NAVAL AVIATION NEWS

IFF and You • Tokyo Talks
Air-Sea Rescue Equipment

Apr. 1, 1945

SHARE THIS COPY

WE'RE STICKING TOGETHER...

No. 19 of a series

MILLER strafed the decks of a Japanese cruiser with long bursts

SMOKE GUSHED from the Avenger and poured astern in a long banner

Shot Down By Japs, A TBF Crew Drifted 11 Days, Spent Weeks Marooned On Island

ORVILLE MILLER, radioman, strafed the long decks of the Jap cruiser—then their TBF got it. A shell exploded inside the *Avenger's* engine—an oil line was ruptured, the engine's life blood spurted away. About five minutes later, the engine froze.

For 11 gruelling days, Virgil Case, Miller and the pilot cast around in a rubber raft with little food and less water. For diversion, they pretended a friendly albatross was attempting to make a carrier landing. They jogged him off the bow and when he soared back they signalled . . . "Too high" . . . "Too low" . . . or "Too fast." Rain squalls marched and countermarched. Lightning nicked their mast 10 times. Sharks were thick around them. . . . A Jap submarine loomed up in the darkness and passed a few yards away.

Finally, they noticed a strong botanical-garden smell . . . LAND. On stumbling ashore, they quickly attempted to gather coconuts and find water, but the pilot fainted at frequent intervals. Each time he fell, he stayed down longer. At last he thought life was surely leaving his body.

"I'm staying here to die," he whispered, "Go on without me."

"Hell no," exploded Case . . . "We're sticking together."

The pilot lay on his face, not answering. Summoning strength, the radioman dragged himself up and down hilltops in search of water. At last, he located a running stream. The men drank . . . slept . . . and drank more. The next day, Miller and Case gathered edible food. The survival sense of these men saved a crew.

Aircrewmen have what it takes

FOR DIVERSION, they pretended an albatross was attempting to land

A JAP submarine slid into view and quietly passed only a few feet away

LIGHTNING pierced the sky, striking their mast ten times in two hours

THEY DRANK from a cool, running stream, slept, and then drank more

STRATEGIC LUZON

PHOTO INTERPRETATION STUDY

RECAPTURE of Luzon has put in Allied hands the largest and most strategically located of all the Philippine Islands. The reopening of the excellent harbor of Manila Bay will provide a forward base from which to strike quickly against the enemy in the Far East. Captured airfields in the vicinity of Manila, less than 700 miles from Hong Kong, bring the South China coast and Formosa within easy bombing range and makes it possible to intensify the tempo of the air offensive against Japanese shipping plying between Japan and her southern outposts. It will become increasingly difficult for Japan to push supplies and reinforcements through the China Sea to her stranded bases in the Dutch Indies, Malay Peninsula and Burma, from which Japan draws some of her most important raw materials for war production.

THE ACTUAL invasion of Luzon was preceded by heavy Navy blows against Japanese airfields throughout the Philippines, military installations and shipping loaded with enemy supplies and reinforcements. Strikes against planes and airfields greatly reduced the power of the Jap airforce to interfere with landing operations and eliminated the Japs' chief source of defense. Through pre-invasion aerial reconnaissance photographs, interpreters pointed out strong and weak points in the defense and advantageous points of attack.

OFFICIAL ENEMY PHOTO, WHICH CLAIMS TO SHOW JAP FORCES LANDING ON LINGAYEN 22 DECEMBER 1941. YANKS CHOSE SAME SPOT

JAPS USED MANILA AS NERVE CENTER IN CAPTURED EMPIRE

STRATEGICALLY, politically and commercially, central Luzon is the most important area in the Philippine Archipelago. This includes the region from Lingayen Gulf, indenting the northwest shoulder of the island, southward for 130 miles to Manila Bay and the large fresh water lake, Laguna de Bay. Topographically, this region divides into three areas: the Zambales Mountains on the west coast, the great central valley or plain and the Sierra Madre Mountain range on the east. The central plain was formed by drainage from the two mountain ranges, which rise abruptly on either side with comparatively little area marred by foothill formations.

The Sierra Madre Mountains parallel the bold and rocky east coast at distances varying from five to seven miles. This high and almost inaccessible mountain range is heavily wooded, and is broken by low lands only in the vicinity of Casiguran Sound and Baler Bay.

Manila, capital and largest city in the Philippines, is situated at the eastern extremity of Manila Bay, around which most of the defenses of the island were concentrated. It long has been the great commercial center of the Philippines, and one of the leading cities of the Far East. Main highways and railways connect Manila with the rest of the island, and radio, cable and telegraph lines provide communication with the other islands of the archipelago and foreign countries. It has been a key city in the Jap Empire and an important supply center.

The entrance to Manila Bay, divided by Corregidor and Caballo Islands into two broad, deep channels, is about 30 miles long, north and south, and 22 miles wide in the middle. The Bay is capable of holding an almost unlimited number of ships. Manila Harbor, at the eastern end of the Bay, is partially enclosed and well-protected by a rock breakwater wall. Other smaller bays and harbors provide further protection for a fleet that can operate against Japan from this base less than 700 miles from Hong Kong.

Aerial photograph taken before the war shows the waterfront at Manila, where important Philippine shipping was concentrated

Downtown street in business section of Manila shows up-to-date character of the capital and most important town in the islands

NINETY PERCENT OF PHILIPPINE INDUSTRY IS IN MANILA AREA

THE SOFTENING up process in the Philippines was limited to military installations, airfields and shipping, since there is very little important industry in the islands. Lacking the raw materials essential for conversion into fabricated industrial products, most of the manufacturing activities were confined to processing of agricultural raw materials, such as sugar cane, copra, coconuts and lumber. The bulk of these manufacturing establishments were small individually operated or household units.

Ninety percent of all manufacturing industries were located in Manila and the area adjacent to it. Finished products were shipped to other parts of the Japanese Empire from the modern docks constructed along the waterfront. Japan long has been an important market for Philippine abaca, used primarily in the manufacture of rope and marine cordage, and has relied entirely on Manila's factories since Jap occupation of the islands.

Philippine foreign and domestic trade has centered at Manila, which served as the terminus of several trans-Pacific steamship lines to the Orient and a regular port of call for most round-the-world steamers. Almost all foreign imports entered the Philippines at Manila, from which distribution was made by first class roads and railroads to other parts of the island.

In the Navy's pre-invasion pounding of Luzon, special attention was directed toward Jap shipping in Manila harbor and docks and warehouses. Japan has suffered terrific losses in her merchant fleet, and the capture of Luzon makes it possible to carry the war on shipping to most vital areas.

SMALL CRAFT, CLUSTERED HERE, CARRY MUCH OF JAP SHIPPING

NAVY PLANE ROARS AWAY AFTER STARTING FIRES ON DOCKS

Reconnaissance photo taken by Navy plane in pre-invasion raid to soften up enemy installations and equipment on Luzon shows shipping in Manila harbor blazing and sinking. Smoke rises from fires started in the dock area that served Jap merchant fleet

JAPANESE SHIPPING STREWS THE BOTTOM OF MANILA BAY

THE JAPS had a large volume of shipping in the Philippines, using it to furnish supplies to their troops and to carry back large quantities of raw materials from the islands to factories on the Japanese mainland. Ships of all types were involved, including warships, transports, cargo vessels, tankers and small luggers. The enemy's military supply problem involved considerable traffic between the many islands of the Philippines, and much of this was maintained by small vessels. As the U.S. offensive developed, Navy planes attacked all classes of shipping day after day, ferreting out small clusters of Jap craft hidden in deep bays and giving chase to larger enemy vessels which attempted to escape in the open sea. A huge tonnage of shipping was sent to the bottom in Manila bay alone.

Many of the cargo vessels used by the Japs in the Philippines were of the standard stack-aft types—quickly assembled steel ships designed for purposes comparable to those of American *Liberty* ships. These standard vessels have pronounced angular lines and square sterns, enabling Jap shipbuilders to eliminate bending of plates and thereby reduce time of construction. The 850-ton types are thought to be built in prefabricated sections which are brought to the ways for final assembly.

The standard ship illustrated in this article is Type "A," (Modified) or *Sugar Baker Love* and from measurements made on vertical photographs it is found to have an overall length of approximately 445′, a beam of 64′ and a gross tonnage of 6,670 tons. Japan apparently is relying heavily on standard type ships to replace her heavy losses to U. S. submarines and planes. Photographs of Japanese ports indicate that these new vessels constitute a high percentage of the enemy's operating merchant marine.

New standard types of Jap tankers, of differing sizes, also were seen in the Philippines, and new Japanese LST's were bombed and sunk by Navy planes. Enemy hospital ships again were photographed with their distinctive high cross abaft the stack to facilitate recognition by submarines.

Navy photographer records hit on a *Sugar Baker Love* (Standard Type A) cargo ship in Manila harbor. Japs rely heavily on this

Jap ships surprised inside Manila harbor breakwater squirm under concentrated Navy attack in pre-invasion attack on installations

During daylight hours Jap shipping clings close to densely wooded shorelines. This craft has been heavily camouflaged with branches

Two native canoes equipped with outriggers are typical of those seen often in Philippine waters and sometimes confusing to pilots

THE 60-MILE-LONG Pasig River, which empties into Manila Bay, is the most important commercial inland waterway of Luzon, and a busy avenue of water traffic from Manila to Laguna de Bay. About a mile inland from the bay, traffic is mostly limited to launches and barges, with heavy native craft predominating. About a mile upstream is the center of inter-island docks and freight storage facilities. Most of the important warehouses are located in this area. A network of canals, which serve the commercial waterway transportation needs of various sections of Manila, enter the Pasig River on either side.

Four steel and concrete piers and one pile bulkhead wharf constituted the berthing facilities of the port, and these piers were equipped with hoists and cranes.

Navy planes strafing the river area found Jap small craft used for inter-island shipping lined up along the river wall of the Pasig, and many of these craft were destroyed. Since Japan has come to rely heavily on these small craft to carry the burden of her shipping, they have become important targets in all attacks to soften up the enemy.

Navy bombs fall on large concentration of Jap merchant ships anchored off Manila. Carrier attacks have accounted for many ships

Clouds of smoke rise from this Jap ship left stranded by Navy plane. U.S. planes have greatly reduced strength of Japan's maritime fleet

U. S. carrier planes gave all Jap airfields in Philippines such a terrific pounding that enemy was unable to impede landings

Covers of interlaced poles were built over revetments by enemy. Nets and foliage also were utilized to camouflage Jap planes.

NAVY GAVE LUZON AIRFIELDS INTENSIVE PHOTOGRAPHIC STUDY

RECONNAISSANCE over the large number of Japanese airfields in the Philippines required numerous photographic sorties, mostly by Navy carrier planes. These Jap fields were of all types, ranging from large, well-equipped bases such as Clark, Laoag and Nichols fields to nearly-abandoned emergency strips in many scattered locations. Even Corregidor Island had a short, narrow (1200′ x 90′) airstrip, which probably was used for small messenger-type planes carrying dispatches.

Most of the runways on Luzon were sod-surfaced, although a few major strips were built of concrete. In many cases runways and taxi strips were still under construction when the American attack was launched. A framework made of interlaced poles was used frequently to cover planes in revetments. Nets and foliage were used for camouflage. Extensive dispersal areas, with revetments for many planes, were developed by the Japs at larger fields. Underground storage areas, AA positions, shops, warehouses, barracks, radio stations, air raid shelters and other airfield installations were located by Navy photographic intelligence.

ACCURATE Navy photographic information about Luzon airfields was of vital importance in locating concentrations of operational Jap planes. These were blasted time and again until there was little enemy air strength left to attack U.S. landing forces. Photographic interpreters helped conserve bombs in at least one instance by determining that a reported "Quezon" airfield was actually a combination of two intersecting Philippine public parkways, with a center esplanade. It was noted that the enemy occasionally built large white Japanese characters, easily visible from the air, beside strips to convey information to pilots. Big characters meaning "BAD," for example, were on the ground at the unfinished east side of Anayan airfield. In general, photo coverage of Luzon fields involved the most extensive reconnaissance of the Pacific war up to that time.

NICHOLS FIELD, 5½ MILES SSE OF MANILA HAD TWO COMPLETED CONCRETE RUNWAYS. THIRD WAS UNDER CONSTRUCTION IN CENTER

Nielson airfield had bomber and fighter strip. Latter was being lengthened by Japs as photographs show. Part of large dispersal area is shown at bottom of picture. There are at least three separate "bone-piles" containing remnants of damaged planes at this field. Main service apron is visible at junction of the two strips. Hangars, located at side of this apron, were destroyed. Another service apron is at top of photo, to the right of bomber strip. Wrecked shops are nearby. Third service apron is situated between the two strips, and its hangars appear intact. Some 25 barracks and warehouses are off to the right of the airfield. Antiaircraft gun batteries are in strategic location around the airstrips. Concentrated white dots in upper right corner are gravestones of a Filipino cemetery. Navy planes kept fields like Nielson inoperative throughout most of the campaign

GRAMPAW PETTIBONE

Machine Gun Warning

After firing on the sleeve target, the waist turret gunner of a PB4Y followed through the run with his turret. As the line of sight passed by the right wing of the plane, one round "cooked off" and was discharged into the wing, doing extensive damage.

Comment*—This "cook off" apparently was caused by heat generated from excessively long bursts being fired immediately prior thereto. As has previously been pointed out in these columns, accidents of this type can be avoided by *firing only short bursts*, and by *never pointing any firearm at any object one does not desire to hit.

Gunnery instructors should make certain these two safety precautions are thoroughly driven home to all gunners.

Are You An "H.P."?

Several instructors were parked at an outlying field, talking to their students. The first instructor to take off climbed steeply, then turned and dove at the other planes. This "hot pilot" evidently got a thrill out of seeing everyone duck as he missed them by only a few feet.

He pulled up steeply after the first pass, made a flipper turn and started down again. This time something went wrong, however—either in the turn or in the dive. Whatever the cause, he was still nose down when he hit the ground at high speed. Fortunately, he missed his pals.

Grampaw Pettibone says:

One irresponsible act cost this pilot his life. *Many* pilots are killed in similar, idiotic low-altitude maneuvers. You might try to pass it off by saying that anyone who pulls a crazy stunt like that rates what he gets, but that isn't enough. From an entirely impersonal point of view, this country just can't afford this wastage of personnel and material, either in war or peace.

In the present stage of aviation development, some training and operational losses are inevitable. They are only justified by the greater good obtained in training and operations. The attrition which results from unauthorized low-altitude maneuvers, however, has no justification whatever and, therefore, must be eliminated.

As I've often said before, it's worse for instructors to flathat than anyone else. That may seem unfair, but that's the way it is, because instructors involuntarily set the standard for their students. If students see their instructors do these things whenever they get away from official observation, students will get the idea that this is the accepted practice.

Lest some pilots already have the wrong idea, let me give you the inside dope—flathatting is definitely *not* the accepted practice. You may get away with it for a while in isolated cases, but not for long. And death isn't the only punishment you face. Court-martials, kick-outs, heavy fines, loss of wings and even commissions, all help weed out the offenders.

For those who don't see their moral responsibility in this matter, don't later say I didn't warn you.

Careless Ground Crews

The following article, quoted from the *Aviation Safety Digest* of the Ninth Marine Aircraft Wing, contains valuable advice for all units operating aircraft.

"The recent increase of aircraft accidents due to the careless handling of planes by ground crewmen is hindering the efficient operation of squadrons and calls for *(1)* a review of the causes of such accidents, and *(2)* suggested preventive measures.

"Careless taxiing by ground crewmen tops the list of these accidents and can be traced to three definite causes: (1) fast taxiing, (2) failure to watch both wing tips, and (3) misjudgment of taxiing space. The preventive measures are evident to all concerned. Taxi slowly. Watch both wing tips. Don't *think* there is enough space, *be sure* before proceeding.

"Careless warming up of the engine has, in too many cases, contributed to the failure of the engine to function smoothly in the air. Over-revving and excessive backfiring are the chief causes of such engine failures. Ground crewmen are reminded (1) *not* to exceed the recommended RPM before the oil pressure and temperature reach normal and (2) *not* to apply too much throttle during the warm-up period. These measures should be observed at all times and particularly in cold weather.

"Tampering with cockpit levers is another cause of ground accidents. Occasionally the landing gear lever is unlocked and inadvertently left unlocked, causing the landing gear to retract when the engine is started or while the pilot is preparing for a take-off. 'Don't meddle with the levers' is the best solution to this problem. If a lever must be moved, move it, but be absolutely sure it is put back in the proper position before leaving the cockpit.

"Careless handling of planes on the ground shows a dangerous lack of responsibility to the plane and to the pilot, and can result in the loss of a plane, perhaps even a life.

"Aircraft accidents due to carelessness of ground crewmen can be avoided and must, if a squadron is to get the most out of its available aircraft. A grounded plane means a grounded pilot. Keep 'em flying!"

Glassy Water

A PBY-5 pilot was returning to base after a training flight. Glassy water conditions existed in the landing area. The plane began a spiral turn to a landing and was still in a turn when one wing struck the water. Five of the eleven men aboard were killed in the crash.

The Trouble Board pointed out that the pilot was aware of the glassy water conditions. They recommended that pilots should never spiral to a landing if the water is glassy, but should make a long, straight approach from at least 300 feet altitude.

Grampaw Pettibone says:

Right, but the Trouble Board forgot to add something else which is equally important—that *only* power-on landings should be attempted on glassy water.

There is one other lesson in this accident for all units operating aircraft over water—the testimony of survivors brought out the fact that the regulation with regard to wearing life jackets was not being complied with on this flight.

Squadrons
LET NANEWS HEAR FROM YOU!

PHILIPPINES BOUND: An Aviation ordnanceman puts into practice what he learned at NATTC. He's about to arm one of the F6F's spotted on the flight deck of a carrier soon to see action.

Rear Seat Jams Controls

At 1500 feet, an SNJ was seen to enter a steep, diving spiral and crash. A student was at the controls with an instructor in the rear seat.

An examination of the wreckage revealed that the seat in the rear cockpit was facing aft at the time of the crash. The rear stick was in place and had been sheared four inches above its base.

It is the opinion of the investigating board that the cause of the crash was loss of control due to the stick being jammed forward by rotation of the rear seat. A warning plaque on the instrument panel in the rear seat of the SNJ reads: "Remove stick, instrument flight hood, and lower seat to bottom position before rotating seat."

▸*Comment*—This is not a new type of accident. When the rotating rear seat is not actually used in the reverse position, such as in free gunnery, it is recommended that it be locked to face forward.

Carrier Wave-Off

During his approach to the carrier for a night qualification landing, an SB2C pilot became low and slow. He was given a wave-off by the LSO. As the pilot advanced his throttle, the nose of the plane came up sharply. The airplane stalled and spun into the water directly astern of the ship. The pilot apparently was knocked unconscious and went down with the airplane.

The accident board stated, "Pilots of this squadron again will be cautioned emphatically as to the danger of getting low and slow in the approach."

▸*Comment*—Don't forget that when your elevator tabs are trimmed for landing and you have to apply full throttle suddenly, there will be a strong tendency for the nose of the plane to rise sharply. This is caused mainly by the effect of the propeller blast on the horizontal surfaces and elevator tabs. Upon sudden application of full throttle, there will also be a strong tendency for the plane to roll to the left, due to torque.

The SB2C has negative longitudinal stability under certain loading and speed conditions. Under these conditions, if the nose of the plane is displaced from neutral it will not return but will continue in the direction it was displaced. While this is not a dangerous characteristic when understood, it does demand that the plane be "flown" constantly when within the limits of negative stability.

All pilots should be familiar with TO's 30-41 and 34-43, entitled, *Stability and Controllability of Naval Aircraft Under Special Loading Conditions* and *Class VSB Airplanes—Effects of Rearward Center of Gravity Locations on Longitudinal Stability*. In addition, pilots should be familiar with the stability and controllability characteristics of their particular airplane; for SB2C pilots this is covered in TO 143-44.

Before attempting to make carrier landings in a new type plane, pilots should first climb to altitude and test out its flight characteristics under carrier landing conditions. (The *indicated* stalling speed of a plane is the same at all altitudes.) By so doing, they will better understand the problems involved and thus be prepared to avoid them under actual conditions.

Safety Doctrine

Two recent reports have been received indicating that aircraft which were in difficulty on training flights at sea have been left unaccompanied to make their way to shore as best they could.

In one case, a squadron of fighters was conducting a search and simulated attack on a friendly vessel approximately 100 miles at sea. Noting that he was dangerously low on gas, one pilot headed for the coast as soon as he had completed his strafing run, without informing anyone of his departure. He ran out of gas before he reached his base and made a forced landing on the beach, resulting in major damage to the airplane.

In the other case, an instructor and four students were conducting gunnery runs in fighter aircraft on a tow target 10 miles off the coast. Upon the completion of the first run, one of the students reported to the instructor that his prop was "out." He was directed to put his propeller in manual control, check his instruments for proper functioning, turn off his electrical equipment to conserve power for the propeller, and return to base.

The student shortly reported that his propeller was operating satisfactorily in manual control and that he was proceeding to base. Unfortunately, in this case the pilot failed to arrive at his destination. Exhaustive and prolonged search has failed to reveal any trace of the missing pilot.

▸*Comment*—Standard doctrine in all squadrons should insure that, when circumstances permit, a second plane from the flight accompanies any aircraft in distress back to the base. This is particularly essential in over-water flight.

Circumstances always "permit" such action during training flights.

This doctrine naturally requires that pilots must notify someone in the flight when in trouble, which was not done in case one.

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. **What is the difference between normal rated power and takeoff power?**
2. **Ground checking of magnetos on supercharged engines should be made at what rpm?**
3. **In radio equipped planes, is it necessary to call the tower for taxi instructions before leaving the parking area?**
4. **Is air speed alone a guarantee against stalling?**
5. **Under what circumstances are *wheels-down* forced landings recommended?**

Answers on Page 40

"Don't Lift Here"

An F4U squadron recently reported by RUDM that there had been several cases of planes tending to snap roll at high speeds. The trouble was traced to horizontal stabilizer damage which was believed to have been caused by personnel lifting the tail of the plane by placing their backs under the stabilizer. This collapsed the ribs or bent the stiffeners between the ribs, resulting in a concave surface which affected the flight characteristics of the airplane. This snap-roll tendency was corrected by replacing damaged stabilizers.

It was recommended that all personnel servicing these airplanes be warned not to lift the tail by pushing on the stabilizer and that maintenance crews stencil suitable "No-Lift" signs under the stabilizer.

▸*Comment*—The importance of this warning is attested by the fact that at least one fatal F4U accident is believed to have occurred from this cause.

"No Lift" signs are now painted on these stabilizers at the factory and should be repainted after overhaul or when obliterated during service.

All squadrons should take warning from this report, since damage to flight surfaces is dangerous in any aircraft.

Doctor Chases Airplane

A doctor who gets his cases by chasing ambulances soon loses caste. Not so a Navy doctor who gets his cases by chasing Navy airplanes: that is ethical.

An air station doctor had checked out for the day. On his way to his home in town, he happened to glance up and see a likely customer fly over—a pilot in a dive-bomber was heading for the field with only one wheel down. Without uttering a single word that can be printed, the doctor swung his car around and high-tailed it back to the base.

Sure enough, the negligent pilot got past the careless tower watch and landed on one wheel. It looked as though the doctor would have a sure customer. When he arrived on the scene, however, he found his trip had been in vain—the blushing pilot was walking toward the hangar and the Assembly & Repair "doctor" was in charge of the wreck.

DID YOU KNOW?

Survival Note

Tests conducted at the Naval Medical Research Institute in recent months indicate that the permeability of nylon parachute cloth to ultra-violet radiation is such that at least three thicknesses of the cloth should be used in the construction of emergency anti-sun headgear and clothing.

New Aviation Manuals Come Out

1944 Manuals Do Not Become Obsolete

During the coming months, 1945 editions of the aviation training course manuals, NAVPERS 10,300 series will reach Navy, Marine Corps, and Coast Guard activities. These 1945 editions DO NOT render the 1944 editions obsolete.

Necessary changes, corrections, and additions are being made in the 1944 texts and illustrations in line with the general program of frequent revision of aviation training manuals each time supplies are printed. The aviation courses represent the joint endeavor of the Naval Air Technical Training Command and the Training Activity, BUPERS.

The following titles of the 1945 editions now are ready for distribution:

Aircraft Instruments	NAVPERS 10333
Aircraft Propellers	NAVPERS 10336
Photography Vol. I	NAVPERS 10371
Photography Vol. II	NAVPERS 10372

The 1945 editions of these titles will be ready for distribution by 1 April:

Blueprint Reading & Layout Work	NAVPERS 10305
Aircraft Electrical Systems	NAVPERS 10315
Advanced Work in Aircraft Electricity	NAVPERS 10316
Airplane Structures	NAVPERS 10331

The 1945 editions of the following titles will be ready by 1 June:

Advanced Work in Aircraft Radio	NAVPERS 10314
Aircraft Engines	NAVPERS 10334
Aerology Vol. II	NAVPERS 10362

These will be automatically substituted for the 1944 editions when warehouse supplies of the latter are used up. Further announcement regarding 1945 editions of other titles in the series will be made at a later date.

To order training courses for advancement in rating, vessels and activities in the EAST COAST AREA should address: Training Activity, BUPERS, Washington, D. C. Vessels and activities in the WEST COAST AREA should address: Director Training, Eleventh Naval District, San Diego. Vessels and activities in the FOURTEENTH NAVAL DISTRICT AREA, address: Director of Training, Pearl Harbor, T. H.

NATS Pilot Gets His Opponent

Frigate Bird Launches Suicide Attack

VR-12—Although NATS pilots are trained especially to haul passengers and cargo, never let it be said that a NATS flier shuns combat. One of these intrepid pilots emerged victoriously from a thrilling aerial duel to the death, recently, near Johnson Island. His opponent was a large, black frigate bird.

FRIGATE BIRD'S ATTACK WAS A FAILURE

Flying a *Skymaster*, the NATS pilot was approaching Johnson Island for a landing, when his opponent appeared on the scene. Badly out-gunned and under-powered, the frigate bird adopted Jap suicide tactics, and made a head-on run at the *Skymaster*. The plane was lazying along at 140 mph, and the enemy came in at about 20.

The NATS pilot could have taken evasive action, but he felt the enemy might lose his nerve and pull out of the dive before a collision took place. So the pilot held his course.

There was an impact, an eight-inch dent appeared in the R5D's nose, and the plane acquired a queer ornament—one full grown frigate bird, neatly skewered on the *Skymaster's* direction loop.

Navy Pilot Had No Alternative

Damaged "Hellcat" Hit Water at 175 mph

After blowing up a Jap destroyer from an altitude of 200 feet, a Navy *Hellcat* pilot landed his damaged plane in the water at a speed of 175 miles an hour, and escaped with only a scratch on his knee. The accident happened not long ago during action in the China Sea.

The pilot was one of a group of fighters and bombers, based aboard a fast carrier, which made a strike on Jap shipping off the southern coast of Formosa. His Grumman *Hellcat* was carrying a bomb.

Spotting a Jap destroyer, the pilot dived through a rain of ack-ack for low altitude attack. As he dropped the bomb, he felt a terrific explosion, and found his plane on its back with more than six feet shot off the right wing.

Managing to avoid a crash, he pulled into level flight, and, as he left, saw the enemy ship exploding. Heading back for his carrier, the Navy pilot finally sighted the task force. He could not gain enough altitude to bail out and knew the plane was too unstable to attempt landing aboard. His only choice was a water landing at speed high enough to keep the plane from spinning in, diving straight down.

With only a scratched knee, the pilot climbed into a life raft and 30 minutes later was safely aboard a friendly destroyer to be transferred to his ship.

Don't Order Now!

Flight Thru Instruments, new text to be used in intermediate flight training, now is being distributed to all aviation cadets who have completed the primary stage and to all naval aviators.

Distribution will not be completed before June 1. No individual requests for copies of the publication will be handled before that time, and then *only* if request is made to Office of Chief of Naval Operations, Op-33-J11, Navy Department, Washington 25, D.C., *via* commanding officer, publications officer or ACI officer.

FLIGHT SAFETY

Hindsight

HINDSIGHT *is considered an appropriate title for this report in that no forethought was exercised in the ditching it describes and no one analyzed the errors committed. The fortunate outcome of the ditching is small recommendation for the procedures followed; their continuation will only court disaster.*

▸ *Pilot's statement:* The plane captain gave the plane a routine turn up and check. Before take-off the pilot again checked it. Engines checked normally in all respects. Take-off was routine.

For four or five minutes the plane functioned normally. Then, suddenly, at 900 feet altitude the starboard engine began smoking badly. Fuel pressure went to zero. The engine lost power, then quit and windmilled at 1500-1700 rpm. Having dropped to 500 ft., I determined to feather and attempt to make it back to the field on the port engine. During feathering by the PPC, the co-pilot salvoed the bombs. Next, he jettisoned the drop tanks electrically. Our plane was now making 130 knots at 300 feet altitude. In the turn, when the airspeed reached 110 knots I ordered the co-pilot to drop twenty per cent flaps. Because of the flaps the crew could not determine whether the drop tanks had released. No one pulled the mechanical release. At about 200 ft. the co-pilot tried unsuccessfully to release the escape hatch. The handle broke off.

The radioman sent emergency signals on key and called the tower. Evidently no station heard these calls. A search plane about 20 minutes out from the field heard only our call and the urgent designation of the message.

The plane captain and ordnanceman stowed all loose gear aft of the bomb bay step. Before taking ditching stations they placed the extra life raft near the door. The navigator tried to open the astro hatch. A stripped lug prevented its opening. He then assumed his ditching station with his back to the radio compartment door.

At 110 knots and 20 per cent flaps the plane continued to lose altitude with full power on the port engine. At 50 ft. I realized we would have to ditch and ordered 100 per cent flaps. We were making 80 knots and the controls were so mushy that it was hard to keep the wings level. From an altitude of five feet, with maximum power on port engine, we full-stalled into the water. The aft portion of the plane hit; then the nose dived. On first contact I cut the power. I put both hands and one knee back of the yoke to guard against being thrown on the windshield and gunsight. After its first dive the nose bobbed up. The co-pilot went out the side window, followed by the radioman. As I unbuckled my safety belt water was up to my knees. The co-pilot yelled for me to get out. On learning that all the crew were out, I went out my side window. The plane sank nose first. The four crewmen had got out the main cabin door, but they were unable to get out the extra life raft before the plane sank. The bottom of the plane was torn away in landing. All hands agree that it sank within 15 seconds. The life raft in the door failed to release. We were in the water with only our life jackets.

We were about five miles from our island base. All had minor cuts and bruises; the navigator had a sprained shoulder. After releasing dye markers we split into pairs and started swimming for shore. We were not seen until a PBM on a test hop saw another dye marker we had released. Apparently no one had received our distress messages.

None of our safety equipment functioned properly.

It is believed that premature lowering of the flaps hastened ditching. It is recommended that a full power stall with 100 per cent flaps be used for ditching under similar circumstances.

▸ *Commanding Officer's endorsement:* It is believed that ditching procedure was excellent and highly successful in that there were no personnel injuries.

This command cannot emphasize too strongly the use of full flaps and a full-power stall for ditching even on a single engine.

Analysis of the pilot's single-engine technique reveals three errors. *First,* he failed to change tanks when fuel pressure on starboard engine fell to zero. *Second,* he used flap on single-engine operation. Also, there is a possibility that had he used a slower airspeed and no flap in an attempt to remain in the air, the plane might have made it to base even though gross weight was in excess of 27,000 pounds. *Third,* no fuel was dumped from the main tanks; this would have reduced weight below the maximum for single-engine operation.

These comments are made for information value only. With the benefit of hindsight and a swivel chair, it is easy to study, analyze and point out possible pilot error—another form of Monday morning quarterbacking.

▸ *ISIC's endorsement:* Forwarded, concurring strongly with the recommended full-power stall technique.

▸ *Area Commander's endorsement:* Forwarded. The ditching technique is considered excellent except for failure to utilize fully the means at the pilot's disposal for jettisoning weight. Failure of safety equipment to operate properly can only be attributed to lack of proper inspection. Steps have been taken to remedy this.

Flight Safety Comment: It would appear that thorough analysis of this ditching was not attempted because of the vague information available. A subjective analysis would include specific information on the following:

ENGINEERING

a. Apparently no attempt was made to regain suction on starboard engine.

b. A PV-1 is capable of single-engine performance if proper jettisoning is employed. No fuel was jettisoned from main tanks and the pilot is not sure whether his drop tanks released. No one tried the manual release. No mention is made of trimming the ship for single-engine performance, a prerequisite for full power on one engine.

c. The use of flaps for single-engine operation is a malpractice.

DITCHING PROCEDURE

a. Ditching drills are essential to prevent situations of this kind. A drill would have disclosed faulty escape hatches and possibly deficiencies which caused loss of the door life raft.

b. The axiom, "In union there is strength," is applicable to survivors. No reason is seen for splitting up unless they desired to make the rescue more sporting.

c. Here is a fertile field for an enterprising aviation equipment and survival officer.

COMMUNICATIONS

a. Neither voice nor cw emergency transmission was received. No cause is given for this failure. It is hoped that this failure will stimulate interest in communication personnel to see that assigned frequencies are truly CHANNELS, rather than discourage operating personnel because of unreliable communications.

GENERAL

Landbased squadrons are not meeting emergencies with the precision of carrier aircraft where every hop is a possible ditching. Forethought and drills on survival procedures will not only eliminate HINDSIGHT but save lives of pilots, aircrewmen.

PUBLICATIONS

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

FLIGHT SAFETY BULLETINS

3-45 *Anti-Black-Out Suits—Precautions When Using.*
4-45 *Pilot-Caused Engine Troubles.*

AVIATION CIRCULAR LETTERS

9-45 *Aircraft Clearance Form 423* (Revised).
10-45 *Clearance and Briefing of Naval Aircraft Departing from the United States and Proceeding to Destinations Beyond the Continental Limits of the United States.*
11-45 (Conf.) *Integrated Naval Aeronautic Maintenance, Material and Supply Program.*
12-45 *Morphine Syrettes in Aviation First Aid Kits, Handling of.*
13-45 *Magazine "NavAer Maintenance." Mission and Distribution of.*
14-45 *Tractors and Jeeps with Spare Parts and Equipment for Aircraft Carriers—Outfitting and Replenishment of.*
15-45 *Instructions in Regard to Ferrying of Naval Aircraft.*
16-45 *Parachutes—Instructions Concerning Use of.*
17-45 *Aircraft Engine Reporting and Record System.*
18-45 *Aircraft Emergency Procedure for Attracting Attention of Surface Vessels.*
19-45 *Work to be Performed by Assembly and Repair Activities—Procedure for Requesting.*
20-45 *De-Icer Boots—Policy Regarding Installation and Centralized Reconditioning or Repair of.*
21-45 *Emergency Maintenance Service for R.A.F. Transport Command Aircraft—British Requisition for Defense Aid: BAC/N-1700.*
22-45 *Reports of service deficiencies: Instructions concerning.*

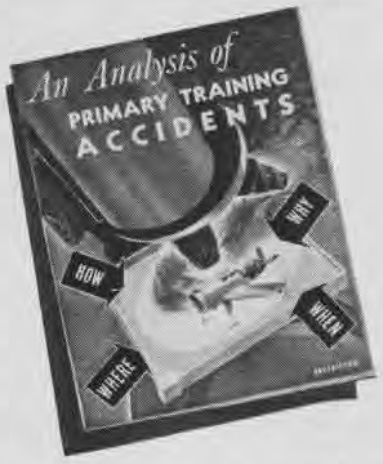
TECHNICAL NOTES

1-45 *Index of Technical Orders and Technical Notes.*
11-45 *Service Use of Radomes.*
12-45 *Application and Treatment of Aircraft Finishes to Obtain Smooth Surface.*
13-45 *Fishing Kit: One-Man, NavAer Specification M-627 Issue of.*
14-45 *Parachutes: Service Handling of.*
15-45 *Life Vests—Distress Smoke Hand Signals—Attachment of Pockets for.*
16-45 *General Information on the Care and Maintenance of Seaplane Mooring Buoys.*

TECHNICAL ORDERS

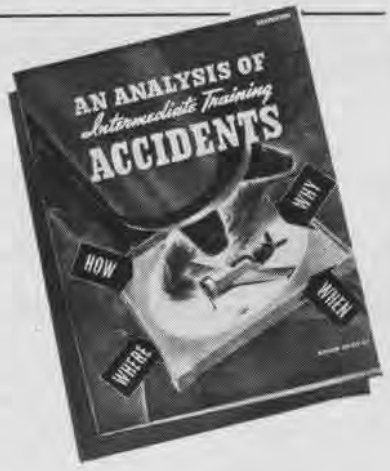
16-45 *Life Rafts: NavAer Specification M-3q and Prior—Revision of.*
17-45 *Method of Attaching the Pararaft Kit to the Navy Standard Seat Type Parachute.*
18-45 *Navy Standard Back Type Parachute ... the Method of Attaching the Pararaft Kit.*
19-45 *Modification of Terminal Board and Internal Connections Thereto on Eclipse 914-3A and 914-15A Generators.*
20-45 *Restricted Use of AN-C-54 Natural Rubber Cements.*
21-45 *Model FM-2 Airplane Stability and Controllability Characteristics.*
22-45 *Parachute and Harness Quick Attachable Seat Type With Method of Attaching the Pararaft Kit.*

ACCIDENT ANALYSIS PAMPHLETS



TWO RESTRICTED pamphlets of interest to flight personnel recently have been released by the Aviation Training Division, CNO. These are: *An Analysis of Primary Training Accidents* and *An Analysis of Intermediate Accidents.*

An Analysis *of Primary Training Accidents* is the first of a series of pamphlets being prepared to show exactly what dangers exist in various categories of naval flying. Profusely illustrated with charts, the pamphlet reviews one year's primary training accidents. It states, "They are not new kinds of accidents; they are the same kinds that have been repeated over and over since flying first started. That doesn't mean, however, that they are inevitable. Approximately 70 percent of all aviation accidents are due to pilot error; hence, avoidable."



This pamphlet does for intermediate training accidents what the one above does for primary accidents. The most frequent kinds of intermediate accidents are *1.* mid-air collisions, *2.* landing accidents, and *3.* spin-stall accidents. Although ranking third in frequency, spin-stall accidents accounted for more fatalities than any other type of intermediate accident. Forced landing, collision with the ground, water, etc., take-off, miscellaneous and undetermined causes ranked in that order as to the number of intermediate training accidents. The pamphlet states, "When we have learned to avoid mid-air collisions, spins and stalls and collisions with the ground, the biggest part of our safety problem will be solved. Taken together, these accidents account for approximately nine out of every ten deaths for which the circumstances could be determined." These accidents, as well as those in many other categories for intermediate training, are analyzed.

USE THIS FORM TO ORDER PAMPHLETS

Regular distribution is in process. Coupon should be used for those whose copies may have gone astray.

TO: Office of the Chief of Naval Operations, Op-33-J11, Navy Dept., Washington 25,D.C.

SUBJECT: Pamphlets—Request for.

It is requested that copies of new pamphlets be sent as indicated to this activity.

COPIES	PAMPHLETS
.....	An Analysis of Primary Training Accidents (Restricted)
.....	An Analysis of Intermediate Training Accidents (Restricted)

FROM (Unit Commander): .....

Delivery Address: .....

.....

Attn.: .....

Cut here

CARE and PRESERVATION of PARACHUTES

HOURS OF PAINSTAKING EFFORT ON PART OF PARACHUTE PERSONNNEL MUST BE SPENT TO KEEP CHUTES FUNCTIONING PROPERLY

BuAer Recommends 14-Point Plan to Keep Chutes in Good Condition in Combat Regions

FLIGHT personnel have confidence in their parachutes because they know that skilled riggers devote their entire time to care and preservation of chutes and related equipment.

Maintaining parachutes so they *will* function properly and quickly is the task of qualified personnel—not an easy task, particularly at bases where modern conveniences are limited. Aircraft squadrons setting up housekeeping on islands that have just been taken from the enemy have to use every ounce of ingenuity to overcome such difficulties. They must resort to unusual methods to conquer the new problems that arise in combat areas.

Most Navy bases in the Pacific are located in warm humid areas conducive to fungus growth in parachute fabrics. Since the propagation of fungi mold is dependent to some degree on a nutrient in the fabric, which may be grease, oil, starch or some other foreign substance, it is highly important that chutes be kept as clean as possible.

BuAer Preserving Measures

When cleaning parachutes, riggers should realize that harness, pack, lines, canopy and rip cord assembly all require a complete and thorough inspection. To aid parachute personnel to fight fungi and keep deterioration to a minimum, BUAER recommends the following cleaning and preserving measures:

1. Keep parachutes and parachute harnesses as clean as possible. Clean parachute harness and fabrics with carbon tetrachloride whenever a foreign substance is evident, and never allow grease, oil or other foreign substance conducive to fungus growth to remain on parachute assemblies for any length of time. Personnel using carbon tetrachloride should be cautioned never to use it with water, as hydrochloric acid, which is injurious to fabrics, will result.

Carbon tetrachloride is toxic and care should be exercised in its use. Fumes may make some people ill; therefore, all cleaning should be done in a well-ventilated room or in the open air. Hands should be protected from direct contact with carbon tetrachloride as much as possible, as it also may affect the skin. Rubber gloves should be worn or a semi-stiff brush with a handle should be used for cleaning.

Navy erected air-conditioned loft on one of the first islands taken in the South Pacific

Rules for Stowing Chutes

2. Remove parachutes from airplanes at the end of daily operations whenever practicable and stow in a heated and ventilated room, when such facilities exist. Parachutes normally are kept in planes in combat areas and by use of heated storage and rotation of chutes every few days, fungus growth will be reduced to a great extent.

3. A locker having several shelves is a good place for keeping spare parachutes, and parachutes not in actual use, dry and in good condition. Drill a number of holes in each shelf and install a series of electric light bulbs in the base of the locker so there will be no fire hazards. Heat from the bulbs will flow upward through the holes in shelves and keep the parachutes dry.

Beware of Moist Conditions!

4. Parachutes should never be repacked while damp or while moist conditions prevail, such as early in the morning or after a heavy rain. Wait until the fabric is thoroughly dry, even if it requires a delay of several hours. This is especially important when metal drying towers are used. After hard rains, condensation is exceptionally heavy on the metal walls and roof inside the drying room. Chutes should never be repacked under these conditions.

5. Squadrons should make every effort to acquire at least two types of heating units to aid in drying parachutes. A gasoline or kerosene heater and an electric heater, if electricity is available, are recommended. Electric light bulbs, if large enough, are a good substitute for the electric heater when electric power is utilized. These units should be installed at the base of the drying room.

Fungus Growth Can Be Checked

6. Fungus growth can be reduced considerably by use of naphthalene flakes. One-eighth of a pound of flakes should be sprinkled between the folds of the canopy. To insure even distribution of the flakes, punch holes in the bottom of a quart can. The can should have a cover on top so no flakes will be spilled when can is shaken. Tests indicate that nylon resists fungus growth to a much greater degree than silk. However, harness webbing and cotton fabrics are extremely susceptible to fungus deterioration.

7. Parachute harness fittings that show signs of rust should be replaced. If fitting is in a position that makes replacement impracticable, the complete harness should be changed. When any doubt exists as to the serviceability of the parachute, it should be turned in to the nearest major overhaul base for inspection and test.

8. To keep rip cord cable from rusting, rub paralketone thoroughly into cable at prescribed repacking intervals. Remove excessive paralketone to avoid staining the parachute in case the cable comes in contact with the silk.

9. As many planes are not watertight, parachutes in aircraft should be kept away from openings where water may enter and should be kept off the deck.

10. Whenever airplanes are parked in one place for any length of time, the immediate area usually will be saturated with oil and grease. Flight personnel should avoid stepping on parachutes left in cockpits and should never place them on the ground. When parachutes are removed from aircraft for short periods of time, they should be placed on the wing or hung from the leg straps to the tie-down rings under the wing.

Hastily built shed at seaplane base in the Pacific area is good example of ingenuity Navy parachute personnel must use in combat regions to maintain equipment in good condition

11. Visually inspect all parachutes in service at regular intervals between repacking dates and remove any that require cleaning or further inspection.

12. Personnel responsible for inspection and care of parachute equipment should be entirely familiar with the BuAer *Parachute Manual*, technical orders, technical notes and other related information.

Ventilation Is Important

13. When heated rooms or lockers are not available, parachutes should be stored in well-ventilated tents or prefabricated huts.

14. The following cleaning fluids and preservatives are recommended by the Engineering Division of BuAer:

Paralketone, Federal Specification Type I AN-C-52

Carbon tetrachloride, Federal Specification O-C-141

Naphthalene flakes, Federal Specification R-N-91

Parachute personnel can reduce fungus growth to parachutes considerably by constant application to their duties. Initiative, energy and an intelligent approach to new problems that arise in combat areas are fundamental requisites in overcoming difficult maintenance tasks.

Frequent inspections by squadron commanders or by officers delegated by them are essential for the proper care and maintenance of parachute and related equipment to insure that they are in satisfactory condition at all times.

Special precautions must be taken to keep parachutes and harnesses free of grease, oil and other foreign substances conducive to fungus growth. Here chute is repacked aboard ship

MARINE NIGHT FIGHTERS HIT THE SILK

VISIBILITY is of paramount importance in any emergency landing, and it is more hazardous to make a water landing at night than under daylight conditions. Consequently, the much debated question of whether to bail out or ride the plane in and ditch has been one of particular concern to units operating exclusively at night. The following report, based on the experiences of a Marine night fighting squadron, is one of the first to be received from seasoned combat pilots.

DURING the training period of this night fighter squadron at MCAS CHERRY POINT, the squadron commander decided to adopt the policy that pilots should jump from the F4U-2 in the event of trouble at night, rather than attempt a forced landing even under bright moonlight conditions. This was the policy carried into the combat zones.

Prior to leaving CHERRY POINT, the emergency equipment was revised to insure that a pilot would be possessed with the best possible survival equipment, suitably packed, so that he would have everything required for survival the moment he hit the water. The contents ordinarily contained in the back pack were transferred to a seat type container that could be worn in combination with the pararaft and the seat type parachute. Personal equipment included two sea dye markers attached to the life vest on the chest directly above the chest strap of the parachute harness, a .45 caliber pistol in a shoulder harness carried with two clips of tracer ammunition. A first aid packet, hunting knife, and canteen of water were carried on a web belt around the waist over the summer flying suit. The life raft lanyard was also secured to the belt as this was thought to be a better arrangement than to attach it to the life jacket.

Policy Carried Into Combat Zones

This squadron operated from various bases in the Central Pacific, including Roi and Eniwetok. There were two occasions on which use of the parachute was deemed necessary. In a night action near the atoll of Eniwetok, a Marine captain exchanged bursts with the tail gunner of a *Betty* at 23,000 feet. The *Betty* was seen to go down in a diving turn, out of control, but the F4U was also hit. Soon oil covered the windshield and the engine stopped. The pilot elected to bail out at about 6,000 feet and informed ground control of his intentions so that an accurate fix could be obtained on him. His plane was under control in a shallow gliding attitude, and no serious difficulty was experienced getting from the cockpit on to the wing. He slid off the trailing edge and pulled the rip cord. The parachute descent was uneventful. He got back into the harness sling, loosened his leg straps and chest snap, then slid out of the harness upon contact with the water.

The raft inflated with no difficulty. He climbed aboard and passed the night in the bobbing pararaft suffering considerable discomfort as a result of cold and cramped position.

Search Planes Locate Downed Pilot

Search planes were over early the next day. When he saw planes approaching, the Marine pilot trailed a dye marker, but was not spotted until about 1400. Two hours later, he was

picked up about 25 miles off the atoll by a destroyer escort. He had eaten some chocolate and drank a little of his water and was in good physical condition. The only discomfort he suffered was a bad sunburn on his hands and face. The pilot's comments on emergency equipment read: "No mirror, not enough sea dye marker, and no sunburn lotion."

During the same action another pilot was lost by the ground control, and several hours later was overheard saying he was attempting a water landing. He was told repeatedly to jump, but instead insisted on a water landing in the bright moonlight. Although approximately 50 planes searched for him over a period of several days, no trace of the pilot or plane was found.

▶ ***Conclusion:*** **In the opinion of the commanding officer of this Marine night fighter squadron, the operation experience of these pilots would indicate that the doctrine of bailing out at night in the event of engine trouble is a sound one.**

BEST ANSWERS

Drinking Fluids

Pick the best choice to complete the statements, then see ans. on p. 40.

1. Continued drinking of sea water is dangerous chiefly because of the—

- ☐ *a*–minute animal and plant life that always is present on the surface of the ocean
- ☐ *b*–magnesium and potassium salts that cause an insidious poisoning of the blood stream
- ☐ *c*–sodium and magnesium salts that occur in such high concentration they withdraw fluid from the tissues
- ☐ *d*–toxic substances (of unknown nature) that occur in small quantities and lead to mental disorientation

2. Rain water is safe to drink if it has been—

- ☐ *a*–collected in a plastic water bag as it runs off the limb of a tree
- ☐ *b*–carefully scooped from clear pools on the ground
- ☐ *c*–collected directly in a large rubber sheet recently rinsed in a jungle stream
- ☐ *d*–collected in any way and then filtered through a thick layer of moss

3. The safest type of plant fluid to drink in quantities is—

- ☐ *a*–milk from fully ripe coconuts
- ☐ *b*–clear sap from vines
- ☐ *c*–milky sap from vines
- ☐ *d*–juice of water hemlock roots

4. Ground water that usually can be drunk without purification is obtained from—

- ☐ *a*–native wells that are in use
- ☐ *b*–native wells abandoned
- ☐ *c*–water holes that occur along trails
- ☐ *d*–springs in high terrain back from human habitations

5. A solar still operates on the principle that—

- ☐ *a*–when heated by the sun's rays, the fresher and lighter portion of the salt water tends to rise to the surface of the still and can be drawn off
- ☐ *b*–when a porous pad, moistened with salt water, is heated, water evaporates from its surface and will condense in pure form on the cooler surface of the still
- ☐ *c*–salt water, when spread in a thin layer over the inner surface of a still, gradually will lose its salt content when subjected to the ultraviolet rays of the sun
- ☐ *d*–the rounded surface of the still acts as a magnifying glass concentrating the rays at the center of the still where the salt is boiled from the water

SHORE STATIONS

▶NATB PENSACOLA—A camera repair naval training school which provides a ten-weeks course of instruction has been opened at this station. The course is split into two five-week periods, one in the repair of ground cameras and one in the repair of aerial cameras. Each student takes both courses.

▶MCAS EWA—Members of a Marine air group stationed at Ulithi have developed a new sport—"tame pig hunting."

It started when natives on this island were transferred to another shortly after the American occupation. The islanders, evacuated with little prior notice, were unable to round up all of their pigs running loose around the island.

Now the Leathernecks in their spare time have taken to hunting the porkers and turning the captured strays over to the native owners.

"Some sport!" say the Marines. "Some pork!" say the natives.

▶BLIMPRON 21—The K-46 recently sighted an inter-island type banana boat aimlessly drifting 20 miles offshore. The vessel was flying the FOX flag and the American ensign upside down. Close inspection showed that no one was aboard the vessel, yet it was undamaged and apparently in very good shape. Within the next few minutes an empty life boat was found adrift 1000 yards from the deserted vessel. All gear aboard the life boat appeared to be shipshape. Coast Guardsmen, responding to the blimp's call for assistance, boarded the derelict and found a full cargo of bananas. To date the mystery remains unsolved.

▶NATTC NORMAN—Information for shipwreck survivors is being gathered by the Physical Instructors' School, USNTC, BAINBRIDGE, Maryland. It is believed that survivors' experiences may prove a means of saving the lives of other Navy men who will benefit from improved teaching methods and life-saving equipment.

▶MCAS EWA—A Marine private scored a direct hit on an airplane with a baseball —a foul ball that eventually traveled 15 miles. The Leatherneck cut loose with the foul over third base during batting practice with a Marine regimental team.

The ball smashed through the windshield of a "grasshopper" observation plane which was gliding 40 feet off the ground to a landing at a nearby airstrip. The pilot was knocked unconscious when the baseball hit him in the face and fractured his jaw. Then the corporal, a passenger in the back seat of the plane, grabbed the controls, pulled back, muttered a prayer and prevented the plane from crashing.

Recovering from the blow, the pilot took over and skimmed off to another airfield 15 miles away while waiting for his head to clear. The foul ball remained in the cockpit as evidence.

▶NAS ALAMEDA—Wide-mouth bottles are causing a "bottleneck" in the return of battle weary planes to the Pacific from this station. Repair planners reported not a single jar suitable for the job of serving as a battery-overflow jar for a certain type Navy plane was to be found on the base. Manufacture of such jars has been discontinued but no other jar can accommodate the receptacles built into the planes. Shortage of manpower precludes the possibility of altering the installation to accept other sizes and shapes of jars. Consequently repair planners have sent out an SOS for standard small-mouth Mason fruit jars in tool rooms, sheds and storage rooms in the area.

▶NAS PATUXENT RIVER—All Marines on guard at traffic posts in hours of darkness now wear a distinctive uniform that may easily be seen by motorists. The garb includes a white canvas cape with reflectors attached.

▶NATB PENSACOLA—"Congratulations, Ensign Ensign!" sounds like double talk, but no one stuttered when the remark was made. Ensign Chester Oscar Ensign of Charlotte, N. C. won his naval aviator's wings and ensign's commission at designation ceremonies on this station recently.

▶NATB PENSACOLA—The first WAVE to be rated chief petty officer at the training base was welcomed recently to the NAS CPO club here. Other chiefs acted as side boys as the new chief entered the club.

▶NTC MIAMI—A bluejacket from this base was visiting his home town over a national holiday. Since he had served many months at sea and held the Purple Heart, he was invited by the local American Legion post to participate in the ceremonies.

His letter of invitation read: "You are cordially invited to be one of the speakers at our ceremony. The program will take place in the city park and will include a talk by the mayor, a short speech by a Navy lieutenant, your talk and then the firing squad."

Squadrons
LET NANEWS
HEAR FROM YOU!

▶NAS HUTCHINSON—A complete history of this station, consisting of three large volumes, has been forwarded to Naval Air Operational Training Command. Volumes include chronological and narrative sections, documents figuring in development of the station, and official photographs.

▶MCAS EL CENTRO—A fighter pilot at this station has no hunter's license and is keeping a weather eye out for the game warden.

On a recent strafing run, he flew directly into a flock of ducks. Upon landing, the pilot discovered his plane was not only splattered with blood and feathers, but he had made three sure kills. One duck was crammed into the oil cooler on the left wing stub, one into the right wing stub, and another smeared into the inboard left gun. Possible kills were indicated by the fact that both horizontal and vertical stabilizers had to be changed.

▶NAS NORMAN—Owing to seasonal shortage of certain vegetables the commissary is conducting a survey of preference among personnel served to determine likes and dislikes to minimize food wastage. Results of this survey will guide the purchase of available vegetables.

▶NATTC NORMAN—The training center's first Hobby Show opened during February with collections of art work, plane and ship models, and other handwork of 32 hobby riders. Displays range from crocheted afghans to shell jewelry to mounted fishing flies and bugs.

▶NAS NORFOLK—The tallest of all tales is circulating around this station. It seems the CO was conducting an inspection when he was attracted by an unusual insignia on the chest of one sailor. Dangling from one of the boy's three campaign ribbons was a Norfolk streetcar token.

"What's that?" the CO asked. "A campaign medal, sir," was the reply. "It's given to a sailor by other sailors for the battles of Norfolk, sir. When a sailor has boarded a streetcar downtown and gained a seat three times in succession, he is entitled to wear this medal."

▶NATB CORPUS CHRISTI—A new NATB aviation safety record has been made by Squadron 18-C at Rodd Field. Training operations for 18-C were conducted during January without an accident of any kind.

TOKYO TALKS

To The United States

The war situation on Iwo Jima has become very important to Japan. Although Japanese forces are putting up embittered resistance on the island, this is no indication that our forces consider the loss of Iwo Jima as a fatal military blow.

The original aim of the enemy's Iwo Jima operations was to secure bases for fighter planes and bombers. But it has been proved most vividly in Europe that victory cannot be attained solely by bombing.

To The United States

Iwo is only the advanced position of the Ogasawara group (Bonins). Behind it are scores of powerful fortifications which are watching the fighting on Iwo and calmly awaiting the best moment to strike. Behind these Ogasawara fortifications, there is the Imperial Navy, also waiting for the right opportunity for a decisive blow, having ignored two challenges made by the U. S. task force.

To The Japanese Empire

Commander in Chief of the Army forces on Iwo Island is Lt. Gen. Kuribayashi. He is found walking frequently with rubber-soled socks, without his sword, and with a stick in his hand. Although the terrain of the island is difficult to understand, Lt. Gen. Kuribayashi clearly has in mind exactly where each group of soldiers is located and where each encampment is to be found. The Commander knows his land so well that even should he be asked where a certain hole made by the rats is to be found, he would answer quickly without any hesitation.

In appearance, the Supreme Commander is on the slender-built side, wiry, with a round countenance, and his partly protruding belly is packed full of strong fighting spirit. The one word "Commander" will not describe our Supreme Commander fully. You get the feeling of being overpowered vigorously and forcefully by him as you face his presence.

The spirit of the Supreme Commander has been felt keenly by each soldier on Iwo Island. The Lieutenant-General said, "This island is the front line which defends our mainland, and I am going to die here."

To Japan

Hideo Tachibana, recently returned from Luzon, attributed the loss of air control over the Philippines to the rapid dissipation of aircraft. "We cannot help losing some in raids," said Tachibana. "Furthermore, many are damaged due to soft spots on front-line airfields. Consequently, the side that surpasses the other in the supply of follow-up planes to replenish the dissipation will secure control of the air.

"In landing on Lingayen, the enemy spitefully massed battleships, cruisers, and destroyers at the mouth of the bay, and shelled our positions. If we only had aircraft, if we had only had enough planes, we would certainly not have tolerated such action by the enemy fleet."

To The United States

As long as Japanese units are well entrenched on this island (Iwo Jima), there is a great disadvantage for B-29s heading toward our mainland from Saipan to carry out air attacks. They will certainly be caught by the surveillance of our units on Iwo Jima, and their attempt to raid the Japanese homeland will be instantly detected.

To Home Radio Audiences

We cannot relax our vigilance, for carrier planes are not only aiming at our air bases, but now at transportation facilities. Carrier bombers and fighters are small and speedy with high maneuverability. Suddenly appearing from behind clouds, they descend to a low altitude. The planes not only bomb but machine gun at low levels. Don't be on lookout duty when carrier planes attack. It is dangerous and useless against speedy planes. Many people spend practically whole days in shelters. This is to be expected in the future. We may have to spend most of our lives underground as was the case in Berlin.

To The Imperial Diet

In Washington, it is speculated that the push to the Japanese mainland will be attempted in the very near future; but everyone in informed circles believes that the objective of the main American strategy is aimed at the destruction of Japanese air operations by the establishment of frontline bases along the line from the Ogasawara Islands to Formosa and by the destruction of Japanese aircraft and munitions production facilities. Furthermore, an immediate push to the mainland would necessitate prolonged preparations on a gigantic scale.

To The Japanese Empire

America is suffering from considerable shortage of fighting men and manpower for war industry as the result of tremendous attrition in the war. The enemy is harrassed by difficulties in transporting to the front fighting men and commodities for war purposes. This accounts for America's frantic battles in the hope of bringing the war with Japan to an early end.

To Saigon

The people of Cochinchina in French-Indo China already have left for the southern and western provinces. Passengers in the railway stations engaged in disputes in the rush to buy tickets. Trains started and those who could not get tickets stood on platforms and gazed at the train with sad eyes. Husbands refused to take wives for walks in the city; parents reprimanded their children who wanted to go out. All people live in fear of an air-raid alarm.

To Japan

The officers and men at the front are more concerned about the homeland than about themselves. They are worried by the news that the raids on the homeland are getting more persistent.

To Empire Radio Audiences

At present, it is our job to turn the tide of the war, and it is a very important job. This we must accomplish, no matter how we go at it, even if we have to live in the dark and even if we have to subsist on rocks.

We are waiting to deal the devastating blow which, when brought down upon the over-elated heads of the enemy, will cause his defeat. Whether we will deal the enemy a complete and thorough blow, or a blow just enough to stop him, all depends on the determination and effort of the people.

To Chungking (*in Cantonese*)

The entire world is alarmed over the appearance of Japanese balloon bombs on the American mainland. Soon several millions of Japanese airborne troops will be able to land on the American mainland.

SHOW ME THE WAY TO GO HOME

Celestial Exercise

On 2 January, 1945, the navigator of a PBY whose ZT 2100 DR position was Lat. 29° 06′ N, Long. 163° 18′ E, on Cus 008°, PGS 96 k, took the following observations: I.C. –2′, Dome corr. –3′, watch error 15 seconds fast on ZT, Flight Altitude 15,000 ft.

BODY	SATURN	RIGEL	DUBHE
WT	20-50-20	20-55-10	21-00-11
hs	49° 29′	46° 08′	16° 57′

1. Saturn — hc——— Zn———
2. Rigel — hc——— Zn———
3. Dubhe — hc——— Zn———
4. 2100Zt Fx — Lat.——— Long.———

(Answers on page 40)

UNCLE KIM TUSSIE

ACTION REPORT: **We found it very effective to have planes join up as soon as possible after coming out of their dives. We had some very unusual things happen in this case. One of our planes joined up on three Japanese and went about 15 miles before he realized what was happening. He just did get home.**

HIT REMINDS me of the night the young Tussies and the young Van Horn bucks battled over the Short Branch gals. That was the night Cousin Fred's boy Nando got into sicha mess. It got so our Tussie boys couldn't go to Short Branch Church without thar bein follered by an infernal pack o' Van Horns. The Van Horns wuzn't interested in the Short Branch gals until our young bucks got interested in 'em and then they'd come every night to the revival meetins. They've got more good lookin gals on Short Branch than any creek among these hills. I've heard the boys say the Short Branch gals have more lovin kindness and they don't kick, bite, and fight like the gals on Whetstone, Coal Branch, Buzzards' Roost, and Big Laurel. After all o' these gals I saw, I couldn't blame our boys fer goin thar. And I couldn't blame th' Van Horns either. But the thing about hit wuz, our boys were a-goin thar first and the Van Horns tried to root 'em out. They'd come to the church and just stand around on one side the house and our boys 'd stand on th' other and when the meetin's over, our boys 'd beat 'em to the Short Branch gals.

But when one of our boys would start to take his gal to 'er shack, th' Van Horns would waylay 'im and give 'im a good beatin. They beat Cousin Tracey's boy Possum's face into a jelly one night. They slashed at Lief with a hawk-billed knife and ripped the tail of his coat as he cleared a fence a-gittin outten the way. Hit just got so bad our young bucks had to do somethin. They couldn't stand hit any longer.

I GUESS the Van Horns were a-thinkin the same thing as the Tussies, fer they come to the revival one night armed with clubs. They carried simmon and hickory clubs kivered with rough barks. I guess they thought

thar maulin our men with rough-barked clubs would hurt 'em more. And maybe hit was because they didn't have the pride our Tussies have in thar weepons. Our boys had popular, ash, willer and sycamore clubs all peeled and white and shiny in the moonlight. I guess hit was a sight to see our boys on one side the Short Branch church-house with peeled clubs and to see the Van Horns on the other with rough-barked clubs a-eyin each other and a-grittin thar teeth while the Short Branch gals were inside the church purt nigh skeered to death and th' preacher was standin in the pulpit a-preachin against trouble. He was a-astin fer peace on both sides. But hit had gone too fur fer peace. This was a night when they'd haf to fight to a finish and that's just what they done done.

When the clubs started popin against one another's skulls, shoulders, backs, legs and bottoms and the boys on both sides went after each other like wildcats everybody left the churchhouse. Th' ones that couldn't crowd out the door poured out at the windows.

Everybody tuck off but the Van Horns and the Tussies. Nando told me that when th' Tussies fit th' Van Horns they had blood in thar eyes. He said it didn't take 'em twenty minutes to let the Van Horns know who'd be a-takin the Short Branch gals home from now on.

Nando said our boys had agreed to get together atter th' battle ended. He said over half o' the Van Horns were sprawled on the ground and many o' the Tussies had been knocked out. He said thar was a lot of moans from th' clubbed men on both sides and a lot o' confusion. But he said they finally got the Tussies and the Van Horns parted.

NANDO said when he went away with his people over the mountain toward Coal Branch, a shower of sand rocks whizzed through the moonlight like a flock of fast-flyin bats a-bustin 'em right and left. Said one rock, that looked bigger 'n a cannon ball to 'im, just grazed his hip and a small sandrock busted into sand on the side of his head just above his ear. Said he didn't ketch on until everybody broke out into a run as the rocks kept a-comin. Nando said he looked around 'em at the clubs th' men were a-carryin and they wuz clubs with bark on 'em. Said they wuzn't peeled clubs and purty and white in th' moonlight. Said when he saw he was with the wrong crowd he just dropped behind and then started runnin toward his people.

Nando said that he was as weak as

three-ply herbs not from a-bein busted by the Van Horns' clubs but atter he was hit above the ear with that sandrock. Said he finally staggered back to his own people all pooped out and that he's a-goin to be shore the next time about the crowd he jined up with atter a fight.

Squadrons
LET NANEWS HEAR FROM YOU!

Check List for Air-Sea Rescue Equip

TO SAVE lives of its pilots and aircrewmen down at sea, the Navy has under way a program aimed to provide air-sea rescue equipment which may be dropped to them. Listed on these pages is the equipment contained in the new life rafts of the M-3 R series now being delivered to supply points. For convenience of personnel preparing requisitions, stock numbers are listed covering every item in the life rafts and the droppable equipment containers. Also listed are types of aircraft and the type raft each carries. The PK-1 Pararaft Kit is designed to replace the backpad kit and Spec. AN-R-2 pararaft. Necessary articles not included in the PK-1 are carried by the pilot in his flight clothing, listed on this page as "Pilot Personal Equipment." Delivery of the PK-1 to supply points is scheduled for April. The developments of additional droppable gear designed to meet current and future needs of the service is being conducted under cognizance of BuAer at a high priority.

Backpad Kit

- 3 Cans of Rations
- 1 Compass
- 1 Jungle Knife
- 1 Pkg. Salt Tablets
- Safety Pins
- Adhesive Tape
- 1 Signaling Mirror
- 1 Headnet
- 25 75# Test Line
- 2 Cans of Water
- 1 Fishing Kit
- 1 Poncho Cover
- 1 Can Sunburn Ointment
- 1 Pair Gloves
- 1 Jackknife
- 1 Whistle
- 1 Sharpening Stone
- 1 Burning Lens
- 1 Can of Gun Oil
- 1 First Aid Kit
- 1 Projector Kit

Pararaft Kit, PK-1

- 1 Raft
- 1 Sea Anchor
- 1 Hand Paddle
- 1 Poncho
- 1 Corner Reflector
- 1 Repair Kit
- 1 Can Sunburn Ointment
- 1 Water Storage Bag
- 1 Bailing Sponge
- 1 Can of Water
- 2 Desalting Kits
- 2 Sets Leak Plugs
- 50' Nylon Line
- 6 Safety Pins
- 2 Books Matches
- 1 Signaling Mirror
- 3 Dye Markers
- 3 Cans of Rations
- 1 Projector Kit
- 1 Survival Booklet

Mark 2 Life Raft

- 3 5' Oars
- 1 Hand Pump
- 1 Paulin (Mk 2)
- 1 Fishing Kit
- 1 Compass
- 1 Signaling Mirror
- 1 Jackknife
- 1 Whistle
- 1 Bailing Sponge
- 1 Fish Spear
- 1 Raft Repair Kit
- 4 Sets Leak Plugs
- 1 Sea Anchor (Mk 2)
- 1 Hammock-bed (Mk 2)
- 1 Corner Reflector

Pararaft

- 1 Bailing Sponge
- 1 Sea Anchor
- 2 Hand Paddles
- 1 Raft Repair Kit
- 3 Dye Markers
- 1 Can Water
- 2 Leak Plugs

ADR-1 Kit (Rations)

- 1 Solar Still
- 4 Desalting Kits
- 2 Cans of Water
- 6 Cans of Rations
- 1 Water Storage Bag
- 25' 75# Test Line
- 1 Jackknife

AR-2 Assembly

RAFT PACKAGE

- 1 Mk 2 Life Raft
- 3 5' Oars
- 1 Hand Pump
- 1 Paulin (Mk 2)
- 1 Fish Spear
- 1 Raft Repair Kit
- 4 Sets Leak Plugs
- 1 Sea Anchor (Mk 2)
- 1 Hammock-bed (Mk 2)

SHIPWRECK KITS (2)

Each Kit

- 1 2-Cell Flashlight, batteries
- 2 Spare Batteries
- 1 Spare Bulb
- 12 Cans of Rations
- 1 Compass
- 8 Safety Pins
- 5 Yds. Adhesive Tape
- 2 Signaling Mirrors
- 2 50' Coils 75# Test Line
- 4 Cans of Water
- 2 Fishing Kits
- 3 Cans Sunburn Ointment
- 2 Whistles
- 1 Jackknife
- 4 Graduated Drinking Cups
- 1 First Aid Kit
- 2 Projector Kits
- 12 Dye Markers
- 1 Blanket
- 8 Desalting Kits
- 1 Bailing Sponge
- 1 Poncho
- 1 Water Storage Bag
- 105' Floating Rope
- 12 AN-C-105 CO_2 Cylinders
- 10 MR1 Distress Smoke Signals
- 1 Solar Still

AR-4 Assembly

RAFT PACKAGE

- 1 Mk 4 Life Raft
- 3 5' Oars
- 1 Hand Pump
- 1 Paulin (Mk 4)
- 1 Fish Spear
- 1 Raft Repair Kit
- 4 Sets Leak Plugs
- 1 Sea Anchor (Mk 4)
- 1 Hammock-bed (Mk 4)

SHIPWRECK KITS (2)

Each Kit

- 1 2-Cell Flashlight, batteries
- 2 Spare Batteries
- 1 Spare Bulb
- 12 Cans of Rations
- 1 Compass
- 8 Safety Pins
- 5 Yds. Adhesive Tape
- 2 Signaling Mirrors
- 2 50' Coils 75# Test Line
- 4 Cans of Water
- 2 Fishing Kits
- 3 Cans Sunburn Ointment
- 2 Whistles
- 1 Jackknife
- 4 Graduated Drinking Cups
- 1 First Aid Kit
- 2 Projector Kits
- 12 Dye Markers
- 1 Blanket
- 8 Desalting Kits
- 1 Bailing Sponge
- 1 Poncho
- 1 Water Storage Bag
- 105' Floating Rope
- 12 AN-C-105 CO_2 Cylinders
- 10 MR1 Distress Smoke Signals
- 1 Solar Still

ent

Pilot Personal Equipment

- 1 Life Vest
- 2 Dye Markers
- 1 .38 Cal. Pistol
- 1 Shoulder Holster
- 1 Wrist Compass
- 1 Waterproof Light
- 1 Headnet
- 1 Fishing Kit
- 1 Giant Jackknife
- 1 Whistle
- 1 First Aid Kit
- 2 Distress Signals

Mark 2 Equipment Container

- 1 First Aid Kit
- 6 Cans of Rations
- 2 Cans of Water
- 2 Desalting Kits
- 2 Water Storage Bags
- 3 Dye Markers
- 8 Smoke Signals
- 1 Projector Kit
- 2 Headnets
- 1 Survival Booklet
- 1 Set Navigation Charts
- 100′ 75# Test Line
- 1 Plastic Cup

Mark 4 Equipment Container

- 1 First Aid Kit
- 12 Cans of Rations
- 4 Cans of Water
- 4 Desalting Kits
- 4 Water Storage Bags
- 3 Dye Markers
- 8 Smoke Signals
- 1 Projector Kit
- 4 Headnets
- 1 Survival Booklet
- 1 Set Navigation Charts
- 100′ 75# Test Line
- 1 Plastic Cup

Mark 4 Life Raft

- 3 5′ Oars
- 1 Hand Pump
- 1 Paulin (Mk 4)
- 2 Fishing Kits
- 1 Compass
- 1 Signaling Mirror
- 1 Jackknife
- 1 Whistle
- 2 Bailing Sponges
- 1 Fish Spear
- 1 Raft Repair Kit
- 4 Sets Leak Plugs
- 1 Sea Anchor (Mk 4)
- 1 Hammock-bed (Mk 4)
- 1 Corner Reflector

Mark 7 Life Raft

- 3 6′ Oars
- 1 Hand Pump
- 1 Paulin (Mk 7)
- 2 Fishing Kits
- 1 Compass
- 1 Signaling Mirror
- 1 Jackknife
- 1 Whistle
- 2 Bailing Sponges
- 1 Fish Spear
- 1 Raft Repair Kit
- 4 Sets Leak Plugs
- 1 Sea Anchor (Mk 7)
- 2 Hammock-beds (Mk 7)
- 1 Corner Reflector

Mark 7 Equipment Container

- 1 First Aid Kit
- 21 Cans of Rations
- 7 Cans of Water
- 7 Desalting Kits
- 4 Water Storage Bags
- 3 Dye Markers
- 8 Smoke Signals
- 1 Projector Kit
- 4 Headnets
- 1 Survival Booklet
- 1 Set Navigation Charts
- 100′ 75# Test Line
- 1 Plastic Cup

AR-7 Assembly

RAFT PACKAGE

- 1 Mk 7 Life Raft
- 3 6′ Oars
- 1 Hand Pump
- 1 Paulin (Mk 7)
- 1 Fish Spear
- 1 Raft Repair Kit
- 4 Sets Leak Plugs
- 1 Sea Anchor (Mk 7)
- 2 Hammock-beds (Mk 7)

SHIPWRECK KITS (4)

Each Kit

- 1 2-Cell Flashlight, batteries
- 2 Spare Batteries
- 1 Spare Bulb
- 12 Cans of Rations
- 1 Compass
- 8 Safety Pins
- 5 Yds. Adhesive Tape
- 2 Signaling Mirrors
- 2 50′ Coils 75# Test Line
- 4 Cans of Water
- 2 Fishing Kits
- 3 Cans Sunburn Ointment
- 2 Whistles
- 1 Jackknife
- 4 Graduated Drinking Cups
- 1 First Aid Kit
- 2 Projector Kits
- 12 Dye Markers
- 1 Blanket
- 8 Desalting Kits
- 1 Bailing Sponge
- 1 Poncho
- 1 Water Storage Bag
- 105′ Floating Rope
- 12 AN-C-105 CO_2 Cylinders
- 10 MR1 Distress Smoke Signals
- 1 Solar Still

AR-10 Assembly

RAFT PACKAGE

- 1 AR-10 Rescue Boat
- 2 Pumps
- 1 Repair Kit
- 1 Bailing Sponge
- 1 Suit Sails
- 1 Telescopic Mast
- 1 Rudder Assembly
- 4 Sets Leak Plugs
- 1 Protective Cover
- 2 Hammock-beds (Mk 10)
- 1 Awning
- 1 Bailing Bucket

SHIPWRECK KITS (2)

Each Kit

- 1 2-Cell Flashlight
- 2 Spare Batteries
- 1 Spare Bulb
- 12 Cans of Rations
- 1 Compass
- 8 Safety Pins
- 5 Yds. Adhesive Tape
- 2 Signaling Mirrors
- 2 50′ Coils 75# Test Line
- 4 Cans of Water
- 2 Fishing Kits
- 3 Cans Sunburn Ointment
- 2 Whistles
- 1 Jackknife
- 4 Graduated Drinking Cups
- 1 First Aid Kit
- 2 Projector Kits
- 12 Dye Markers
- 1 Blanket
- 8 Desalting Kits
- 1 Bailing Sponge
- 1 Poncho
- 1 Water Storage Bag
- 105′ Floating Rope
- 12 AN-C-105 CO_2 Cylinders
- 10 MR1 Distress Smoke Signals
- 1 Solar Still

MOTOR PACKAGE

- 1 9.7 H.P. Motor
- 1 Motor Mount

FUEL CONTAINER PKG.

- 1 7-Gallon Fuel Bag

ADS-1 Kit (Signaling)

- 6 Smoke Signals
- 6 Dye Markers
- 1 Projector Kit
- 1 Mirror
- 1 Whistle
- 1 2-Cell Flashlight
- 25′ 75# Test Line

Emergency Radio Transmitter SCR-578A or B

- 1 Radio Transmitter
- 1 Inflation Tube
- 1 Parachute
- 1 Hand Crank Antenna Line
- 1 Box Kite
- 1 Signal Light
- 1 Set Instructions
- 2 Balloons
- 2 Hydrogen Generators
- 1 Extra Reel Antenna

Complement List of Air-Sea Rescue Equipment for Planes and Ships

FM, F6F, F4U, FG —Pararaft, backpad kit, pararaft kit, (PK-1) (*see note 1*); pilot personal equipment. Available: droppable assemblies ADR-1, ADS-1.

SBD —Pararaft and backpad kit for pilot only, 2 pararaft kits, 2 pilot personal equipment, Mk 2 raft, Mk 2 equipment container.

SB2C —Pararaft and backpad kit for pilot only, two pararaft kits, two pilot personal equipment, Mk 2 raft, Mk 2 equipment container. Available for use: AR-2 and AR-4 droppable rescue assemblies.

TBF and TBM —Three pararafts, one backpad kit for pilot, three pararaft kits, three pilot personal equipment, Mk 4 raft, Mk 4 equipment container. Available: droppable rescue assemblies (*see note* 2).

OS2U and OS2N —Pararaft Kit and backpad kit for pilot only, two pararaft kits, two pilot personal equipment, Mk 2 raft, Mk 2 equipment container.

SC—Pararaft, backpad kit, pararaft kit, pilot personal equipment.

PBY and PBN —Mk 4 raft, Mk 7 raft, Mk 4 and Mk 7 equipment containers. Available for use: AR-2, AR-4, AR-7, AR-10, Gibson Girl radio (SCR-578) and floating lantern.

PBM—Three Mk 4 rafts, 3 Mk 4 equipment containers. Available for use: AR-2, AR-4, AR-7, AR-10, Gibson Girl radio, floating lantern.

PB2Y—Two Mk 7 rafts and equipment containers. Available for use: Gibson Girl radio, floating lantern.

PV—Mk 4 raft and equipment container. Available: AR-2, AR-4, AR-7, AR-10, Gibson Girl radio, floating lantern.

PB4Y—Two Mk 4 rafts and equipment containers. Available for use: AR-2, AR-4, AR-7, AR-10, Gibson Girl radio, and floating lantern.

PBJ—Mk 4 raft and equipment container. Available for use: AR-2, AR-4, AR-7, AR-10, Gibson Girl radio, and floating lantern.

VH-RONS —Available for use: AR-2, AR-4, AR-7, AR-10, signaling kits (ADS-1), ration kits (ADR-1), Gibson Girl radio, floating lantern.

CV—Available for use: AR-2, AR-4, AR-7, AR-10, signaling kits, ration kits, Gibson Girl radio, floating lantern.

BB and CA —Available for use: signaling kits, rations kits, Gibson Girl radio and floating lantern.

AVP—Available for use: Mk 4 and Mk 7 rafts and equipment containers, AR-2, AR-4, AR-7, AR-10, signaling kits, ration kits, Gibson Girl radio, floating lantern.

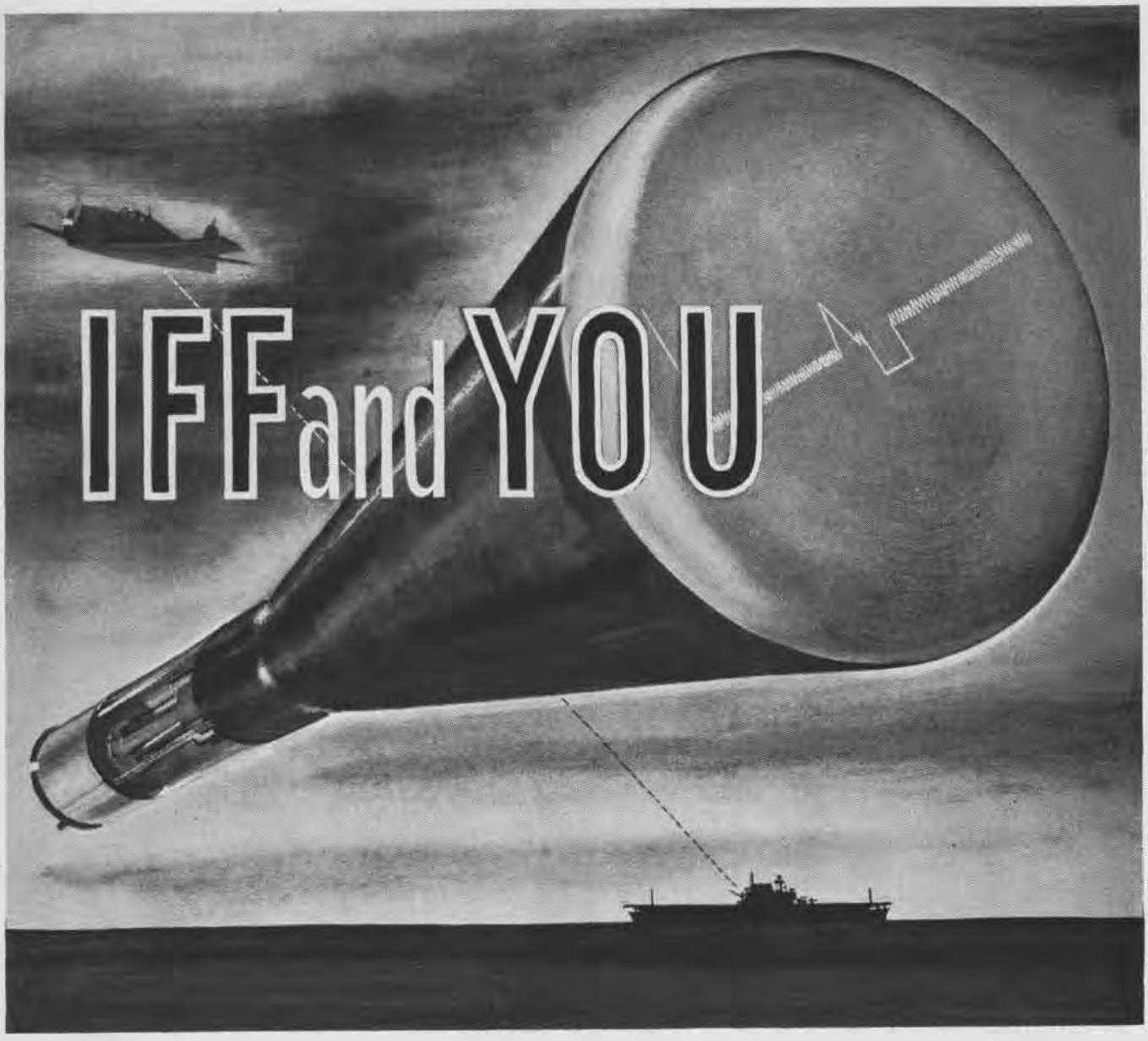
NOTE 1: Model PK-1 pararaft kit will replace the pararaft and backpad kit when available. Use of PK-1 kit is mandatory for VF class planes and for SC aircraft. Its use in VSB, VTB, VPB, and VOS classes is authorized.

NOTE 2: All droppable gear, the AR-2 through AR-10 rafts, are available for use. The number of types of these items a plane carries depends on its mission.

Use These Data for Ordering Equipment to Bring Rescue Gear Up to Date

Item	Stock No.	Specification
Life Raft, Parachute Type, Seat Pack	R83-R-15650	AN-R-2
Sponge, Bailing	R83-S-648500	L-S-626 Size 4
Anchor, Sea (Pararaft)	R6-A-1950	AN-R-2
Anchor, Sea (Mk. 2 raft)	R6-A-1960	M-3r
Anchor, Sea, (Mk. 4 raft)	R6-A-1970	M-3r
Anchor, Sea (Mk. 7 raft)	R6-A-1980	M-3r
Paddles, Hand	R83-P-48000	AN-R-2
Kit, Raft Repair (Pararaft)	R83-K-710165	AN-R-2
Pack, Dye Marker	R37-P-25	M-566
Water, Emergency Drinking	R51-W-135	AN-W-5
Plugs, Leak	R83-P-408550	AN-R-2 & M-3r
Kit, Parachute, Back Pack	R83-K-520100	M-592
Rations, Tablet	R56-R-6300	M-539b
Compass, Magnetic Card Type	R88-C-786	SQ-127A
Knife, Utility		BuAer Dwg.#8662
Adhesive Tape, Salt Tablets & Safety Pins		M-592
Mirror, Signaling	R83-M-525520	M-560a
Hat, Headnet, Protective	R83-H-20000	M-565a
Twine, Cotton Line	21-T-165	T-T-881 No. 72
Kit, Fishing	R37-K-110	M-627
Poncho-Raft Cover		P-61
Ointment, Sun Protective		M-592
Gloves, Canvas		73G3
Jackknife	R41-K-365	M-575
Whistle, Plastic	74-W-75	74W1 (INT)
Stone, Sharpening		SS-S-736 Type II
Lens, Burning		M-592
Oil, Gun		M-592
Kit, 1st Aid, Type A	R57-K-8525	57-K-1
Kit, Pyrotechnic	R83-K-718309	M-592
Kit, Pararaft, PK-1	R83-K-709965	M-641
Poncho		BuAer Dwg.#9217
Target, Corner Reflector (Pararaft)	R83-R-AN-MX-137/A	M-618
Bag, Water Storage	R83-B-30175	BuAer Dwg.#8985
Kit, Seawater, Desalting	R83-K-511000	M-613a
Cord, Nylon		AN-C-63, Type I
Survival Booklet	Publication NavAer 13-1-501	M-3r
Vest, Pneumatic Life	R37-J150-75	AN-V-18
Flashlight, Plastic Watertight (1 cell)	17-L-11793	17-L-16(INT)
Jackknife, Giant		BuAer Dwg.#9253
Kit, First Aid (Personal Issue)	S2-1063	
Signal Distress Smoke	11250B	
Raft, Life Pneumatic (Mk. 2)	R83-R-15510	M-3r
Raft, Life Pneumatic (Mk. 4)	R83-R-15530	M-3r
Raft, Life Pneumatic (Mk. 7)	R83-R-15570	M-3r
Oars, Metal, Sectional (5')	R83-O-4010	M-162b
Oars, Metal, Sectional (6')	R83-O-4020	M-162b
Pump, Hand	R11-P-562	AN-P-48a
Paulin, Life Raft (Mk. 2)	R83-P-92000	M-616a
Paulin, Life Raft (Mk. 4)	R83-P-92010	M-616a
Paulin, Life Raft (Mk. 7)	R83-P-92020	M-616a
Spear, Fish	R83-S-648150	S-146
Kit, Raft Repair (Multi-place rafts)	R83-K-710150	M-3r
Hammock-Bed Mk.2	R83-H-50000	M-3r
Hammock-Bed Mk.4	R83-H-50010	M-3r
Hammock-Bed Mk.7	R83-H-50020	M-3r
Target, Corner Reflector (Multi-place rafts)	R83-R-AN-MX-138/A	M-619
Chart Set, Navigation	R83-C-22310	
Cup, Plastic Drinking	R83-C-81525	
Kit Shipwreck	R83-K-710308-10	M-554b
Flashlight, Plastic Watertight (2 cell)	17-F-13550	17-L-16
Batteries, Dry, Type C	17-B-7210	17-B-7
Blanket, Wool	27-B-740	27B7
Rope, Floating		M-594b
Cylinders, 2.80 oz. CO_2	R51-C-1951	AN-C-105
Still, Sun	R83-S-793050	BuAer Dwg.#9235
Kit, Signaling Model ADS-1	R83-K-710309-10	
Kit, Sustenance Model ADR-1	R83-K-710309-40	
Radio Transmitter, Emergency SCR/578b	R16-T-9169	
AR-2 Assembly	(See Note 1)	
AR-4 Assembly	(See Note 1)	
AR-7 Assembly	(See Note 1)	
AR-10 Assembly	R83-R-350800	
(a) Raft Pkg.	R83-B-502050	
(b) Motor Pkg.		
(1) Motor Mount	R83-M-765025	
(2) Motor	R10-E3565	
(c) Full Pkg.	R83-T-1805	

NOTE 1: These units are to be assembled in service using the rafts and shipwreck kits designated which are available at supply points.



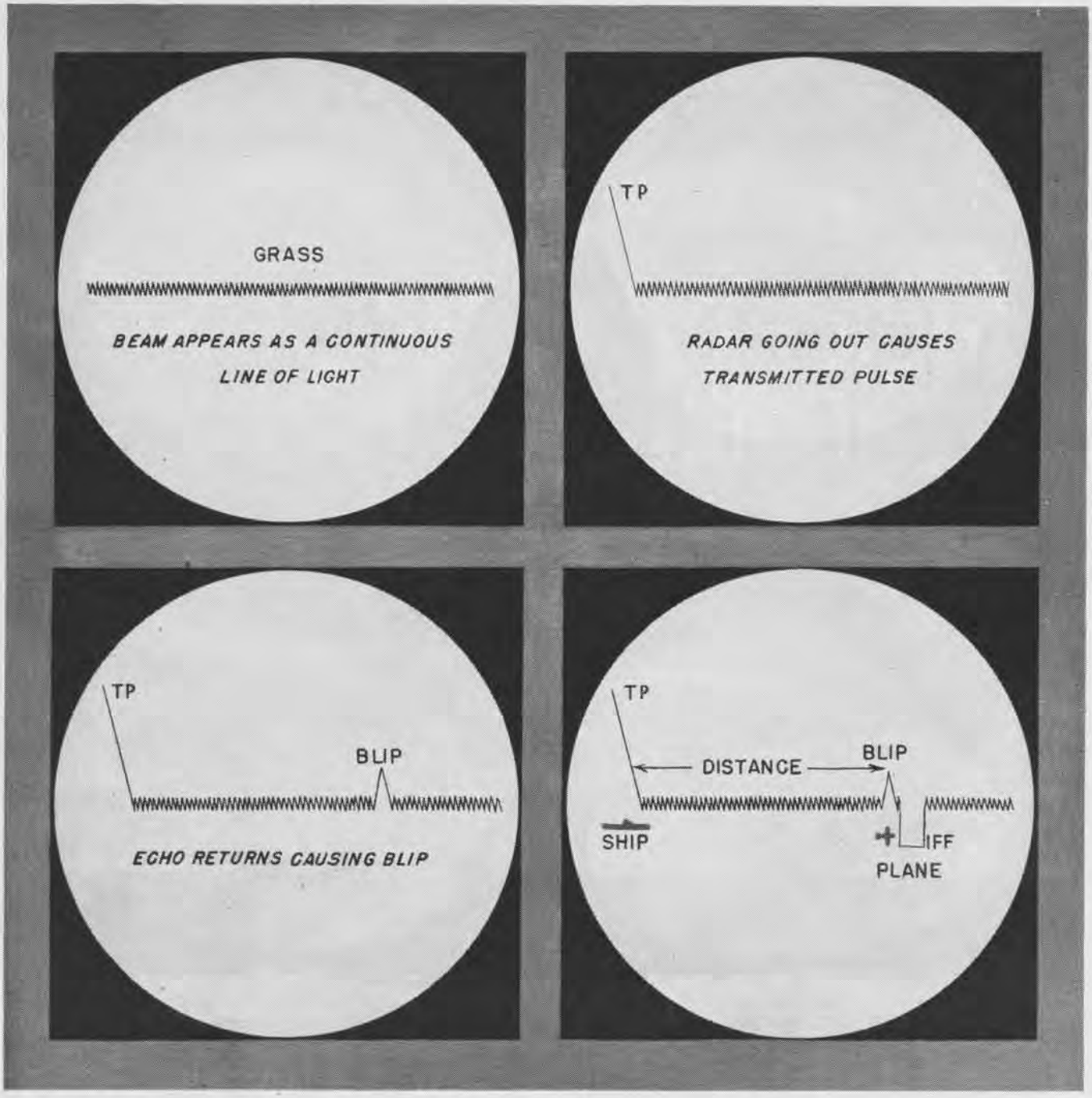
Identification Friend or Foe

Special Application Of Radar Gave The Pilots A Means Of Identifying Themselves To Friends

A SIMPLIFICATION in language of electronics was made by radio technicians when these men coined the word: RADAR. It was taken from the phrase: "Radio Detection and Ranging." The same kind of simplification resulted in the new term: IFF which signifies: "Identification, Friend or Foe."

IFF is nothing more than special application of a radar principle, but its value to the pilot cannot be overemphasized. To understand the importance of his IFF so that he will never forget to use this special recognition system, the pilot must have a thorough understanding of radar. Human nature being what it is, men find it easier to remember and to use something they understand. But, since many facts about IFF possess top military security, only an over-all idea of how it works can be given here.

A swiss yodeler who sends his voice out against a mountainside and hears an echo, is doing very much the same thing that radar accomplishes. If the Swiss could measure the time it takes his echo to get back, and if he knew the speed of sound, he could calculate his distance from the mountain. Scientists who developed radar employed the yodeler's principle, and found an accurate yardstick for measuring the split second that elapses before the echo returns to them.



YARDSTICK BEAM ON TUBE TELLS DISTANCE

RADAR sends out pulses of electrical energy that resemble beams from an ordinary radio station, except that the wavelength is much shorter. Use of very short waves has made it possible to concentrate this electrical energy into a narrow beam. The device that focuses such waves into a beam is a special antenna.

Any object in the path of this radar beam reflects the energy back to the radar set in the form of an echo. Thus, a radar set works by continually transmitting a short pulse of energy, receiving its echo, sending out another pulse, getting its echo and so on, the cycle out and back being repeated many times a second. Since radio waves travel with the speed of light (approximately 162,000 nautical miles a second), time elapsing between the original pulse and its echo is extremely short.

As an example, the echo from an object 81 nautical miles away would return in 1/1000th of a second. The yardstick used to measure this interval is a cathode ray tube.

Beam Plays Across A Cathode Ray Tube

An easily controlled beam of electrons plays across the surface of the tube very much like the electric arc that could be created by holding the ends of a live wire a short distance apart. This beam, or trace of light, sweeps back and forth so rapidly that it appears to the eye as a continuous bright line on the face of the tube.

When a radar pulse goes out, it causes the light trace to bend up into a pronounced peak at the left side of the cathode ray tube. The sharp peak is called a transmitted pulse. When the echo returns, it causes a second peak in the trace known as a blip, smaller than the transmitted pulse.

THROUGH THE EYES OF HIS RADAR SET THE OPERATOR ABOARD SHIP CAN SEE FAR AFIELD AND CAN RECOGNIZE A FRIEND OR FOE

ECHO RETURN OF A RADAR PULSE CAUSES BLIP IN THE BEAM

A YARDSTICK without markings is of little value. These markings, which make the cathode ray tube function for radar as a measure of distance, are the transmitted pulse, and the blip. When the echo returns to the radar set and causes a blip in the trace, the radar operator measures the distance between the transmitted pulse and the blip, and can tell at what distance his radar waves found the object that sent back the echo.

Measurement of the indicated distance is done with great accuracy and speed. One of the latest methods of doing this is a radar set so designed that the operator can crank a marker back and forth across the trace. When a blip shows on the trace he moves the marker to it, and a dial somewhat like that of a speedometer shows automatically the exact distance to the object sending the echo.

The transmitted pulse and the distance blip apply to all radar, and not specifically to IFF. Something more was required for this identification system.

There are two big questions that ordinary radar can not answer.

THE SHIP GUNNER'S: How can I tell whether that speck in the distance is friend or foe *before he gets close* enough to hurt us?

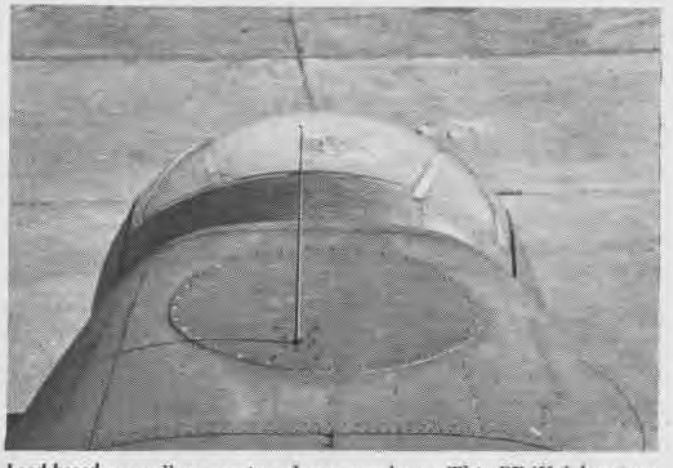
THE PILOT'S: How can I be sure our fellows won't *mistake me* for a Jap and shoot me down?

Transpondor In Cockpit Adds One Blip

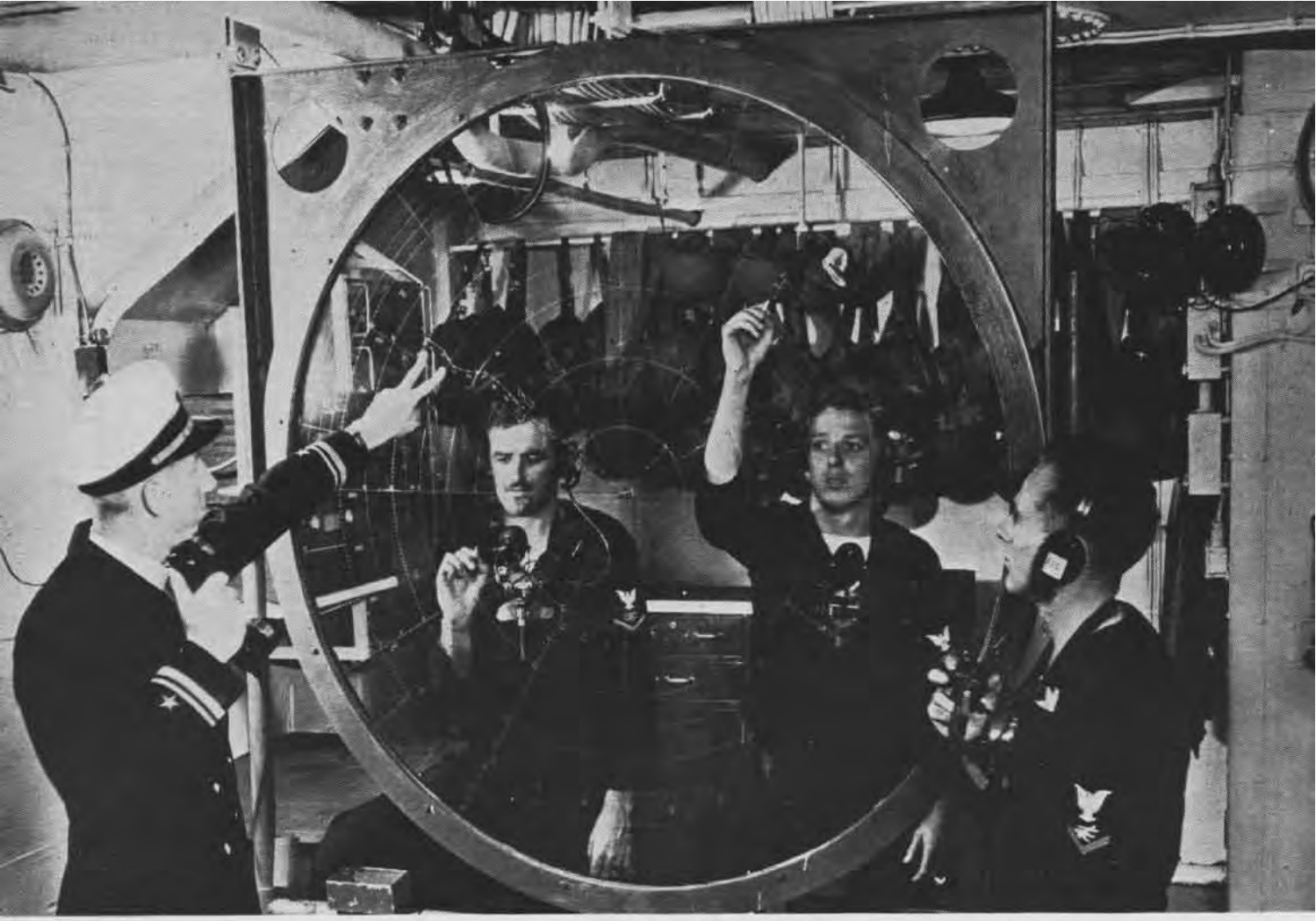
Ordinary radar could only show that a plane was coming toward the ship, and was at a stated distance. But IFF had an answer to both questions. It added a second blip to the trace of light on the cathode ray tube.

To add this second echo, an instrument known as a TRANSPONDOR was placed in the cockpit. If the pilot has his own transpondor turned on, his ship's radar operator can recognize him by flipping a switch on the radar set. This makes the transpondor send back an *extra pulse* to the ship's radar.

Echo of ship's radar pulse returns if IFF, showing at left of the picture, is turned on. In PB4Y-1 box is at left of pilot's position



Land-based as well as carrier planes need IFF. This PB4Y-1 has two IFF antennas, one aft of nose turret, the other aft of plane's wings



When planes of a carrier task force execute a strike on the Japs, radar's keen eyes are able to follow their progress. On plotting boards like this, tracks are kept of both friendly and enemy planes

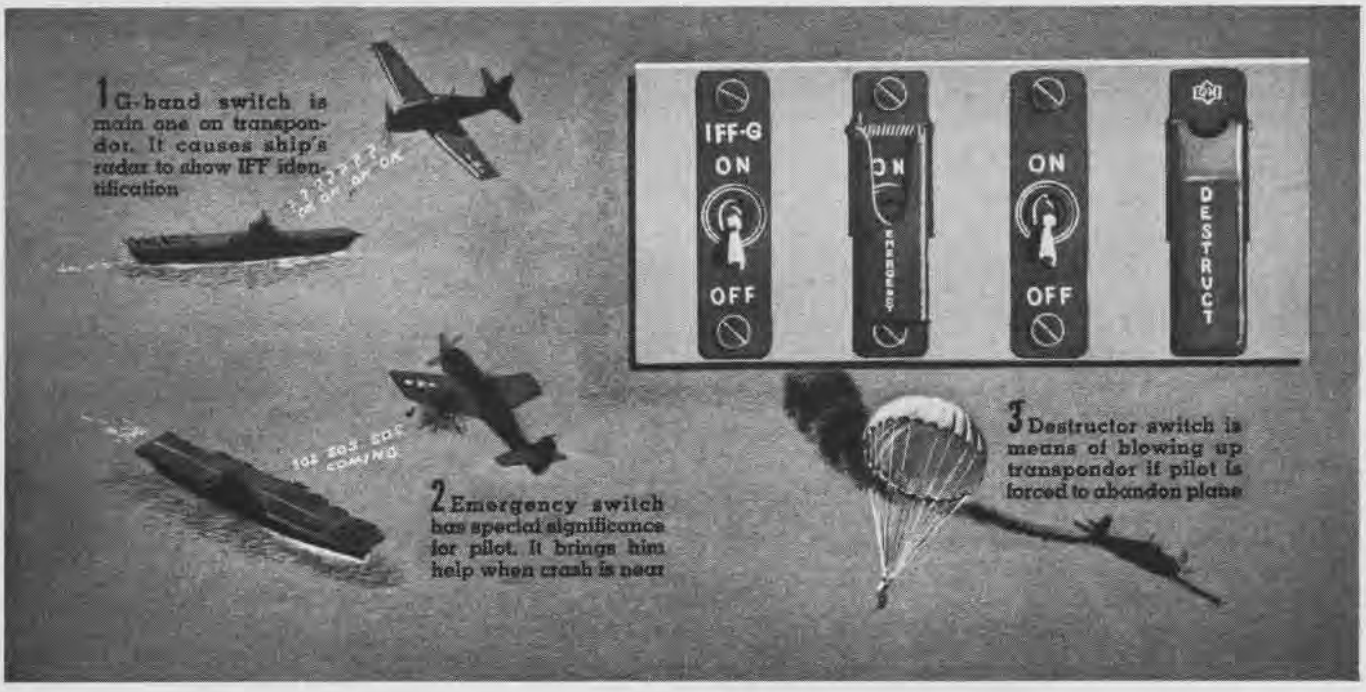
From the carrier's radar antennas, pulses of energy go out to any approaching plane. Friendly planes are equipped with transpondors which bounce back an echo if their IFF is turned on

3 SWITCHES IN EACH CONTROL THE PILOT FINDS A VALUABLE ALLY

A PILOT needs no special training to operate his IFF equipment. Anyone who can switch on the light in his own living room can operate an IFF transpondor. What the pilot needs to know principally is the location of three main switches, and he should cultivate the habit of remembering to use them when the occasion requires it.

▸ FIRST SWITCH. This switch turns on the transpondor so that the *ship's* radar will show a special IFF blip. There are no dials to turn; nothing for the pilot to do except flip one small switch. The transpondor does the rest because it is automatic, and tunes itself to the right frequency.

▸ SECOND SWITCH. This is the emergency switch, and every pilot should remember it. When he seems headed for a water landing, or some other trouble, the emergency switch is a *friend* indeed. As soon as he turns it, the transpondor begins sending out a steady sos of its own; one which is recognized easily by any radar operator for miles around. It is more than probable help will be on the way soon. It may come from the nearest land, from surface craft, from other aircraft or perhaps from all three.



Destructor Switch Melts Wires In Set

▸ THIRD SWITCH. Here is the last switch the pilot needs to remember. It is called the DESTRUCTOR switch. No pilot will ever want to use the destructor because he flips the third switch only when his plane is washed out, and is likely to fall into *enemy* hands.

Although the pilot will hardly ever be injured when he flips the destructor switch, it is just as well to exercise some degree of caution. The switch sets off a small charge of explosive inside the transpondor case. This itself will not hurt anyone, but it fuses fine wire circuits through the center of the transpondor mechanism and fouls up a set so it can never be used by the enemy, or anyone else. Only failure of explosion can keep the device from working.

Caution should be used, however, because when the small explosion takes place, the transpondor case usually is buckled out of shape. When the case buckles, screws that hold it together may fly out like buckshot with sufficient force to make things unpleasant for the pilot should he have his face or arm in line with flying screws.

Switch Panels Vary With Type of Plane

Several different types of IFF switch panels are used in Navy planes, and a pilot would do well to familiarize himself with the types he will be most likely to use.

DAY FIGHTERS. Two types are used in these. Many still have an earlier model switch panel with the G-band IFF at extreme left. Next to it is an emergency switch, covered by a green guard. Third from left is power control switch, covered by red guard. A new type switch panel has the IFF at left, destructor switch at extreme right, and selector-type switch in center. This can be turned to an emergency position by pushing down a safety latch. The G-band IFF serves an important function. This device has the ability to *identify* fighter pilots to their *own* intercept officers.

NIGHT FIGHTERS. These use a different switch panel. It has the G-band IFF switch at the upper right corner of the panel, the emergency switch with safety latch near the center, and the destructor switch at lower left.

BOMBERS. The night fighter type of switch is used in a majority of bombers. However, new carrier-based ones with radio and electrical consoles have special ones. These have the G-band IFF switch at upper left, emergency switch at upper right, and the destructor switch is at the lower right.

Observe Classification

All of the illustrations and text used in this article have been cleared for use in a restricted publication such as NANEWS, but this classification must be strictly observed. For more complete details and technical information on IFF and radar, consult *Confidential Bulletin*, other confidential sources.

CARRIER PILOT. IFF insures fighting pilots against being shot down by the antiaircraft gunners stationed aboard their own ships

INTERCEPT OFFICER. IFF saves time for the intercept officer. Instead of wasting it chasing bogeys, he can use planes in combat

SAFETY PILOTS WHO REMEMBER IFF, PROTECT THEMSELVES AND THEIR SHIP

NO CHAIN is stronger than its weakest link. For IFF the weak spot is the human element. In one area where a study was made, and an IFF efficiency of only 75 percent was found, forgetfulness on the part of the approaching pilot was discovered to be the most common cause of failure. A ship's radar has no brains. It will show ships and planes regardless of whether they are friendly or hostile. But this is not true of IFF. This efficient identification system can tell a friend from an enemy, every time, providing the friend cooperates.

SHIP'S COMPANY. IFF provides greater security for the ship's company. It safeguards them against a possible attack by friends

Many a Jap has been knocked down by the ship's guns before he was close enough to damage the vessel, because of the IFF system.

More than one American pilot has been fished out of the English channel because he used his IFF emergency switch before he hit the drink. In such cases two different shore stations picked up the emergency call, made an accurate fix on the downed pilot's location and summoned help from the nearest surface craft.

Flying Time Can Be Saved For Combat

For the PILOT, IFF offers security against being shot down by his own ship's batteries or by friendly night fighters. It saves him from being sent away on a long, tiresome, wild-goose chase after some unidentified plane which turns out to be friendly bogey with his IFF shut off.

For the INTERCEPT OFFICER, IFF is equally valuable. It enables him to use more effectively the precious hours of possible flying time of his pilots and aircraft. Instead of squandering these hours in exploration flights after unidentified planes, he can devote them to fighting, and to protecting the fleet.

For the SHIP'S COMPANY, IFF offers greater security against attack from the air, and it removes the possibility of being sunk by friendly ships, or friendly bombers and torpedo planes.

The IFF apparatus itself is good enough to give almost perfect efficiency. Like any other gear it requires regular maintenance and inspection to keep it operating. But such maintenance is not difficult.

▸ Perfection mechanically is not enough. The system also must be perfect operationally—not fairly good, but 100 percent reliable. It can be ruined by carelessness, because if confidence in IFF starts breaking down, the entire system could ultimately become of little value.

Operators in the ship's radar room are doing their job, and so are the manufacturers of IFF equipment. The case rests with the pilot. He needs only to *remember* his switches.

IFF AND YOU. Waiting below the returning pilot is a gun crew. It is an alert group of fighting men upon whose shoulders rests the responsibility of protecting their ship and its people. Among the other methods now utilized for identification are such devices as blinkers and approach procedures, all of which should be employed when necessary. But none of these will go out beyond the range of human eye and ear and spot a plane before it is visible. There is a way by which gunners can learn whether it is a foe or friend. That way is IFF. Their's is the responsibility. The pilot who forgets to switch on his IFF leaves them little choice

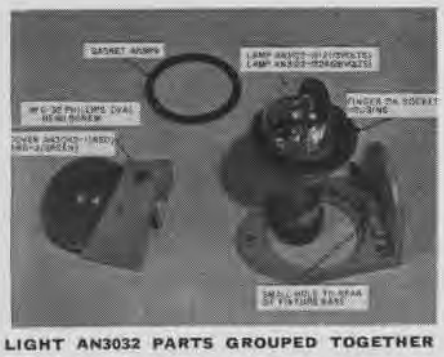
TECHNICALLY SPEAKING

Preventing Cover Glass Failure

BuAer has received complaints that lamp and cover glass failures have been excessive on some aircraft. It is believed most of the failures may be caused by improper alignment of the lamp socket in the fixture base. The following precautions should be taken in assembling the light:

1. The finger on the socket housing MUST be inserted in the small hole to the rear of the fixture base. This finger has in some cases been improperly installed. If it rests on top of the fixture base, lamp alignment is improper and cover failure may result.

2. Gasket AN889-1 should be installed below the cover glass and on top of the rocket housing.



LIGHT AN3032 PARTS GROUPED TOGETHER

Standard Goggles Need A Trim

Because standard AN6530 goggles do not integrate well with the helmet and oxygen mask for all pilots, trimming such goggles to fit snugly against both helmet and mask is recommended. As issued, the goggles frequently overlap. This overlapping will allow air to enter and interfere with the safe use of an oxygen mask. This situation can be remedied by trimming goggle cushions to fit the individual.

- FIRST: Put on helmet and mask of correct size, and adjust them properly.
- SECOND: Put on goggles, allowing mask and helmet to overlap goggle cushions.
- THIRD: With pencil, mark outline of helmet and mask on goggle cushion.
- FOURTH: Remove goggles and with sharp razor blade or knife, trim slightly outside of pencil marks.
- FIFTH: Repeat second and third steps, trimming to final contour.

While the new single aperture goggle bearing the AAF designation B-8, soon to become available, should be an improvement over AN6530, overlapping portions of cushion on these also can be trimmed to fit individual needs by following the same procedure.

An improved goggle known as Mk. 4 has been developed but is available now only in limited quantities. This goggle is designed to give wider visual field, and when procured for general issue will have a redesigned cushion shaped to integrate with the oxygen mask and helmet in most cases without trimming.

B-8, LOWER RIGHT, SOON WILL BE ISSUED

Of the four sets of goggles shown in the photograph, the redesigned Mk. 4 is shown at lower left and B-8 at lower right. In upper row, at left, is Mk. 4 before it was redesigned and at right, AN6530.

Fleet reaction on the Mk. 4 as compared to B-8 will be appreciated.

MARKING CUSHION RESULTS IN TIGHT FIT

Fan Run by Air to Cut Hazard

HEDRON 9-1—To eliminate hazards of painting in closed compartments, an explosion-proof exhaust fan has been developed in this squadron that is both simple to construct and made of easily accessible materials. Since the fan is propelled by air pressure, sparks encountered with an electric fan are eliminated.

Parts necessary for construction are a standard pneumatic drill, fan and guard, piece of ¼" drill rod 3" long, piece of scrap iron 1½" wide and long enough to be fashioned into a stand. The v-shaped bar should be high enough so the fan guard clears the base. The bar can be bolted or welded to a base.

[DEVELOPED BY LT. HARRY P. BROWN]

SPARK-PROOF FAN FINDS USE IN PAINTING

▶ ***BuAer Comment*—This application of air pressure for operation of an exhaust fan is a good idea if a requirement for an explosion-proof fan should arise where a standard one of commercial manufacture is not immediately available.**

CASU Has Distress Signal Kit

CASU-27—A small compact distress signal kit, containing a Very's pistol, six red Very's cartridges and two CO_2 cylinders for the life jacket, has been devised by the parachute loft.

The kit, which is sewed to the leg of the aviator's coverall or flight suit, has been well received by all pilots. Nearly 200 have been made and orders are still coming in.

▶ ***BuAer Comment*—CASU-27's kit is practical for local manufacture. However, it is felt it should include all or most of the other available items of equipment for night and day signaling. BuAer has under consideration a lightweight nylon vest to include one signal mirror, three distress smoke hand signals Mk 1, two distress signals, 2-star red T49, one signaling whistle, one .38 cal. revolver and 12 rounds of .38 cal. tracer ammunition carefully fitted.**

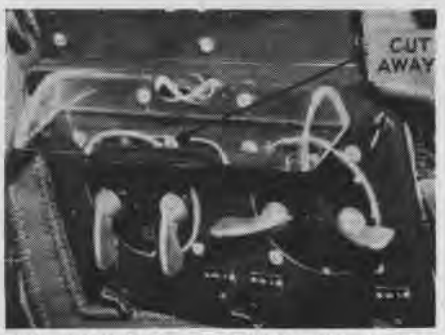
Master Switch Guard Modified

Information received by BuAer indicates that in some models of PB4Y-1 aircraft immediate access to the emergency battery and ignition master switch is difficult because a safety guard, designed to prevent accidental pressure on the switch, is mounted so close it is difficult to get hand underneath. This condition could become acute in an emergency, especially if gloves were worn.

If the guard is too near the switch, the following correctives suggested by NAS, HUTCHINSON are recommended:

1. Relocate the switch guard mounting holes to positions ¾ inch higher on the ignition switch box cover.

2. Cut away a section of the lower center portion of the plastic guard, 4½ inches long by ½ inch deep, rounding the corners.



CUT AWAY GIVES ADDITIONAL HAND ROOM

Tail Lights Fail Due to Shock

Reports from operating units state that lamps AN3121-313 (28-volt, 0.17-lamp) used in rudder-mounted tail lights on SB2C and TBM airplanes have been failing under the shock and vibration experienced in operations. To replace those lamps, a new model, Mazda 1839 (6.3 volt, .68 amp) Navy Stock List No. R17-L-6626, has been developed.

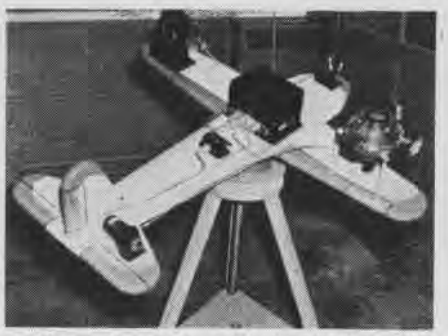
Certain modifications to the standard tail light fixture are necessary to make these new lamps adaptable for use in aircraft now in service. These are given in detail in an article titled, "Tail Light Failures," in *Airborne Electric Maintenance Notes* (NavAer 08-1-507), Issue No. 7, pages VIII-22, 23.

The above reference specifies the use of a voltage-dropping resistor (ASO Stock #R16-R-97112) of 31.5 ohms plus or minus 6 percent to cut line voltage to 6.3 volts at the lamp. Subsequent tests have shown, however, that a standard resistor of 30 ohms, 20 watts (NAF NO. 213672-30) is satisfactory for this purpose and may be used whenever the special resistor is not available.

New Flux Gate Compass Trainer

The Flux Gate Compass Trainer (1-CB-1), produced by BuAer's Special Devices Division, facilitates the training of flight personnel in the operation of the Gyro Flux Gate Compass. The latter is a remote indicating compass designed to apply the advantages of the gyroscope to the compass.

The trainer is incorporated in the training syllabus for Instrument Course No. 2, prepared by the Aviation Training Division. It consists of a wooden mock-up of a plane mounted on a pedestal so it may turn, bank, climb or dive. By maneuvering the mock-up and observing corresponding reactions in the operational gear attached, the student can more easily obtain the working knowledge of the component parts and their functional relationship that is essential to the intelligent use of the flux gate compass. Its maneuverability also makes the device an effective aid in maintenance training. Operational equipment that can be demonstrated with the trainer includes transmitter, amplifier, master indicator, repeater indicator, caging switch and caging motor.



DEVICE CAN TURN, BANK, CLIMB OR DIVE

Man With Dolly Does Work of 3

CASU 13—Because the relatively small steel casters on large jacks do not roll readily over rough coral hard-pan, two enlisted men in this unit devised a time-saving towing method using rubber tired bomb truck wheels.

TIRES SAVE LABOR IN TOWING BIG JACKS

With this dolly, one man can do a job that formerly required at least three.

[Designed by J. D. Anderson, AM3c]

▶ ***BuAer Comment*—One small bomb truck would furnish wheels for two units.**

New Knob Cuts Chance Switching

If any activities are experiencing accidental extension or retraction of trailing wire antennas in flight when the radio operator's elbow turns the switch knob on the antenna reel control box BC-461-A, they might take a tip from NAS, HUTCHINSON.

According to an RUDM submitted in connection with PB4Y-1 aircraft, that activity lost an average of five antenna weights a week for two months. Investigation revealed that because of the location of the control box and the rectangular shape of the switch knob, the knob could be turned easily upon contact with operator's elbow. As a result, the antenna would unreel, and upon landing, the weight would be broken.

A simple solution was found—replacement of the rectangular shaped switch knob by a round type that is less susceptible to turning when struck by the elbow or some other part of the body.

MODIFIED CONTROL BOX HAS ROUND KNOB

Standard Terms Are Adopted

Considerable confusion has resulted, when using terminology to describe injection of water, or water-alcohol mixtures, in aircraft engines to facilitate use of Combat Power (War Emergency Rating). "Water Injection, War Emergency Power, Combat Power, Internal Coolant Injection, Anti-Detonant Injection, ADI Fluid, etc." have been used, at various times, to describe a power, a process or equipment intended to accomplish the single purpose of giving additional power.

A standard terminology for this process and its equipment has been designated to avoid further confusion. Henceforth, "Combat Power" will be used to describe the special power ratings established with an internal coolant, and the terms "Water Injection" and "Water" will be used in the general description of installation, accessories and internal coolant associated with subject equipment.

"ADI," "Anti-Detonant Injection" and similar terms other than those listed in the above paragraph, are not to be used in any future correspondence, reports and publications for the Navy. "Water" is sufficient description for the internal coolant used except in instances where a more complete description of the physical and chemical characteristics is necessary for various technical reasons.

SoPac Repair Shop On Wheels

A metal repair shop located somewhere in the SoPac has solved the problem of over-crowded conditions. The result is a portable shop that goes to the trouble, instead of having the trouble brought to it.

Most of the portable shop came from a salvage dump. A dismantled bomb trailer provided a chassis. From the same junkyard came the tires that were used and the metal that was welded into the framework.

PORTABLE WORKSHOP SPEEDS PLANE REPAIR

The new shop is small enough to be wheeled aboard a transport plane and rushed to more active fields. Mounted on the top or fitted inside are such various necessities as an air compressor, welding gear, grinder, vise, three portable drill presses, rivet guns and hose, gas tank, air tank, generator and miscellaneous tools. It contains everything that used to be in the repair tent.

The average damage caused by an ack-ack hit can now be repaired in half the previous time.

[Designed by Warrant Officer Andy J. Wiart, USMC]

New Valves for Boat Engines

A conversion kit is available for the installation of sodium cooled valves with stelite seats in 100 hp. Chrysler Crown engines used in 24-ft. plane personnel boats and 33-ft. and 35-ft. plane rearming boats. This conversion will permit the use of high octane aviation fuel in these engines without burning out the valves under normal usage.

The Chrysler Crown engine was designed for use with 72 octane automobile gasoline. In many forward areas the only available gasoline is 100 octane aviation fuel. This gas leads up the valves, causing them to rapidly burn out. Reports have been received of valves burning out after only one week of service. This has meant reduced availability of small boats as well as manpower waste in repairs.

The new sodium cooled valves with hard stelite seats are designed to overcome this difficulty. The manufacturers' conversion kit contains valves and valve guides. It is designated as Chrysler Part No. 1115098. To install these parts the following tools are required:

1. Drift for removing valve guides—Part No. 1117527.
2. Drift for installing new valve guides—Part No. 1117528.
3. Reamer for finishing inside diameter of valve guides to obtain proper clearance between guide and valve stem—Part No. 1117362.

The conversion kits and necessary tools for the installation of sodium cooled valves in Chrysler Crown engines may be requisitioned by part numbers direct from the Naval Supply Depot, Mechanicsburg, Pennsylvania.

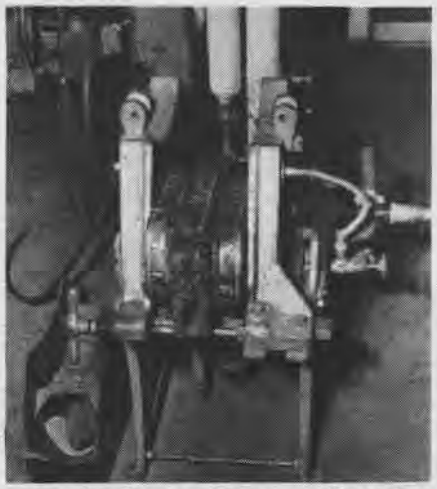
Station Recaps Old Tractor Shoes

NAS Corpus Christi—A common automobile tire recapping machine has been adapted to recap tractor shoes at this station. The idea, developed by station personnel, has resulted in a yearly saving of $614 per tractor.

Passenger car section molds, usually included as standard equipment in any tire repair and recapping shop, are used for the operation. One or more aluminum molds, designed to fit the tractor shoes, must be manufactured. No other equipment is required in the recapping operation. Construction of mold was effected in the A&R shop.

Old rubber on the tractor shoe is buffed and a level surface built up with gum rubber. A cut of ½" synthetic truck tire camelback is placed on the shoe and put in the aluminum mold. Inert side of shoe is placed against a wood center block for backing-up purposes. The camelback face of each shoe is placed against one of the hot plates of a section mold.

The station operates six crawler type T-9 tractors, each using 66 shoes. Price of a new shoe is $7.75 and shoes must be replaced every eight months, representing an expenditure of $1,534.50 per machine each two years or $767.25 annually. Cost of recapping a shoe in the Public Works Shop through use of a tire mold machine is $1.50 including labor and material.



TIRE RECAPPING MACHINE IS CONVERTED

Shoes recapped with synthetic rubber are tougher and more durable than those recapped with crude rubber. Recapped shoes will give nearly as satisfactory service as new ones.

[Designed by U. S. Grosch, CCM (AA), and A. H. Little]

▶ ***BuAer Comment*—BuAer approves use of this method for recapping tractor shoes and considers that personnel responsible should be commended for their ingenuity in developing the mold and its method of application. BuAer about two years ago began a study to develop substitute crawler tractor shoes to conserve rubber. A tough shoe was developed which incorporated use of no critical materials. Substitute material shoes were developed for T9, TD9, T14 and TD14 tractors. Delivery of these sets of shoes is practically complete at present time and a stock of them has been placed in the automotive spare parts depot at NASD PHILADELPHIA. Tractor shoes may be obtained from stock by ordering them in sets. The synthetic rubber shoe developed by BuAer, complete with rubber backing plate and attaching bolts, cost $4.20½ on procurement.**

QUESTIONS & ANSWERS

Integrated Aeronautic Program

The basis of planning in the Integrated Aeronautic Program is information and this is based on reports. To be of value, these must be sent in to BuAer promptly and accurately by the reporting activity.

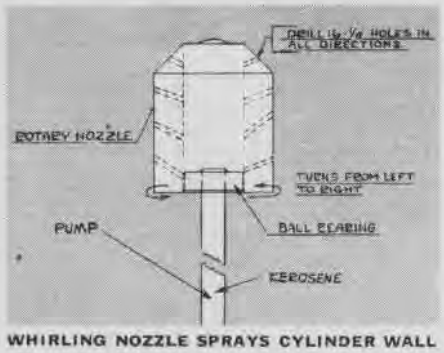
AvCirLtr 64-44A, entitled *Aircraft Reporting System, Modification of,* dated 31 December, 1944, described minor modifications made in reporting forms 1872, 1873A, and 1873B, together with the major changes made as to who now does the reporting and on what reports are made. The new method of reporting first was used in the February reports. For the benefit of reporting activities, NANews presents on the opposite page a simple explanation of the new system. The page chart presents a comparison of the two methods, and can be saved for reference.

COMPARISON OF PROVISIONS IN OLD ACL 64-44 AND NEW 64-44A

	OLD (64-44)	NEW (64-44A)
1. Who must report?	Every unit or activity having custody of naval aircraft.	Every unit or activity concerned with naval aircraft. (Experience has shown that inadequate control of reporting units results unless provision is made for "negative" reports from those activities concerned with but not having custody of aircraft.)
2. When report?	Monthly, as of 2400 on last day of month. (No specific provisions relative to commissioning, decommissioning and reforming units.)	Monthly, as of 2400 on last day of month. Specific provisions covering units commissioning, decommissioning and reforming in paragraph 6 (d) of ACL 64-44A.
3. Reporting forms.	NAVAER 1872 or NAVAER 1873A and 1872B.	NAVAER 1872 and/or NAVAER 1873A and 1873B.
4. Who submits 1872?	All units having operating aircraft.	All units concerned with aircraft in an operating, training, test or similar status.
5. What aircraft on 1872?	"Operating" aircraft. Also includes "spares" in any unit having operating aircraft as well, with sole exception that stations having "recognized pools" report pool aircraft on 1873 forms.	All aircraft assigned units in (4) above, except those, if any, required to be reported on 1873 as in (7) below. NAVAER 1872 does not include "spares" in custody of units such as stations, CASU's, Hedrons, Fleet Air Wings, etc. (See 7 below.)
6. Who submits 1873 forms?	All units having custody of pools of spare aircraft.	All Navy, Marine and Coast Guard stations and facilities; all Fleet Air Wings, Hedrons, Servons, CASU's, PATSU's, sosu's—whether or not custodians of "designated pools"; and all other units which may be concerned with aircraft in any of the categories in (7) below.
7. What aircraft on 1873 forms?	"Pool" aircraft.	Pool and spare aircraft ready for issue, aircraft awaiting reconditioning or transfer to an overhaul base, aircraft under reconditioning, aircraft awaiting or under minor repairs or modification (for important exception see (10) below), and all aircraft awaiting action as to overhaul or striking.
8. Who submits both 1872 and 1873 forms?	With exception of stations having "designated pools" of aircraft, no one.	Every unit which falls under the categories of both (4) and (6) above.
9. How report aircraft received by any station for further transfer to overhaul base or for disposition?	No specific provision.	Reported on 1873 forms by station or unit receiving—receipts, transfers and inventory.
10. Aircraft turned in for minor repairs or for modification.	No specific provision.	Continues to be reported by unit to which assigned, if same aircraft is to be returned upon completion of work. See paragraph 9 of ACL 64-44A.
11. Authority to make strike recommendations; transfer of damaged aircraft.	No specific provision.	Strike recommendations only in accordance with authority given by existing directives. Transfers of damaged aircraft where such authority to recommend strike is lacking are to be reported solely as transfers. See paragraph 10 of ACL 64-44A.
12. Aircraft once recommended for striking.	Not to be included in subsequent reports unless reinstated.	Same, with further clarification of how to recommend reinstatement in paragraph 11 of ACL 64-44A.
13. Striking in accordance with directives from CNO.	Reporting activities to submit necessary strike recommendations upon receipt of directive.	Same, with further clarification relative to reporting of "excess" aircraft.
14. Loss factors.	See Paragraph 10 of ACL 64-44.	Substantially the same. See paragraph 15 of ACL 64-44A.
15. Aircraft shipping and loading letters.	Copies required.	Same, also embraces replacement CVE's and similar ships.

Kerosene Spray Spares Hands

NAS ALAMEDA—Overhaul activities have had considerable trouble with the high percentage of skin disorders among mechanics working in kerosene. A mech at this station devised a spray device for radial engine cylinders which makes it possible to wash cylinder barrels inside without putting the hands in kerosene.



WHIRLING NOZZLE SPRAYS CYLINDER WALL

The nozzle is a revolving head mounted on ball bearings. Each jet in the nozzle is drilled in two angles. One causes rotation of the nozzle and the second forces kerosene in all directions. There are several methods of forcing the fluid through the nozzle—air pressure, a pump or both.

Constant attention of the mechanic is not needed, making it possible to complete other operations in the overhaul procedure while the cylinder barrel is being washed. The method cuts up to an hour off time required to wash one engine by the old method. The idea was submitted under the Navy employees' suggestion program.

[DEVISED BY R. G. STEVENS, AM2C]

Unloading Tank Trucks Made Easy

MCAS CHERRY POINT—A multiple-size fill coupling for unloading tank trucks has been constructed which may be helpful to other stations. The device permits unloading tank trucks and refuelers where the truck discharge hose connections are any one of the following sizes: 1¼", 1½", 2", 2½", 3" or 4". No additional fittings, reducers are needed.

The device is simple to construct and may be built largely of scrap material. The header is a section of 4" pipe closed at the ends by welding or capping and drilled along one seam to permit welding-in of the various sizes of nipples for hose attachment. Another nipple is welded to the header to permit attachment to the conventional fill pipe stub. A strap for static bonding wire is welded to the header.

▶ *BuAer Comment*— Manifolding of fill pipe inlet of storage tanks placing various coupling sizes for making up to and unloading tank trucks seems new, novel and constructive. Standard practice calls for reducers and couplings on all trucks to accommodate the various combinations encountered, but they are generally misplaced or lost. This device appears to be a practical development worthy of consideration by all hands charged with the responsibility for fuel delivery, transfer.

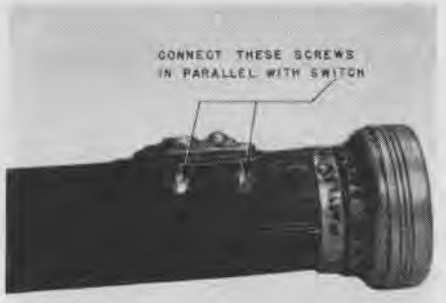
MULTIPLE SIZE FILL COUPLING IS USEFUL

Flashlight Aids in Fuze Tests

CASU 27—An ART attached to this command has developed a handy method of testing fuzes which has proved valuable because it is both flexible and requires no extra instruments. The flashlight is standard equipment.

Through the side of a fibre-cased flashlight two studs were connected in parallel with the switch. To test a fuze, the ends are placed against the studs and the light switch turned off. If the fuze is good the light flashes on. Naturally the fuse should be of greater capacity than the bulb-current drain.

[DEVELOPED BY L. W. SCARBOROUGH, ART2C]



FLASHLIGHT ADAPTER TESTS PLANE FUZE

▶ *BuAer Comment*—Checking of fuzes for airplane circuits is an important maintenance procedure. Removal from the fuze clips for test is necessary in many circuits where it is not practical to energize the circuit and test with a light bulb across the fuze. One method of fuze-checking is by means of an ohmmeter. Scarborough's method combining a fuze tester with a handy piece of equipment is an ingenious one. The idea is being adopted by one BuAer engineer who plans to add a removable cover over the test connections to keep the flashlight from staying on when test points contact with metal parts, tools.

Succeeds List of 1 February 1945 — *1 March 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	39	2-21-45	54	2-14-45
F4U-F3A-FG	168	2-17-45	208	1-22-45
F7F	4	2-5-45	5	2-17-45
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
JRC	6	2-10-45	5	7-19-44
PV	103	2-19-45	158	2-7-45
PB2B	9	2-7-45	0	——
PBJ	50	2-23-45	64	12-30-44
PBM	84	2-9-45	154	2-16-45
PBY	96	2-15-45	172	1-12-45
PB2Y	57	2-19-45	153	1-3-45
PB4Y	122	2-23-45	134	2-17-45
R5C	22	1-16-45	88	12-22-44
R4D	36	2-10-45	0	——
R5D	44	2-12-45	95	2-23-45
RY	47	2-21-45	24	12-22-44
SBF-1	60	1-19-45	62	1-31-45
SBF-3	47	1-19-45	26	1-31-45
SBF-4	6	2-2-45	1	1-31-45
SBW-1	57	12-4-44	74	2-17-45
SBW-3	64	1-30-45	66	2-17-45
SB2C-SBF-SBW	143	2-12-45	131	1-30-45
SC	31	2-23-45	13	2-8-45
SNJ	31	12-22-44	27	1-13-45
TBF-TBM	157	2-5-45	223	1-31-45
TD2C	0	——	1	12-4-44

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

TBF Bomb Arming Handle Changed

VMTB 232—During recent combat operations of aircraft, the bomb arming handle failed to remain in the ARMED position (either on TAIL, or NOSE and TAIL) after being set in that position. This failure caused the bombs to drop on SAFE rather than on ARMED over the target.

To overcome this failure, the following device was developed. A 5/6″ hole was drilled just above the tail armed position and just above the nose and tail armed position. The bomb arming handle was pushed forward of either the two drilled holes (depending on how bomb was to be armed) and a safety pin made of 1/16″ copper arming wire was inserted through the hole. The bomb

arming handle then was allowed to ride back against the safety pin, thus making sure that the handle would not slip into the SAFE position until safety pin was removed. This method has proved very satisfactory and can be used on all TBF, TBM aircraft.

[DESIGNED BY MTSGT. ALFRED B. TURNER, USMC]

***BuOrd Comment*—The suggested modification is desirable as a temporary expedient until such time as TBF and TBM Aircraft Service Change No. 208, which provides for replacement of the present manual arming control with one of improved design, can be accomplished.**

HANDLE UNLOCKS CASU 38'S SB2C DESIGN

MODEL FOR SB2C ENGAGES AUTOMATICALLY

SAFETY LOCKS FOR HOODS OF CARRIER CRAFT

REPORTS received by BUAER reveal that during emergency landings, or hard landings, of carrier-based aircraft, in many instances the pilot's sliding hood slams shut and jams in closed position. This situation is caused by high deceleration loads that force the hood forward. Obviously, such a situation may lead to extremely hazardous consequences. This trouble is possible, always, when the pilot's hood does not have a positive safety lock holding the hood in open position when the plane comes to an abrupt stop.

Action is being taken on carrier-based models to incorporate cabin safety locks that will engage automatically when the hood is open, and disengage when the hood is closed.

BuAer Urges That Locks Be Installed

In most cases, installing fully automatic safety locks has proved too involved for service installation. Operating activities have proposed several lock designs (*see photos*) and some of these are being used. BUAER strongly recommends installing simple safety locks on craft with movable pilots' hoods.

In designing such locks, it is important that the lock can not open under either the forward inertia force of landing, or upward inertia force during a nose-over. Examples shown are for certain models but can be modified. Locks in two pictures above are more desirable, since they engage automatically.

VS-53'S SBD HATCH LOCK WORKS BY HAND

F6F DESIGN BY CASU 4 WORKS MANUALLY

AVIATION ORDNANCE

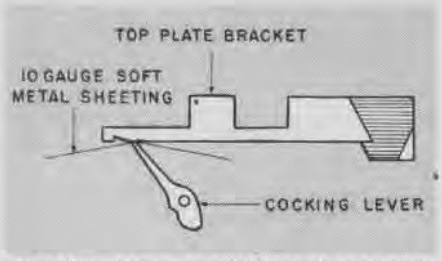
INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

New Procedure Simplifies Bolt Removal

A common error in the field is to insert the bolt of a cal. .50 Browning machine gun into the receiver with cocking lever in a rearward position. Removal of the bolt, when this occurs, has presented a problem to ordnance shops, requiring considerable time and often causing damage or springing of parts.

The old method of putting a hook around the cocking lever and springing it downward in order to remove the bolt is unsatisfactory and almost always causes damage.

The simple procedure of inserting a piece of 10-gauge soft metal sheeting between



SHEETING STRIP PERMITS BOLT REMOVAL

cocking lever and the top plate bracket, has proved a satisfactory method of correcting this situation. *The method is as follows:*

Take a strip of 10-gauge soft metal, 1½" wide and 10" long. Dip it in light oil. Through the cover opening in the receiver, insert the strip between cocking lever and top plate bracket. This is done by moving the bolt slightly forward while holding the sheeting with pliers. Now move the bolt slightly rearward, grasp the end of the sheeting through rear end of receiver, and cam out the sheeting with a camming action against top of backplate. The bolt will then be free for removal.

The entire operation takes less than two minutes, and no parts can be damaged in any way.

Rear Mounting Post Serrated Washer

Fixed caliber .30 and caliber .50 machine guns using the Rear Mounting Post, Mark 1 and Mods, stay boresighted when the new serrated washer is installed on the horizontal adjusting bolt.

Replacing the present standard type lock washer, this serrated washer alone will hold the transverse bolt of the rear mounting post satisfactorily. However, as an added precaution, it is recommended that the set screw continue to be tightened in the usual manner after boresighting. The smooth side of the washer is marked "nut side" to prevent improper installation, since the serrated side must engage the mounting lug of the gun to effect a lock.

Subject posts carried in stock should be modified as soon as practicable according to instructions in OMI-V 29-44, and the change-over made in aircraft installations when a gun is boresighted or whenever a gun or rear mounting post, Mark 1 is replaced.

Packed 25 to a package, this washer is available at major supply points under stock No. 1-W-3028 as "Washer, Serrated for Rear Mounting Post, Mark 1."

SERRATED WASHER FOR TRANSVERSE BOLT

Handy Tool Aids Bomb Rack Latching

T/Sgt. E. D. Victor, VMBF-141, has designed a handy tool for latching bomb racks, Mk 51 Type that can be manufactured locally.

The L-shaped latching tools vertical section has a drilled hole which fits over the

USE OF SCREWDRIVER AIDS IN LATCHING

pawl latching screw on the rack. The horizontal section is a leaf spring which locates under the side plates of the bomb rack. As the bomb is hoisted into position the horizontal section of the tool seats on top of bomb and the tool moves up with bomb. This raises the pawl latching pin up almost to the locked position. By inserting a screw driver in the opening of the leaf spring and applying downward pressure, the rack can be readily latched.

Device Facilitates Banner Target Use

The banner target adapter shown in the photo, designed and developed by Ensign J. E. Smith, ordnance officer, VC-94, permits launching banner targets from the air, thus overcoming difficulties encountered by the conventional method of dragging targets from the deck. Fully rigged and ready to be used, the target adapted can be installed on the airplane in less than 4 minutes, and can be removed in about one minute upon completion of the flight. It is designed to be suspended from a single suspension bomb rack or droppable gas tank rack under the wing, and with slight changes in design, it may be adapted to the bomb-bay of the TBF

The target adapter in principle is just a carrier or holder for the type A6A or type A10 tow line and target. In operation when the target is released, it falls clear of the adapter which holds the tow line securely

TARGET, LINE STOW UNDER PLANE WING

by means of bungee cord. This cord allows the line to play out of the adapter a loop at a time until it falls clear of the adapter and is secured only by the towing gear on the bottom of the fuselage. The adapter remains on the plane and is removed and reloaded upon completion of the flight. The most successful method of release for the target is to slow the plane to 70 knots with flaps down and release the target in a slow turn to the side on which the adapter is installed.

The toggle which operates the release mechanism for the target is fastened to the slack in the rack release cable. This release cable affects the necessary pull on the toggle as it tightens when the release handle is pulled in the cockpit. A locking pin inserted in the rack prevents the rack from unlatching and releasing the adapter when the release cable is pulled. This locking pin has to be removed before adapter can be removed from rack.

This method of streaming prevents target from being dragged on runway, thus prolonging the life of the tow line and target. This adapter will not be furnished by BuOrd, but is suggested for use by those having targets applicable to adapter.

Mech Builds Light From Scrap

NAF COLUMBUS—An aviation machinist's mate here has developed an efficient, unique and inexpensive flashlight from scrapped material—a 440-volt fuse and a 5/16" Parker fitting.

The 440-volt fuse was reamed out to 9/16" for the accommodation of the two batteries and the Parker fitting. The 5/16" Parker fitting that holds the bulb was press-fitted into one end of the fuse. A spring placed in the opposite end served a dual purpose: it acted as the ground and held the batteries, stripped of their insulation, in place.

A flexible brass rod, bent and soldered to the forward end of the fuse, lighted the bulb when a slight pressure of the hand brought the rod in contact with the bolster on the after end of the fuse.

[DEVELOPED BY R. C. SMITH, AMM1c]

DESIGNER GETS PAT ON BACK FROM BUAER

▶ ***BuAer Comment*—This flashlight could be very handy. If one were on a "spot," the parts described might not be available. A *BuAer* procured "penlight" is being distributed and will be described soon in NANews.**

CM2c Makes Jeep Winter-Proof

NAS ANACOSTIA—When wintry winds blow, it takes a good carpenter's mate to rig up a jeep so that it can be used without danger of frostbite.

A CM2c of Project North converted a jeep from an open-air model to one that

ANACOSTIA JEEP PROTECTS RIDER'S EARS

is well enclosed. The "convertible's" side walls are of ¼" plywood, the top of 3/32" plywood covered with canvas bedded in Marine glue, and the windows are of plexiglas.

[CONVERSION BY H. E. MEHREN, CM2c]

SCREEN NEWS

Film Booster. The power of a film to shoot facts into the human think-box, to penetrate mental walls of varying thickness, and to produce action in the brain's "green light" section, can be enormously increased by a super-charger in the form of a Training Aids Guide. In essence, each guide provides, in time-saving form, printed information on a specific film for use by the instructor whenever he shows the film.

The guide helps the instructor to *(1.)* familiarize himself quickly with the contents of the film; *(2.)* inform his class in advance on the key points to look for during the showing; and *(3.)* give a written quiz after the picture to find out how many of the facts found their mark.

Specifically, each guide gives the following film data:

Number and title
Size and type (whether movie or slide film)
Running time or number of frames
Black and white, or color
Classification
Purpose and detailed outline of content
Summary of main points to look for
List of test questions and answers
List of other related training aids

Training Aids Guides recently were distributed to be used with the following films:

		Training Aids Guides Nos.
MN-2867b	*Radex ASB*—Restricted	NAVPERS 13045
SN-1448a	*The Power Turret—Part I*—Restricted	NAVPERS 13055
SN-1448b	*The Power Turret—Part II*—Restricted	NAVPERS 13055
SN-2796	*Handling the Airplanes*—Restricted	NAVPERS 13089
MN-3112b	*Flying the Weather Map—The Hawgozit Chart*—Restricted	NAVPERS 13062
MN-1006d	*This Is Fighter Direction*—Confidential	NAVPERS 13050
MN-3224	*IFF—Mark III*—Confidential	NAVPERS 13046

Single copies and information on available Training Aids Guides may be obtained at Aviation Film Libraries. Quantity orders should be requested from Publications Section, BUAER, through channels.

The Camera Covers the Battlefront. Never in any conflict have so many cameras watched the war go by to such good advantage. Films illuminate facts with a clarity no verbal report can equal and when the lens lessons are learned in actual combat, their importance cannot be underestimated.

Notable among combat film footage releases are the weekly issues of the *Army Air Forces Digests*. Each *Digest* is a composite of five or six brief movie scenes of activities in combat zones, with appropriate commentary. The variety of the scenes filmed provides staff officers of both Naval and Marine activities with material for technical study and for operational training purposes.

Gunnery officers and AFGU's, for instance, find interest and instruction in gun camera records of fighter kills, strafing runs and rocket firing. Pin-point bombing sequences can be reviewed to advantage by bombing squadrons.

Medical officers will want to look at such *Digest* items as the dental clinic on Kwajalein, malaria control measures, flood conditions.

There are shots of enemy damage for photo reconnaissance officers, wing camera views of planes for recognition training, flak damage and captured enemy equipment scenes for ACI officers, aerial supply pictures for logistics staffs, shots of improvised plexiglass repair, tire changing equipment and other emergency repair

FLAK HAVOC FILMS GO TO ACI FOR STUDY

photos for A&R officers and salvage units.

In brief, there is a lens-eye look for everybody in one or another of this weekly series of films hot from combat.

Information and guidance on the content of *AAF Digest* releases may be obtained each week by interested officers from Central Aviation Film Libraries which have these films on loan.

Fill 'Em Up.

MA-3367f *Filling and Handling of Airplane Spray Tanks—Part 6—Mounting on Planes.* Restricted, 23 min.

DEMONSTRATES: Mounting of small spray tank M-10 and large spray tanks M-33 and/or M-33A1 on Army planes. Procedure is essentially the same for Navy.

Where to Get 'Em: Central Aviation Film Libraries and Sub-Libraries are located at:

Naval	
ABATU, NAS St. Louis	NAS Quonset
CASUs 2, 4, 23, 24, 31, 32	" San Diego
CASU ComDet., Port Hueneme	" Squantum
ComAirPac	" Willow Grove
FAW 15	" Navy #115
Hedrons 2, 4, 7, 10 12, 16 Det., 17	" Navy #117
NAB Seattle	" Navy #720
" Navy #939	NATB Pensacola
NAC Navy #140	" Corpus Christi
" Navy #3205	NATEC Lakehurst
NAMC Philadelphia	Navy #3233
NAOTC Jacksonville	TAL Navy #116
NAS Alameda	
" Atlanta	*Marine*
" Brunswick	MarFairWestCoast
" Clinton	MCAD Miramar
" Kodiak	MCAF Newport
" Moffett	MCAS Cherry Point
" New York	" Eagle Mt. Lake
" Norfolk	" El Centro
" Patuxent	" El Toro
	" Mojave
	" Navy #61
	" Parris Island
	" Santa Barbara

Check your nearest library before ordering

INDEX TO NANEWS JAN. 1 TO MAR. 15 INCLUSIVE 1945

INDEX JAN. 1 TO MAR. 15 INCLUSIVE 1945

87th & ANTHONY

Trainees Study Carburetion Principles

With a series of working models, the carburetion course at the Naval Air Technical Training Center, where the Navy trains its advanced aircraft mechanics, is giving students an opportunity to see and demonstrate to themselves general principles of carburetion and their application to float type, Holley and Stromberg injection carburetors. Models are designed to permit students to push throttles, control mixtures and create varying altitude conditions—and then through plexiglas sections and cutaways to see the effect on the carburetor.

Following are descriptions of the models as they are taken up in order of complexity:

The first carburetor shown is a float type with full operating fuel pressure entering the carburetor at 3-5 PSI. Students can see the float chamber in operation, operate the throttle and watch the accelerating pump.

The next carburetor in order of complexity is the Holley. It is here that both types of accelerating pumps are demonstrated.

The diaphragm type pump can be seen as the outer plate is plexiglas enabling students to see the diaphragm moving back as suction is applied. When suction is released the fuel can be seen spraying from the accelerating discharge nozzle.

The latter type Holley has a piston-type accelerating pump with an increased period of acceleration. The outer plate on this also is plexiglas and the operation is clearly demonstrated when students operate the throttle and see the fuel sprayed out of the accelerating pump discharge nozzle.

The next operation shown on the Holley is the action of the diaphragm type fuel chambers. Plexiglas covers on both openings of the carburetor make it air tight and a ¼" pipe cover has been tapped to lower plexiglas cover and connected to a gallon jar. In parallel with the Holley carburetor is a fuel chamber only with plexiglas sides. This chamber is also connected to the jar. By applying suction to jar, fuel can be drawn off the discharge nozzle in the complete carburetor and also from separate fuel chambers. When this takes place the diaphragms can be seen moving in and allowing more fuel to enter. The mixture control can be moved to "idle cut off" and the fuel flow stops. The power compensator and power mixture valve operation on the Holley carburetor are also demonstrated.

The Stromberg carburetor working model is arranged to show the fuel as it is sprayed from the main discharge nozzle. It includes a regular throttle and mixture control set up for students to operate. The throttle is connected to an air valve which opens as throttle is opened and air is sent through a venturi to produce suction for chamber B. Suction opens the poppet valve and increases fuel flow at discharge nozzle. There is a manifold pressure gauge on chamber B registering amount of negative pressure or suction in the chamber. Chamber C has a fuel pressure gauge showing metered fuel pressure. Chamber D has a fuel gauge which shows varying pressure as throttle opening increases. This also has a plexiglas cover over jets and the power enrichment valve can be seen as it opens.

ENTIRE OPERATION VISIBLE THROUGH GLASS

The diaphragm type accelerating pump can also be demonstrated. The chambers are colored the same as the color code on drawings. In the bell jar the Stromberg automatic mixture control and a Holley altitude valve are cut away so students can see the operation as varying altitude conditions are simulated by drawing air from the bell jar. Manifold pressure gauge and an altimeter connected to show conditions.

LETTERS

SIRS:

I have attempted for some time to obtain information on the Navy helicopter program. I would appreciate any data you can give relative to construction and maintenance of helicopters, and whether there are any Navy schools for technical training on this craft and the possibility of obtaining such training.

AVIATION MACHINIST'S MATE 2C
NAAS HOLLISTER

¶ The Navy does not have information on construction and maintenance of helicopters available for general distribution. In addition, no formal training program in helicopters is being conducted by the Navy at the present time. The Coast Guard, which operates in wartime under over-all cognizance of the Navy, is conducting a sizeable helicopter pilot and mechanic training program at CGAS NEW YORK. Except for a few special cases, however, training at this station is limited to Coast Guard personnel.

SIRS:

Staff officers generally are considered to be a lucky lot. As everyone else in the service knows, a staff officer never actually does anything except, of course:

To decide what is to be done.
To tell somebody to do it.
To listen to the various reasons
why it should be done by somebody else,
why it should be done differently,
why it should not be done at all.
To override these objections by convincing and conclusive arguments.
To follow up and see if the thing has been done.
To discover that it has not been done.
To inquire why it has not been done.
To listen to the usual excuses.
To prepare arguments to overcome these excuses.
To follow up again to see if the thing has been done.
To discover that it has been done incorrectly.
To explain how it should have been done.
To conclude that as long as it has been done at all, it might as well be left as it is.
To reflect that he could have done the job correctly himself in 20 minutes, except for the risk of demoralizing everyone else in the service, who knows that a staff officer never actually does anything.

Navy Dept., Washington COMMANDER

SIRS:

I am a naval aviator with an (A3) classification. My age is 27, and I have a degree from an accredited college. However, I went through flight training in a commissioned status.

I am interested in changing over to Regular Navy, but cannot find any authority where an officer of my classification is eligible to apply for Regular Navy. Can you give me any assistance along this line?
VPB-139 LIEUTENANT (A3) USNR

¶ BUPERS Circular Letter No. 21-44, dated 29 January 1944, concerns the appointment of certain officers of the Naval Reserve to commissioned rank in the line of the Regular Navy. Those eligible for consideration for appointment, subject to specified qualifications, are: *1.* Naval Reserve aviators and *2.* officers commissioned in the Naval Reserve upon graduation from the Naval Reserve Training Corps.

BUPERS reviewed this case and stated that at the present time the writer is not eligible for transfer to the Regular Navy, owing to the manner in which flight training was obtained.

Flight Surgeon

The flight surgeon must be a man of vision and ambition, a before- and after-dinner guzzler, a night owl; work all day and all night and appear fresh next day.

He must be a man's man, a ladies' man, a model husband, a plutocrat, a technocrat, a Republican, a New Dealer, an Old Dealer and a Fast Dealer, a technician, electrician, politician, a mathematician, machinist, and ambidextrous.

He must be a promotion expert, create a demand for his service, be a good correspondent, attend all meetings, tournaments, funerals, and births, visit fliers in hospitals and jails once a week, and in his spare time do missionary work.

He must be 25 years of age or over, married, single, divorced with limited endurance and frequent overindulgence in wine, wind, and gab; must have wide range of telephone numbers in all principal cities and villages for cross country purposes.

He must be an expert talker, own a home (tent will do), belong to all clubs, pay all expenses at home and on cross-country trips, to be reimbursed only when Congress chooses to give it to him.

He must be an expert talker, liar, dancer, traveller, bridge player, poker hound, toreador, golfer, diplomat, financier and philanthropist; an authority on palmistry, chemistry, archaeology, psychology, physiology, neurology, meteorology, criminology, dogs, cats, horses, blondes, brunettes and redheads. —NAS FORT LAUDERDALE

"Now all together men, Heave Ho!"

NAVAL AVIATION NEWS

Published twice monthly by Chief of Naval Operations and Bureau of Aeronautics to disseminate safety, survival and technical information to the aeronautical organization. **CONTRIBUTIONS INVITED.** Air mail should be used where practicable to insure speediest delivery of material submitted for publication, addressed as follows: Chief of Naval Operations, Naval Aviation News, Navy Department, Washington 25, D. C.

CONTENTS

ANSWERS TO QUIZZES

● BEST ANSWERS (p. 16)

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

● NAVIGATION PROBLEM (p.18)

1. Saturn hc 49° 12'
   Zn 089°
2. Rigel hc 46° 09'
   Zn 144°
3. Dubhe hc 16° 47'
   Zn 027°
4. 2100ZT Fx. Lat. 29° 08' N
   Long. 163° 34' E

(Tolerances of total of 6' Lat. and Long. from the answers are considered correct)

● GRAMPAW'S QUIZ (p. 10)

1. Normal rated power is maximum permissible power for *continuous operation*. Take-off power usually is limited to *5 minutes*. See Pilots' Handbooks for specific models and engines.
2. Seventy percent of normal rated RPM. See TO 39-41 for special precautions applying to new engines. Refer to Pilots' Handbooks for specific models.
3. Yes. Ref: Paragraph 1.110 *Army-Navy CAA Standard Airport Traffic Control Procedures.*
4. No. If sufficient acceleration ("g") is applied, an airplane can be stalled at terminal velocity. Ref: TO 113-44 and Flight Safety Bulletin 21-44.
5. *Wheels-down* forced landings are recommended *only* when terrain is *known* to be favorable and for hard, rocky or stumpy terrain where the shearing of the gear will provide a more gradual deceleration and protect the underside of the airplane. On all other terrain, *wheels up*. See Flight Safety Bulletin 14-44.

The Tussies never die a Natural Death

1870

Trigger Trick

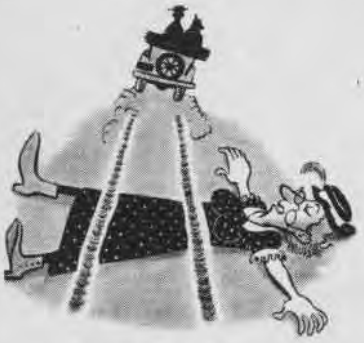
HOW GREAT GRANDPA TUSSIE DONE IT...

1895

Ulcers

HOW GRANDPA TUSSIE DONE IT...

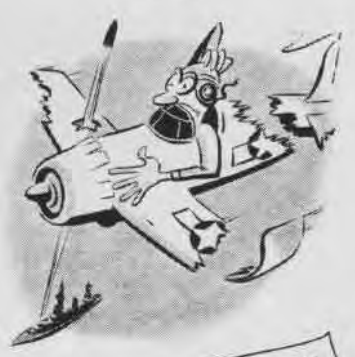
1920



Jay Walking

HOW AUNT BIDDIE DONE IT...

1945



HOW HOUNDSHELL DONE IT

Read Uncle Kim Tussie on Page 19

Identify when approaching friendly ships

NAVY STRIKES AT HONG KONG

ONE OF THE most important of the enemy's seaports in China, a stronghold that was taken by the Japs early in their sweep toward the far reaches of the Pacific, was blasted by planes of a carrier task force as a further sequence in the Allied march toward Tokyo. In these pictures Hong Kong is smoking under the attacks of American dive-bombers. Jap shipping suffered.

NAVAL DIVE-BOMBERS SCORE A NEAR MISS ON A LARGE JAPANESE VESSEL AT CENTER OF THE PICTURE. THIS STRIKE CAUGHT MUCH SHIPPING AT ANCHOR

DOCKS FRINGE BUSINESS SECTION OF VICTORIA ON HONG KONG ISLAND

ONE STRATEGIC POINT OF AERIAL ATTACK WAS THE TAIKOO SHIPYARD