NAVAL AVIATION NEWS

Hole in flight deck USS Hancock

Marine Carrier Program
The Ultrasonic Trainer
Icing • Towing Seaplanes

Oct. 15, 1945
RESTRICTED

Beginning NOVEMBER

NAVAL AVIATION NEWS

WILL ABSORB

NAVAER MAINTENANCE

THESE DEPARTMENTS of NavAer Maintenance

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NAVAL AVIATION NEWS

1. Howler
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5. Service Test Report
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WITH the shootin' over and Naval Aviation gearing itself for progress in peace, it'll be handier and more economical to publish all aviation news—general, training, maintenance—in one compact monthly magazine.

So beginning in November, Naval Aviation News will absorb most departments of "NavAer Maintenance" and continue to be published by DCNO(Air) and Chief of BuAer as the monthly information medium for Naval Aviation.

Bureau desks and field and Fleet units should send in material the same as before, addressed either to Naval Aviation News or to the cognizant technical desk of BuAer.

As soon as possible, a survey of reader preference will be conducted to determine which sections of NANews should be enlarged, which made smaller. Meanwhile, your ideas on the subject will be interesting. Feel free to send 'em in.

Naval Aviation News
Navy Department
Washington 25, D.C.

KEEP SENDING MATERIAL FOR PUBLICATION IN NANEWS TO:—

NAVAL AVIATION NEWS
OCTOBER 15, 1945
No. 251

MARINE CARRIER PROGRAM

IN A STUDY of national defense in 1939, the Navy specifically defined the mission of Marine Aviation. In effect, the Navy said Marine Aviation was to be trained primarily to support Marine Infantry in amphibious operations. The secondary job was to serve as replacement squadrons for carrier based naval aircraft.

As the war progressed the Navy found it had sufficient carriers to set aside a number for Marines, and still meet first line Fleet requirements. At this time, Leathernecks organized a training program customed tailored for carrier duty.

The tactical command became known as Marine Carrier Groups, Aircraft, Fleet Marine Force, Pacific. The initial carrier group, Marine Air Support Group 48 was born shortly thereafter, and the Navy assigned it four CVE's. Operating as a division, these ships now constitute the first all-Marine carrier force.

At present, three other Support Groups have been established and training continues on the West Coast.

SUCCESSFUL MISSIONS DEMAND PERFECT EQUIPMENT. MECHANICS LEARN TO REPAIR PLANES ABOARD A CARRIER IN RECORD TIME

TRAINING BEGINS ON THE GROUND

FIRING AT THE TARGET SLEEVE FROM GROUND PAYS DIVIDENDS

MARINE PILOTS SPEND MANY HOURS ON GROUND SCHOOL SUBJECTS

Marines train crews to meet all emergencies; Rigid combat conditioning includes fire fighting

ALL personnel assigned to carrier groups—from clerks to mechanics, pilots to gunners—receive thorough instruction in a wide variety of subjects that are *musts* for successful operations.

An intensive schedule is aimed to make every pilot and crewman proficient in the Navy's prescribed syllabi for carrier-based fighter and torpedo-bombing squadrons. Generally, the training falls into two categories, ground and flight, and both aspects are conducted concurrently. Ground training subjects are fitted into the day's schedule whenever possible, depending upon the day-to-day demands of flight schedules, weather and availability of personnel.

Widely varying degrees of experience are represented among the carrier trainees. Although many of the pilots and aircrewmen are fresh from flight and gunnery schools, a number of others are combat-tried veterans. Some squadrons are old-time operators, while others are fairly new.

The bulk of the ground school subjects are given to pilots and aircrewmen alike and include communications, training films, ordnance and gunnery, radar-radio-IFF, recognition and identification, survival and first aid. Pilots are concerned with Link trainer, navigation and close air support. Both pilots and VMTB engine men are checked out on the automatic pilot. All personnel undergo training in combat conditioning, chemical warfare and fire fighting.

The ditching program is particularly stressed, and instruction is given to both pilots and aircrewmen. A wingless, engine-less torpedo bomber serves as the "plane," and is suspended from a huge crane with steel cables. The fuselage carriers a full crew—pilot, radioman-gunner and turret gunner. When the fuselage is approximately 15 feet above the water, the cables are released.

Men are taught to act with split-second effectiveness. The radioman-gunner, who moves into the middle cockpit upon "warning" to prepare for a water landing, climbs out on the starboard side and kicks the life raft through its stowage compartment to where the pilot and turret-gunner, both of whom escape on the port side, yank it free. Moments later, with raft inflated, they paddle away and another crew prepares for a dunking. At all times trainees wear combat gear plus parachutes and Mae Wests.

ALL CREWMEN ABOARD TORPEDO BOMBER GET REALISTIC DITCHING

SYNTHETIC DEVICES *prove to be a great aid to Leathernecks training for carrier duty. Actual conditions are closely simulated*

LEATHERNECKS LOAD F4U *with rockets prior to fake strike on enemy. Speed and efficiency are stressed to insure peak performance*

F4U ENGINES *are started. Simulated carrier operations are aimed to coordinate skills of both pilot and "ground" crew members*

MOVING THROUGH *the 'nimbus' caused by crystallization of vapor on it propeller's tips, a Vought* Corsair *starts its take-off from flight dec*

PILOTS TAKE TO THE AIR

Marines str pilots for

LEATHERNECKS preparing for carrier duty devote long hours to a variety of important training phases. Emphasis is placed upon air support problems and phases of flight training closely allied to carrier operations.

Fighter squadrons receive training in familiarization and formation tactics, offensive combat tactics, defensive combat tactics, protective combat tactics, navigation, instrument flying, night flying, inter-type tactics, rocket firing and combat attitude instrument flight training.

Torpedo-bombing pilots check out on familiarization and refresher formation, offensive combat tactics (dive bombing, glide bombing, torpedo bombing, anti-sub bombing, low-level bombing, rocket bombing, fixed and free gunnery), navigation, instrument flying, flight training (familiarization, bombing, advanced tactics), rocket firing, radar, and anti-submarine warfare.

In night flying, emphasis is placed on night vision, cockpit illumination, night rendezvous procedure, signals, night illumination and pyrotechnics and other allied subjects. Rocket firing practice is carried out at MCAS EL CENTRO and MCAS MOJAVE. Squadrons fire the celebrated *Tiny Tim*.

Instrument flying practice includes the use of the YE-ZB high frequency homing device, the most frequently used method of returning to a carrier. Because few of the pilots are experienced in over-water navigation, stress is placed on this phase of flight training. The course includes plotting board problems, Link trainer exercises. estimation of wind force and direction, lost plane procedure, recognition procedure, and aerology. Support problems coordinate training.

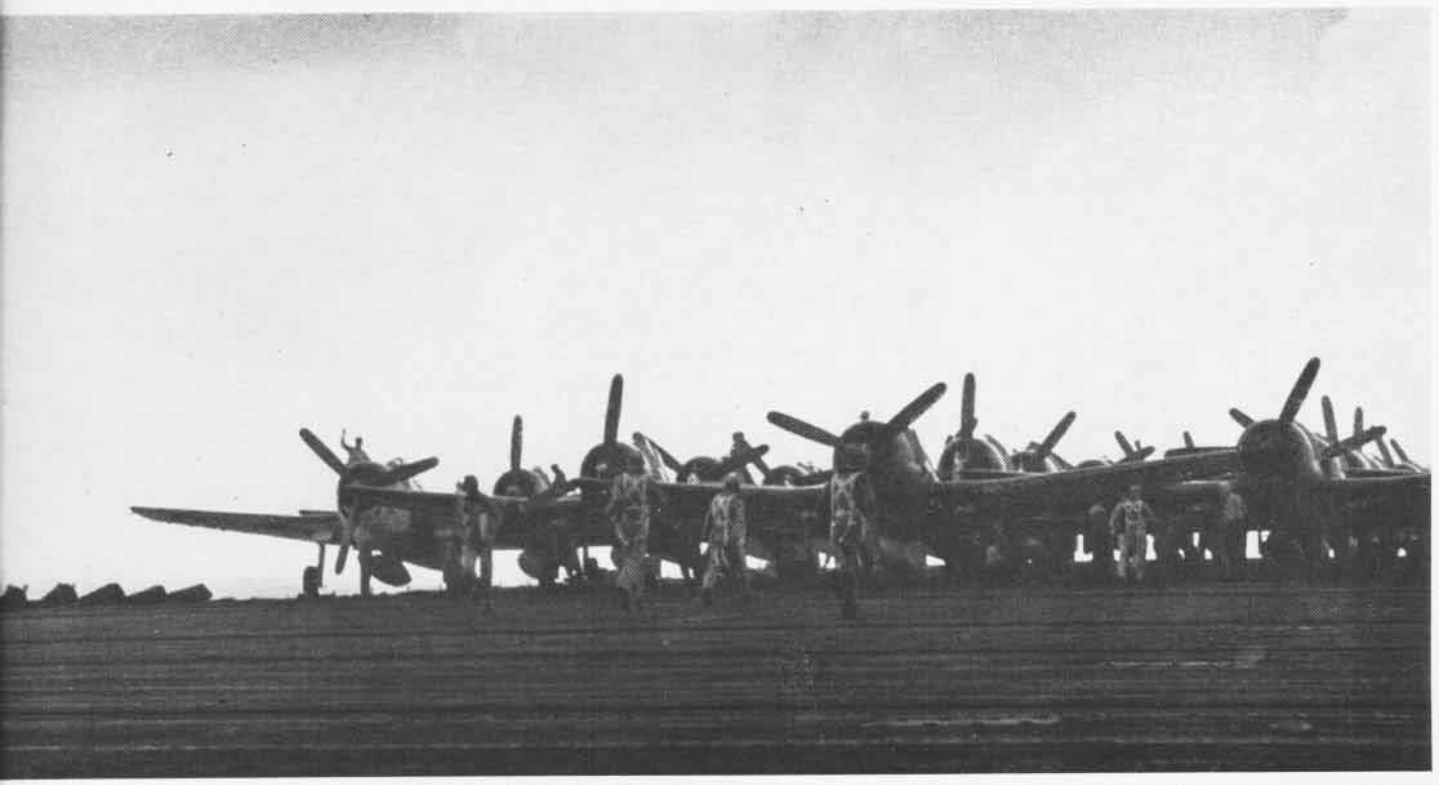
PILOTS ANSWER CALL TO MAN THEIR PLANES: PRACTICE TAKE-OFFS

CHOCK MEN *pull out wheel stops as plane director guides the aircraft up the flight "deck." Teamwork of ground crew is vital in this work*

ir support problems to prepare all their

atisfactory execution of primary mission

MARINE HELLCAT PILOTS TRAIN AT WEST COAST AIR STATIONS



THE ABILITIES AND KNOWLEDGE OF MAR CASD MEN: THE SATISFACTORY EXECUTION OF DUTIES QUALIFIES MARINES FOR FINAL "SHAKE DOWN"

FROM THE SHIP'S *bow, Marines observe* F4U*'s leaving flight deck. Pilots are carefully checked, then assigned*

EACH MAN *has a specific job. These men practice spotting using a tractor to tow a* TBM *into its proper place on the flight deck*

SHAKEDOWNS COORDINATE TEAM

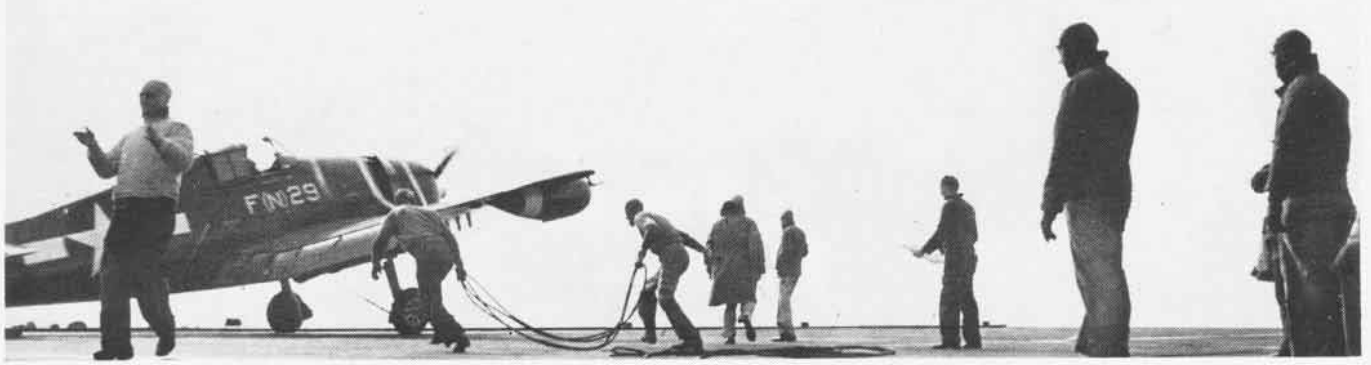
Carriers Go Into Simulated Combat; Marines Work Together To Attain Smooth Running Group

A 10-DAY shakedown cruise under simulated battle conditions caps the rigorous program that prepares Leathernecks for duty aboard CVE's. The purpose of this operation is to mould component parts of an Air Group into one efficient fighting unit.

The carriers usually cruise over a range approximately 150 miles off the California coast. Simulated air attacks are carried out against enemy positions on several of the small islands that dot the coastline. Theory is put into practice.

During the 10-day shakedown, fighter and torpedo bombing pilots log from six to eight hours daily. The first two days are spent on refresher carrier landing and take-offs. General quarters is sounded early the third day and from that day through the tenth, the carrier is in combat.

During the last two days, competent observers come aboard to grade the operations. By that time, the Marine Air Group is a powerful, well-oiled fighting force aboard a well-manned floating airbase. Marine Aviation's primary mission is fulfilled. Ready for action, Marine carrier air groups are capable of providing close air support for ground forces and of inflicting damage on the enemy strong points.



MARINES STRESS KNOWLEDGE OF A JOB AND SPLIT-SECOND TIMING AS REQUISITES FOR ANY TYPE OF CARRIER OPERATION

MARINE AIRMEN *gather around a chart as they discuss a scheduled simulated strike. Plans call for cooperation and specific tactics. These Leathernecks are groomed for action and geared to go*

TRAINING PAYS OFF. *A* TBM *pilot is about to leave his carrier for a final shakedown mission. Successful completion of the carrier program gives men confidence in their ability and equipment*

GRAMPAW PETTIBONE

Pre-Flight Checks

On coming in to land, an FG pilot was able to extend only one wheel, due to a leak in the hydraulic system. When he attempted to use the emergency CO_2 system, he discovered that the handle was *missing*.

This necessitated a one-wheel landing during which the airplane sustained considerable damage.

Grampaw Pettibone says:

Sure this could be put on the pilot's check-off list. So could a thousand other similar things, but then the pilot would never get in the air.

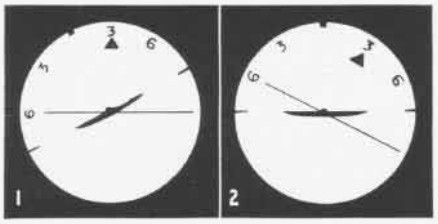
This is one of the many points on which the pilot has got to depend on maintenance personnel. Steps MUST be taken to insure their inspections include these items.

Whispered advice to pilots: Since your neck is at stake, always personally check as much of this stuff as you have time for. And don't forget to raise a big stink whenever you find anything wrong.

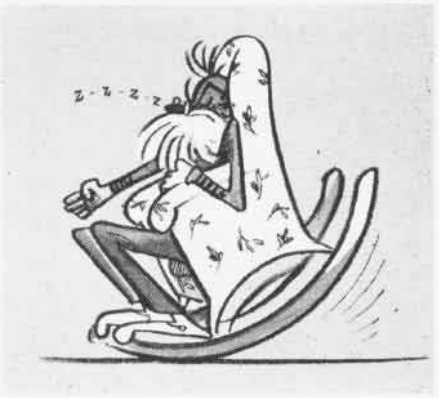
Reversal of Perception

Of course, we all know that the horizon indicator in a gyro horizon remains in a fixed position with respect to the actual horizon and the little plane on the instrument which represents our plane, revolves around it as shown in fig. 1.

Occasionally a pilot who has stared intently at the instrument panel for a long period during an instrument flight, becomes the victim of a reversal of perception. He perceives the horizon bar tilting rather than himself tilting with respect to the horizon. For instance, when he makes a left turn, he sees the horizon bar tipped to the right, as shown in fig. 2, and he endeavors to level it by lowering his left wing. This increases his angle of bank to the left and, as his nose drops, a graveyard spiral may result.



The chances of this mistaken conception occurring are increased if the pilot has been under strain for a long time and is fatigued. Preventive action



lies in being aware of this danger and in continually reminding yourself that you can always bring the wing up to the horizon but can never bring the horizon down to the wing.

F8F Landing Gear Pointers:

Evidence indicates that some pilots do not have the "word" on the proper emergency procedure for lowering and locking the F8F landing gear.

In the first place, before operating the landing gear control, be sure IAS is sufficiently reduced. TO 72-45 says the maximum speed for lowering the landing gear is 175 knots. If the gear does not lower after operating the control lever:

1. Check your hydraulic pressure.
   - *a.* If pressure is below 1250 psi with selector on SYSTEM, one of two things is probably at fault; either there is a leak in one of the systems, or the engine driven hydraulic pump is malfunctioning. Your procedure should be as follows:
     1. First, test for a leak. Place the selector on "Landing Gear" and work the hand hydraulic pump. If there is no leak, hydraulic pressure should be built up in about 10 double strokes. Repeat test for other 2 systems. After locating leak, do not use damaged system. (Also, do not turn selector to SYSTEM). If leak is determined, it then will be necessary to supply pressure to good system (or systems) by hand pump.
     2. If there is no leak in any system, the engine driven pump apparently is malfunctioning. In this case, turn selector to "Landing Gear" and employ hand pump while flying at minimum safe flying speed.
2. If the hydraulic system is OK or the above procedures fail to lower and lock the landing gear, the following steps should be taken:
   - *a.* Place landing gear control in "Down" position.
   - *b.* Slow flying speed to 120 knots or under.
   - *c.* While imposing one negative "g" on airplane, pull emergency landing gear release ("T") handle.
   - *d.* Rock the airplane in order to lock the wheels in "DOWN" position. The red "T" handle control releases the landing gear and landing gear door uplocks (main wheels) in the same operation, and opens the dump valve which empties the hydraulic cylinders of fluid, thereby allowing the wheels to drop into the down position.

See *Pilot's Handbook* for further explanation.

Grampaw Pettibone says:

Suggest you F8F guys make a copy of this and keep it handy in the plane. You may need it in a hurry some day.

The Penalty

A pilot with 618 hours took an F6F out for an engine test flight at an advanced base. When he returned to the field, he pulled up into a climbing turn at a speed of approximately 180 knots, then attempted a barrel roll at 300 feet altitude. The nose dropped while in the inverted position, and at the end of the roll the plane was headed for the water just offshore from the airstrip. The pilot attempted to pull out, but due to his low altitude, he was still in a 20 degree dive when he hit.

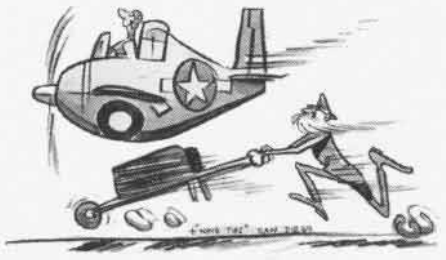
As the squadron commander said, "This accident exemplifies the penalty exacted for violating flight safety rules. All pilots in this unit are constantly reminded and admonished not to violate established rules of safety and have done admirably well. It is impossible to dream up a reason for this low-altitude maneuver; a dead man puts out no information. However, it is believed and sincerely hoped that this accident will impress upon all pilots what poor judgment might lead to."

While Hirohito's emissaries signed surrender documents on the deck of the U.S.S. *Missouri* in Tokyo Bay, Third Fleet carrier planes droned overhead symbolizing the might that brought Japan to her knees. Crew members muster under the yawning muzzles of the *Missouri's* rifles.

Belly Floppers

Reports of wheels-up landings during familiarization flights and night FCLP are received at the rate of approximately one a day.

These accidents seldom occur the first time around, but rather on subsequent passes. This indicates that some pilots get progressively more careless during touch-and-go landings or following a wave-off. They either fail to go through the check-off list each time or neglect to check the indicators to *insure* that the wheels are locked.



It is noted that the preventive action being taken by an increasing number of squadrons and training units is to require pilots to leave their wheels down for all bounce drills and during night FCLP. It is the consensus among former squadron commanders and combat-experienced pilots, however, that this procedure is all wrong. They admit it may reduce the wheels-up landings in the units concerned, but they contend it is faulty training and merely projects these accidents out into the Fleet with attendant serious effect on Fleet operations. They insist that the check-off list must not be violated, pointing out that the sooner in his career it is learned that a pilot is incompetent, the better for all concerned.

One other reason for not leaving the wheels down is that few planes will stand much of this without over-heating.

During daytime, a signalman at the incoming end of the landing runway, to give a wave-off when wheels are not down, has prevented many a belly landing. The signalman, however, cannot tell whether the wheels are fully locked—this still remains the pilot's responsibility.

At night, a variation of this system has proved to be very effective and is recommended for trial. For best results, three signalmen are required. The senior one is stationed at the extreme incoming end of the runway, preferably on the right side. The other two signalmen are stationed approximately 200 yards and 350 yards, respectively, farther down the runway. Each signalman has a Very's pistol and the senior signalman also has an Aldis Lamp and a second Very's pistol for use in case of misfire.

The man at the end of the runway waits until the incoming plane comes abeam, so as not to blind the pilot, then carefully checks the wheels with his Aldis Lamp. If wheels are not down, he fires his Very's pistol, which signal is repeated by the other two signalmen up the runway. The pilot may not see the signal of the man at the end of the runway, but the signals from the other two men should be directly in his line of sight.

"Do Unto Others . . ."

A PBY pilot was flying at 5500 feet on instruments through heavy, swelling cumulus clouds. Suddenly, terrific air currents threw the plane on its side. After losing 2500 feet altitude and reaching a speed of 200 knots, the pilot finally recovered with a split-S.

Believe it or not, when the pilot filled out the "Yellow Sheet" on this flight, he didn't say a word about the plane having been subjected to such strain or of having exceeded the maximum allowed airspeed or of having to pull the plane out with such force.

The plane was scheduled for an afternoon flight. Immediately after take-off, the new pilot noticed something was radically wrong, but since he was heading over land, he had to gain altitude before he could turn around. He landed as soon as possible, taxied back to base and reported the plane to be seriously out of balance.

Inspection showed that the plane had been severely strained on the previous flight. It was estimated it would take four weeks to put it back in flyable condition.

Grampaw Pettibone Says:

My Gawd! Does a wing have to fall off before some pilots will report it?

This pilot certainly didn't give his fellow fliers much consideration. I wonder what he would have done if he had been scheduled to take the same plane up again without having it checked. I certainly hope he would have had more sense than that, but it looks doubtful.

The Yellow Sheet is the pilot's "insurance." It insures that Maintenance and Engineering will fix up planes between flights or, if they are not immediately fixable, that they are grounded. The only way this system will work, however, is on a mutual basis—you write the other fellow's "insurance" on the Yellow Sheet, and he writes yours. Remember the Golden Rule!

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. **In case of structural or control damage in flight as the result of a failure or collision, what piloting procedure should be followed?**
2. **What is the proper procedure for fitting a life vest?**
3. **What is the difference between normal rated power and take-off power?**
4. **What is the minimum angle for crossing a civil airway during instrument flight?**
5. **Do regulations forbid diving on wild fowl or frightening them in any way?**

(Answers on page 32)

Corsair Warning

During an *Immelman* turn an FG-1A entered an inverted spin. The pilot (inexperienced in this model) was unable to recover and bailed out.

The investigating board was of the opinion that the pilot's main difficulty was his unfamiliarity with this airplane. Slow speed at entry and abrupt manipulation of the controls during the maneuver undoubtedly were the principal factors causing the spin. Failure to recognize the inverted spin until it had progressed sufficiently to develop high control forces, accounted for recovery not being effected.

The paragraph on acrobatics in the *FG Pilot's Handbook* says: "Inexperienced pilots shall not enter loops or *Immelmans* at less than 280 knots indicated air speed. This speed may be lessened as more experience is gained in these maneuvers."

The prohibited maneuvers and flight restrictions on this airplane are contained specifically in Technical Order No. 67-45.

Landing Procedure

Several air stations have placed the following operating procedure in effect to reduce needless landing accidents:

When entering the base leg of the traffic pattern, the pilot is required to call the tower, identify his plane and report, "Turning on base leg, wheels down and locked."

If this signal is not received or if two-way radio contact cannot be maintained, the pilot automatically is required to make a low approach over the control tower at an altitude of not less than 500 feet. If the landing gear appears to be down and in place, the tower then grants appropriate landing clearance by radio or light gun signal.

PLANES OF TASK FORCE 38 HELPED CRIPPLE JAPANESE FIGHTING STRENGTH; CARRIER-BASED AIR POWER ROARS IN TOKYO BAY

JOHN SIDNEY McCAIN, USN

As COMMANDER, Fast Carrier Task Force 38, Vice Admiral John S. McCain lived to defeat the enemy, and to witness the supreme moment that was the culmination of his efforts—Japan's surrender.

A naval officer for 39 years and a naval aviator for 9, Vice Admiral McCain served with distinction through both World Wars. The planning and leadership he exhibited, as a carrier task force commander in the Pacific and Chief of the Bureau of Aeronautics and Deputy Chief of Naval Operations (Air), were instrumental in setting the stage for the final knockout blow against Japan.

Commander of Carrier Task Force 38 from May 27, 1945 until the surrender, Vice Admiral McCain accomplished the three-phase mission of neutralizing Kamikaze bases on Kyushu, protecting American forces on Okinawa, and smashing Japan's homeland. In that period his carrier task force took a toll of 6000 Jap planes.

Earlier in the war, a fast carrier task group of the Third Fleet commanded by Vice Admiral McCain participated in the Second Battle of the Philippines Sea and helped cover the landings at Peleliu and Leyte. Then he assumed command of Fast Carrier Task Force 38 and unleashed the blows that liquidated Jap air power in the Philippines.

On a still earlier tour of Pacific duty, Vice Admiral McCain as Commander, Aircraft South Pacific and South Pacific Force, contributed greatly to occupation of the Guadalcanal and Tulagi area. From December 1941 to May 1942, as Commander of Air Forces Western Sea Frontier, he organized and conducted offshore and coastal air patrols.

Vice Admiral McCain earned his naval aviator's wings at NAS PENSACOLA in 1936, and was assigned to duty as Commander Fleet Air Base, Coco Solo. His other pre-war aviation duties included captain of the U.S.S. *Ranger* and Commanding Officer of the Naval Air Station at San Diego, Cal.

Gibson Girl's Face is

IN A FAIR WIND, BOX KITE FLIES THE GIBSON GIRL'S 300 FEET OF ANTENNA. KITE WILL FLY IN HIGH WIND EVEN WHEN WET

One-Way Transmitter for Use in Life Raft Is More Popular With 20th Century Survivors Than Its Namesake Was With Mauve Decade Casanovas

NEW GIBSON GIRL, AN/CRT-3, HAS MORE RANGE, CLEARER SIGNAL

"ITEM contributing most to rescue: Gibson Girl—"

"Gibson Girl is a 'must' for planes flying over water—"

"Gibson Girl is a most important item of survival gear—"

Comments like these, in official rescue reports, point to ever-growing popularity of a "lady" lifesaver listed as Radio Transmitter SCR-578-A or SCR-578-B. Simple, rugged, hand-powered, waterproof and buoyantly packed, the Gibson Girl operates from a life raft.

The one-way radio has won spurs on all fronts. Every ditching report testifies to her success:

▸ PBM in Caribbean—"Gibson Girl functioned excellently. Three hours after landing, a D/F station picked up signal. Eleven hours after landing, an AVP picked us up."

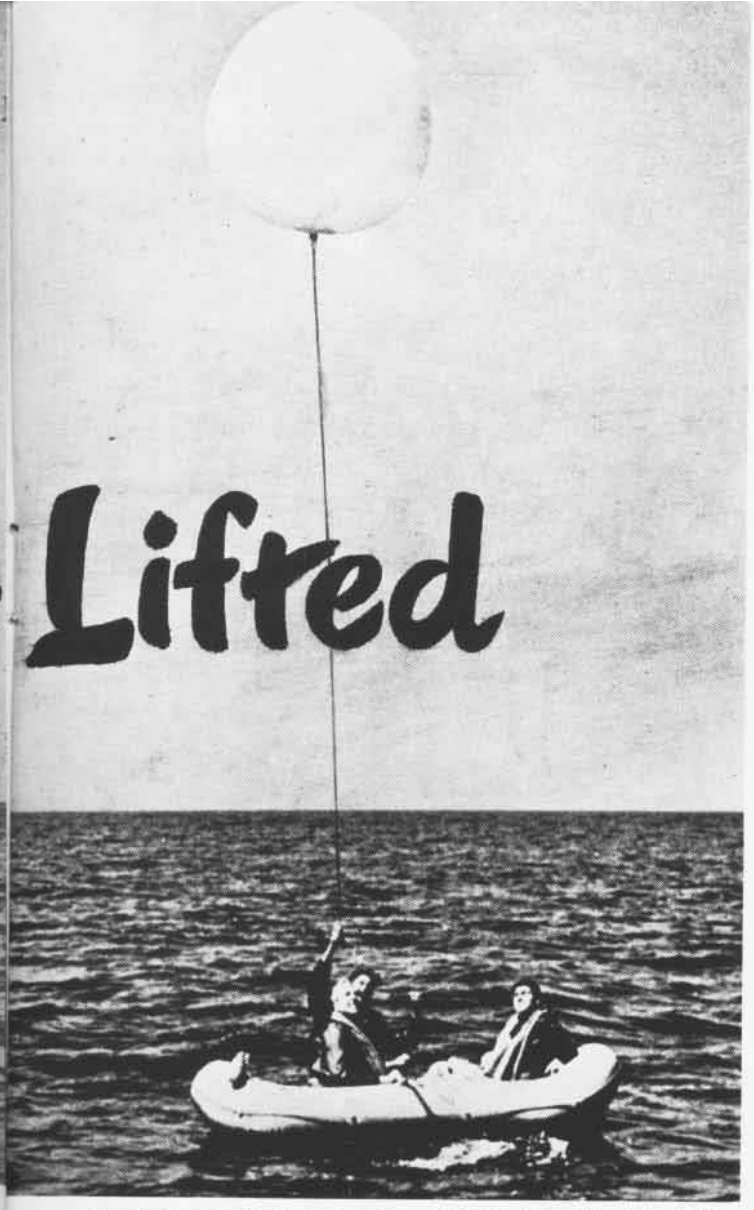
▸ B-17 in North Sea—"Although plane floated only 15 seconds, the Gibson Girl was released. A shore radio fix was obtained, and survivors located in three hours."

▸ PBM off Pacific Coast—"Fourteen RDF stations from northern Washington to southern California took reliable bearings. Farthest was 370 miles away."

▸ B-25 off New Caledonia—"Rescue planes homed on the rafts and six rescue vessels also reported bearings on the signal. One vessel obtained excellent fix at 870 miles."

The last two cases are unusual. Sets now in use are designed for broadcast radius of 30 to 300 miles. Success is so marked, however, that a new Gibson Girl, AN/CRT-3, is in the making. It will operate on the two distress frequencies, alternating 500 KC and 8280 KC. The signal has been received at distances as great as sixteen hundred miles on 8280 KC.

Lifted



IN CALM, HYDROGEN INFLATED BALLOON RAISES THE ANTENNA

RELEASE and operation of the Gibson Girl is simple if performed according to instruction. Each kit includes: transmitter, inflation tube, parachute, hand crank, antenna wire; plus accessory bag with kite, signal light, extra antenna, two balloons, two hydrogen containers, instructions.

When operating, the transmitter is held between the knees. Power is generated by a handcrank on top. Box kite or balloon (depending on wind) raises antenna to 300 feet. The unit is adjustable to transmit signals continuously and automatically coded, or can be keyed manually.

Trouble is reported occasionally, owing to lack of proper usage. Reports indicate the most common faults:

Remember, the Gibson Girl is not a piece of miracle equipment. Like any emergency gear it should be conserved until there's a chance it will be heard.

In making Gibson Girl drops, the parachute will tend to remain blossomed, and will be carried faster than the raft drifts, often "running away" from survivor. The chute should be zoomed, thus spilling the air from it. This was accomplished successfully under combat at Amami O Shima.

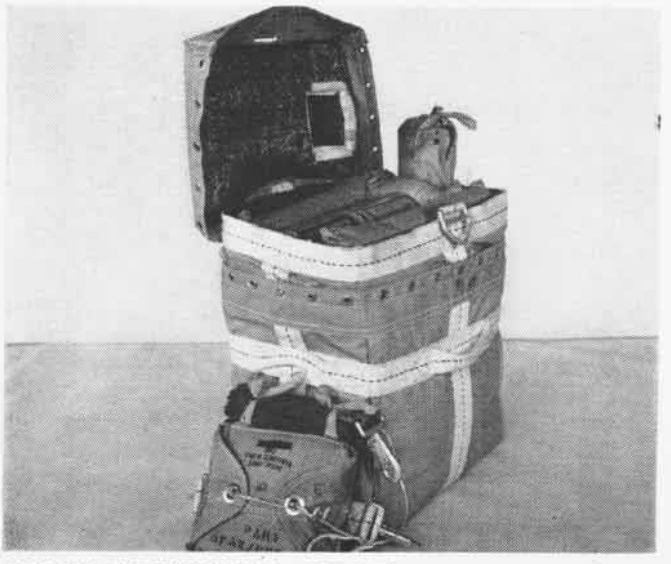
Don't confuse Gibson Girl with other emergency gear packed similarly. Pre-flight inspection will solve this.

Use entire 300 feet of antenna to get clear signal and utmost distance.

Reflector in Gibson Girl clouds when exposed to moisture. Check it.

If signal light won't work, check metal making contact with the light bulb. Sometimes this connection is loose.

IN NORMAL OPERATION SET IS BETWEEN KNEES, POWER CRANKED



COMPACT, CLEARLY MARKED, NEW GIBSON GIRL WILL SAVE LIVES

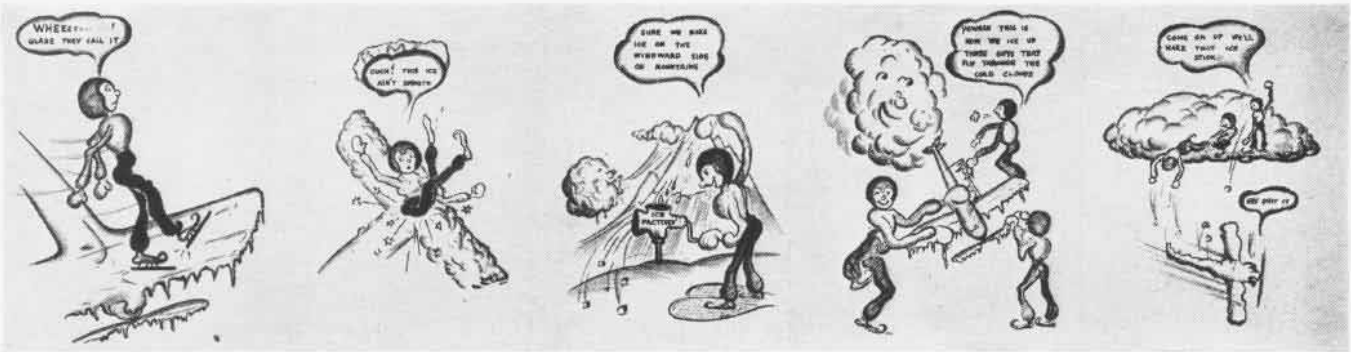
BEWARE OF ICING!

Winter Tips for Naval Aviators

TELL-TALE STRUT COLLECTED RIME ICE (WHITE) AND GLAZE ICE ON SPECIAL FLIGHT TEST

AIRCRAFT accident reports offer powerful evidence of the seriousness of the icing hazard. A thorough understanding of the manner in whch ice forms, where it forms and how best to avoid it is mandatory for pilots having any plans for the future.

Types of Ice. Icing is usually most severe in clouds at a temperature of about 25 degrees Fahrenheit, although cases of ice formation have been reported from the Arctic at temperatures of minus 20 degrees Fahrenheit. Ice is either CLEAR or RIME. CLEAR ICE (also called GLAZE) is hard and tenacious, has the smooth surface of refrigerator ice cubes and tends to destroy airfoil characteristics, thus decreasing the lift. RIME ICE is an opaque, "fuzzy" type similar to that which forms on the coils of a refrigerator, is easily broken from wings by deicing equipment and does not destroy airfoil characteristics. Heavy coatings of ice usually consist of both CLEAR and RIME ICE. FROST consists of small separate crystals of ice and is not important in flight. It should, however, always be removed from the plane before take-off since it may have an appreciable effect on the lifting power.



Ice Formation. A particularly dangerous icing situation occurs when a current of warm moist air flows into an area over sub-freezing air. The warm air, forced aloft by the cold air, creates clouds that precipitate in the form of rain. The falling rain then passes through the cold layers of air and is cooled to form what is known as FREEZING RAIN. CLEAR ICE forms rapidly on a plane moving through FREEZING RAIN and often the ice will be mixed with sleet or snow, forming an extremely rough surface.

A region of mist, fog or stratified (layer type) clouds presents another icing hazard in winter. The droplets of moisture that form these phenomena are relatively small and favorable to formation of RIME ICE. If the concentration of droplets is dense enough, CLEAR ICE may form and sometimes sleet or snow will be imprisoned in the ice itself.

Cumuliform clouds are conducive to what is perhaps the most dangerous icing condition of all. The extreme turbulence in clouds of this type, particularly in the cumulonimbus or thunderstorm cloud, causes heavy ice formation on planes that fly into them at icing levels. The effect is intensified in mountainous areas since the mountains force air flowing against them to rise.

Mountain Regions. This latter aspect is particularly noticeable in winter over the Appalachians when moist air from the Gulf region reaches near-freezing temperatures. With such a combination, icing conditions are almost certain to result. Similarly, serious icing conditions are a frequent occurrence in the Cascades, Sierra Nevadas and Rocky Mountains where moisture-laden air from the Pacific meets these barriers.

Ice May Form on Many Parts of Aircraft, Causing Pilots Serious Operating Difficulties in Flight

ICING ALONG FRONTS. The great majority of cases in which icing has been observed were those which occurred in frontal zones. In the case of a warm front only a small lifting of the warm air mass is sufficient to cause thick cloud systems with heavy precipitation. As a warm front zone will often cover many hundreds of square miles it is obvious that a flight through it may be of long duration with a resultant increased danger of severe icing.

Cold fronts while of relatively narrow width are, however, potentially more dangerous from an icing viewpoint as they have the cumuliform clouds associated with them. Extremely hazardous icing conditions may be encountered due to the combination of clear ice formation with the high rate of accumulation.

Where Ice Forms On Plane. Ice may form on any or all of the following places in sufficient quantity to make the plane difficult to control; in some severe cases may even force it down:

THIS ICE FORMED DURING TEST BY NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

1. It may form on the leading edges of the wings and tail assembly. The first indication of wing ice is a thin strip along the leading edge, which gradually builds up to change the airflow. In the same way the tail assembly may have ice built up to an extent that will give the tail a tendency to swing or may set up dangerous vibrations.

2. Ice may form on the propeller and cause a serious loss in efficiency. Vibration will usually be noticed due to an unbalanced prop.

3. Carburetor ice is a great hazard as it may occur when outside temperatures are well above freezing and, if the humidity is high, it may occur in clear air. This is due to the refrigeration effect produced by the expansion of air and vaporization of gasoline. In this connection, ice may form on the metal surfaces around the throttle, causing it to stick.

4. Ice may form within or on the pitot tube, resulting in erroneous air speed readings.

5. It may collect on the radio antenna, causing it to break or grounding it.

6. It may cover the windshield to an extent where the glass may have to be broken to improve vision when landing.

Ice will continue to form as long as the plane remains within the danger area, spreading back from leading edges. The propeller will ice up to its full length, and ice will form irregularly on the spinner. If the plane has been flown in extremely cold air for a long time and then flies into a layer of moist air, ice may form rapidly on contact of the air with the plane even though no clouds are present.

How to Avoid Icing. The best method to use to escape the effect of icing is to get out of the icing danger area as rapidly as possible. In the case of FREEZING RAIN the danger area is where the rain is falling, not where it is falling from. If possible, it is best to climb into the warm layer of air from which the rain is falling. Care must be taken to avoid getting too far above the base of the warm layer, however, as icing may again be encountered in the colder air above this warm current of air.

SNOW AND SLEET fall from an area of severe icing. Fly through the area where they are falling, never in the region where they are originating. Sleet is composed of already-frozen water droplets and alone cannot cause trouble. Snow sometimes may be of the wet clinging type and, since it is falling from a layer of cold air, it is sometimes possible to climb a short distance to an elevation where the snow will not adhere so readily.

Stay well clear of turbulent clouds on the windward side of mountains. These clouds usually extend about 4000 feet above the mountain tops, but in the case of unstable air are frequently much higher.

In going through a layer where icing danger prevails, go through as quickly as possible. A long glide through such a layer increases the period in which the plane is exposed to the accumulation of ice.

If action is taken quickly enough after icing is first noticed, a 180-degree change in course often is the safest.

Seaplanes should take off with the least possible taxiing in freezing weather as they can become dangerously iced from spray under such conditions.

The following extract from an Army Training Intelligence Report is significant:

"During winter, icing ordinarily does not occur below 5000 feet; however, the icing level lowers when storm or fronts are near and in rare cases extends to the surface. In summer, the 32-degree isotherm is normally well above normal flight levels although icing may be expected in cumulus and cumulonimbus clouds."

No maneuver in naval tactics can be executed in the most successful manner without a great deal of intelligent forethought, extensive planning, and many practices and rehearsals. This is particularly true of flying in icing conditions. The pilot must be thoroughly familiar with all means available in his aircraft for combatting ice. He must know when and how to use them and what their limitations are.

Before reaching the point of expected landing, while still at cruising level, the pilot should refer to the weather forecast or, if conditions permit, call for weather reports via radio. He *must* determine to the best of his ability what conditions to expect and what to do in any event.

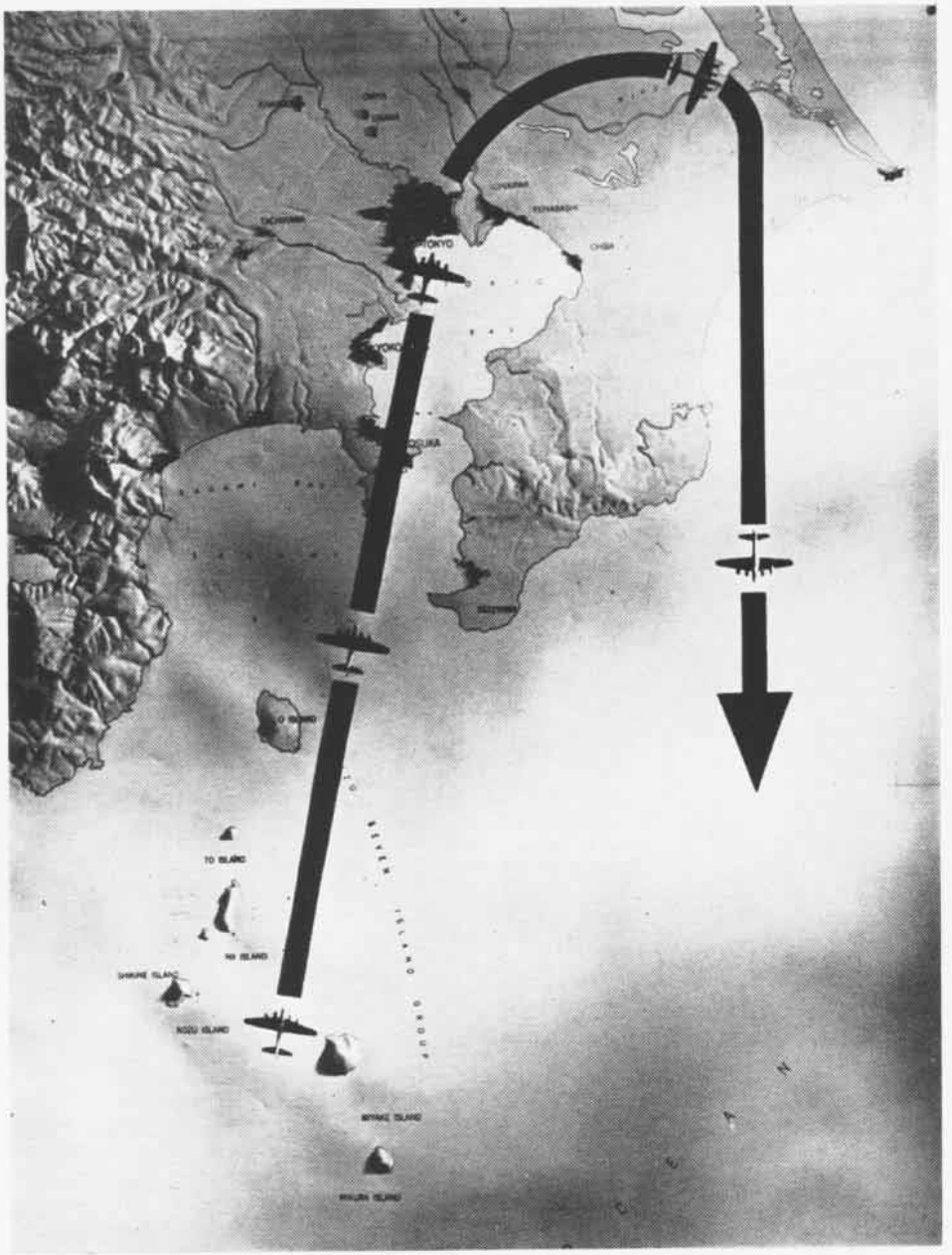
More detailed information on icing will be found in *Ice Formation on Aircraft* (Number One of the *Aerology Series*); TN 79-45, *The Formation of Ice on Aircraft;* a training film entitled *Ice Formation on Aircraft* (MN-119a-AH) and any standard textbook on aerology.

A Ride on the Radar Trainer

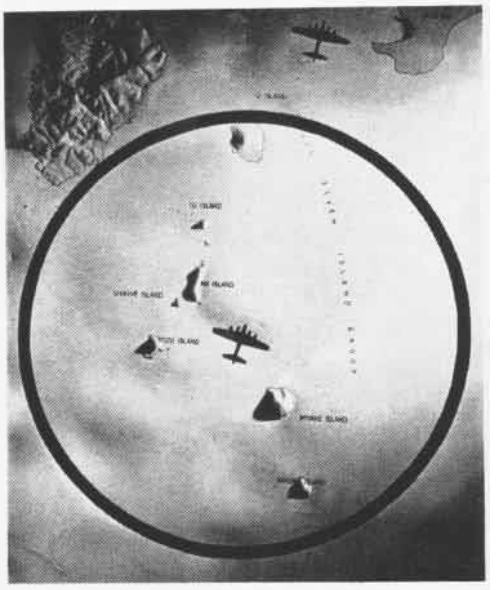
AN ULTRASONIC trainer, developed by Special Devices Division, Office of Research and Inventions, saved precious hours of flying time in training bomber crews in use of radar equipment. At advanced bases the device, which works equally well with AN/APS-2, AN/APS-3, AN/APS-4 and AN/APS-15 gear, provided an excellent method for training and briefing bomber crews for raids on enemy territory. Actually a miniature radar system, the trainer through use of high frequency waves in water may be controlled and made to simulate the performance of radar.

A quartz crystal, attached to a carriage, represents the plane and travels over the terrain in any direction and at any speed or altitude, within limits. The crystal vibrates at an ultrasonic frequency and functions as both a transmitter and receiver. The traveling carriage is positioned by controls on the tank's framework. A tube extending below this carriage holds the crystal suspended in water. An electronic unit provides circuits to operate the crystal and a receiver for accepting reflected energy.

A map of molded vinylite capable of reflecting ultrasonic energy is placed in the bottom of the tank. This map represents the terrain over which the simulated mission is flown. A top map drawn on glass enables the instructor to know the position of the plane at any time. A permanent record of the bomber's course is traced on a sheet of paper stretched beneath the top map. During a bombing run on the trainer this trace becomes the path of the bomb from time of its release until the point of its simulated impact.



Model bomber and route it will take on the simulated raid on the Japanese capital; photographs that follow show the bomber's course and how it appears to radarman at scope



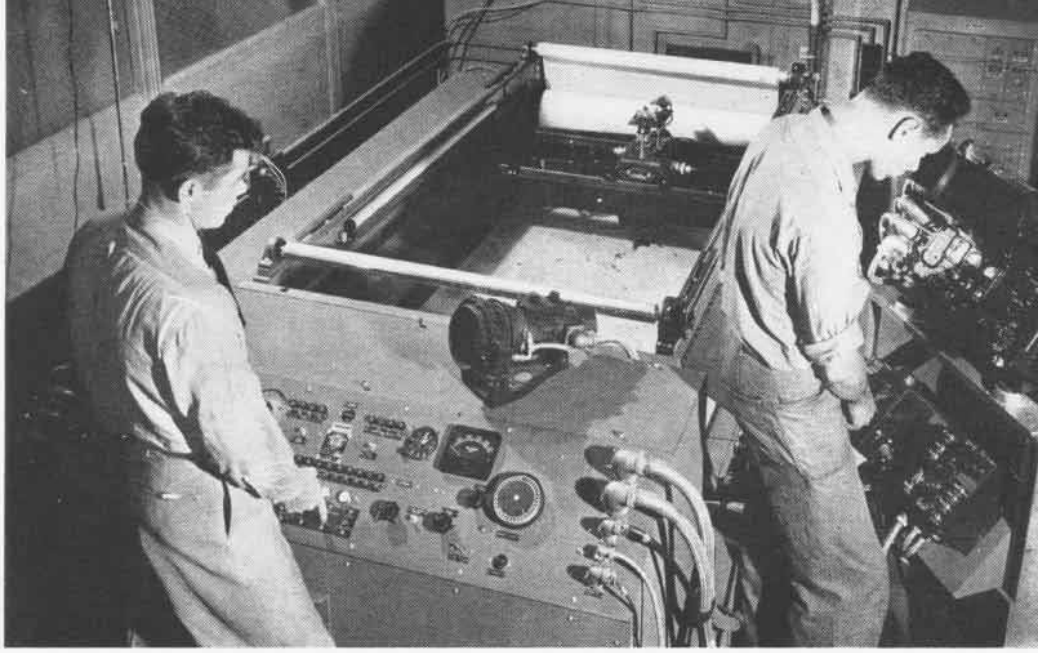
Three dimensional trainer relief map of area uses islands as navigational check points

Tokyo five miles ahead appears brighter than of scope indicates course of plane. The

Bomber Crews Briefed With Radar In Miniature Recognized Path to Target from Images on PPI Scope

To show pictorially how the ultrasonic trainer works, these photographs were taken of a simulated bomber mission to Tokyo. All photographs were taken of the radar trainer's map and scope during mission.

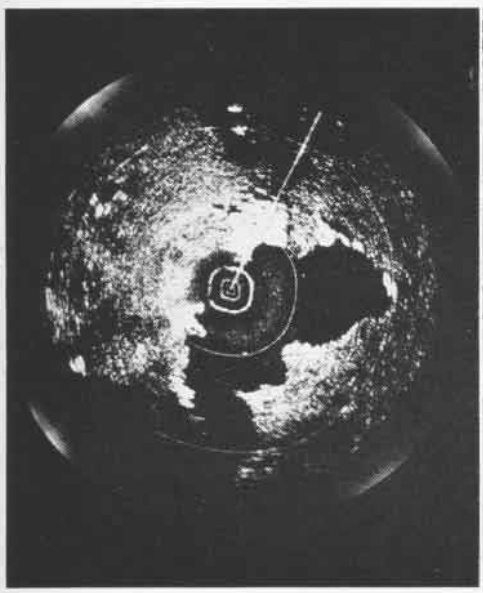
Path of bomber, actually the quartz crystal, over the three-dimensional map can be compared in each case with the image reflected in radar PPI scope attached to trainer. Radar operators, bombardiers, navigators, and pilots briefed on the ultrasonic trainer found a familiar route to target.



TWO MEMBERS OF A BOMBER CREW CHECK OUT ON ULTRASONIC TRAINER FOR TOKYO RAID

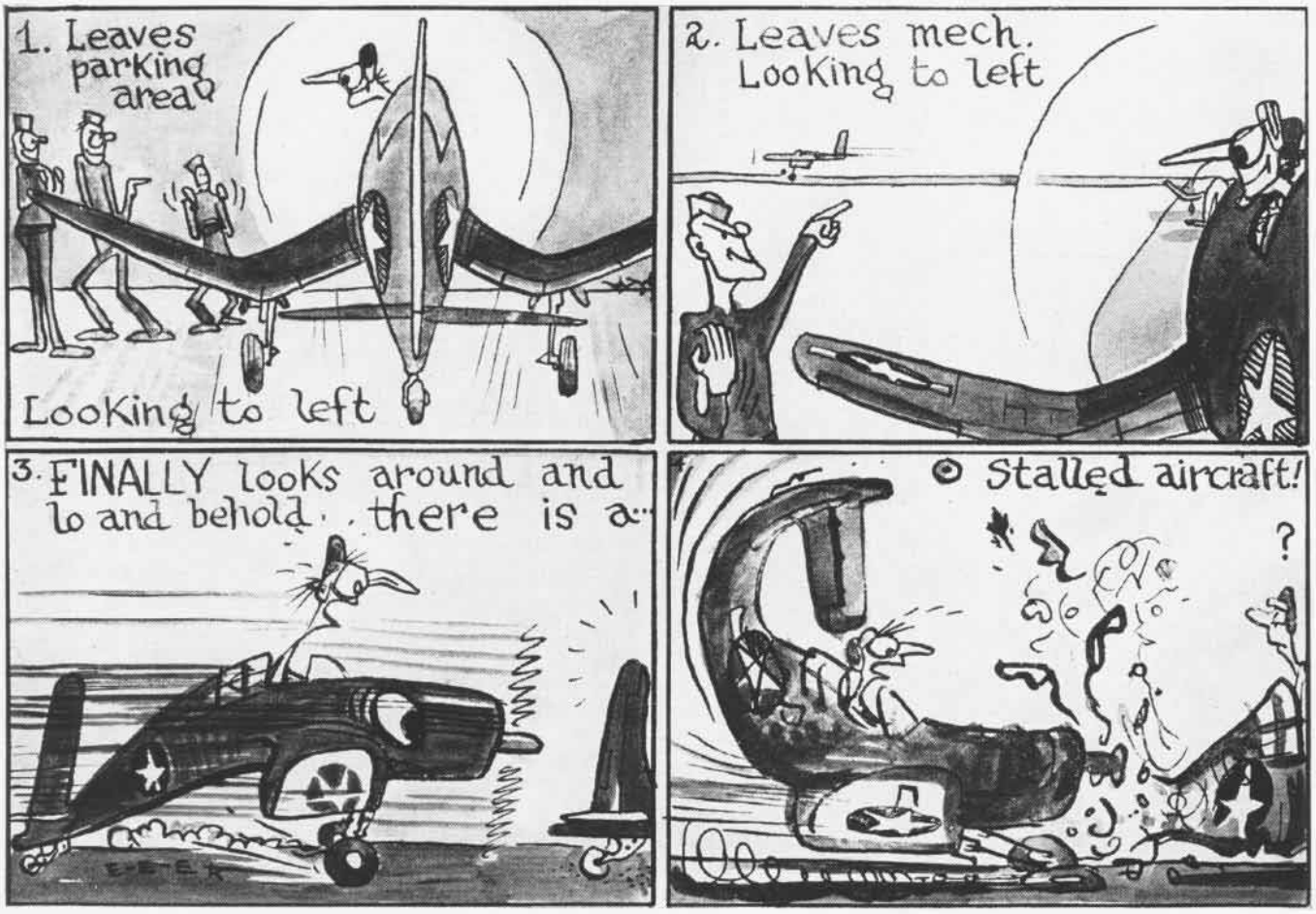
bomber flies over nearing Tokyo; radarman to get plane on right course for release

Approaching Tokyo bay area, headlands are clearly etched in scope. At this point it is time to eliminate wind drift and get the proper ground course for the bombing run on target



surrounding country. Bright line at top maps and pictures all are azimuth stabilized

Small circle in center shows plane's altitude at 10,000 ft. Scope of radar gear attached to trainer device picks up the landmarks that are seen on a real bombing mission



FLIGHT SAFETY

Ens. TAXIDERMIST (He'll cut your hide off)

MORAL: Be Alert—Taxi Carefully.

An analysis of taxi accidents shows that approximately two-thirds of them were collisions with other planes, vehicles or construction equipment that should have been avoided had the pilot been alert and taxiing carefully. To avoid the pilot errors involved in these accidents the following *safe taxiing* suggestions should be observed:

1. Taxi at a safe rate of speed to permit sufficient S turning and positive control at all times. The more confined the area, the slower the taxi speed.

2. Never taxi into an area that has not been cleared visually. Maneuver the plane in such a way that built-in *blind spots* never blank out an area into which the plane is taxiing. In crowded areas insist on a plane director.

3. Never allow your attention to be concentrated in one direction; maintain sharp look-out in all directions. To do this, it is necessary to have seat adjusted to give maximum visibility. When this is done, care must be taken to adjust rudder and brake pedals to permit positive control.

4. Never taxi too closely behind another plane. Allow plenty of distance so that a stop can be made without causing a collision or a nose-up should plane ahead halt suddenly.

5. Establish and maintain radio contact with the tower for all operations on or near the field. The tower can do a great deal toward preventing ground accidents if contact is maintained and good procedure is followed by both tower and pilot.

6. Respond properly to taxi signals. To do this, standard day hand signals and night wand or light signals must be known and understood by the pilot.

7. Do not depend on vehicular traffic to give you right of way. Usually the drivers know nothing about the limitations of aircraft and do not realize how poor the visibility is from the cockpit.

8. If your plane becomes stalled on the field, take immediate precautionary measures. Try to warn other planes via the tower, but also keep a sharp lookout for a possible collision. If other planes are approaching, don't just sit there; get out and try to warn the other pilot.

9. Be especially careful while taxiing at night. Visibility is reduced, so taxi slower than usual and maintain a sharp lookout in all directions. Be sure running lights are functioning prior to leaving the line and if they should fail during operation, advise tower if possible and return to the line immediately.

10. Use brakes intelligently. Apply pressure smoothly; many nose-ups are caused by unnecessary abrupt application of brakes. Be sure brakes are functioning properly before leaving the line. If any minor weakness is noticed, keep that fact in mind and allow for it while taxiing.

Taxi Carefully. Don't become a typical case history.

DID YOU KNOW?

RPS Announces New Publications

Mags Are a Must for Pilots and ARM's

Two publications recently have been added to the Registered Publications Section allowance list, with which pilots and aviation radiomen should be thoroughly conversant. Both the new magazines are joint Army and Navy publications: The first is JANP 107—Joint Emergency Rescue Communications Procedure; the second, JANP 108—Joint Direction Finding Procedure.

CASU's, air stations, carriers and Marine air groups and wings are on the allowance list, and should draw these publications for attached squadrons.

Industrial Engineering Course

Will Be Given at Alameda in December

ALNAV 265, dated 15 September 1945, establishes a short course in industrial engineering and other phases of management engineering to be given at NAS ALAMEDA, starting about 1 December 1945.

A limited number of officers who have had considerable experience in this field in private industry, whether in aeronautical or other manufacturing lines, will be trained for staff assistants to A&R officers at major air stations.

Course will cover:

a. Increasing utilization of manpower and facilities, including work simplification, method improvement, plan layout, production control, setting time standards, etc.

b. Clarifying and improving policies, organizational structure and administrative procedures involved in meeting schedules with minimum cost.

c. Establishing control statistics to show management how well these goals are being attained.

Officers interested should address Chief of BUPERS, via Chief of BUAER (Attention MA 203), stating briefly their pertinent civilian and naval experience and approximately how long they are willing to remain on active duty.

CPO's Change Uniform Styles

New Regulation Effective Immediately

The Secretary of the Navy has approved changes in the uniforms worn by chief petty officers, effective immediately. The style and design of the CPO's blue coat shall be made identical with that worn by commissioned and warrant officers. Gilt buttons will be 35-line. The CPO overcoat will have 40-line gilt buttons.

Personnel are authorized to wear their old type uniforms until they no longer are serviceable. The changes also apply to chief cooks, chief stewards, cooks and stewards. These ratings also are authorized to wear the officer-type raincoat.

NANews to Continue

NAVAL AVIATION NEWS will continue to publish the latest survival, technical and safety information and will absorb a number of features and data formerly published in NAVAER MAINTENANCE magazine, beginning with the November issue.

Formerly published twice monthly, the NEWS after that date will become a monthly magazine, with practically the same features and departments that it has carried throughout the war. Contributions from squadrons, air stations and other Naval Aviation activities will be welcomed and published when deemed applicable and worthwhile to others.

One feature of NAVAER MAINTENANCE will be published as a separate bulletin, the RUDM'S. This publication will be called the RUDM DIGEST, NavAer No. 00-65-500, and will be mailed on or about 10 November.

A New Tower In Anacostia Area

Red Obstruction Lights Mark Structure

Of interest to Naval Aviators operating aircraft in the Washington, D.C. area is the construction of a 168-feet-high water tank tower at Suitland, Md., four miles east of NAS ANACOSTIA.

Red obstruction lights will be exhibited on the water tank at night in accordance with CAA specifications. The tower, 463 feet above sea level, is located 660 feet east of the government office buildings at Suitland and 3½ miles northwest of Andrews Army airfield.

Division of SECP Changes Name

Becomes Office of Industrial Relations

The Navy's Division of Shore Establishments and Civilian Personnel is now the Office of Industrial Relations.

Rear Admiral F. G. Crisp, USN, director of the Division of SECP, has the new title of Chief of the Office of Industrial Relations. No change will be made in the functions of the office, which had administrative control over approximately 700,000 civilian employees who worked during the war in the Navy's shipyards, ammunition depots, air stations and other activities.

The Office of Industrial Relations will report, as did its predecessor, directly to the UNDERSECNAV, A. L. Gates.

THE NAVY'S *newest version of the battle-tested* Corsair *is the* F4U-4, *a souped-up model with more power, climb and speed. Chief apparent change in the plane is its four-bladed propeller and the chin scoop, new with the* Corsair *but present in the* F6F *and* SB2C. *The new model has a* 2100-*hp. Pratt & Whitney Double Wasp engine, larger and fewer cowl flaps,* 1000 *feet a minute more climb and a boost in its top ceiling.*

28 Units Receive Commendation

Navy Honors Bravery in World War II

Twenty-eight Naval and Marine Corps aviation activities won Presidential Unit Citations or Navy Unit Citations during the war, 23 of them receiving the former award.

The citations were for specific battle actions and only personnel connected with those units for the period of time mentioned by the citation are entitled to wear the ribbons. Presidential Unit Citations went to the following activities:

VB-104—Aug. 15, 1943, to Mar. 19, 1944.
VB-109—Dec. 31, 1943, to Aug. 14, 1944.
U.S.S. *Enterprise*—Dec. 7, 1941, to Nov. 15, 1942.
Marine Aircraft Group 22—June 1942.
VP-11—Sept. 15, 1943, to Feb. 1, 1944.
VP-22—Jan. 1942, to Mar. 3, 1942.
VP-33—Sept. 1, 1944, to Oct. 4, 1944.
VP-34—Sept. 15, 1943, to Feb. 1, 1944.
VP-52—Sept. 15, 1943, to Feb. 1, 1944.
VP-101—Dec. 8, 1941, to Mar. 3, 1942.
VP-102—Dec. 8, 1941, to Mar. 3, 1942.
U.S.S. *Bogue*—Apr. 20 to June 30, July 12 to Aug. 25, Nov. 14 to Dec. 29, 1943; Feb. 26 to Apr. 19, May 4 to July 3, and Aug. 1 to 24, 1944.
VC-9—Apr. 20 to June 30, and July 12 to Aug. 25, 1943.
VC-19—Nov. 14 to Dec. 29, 1943.
VC-95—Feb. 26 to April 19, 1944.
VC-69—May 4 to July 3, 1944.
VC-42—Aug. 1 to 24, 1944.
U.S.S. *Card*—July 27 to Oct. 25, 1943.
VC-1—July 27 to Oct. 25, 1943.
VC-9—July 27 to Oct. 25, 1943.
U.S.S. *Guadalcanal*—June 4, 1944.
VC-8—June 4, 1944.
VT-8 (*Hornet*)—June 4, 1942.

Navy Unit Citations were awarded the following five Navy squadrons of various types:

Air Transport Evacuation Squadron One—April 8 to June 21, 1945.
VB-108—Nov. 1, 1943, to July 8, 1944.
VC-13—July 13, 1943 to Jan. 16, 1944.
VP-3—July 1, 1943, to May 15, 1945.
VPB-101—June 3 to Dec. 31, 1944.

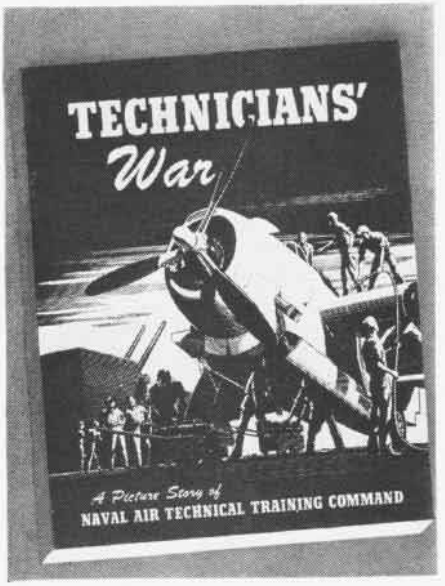
The Presidential Unit Citation for the *U.S.S. Bogue* covered six separate periods. Personnel aboard during more than one of those periods still would be entitled to only one ribbon.

Technicians' War Story Issued

NATechTraCom Publishes Picture Book

A picture story of the part played by Naval Aviation technicians in the war is told in a new book *Technicians' War* published by the NAVAL AIR TECHNICAL TRAINING COMMAND.

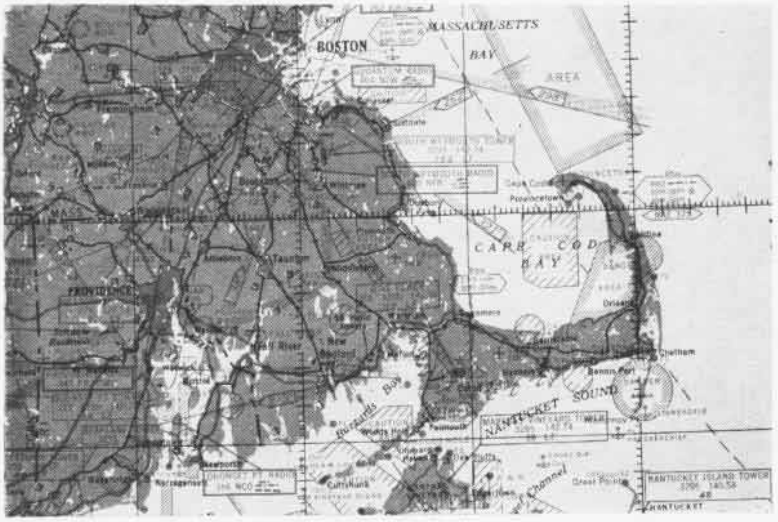
The fighting trades of Naval Aviation, from training to combat, are covered in the publication on sale at Ship's Service Stores. The picture story deals with work of officers and enlisted men in technical duties of Naval Aviation.

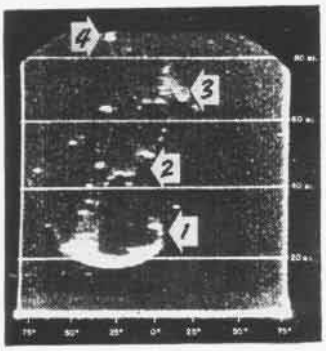


Technicians' War tells this story with official U.S. Navy photographs.

The book is a battle report of the practical results of training at the fighting fronts of World War II.

SHOW ME THE WAY TO GO HOME





Radar Navigation

You are heading in from sea on Course 270°, Lat. 42° N. From the chart and "B" scope photograph, identify 1, 2, 3 and 4. What is the bearing and distance to each from your positions?

1. _____ 3. _____

2. _____ 4. _____

(Answers on p. 32)

AlNav Affects Aviation Cadets

Releases Them From Sign-up Agreements

The Navy has issued ALNAV 255 to clarify the status of aviation cadets who fail or have failed to complete the flight training course. The ALNAV reads:

"Provision of Public Law 698-77th Congress that each AVCAD shall sign an agreement to serve for a continuous period of not more than four years on active duty unless sooner released and provision of Public Law 289—77th Congress that each enlisted man of the Naval Reserve or Marine Corps Reserve who is designated as student aviation pilot shall sign an agreement to serve for a continuous period of two years on active duty following successful completion of training unless sooner released are hereby interpreted as follows for those flight students who fail or have failed to complete the flight training course:

"Upon separation from flight training program, students are released from foregoing agreement for specific period of active duty and will serve on active duty under current general directives pertaining to personnel of the Naval Reserve or Marine Corps Reserve as appropriate. Therefore personnel transferred to general service upon separation from the flight training program prior to completion thereof will be released from active duty under the provisions of ALNAV 252-45 and any successor directives or MARCORPS Ltr. Inst. No. 0118, dated 21 Aug. 1945, and succeeding letters without regard to any agreements they may have signed under the Public Laws." ALNAV 255 of 12 Sept. 1945.

FROM: SecNav
TO: AlNav

21 September 1945

FACTS FOR Reserves

The Navy realizes that it has asked reserve and temporary USN officers to apply for transfer to the Regular Navy even though a variety of important factors, such as authorized size of the postwar Navy and the time when the Navy will be returned to permanent ranks, have not been finally decided by Congress and the President. Many officers may hesitate to apply fearing that the Navy's earnest purpose may not prove to be what actually happens in fact.

It is already true that any officer of the Navy may resign at the pleasure of the President and consequently no one is ever irrevocably committed to continue his naval career. In order that there may be no question in the minds of reserve or temporary officers, **the Secretary of the Navy has obtained the President's authorization to make the following unequivocal guarantee: Any reserve or temporary USN officer who applies for transfer to the Regular Navy and then comes to the conclusion that he does not want to stay may resign at any time at the pleasure of the President, but in any event he may resign on 1 January 1947 and his resignation will automatically be accepted by the President.**

The Navy confidently expects that reserve officers who transfer will be thoroughly happy and satisfied in the choice they have made, and consequently that they will not want to put in a resignation, but they have the firm option whether or not they decide to use it.

It is possible also that some reserve or temporary officers will decide now not to apply for the Regular Navy but after they get back to civilian life will wish they had applied. **The Navy is not pressing officers to make a final choice now and consequently reserve or temporary USN officers will be eligible for consideration in the Regular Navy provided their applications for transfer are received in the Department within six months following the date of release from active duty.** However, in fairness to the officers who do not insist upon this waiting time, officers who return to inactive duty before applying will lose precedence commensurate with the interval of time between their release from active duty and their appointment in the Regular Navy.

This AlNav applies to Marine Corps Officers as well as Naval Officers. All commands are directed to see that its provisions are immediately brought to the attention of all reserve officers.—**Secretary of the Navy.**

AlNav Digest

AlNav #202 16 Aug. 1945
States that reserve officers and temporary officers may apply at once for transfer to Regular Navy and Marine Corps and encourages prompt application; provides equal opportunity for transfers to attend service schools and equal opportunity for promotion; gives age and educational requirements.

AlNav #207 18 Aug. 1945
Provides detailed instructions regarding eligibility for transfer to Regular Navy; makes provision for sample examinations for applicants to study for preliminary information purposes; provides for preliminary physical examinations and states in detail information that must accompany application.

AlNav #208 20 Aug. 1945
Pertains to transfer of Marine Corps Reserve Officers and temporary officers on active duty to Regular Marine Corps; lists age requirements and provides instructions for submitting applications; states that lack of college should not deter officers from applying; provides for study in service schools.

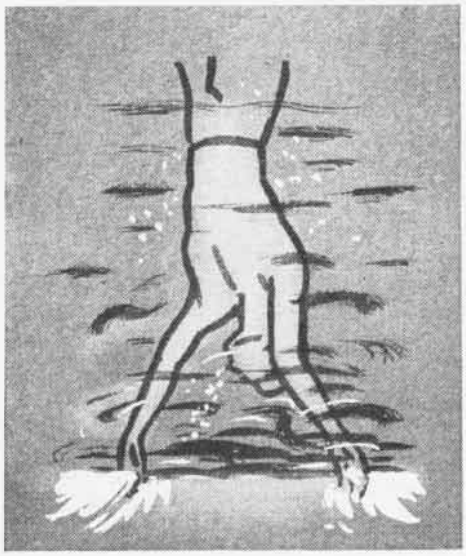
SWIMMING TO SURVIVE

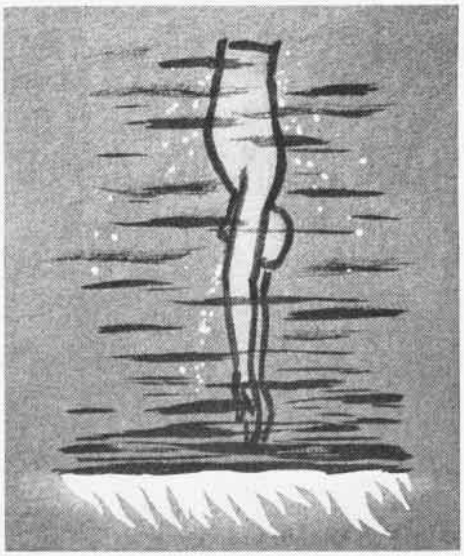
WHEN YOUR very life depends on your skill at underwater swimming and the correct procedures for escaping from burning oil or gasoline on the surface of water, you will realize the necessity and importance of careful thought and training before the emergency.

Practicing the thrashing and splashing procedures in chest-deep water will go a long way in the efficient learning of the skill. Swimming underwater should be tried on every dip in the pool, to improve technique. Remember, swimming is not only good exercise and recreation but someday may be the means of saving your own life. Even in peace times, ships at sea sometimes burn and for years to come, will be threatened by floating mines that will infest the sea lanes.

OIL **High breast stroke** is used when swimming in oil that is not burning to prevent oil from getting into the eyes, nose and mouth. It is called the elevated or high breast stroke. Swim with head and chin well elevated above surface of the water. The feet are kept low and hand action is all beneath water surface. Make it a point to eliminate splashing. Technique on these pages submitted by Mark A. Rennert, CSp (A) (PA).

STEPS TO REMEMBER WHEN SWIMMING THROUGH BURNING OIL

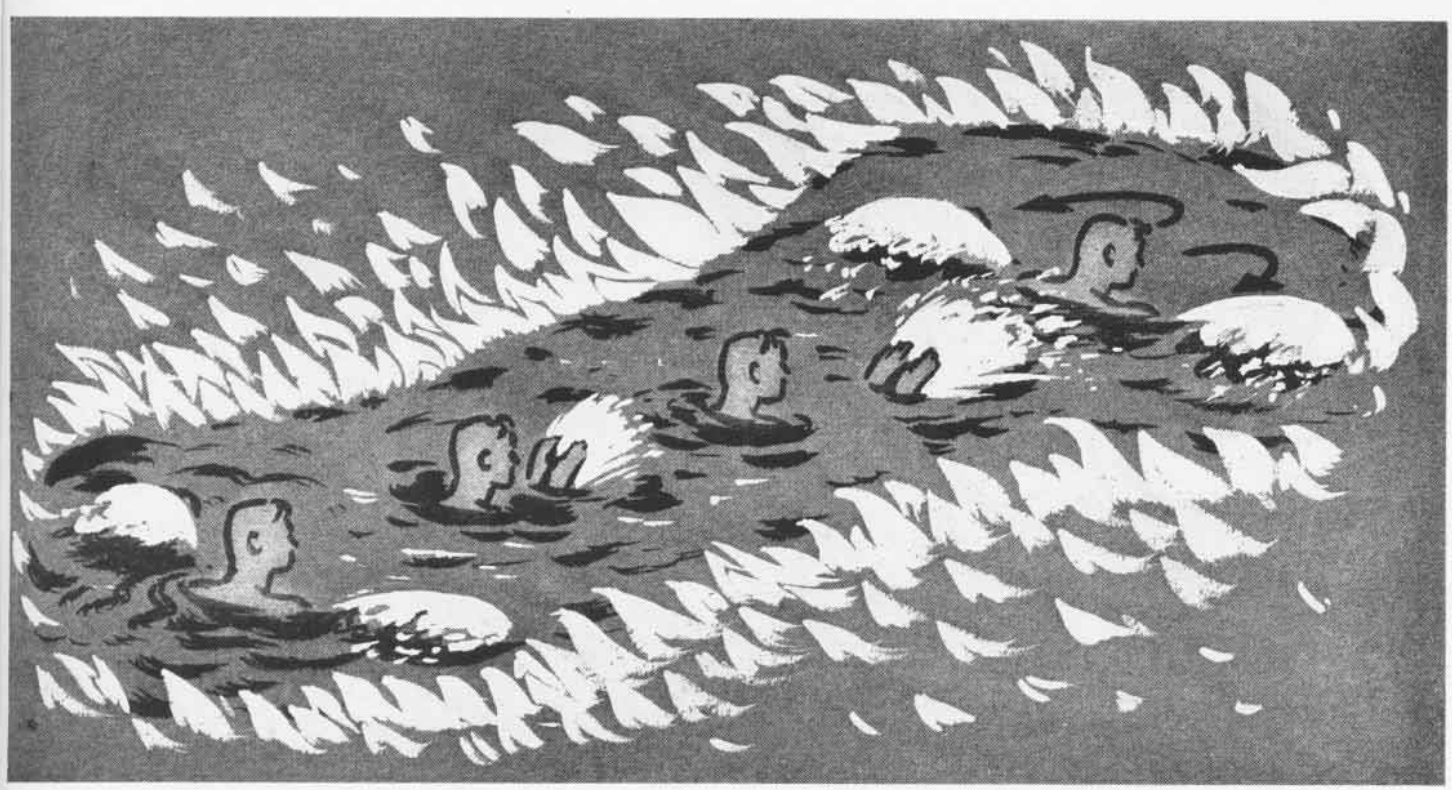




1 **Swimming** under water to windward is the correct procedure to escape from burning oil. The wind serves to shorten the distance to be covered, by blowing oil and flames in opposite direction. Go all the way under water and only as a last resort, emerge by thrashing in method shown in drawings 3 and 4. Ability to thrash vigorously before emerging to the surface is a challenging but highly necessary task

2 **Emerge** towards the surface in a vertical position, when taking a breath seems necessary. Look up and slowly emit air through the nostrils. Looking up helps to insure the vertical position and enables one to see the path of the thrashes in the bubbles that are formed. Blowing air out through nostrils prevents sinus trouble and makes for poise. Practice it often—your life some day may depend on your ability

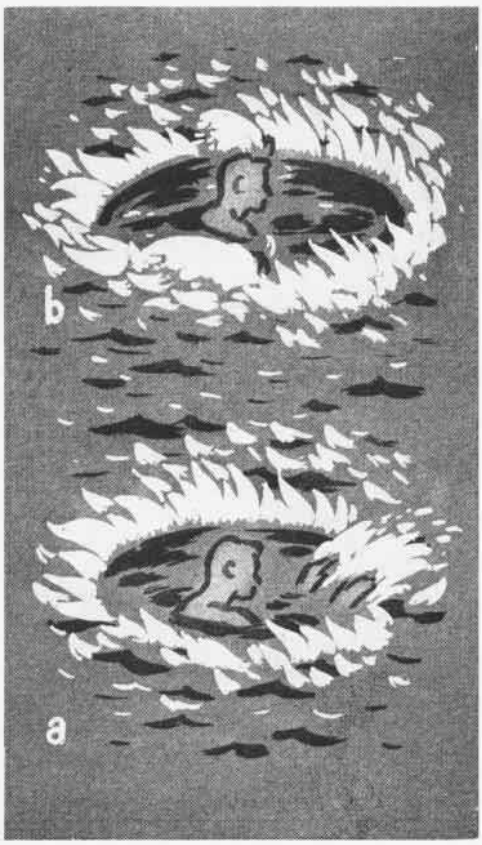
3 **When** the fingertips touch the water surface, proceed to thrash vigorously forward and backward while looking up and blowing out slowly through the nostrils. Looking up with arms passing the ears makes for vertical position which insures that thrashes will occur before head breaks the surface and prevents body and head from rising too rapidly. Make at least three thrashes, more when possible



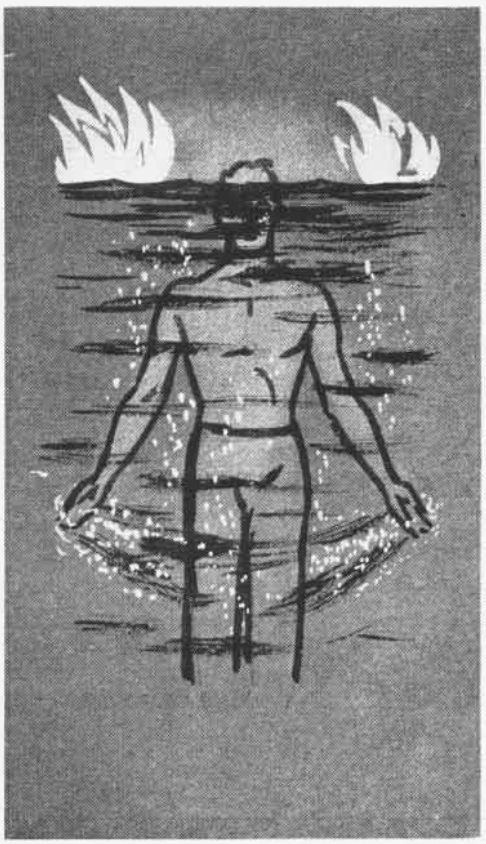
BURNING GASOLINE

Splash water vigorously in front and to the sides thereby creating a space in which to swim through burning gasoline. A group of men will swim in single file. When splashing forward, keep hands together with the palms facing forward, thumbs on inner side and fingers up. With fingers breaking the water surface, spray or push water in front of the body. As arms become extended forward, turn palms out and complete breast stroke, making sure that part of the hands are breaking the water surface and thus cause a spray of water toward both sides of the body. Most of the progress is derived from the kick. With feet low, kicks are short snappy ones, either frog or scissors kick

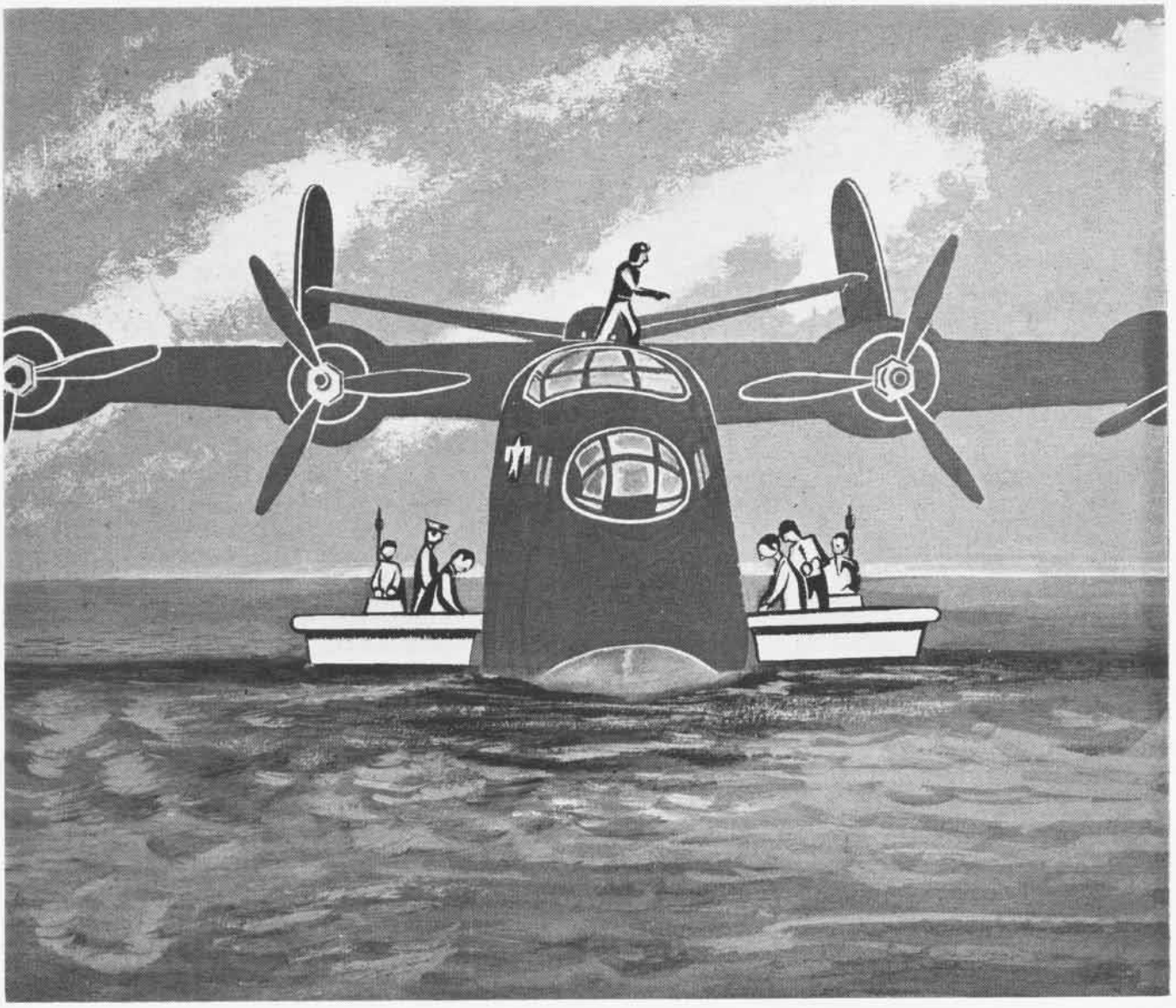
Circle splash enlarges the opening formed by thrashing method and can be started as soon as flames have been cleared from area



5 Splash vigorously in front and to the sides of the body upon emerging to the surface, get all the air you need before submerging



6 Submerge feet first in a vertical position. Double up when well below the surface and continue swimming in horizontal position



TOWING PATROL SEAPLANES

THE PROBLEM of towing patrol seaplanes is more difficult than regular towing for two reasons: *1.* A seaplane is a light vessel when being towed and is liable to sail and cock into the wind; *2.* the planes are of such delicate construction that they cannot be handled like a barge or a boat.

Towing a seaplane astern of a single boat is the most widely-used system. This is all right where there is plenty of sea room and little danger of collision with other vessels or obstructions. But when a seaplane is towed in a harbor, towing astern does not give enough control over the tow.

Two standard Navy rearming boats, used together, provide the best method of towing a seaplane in areas where waterborne traffic is heavy or channels are narrow. The boats are secured, one on each side of the plane, using as often as possible the snubbing posts in the plane and the eye near the stern of the plane normally used by tail haul.

When boats are in position, one man should be stationed on top of the hull to direct both boat coxswains. In this manner the plane is not handled as a tow, but as a single unit with twin screws; principles governing handling of a twin screw boat may be applied.

The man directing the movement should take special care to see that both boat coxswains have about the same number of revolutions turning the screws, and that rudders are handled in the same directions at the same times. Hand signals are the best means of directing the boats and coordinating their work.

It is a simple matter to land a rearming boat on either side of a moored plane to take it in tow. But when a plane is adrift and the wind is blowing, coming alongside the plane is difficult for the best of boat coxswains. Often, hull damage results when boats attempt to make a landing on a plane drifting in a high wind. The plane crew can assist the boats in coming alongside by laying out a sea anchor from the bow station, thus slowing drift and holding the bow of the plane into the wind. If the wind is very strong it may be necessary to lay a sea anchor on either side of the bow station.

Planes that are towed by the alongside method can get through the most narrow channels and through seaplane anchorages. An experienced hand has little trouble bringing seaplane to a buoy or ramp this way in heavy wind.

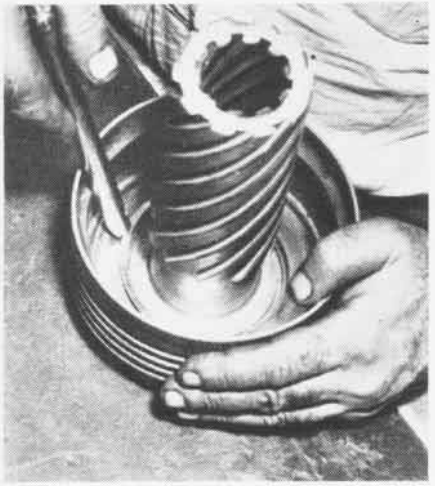
TECHNICALLY SPEAKING

Quonset Has Ring Tool Remover

NAS QUONSET POINT—Overhaul and repair of Breeze starters involves removal and reinstallation of a split locking ring inside the piston. This operation has been difficult with available tools, and workmen often resorted to use of an ordinary screwdriver. This procedure not only is hazardous to workmen, but also results in damage to adjacent surfaces of piston and sleeve.

Under the NAVY EMPLOYEES' SUGGESTION PROGRAM, an auto mechanic here has developed a tool to provide a safe, quick means for removing rings and replacing them in the starter pistons. This tool can easily be made by machining a small angular step in a bar of tool steel and a special hook in the other end. Two holes are drilled in the tool—one near each end to accommodate the cross handle that adds leverage to the tool. Tool is heat-treated to attain a hardness of C50-55.

The hooked end of the tool is forced under one end of the split ring and twisted slightly. This frees the ring, allowing it to be withdrawn easily.



TOOL HELPS TO SAVE TIME AND MATERIAL

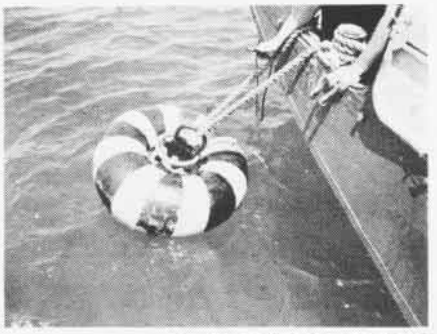
The step in the other end of the tools aids in the reinstallation of the ring.

[DESIGNED BY MANUAL M. PONTUS]

A Quick Hitch With a Buoy Ring

VH-5—Hair-raising gymnastics usually employed by bowmen when securing a seaplane line to a buoy in a seadrome, have been eliminated by this squadron through the expedient of a mooring adaptor ring.

Usually, when a plane makes a buoy, the bowman must thread the bow line rapidly through a horizontal ring. The small space between this ring and the rubber buoy float often makes the operation a Houdini type job. Even when a mooring line is attached to the buoy and ready for pickup, the job is a slippery one. Simple solution is a six inch, vertical ring, cadmium plated, which is bolted to eye below horizontal ring.

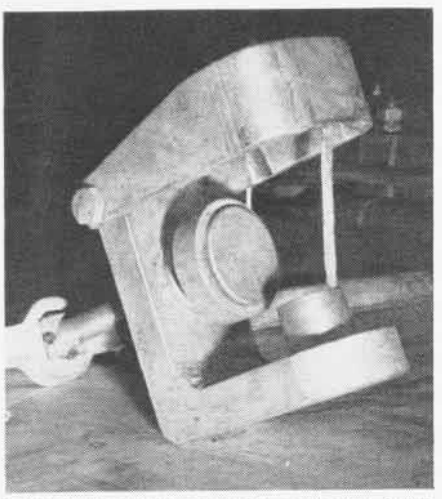


VERTICAL LOOP IS BIG HELP TO BOWMAN

[DESIGNED BY R. M. RICH, AOM3C]

Puller Works on Landing Gear

NAS, JACKSONVILLE—A screw-type puller developed at the A&R shop here under the NAVY EMPLOYEES' SUGGESTION PROGRAM facilitates the job of overhauling landing gear on PV-1 and PBO planes. The device removes the fulcrum arm from main cylinder more easily and rapidly.



DEVICE DISASSEMBLES PV LANDING GEAR

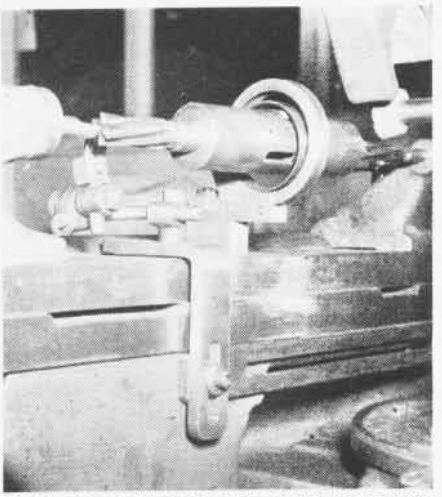
The fulcrum arm and the main cylinder have a transverse hole which is used as one of the pressure points for attaching tools for disassembling or assembling the two parts. To remove the fulcrum arm, the hinged strap is placed over the long end of the fulcrum arm and the 2" diameter pin inserted in the hole at opposite side of fulcrum arm. Turning the screw, by means of the double-end wrench, exerts pressure on the upper end of the cylinder and pulls the fulcrum arm free.

Reassembly of the fulcrum arm is accomplished by another tool also designed by the same planner.

[DEVISED BY CHARLES S. HOARD]

Support Prevents Inaccuracies

NAMC PHILADELPHIA—A tooth rest support which insures uniform and accurate grinding of tools, has been devised by a toolmaker at this activity under the Navy Employees' Suggestion Program. Originally, the tooth rest was mounted on the head of the grinding machine or on the transverse table. As the grinding wheel wore down the distance between the tooth rest and the wheel was constantly changing, and it was impossible to continually adjust it correctly. Since this condition threw the cutting edge out of alignment with the axis of the tool, the finished product could not possibly be accurate.



TOOL CUTTING ANGLE REMAINS CONSTANT

The new tooth rest support consists of a T-*slotted* bar and an arm which are fastened to the bed of the grinding machine. The arm has an elongated slot to permit vertical adjustment and a T-slot for horizontal adjustment. A swinging finger holder that can be bolted in any convenient position to suit the work, is mounted firmly on the arm.

[DESIGNED BY LEROY DICKINSON]

NATechTraCom

Bulletin Lists NATechTraCom Courses

Training courses offered by schools under the NAVAL AIR TECHNICAL TRAINING COMMAND are listed in a new and revised bulletin issued in September. Requests for

VOL. 4 OF BULLETIN NOW IS AVAILABLE

the bulletin should be addressed to the command headquarters.

Qualifications, curriculum and convening dates of all courses offered at any of the command's 60 training activities are listed in the bulletin as a guide to commanding officers.

Commanding officers should make certain that men chosen for training are qualified technically so they can get maximum benefits from special instruction.

Unqualified personnel will not be enrolled for instruction. At the close of their training course, men will be returned to their units and should be assigned billets for which their rating has best fitted them.

Allied Fighting Men Train At Center

The principle that the United Nations are fighting one war against a common enemy is given practical meaning at NAVAL AIR TECHNICAL TRAINING CENTER, CHICAGO, through instruction given aviation technicians from allied countries.

Latest group to complete training in specialized phases of aircraft maintenance includes an officer pilot and four enlisted men of the Brazilian air force. A total of 12 Brazilian enlisted men and three officers have received instruction in maintenance of the PRATT & WHITNEY R-2800 engines.

The bulk of allied nation students trained at 87TH AND ANTHONY are British. Since the first group of British Navy men arrived on January 10, 1944, 124 enlisted men and one officer have received training there. One Cuban enlisted man and one Peruvian technician received 20 weeks of instruction in the aircraft engine course

Treatment Releases Slip Joints

VR-4—A method for releasing frozen slip joints in collector rings of airplane engines has been developed by an aviation technician attached to this squadron.

The treatment combines heat and immersion. The frozen joints are heated to approximately 1200 to 1400 degrees Fahrenheit and then plunged into a cold solution made with 10 percent sodium hydroxide and 10 percent potassium dichromate.

This quick and simple treatment completely removes the deposit that had collected in the joints, releasing them for free movement. Next, the joints are washed with a hot and cold water bath, dried thoroughly with an air blast, and oiled, making them ready for installation in the ring.

Use of this new method by VR-4's maintenance and overhaul department has proved completely successful. Methods previously used failed to remove the deposit and almost 90 percent of the joints had to be discarded after 500 hours of flight time.

▸ ***BuAer Comment*** **— This treatment is satisfactory to the BuAer.**

NAS Pearl Harbor Supply Personnel Solve Prop Storage Problem

NAS PEARL HARBOR—This station recently corrected a condition that was causing corrosion to CLASS 265 propellers. Lack of covered storage space made it necessary to store propellers awaiting overhaul in the open. Corrosion resulting necessitated replacement of valuable precision-machined parts.

Supply personnel solved the problem by designing special boxes to store disassembled propellers and protect them from the weather. Arrangements were made with the A&R Department to disassemble CLASS 265 propellers at the time of receipt by the Supply Department and coat all parts with paralketone. Preserved parts then are stored in the special boxes.

Each box is designed so that there is an equal distribution of weight, which saves space and makes handling by fork trucks easier. Boxes are stacked, the top box being fitted with a lid to protect contents. Each container holds two complete propellers. Some types of props, on which the hub stays with one of the blades, require removal of the hub partitions in the box.

Propellers can be stored many months in the open without deterioration.

▸ ***ASO COMMENT*****—This method of handling the Class 265 propeller storage problem is an excellent one and shows both ingenuity and resourcefulness in meeting a local situation. This solution was developed to meet a particular problem, however, and is not necessarily being recommended for general adoption throughout the Navy.**

It is hoped that aviation supply activities soon will be aided in meeting similar problems by the new standard propeller box that recently was agreed upon by the ASO Packaging Division and leading propeller manufacturers. This should be in general use soon. The new standard box will be suitable for use with Class 265 propellers and will supplement preservation with full protection against rain, dust and other foreign elements.

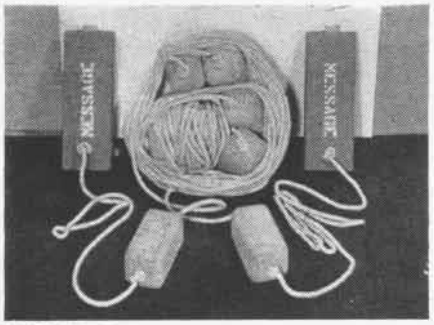
IN SPECIAL BOXES, PROPELLERS MAY BE STORED IN THE OPEN WITHOUT DETERIORATION

STORAGE BOX DEVELOPED BY SUPPLY PERSONNEL HOLDS TWO DISASSEMBLED PROPELLERS

Message Drop Snags Its Target

VH-5—There are message drops and message drops, but Rescue Squadron Five invented one that practically lassoes its target.

The message is inserted in a one-inch hole bored in a wood block and the hole is corked. The block then is secured to 150 feet of line buoyed with



MESSAGE DROP THAT'S ALMOST FOOLPROOF

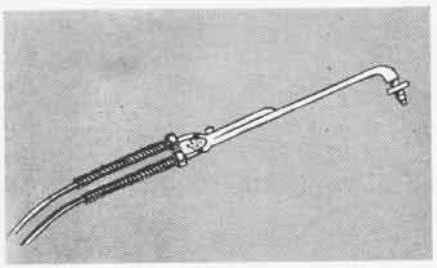
balsa wood floats. A duplicate message is inserted in a second wood block that is secured to the opposite end of the line. In making a drop from his plane, the pilot attempts to drag the line across the ship, raft, sand bar, or whatever the target might be. Float line minimizes error in range or deflection. Person for whom the message is intended simply pulls in either end of the line and gets the word. Floats are yellow, message blocks red. Because of its simplicity, the drop is easy to handle in a PBY or PBM and already has proved highly successful.

[DESIGNED BY LT. A. SPOEHR]

Spring Preserves Welding Hose

MARE ISLAND—A device to save welding lead hose from breaking off near connections has been developed by a burner here under Navy Employees' Suggestion Program. A helical spring of suitable length, fit over the lead hose of a burning or welding torch, prevents it from kinking and breaking at the connection.

Loss of flexibility involved is negligible and not considered a problem. In



COIL SPRING CUTS WEAR ON WELDING HOSE

addition to holding repair operations to a minimum, the spring adds a touch of safety to welding operations in that it reduces possibility of hose burning and causing injury to the yard workers.

[DEVISED BY ROLAND PETERSON]

SCREEN NEWS

Here's What You've Won. When a peace-loving nation, wanting no part of war, finally makes the great decision and plunges into the life or death struggle, the average servicemen of the nation go about the job of killing efficiently but with a feeling it is an unpleasant job that has to be done. Then, when the conflict is over, the average fighting man wants to be assured that he has achieved a real victory and that his ordeal has been worth while. One of the better films on this important subject is:

MA-5902 *It's Your America* — Restricted, 36 min.

The story of what this latest U. S. victory means is told through one returning serviceman. Looking back on his four years in the service, he finds that he has become a bigger man. He has got hold of some solid ideas about the real value of intangibles like freedom, the doctrine of many working together for the general welfare, the concept of liberty of thought and action. Travel over the United States and overseas has made maps come to life and lifted him out of narrow provincialism and lazy drifting.

All at once, he realizes that things he passed over in the history books have become personal with him, such as the passage in Lincoln's great speech—"that these dead shall not have died in vain." He finds that now he *wants* to cast the vote he used to throw away—because he's earned in blood the protection of his right to vote.

In short, out of the four years of discipline, pain, sacrifice and rough living comes a re-discovery of America and all the good things once taken for granted.

Knotted Guts Keynote of the newest warning in the latest of the now well-known series of health commandments is the gamey admonition: "Thou shalt carefully and faithfully cleanse thy mess gear both before and after meals, or verily thy guts shall be like knots in a wet rope." The film:

MN-2808e *Commandments of Health—Cleaning Mess Gear* Unclassified, 5 min.

As usual, MacGillicuddy (first in line, last in enlightenment) takes the rap—plus his usual quota of raw-hiding sarcasm from the script-writer.

Mac's idea of cleaning his mess gear is *a.* licking it and *b.* sloshing pebbles around in it. This procedure makes a beautiful shiny job, but fails to faze the germs which gleefully inhabit the microscopic hunks of food still clinging to the platter.

Convincing touch for those doubting Thomases who fear only the visible is a closeup of a fly freshly arrived from the nearest head, skating with dripping feet over the surface of the mess gear, to the waltzing tune of "The Skaters."

Spectacular finale shows X-ray of Mac's stomach tying itself into carrick bends, followed by a nightmare in which MacGil-

SANITARY MESS GEAR SAFEGUARDS HEALTH

licuddy has things done to him in sick bay which shouldn't happen to a Jap.

Other Films Being Shipped:

SA-5646a	*Survival Procedures—Emergency Signals* — Unclassified, 40 frames
SA-5646b	*Survival Procedures—Emergency Fire-Making* — Unclassified, 42 frames
SA-5646c	*Survival Procedures—Clothing* — Unclassified, 38 frames
SA-5646d	*Survival Procedures—Travel —Part I*—Unclassified, 33 frames
SA-5646e	*Survival Procedures—Travel —Part II* — Unclassified, 50 frames
SA-5646f	*Survival Procedures—Water* —Unclassified, 40 frames
SA-5646g	*Survival Procedures—Emergency Shelters*—Unclassified, 52 frames
SA-5067b	*Radio Set SCR-578-A—Operation* — Restricted, 42 frames
MA-6060a	*Radar Anti-Jamming for the Radar Operator—Part I—Receiver Adjustments* — Restricted, 30 min.
MA-6060b	*Radar Anti-Jamming for the Radar Operator Part II—Recognition of Electronic Jamming* — Restricted, 28 min.
SA-5469	*Weather—Fog—Unclassified,* 46 frames
MM-2477e	*Eye Surgery — Field Management of Eye Injuries*—Unclassified, 20 min.

Where to Get 'Em Central Aviation Film Libraries and Sub-Libraries are listed below:

NAVAL

ABATU, NAS Memphis
CASUs 2, 4, 23, 24, 31, 32
CasuComDet, Port Hueneme
ComAirPac
ComAirSubComFwd-Area
Hedron TWO
NAB Seattle
NAC Navy #3149
NAMC Philadelphia
NAOTC Jacksonville
NAS Atlanta
NAS Clinton
NAS Grosse Ile
NAS Kodiak
NAS Moffett
NAS New York
NAS Quonset
NAS Patuxent
NAS San Diego
NAS Norfolk
NAS Navy #115
NAS Navy #117
NAS Navy #720
NATB Pensacola
NATB Corpus Christi
NATEC Lakehurst
Navy #3233
TAL Navy #116

MARINE

MCAD Miramar
MCAS Cherry Point
MCAS El Centro
MCAS El Toro
MCAS Mojave
MCAS Navy #61
MCAS Parris Island
MCAS Quantico
MCAS Santa Barbara
4th MAW

Succeeds List dated 19 August 1945

LATEST BULLETINS ENGINE, AUXILIARY POWER PLANT, ACCESSORY, PROPELLER Dated 19 September 1945

ENGINE	BULLETIN	DATE	SUBJECT	EXPLANATION
PRATT & WHITNEY				
R-985	190	8-28-45	*Flyweight, Outer and Flyweight Liner—Grinding and Rust Proofing of*	To minimize corrosion and to establish overhaul dimensions of subject parts
R-1340	212	8-28-45	*Flyweight, Outer and Flyweight Liner—Grinding and Rust Proofing of*	To minimize corrosion and to establish overhaul dimensions of subject parts
R-1830	397	8-17-45	*Gasket—Propeller Shaft*	Complete information on the use of propeller shaft gasket
	Rev. 1 404	8-23-45	*Ceco Carburetor Setting Change*	Information for overhaul activities regarding compliance of this bulletin
	Supp. 1 417	8-13-45	*Rust Pitting of Master Rods and Link Rod Assemblies—Acceptable Limits of*	Illustrations of allowable pitting
	Supp. 1 423	7-4-45	*Vacuum Pump Adapter Assemblies*	To insure sufficient clearance between vacuum pump drive gear and bearing
	427	7-2-45	*Lifting Links*	To inform activities of the new, heavier link and of the possibility of interference at the link mounting pads
	431	8-28-45	*Heli-Coil Spark Plug Inserts*	Advanced information on heli-coil spark plug inserts and their use.
	434	7-13-45	*Boss, Carburetor Throat Heater—Plugging of*	To prevent cracking of intermediate rear crankcases due to over-torquing
	436	8-17-45	*Liner, Front Main Bearing—Copper Plating of*	To reduce the possibility of galling in the bore of the front main crankcase
R-1830	439	8-30-45	*Carburetor, Ceco Model 1900-CPB-3, Enriching of Idle Range Settings—Instructions for*	Method of correcting poor acceleration and improper engine operation in the low RPM and "idle" range
R-2000	96	8-17-45	*Gasket—Propeller Shaft*	Complete information on the use of propeller shaft gaskets
	Rev. 1 108	8-13-45	*Rust Pitting of Master Rods and Link Rod Assemblies—Acceptable Limits of*	Illustrations of allowable pitting
	Supp. 1 114	8-28-45	*Heli-Coil Spark Plug Inserts*	Advanced information on heli-coil spark plug inserts and their use
	123	8-27-45	*Rendering the Automatic Spark Advance System Inoperative*	Procedure for rendering the automatic spark advance system inoperative
R-2800	83	8-31-45	*Rocker Box Leakage—Prevention of*	Kit assembly number for new reinforced covers required by Revision No. 2
	Supp. 1 to Rev. 2 141	7-18-45	*Water Injection Equipment—Flow Testing of Water Regulator for*	Instructions for flow testing water regulators used on P&W R-2800-14W, -22W, -34W and -34WA engines, having size No. 4 jet installed
	Supp. 2 193	8-17-45	*Gasket—Propeller Shaft*	Complete information on the use of propeller shaft gaskets
	Rev. 1 203	8-28-45	*Leads, Rigid Ignition High Tension, Magneto to Distributor for Cast Type Ignition Harness*	Method for securing subject leads
	Supp. 1 215	8-13-45	*Rust Pitting of Master Rods and Link Rod Assemblies—Acceptable Limits of*	Illustrations of allowable pitting
	Supp. 1 217	8-31-45	*Couplings, Oversize Cylinder Exhaust Port—Use of*	Information for the installation of oversize cylinder exhaust port couplings
	219	8-28-45	*Front Cylinder Inter-Ear Deflector Assembly*	Additional information on means of fastening the reinforcing plate to the deflector
	Supp. 1 228	8-9-45	*Auxiliary Diffuser Dowel Pin—Installation of*	To insure correct positioning of the auxiliary diffuser
	231	8-6-45	*Main Impeller Drive Gear Retaining Nut*	To prevent interference of impeller drive gear retaining nut and impeller shaft thread
	233	8-28-45	*Heli-Coil Spark Plug Inserts*	Advanced information on heli-coil spark plug inserts and their use
	236	8-28-45	*Impeller, Accelerator Driven Bleed Holes—Modification of*	To reduce the possibility of the bleed holes in the accelerator driven impellers becoming clogged
	239	8-13-45	*Fixture, Bushing Reaming, Intermediate Rear Case—Clearance Holes In*	To permit the use of P&W A-2213 Reaming Fixture for reaming the bushing in the intermediate rear cases of applicable engines
	241	7-13-45	*Bracket, Spark Advance Pinion—Marking of*	To assure that the spark advance pinion bracket bushing will be assembled with its flange at the front side of the bracket
	242	8-13-45	*Washer, Felt, Stromberg Part No. P-22145, Used in Automatic Mixture Control for PR-58E1 and -E2 Carburetors—Installation of*	To incorporate subject part inadvertently omitted by the manufacturer
	245	8-28-45	*Flyweight, Outer and Flyweight Liner, Grinding and Rust Proofing of*	To minimize corrosion and to establish overhaul dimensions of subject parts
	249	8-28-45	*Shroud, Exhaust Pipe—Rework of*	To insure sufficient clearance for the spark plug and ignition lead nut washers
WRIGHT				
R-1820	289	7-4-45	*Pre-Oiling of Engines Being Started for the First Time After Installation or Overhaul*	To specify oil pressure used when pre-oiling R-1820 and R-2600 engines
	Supp. 1 391	7-18-45	*To Minimize the Possibility of Liquid Lock Due to Over-Priming in R-1820 Engines*	Instructions for the installation of bosses on No. 4, 5 and 6 cylinder intake pipes on R-1820-56, -62, -66 and -72 engines to accommodate drain lines overboard
	392	7-9-45	*Upper Valve Spring Washer—Inspection of*	To inspect all upper valve spring washers and eliminate washers subject to failure in service
	393	7-18-45	*Plate, Manual Mixture Control Valve, Stromberg Part No. 397330; Used on PD-12K10 Model Carburetor—Reworking of*	To prevent the subject plate from covering the No. 70 enrichment valve vent restrictions when in the auto-lean position
	395	8-24-45	*Studs, Bolts and Cap Screws Used on Holley 1375-HAA, 1685-HAR and 1685-HB Model Carburetors—Torque Limits for*	To provide a table of torque valves to be used when tightening bolts, nuts and cap screws and when driving studs on Holley pressure type carburetors
	396	8-21-45	*Plug Wright Part No. 102D33, Used on Power Control Safety Valve Housing—Staking of*	To prevent subject plug becoming loose and lost in flight which will cause a sudden increase in manifold pressure
R-2600	127	7-17-45	*Studs—High Speed Generator Gear Box Attaching*	Information on the use of a shorter generator gear box attaching stud to minimize wrench interference
	Supp. 2 178	7-6-45	*American Bosch SF14LU-10 Magneto Ignition Interference Suppression*	Instructions for modification of American Bosch Type SF14LU-10 magneto to improve interference suppression
	181	8-24-45	*Studs, Bolts and Cap Screws used on Holley 1375-HAA, 1685-HAR and 1685-HB Model Carburetors—Torque Limits for*	Table of torque valves to be used when tightening bolts, nuts and cap screws, and when driving studs on Holley pressure type carburetors
	180	8-13-45	*Intermediate Cam Drive Lubricating Tube, WAC Part No 118462—Replacement of with a Two Piece Assembly*	Installation instructions for the two-piece cam lubricating tube

GENERAL ENGINE BULLETINS

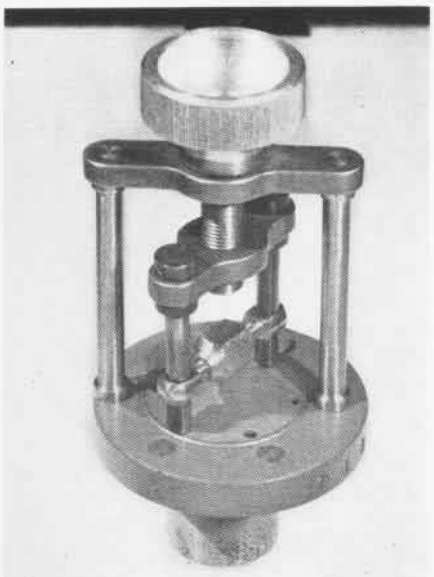
36	8-2-45	*Spark Plugs, List of Acceptable Models for Naval Service Engines*	To revise the list of acceptable spark plugs for certain naval service engines
Supp. 1 58	8-2-45	*Conduits, Ignition Shielding—Inspection of at Overhaul*	New inspection instructions; cancels General Engine Bulletin No. 13
78	8-17-45	*Stromberg Ignition Carburetors—High Angle Poppet Valve and Seat Assemblies for*	Information about an improved design poppet valve and seat that reduces the tendency of the poppet valve to stick in the seat when in the "idle cut-off" position

(Continued on page 29)

Repairing Automatic Plane Pilot

NAS ALAMEDA—Overhaul of the Mk 3 automatic pilot directional control, in about half the cases, is difficult because the lower bearing housing cover is difficult to get off. The gasket adheres to the cover and the housing so that there will be no air leak.

Under the NAVY EMPLOYEE SUGGESTION PROGRAM two men devised a remover that does the job without having to resort to using a hammer and pry, which often damage the cover and break the gasket. Time required to make the removal, using their device, was cut to half a minute.



DEVICE SIMPLIFIES AUTO PILOT REPAIRS

Often instruments can be returned to service with only a slight adjustment to the signals. Considerable damage often is done to pilots and bearings when the cover is removed forcibly. The only alternative was to remove the gyro and differential gear unit and then loosen the cover with a pry and hammer. The cover remover saves four to six hours of signal resetting and calibration if this alternative is used because it is not necessary to remove them from the case.

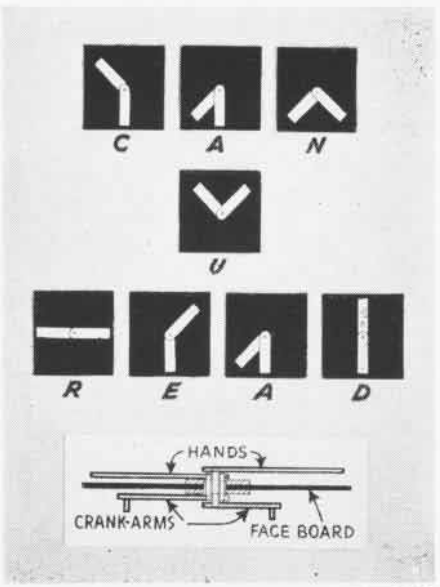
[DEVELOPED BY ALEX W. POULSEN, ROBERT G. PULLEN, AND FRANK ROLL]

Plane-to-Plane Communications

VT-98—A radioman attached to this squadron has developed a plane-to-plane communication board made of wood, using semaphore signals at times when radio silence prevails.

Background is black and the hands yellow, with crank-type arms on the back side of the device to shift them to different signaling positions, of which the board provides eight. The idea originates from the thought that semaphore is more easily understood and read than the standard system of hand-tapping. Best use of the board probably would be in big planes in formation.

[DEVELOPED BY CALVIN BROWN, ARM3C (CA)]



DEVICE PROVIDES 8 SIGNALING POSITIONS

AVIATION SUPPLY

New Naval Aviation Logistics Handbook

A new booklet designed to provide ready reference data required in logistics planning for naval and Marine air bases was distributed by COMAIRPAC on 3 August to Fleet activities in the Pacific and within the United States.

Information of SECRET or TOP SECRET classification has been omitted to permit wider distribution.

Subjects include personnel and aircraft complements, data on functional components, weights and cubes for Section B and C allowances as well as for aircraft engines and various classes of aeronautical material. Allowance and complement data have been included for logistics planning purposes only and should not be used in the place of official allowance lists or authorized complements.

This booklet also provides information on units of fire, definitions of Army classes of supply, weights and cubes for aviation ammunition, shipping requirements for initial 30-day supplies, shipping methods, Pacific sailing times between ports and bases and commonly used shipping designation.

Regarding Improper Use of Parachutes

It has been reported to ComAirPac that a large number of parachute canopies are being used in pyramid tents and for other improper purposes. Chapter IV, Section D, Paragraph 6 of *BuAer Parachute Manual* reads as follows:

"Parachutes shall not be surveyed by aviation units unless lost or destroyed. Parachutes which are so badly damaged or deteriorated that they cannot be reconditioned, shall be returned to a major repair station."

All commanding officers, equipment officers and supply officers are requested to enforce the above directive with great care.

(*Continued from page* 28)

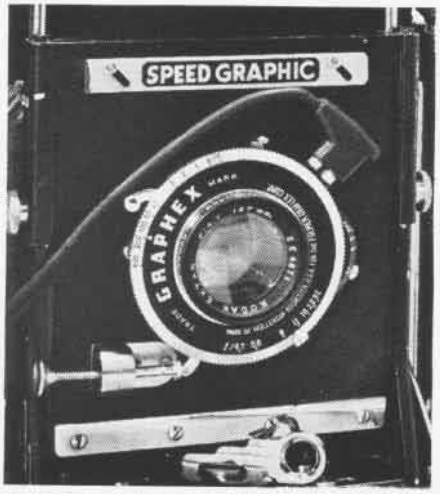
ENGINE	BULLETIN	DATE	SUBJECT	EXPLANATION
	O Index Rev. 2	8-21-45	*General Engine Bulletin Index*	General Engine Bulletins in effect
POWER PLANT ACCESSORIES BULLETINS				
	63-44 Supp. 1	8-13-45	*Fuel Pumps, d-17*	Purpose of the plug in the gear box is to permit greasing while installed in aircraft through the use of Alemite or similar fittings
	74-44	7-19-45	*Hydraulic Pumps, h-10*	Cancels the recommendation that AN-VV-O-366 be substituted for AN-VV-O-446 when testing Pesco pumps.
	52-45	8-17-45	*Lubricating System Accessories, g-9*	To safeguard against reissuing back into service oil coolers containing metal or bearing particles before recording them in accordance with PP Accessory Bulletin 37-45 and Aviation Circular Letter 72-45
Hamilton Standard Bulletins				
	33	6-14-45	*Hamilton Standard Service Bulletin—Approval of*	Approves Service Bulletin No. 98
General Propeller Bulletins				
	12	8-9-45	*Koppers Aeromatic Propeller, Model 221-B, Blade Repair on and Oil Filler Plug—Replacement of*	Information on repair of the plastic blade covering
	13	8-9-45	*Metal Punches, Scribes and Stencils, etc. for Marking Propeller Blades—Prohibiting Use of*	To prevent use of metal tools for marking propeller blades on surfaces other than the flat face at butt ends of blades

PHOTOGRAPHY

Graphex Shutter Now Is Standard Gear

Built-in synchronization is the distinguishing feature of the new Graphex shutter, which now is standard equipment on Speed Graphic cameras. Positive synchronization for any type of flash is provided in the internal shutter mechanism.

This type of shutter eliminates need of an external synchronized solenoid or tripper. Synchronization is accomplished by a special gear train controlled by a dial setting arrangement at the right side of the



NEW SHUTTER IMPROVES SPEED GRAPHIC

shutter. This train is automatically engaged as the shutter is cocked unless the notched control lever is moved to OFF.

A click-stop arrangement permits accurate setting for synchronization by adjusting the delay of the operation of the shutter to correspond with the correct ignition time lag of lamp being used. Standard flash lamps require a 20 millisecond setting, SM and SF lamps the 5 millisecond setting, and Kodatron or other speed lamps the 0 millisecond or instantaneous contact, setting.

Electrical, Vacuum Connections in F6F

Airplane Bulletin No. 13AB-45 issued by COMAIRLANT directs that Atlantic Fleet Air Force Commands concerned with F6F 3/5-P aircraft will standardize all photographic electrical and vacuum connections as prescribed by BUAER in Handbook NAVAER 10-1-523, *Instructions for Installing Cameras in F6F 3/5-P Aircraft*, dated 1 June 1945.

The NO. 1 electrical leads will be connected to cameras installed in the port oblique position only. The NO. 2 electrical leads will be connected to cameras installed in the starboard oblique and forward vertical position only, except for the installation of the K-25 camera which has its own switch and electrical lead. The NO. 3 electrical leads will be connected to cameras installed in the after vertical position only. The vacuum leads will be connected to correspond to electrical leads.

Nut Wrench for R-2600-20 Engines

NAAS CECIL FIELD—A carburetor hold-down nut wrench for R-2600-20 engines, developed at this station, has proved highly beneficial during carburetor removal or installation.

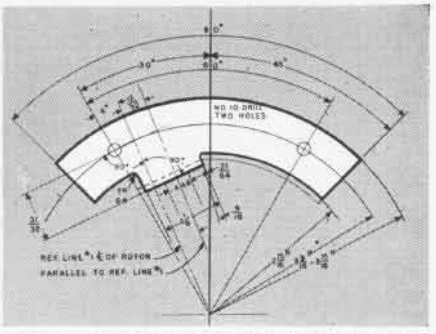
It greatly simplifies installation and removal of the forward carburetor hold-down nuts in the confined area between the carburetor and shroud assembly. On installation, all forward nuts are run down while working from the right-hand side of the mount. On removal, forward nuts are removed while working from the left-hand side of the mount.

Handle, 3¼" long, and extension, 22" long, are ⅜"-diameter cold rolled steel. Extension is flattened and drilled for attachment of a 3" length of a 9/16" open end wrench. Spring is attached at wrench end through a small drilled hole. Other end is attached to a small hole drilled through a lug welded to rod 5" from end of extension. Spring acts only to return wrench to working position.

Distributor Device Saves Time

NAS ALAMEDA—Two air mechanics at this station developed a distributor timer under the Navy Employees' Suggestion Program that proved a time-saver in both the timing and checking of the R-2800-31 engine. It helped eliminate the possibility of error in timing owing to the human element and took only five minutes for a job that formerly required 30 minutes.

The device is used as follows: Remove the distributor block and bend it back a short distance without injuring wiring. Take the new timer and insert it between the distributor adapter and body cover forward of the finger. Use



TIMER MADE FROM CADMIUM STEEL PLATE

the two back fillister head screws and drop them through the distributor finger between the two fingers on the timer. Thus it is on top dead center or on the firing point.

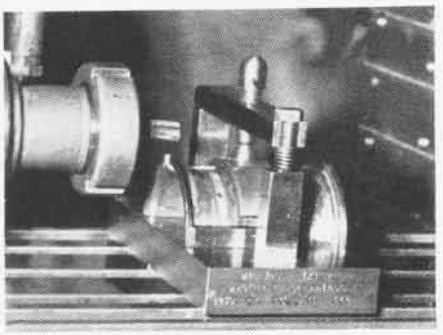
When the finger is thus set, a quick casual observation is all that is required of the inspector. He does not have to measure with his scale to see if it lines up. The mechanic does not have to use screwdrivers on the distributor assembly or worry about cracking the fingers, as it is easy to insert or remove.

[DEVISED BY H. J. KIRBY AND E. C. ROMLEY]

Bearing Anchor Speeds Rework

NAS SAN JUAN—By means of a milling fixture, designed under the NAVY EMPLOYEE'S SUGGESTION PROGRAM, salvage on master rod bearings R1830 and R2000 not only is made easier by elimination of all but one set up on the K & T milling machine, but saves two hours of work per bearing.

The fixture holds bearings securely



FIXTURE CLAMPS, CUTS AND SUPPORTS

and eliminates buckling or springing during rework in compliance with PRATT AND WHITNEY R1830 ENG. BUL. NO. 316, which calls for deepening of retaining slot in master rod bearings to prevent cracking at the corners. The fixture also is designed to prevent damaging the leaded bearing surface.

Approximately 30 bearings have been reworked, using this fixture, with no rejections. Detailed instructions for construction of the fixture are available at this activity.

[DESIGNED BY W. A. ALBRIGHT, ACMM AND C. P. COUCH, AMM3c]

▶ ***BuAer comment*—This appears to be a simple and worthwhile fixture for accomplishing rework as specified. The latest supplement to the bulletin calls for additional rework which must be done on a lathe, but this fixture still is necessary.**

Pamphlet Lists Fuel Information

A new publication *Aviation Fuels and Their Effects on Engine Performance* now is available to Naval Aviation personnel through routine channels.

The pamphlet NAVAER-02-1-511 may be ordered by activities through their publications officer or directly from BUAER, PUBLICATIONS BRANCH, on form NAVAER 140.

Printed in color, the pamphlet contains general useful information concerning aviation fuels, listings of octane numbers and performance numbers.

Engine detonation is explained and combat power of fuels discussed. The publication also contains general rules on the vapor lock and water content.

AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

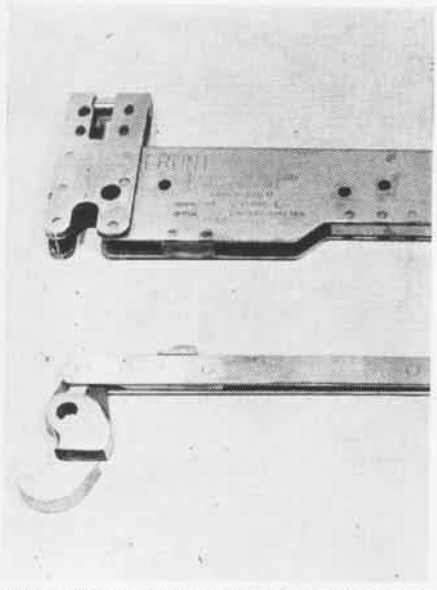
Overloading Mk 8 Type Bomb Shackles

Bomb Shackles MARK 8 type can be overloaded by excessive tightening of droppable fuel tank installations, particularly on *Corsair* aircraft. Recent reports of broken hooks experienced in such installations indicate that ordnancemen are overtightening pylon yokes in an attempt to prevent buffeting of the tanks.

Ultimate strength of the MARK 8 MOD 0 shackle in production lot tests has consistently exceeded 21,500 lbs. applied vertically downward. However, the size of the bolts in *Corsair* pylon yokes makes it possible to stress shackles considerably in excess of this load with no failure of bolts and without undue torque being applied to yoke nuts.

Numerous malfunctions of shackles, AN-B-10, in similar installations also indicate the same practice of excessive tightening. (See *Aviation Ordnance* page July 1 issue of NANEWS). Although softer metal in B-10 hooks permits greater yield and makes them less susceptible to fracture, such overloading will cause other malfunctions. Increased hardness of hooks in the MARK 8 shackle over those in the B-10 is desirable as it has better release characteristics.

BUORD has recommended that Fleet activities take steps to insure that shackles



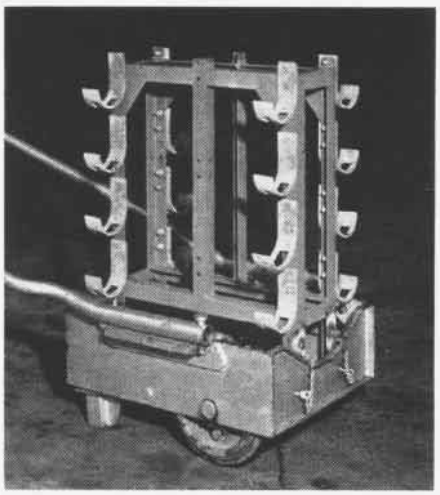
OVERLOADING MK8 SHACKLE BREAKS HOOK

are not overstressed in this manner. Additional tests now are being conducted to determine the effect of vibration on ultimate strength of current bomb rack and shackle hooks.

New Bomb Skid Adapter Carries Rockets

Various quantities and types of aircraft rockets may be assembled and handled on the Bomb Skid MK 1 MOD 1 by means of the recently developed Bomb Skid Adapter MK 3 MOD 0. The only modification to the skid necessary for mounting the adapter is the drilling of four 0.4375" dia. holes in the frame, two in each end plate to match the holes in the legs of the basic adapter frame. Four toggle pins that secure the adapter to the skid provide for its quick installation and removal.

Three sets of supports provided with the basic frame permit carrying any of the



TOGGLE PINS SECURE ADAPTER TO A SKID

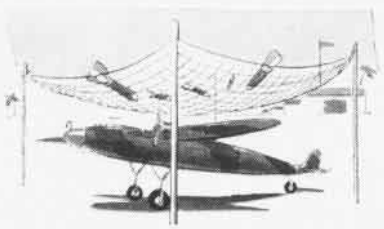
following loads, firmly secured against slippage:

1. Six 5".0 dia. rockets with 5".0 dia motors
2. Eight 5".0 dia rockets with 3".0 dia. motors
3. Eight 3".5 dia. rockets with 3".25 dia. motors
4. Twelve 2".25 dia. rockets with 2".25 dia. motors

Stock NO. 3-A-54, assigned to the bomb Skid Adapter MK 3 MOD 0, includes all of the supports described. Additional details may be found in change 5 to O.P. 1073. These adapters now are available and may be procured through regular channels.

Interchangeability of Bomb Shackles

The 100-lb. bomb adapters for MARK 5 Zero Length Rocket Launchers now are being equipped with Bomb Shackles MARK 8 MOD 1. Consequently, there will be airplanes on which are installed both Bomb Shackles MARK 8 MOD 0 and MARK 8 MOD 1, and it is anticipated that instances will arise in which it will be desirable to employ them interchangeably.



Accordingly, it is pointed out that while the rated capacity, 2240 lbs., and maximum load for release, 6400 lbs., are identical for the two mods, the maximum overload capacities are 21,500 lbs. for the MOD 0 and 17,000 lbs. for the MOD 1. This provides safety factors for loads of 1600 lbs. of 13.4 G's and 10.6 G's, respectively, for the MARK 8 MOD 0 and MARK 8 MOD 1.

The foregoing comparative figures are pointed out for consideration by activities using both mods of the shackle and contemplating interchanging them.

Safety Steps Are Added to Bomb Truck

The advanced AOM School at NATTC JACKSONVILLE recently submitted to BUORD the suggestion that two safety platforms be added to the frame of the Bomb Truck MARK 6 MOD 0. This revision has been accepted and is scheduled for incorporation in subsequent production of this truck.

As currently produced, this bomb truck has no surface on which an ordnanceman can conveniently stand during loading without danger of having his feet maimed by the descending hydraulic lift in case of accidental release. The Jacksonville modification provides for this by the attachment of two plates 12" long by 6" wide, making a safety loading paltform on both sides of the bomb truck.

The first plate is welded flush with the top of the left outboard face of the main truck frame; the second is attached similarly to the right outboard face. Support is provided by four pieces of angle iron ap-

JACKSONVILLE MODIFICATION SAVES FEET

proximately 8" long, using two pieces for each plate. Each support is welded to under outboard lip of plate corner at one end and lower outboard edge of main truck frame at the other.

A final feature is a stub plate consisting of a ¾" iron strip 12" long and 1" high, that is welded perpendicular to the inside edge of each plate. This strip prevents ordnancemen from injuring toes.

Those desiring additional details should write to AOM School, NATTC JACKSONVILLE.

LETTERS

SIRS:

I would appreciate it very much if you would send me a copy of NAVAL AVIATION NEWS dated 1 *August* 1945. In this issue you have a write-up on the operations of the U.S.S. *Absecon* which I would like to have for my scrap book.

If it will cost me anything please let me know.

U.S.S. *Absecon* Stanley John Luszcz, S1c

¶ Copy in the mail sans cost.

SIRS:

In installing the new RCM in TBM Avengers, according to Bureau specifications, the A.P.T. antenna stub protrudes 26 inches aft of the bilge hatch and the base of the antenna is 4½ inches above the bottom of the hatch at a 45° angle, pointing down. This antenna is 22¾ inches long. Further information about this gear cannot be given except that the Bureau recommends it highly.

It seems to us, the riggers in the air group, that should anyone make an emergency bail-out, he would strike this antenna stub. We have received no word that this may be a hazard in an emergency and will not know until such a bail-out is made, which would be fatal. We would appreciate word of confirmation either way. If it is a hazard, we have some practical suggestions to remedy it.

AIR GROUP 49

PARACHUTE RIGGER 1/C (C.A.C.)
PARACHUTE RIGGER 1/C
PARACHUTE RIGGER 1/C
PARACHUTE RIGGER 2/C
PARACHUTE RIGGER 2/C

¶ The new R.C.M. equipment is not installed under Bureau specifications,

nor does this installation bear the Bureau's official stamp of recommendation. The installation first was recommended under Local Change #2, Navy #28. More recently, an improved installation appears under Local Change #10, Navy #14, approved by COMAIRPAC. However, under both of these Local Changes, the antenna stub is on the PORT side of the plane and in no way interferes with escape through the bilge hatch, which is on the starboard side. The hatch on the Port side is not large enough to permit exit of the gunner—or anyone else—with full parachute gear.

SIRS:

After struggling with that "underwater submarine" picture in a recent issue till I was about ready to blow my top, I decided a quick look was better than prolonged study of pictures in NAVAL AVIATION NEWS. But—even a quick glance at this picture on page 34 of the September 1 issue makes me wonder which of us is the worse off. You're not calling this a "cruiser" on the strength of its having been a


Training Aid Teaches Blinker

VMSB-464—Instruction in blinker is being stressed by this squadron. To

PROJECTION BOX GIVES REALISTIC TOUCH

give a realistic touch, a projection box was constructed. It is an enlarged 19½" x 15½" picture of a cruiser mounted on a box with a [illegible] projection hole at the point where blinker would function.

A 24-V 21-candlepower bulb is powered by 48 volts direct current. The bulb is installed in an R4C downward reflector light. With an ordinary key, the instructor flashes signals to the class.

battle cruiser in the days gone by, are you?

NAAS CORRY FIELD LIEUT. (MC) USN

¶ Wow! *Flight Surgeon*

SIRS:

It is requested that I be supplied with information as to where I can purchase or procure a model of an *Essex* class carrier.

I served aboard the U.S.S. *Bunker Hill* on the cruise where her career was interrupted by two Kamikaze pilots last May. It is purely for sentimental reasons that I wish the model. I would like to remember the unmatched heroism shown by the officers and men of the "Holiday Inn."

MASG-46 James E. Swett, MAJ., USMCR

¶ Two models of *Essex* class carriers are known to be available. Most ships' service stores and post exchanges carry these models built on scales of 1:1200 and 1:500. Models may be ordered from H. A. Framburg & Co., 3320-28 Carroll Ave., Chicago, or from the South Salem Studios of South Salem, New York.

The Cover Helmeted crew-members of the U.S.S. *Hancock* peer down through the hole a Jap bomb ripped in their ship's flight deck. The bomb's blast caught the low-flying Japanese craft.

CONTENTS

ANSWERS TO QUIZZES

● RECOGNITION QUIZ (ins. back cover)

1. SB-3 2. R5C 3. JRM 4. R5D 5. PB4Y-1 6. Mosquito 7. York 8. Lincoln

● NAVIGATION PROBLEM (p. 20)

1. Provincetown, dead ahead, range 30 miles
2. Plymouth, port 10°, range 45 miles
3. Boston, starboard 20°, range 70 miles
4. Providence, port 30°, range 85 miles

● GRAMPAW'S QUIZ (p. 10)

1. Climb to safe altitude (at least 5000 ft.) and test controls particularly with plane in landing condition. See TO 48-40 for detailed procedure.
2. *a.* Inflate vest using oral tubes. *b.* Put it on; then adjust crotch, waist and back straps for comfortable fit. Ref.: TO 30-45.
3. Normal rated power is maximum permissible power for *continuous operation*. Take-off power usually is limited to *5 minutes*. See *Pilot's Handbook* for specific models and engines.
4. 45° to such airway. Ref.: CAR 60.586.
5. Yes. See Art. 6-223 in *BuAer Manual* for further amplification.

NAVAL AVIATION NEWS

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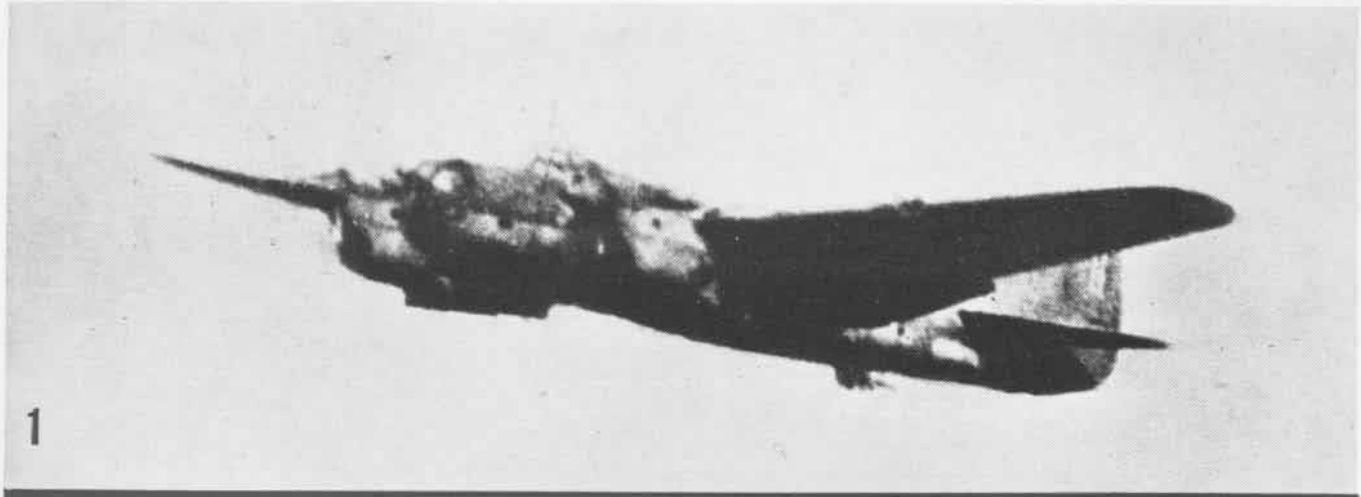
RECOGNITION QUIZ

BRITISH, AMERICAN AND RUSSIAN AIRCRAFT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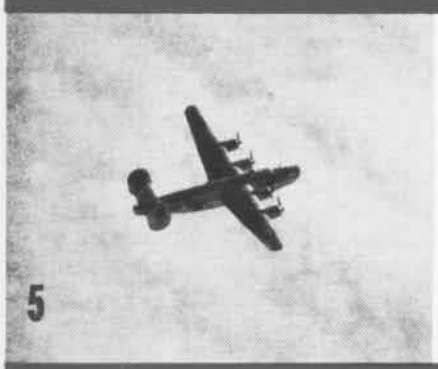
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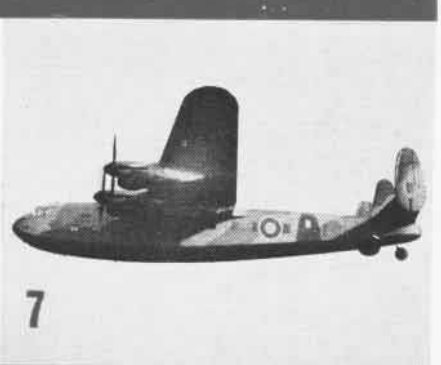
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8

Answers on page 32.

THE WORLD'S largest and most elaborate aircraft carrier, the CVB *Midway*, has been commissioned and is preparing to join the fleet. Two sister ships, the *Franklin D. Roosevelt* and the *Coral Sea*, are under construction. The *Midway* carries the first steel flight deck ever used on a U.S. carrier.