruments?
5. Ground checking of magnetos should be made with the propeller pitch control set in what position?

Answers on Page 40

Large Movements of Navy Aircraft

In order to provide proper liaison between activities directing aircraft movements and those furnishing facilities to transient aircraft, particularly where activities and facilities of both the Army and Navy are involved, the following procedure should be followed:

Whenever large movements of Navy planes are scheduled to land at an airfield where facilities and accommodations are required, all possible prior notice of the flight should be given to the commanding officer of that airfield. If the point of landing is under Army control, notice should be given sufficiently in advance to permit the necessary arrangements to be made. Such notices are a matter of courtesy and also add greatly to the efficiency of aircraft movements. Where notice that a field is closed to transient aircraft has been published, and landing at that field is considered necessary, the senior pilot of the flight should send the request for landing sufficiently in advance to obtain permission or make other arrangements to land.

DID YOU KNOW?

Red Goggle Lens Proves Better

BuMed Tests Pre-Adaptation For Night

Any doubt about the effectiveness of red pre-adaptation goggles in preparing a pilot's eyes for night flight has been removed by recent experiments reported in a recent issue of the *BuMed News Letter Aviation Supplement*. The same experiments scotched the theory advanced by some that white light of low intensity is just as effective as red.

Standard Navy practice in preparing men for night duties has been to wear red goggles 30 minutes beforehand. This practice has been quite satisfactory, the BuMed report notes. However, the experiment was considered advisable to check the low intensity white light theory.

Goggles were prepared in which one lens was red and the other neutral but of such density as to transmit the same amount of light as the red. Subjects wore these test goggles 20 minutes in a lighted room after which the goggles were removed with the room darkened and the subjects looked at a screen. On this, silhouettes were projected against a background that simulated a starlight night.

The subjects immediately found that they could see quite well with the eye which had been dark-adapted behind the red lens but could see hardly anything through the eye which had been behind the neutral lens. It took an average of five minutes for this difference in vision to disappear.

On the basis of these experiments, BuMed strongly urged that red lenses be retained in standard Navy pre-adaptation goggles.

Recognition Costs Japs A Judy

Hellcat Pilot Outwits Six Nip Fliers

That the average American pilot may be better on his recognition than the run-of-the-mill Jap is indicated in two separate combat reports from the Pacific.

In one instance a group of *Hellcats* from Fighting Squadron 11 were guarding *Helldivers* and *Avengers* which had just polished off the installations on a Jap airfield, and were rendezvousing beyond the smoke pall. A plane approached the *Hellcats* wagging its wings in a friendly recognition signal. In split seconds an *F6F* pilot detected the ruse,



HARD WORK in the ready room of a combat carrier. The gentleman engrossed in sewing up a hole in the seat of his pants is a Navy fighter pilot who has shot down 14 Jap planes and holds two Navy Crosses

recognizing the newcomer as a Jap *Judy*. In a few more seconds the *Judy* had taken a direct hit from a burst of .50 cal. fire, spiraled down in flames.

In the second instance a Navy *Hellcat* bumped into six Jap army fighters off Formosa. As the *Hellcat* pilot expressed it: "I was at my wits' end when four of those Japs started runs on me. I wiggled my wings at them, however, and darned if they didn't pass me up."

No sooner had the Jap flight gone past than the *Hellcat* pilot banked sharply and tailed up behind them. He shot one down and took after two more, which turned and headed for Formosa. After a long chase one of them turned sharply and, with guns blazing, started a head-on run at the *Hellcat*. The Navy pilot's first burst apparently killed the Jap pilot, because he flew straight on

in without firing any more. The *Hellcat* swerved sharply to avoid a collision, and the Jap did a graceful wing-over, crashing into the sea.

Japs Give Tinian A Wind Sock

Yankee Ingenuity Overcomes Obstacles

A lot of American ingenuity went into restoring the Tinian airfield in the Marianas after the Japs had been blasted out. Today, the CASU that put the field back into operation in record time is "over the hump."

When the first small detachment of the ground unit landed during assault phases of the invasion, they found the runway lined with wrecked Jap planes and the field littered with shrapnel and bomb fragments. While aviation units clamored for quarters, heavy rains turned the area into a quagmire. The condition of the heavily bombed harbor made transport loading difficult.

A CASU mechanic found a Japanese wind sock in an island cave and this was used by our pilots until a more modern American model could be installed. Metalsmiths built course balls from scraps of metal left by the Japs and from pieces of bright silk found in the ruins. A gravity feed gas system was rigged out to handle fuel emergencies and a primitive but workable system of field lighting devised. In short order the field was operating.

Duty on Tinian is still no picnic but the men now have comfortable quarters in Quonset huts, evening movies, a beer garden and a day off approximately once a week.

Canned Salmon Used As Weapon

Bombs and Bullets Soften Up Attack

The use of canned salmon as a secret weapon in the aerial war against the by-passed Japanese forces in the Marshalls has been recently revealed. For months, Marine airmen in the Central Pacific bombed, strafed, and harassed Japanese forces on Wotje, Mille, Jaluit, and Maloelap. In conjunction with many of the daylight missions, scout bombers and fighters dropped leaflets pointing out the hopelessness of their position and urging them to surrender.

In these leaflets, the Japs were told that American forces had plenty of food and that prisoners could expect good treatment. The cans of salmon which accompanied these arguments served as samples of rations supplied prisoners.

Carriers

LET NANNEWS
HEAR FROM YOU!



BEST ANSWERS

Survival Below Zero

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

- The most serious danger from exhaustion in the Arctic is the—**
 - a—weakness that overtakes a tired man, so that he cannot progress very rapidly through deep snow
 - b—loss of appetite that results in failure to maintain the intake of food required for normal physical functioning
 - c—loss of effectiveness of protective mechanisms of mind and body that make a man highly susceptible to frostbite and freezing
 - d—impairment of intellectual functions that may cause a man to travel in circles instead of following his compass
- Although the temperature of the body (97.5-99.0° F.) may fall somewhat below normal without fatal results, recovery is very unlikely if the temperature falls below the critical range of—**
 - a—94°-96° F
 - b—90°-93° F
 - c—86°-88° F
 - d—75°-80° F
- A man suffering from reduction of body temperature as a result of long exposure is likely to be—**
 - a—sleepy or stuporous, incoherent, weak
 - b—restless or perspiring, excitable, delirious
 - c—complaining of thirst or hunger, suffering from spasms of the arm muscles
 - d—severely out of breath, flushed, irritable
- Effective protection against the possibility of frozen feet in sub-zero Arctic snow is given by—**
 - a—wearing rubber boots over four or five pairs of cotton socks
 - b—placing padding between layers of wool socks and enclosing the feet in canvas
 - c—wearing heavy leather boots with enough socks to make a tight fit
 - d—wearing fleece-lined flying boots without socks, but with pant legs tied down inside boots
- If you should become thirsty while walking in the Arctic (with an adequate supply of food), you would be foolish to—**
 - a—melt snow with a pocket stove
 - b—wait until you can obtain salt before drinking
 - c—suck (or eat) either snow or ice
 - d—drink water trickling under snow

Marines Leave Edenton Station

Air Facilities Are Returned To Navy

Air station facilities at MCAS EDENTON, part of the Ninth Marine Aircraft Wing and Marine Corps Air Bases command, have been turned back to the Navy as of March 1, 1945. All Marine personnel have been transferred to other stations for similar assignments.

Queen Of The Air Needed Repair

Frank Knox Rode On First NATS Plane

The first plane assigned to NATS has been brought back to the United States for a much-needed rest and reconditioning after about three years of heavy duty service. In all that time the plane, a Douglas Skytrain (R4D), never missed a scheduled trip and never suffered damage in flight.

In January of 1942 the big Skytrain was assigned to NAS NORFOLK and was made ready for NATS operations. About two months later she was commissioned and began her long career in support of the war effort. That year she made the first survey flights to Guantanamo, Cuba, San Juan, Puerto Rico, to Argentina and to Newfoundland. After an inspection trip to Brazil the plane was brought back to Miami and placed in pilot training. In May, 1943 the Skytrain was assigned to the North African theater of operations.

She saw heavy duty during the campaign and later in the year was assigned to a vice admiral, carrying him on a special diplomatic mission to French West Africa. During that tour

the late Secretary of Navy Frank Knox was one of her passengers.

After her "shore leave" and overhaul, this "first lady of the air" was slated to return once more to active duty.

Pilot Gets Japs With Revolver

Hellcat Pilot Was Downed But Not Out

A number of Navy pilots have shot down as many as four Jap fighters on a single flight but few of them ever followed up by knocking off two more Nips with a revolver. Yet this is what one Hellcat pilot did not long ago after a sweep over southern Formosa.

After he had shot down four enemy planes, the Hellcat pilot ran afoul of antiaircraft fire and was forced to crash-land at sea. Unable to retrieve his life raft, he had only his life jacket.

Two Japs put out at once in a sailing dinghy to capture the downed pilot but he drew his 38-cal. revolver and, waiting until they were within 50 yards, opened fire. His first shot killed the bowman. The other Jap became panicky and jumped up. The Hellcat pilot cut loose again and knocked the remaining Nip overboard with three more shots.

Friendly planes later sighted the downed pilot and dropped a life raft, but rescue by ship was not feasible because he had drifted into a mine field. Five days later the pilot saw a ship coming toward him. He mistook it for a Jap vessel and drew his revolver, determining he would not be taken alive. However, the ship turned out to be American and the pilot rescued.



AFTER HARD strikes against important Jap bases, units of a task force rendezvous for refueling at sea. Fuel is pumped aboard the flattop through two lines rigged from the tanker to cv. Ships maintain speed while refueling operation is under way to keep position in task force. Calm sea facilitates refueling. Wash from between the two ships sprays water over the tanker's deck. Smoking lamp is always out during refueling.

First Joint Conference Meets

I-A-P Problems Studied by A&R, Supply

When the Radford Board developed general policies of the Integrated Aeronautic Program, it recommended that Supply and A&R officers coordinate their activities through joint planning and action. In line with this recommendation the first joint conference on a national scale between A&R and Supply was held at Philadelphia. *Important recommendations resulted:*—

▶ Importance of coordinating action by Supply and A&R departments at Naval Air Stations was stressed, and an agreement reached on the necessity for appointing joint A&R and Supply **PLANNING BOARDS** at all naval air stations having A&R facilities. Supply departments at such stations will appoint full-time representatives to serve as liaison officers with the A&R departments.

▶ The conference further recommended than an **IDENTIFICATION AND SCREENING UNIT** be established at each station under direction of the supply officer. The unit would be responsible for *selecting plane parts* suitable to go into Class 265 (capable of being repaired and require repair before used again). Parts so classified then would receive production line reconditioning at specialized A&R facilities in accordance with schedules to be outlined by BUAER.

MANY new supply and maintenance problems created by the increased tempo of war were studied at Philadelphia. Heavier loads are being thrown on overhaul and maintenance facilities. Pipelines of supply are larger, longer and more widely dispersed. Increased quantities of obsolete, excess and scrap material must be disposed of and cleared out of crowded warehouses. Damaged material and parts from stricken planes must be repaired and returned to stock or removed from the supply system.

All these problems were considered by the conference in developing its statement of policy, program and procedure which has been submitted to Chiefs of BUAER and BUSANDA as a proposed joint letter.

Recommendations were made for necessary changes in current programs and procedures to keep pace with more recently established policies of I-A-P.

Both the Chief of BUAER and Assistant Chief of BUSANDA addressed the conference. Co-chairmen were the Aviation Supply Officer and the Chief of Maintenance Division, BUAER. The conference was attended by Supply and A&R officers from all major air stations, depots and annexes, all Naval Air Training Commands, COMAIRLANT, COMAIRPAC, BUAER Maintenance Division, BUSANDA Aviation Supply Division, BUAER Supply Division, district BUAER maintenance representatives, ASO personnel.

FLIGHT



SAFETY

REPORTS from fleet operating units continue to indicate the absence or unusable condition of various survival items in life rafts or back pad kits, or other emergency equipment packs. These discoveries are almost universally made when some poor Joe is sitting it out, or floating it out, in the middle of the deep blue (or green, if you wish) sea. Rescue equipment and aids have been designed to assist your life insurance company in making money on you, but, like your policy, they become invalid if you don't pay the premiums—and what's worse, there's no period of grace for default.

Equipment is designed to be as durable and efficient as possible. Every effort is being made by the personnel involved to get out the best gear for the best pilots in the world. However, few things mechanical are entirely foolproof; they have to be checked. Nothing but a good check, either, can thwart those Dilberts who unthinkingly remove gear from kits with the intention of putting it back sometime. Remember—"The road to Hell is paved with good intentions."

Squadron commanders must keep after their Aviation Equipment and Survival Officers and the individual pilots to make frequent periodic inspections of their survival gear to see that it is all there and working properly.

There seems little excuse for items like first aid kits, rations, water, whistles, etc. to be missing from a pack; or a life raft so tight in its container that it cannot be removed; or escape hatches inoperative from pure neglect; yet, reports of these very items are repetitious to the point of being unsavory.

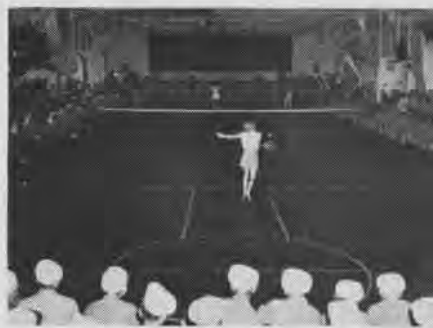


LET'S all get together on a campaign to stop this immediately, and to impress on the thoughtless Dilbert that he's taking your life in his hands when he absconds with your survival gear. We're all pretty finicky about who wears our skivvies. Let's consider our survival gear just as personal and see that it stays with us.

And remember, "God helps those who help themselves."

Tennis Stars Play on Carrier

Crew Rigs Hanger Deck for Matches
U. S. S. MISSION BAY—Using the



SPECTATORS DUCKED THE GIRLS' RACQUETS

hangar deck for a court. Miss Pauline Betz, national women's amateur tennis champion, and Miss Dorothy Bundy, national clay court's champion, played an exhibition match on this carrier. The match, played while the two tennis champions were on tour with USO camp shows, was won by Miss Bundy. She now claims the title of woman's steel deck court champion.

Two of the ship's officers joined the visiting tennis stars in a doubles match. The hangar deck provided ample space for the fore-and-aft court. Spectators on the sidelines occasionally had to duck.

Marine Pilots Can Ask Transfer

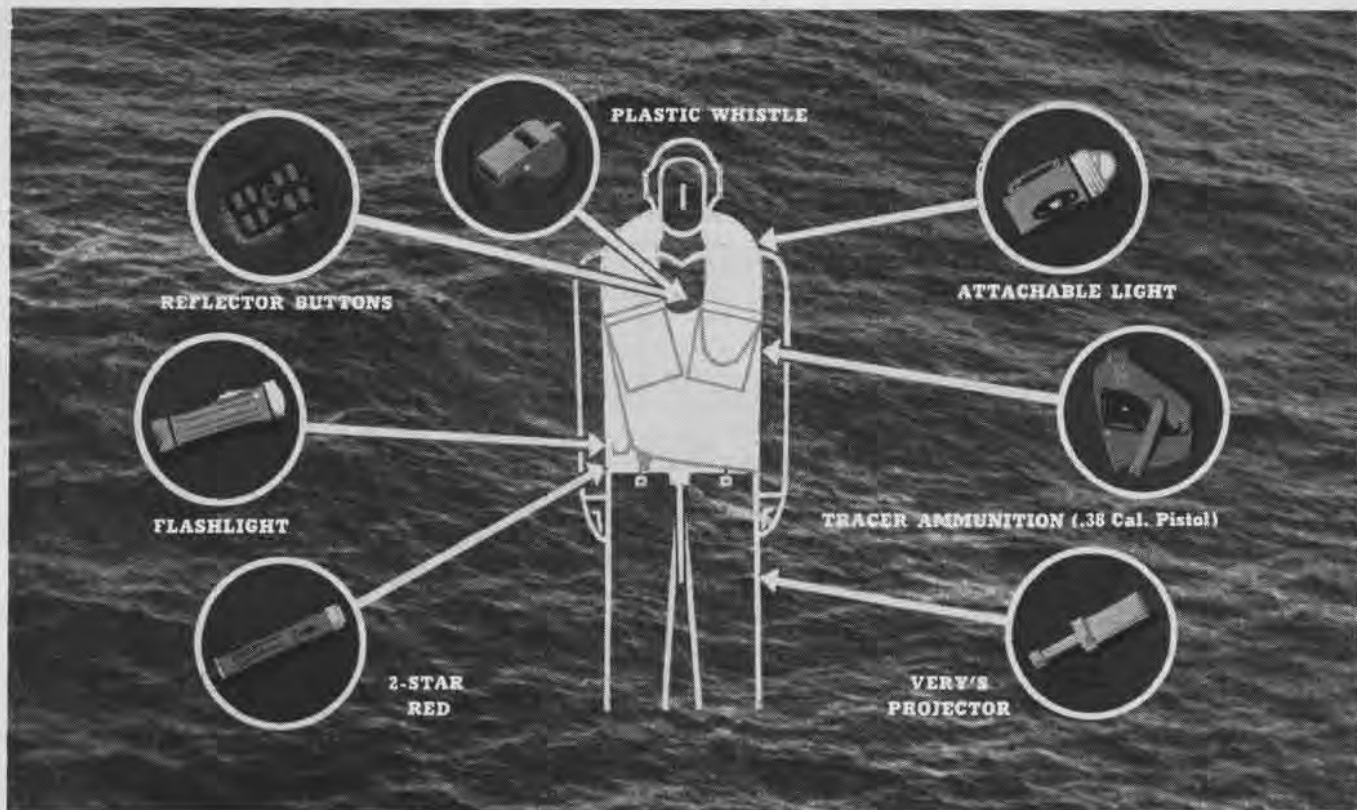
18 Months Continuous Duty Is Required

Marine Corps Reserve aviators who desire to transfer to Regular Marine Corps during the calendar year 1945, must forward applications to MARCORPS in time to be received not later than June 1.

Eligible candidates must have been less than 25 upon successful completion of training as aviation cadets. Applicants must have prospects of completing on June 30, 1945 not less than 18 months' continuous active service next following their completion of duty as aviation cadets.

Each application must be accompanied by a report from the board of medical examiners on BuMED Form 1 and a fitness report to date of application. BuMED Form 1 should include recent chest x-ray examination when possible.

Applicants must be recommended by commanding officers, who will include in forwarding endorsement specific notation as to moral and mental fitness. Officers who previously submitted applications, but were not selected for regular commissions, are required to re-submit new applications in order to be considered. Further details are included in ALNAV 8, dated January 10th, 1945.



NIGHT DISTRESS SIGNALS

Pilots and Aircrewmembers Have Good Rescue Possibilities with BuAer Equipment

IN SOME CASES, and providing he is properly equipped with night distress signals and thoroughly indoctrinated in their use, a pilot downed at sea is more likely in the dark than in daytime to contact rescuers in the vicinity. BuAER-recommended signals are shown here.

FLASHLIGHT, WATERPROOF, 2-CELL, 17-F-13550. This is a general stock item available through Naval Supply Depots. A 2-cell flashlight of any other stock nomenclature should not be carried in aircraft flying over water unless it is waterproof. A 2-cell flashlight is included in all but one droppable kit.

ATTACHABLE LIGHT, ELECTRIC, 17-L-11793. This also is a general stock item. It is waterproof and may be attached to the life vest. Every pilot and aircrewman should have this light attached to their life vests as no flashlight is included in a life raft.

VERY'S PROJECTOR, PROJECTOR KIT, R-83-K-710309. This contains a hand projector and six red star Very's cartridges. Kits are provided in each life raft, droppable assembly, and droppable signaling kit, back pad and PK-1 pararaft kit. Very's signals were seen in one case by a submarine lookout at 18 miles.

Where supply permits, BuAER recom-

mends that spare projector kits be opened and the individual Very's shells and projector issued to pilots and aircrewmembers of carrier-based planes engaged in night operations. Here's the procedure:

Place a shell in the projector and be sure that the crescent-shaped safety arm is held in the safety position by adhesive tape or some similar means. Slip the projector containing the Very's shell into a rubber sheath, tie a knot at the open end; it is then waterproofed and can be carried together with extra shells (also in rubber sheaths) by pilots and crewmen in their flying suits as personal equipment.

2-STAR RED, SIGNAL DISTRESS, T-49. The recommendation on use of the Very's projector is suggested as a temporary expedient pending delivery and issue of this item. The 2-star red has its firing

mechanism self-contained and is sufficiently waterproof to be fired by personnel floating in the water.

The maximum visibility is greater than that of the Very's cartridge. The first of two red stars ascends to 200 ft., and the second, after a five-second interval, goes up 250 ft.—50 ft. higher than the Very's shell. First deliveries will be made in early spring as directed by COMAIRPAC and COMAIRLANT.

TRACER AMMUNITION (.38 CAL. PISTOL). Pilots are urged to draw this type of ammunition and load their pistols with several rounds. Its orange-red colors are readily visible at night.

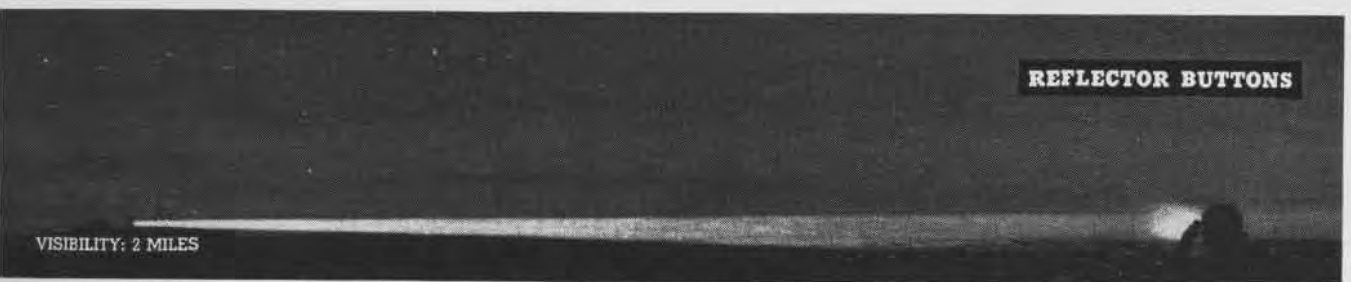
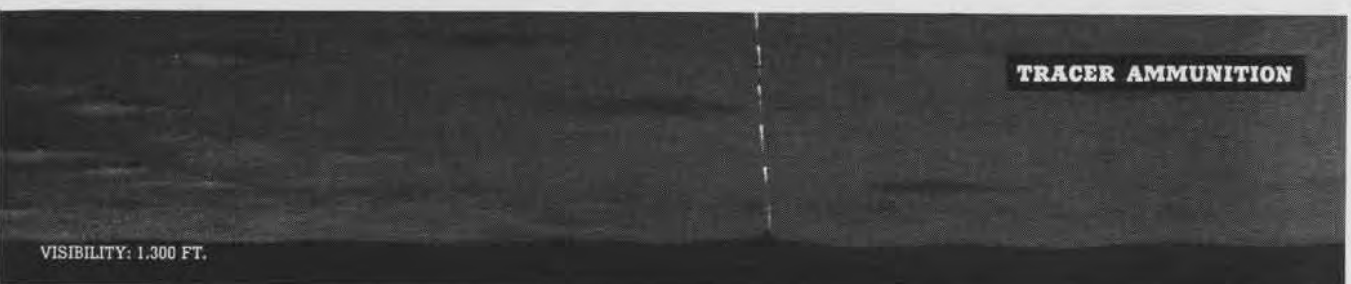
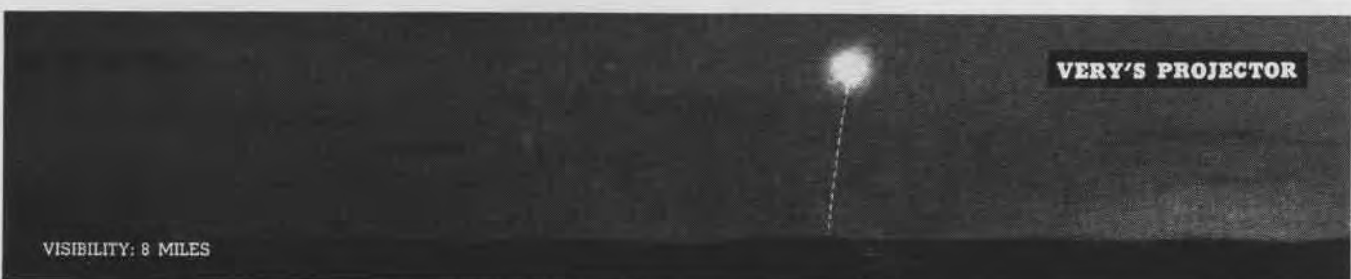
REFLECTOR BUTTONS (ON REVERSE SIDE OF LEARNED SIGNALING MIRROR, R83-M-525520). The orange-colored buttons are visible when searchlight of surface vessel or landing light of aircraft is flashed on the reflectors.

PLASTIC WHISTLE, 74-W-75. This has proved valuable for attracting the attention of lookouts on nearby surface vessels. An effective audible signal such as a whistle does not have to fall within any certain arc of hearing.

Where practicable, signals should be held high to get the maximum visibility.



WHISTLE CAN BE HEARD FOR 360 DEGREES



VISIBILITY DISTANCES GIVEN HERE ARE AVERAGES. WITH CONDITIONS OF WIND, WAVES AND WEATHER TAKEN INTO CONSIDERATION

Sorry—we can't read your mind



Mental telepathy comes hard these days and we're having a tough job tuning in on the ideas of squadrons and operating units who don't send us the dope.

- Yet experience proves that ideas found workable by one squadron often spare headaches and delay to another.
- So if you have safety, survival and technical information, send it along to NANews for review and publication in the magazine.

SPEED VIA AIR MAIL FOR QUICK DELIVERY

How to address



Chief of Naval Operations
NAVAL AVIATION NEWS
Navy Department
Washington 25, D. C.

UNCLE KIM TUSSIE

ACTION REPORT: Single plane thought by everyone to be one of the bright yellow B-26 *Marauders*, used for towing target practice in the Southwest Pacific areas, flew over one of our advanced bases. Recognition officer kept screaming it was a dirty yellow-colored *Betty*, but no one paid any attention to him or the plane. Like a buzzard it circled several times above us, then flew away. This Jap on his reconnaissance flight probably got an eyeful of our installations. He dropped no bombs then, but a night raid later on gave testimony to his effective reporting.

HIT REMINDS me o' how Cousin Wash Tussie's boy Cief lost his right hand. Cief allus had a hankerin atter blow-in viper snakes. He said a viper was harmless, and one of the things he'd do with one was to make it play possum. I've seen him do it many a time. When he's run onto a viper he'd let it quile to strike 'im and he'd watch it stick out his tongue, listen to it hiss and blow. Then Cief'd reach down and get 'im by the tail, shake th' viper, and lay 'im back on th' ground. That reptile 'ud turn over and act like he's dead ever time. Cief thought this was funny.

But I heard his pappie Wash tell 'im one day, "Cief, ye're a-go-in to get hold



of the wrong kind o' snake one of these days and hit ain't a-go-in to be so damn funny! Ye'd better be keerful fer a viper looks mighty like a copperhead. Both are the color of a mountain sand rock. Both have heads a little alike. Copperhead's just a little bigger is all and he don't bluff—he bites!"

"Don't worry about me, Pap," Cief told Wash.

One day Cief went out to show Bill Hix how he could make a viper sull. He found his snake under a patch of

sassafrass in the cowpasture, and when the viper didn't blow but quiled to strike, Cief walked up and said, "Hiss, damn ye, hiss!" And when he reached down with his right hand to get the snake by th' tail, hit struck with the force o' a bulldog and nailed its pizen fangs into Cief's right hand. The flesh rotted away and showed the bones.



Cief had to go to the hospital and have his whole hand whacked off.

Hit's too bad that a friendly snake and a mean pizen snake haf to be the same color and about the same size and shape, but they often are.

ACTION REPORT: A formation of 9 twin-engine bombers was sighted astern, flying very low. The sun was low and broad on the starboard bow. The bombers changed course as if to pass to a position ahead of the formation and into the sun. Their approach was menacing, nor could they be immediately recognized. Although finally identified as B-25's, it was too late to prevent some AA being fired and a run being made by the C.A.P. One B-25 was shot down. Five of the crew of six were rescued.

HIT REMINDS me o' the time when Cousin Louie Tussie brought his wife and youngins back from the big city of Cincinnati to live in the mountains. We cooked a big dinner fer Cousin Louie and his famby when we welcomed 'em

home. Maybe hit was the herbs that whetted up our appetites, fer I never saw a man eat like Cousin Louie. He et his weight in goose, guinea, turkey, pheasant, sweet taters, spuds biled and fried, wild water cresses, wild poke, wild lettuce, turnip-top greens, wild crabapple, wild plum, possum grape, blackberry, strawberry, dewberry, and raspberry jellies, and jams and sorghum molasses and wild honey—but when he hepped hisself to the chickenhawk, he socked his teeth in hit plum up to his gums.

"What kind o' meat is this?" he ast me as he run the naked bone through his mouth.

"Chickenhawk," I said.

"Never tasted anything as good in my life. I'd like to kill myself a mess sometime."

Then he ast me about this bird, hit's color, size, and how hit flew.

"Ye'll know a chickenhawk by the way hit power-dives atter a chicken," I told 'im. "Ye'll know a chickenhawk by the way hit screams 'chickee.'" Then I told 'im about hit's wingspread and color.

A MONTH had passed after we'd had our feast, and I'd not seen anything of Cousin Louie. Bill Abrahams passed on his mule one day and stopped in the big road in front o' my shack. He hollered up to me where I was a-layin



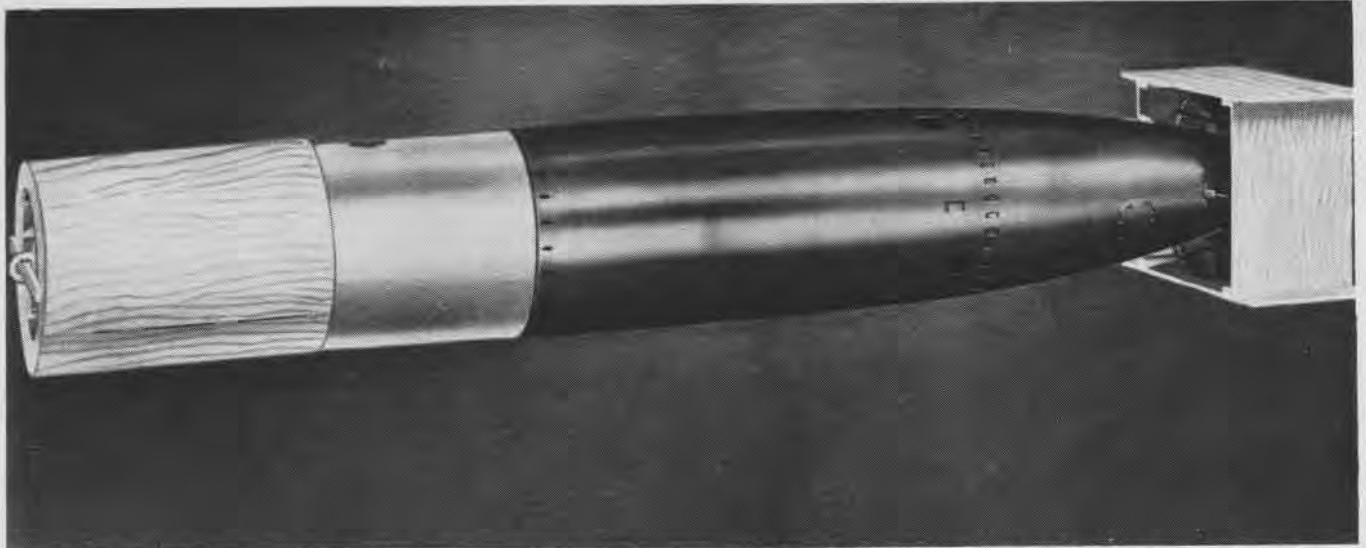
under the shade o' th' apple tree.

"Uncle Kim, ye ought to git over to see yer Cousin Louie. Louie and his famby's all been sick enough to die!"

"Has hit tuck 'em that long to git over the feast?" I ast Bill.

"Think Louie kilt the wrong kind o' bird," Bill said. "He told Cyrus Comstock he'd never eat another bird that sailed high!"

"Great Scotts and firebugs!" I said. "Looks like he ought to know a chickenhawk from a turkey buzzard."



DRAG RING REDUCES DAMAGE TO AIRCRAFT TORPEDOES, WITH HOT, NORMAL AND STRAIGHT RUNS POSSIBLE AT SPEEDS OF 375 KNOTS

AIRCRAFT TORPEDO RINGS

EXPERIMENTS with the drag ring and shroud ring for Mk 13 type torpedoes at the Naval Torpedo Station, Newport, have resulted in interesting discoveries that should go a long way toward improving aircraft torpedo runs.

Aircraft torpedo travel (release to target) is divided into three main phases: 1. AIR FLIGHT—from plane to water, 2. INITIAL ENTRY—from impact to steady run, and 3. STEADY RUN.

The shroud ring was designed primarily to help the STEADY RUN, but it has been determined experimentally that it also affects INITIAL ENTRY by causing definite reductions in hooks and broaches.

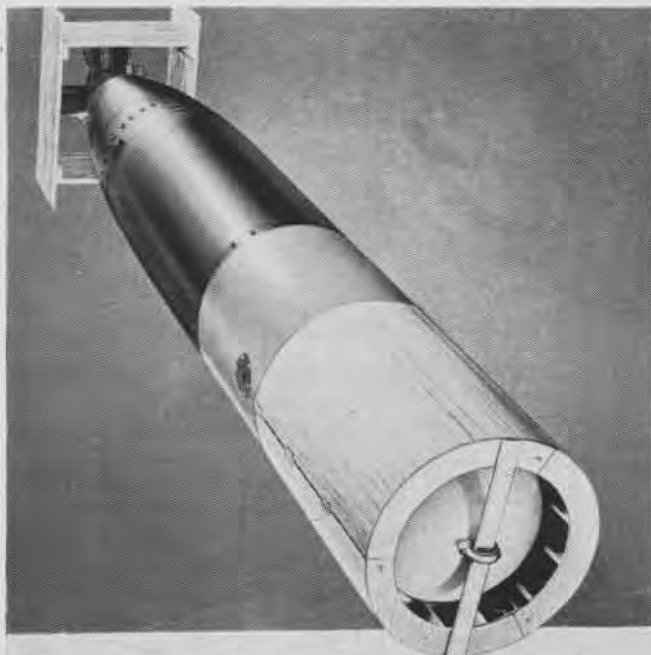
The shroud ring strengthens and stiffens the tail vanes and their elevators

and rudders, but does not take the place of stabilizing appendages such as the stabilizer and drag ring. The shroud ring contributes practically nothing to AIR FLIGHT characteristics.

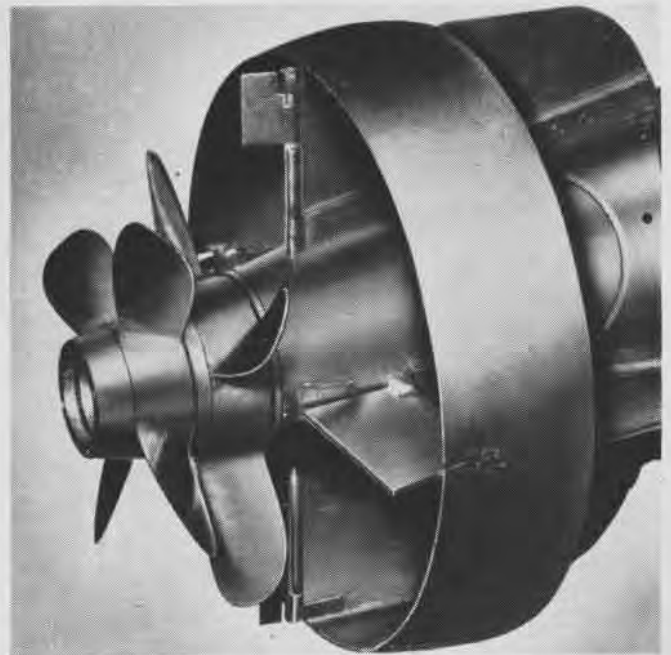
Drag Ring Aids Torpedo's Air Flight

The primary purpose of the drag ring is to add aerodynamic damping to the torpedo during its AIR FLIGHT so that if any initial undesirable oscillations occur, they will be reduced to tolerable limits by the time the torpedo hits the water.

Because the damping of the torpedo with the stabilizer alone is slight, prior to use of the drag ring it was necessary to have a variety of stabilizers for use on drops from various aircraft. In certain cases more than one stabilizer was



Primary purpose of drag ring is to add aerodynamic damping to torpedo during air flight, reducing any undesirable oscillations



Metal shroud ring increases stability and controllability of torpedo on its run in water; it also reduces hooks and broaches

required for the same plane if drops were to be made at different speeds. For example, either the Mk 6 or the Mk 2 was used on the TBF, depending on the dropping speed.

The Research Division and the Air Facility of the Naval Torpedo Station were experimenting with the drag ring as an aid to air stabilization of the torpedo, so that it would be possible to use the same stabilizer when dropping from a TBF regardless of release speed. Experimental drops using the Mk 2 Mod 1 stabilizer and drag ring looked promising, so a training group was asked to give the drag ring a try. The training group not only reported stabilizing action good, but also stated that head and other torpedo damage was reduced.

Rings Decrease Speed of Torpedo Drops

Experiments then were started to find whether an accelerometer would be able to detect the difference in water impact on the torpedoes equipped or not equipped with drag rings. To the amazement of the designer, the accelerometer showed reductions of about 40 percent in measured decelerations when torpedoes were equipped with drag rings and released from the same speeds and altitudes as torpedoes not equipped.

For some time the torpedo station has been running experiments to determine the effect of the drag ring on actual damage to torpedoes when launched from high speed aircraft.

Without the drag ring, minor damage occurred at speeds of 225 knots (not

sufficient to prevent, in most cases, a satisfactory war run); severe damage occurred at 270 knots, and catastrophic damage resulted at speeds of 300 knots.

With the drag ring, drops were made with the standard Mk 13-2A torpedo at speeds of 375 knots and yielded hot, straight and normal runs. Damage to torpedoes has been minor. The most serious damage was to a forward propeller blade that was bent one inch—not serious enough for an unsatisfactory run.

The more than 150 experimental drops made with the drag ring, both with and without the shroud ring, at speeds of 300 to 375 knots have been satisfactory. Torpedoes equipped with drag ring and shroud ring have been launched satisfactorily at higher speeds.



This aircraft torpedo was dropped at high speed without the drag ring attached and suffered dent in heavy exercise head



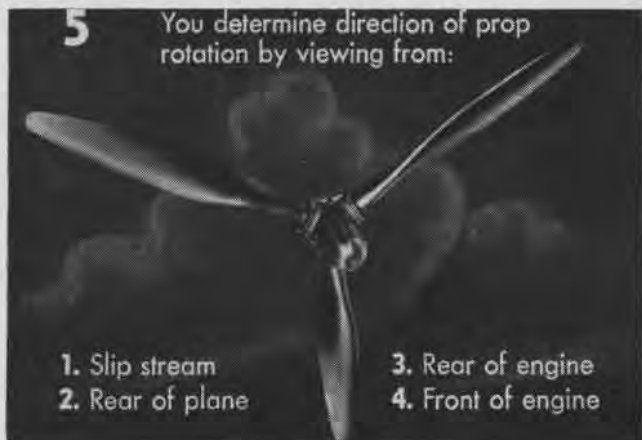
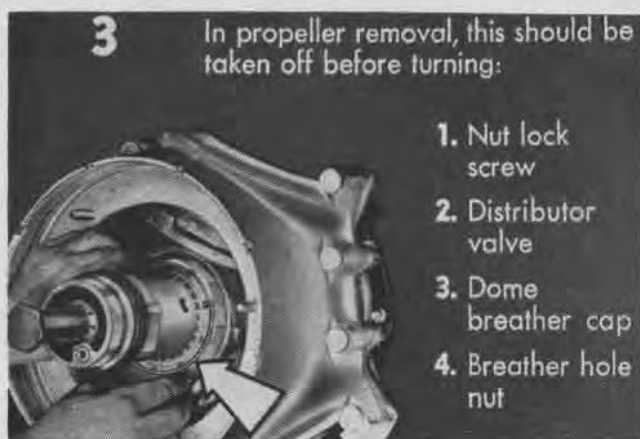
High speed launching without drag ring resulted in accordion-wrinkling of afterbody shell caused by high deceleration of torpedo



This torpedo, dropped without drag ring, was damaged in "tail slap." Shroud ring would prevent or reduce this type of damage



This is another example of "tail slap" damage resulting from Newport trials of torpedoes equipped and not equipped with drag rings



PIX QUIZ WHAT DO YOU KNOW ABOUT

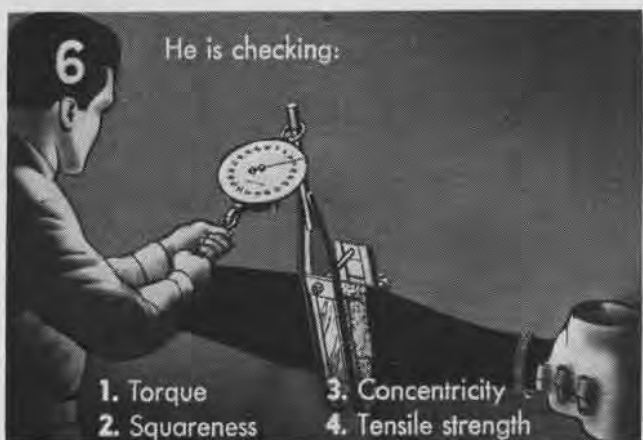
PROP MAINTENANCE?

NO ONE appreciates a good aviation machinist's mate as much as the pilot who flies a well-serviced plane. The maintenance men who make it possible for aviators to fly and fight their planes are doing one of the biggest jobs in naval aviation today. Maintenance of propellers stands high on the mech's check list. See how much you know about this important subject, then turn to page 40 for the correct answers to questions.

[QUESTIONS FROM BUAAER SPECIAL DEVICES VISUAL QUIZZER FILM NO. 54, PROPELLER MAINTENANCE]

Write your answers here

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



SHORE STATIONS

▶ **NAS PATUXENT RIVER**—"This One's On Us" is an R5D Douglas *Skymaster*, so called because it was presented months ago to NATS by employees of the Douglas Aircraft Company who bought the plane with war bonds and built it in their Chicago factory. It now is serving as one of the workhorses in NATS' sky fleet.

▶ **MCAS MOJAVE**—According to one of the bus drivers, even the dogs owned by station personnel take advantage of the transportation system. He tells of a nondescript black dog who comes running out to the bus at a certain corner. He boards the



Marine station bus, and sits quietly until the driver approaches the Post Exchange, at which time he comes to the door of the bus and waits expectantly to be let out. On other occasions, he gets on the bus at odd points about the station and rides to the stop nearest his home.

▶ **NAS GROSSE ILE**—Many here have taken advantage of the recording device available in the recreational building. Some have recorded their musical talents, others have dictated voice-letters to greet folks at home.

▶ **NAS HUTCHINSON**—To provide an opportunity to hear good music and gain instruction, experimental musical appreciation hours were inaugurated here recently. The concerts, made up of records from the station's library, are given once a week. Each is preceded by an explanatory lecture by the chaplain's assistant. Popularity of these sessions is great enough to warrant continuation a second year.

▶ **NAS MEMPHIS**—Time otherwise wasted in counting and issuing ammunition to each student on the firing line now is saved by a "dispenser" for pistol ammunition and the number of rounds to be used by each student may be counted before firing commences. The device consists of a compartmented tray having a space for each position on the firing line, and equipped with a handle. The full quota of ammunition may be removed by the student with ease because of the rounded construction of the compartments. The device also helps keep tab on ammunition.

▶ **BLIMPASTRALANT**—The two leading canine characters among the 22 dogs here are Queenie and Blackie. Queenie showed a regrettable lack of restraint by choosing the height of last fall's hurricane to increase the population.

Blackie, a dog with a strong personality and a peculiar tail, had the bad taste to start a knock-down dragout fight under the

heels of the Commodore with a dog no less than a member of the inspecting party. Much must be forgiven Blackie, however, for at least he attends classes. His classroom etiquette is excellent, except that he shows a tendency to fall asleep.

▶ **SEABEES, SAIPAN**—Jap flyers are beginning to cooperate with the Seabees. AM2c was building an exhaust fan for one of his battalion's shops, using the island's scrapheap as a source of raw materials. As the fan neared completion, he discovered that the island's resources could produce no ball bearings. Conveniently a Jap Zero came over, allowed itself to be shot down, and the plane's generator furnished the necessary bearings. The Seabee has placed an order for a second fan.

▶ **FAIRSHIPS LANT**—When two Navy blimps on a recent flight passed over a North African inland city, they marked what was probably the beginning of a new era of recorded time for thousands of natives. Cruising over the city during a native celebration, the airships circled over the public square which was jammed with people. The populace, most of whom had never seen a blimp before, greeted the airships with wild enthusiasm and uplifted arms. The local ruler later decreed that all dates would be reckoned from that on which the blimps visited the city.

▶ **NAS PEARL HARBOR**—From the Australian *Wings* comes the story of a drogue (target-towing) plane that had a bad forced landing. The ambulance crew, rushing to the wreck, saw the pilot walking toward them in the snow, barefooted and carrying a white bundle. His boots had been torn off in the crash and he looked a bit stunned.

He was told he needn't have brought in his parachute.

"Parachute be damned," he replied. "This is the drogue. I think my mate got a good score."

▶ **NAS CORPUS CHRISTI**—A CABANISS Field AMM1c lifted the telephone receiver off the hook and asked the operator to get him his mother in New York City. When his mother answered, Mac learned that his girl friend was also present, so she joined the conversation.

Time stood still as far as Mac was concerned, but the telephone company had

other ideas on the subject. When Mac replaced the telephone receiver, the operator informed him that he had been "shooting the breeze" for 65 minutes and owed the telephone company exactly \$46.50. A railroad ticket to New York might have been less expensive.

▶ **MCAS EL CENTRO**—The following incident took place during an advance guard tactical problem of a night fighter squadron attached to this station.

One of the patrols had dug in and was awaiting the advance. As the troops approached the patrol, the men crawled quietly into their foxholes and prepared to surprise the oncoming troops with a shattering volley of fire. Success of the ambush depended on the skill, ingenuity with which the men of the patrol had hidden themselves and their ability to remain perfectly quiet.

This time it was difficult. A moment after lowering himself into his foxhole, a Marine sergeant heard a whirring sound, and to his discomfort discovered a rattlesnake poised on the edge. The sergeant was torn between the call of duty and the desire to get out of there immediately. If the Leatherneck revealed his presence, the advancing troops could not be fired on as originally planned.

Remembering his excellent bayonet instructions of only a few days before, he eased his rifle around so that he could present the rattler with the business end of the weapon. The sergeant parried, the snake parried. The sergeant thrust, the snake thrust. Both missed. Both were rattled. The Marine tried again and scored—this time with success.

Now the sergeant has a beautiful souvenir—ten rattles and a button cut from the tail of his victim.

▶ **MCAS EWA**—Somewhere in the Pacific a Marine general was walking down rows of planes on a full-dress inspection. On many of the planes were painted various slogans, nicknames and pictures. One was a gorgeous blonde in startling undress.

The general frowned and bellowed: "Put a dress on that woman."

When he departed, the plane's crew went into a huddle on dress design. As the general ordered, the beautiful blonde was given a dress—of cellophane.

▶ **MCAS MOJAVE**—"44," Mojave's famous eagle mascot, entered '45 with a new home—a huge, chicken-wire cage with two juniper trees where he can pass the time of day with his fellow flyers who stop to chat with "44" for luck.

The eagle, unlike most of his breed, has become tame and friendly under the care of a sergeant pal and likes to be petted.



TOKYO TALKS

TO THE UNITED STATES

The Tokyo newspaper *Mainichi* estimated recently that between June, 1944, and January 14, 1945, a total of 1,350 American planes had raided the Japanese mainland, occupied Manchuria and Singapore. Seven hundred of the planes and at least 5,775 men were lost due to Japanese action.

TO OCCUPIED ASIA

By saturating wood with the blubber or fat of sardines, shellfish, shark or whale, Shun Ino, a Japanese scientist, has found an effective method for killing insects which eat into ships.

TO JAPAN

The Dai Nippon Physical Culture Society has announced a program of "air defense calisthenics" to enable the people to overcome the rigors of long winter nights in unheated shelters during B-29 raids. Body-warming calisthenics would perform the double duty of providing extra physical strength required for daily life in Japan nowadays.

TO NORTH AMERICA

Japanese soldiers on a by-passed base north of Australia are enjoying meals of crocodiles and lizards, drinking coconut whisky and have fashioned false teeth

from aluminum obtained by shooting down enemy planes. They have succeeded in weaving cloth from thread made of fibers from pineapples and bananas; they obtain salt from evaporated sea water; and shelters are easily constructed from materials at hand. "Our local forces, utilizing great mother nature in her original form, are existing in this primitive livelihood, and, permeated with the affection of superior officers and love from the fighting comrades-in-arms, are fighting in completely high spirits and pep."

TO JAPAN

Since a new American transmitter on Saipan takes over medium air waves when the Tokyo network goes off the air, Japanese officials have called on all their domestic listeners to turn off their receiving sets and go to bed at the end of the regular broadcasting schedule. Officials explained it was necessary not only for war workers to get a good night's rest, but also to save radio parts.

TO JAPAN

Japan's Air Defense General Headquarters has issued instructions to the people telling them how to build underground storage places where emergency supplies and ration books could be kept "in case the worst happens" during air raids. Builders were told to cover their caches with at least five inches of earth to withstand hot fires above it. Although best materials were concrete, brick or stone, these were scarce, and the builders could use rice chests, charcoal braziers or tea boxes.

PUBLICATIONS

The following Flight Safety Bulletins, Aviation Circular Letters, Technical Notes and Technical Orders have been issued since 1 January 1945. Copies are available on request to Publications Branch, Bureau of Aeronautics.

FLIGHT SAFETY BULLETINS

- 1-45 *Arrested Landings of Airplanes with R/P Loadings.*
- 2-45 *Flights in Danger Areas.*

AVIATION CIRCULAR LETTERS

- 64-44A *Aircraft Reporting System, Modification of.*
- 0-45 *Aviation Circular Letters—List of Those Cancelled and Those Effective.*
- 1-45 *"Altimeter Settings"—Determination and Reporting of.*
- 2-45 *Technical Publications—Compliance with instructions contained therein.*
- 3-45 *Issuance of Civilian Pilots' Certificates—Change in Regulations Regarding.*
- 4-45 *Smoking in Aircraft.*
- 5-45 *BuAer Controlled Shop Equipment and Tools—Delineation of and Requisitioning Policy for.*
- 6-45 *Vandykes and Drawings of Aircraft, Engines and Accessories—Requests for.*
- 8-45 *Dangers resulting to Gasoline Refineries and Facilities from Low Flying or Stunting Aircraft.*

TECHNICAL NOTES

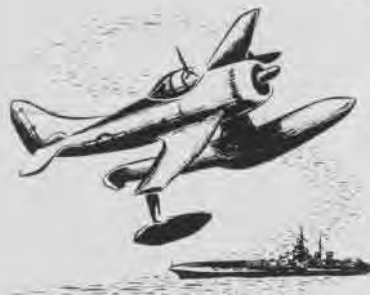
- A-45 *(Conf.) Confidential Technical Notes—List of Those Cancelled and those in Effect.*
- 107-44 *AR-10-Assembly—Description, Operation and Maintenance.*
- 0-45 *Technical Notes—List of Those Cancelled and Those in Effect.*
- 1-45 *Index of Technical Orders and Technical Notes.*
- 2-45 *100 Gallon Droppable Fuel Tanks—Stabilizers for.*
- 3-45 *Kit, Signalling, Aircraft Droppable Type ADS-1—Description and Use of.*
- 4-45 *Standard Instrument Panel Arrangement.*
- 5-45 *Parachutes—Methods of Handling Army Type by Navy Personnel.*
- 6-45 *Airborne Radio—Use of Solderless Fittings and Terminals on Antenna Wire—Approval of.*
- 7-45 *Suit, Exposure; Quick Donning—For Aviation Personnel.*
- 8-45 *Range Marker; Use of on Instruments for Naval Aircraft.*
- 9-45 *Hardening of Rubber Cement Packed in Pneumatic Life Raft Repair Kits.*
- 10-45 *Discussion of V-n Diagrams.*

TECHNICAL ORDERS

- A-45 *Confidential Technical Orders—List of Those Cancelled and Those in Effect.*
- B-45 *Aircraft Attachment Provision for Model AN/APN-4 Airborne Radar Equipment (Cont.).*
- 0-45 *Technical Orders—List of Those Cancelled and Those in Effect.*
- 1-45 *Aircraft Radio AN/APN-4—Replacing Power Transformer in.*
- 2-45 *Use of Dye Marker with Sonobuoys.*
- 3-45 *Inspection, Test and Replacement of Safety Belts and Shoulder Harnesses.*
- 4-45 *Elastic Shock Cord, Exerciser Cord, and Bungee Rings—Deterioration of.*
- 5-45 *Model PBJ-1 Airplanes Restrictions and Permissible Maneuvers.*
- 6-45 *RL-7 and RL-9 Interphone Amplifiers. Replacement of Unsatisfactory Dynamotor Plugs.*
- 7-45 *Altimeter Settings.*
- 8-45 *Service Record of Accessories.*
- 9-45 *Parasuit and Equipment Container Case—Model A.*
- 10-45 *Restrictions on Dive Pull-outs and Maneuvers at High Speeds.*
- 11-45 *Operation and Care of Two-Speed and Two-Stage Two-Speed Superchargers.*
- 12-45 *Prohibition of Use in Aircraft of Ground Anti-Friction Bearings.*
- 13-45 *Airplane Fuel Systems—Draining of.*
- 14-45 *One-Man Parachute Type Life Raft Inflation System—Non-Interchangeability of.*
- 15-45 *Aircraft Fire Extinguishers—Inspection*

SHOW ME THE WAY TO GO HOME

Plotting Problem



The 0800 position of the U.S.S. Iowa is Lat. 48° 22' N, Long. 03° 54' W, on course 082°, speed 30 k. At 0817 you depart from the ship and track your section leader as follows: (Use appropriate wind for given altitude: 2,000 ft., wind 22 k from 060°; 3,000 ft., wind 26 k from 130°.)

Time	MH	CAS	Altitude	Variation	Temperature
0817	081°	122 k	2,000 ft.	14° W	+14° C
0955	202°	116 k	3,000 ft.	12° W	+13° C
1042	152°	126 k	2,000 ft.	12° W	+12° C

	1st Leg	2nd leg	3rd leg
TH	_____	_____	_____
Cus	_____	_____	_____

What is the 1129 position of leader? Lat. _____

What is his bearing and distance from ship? Brg. _____
Distance _____

(Answers on page 40)

SIGNS and SYMBOLS

IN ACCORDANCE with agreements approved by the Joint Chiefs of Staff on 2 August, 1944, this set of standard symbols has been prepared for use of the United States Forces by the Chief of Naval Operations, Navy Department,

with the concurrence of the Assistant Chief of Staff, G-2, War Department, and Assistant Chief of Air Staff, Intelligence, War Department. These signs and symbols will be used by Army and Navy Photo Interpreters.

Used in Photo Interpretation Map Reading

(?) Unidentified	Howitzer—Light—Less Than 120 MM	Fire Control Radar	Base of Symbol Indicates Location of First Strand. Depth of Zone in Feet is Indicated by Numerals.
WEAPONS		Fire Control Visual	
ANTI-AIRCRAFT		FOX HOLE—In Quantity. Outline Area Freshhand & Annotate	Wire, Concertina Single
Heavy—75 MM and Over	MACHINE GUN (Ground Defense)	Observation Post	Wire, Concertina Double
Automatic—13.2 to 40. MM	Heavy	Observation Post, Artillery	Wire, Single Fence
Machine Gun 6.5—7.7 MM	Light	Observation Tower	Wire, Double Fence
Twin Mount	Field of Fire	PILLBOX—Gun Axis Shows Approx. Direction of Fire. Show Size of Gun if Known.	
Triple Mount	Mortar (Annotate Size)	Sniper Post	
Dual Purpose	Mortar—Barrage (Annotate Size)	Personnel Shelters (A) Above (B) Below Ground	
Self-Propelled (Heavy)	Railway Gun	Strong Point	
Railway (Heavy)	Railway Gun on Turntable	Trench, Communication	
Ship	Rocket Projector, Single (Annotate Size)	Trench, W/Firing Bays	
Tower	Rocket Projector, Multiple (Annotate Size)	Trench, Fire	
ANTI TANK		Weapons Pit, Infantry	
Heavy—Over 75 MM	Vehicle, Animal Drawn		
Medium—50—75 MM	Vehicle, Armored		
Light—Less Than 50 MM	Vehicle, Motor		
Self-Propelled (Heavy)	BATTERY —No. of Guns: Numeral on Right of Appropriate Symbol Indicates Number of Pieces		
COAST DEFENSE			
Super-Heavy—Over 240 MM	GUN SIZE: Numeral Left of Appropriate Symbol Indicates Size in Millimeters		
Heavy—Over 175 MM	Weapons or Emplacement Destroyed		
Medium—105—175 MM	Weapon, Dummy		
Light—Less Than 105 MM	Weapon, Doubtful		
Howitzer—Super-Heavy Over 240 MM			
Howitzer—Heavy—Over 175 MM			
Howitzer—Medium—120—175 MM			
Howitzer—Light—Less Than 120 MM			
FIELD ARTILLERY			
Heavy—Over 175 MM			
Medium—105—175 MM			
Light—Less Than 105 MM			
Self-Propelled (Heavy)			
Howitzer—Heavy—Over 175 MM			
Howitzer—Medium—120—175 MM			
EMPLACEMENTS			
If Material of Which Obstacle is Constructed Can Be Determined Add Appropriate "Material Index" Beneath Symbol.			
MATERIAL INDEX			
Bunker	C-Concrete, L-Log, M-Masonry, W-Wood, S-Steel, E-Earth		
Casemate or Blockhouse			
Emplacement, Unoccupied			
Emplacement, Covered			
Example			
4-Gun, 240 MM Heavy Coast Defense Battery in Covered Emplacements			
Fire Control Center			
		Anti-Tank Barrier	
		Anti-Tank Ditch	
		Anti-Tank Ditch, Covered	
		Barrage Balloon	
		Demolition Charge	
		Obstacles, Fixed	
		Obstacles, Movable	
		Stakes—Plot Position	
		Road Block Demolition	
		Road Block Partial	
		Road Block Total	
		Mines	
		Mined Area, Land	
		Mined Area, Water	
		Mine Field Gap	
		Wire, Broad Area	
		BARRACKS AREA	MILITARY AREAS
		BIVOUAC AREA	Barracks Area
		C.P.	Bivouac Area
		C.P.	Command Post
		MILITARY AREA	Command Post Area
		U/C	Military Occupation
		A.F.V. 40	New Construction
			Park, Armored:
			OUTLINE AREA, Indicate Type Where Possible and Show Numerically The Number of Pieces
			END EQUIP
			Park, Engineer Equipment:
			M/T 25
			Outline Area and Indicate Type Where Possible.
			Park, Motor:
			OUTLINE AREA, Indicate Type Where Possible and Show Numerically The Number of Vehicles.
			ORD
			Park, Ordnance:
			OUTLINE AREA, Indicate Type Where Possible and Show Numerically The Number of Vehicles.
			Stores, Area:
			Area of Stores to be Inclosed in a Solid Ring.
			Ammunition
			Buried
			Coal
			Engineer (Or Chemical Annotate 'G')
			Loose
			Lumber
			Oil or Gas
			Water
			Tent Area
			Tent

SIGNS and SYMBOLS

TERRAIN FEATURES

	BLAST WALL — Line Conforms to Shape of Installation Protected.
	Retaining Wall
	Bridge:
	Indicate Width in Feet and Construction Material by "Material Index"
	Bridge, Out
	Bridge, Ponton
	Building
	Building, Buried
	Building, Dug In
	Building, Revetted
	Building, Under Construction
	Cable
	Cable, Buried
	Canal
	Cemetery
	Cliff
	Cliff, Rocky
	Church
	Culvert
	Cut
	Dam
	Direction Of Flow
	Drainage Ditch
	Excavation
	Fill
	Flood Gate
	Ford
	Hospital
	Lake
	Lake, Dry
	Lock
	Lock, Double
	Path Or Trail
	Pipe Line, Buried

	Pipeline, Overhead
	Pipeline, Surface
	Railroad, Double Track
	Railroad, Electrified
	Railroad, Narrow Gauge
	Railroad, Single Track
	Ridge Line
	River Or Stream
	Road, Primary
Show Number Of Lanes In Figures. Minimum Width Of 1 Lane Is 8 Feet.	
	Road, Secondary
Show Number Of Lanes In Figures. Minimum Width Of 1 Lane Is 8 Feet.	
	Sand Dunes
	School
	Spring
	Stone Fence
	Stream, Bed
	Stream, Intermittent
	Tank, Buried
	Tank Farm
	Tank, Fuel
	Tank, Gasometer
	Tank, Water
	Tower, Unspecified Or Obstruction
	Tower, Water
	Underground Entrance
VEGETATION	
	Area Of Specific Vegetative Type (On Photographs)
	Hedge
	Brush
	Coniferous Forest
	Deciduous Forest
	Grassland
	Mangrove

	Orchard Or Plantation
	Palm
	Rain Forest Or Jungle
	Rice Field
	Stump Land
	Sugar Cane
	Swamp Forest
	Swamp Or Marsh
	Tree
	Tidal Flats
	Overflowed Land
Areas Containing The Above Or Other Vegetation Types Should Be Outlined And Annotated With Type Indicated.	
	Slope
	Falls Or Rapids
	Well
	Well Derrick
	Windmill
ELECTRONICS	
	Direction Finder
	Power Station
	Power Transmission Line (Obstruction)
	Power Transmission Line (Not Obstruction)
	Radar
	Radio Navigational Aid
	Radio Station
	Radio Transmitter
	Searchlight
	Searchlight—Radar Controlled
	Sound Locator
	Tower, Control
	Tower, Light
	Tower, Radio
	Tower, Signal
	Telephone Or Telegraph Line
	Transformer Station

	Weather Station
NAVAL AND HYDROGRAPHY	
ANCHORAGES	
	Ship
	Ship, Emergency
	Ship, W/Complete Facilities
BEACHES	
	Location And Extent
	Gradient
	Center
	Left Flank—From Sea
	Right Flank—From Sea
BUOYS AND LIGHTS	
	Buoy, Bell, Etc.
	Buoy, Lighted
	Buoy, Unspecified
	Lightship
	Light, Unspecified
	Crane
DANGERS	
	Danger, Area
	Rock, Awash
	Rock, Sunk
	Wreck, Awash
	Wreck, Sunk
	Dredge
	Dry-Dock
	Dry-Dock, Floating
	Marine Railway
	Net, Submarine
	Net, Torpedo
REEFS, BARS AND SHOALS	
	Edge Of Coral Reef
	Edge Of Rock Reef
	Sand Bar

THESE symbols are intended for standard use throughout the United States Forces in connection with photographic interpretation reports, photographs, mosaics, overlays, target charts, damage assessment, beach stud-

ies, overprints, maps and map substitutes made from aerial photographs, three dimensional terrain models, etc. The standard set has been compiled from a number of sources, including Hydrographic Office, Prisc, Army Field

Manual FM21-30, and the Navy Photo Interpretation Manual. In each case an effort has been made to select the symbol which conveyed the idea it represented in the simplest and most logical way possible to help the pilot.

CORAL HEADS

Coral Head—Area

Coral Head—Isolated

TIDES AND CURRENTS

Ebb

Flood

General

VESSELS

Merchant

See JMST Section Of Jan #3 in P.I. Handbook.

Naval

See Standard Designations in P. I. Handbook

WAVE AND SURF CONDITIONS

Breakers

Surf Line

Additional Symbols And Abbreviations For Hydrographic Designations Should Conform To Those Published In H.O. No. 8.

AIRFIELDS AND SEAPLANE BASES

Aircraft

Aircraft Damaged

Aircraft, Dummy

Aircraft Revetment

Aircraft, Revetment Under Construction

Aircraft Shelter

Airfield, Complete

Airfield Refueling Facilities

Landing Ground, No Facilities

Seaplane Base, Complete Facilities

Seaplane Base, Refueling Facilities

Seaplane Anchorage, No Facilities

Seaplane Ramp

SPECIAL SYMBOLS

Depth & Beach Studies

BEACH MATERIAL

Mud Or Silt

Sand

Pebble

Cobble

Shingle

Boulder

Bed Rock

Kelp or Seaweed

BOTTOM MATERIAL

Use Same Designations As For Beach Material.

Sand Bar Above Datum

Sand Bar Below Datum

Sea Wall

OBSTACLES, UNDERWATER

Obstacle, Large, Fixed

Tetrahedron, Ramp Or Hedge Hog, Fixed

Tetrahedron, Ramp Or Hedge Hog, Moveable

Stakes, Piles Or Rails

In Line, Show Number Of Tetrahedra Etc. Between Precisely Located Points.

In Multiple Rows, Shown By Line

When Used With Wire Or Mines, Use Proper Symbols, Use Material Index Where Known.

As

Or

WAVE & SURF SYMBOLS

For Use In Depth Determination Formulas.

L Wave Length

L_b Distance Outermost Breakers From Datum Line

P Wave Period

C Wave Velocity

H Wave Height—Trough To Crest

∞ Angle Wave Crest With Bottom Contours

D Angle Of Breakers With Beach

C_L Velocity Of Along-Shore Current In Knots

C₀ Subscript "0" Refers To Valves In Deep Water—Example.

Low Water Datum

High Water Datum

6 Soundings In Fathoms

Soundings In Feet

Contours, Hydrographic

Critical Line Special Purposes

SPECIAL SYMBOLS

General Color Index

Cultural	Black
Plant Growth	Green
Topography	Brown
Hydrography	Blue
Enemy Defenses	Red

DAMAGE ASSESSMENT Bomb Plot

Single Bomb Certain With Crater

Single Bomb Certain, No Crater

Single Bomb Probable, No Crater

One Or More Bombs Certain In Vicinity Of Arrowhead

One Or More Bombs Probable In Vicinity Of Arrowhead

Area Of Bursts

Fire Location

DAMAGE ASSESSMENT: For Overlays

Agent	Good Cover Only			MEDIUM & POOR COVER & 1st PHASE
	STRUCTURAL	SUPERFICIAL	ROOF DISTURBANCE	
H. E. ALONE				
H. E. PLUS FIRE				
FIRE ALONE				
GOBTRILL				

Prior Damage From Earlier Raids

DAMAGE NOT REPAIRED

DAMAGE REPAIRED

REPAIR STUDIES: FOR OVERLAYS

Construction Completed	NEW BUILDINGS	
	SUPERFICIAL REPAIRS	
Construction In Progress	REPAIR OF DAMAGED AREAS	
	NEW BUILDINGS	
Least Activity	DAMAGE CLEARED (POSSIBLE PREPARATION FOR REPAIRS)	
	SITE CLEARED OR NO ACTION	

COLOR INDEX

DAMAGE ASSESSMENT: For Photographs

Note: Symbols Are Similar To Those Used On Overlays With Differentiation By Color.

H. E. Alone	Green
H. E. Plus Fire	Purple
Fire Alone	Red
Doubtful	Yellow

REPAIR STUDIES: For Photographs

Note: Symbols: Outline For Clearance Completed, Cross Hatch For Repairs In Progress, Solid For Repairs Completed.

To Structural Damage	Purple
To Superficial Damage	Green
To Roof Disturbance	Yellow
First Aid Repairs	Blue
New Buildings	Red
Condition Of Area Or Site (Clearance Or No Action)	Black

Cloud Obscured

Smoke Obscured

Line Of Flight

Nadir Point

FURTHER distribution of these standard symbols will be made in the form of replacement pages for section 3 in the Photographic Interpretation Handbook—United States Forces, published by the Office of the Assistant

Chief of Air Staff, Intelligence, Hq., U. S. Army Air Forces, and the Photographic Interpretation Center, Division of Naval Intelligence, Navy Department. In order to effect standardization of additional symbols required

from time to time, proposed new symbols should be forwarded by initiating service agencies to the Chief of Naval Operations (OP 16-V-P), Navy Department, Washington, D. C., for concurrence and thorough dissemination.

Crash Fire RESCUE



RESCUE IS PRIMARY AIM OF EVERY SHORE BASED CRASH CREWMAN

Because seven out of ten accidents involving shore-based naval aircraft occur on or near air station runways, crash fire rescue crews are as necessary as parachutes. Alert crash crews, properly trained and equipped, can be on the job in 30 seconds. Saving personnel is every shore-based crash crewman's first concern. Complete extinguishment is incidental until rescues are made. For three months Navy trained fire

fighters, at Naval Air Technical Training Center, Jacksonville, conducted daily tests with simulated crash fires to perfect workable techniques. Methods developed will be demonstrated at every major continental naval and Marine air activity by mobile units. Naval Aviation News tells the story of crash fire rescue training with words, photographs and charts. Crash fire rescue units are now in the field



HIGH PRESSURE FOG SHIELDS THE COCKPIT



MECHANICAL FOAM COVERS GASOLINE FIRE



CO₂ BLANKETS FIRE FROM WING TANK SPILL



CRASH CREWMEN BATTLE FLAMES WITH SCIENCE

SINCE fire is a chemical reaction, fire fighting problems require a scientific approach. Crash fire rescue crewmen need not be chemists, but to perform their duties properly they must have a basic understanding of the chemical reaction that is fire. The fire fighter's laboratory, as well as his problem, is a burning airplane. Guesswork on the fire fighter's part in approaching a crash problem can be dangerous for him and deadly for occupants of the burning plane. Fire occurs when oxygen in air unites with another element at a rate rapid enough to produce heat in destructive quantities. Before any matter burns it vaporizes to form a combustible mixture. Flash-point of high octane gasoline is -60° F.

Every fire is a chemical triangle consisting of heat, fuel and oxygen. Elimination of any one side will extinguish a

fire. Fire fighters at naval air stations use water, foam and carbon dioxide, singly or in combination, to cool, smother or starve flames. Water serves essentially as a cooling agent, to a lesser extent it may smother or even starve a fire. Cooling powers are magnified by atomizing water into millions of tiny globules called fog. Crash trucks of the Navy FFN types produce fog by releasing water under 800 lbs. per sq. in. pressure through special adjustable nozzles. Properly applied, fog will protect cockpit areas from flames.

Carbon Dioxide Cuts Off Oxygen, Smothers Flame

Foam is a fluid cohesive mass of bubbles filled with air produced mechanically by alternating a mixture of commercially prepared solution and water. Foam, used properly, blankets out oxygen from the area of combustion and smothers fire. Carbon dioxide, itself an inert odorless gas, when released under high pressure smothers fire by blanketing out oxygen. Tests prove gasoline fires rarely follow completely predictable patterns, even under similar sets of conditions. Crash fire rescue teams must make accurate, fast, common-sense appraisals of situations if they are to save lives.



Job Chart for Navy Crash Fire Rescue Crewmen

HOSE AND RESCUE MAN

MAINTENANCE foam hose, fog hose and reels, rescue gear
AT RESPONSE assist in stretching hose, make rescue
TAKING UP secure hoses, check readiness of reels and hoses, check rescue gear

STBD. FOG NOZZLEMAN

MAINTENANCE high pressure fog nozzle
AT RESPONSE stretch hose, operate foam pipe
TAKING UP check condition nozzle and hose, secure fog nozzle and hose

FOAM PIPEMAN

MAINTENANCE foam pipe
AT RESPONSE stretch hose, operate foam pipe
TAKING UP check condition pipe and hose, secure foam pipe and hose

With Aves 1741 or 1742 equipped with 172 foam unit, Stbd. hose and rescue men place 172 pump in operation



CRASH TRUCK OPERATOR

MAINTENANCE Truck, pump, tools, water supply, foam
AT RESPONSE drive to scene, spot truck, operate pumps
TAKING UP secure pumps, replenish water supply, replenish foam concentrate, return unit to station, check readiness for next run

PORT FOG NOZZLEMAN

MAINTENANCE high pressure fog nozzle
AT RESPONSE stretch hose, operate foam pipe
TAKING UP check condition nozzle and hose, secure fog nozzle and hose

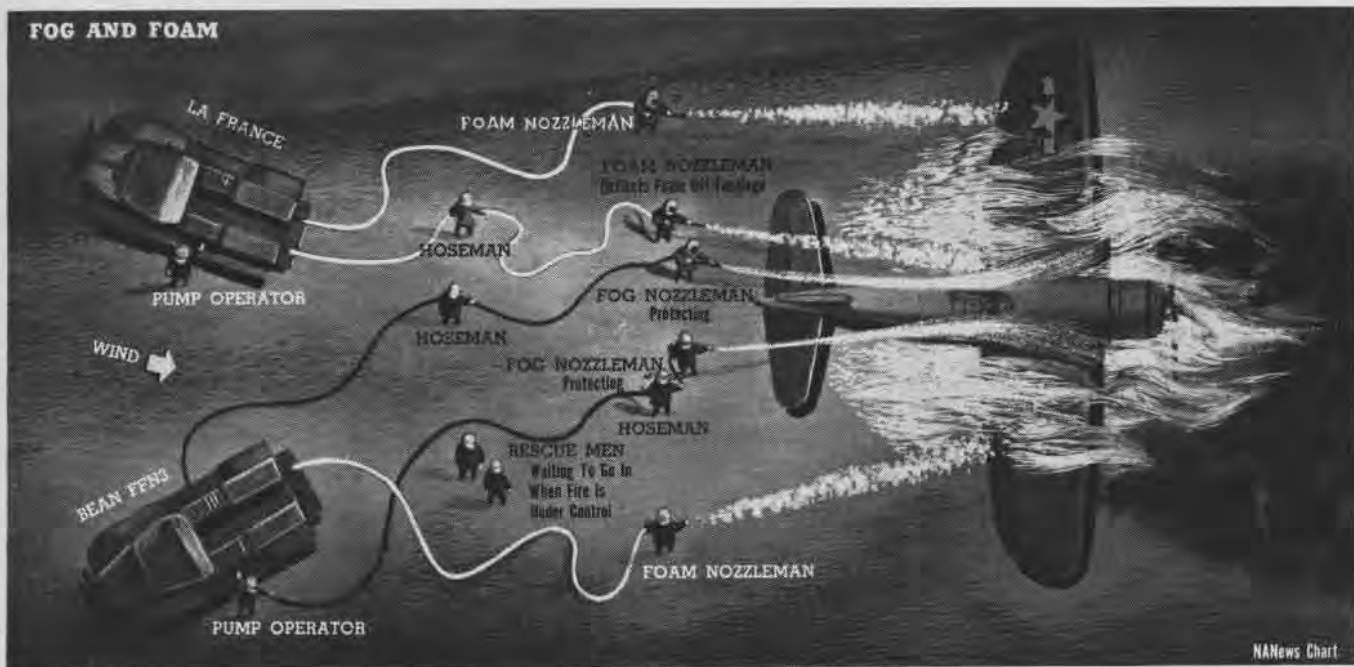
HOSE AND RESCUE MAN

MAINTENANCE foam hose, fog hose and reels, rescue gear
AT RESPONSE assist stretching hose make rescue
TAKING UP assist in securing hose check readiness reels and hoses, check rescue gear

ADEQUATELY MANNED CRASH TRUCKS PAY DIVIDENDS WHEN FIRES OCCUR

WHEN a fighter skids across a runway in flames, it takes more than crash trucks parked around the field to rescue the pilot. The best fire fighting equipment in the Navy won't do the job if crash trucks are inadequately manned. A truck operated by too few fire fighters is as ineffective as an anti-aircraft gun with half a crew. Standard crash and fire trucks, in use at most shore-based naval air activities, are designed for six-man crews. Each man has definite and exacting duties that must be properly performed if equipment is to provide pro-

tection it was designed to give. Split-second timing is as important to fire fighters as it is to aircrewmembers. Crash fire rescue crews should be trained as teams and work as teams. Seconds saved in getting fog, foam, or CO₂ on a blazing airplane can save the pilot's life. Seconds as well as efficiency are lost when an undermanned crash truck answers an emergency call. One fire fighter, regardless of how well he may be trained, can't do the work of two. Even experienced firemen must be thoroughly indoctrinated before they can use modern equipment effectively on gasoline fires. Each man in the crew has maintenance duties. Equipment that won't work is as useless at a crash as an empty machine gun is in a dog fight with two Zeros.



FOG AND FOAM CAN SAVE PILOT IN TWO SIDE FIRE

ENGINE failure on the downwind leg of an approach forced a fighter pilot to crash-land wheels-up just off the runway. Both wing tanks ruptured, spilling high octane gas in the area. Landing shock rendered the pilot unconscious. Alert crews of a Navy model FFNS crash truck, spotted along an adjacent runway, and of a *La France* foam truck, parked across the field, responded before the plane touched ground. Friction ignited the gasoline spill and flames were licking at the fuselage as the FFNS truck pulled up.

Eight seconds later a high pressure fog line was in operation on each side of the cockpit. Fog operators approached from the tail on windward side. Fog streams cooled the cockpit and shielded the pilot from flames. Fire fighters used the FFNS truck's foam pipe to play foam off fuselage

on upwind side to blanket flames. Seconds later two foam lines from the *LaF* truck were brought to bear, one on each side of the burning plane. Forty-five seconds after the first truck arrived, a rescue team moving in over a foam path on upwind side, carried out the pilot unharmed except for minor burns and bruises received in the crash. All fire was out in another 45 seconds.

Crash Units Perfect Technique With Simulated Fires

High velocity fog, properly applied on both sides of the cockpit seconds after spilled gasoline ignited, had sufficient cooling power to protect the pilot. Correct use of foam, coupled with cooling and smothering action of fog, brought fire sufficiently under control for effecting a rescue. Wind conditions made use of CO₂ impractical.

This crash didn't actually occur, although similar ones have. Scientific tests, conducted by the Crash Fire Rescue Training Detachment at JACKSONVILLE NATTC in hundreds of simulated crash fires, prove that alert, well trained and adequately manned crews using standard Navy equipment can rescue pilot and personnel from similar type two-sided fires.



Fire fighters approach with two protecting fog lines. Crew must always analyze fire conditions and make fast, accurate decisions



Fog barrier on each side of cockpit shields pilot from flames. Fire is controlled by application of foam over gasoline spill



WATER STREAMS SWEEP FIRE AWAY FROM PLANE

ALERTED when control tower telephoned an SBD with defective landing gear was circling overhead, crash fire rescue crews on two Navy Model FFN2 trucks prepared for runs. The port landing gear, failing to lock, collapsed, ground-looping the plane. One wing damaged and gas tank ruptured, the SBD skidded to a stop headed downwind on a cement runway. One crash truck, following the plane in, had fog lines out when gasoline on the runway ignited. Water under 800 lbs. pressure in semi-fog position directed along opposite sides of the fuselage shielded pilot and gunner.

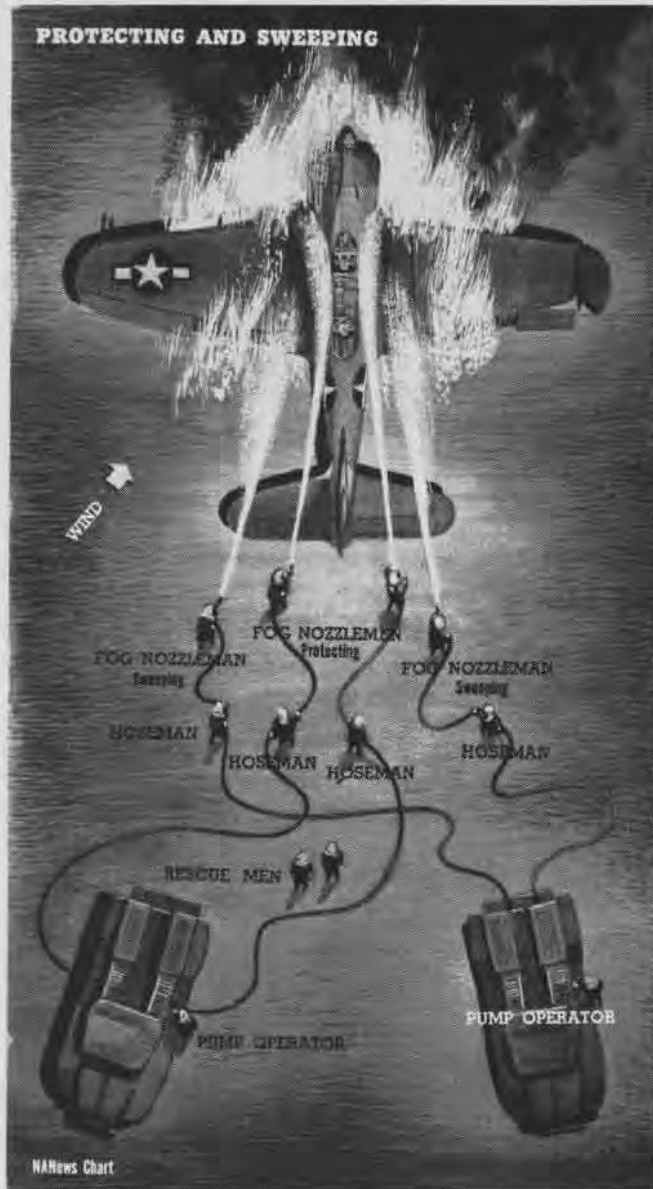
Seconds later the other truck brought its high pressure lines to bear. Hosemen from this truck used straight streams in a sweeping action against the near edge of the spill. Driving flames and spilled gasoline with the wind, hosemen had the cement runway around the damaged plane clear of fire within 20 seconds. Pilot and rear seat gunner, protected by cooling streams of fog, climbed out uninjured.

This crash fire occurred in simulated form dozens of

times on a cement ramp at the Crash Fire Rescue Training Detachment drill field in Jacksonville. Test after test, conducted by crews of trained fire fighters using model FFN2 trucks, proved that high pressure fog can effectively be used for both protection and sweeping in a two-sided fire on a hard surface runway. Close cooperation and contact between control tower and crash crews are mandatory if crash fire rescue operations are to be effective and sure. Alert crash crews, properly placed about an airfield and in constant contact with the tower, can be on the job and waiting when a crash is anticipated. Seconds saved in getting fog streams on a cockpit can save a pilot's life.

Navy Equips Early Model FFN Trucks to Produce Foam

Most naval air stations are equipped with either FFN1 or FFN2 model high pressure fog trucks. Few of the FFN3, equipped with built-in foam producing units, are in the field. Both earlier models can be equipped to produce foam by installation of equipment collectively known as the Hale FZZ pumping unit and foam equipment. These FZZ units, together with manuals for their installation, operation and maintenance have been made available to all activities by BUAEF. Advice and assistance in installation and operation will be given by mobile units when requested. The separate unit discharges foam from one pipe at 50 gal. a minute.

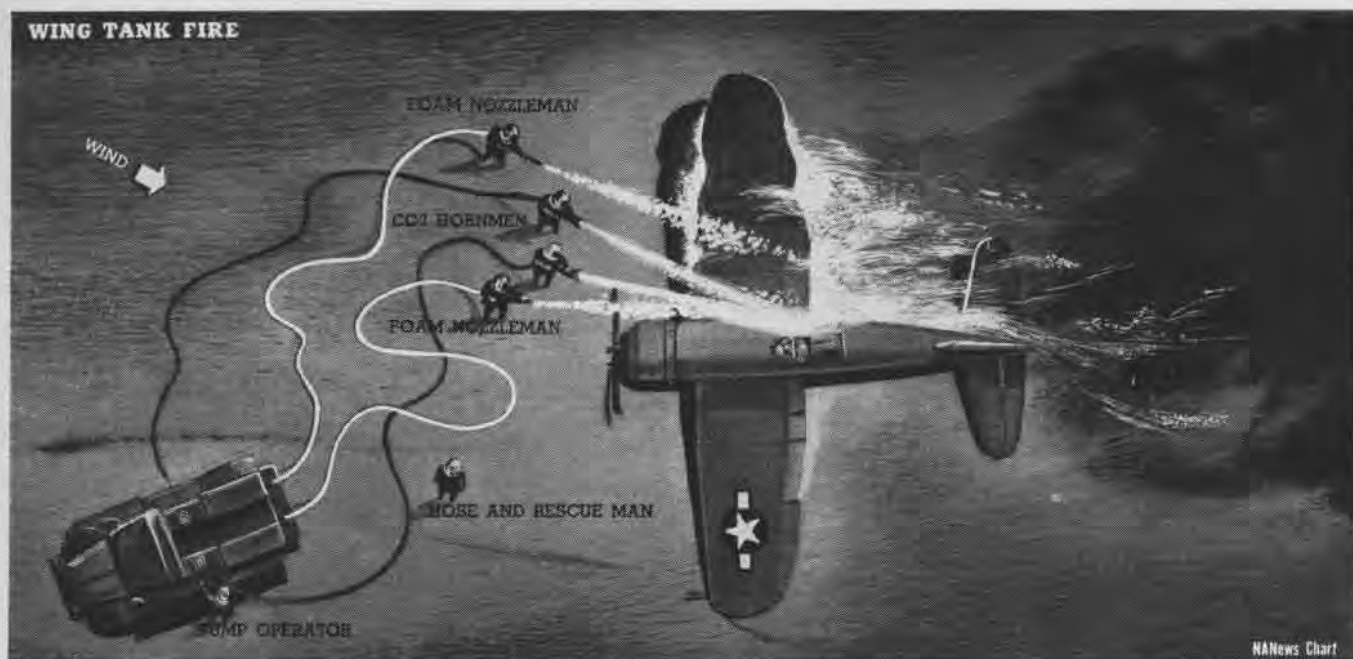


Crash fire rescue crews use two fog lines to protect cockpit and two for sweeping the runway clear of all the burning gasoline



Ten seconds later fire is swept clear; rescue team moves in. Rescuers do not wait on complete extinguishment; sweeping continues

WING TANK FIRE



NA News Chart

CRASH CREWMEN CONTROL FIRE WITH CARBON DIOXIDE AND FOAM

ENGINE failure on take-off caused a *Corsair* to crash-land into the wind in soft ground over the end of a runway. Escaping gasoline from the starboard wing tank was in flames when a Navy *LaF* CO₂ crash truck, stationed nearby, pulled into position. Through judicious use of the truck's 300 lbs. of carbon dioxide, fire fighters quickly knocked down flames around the cockpit area, giving the pilot protection. Two fire fighters with discharge horns approached the plane's involved side from front with the wind. Carbon dioxide was released near the ground in a sweeping movement of the discharge horns. The CO₂ vapor released under pressure covered the flaming gasoline spill, blanketing out oxygen and smothering the fire.

Two fire fighters with foam lines from the converted *LaF* truck followed close behind blanketing fire areas by lateral movement of their play pipes. Foam protected men using CO₂ from flareups and flashbacks that can result when gasoline around the fire fighters' feet is disturbed. In 30 seconds CO₂ smothered out flames sufficiently for the pilot to escape. Discharge horns were kept ready to control flashback that are a continuous danger in gasoline fires.

This crash, a common type at air stations, was simulated many times by the Crash Fire Rescue Training Detachment to scientifically test procedures in use of CO₂ and foam. Carbon dioxide is ideal for use in combatting fire inside a wing or fuselage area, where it smothers out flame. CO₂ is quickly dissipated in wind and must be used near the ground, always on the windward side.

Inverted Crash Fires Require Special Care

Methods described can be adapted for use on inverted crashes. In every crash, flames, heat and gasoline must be kept away from cockpit areas. Where gasoline has not ignited, lifting or other moving should be limited to what is absolutely necessary for freeing occupants. Spill areas should be blanketed with foam. Sparks, caused either by friction or from the electrical system, may ignite gasoline vapor. If foam is not available for blanketing, high pressure fog guns in full fog position must be held ready during moving.



Carbon dioxide, released close to ground from discharge horns quickly smothers flame around gasoline spilling from wing tank



Protecting foam is laid on behind CO₂ fire fighters. Foam prevents flashbacks as men move up to knock down flames under wing



MOBILE CRASH RESCUE UNITS ARE NOW IN FIELD

EIGHT mobile training detachments, trained at NATTC JACKSONVILLE, now are in the field conducting crash fire rescue demonstrations at major continental naval air activities. One officer and six specialists (F), who previously served as instructors at BuSHIPS fire fighting schools, make up each unit. Public Works Section, BUAER, initiated the idea for crash fire rescue training and supplies necessary equipment. All mobile crash fire rescue units are under command of Advanced Base Aviation Training Units, NAS ST. LOUIS. Equipment issued each unit includes one Bean FEN3 crash truck with built-in foam unit and one LaFrance CO₂ booster line crash truck adapted to produce foam.

Each man in every unit is qualified to instruct in crash fire fighting and rescue procedure, as well as in operation and maintenance of standard Navy crash equipment. Two five-day demonstrations will be staged at each air station or air facility. Mobile units are qualified to check fire fighting equipment on stations and to aid in making modifications such as installation of FZZ pumping unit on the FFN1 and FFN2 trucks. They will bring detailed instructions for altering existing LaFrance CO₂ booster line crash trucks to produce foam. The booster line feature is converted to a foam producing unit capable of furnishing 100 gal. of mechanical foam per minute.

Fire Fighters Must Know Plane's Structural Features

Crash fire rescue crews will explain and demonstrate proper methods of using high pressure fog, for sweeping and for pilot protection. Units will demonstrate use of mechanical foam in fire fighting operations and the three methods of its application—shaking, deflecting and building on.

Shaking and deflecting methods are most satisfactory in crash fire rescue operations. Mobile units are directed to visit major air stations in an assigned area first. Demonstrations involving gasoline fires around fuselages will be staged at each activity. Mobile crash fire rescue units will schedule demonstrations so that a maximum number of personnel concerned with fire fighting duties may attend.

ABATU suggests that responsible commands call in selected personnel from satellite fields for instruction at central locations. Individual activities can be visited at later dates. Naval air activities are requested to prepare drill areas approximately 200' x 300' suitable for crash truck movements and simulated fires. All members of mobile units have received detailed instruction concerning structural features of operational type naval aircraft. Crash fire rescue crewmen must know the location and size of gasoline tanks, operation of escape hatches, position of guns and other armament. In emergencies, where split-second action and accurate appraisal of a situation must become second nature to a fire fighter if lives are to be saved, familiarity with a burning airplane's structure is essential.

Three Units Are Assigned to West Coast

Continental United States is divided by ABATU into eight regions for dispersal of mobile training units. All aviation activities in the first, third, and fourth naval districts comprise one mobile unit's operating territory. Another unit will visit aviation facilities in the fifth naval district and Potomac and Severn river commands. Individual mobile units are assigned to the eleventh, twelfth and thirteenth naval districts. One crash fire rescue detachment will operate from ComMCAB CHERRY POINT and visit all Naval and Marine aviation activities in the fifth and sixth naval districts. The seventh naval district including COMAIRLANT and CNAOT facilities will receive a mobile unit. The eighth unit will demonstrate at aviation facilities in the eighth and ninth naval districts including NAPTC, NAOTC and NATB activities. Changes may be made later in allocation of mobile units.



FIVE POINT PLAN TO SAVE LIVES IN CRASH FIRES

ADEQUATE MANPOWER



Crash trucks must be adequately manned. Standard models now in the field require six-man crews for top efficiency. Every man in the crew has a job. If a man is missing, time is lost

DAILY MAINTENANCE



Crash equipment must be maintained at peak efficiency. Ship-shape trucks and equipment are always ready in emergencies. Each fire fighter must be assigned definite maintenance duties

QUALIFIED PERSONNEL



Trained men, assigned fire fighting duty, should form the nucleus of every crash fire rescue crew. Untrained boots or men on extra duty detail don't belong on air station crash trucks

CONSTANT PRACTICE



Fire fighters require constant practice if they are to save lives in emergencies. Crews should be timed in dry runs, perform regular rescue drills on gasoline fires around old fuselages

TOWER CONTACT

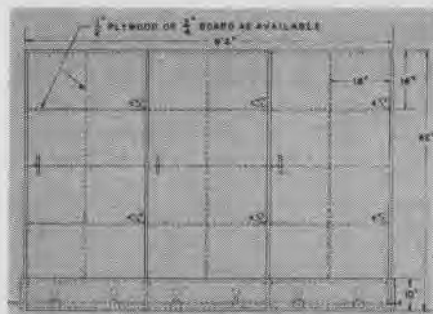


Constant contact with control tower speeds rescues. Crews can be alerted and on the spot when crashes occur if they are warned in time by the control tower. Seconds saved will save lives

TECHNICALLY SPEAKING

Chutes Will Not Mold In Bins

Mold and mildew are to parachute silk what VF and VMF pilots are to *Haps*, *Jakes* and *Oscars*—poison. A parachute drying bin can be constructed readily by shore activities based in humid areas where few housekeeping facilities exist.



ASBESTOS WILL CONTROL FIRE HAZARDS

By building it in sections, the size of such an installation can be varied to suit requirements of the activity. Care should be taken to insulate wires and electric light connections in order to eliminate fire hazard. Bins should be 18" deep. A 1" hole should be bored centrally in the top of each tier of compartments to provide heat dissipation, and not less than nine 1" holes, evenly spaced, should be drilled in the bottom of each separate shelf. Five-inch strap hinges secure the doors, which are of 1" stock.

Light sockets are centrally located at the bottom of each tier of compartments. Sockets for 40-watt bulbs should be mounted on a bracket easily fabricated from 16 ga. steel. This bracket, shaped somewhat like an old-fashioned drawer handle, should hold socket 2" above the board base. Asbestos should be used to cover the board base to prevent danger of burning.

For other hints pertinent to care and preservation of parachutes in the field, see *NANEWS* of August 15, 1944, page 26, "Chutes Require Special Care in Combat Region."

Marines Concoct Washing Machine

MAG 21—Squadrons located in the field where "Stateside" laundry machines are not practical will welcome this workable and efficient homemade machine.

Using this gismo, the group laundry has operated for over a month with only three men. One stamps the clothes dur-

ing the day, while the other two wash and hang the clothes at night. There are two machines connected to the hubs of a jeep, one on the front hub and the other to the rear hub, which are capable of washing 200 men's clothes per 24 hour day. All cleaning is thorough.



SOPAC MARINES USE WASHING MACHINE

The operating parts of the laundry are: *a*. 50-gallon oil drum. *b*. Two brake drums (in this case taken from a truck, but any brake drums will work). *c*. drive shaft. *d*. Two universals. *e*. Two Japanese bearing housings. *f*. Three evenly spaced baffles inside the oil drum. *g*. Frame work made from old fence post material. *h*. Water proof door through which clothes are placed into the drum. *i*. Two axles extending from the brake drums. *j*. Metal plate welded to the universal with holes made to fit the hub of the jeep for power take-off.

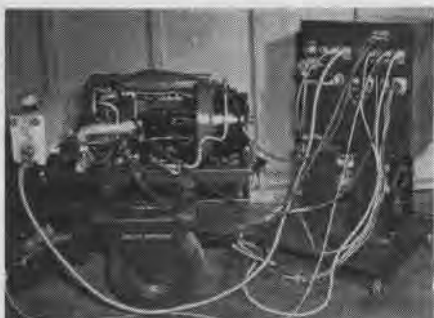
Other necessary gear includes a 55-gallon drum of gasoline with a check valve, a faucet and a tire valve stem which is piped to a generator taken from a field range. This mechanism is used to heat the water used in the laundry machine.

Seattle Has Unit Power Tester

NAS SEATTLE—The foreman of A&R electric shop has designed and built a test stand for checking operation of air-

craft auxiliary power units. It is constructed of standard aircraft instruments and salvaged materials and is compact and portable.

Main purpose of this unit is to provide voltage regulation and electrical load for any currently-manufactured



REAR OF TEST PANEL SHOWS CONNECTIONS

generator (28 volt D.C or 28 D.C., 115 volt A.C.). Instruments on a panel indicate engine speed and condition under load. Thus it is possible to make complete adjustments and a working test on all auxiliary power units overhauled at this base.

[DESIGNED BY M. T. OVERACKER]

► **BuAer Comment**—Permanent test equipment expedites checking out of auxiliary power plants as all needed power, meters, plugs, etc., always are at hand. However, the equipment is limited in use to only APP's for which it is designed and allocation of instruments and meters may not be justified at activities maintaining several different types of airborne and ground auxiliary power plants. Stands of this type have been fabricated by practically all APP overhaul activities and have proven to be a valuable asset for checking out complete units.

Send Sample Items With RUDM's

Experience in handling RUDM's on aircraft lighting fixtures and lamps has shown that the trouble can be analyzed more accurately when samples of the defective items are forwarded to BuAer for examination.

RUDM's should state: 1. Whether failure is an isolated case or occurs frequently, and 2. Percentage of total number of items in use represented by the defective items.

It is preferred that samples accompany the RUDM, although separate package enclosures usually are satisfactory. Defective items should be packed carefully to prevent additional damage in handling and shipping to the Bureau.

For More Information

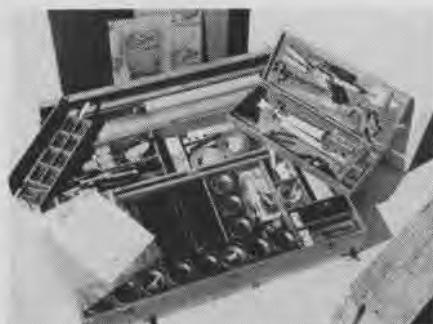
on the subject of maintenance, readers should consult *NavAer Maintenance*, new restricted magazine published monthly by BuAer and distributed to personnel of the naval air organization in maintenance.

SCREEN NEWS

A Field Kit for Terrain Models

Widely used in all theaters of combat and training is the Landfall Field Kit (16-C-14), which includes basic tools and materials for rapid construction of terrain models under field conditions.

BUAER's Special Devices Division developed the kit. More than 400 have been sent to the field, half of them to the Army. The kit provides—if a little ingenuity is added—a completely self-sufficient terrain model production unit. The kits have proved highly successful, many of them being used aboard carriers and ashore for terrain models.



DEVICE IS USED WIDELY IN COMBAT AREAS

Each kit contains a folding plywood drawing board, removable wood-working tool kit, drafting instruments and materials, modeling tools and brushes, and a three-month supply of expendable items such as dry colors, whiting and glue.

When the expendable materials are gone, refills are available by ordering the Landfall Expendable Kit, Device 16-C-14-a.

Service Truck Cuts Work Time

MCAS EL TORO—Immediate servicing of flat tires, engine failures, and minor accidents on runways is accomplished by the use of a specially equipped truck containing engine tools, a variety of hoisting slings and cables, towing rods, and fire extinguishers. In addition, it carries spare tires and wheels for most of the types of aircraft used at this field.

Operations officers agree the new truck has saved much valuable time and expense in handling minor repairs.



PORTABLE WORKSHOP IS CARRIED IN TRUCK

Long, Long Trail. As the war in the Pacific bears down on Tokyo, the rubber bands of supply stretch to unprecedented length and the problem of delivering the goods at the shooting end—and to all way stations—assumes ever more gigantic proportions. Keeping the bands from breaking at any point is the job of Aviation Supply. Pointing out methods of performing that task is the job of the motion picture:

MN-2294d *Logistics—Aviation Supply* Restricted, 20 min.

SYNOPSIS: Smart planning and careful timing are needed to mesh the complex parts of logistical machinery into a smooth-flowing operation. No single function in the great overall task, however small, can be slighted without damage or delay somewhere along the lifeline. **Sample tasks:** protecting supplies on the long journey battleward by conscientious care in packing and wrapping; checking invoices and packing lists to prevent loss-by-omission; diligent inspection routines; orderly storage at warehouses—a place for everything and everything in its place; conservation of vital space aboard ships; prompt unloading at advance bases.

The Killer Gets Killed. For some time the deadly insecticide and larvicide known as DDT has been liquidating air groups of mosquitoes by the thousands and rubbing out whole fleets of other killer carriers. DDT is also fatal to larvae, exterminating the pests in the primary training stage, so to speak.

The insecticide now is the subject of a



JUNGLE SKEETER BEATER POURS IT ON

motion picture produced primarily for the information of medical and malaria control officers:

MN-3726c *Medicine in Action—DDT* Restricted, 16 min.

The film demonstrates lethal effects of DDT, which attacks and kills its targets through their feet. Not long after contact with the fiendish stuff, the insect conks out, paralyzed and wracked with convulsions, to the grim satisfaction of every man who has ever been persecuted by the pests.

Directions for mixing DDT and precautions to be observed are given. Dispersal methods also are illustrated. DDT can attack the "enemy" in any number of forms—as crystals applied with a brush, as a paint spray, in wind-drifted fog spray, in spray bombs, duster, and drip cans for streams.

Towing the Line for Sharpshooters.

MN-4329 *The Winged Target—Mark 1 Model 1* Restricted, 27 min.

Much has been said about the man behind the gun. This film features the men up there in front of the target—the fellows who tow the aerial bulls-eye for AA gun practice. **DEMONSTRATES:** Assembly of target, hooking to towplane, getting into the air, towing apparatus, letting out towline, run over fire range, reeling in towline.

Boresighting.

SN-3698 *Theory of Boresighting Fixed Guns* Restricted, silent slide film, 37 frames

CONTENT: Illustrates boresight patterns for parallel fire, convergent fire and pattern fire. Demonstrates use of the 20" x 10" screen for boresighting guns and gun camera, explaining mathematical problems.

Recognize—or else! More practice in making up your mind in a hurry which side you're shooting on:

- MA-5245a *Army Testcraft No. 1* European Area—Restricted, 8 min.
- MA-5245b *Army Testcraft No. 2* European Area—Restricted, 7 min.
- MA-5245c *Army Testcraft No. 3* Pacific Theatre—Restricted, 8 min.
- MA-5245d *Army Testcraft No. 4* Pacific Theatre—Restricted, 7 min.
- MA-5245e *Army Testcraft No. 5* Atlantic & Pacific Theatre—Restricted, 8 min.

Other Films Being Shipped:

- MN-1953b *Simulated Combat Missions—Attack on Paramushiro* Confidential, 33 min.
- MN-1452f *Anti-Sub Measures—A Survey* Confidential, 52 min.

Slidefilm series on Preflight Inspection of the C-47, subtitles as follows:

- SA-5258a *The Crew Chief* Restricted, 50 frames
- SA-5258b *Fuel System* Restricted, 32 frames
- SA-5258c *Hydraulic System—Description and Operation* Restricted, 63 frames
- SA-5258d *Hydraulic System—Inspection and Maintenance* Restricted, 53 frames
- SA-5258e *Heating & Ice-Eliminating System* Restricted, 62 frames

Where to Get 'Em: The above films are being sent to Film Libraries at:

- | | |
|-------------------------------------|-------------------|
| Casus 2, 4, 23, 24, 31, 32 | NAS San Diego |
| Casu ComDet., Port Hueneme | " Navy #115 |
| ComAirPac FAW 15 | " Navy #117 |
| Hedrons 2, 4, 7, 10, 12, 16 Det. 17 | " Navy #720 |
| NAB Seattle | NATB Pensacola |
| " Navy #939 | " Corpus Christi |
| NAC Navy #140 | NAT&EC Lakehurst |
| " Navy #3205 | Navy #3233 |
| NAOTC Jacksonville | TAL Navy #116 |
| NAS Alameda | " Marine: |
| " Atlanta | 4th MAW |
| " Clinton | MarFairWestCoast |
| " Kodiak | MCAD Miramar |
| " Moffett | MCAF Newport |
| " New York | MCAS Cherry Point |
| " Norfolk | " Eagle Mt. Lake |
| " Quonset | " El Centro |
| " Patuxent | " El Toro |
| | " Mojave |
| | " Navy #61 |
| | " Parris Island |
| | " Santa Barbara |

PHOTOGRAPHY

Identifying Negatives Being Processed

One field unit has recommended that for the purpose of identification the official number of a negative be exposed on the margin of cut film before development. A few commercial portrait laboratories use this system advantageously. However, it is impractical for general Navy use. In the Public Relations Laboratory of CinCPac a large volume of Navy and civilian news agency negatives are processed continuously, and proper identification is of great importance. This is accomplished by permanently stamping all film developing hangers and film drying clips with paired consecutive numbers. Each job order is properly marked to identify which of the hangers are used in processing the negatives concerned. The caption sheet is attached to the job order, which aids in identification of each individual negative. It also bears a history of the exposing of the film, which is used as a check in development. Film coming from the wash is transferred from a developing hanger to a drying clip which bears the same number as the developing hanger.

Upon being dried the film is numbered and the numbers placed on the caption sheet with any pertinent comments; then it is sent to the printing room.

Experience in that laboratory has shown this system to be excellent.

Film Stamping Machine Titles Air Film

A film stamping machine (STOCK NO. 18-M-413-300) for titling aerial roll film, which will speed up laboratory work on reconnaissance photographs, is now available at supply points. Delay in getting this into the field was caused by difficulties encountered in obtaining a suitable quick-drying ink.

▶ The December 4th issue of *Life* contains two pages of color photographs made of a burning plane landing on a Navy carrier. The photographs were made with Aero Kodachrome film in an F-56 aerial camera. This is an excellent photographic job and such action scenes in color are in great demand for press use.

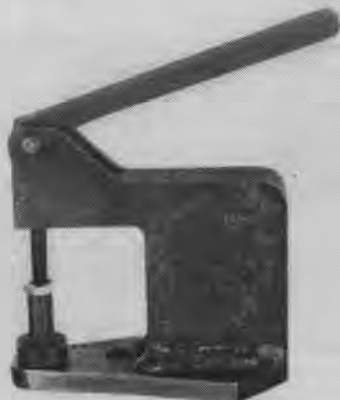
How To Put Captions On Photo Prints

Many Naval units have recently adopted the practice of typing their caption material on separate slips of paper and securing the slips to the back of the appropriate prints with scotch tape or glue. BuAer requests that this practice be discontinued, because bits of the adhesive stick to adjoining prints and cause tears in the emulsion when the photographs are separated for filing. An extra thickness of paper on the back of the photograph also causes difficulty when the prints are dry-mounted onto the standard BuAer mounting card. The small Duplicating Machine, Stock No. 54-M-29010, was procured for titling the backs of prints and eliminates the work involved in writing captions.

Clamp Aids in Work on Plastics

NAS SAN DIEGO—A metalsmith at this station has submitted an idea for a quick-acting clamp under the Navy employees' suggestion program. In addition to its quick-acting clamping feature, the tool is provided with a flat base plate which rests directly on the machine table, eliminating use of parallels as is necessary if a c clamp or tool-makers clamp were used.

The clamp consists of a body assembly, clamp pad, lock nut, plunger, spring and handle. It is designed for



QUICK-ACTING CLAMP HOLDS PLASTIC WORK

use on router, shaper or saw table, to clamp the template and sheet plastic material together while performing necessary machine operations in making plastic parts. The clamp pad is adjustable for various thickness material up to $\frac{3}{8}$ " thick.

[DEVELOPED BY F. R. KOCH, AM]

Portable Phone Set Saves Time

NAMC PHILADELPHIA—An inspector at the Naval Air Material Center has developed a system of telephonic communication for inspection reporting which eliminates faulty reception and requires fewer personnel. The portable phone unit is small, light and inexpensive, the observer carrying the battery box to free the inspector completely for his duties.

In the inspection of bomb racks, gages, instruments, lighting, controls, switches and motors, it frequently happens that the inspector is at a location removed from the controls which are being inspected or operating in an area where there is excessive noise.

Under these conditions it becomes necessary to utilize services of three or four men to relay information properly. Sign language has been resorted to, with faulty signals impeding accuracy. Materials for constructing the phone sets can be obtained from salvaged material.

The sets include two hand micro-

phones, push to talk type, pair of headphones, cable, box for batteries and one or two small flashlight cells, 1½ volt. Use of a masonite hand-piece makes the unit similar to a French telephone. Cable could be wound on an old antenna reel. The idea was submitted under the Navy employees' suggestion program.

[DEvised BY GORDON G. ERLUND]

Starter Test Panel Proves Good

NAS ALAMEDA—Positive and quick detection of starter defects is made eas-



METERS SHOW WHETHER STARTERS WORK

ier by a test panel which does the job automatically. Developed by two quartermaster electricians, the system is an improvement of the past method of using storage batteries and a solenoid switch which were connected to the starter being tested.

The system consumed considerable time, as the batteries frequently were dead and required recharging. The torque test of these starters was by connecting them to a lever which actuated a hydraulic gage. Using this crude test stand determination of the true condition of starters was found to be impossible.

With this test panel 12- or 24-volt starters are tested simply by throwing a switch. Batteries are maintained in operating condition by an automatic charging relay, which is installed on the stand. As soon as they are drained to $\frac{2}{3}$ capacity they are recharged automatically to full. Voltmeters and ammeters indicate current consumption by starters, boosters and solenoids. Mechanical drag or electrical defects give high readings. An adjustable automatic timer allows the motor to accelerate for a predetermined period and then drops back on the mesh position for a few seconds, after which the circuit automatically is opened to prevent burning out the mesh solenoid.

[DEVELOPED BY W. FERRARI AND M. LAVELL]

Oil Drainer Designed for F4U's

MCAS MOJAVE—The welding shift solved two problems which make line crews very grateful.

First of all, draining oil from the engine of an F4U has taken up too much of the mechanic's time filling buckets and pouring the oil into drums which were rolled into a pile for salvage. Then, here in the desert, the mechanic's worst enemy is sand storms which are a menace practically all year around.

In solving these two problems, the



PORTABLE CONTAINER CATCHES USED OIL

welders used two extra bomb-cart wheels, an old oil drum, a funnel, a few lengths of two-inch pipe and a few pieces of angle iron. They welded them all together and as a result, men on the line have a portable oil drain. The funnel is mounted on a telescopic tube which can be raised to suit the purpose.

The trailer can then be hooked on the back of a Jeep or tractor and taken to the sandy area around the apron. The drum is then drained by opening a valve in the rear which allows oil to run through holes in the bottom of the horizontal tube sprinkling the sand and packing same.

In due time, this area will be packed so well with oil that sand storms will no longer be a hazard to the men and planes on the line.

► **BuAer Comment**—This drain oil trailer is a good idea and should find many applications in handling oil around all types of planes at Naval Air Stations and Advance Bases. The personnel of MCAS Mojave should be commended for their ingenuity in developing this unit.

Carriers

LET NA NEWS
HEAR FROM YOU!



AVIATION ORDNANCE

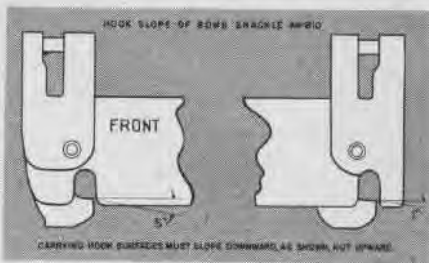
INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

Defective Shackle Causes Loss of P-40

Ninetieth Fighter Squadron, Army Air Forces, reports that a malfunctioning bomb shackle Type AN-B10 caused loss of a P-40N-20 airplane. After completing a bombing run, the pilot went in to strafe, unaware that a bomb was hung. During the strafing pass, the bomb released at very low altitude, threw shrapnel into the plane and damaged it to such an extent the pilot had to bail out behind enemy lines.

Eighty-fourth Fighter Squadron, Army Air Forces, states that 100 AN-B10 shackles were found to be defective in that the shackle carrying hooks remained closed when the bomb release lever was pulled, thus failing to release bombs.

Careful inspection of each shackle should be made before placing it on a bomb. The shackle should be clean and free of corrosion. Carrying surfaces of shackle hooks must be smooth and free of burrs or depressions. Also, the carrying surfaces of the hooks should not slope upward. If surfaces are rough or slope upward, the shackle should be replaced. If dirt or corrosion is present, the shackle should be cleaned. After ascertaining that the shackle



BOMB SHACKLES REQUIRE CAREFUL CHECKS

is satisfactory, bomb lugs should be checked to see that surfaces contacting shackle hooks are not rough or corroded.

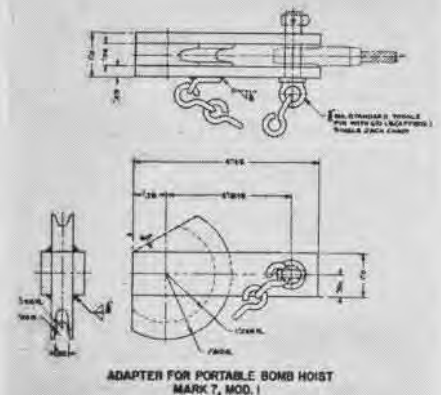
Bomb Hoist Adapter Expedites Loading

BuORD is procuring an adapter for use with the Portable Bomb Hoist, Mark 7 Mod 1 that eliminates the need for a hoisting sling or band when loading bombs onto side rail stations in *Avengers*. This adapter is based on an original design submitted by James D. Marrah and Arthur E. Regan, both AOM2c, of HEDRON FAW 6 and has been modified to facilitate manufacture.

In effect, the adapter transforms the Portable Bomb Hoist, Mark 7 Mod 1 into a combination hoist and hoisting sling. It merely is necessary to pass the hoist cable around the bomb, attach adapter to the terminal fitting at the end, and the cable tightens automatically around the bomb when a strain is taken on the hoist. The hoist cable is adjusted readily for any desired offset of the bomb lugs to obtain proper alignment with the suspension hooks of the bomb shackles.

Until the adapter can be procured and

made available for distribution, activities may construct it readily from materials on hand. The section of cable immediately below the adapter is subjected to a high concentration of stresses owing to the snubbing action of adapter pulling cable down toward the top of the bomb, as opposed to



ADAPTER FOR PORTABLE BOMB HOIST MARK 7, MOD. 1

the normal tendency of cable to assume a position tangent to bomb at its horizontal diameter.

For this reason, use of the adapter should be limited to bombs of 500 lbs. or less, and cable should be inspected frequently for signs of wear or deformation. In addition, care should be exercised while attaching the cable to bombs and while handling the hoist between loading operations to maintain sufficient tension on cable at the end of hoist tube in order to prevent snarling.

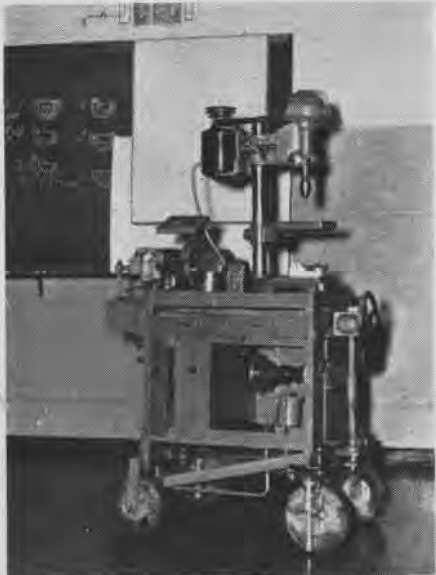


AVIATION ORDNANCE MEN DESIGN ADAPTER

87th & ANTHONY

Portable Work Bench Is Built On Wheels

A recent innovation of the Instrument School at the Naval Air Technical Training



WORKMEN CAN TAKE NEEDED TOOLS TO JOB

Center is a unit known as a portable machine shop. Due to usefulness of this unit and to its maneuverability, information concerning its construction is passed on.

With the current expansion program of most organizations involving improvement and maintenance of test stands, mockups, work stations and other mechanical functions, it is often advantageous to have a drill press, bench grinder, hand tools, cleaning tank, portable electric cords, dirty rag containers and other individual units contained in one overall portable device. Such a device was built by R. Allen, civilian instructor at the center.

Some of the features of this piece of equipment are four individual wheel jacks operated by a single manual control to form a rigidly supported work bench, which is normally mounted on four rubber-tired wheels for mobility. The device contains a washing tank with solvent supplied from a five-gallon supply tank through a filtering system run by an old wobble pump.

A power cable drum carrying 25' of electric cord is also contained therein to supply power from any 110 volt convenience outlet to a drill press and bench grinder mounted on the bench. There is another outlet on top of the unit for purpose of portable drills or electric soldering irons, which might be required for the job.

In addition, the unit has a 4" machine vise, drawer for hand tools, drawer for small parts and hardware, dirty and clean rag bins, and a towing bar for steering the unit when moving from one location to another. With the exception of the bench equipment, the truck was constructed entirely from old or salvaged material.

Hydraulic Pump Aids In Salvage

NAAF GEORGETOWN—A portable auxiliary hydraulic pump has been successfully used at this station to raise and lower wings or landing gear of damaged SB2C type aircraft. The portable pump is a valuable aid in salvaging of crashed planes with faulty hydraulic systems.

Made of salvage material, it can be



PORTABLE PUMP IS MADE FROM SALVAGE

attached to the actuating cylinder of wing or landing gear. It has been used successfully to unlock wings that were hard to unlock by the crowbar system.

Air probably will enter the plane's hydraulic system through use of this apparatus, but this fact is of little importance since air enters any hydraulic system when a disconnection occurs.

[DESIGNED BY J. M. YOUNG, ACMM]

► **BuAer Comment**—The system outlined and device shown are excellently thought out. It is recommended that a filter be installed on the pressure side of the pump.

Device Adjusts Harness of Chute

A service squadron of the Third Marine Aircraft Wing has constructed a device to be used for testing the proper adjustment of parachute harnesses.

After an individual has been fitted in a harness, the device allows him to be suspended with the full stress of his weight on the harness, distributing the weight as if he were making an actual jump. The method of suspending the individual is accomplished by the use of two "D" rings. The center bar of the

"D" ring must be cut out and a $\frac{3}{8}$ " slot cut in the center of the bottom bar. The "D" rings are attached just below the adapters on the main sling at the points of suspension to allow the suspension straps to be attached.

Prior to using this device, the AN seat service parachute chest strap was adjusted to fit in the hollow of the chest.



PARACHUTE TESTING USES METAL RINGS

It was found by testing that the chest strap would move up to a point where it struck the chin or hit against the neck in such a manner that would cause injury to the wearer. For that reason the chest strap was moved down 3"-4".

► **BuAer Comment**—If harness is fitted properly, it would not be necessary to move chest strap down.

Adjustable Jig Aids Ring Welding

NAS SAN DIEGO—An adjustable jig for the manufacture of engine mount rings, designed by a civilian metalsmith at this station, has resulted in production of more accurate rings. The jig was developed through the Navy employees suggestion program.

Engine mount rings should be manufactured to a close diameter tolerance, since the ring is the basic factor in an engine mount. If the ring is not accurate to diameter, the remainder of the engine mount will not be accurate.

By using the fixed center point on the center pin and a trammel, the extension arms and knees are adjusted to the desired diameter. A pre-rolled ring is placed upon the jig and drawn in or out as the case may be and secured by hook clamps against the knees. With the ring secured, its overlapping ends are tack-welded and marked for sawing.

Correction: Ship in the third chart on p.3 of the Feb. 15 issue of NANews should have been *Shigure* class destroyer. Silhouette in the fourth chart should have been *Katori* class light cruiser.

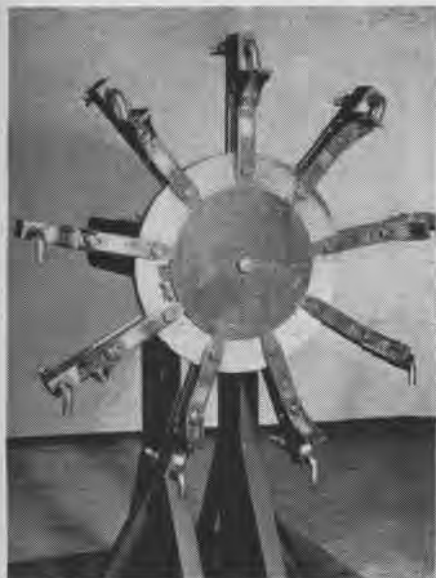
Carriers

LET NANews
HEAR FROM YOU!



Ring is removed from the jig and scarf sawed and then returned to the jig, secured as before, and welded at the scarf. Remainder of the engine mount procedure is carried out in the usual way after removing the ring from jig.

Engine mount rings that are welded on the jig are true to diameter and are flat. The jig itself may be adjusted quickly to any diameter within its scope



JIG MAKES ACCURATE ENGINE RING MOUNTS

and inclined to any angle to facilitate easy access to the ring being welded. Under the old method of welding mount rings an individual setup was required for each diameter ring and inaccuracies resulted.

[DESIGNED BY C. H. LEDFORD]

Lip Mike Wins Praise From Users

Enthusiastic reception of the M-5A/UR lip microphone assembly by VB, VTB and VF squadrons who have tried out the new model has been reported to the Bureau of Aeronautics.

The lip microphone assembly, which was designed to provide hand-free communication at non-oxygen altitudes, was described in detail in NANews of Jan. 1, 1945, and the ACC Digest of Dec. 25, 1944. Subjected to limited service trials before quantity procurement was initiated, the new "mike" won praise for its noise-reducing design, its efficient mounting, and its convenience.

Some of the reports received to date follows:

- The noise-canceling qualities are excellent, leading to less possibility of garbled messages and requests for repeats, thus reducing load on circuits.
- The lip microphone works as intended . . . the arrangement is efficient and satisfactory for general use.
- Reception was clearer and with less noise background. With cockpit enclosures open, reception was still clear and "noiseless." Transmitting qualities are superior to those of the present hand-held type of microphone.
- Performance was considered outstanding and

communications definitely improved.

• The M-5A/UR microphone is easily and quickly moved out of position (and out of sight) or into position with a rapid motion of the right hand. No readjustment is necessary after initial positioning of the microphone relative to the lips. (BuAer Comment: Not everybody will find this true. Some individuals will have to extend the boom arm to clear nose or chin when swiveling out of the way.)

• By using the lip mike, the pilot is given the use of a "third hand" (BuAer Comment: Aircrewmembers, too). This command feels that this microphone is a "must" not only as a pilot aid, but as a better, clearer, and less noisy unit.

• The use of this type of mike frees one hand so that conversation is possible during violent or evasive maneuvers.

• The M-5A/UR lip microphone appears to be the ultimate answer to the need for a "hand-free" microphone.

• The headset mounting assembly operation in general was excellent, and the microphone unit in particular was considered to be the best ever used by the test pilot. The ease with which the assembly arm may be pushed back over the helmet during night flight and combat maneuvers was considered especially desirable.

• It was found necessary to have the lip microphone actually touch the lips lightly for best transmission although fairly good results were reported with the microphone as much as 1/8" away from the lips. (BuAer Comment: Good dope. Just so the microphone is not too close where it might restrict lip motion for word formation.)

The M-5A/UR lip microphone assembly may be obtained as personnel issue through ACO channels by all pilots and aircrew members desiring to make use of it. The lip mike should be obtained as personal gear.

Florida Station Modifies Stand

NAS RICHMOND—The A&R Department has modified the Wolfe & Mann Mfg. Co.'s quick change engine stands as indicated in the photograph. This

modification gives much better access to the accessories section and is a great help in building up engines prior to installation. These stands now are being used on B1340-AN2 engines.

► BuAer Comment—This modification of an R-1340 engine quick change stand represents a good idea put to use. This type of stand modification could be adopted to other engines; however, its use makes



MODIFICATION MAKES ENGINE ACCESSIBLE

changes in engine slings necessary. Quick change set-ups which handle only one type of engine may find it advantageous to modify stands and slings now being used.

Succeeds List of 1 January 1945

1 February 1945

LIST OF NUMBER AND DATE OF LATEST ISSUE OF AIRCRAFT SERVICE CHANGES AND BULLETINS

Airplane	Bulletin	Date	Change	Date
F6F	98	1-18-45	85	12-18-44
FM	36	1-22-45	29	11-17-44
F4U-F3A-FG	153	1-25-45	208	1-22-45
HNS	1	11-15-44	5	1-22-45
J2F	18	1-1-45	9	1-23-45
JM	32	1-25-45	40	1-16-45
JRB-SNB	29	1-24-45	25	1-20-45
PV	101	1-30-45	157	1-6-45
PB2B	8	1-24-45	0	—
PBJ	45	1-22-45	64	12-30-44
PBM	81	1-10-45	150	1-8-45
PBY	90	1-13-45	172	1-12-45
PB2Y	55	12-26-44	153	1-3-45
PB4Y	112	1-19-45	133	1-23-45
R4D	35	1-17-45	0	—
R5C	22	1-16-45	88	12-22-44
R5D	36	12-28-44	93	1-11-45
RY	44	12-28-44	24	12-22-44
SBF-1	60	1-19-45	60	12-29-44
SBF-3	47	1-19-45	24	12-29-44
SBW-1	57	12-4-44	71	10-23-44
SBW-3	63	1-2-45	61	1-9-45
SB2C-SBF-SBW	129	1-19-45	129	1-12-45
SC	16	1-15-45	10	1-3-45
SNJ	31	12-22-44	27	1-13-45
TBF-TBM	154	1-14-45	221	1-24-45
TD2C	0	—	1	12-4-44

For a complete list of Aircraft Service Changes and Bulletins, see Navy Aeronautical Publications Index NavAer 00-500 and supplement NavAer 00-500A.

LETTERS

SIRS:

Is it permissible for personnel attached to naval aviation to wear the aviation utility mark? I understand seamen in aviation may wear this mark on the left arm, about 6" above the cuff, and that rated men, including aviation rates, may wear it on the right arm.

It has been explained to me as being the insignia for naval aviation. Will you please give me the correct information on this subject?

AVIATION MACHINIST'S MATE 2C.

Acorn 45

¶ BuPers Circular Letter No. 28-43 says on this subject: "Personnel of any rating, other than aviation branch, attached to and serving in the Air Department of carriers for a period of not less than three months under operating conditions shall wear the aviation general utility specialty mark as a distinguishing mark, midway between the elbow and wrist of the left sleeve for men of the seaman branch and on the right sleeve of others."



SIRS:

In your 15 December issue of NAVAL AVIATION NEWS you published a letter signed "A Reader" relating to Class #1, Pensacola, 1919, which I read with much interest as I do all issues of the NEWS. So I broke out my old flight logs for reference.

At that time I was serving as flight instructor at Pensacola, a CBM with naval air pilot licence #3, in squadron one with N-9's and N-10's.

Out of this class I drew Lt. Cdr. Elmer, Lt. Broadfoot and Ens. Petrask as students. Ens. Petrask and I had been former shipmates at Moutchic-Lacanau, France, where I had also served as flight instructor.

My logs show that the class started off with a bang on 1 October and that Elmer, due to his rank and size, had two half-hour flights, while Broadfoot and Petrask had only one.

It was an old Navy custom then, and still good, for instructors to check out each other's students before solo. Elmer soloed on 15 October, and got his five-hour check on 24 October. Evidently Broadfoot and Petrask also soloed, as I see them down for a five-hour check by me on 24 October.

18 October—Checked Lts. (Burp) Baugh and Wooster for solo and it seems that there was some difficulty as they and Lt. Havill are down in the book "for instruction."

18 October—Lt. Wead came over to me for instruction. They gave me all the incorrigibles. Elmer and Broadfoot got their 10-hour check, and Fleming got his five-hour check. I also drew Lt. Thomas for instruction.

4 November—Havill and Wooster evidently soloed as they got their five-hour check this date. Felix Stump got his 10-hour check.

24 November—Broadfoot, his 15-hour check; and Havill, his 10-hour check.

28 November—Elmer, his 25-hour check; and Davison, his 25-hour check.

3 December—Stump, a 25-hour check, etc., etc. This goes on and on with Steile, Moss, Wead, Clark, Thomas, Ridderhof, and Bettincourt, Motta and Louriero of Brazil.

Lts. Davison and Halland received their final checks from me on December 5 and 6.

And on 18 February 1920 the first enlisted class moved in, and we had to do it all over again. I drew Slim Carleton, Smoky Rhoads, Jack Green and Pat Byrnes.

A short time ago *Collier's* ran a very nice write-up with photos of approximately 28 admirals. It is surprising how many of them I can dig out of my old Navy log books.

As a BM1c I was transferred to Pensacola for flight training December, 1916, and went to France as a member of the "First Naval Aeronautic Detachment, Foreign Service" in May, 1917, with Lt. Cdr. (Gyp) Whiting as skipper, and Y'all Griffin, Bill Cory and Chevalier as his staff, and 50 enlisted men for flight training.

After qualifying, I received a French Naval Aviator's license #377, and a job as flight instructor at Moutchic-Lacanau under Jorgenson, MacIllwain, Bartlett, and Cabaniss. I served as flight instructor at that base until the Armistice.

I left the Navy in 1922 (retired in May, 1938), and flew in a civilian capacity until my recall in 1941. I'm still flying on a brand new license, NA 16749.

CHIEF MACHINIST, USN

Kansas City, Missouri

BuAer Representative, USN



SIRS:

During three continuous days of combat operations from a carrier in December, Fighting Squadron 80 flew a total of 1,440 hours.

This was accomplished with 68 F6F-5 airplanes without the loss of a single pilot and is considered a record for single engine aircraft.

AIR GROUP 80

FPO, San Francisco

COMMANDER

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ANSWERS TO QUIZZES

● PIX QUIZ (p. 20)

1.2 2.4 3.2 4.3 5.1 6.1

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

● NAVIGATION PROBLEM (p. 22)

	1st leg	2nd leg	3rd leg
1. TH	067°	190°	140°
2. Cus	068°	202°	150°
3. Lat.	46° 40' N		
	Long. 00° 42' E		
4. Bearing	145°		
	Distance 141 mi.		

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

● BEST ANSWERS (p. 12)

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

● GRAMPAW'S QUIZ (p. 10)

- It will show your altitude (uncorrected for temperature) above sea level. Ref: TO 7-45.
- Your altimeter will indicate the elevation of that field. Ref: TO 7-45.
- For starting, take-off, landing, switching fuel tanks and for emergency and altitude operation. Ref: TO 23-44; also TO 11-45.
- Either continue flight by altering course so that minimum weather for CFR will be met, or land at the nearest airport permitting contact flight. CAA Regs. 60.470.
- Low pitch for two-position and variable pitch propellers, and take-off RPM for constant speed propellers. Ref: TO 39-41.



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AMERICAN PILOTS

who intend to commit

HARA-KIRI

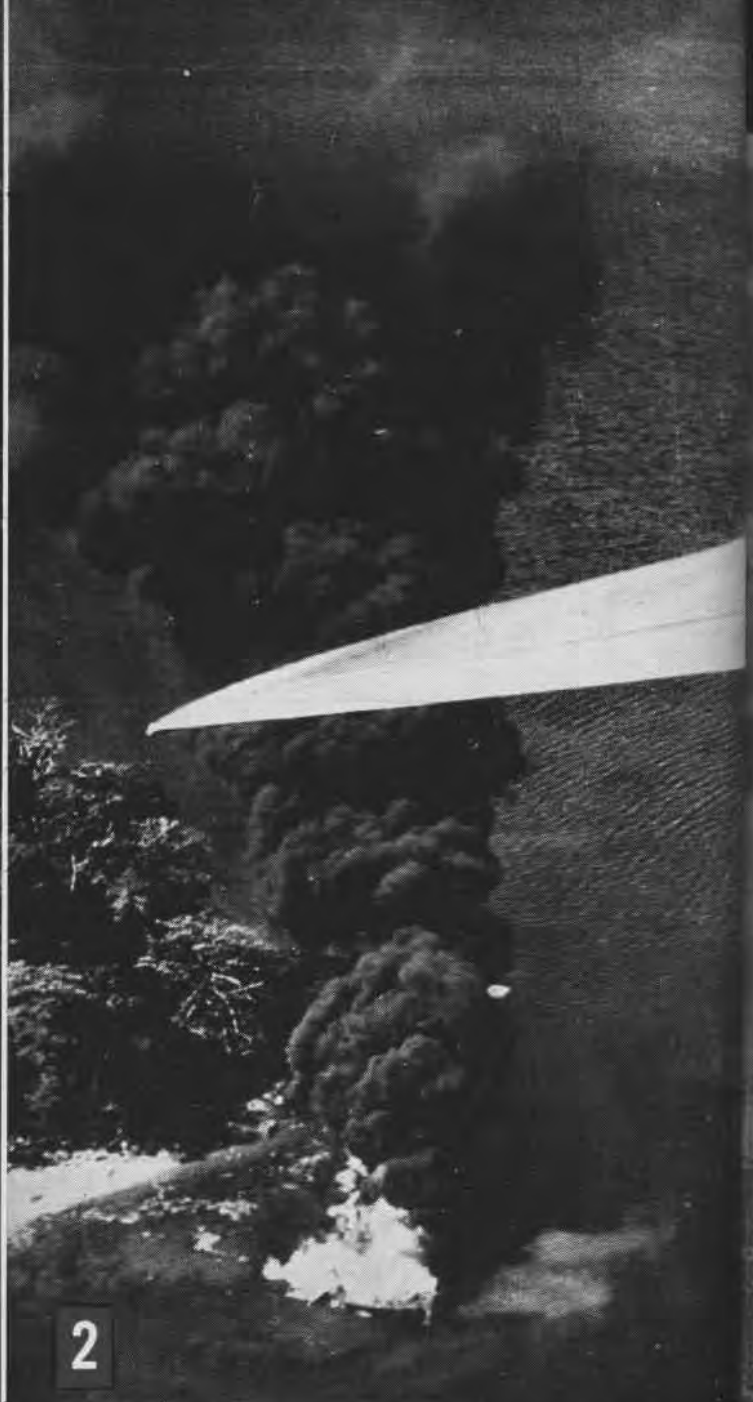
Should Fail to

Identify

WHEN APPROACHING
FRIENDLY SHIPS



LIBERATOR'S GUNS PUT TORCH TO JAP AMMUNITION SHIP'S CAMOUFLAGE



JAP SHIP THAT LOOKED LIKE A WOODED ISLAND EXPLODES AND BURNS

PB4Y SPOTS AMMUNITION SHIP HIDING

Clever camouflage failed to hide this Jap ammunition ship from the keen eyes of Navy spotters in a PB4Y search plane. Suspicious of what was reported to be a heavily forested island just off Mindoro in the Philippines, the pilot of a Navy *Liberator* nosed his plane down to strafe. A few bursts from the *Liberator's* guns into the thick foliage sent a tongue of flame skyward, followed by sheets of fire. Stripped of its camouflage of foliage, the exploding Jap ammunition ship is shrouded in flame and dense smoke.