

BUAER

NEWS



Aviation Metalsmith

Technical Training
Income Tax—Navy
New Aerology Quiz

Sept. 1, 1943
RESTRICTED



Operating from a carrier is the ultimate goal of the student pilot whose many months of training prepare him for stern demands of naval aviation



THE CENSOR HAS BEEN TAUGHT TO BE SO SECURITY-MINDED THAT HE WON'T LET INFORMATION THROUGH WHICH MIGHT ENDANGER LIVES OR PROPERTY

CENSORED!

Navy Safeguards the Fleet by Restricting Information; Attempts to Outsmart Censor Rarely Get By As He Knows All the Tricks and Devices

WHEN the *Lexington* was fatally hit in May 1942, there were many survivors but the secret of her death was so well kept that the Japs were led to believe she might still be afloat. As a result, they probably overestimated the force that later disrupted their program at Midway. Had *Lexington* survivors given any hint about the sinking of their ship, the Jap plan of campaign might have been altered.

The Navy has many secrets and many of them are known to thousands of its own people. It therefore expects absolute respect for security regulations on the part of its personnel. To guard its information, the Navy has

seen fit to inspect mail going to and coming from its vessels and bases. All private correspondence of officers and enlisted men on board vessels and at

certain outlying stations is subject to censorship regulations and must be placed unsealed in letter boxes or post offices controlled by the Navy.

Censorship rules were created not to pry into personal affairs. They were drawn up from actual experiences concerning certain types of information which, when made available to the enemy, have proven disastrous. Clues to information have been found to be as objectionable as the information itself.

Censors are not the scissor-fingered butchers their critics frequently charge. They're not at all interested in personal affairs. Of course, as one censor

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BUREAU OF AERONAUTICS
NAVY DEPARTMENT—NO. 200

admits, an anecdote about the sailor and the Polynesian princess may stick in his mind because of its amusing nature. But they guard against repeating anything—even funny stories—when off duty, realizing that the ethics of postal censorship demand no mention be made of the contents of letters.

Knows It's None of His Business

The censor knows that what a man writes to his friends and family is none of his business, and he is apt to forget all about it 10 seconds after he reads it. But he has been taught to be so security-minded that he won't let anything get through that might endanger his own life—or the writer's.

The Navy doesn't believe its people are careless in permitting the leakage of its secrets. But it wants to take every precaution against losing any part of this war.

Every man writing a letter home wants it to be interesting. He wants to tell things the folks will enjoy reading. Only a few want to be big shots or braggarts. The average Navy man finds it a little tough to write a letter anyway, particularly if every time he writes a word he wonders whether it will result in his getting a deck or summary court martial.

One of the most difficult security lessons to learn is that discussions of anything confidential should be avoided, and that merely hinting at the existence of hush-hush activities without actually describing them is just as offensive. Hints provoke curiosity.

The test of genuine security-mindedness is the ability to behave normally during times of abnormality. A secret is best kept by convincing others it does not exist. "Speaking of being restricted," wrote a serviceman recently, "we have lectures on what to say in letters of the secrecy of this work, but seeing it's you, there should be no harm in telling you what we do."

Naturally, every man and woman in the Navy has at least one good friend whom "there should be no harm in telling." The friends and relatives—for the most part civilians—are not vicious but they are frequently careless, and, of course, have not been schooled in the importance of security. That is where censorship steps in as a necessary, though unpleasant, function.

Implication Reflects Common Fear

Sometimes Navy letter writers imply that they would be far more communi-



BILLY deBECK'S CHARACTERS, SNUFFY SMITH AND BARNEY GOOGLE, DISTURB CENSOR'S ROUTINE

cative if the threat of censorship did not exist. "Tell you more when I see you," is one of the phrases commonly encountered in letters.

The world is full of agents sent out by the enemy. These agents are more interested in getting possession of a letter which was written by a sailor who thinks he is going to avoid censorship than they are in listening to his conversation. But they will take the information either way. A harmful

letter is likely to be nullified by censorship, but unguarded speech may be picked up and amplified a thousand times.

A surprising number of summaries and decks have been handed out just because, rather than use the old bean, men decided to take a chance and write or say something they would rather die than tell a Jap or German.

Probably ever since the first love letter was written, it has been customary for the writer to place "X" marks at the ending. These romantic symbols are out for the duration, codes and ciphers being prohibited by 9 (a), Navy Censorship Regulations.

At some of the advanced bases it is usual for men to mail copies of a familiar service magazine to the folks back home. Because the periodical is cleared by censorship at its source, it occurred to a man at one of the bases that the Navy censors wouldn't inspect copies going to parents and friends from his station.

Results in Prompt Discharge

So he went to the trouble to write a letter in which he attempted to set up a private code, enclosed the letter in a copy of the magazine, and dropped it in the mail. His reply came promptly in the form of a summary court-martial and a bad-conduct discharge. Although his sentence was held in abeyance for 6 months, he learned, as have several offenders, that it's perilous to try to short circuit the censor.

A man may as well join the Axis intelligence corps as write a letter aboard ship and carry it ashore for mailing. It's just as hazardous to write letters ashore for posting ashore. These practices are forbidden because they may disclose the position of ships and shore units. It is likewise forbidden to reveal by telephone ashore any information which, if written, would be subject to suppression by naval censors.

Not many months ago, several Allied crewmen at an advanced base loaded a plane with uncensored mail destined for home ports. Most of the men at

DON'T



Don't write letters aboard ship and carry them ashore for mailing. Letters and cables require careful censorship.

Don't give letters or messages to your friends to mail ashore, or to take home for you.



Don't write anything in a letter you wouldn't tell a Jap or a German.

Don't discuss your duties or the equipment you work with on ship or ashore.

Don't send post cards showing where your ship is or has been.



Don't go ashore and telephone anything you'd be reluctant to put in a letter.

Don't describe ship movements—ours or those of other nations.

Don't talk about casualties—personnel or ship.

Don't gripe in your letters home.



Don't be a big shot or braggart by trying to impress the public that you're "in the know."

Don't try to send pictures of naval or military scenes or equipment—show them to the censor.

Don't sink your own ship by telling too much in your letter!

THE FOLLOWING WERE . . .

I am sneaking these letters off the boat and if I am caught it will mean 18 months in prison but it will be worth it as long as I can keep you posted where I am at all times.

DISCIPLINED

REPRIMANDED

You see, our Chief is our censor and even reads any of our mail just stamps it.

Let my folks read this but caution them not to talk about it. You can let your brother and Paul know where we are but don't spread it around too much. Our operations are supposed to be secret.

SUPPRESSED

PITIED

It is hard to say anything that would pass censorship in the first place, and I can not pour out my love for you as I wish without the third party seeing the innermost depths of my heart also.

Unloaded several thousand troops with full equipment and it didn't take them long to get things under control.

DELETED

Once in a while your letters are censored to see if we sneak any mail off the ship.

DELETED

CENSOR CORRECTS MISSTATEMENT
IN LETTER RECENTLY RECEIVED

Everyone knows of the newsletter, but to date I have not seen a single copy aboard ship - undoubtedly

Note from Censor: Newsletter is circulated throughout ship. Well liked and appreciated. JER

the base had knowledge of the scheduled departure several hours before actual take-off and nearly all of them got busy and wrote letters filled with confidential information which they had been afraid to write in previous letters because of censorship.

The plane crashed en route and the mail pouches floated around near the shore of territory occupied by the Nazis. The information contained in those pouches would have been worth billions of dollars to the enemy—would have cost the Allies immeasurably had the Nazis picked them up. Fortunately, an Allied surface vessel came across the soaked mail and spent several uneasy hours in enemy territory picking it out of the water.

Private Knowledge vs. Public

Because addresses for Navy personnel must carry the name of a ship or station, publication of lists of such addresses is prohibited. This is to

OVERTAKEN by censorship recently was a letter written by a member of an armed guard center, revealing that a specified ship had been torpedoed and was in St. Johns for repairs. On checking to verify the return address on the letter, censorship discovered that the ship had been repaired, had again set out to sea where she was again torpedoed, this time sunk. The writer of the letter was reported missing.

Although censorship admits the evidence is not conclusive, it is felt that it was entirely possible that this man had directly caused his own death.

avoid dissemination of information which would show assignment of fleet units. Private knowledge of ship and station addresses is one thing, says censorship, public knowledge another.

Service personnel will find it advisable to have nothing to do with "Pen Pal" correspondence clubs. It would be most disconcerting to establish correspondence with a Pen Pal only to learn, too late, that he's also a pal of the Axis.

Frequently, a man home from a battle area is asked to grant an interview for the local paper. All newspapers have been advised by the national Office of Censorship that stories written from their interviews must be



THE CENSOR'S MARK—A SEAL OF APPROVAL

cleared with that office, or with the Navy, before publication. Unintentional slip-ups occur, but it is the responsibility of the man in the service to remind reporters and editors of this requirement.

A big source of enemy intelligence comes from prisoners.¹ If captured, a man is required to give only his name, rank, and serial number. He should not carry personal letters or diaries. Indeed, the keeping of personal diaries by personnel of the Navy is prohibited. Possessions of this kind tell much about a man—envelopes carry the name of his ship or station.

Seal of Good Letter Writing

In the business of correspondence, the censor's stamp has become a good-letter-writing seal of approval. It is something to be sought. No letter is complete—and the writer's conscience cannot be serene—without it. It's as essential as the cancellation mark, the address, or the air-mail stamp. To route mail outside the limits of the censorship system is to establish a sort of private underground.

It takes discipline to write letters that are both interesting and free from censure. It takes fortitude to keep quiet. Having exhibited the guts required to face the battle front, a man will have to show a little more to face the home front.

¹ See *Prisoner Sense* issued by BuAer's Training Division.



KEY

to CENSOR'S NIGHTMARE

1 Private correspondence shall be in plain English, clearly understandable to the censor, and without the use of code or cipher, excepting that the use of a foreign language in outgoing correspondence may be permitted if the writer is addressing a member of his family unable to read anything else. If such letters cannot be translated locally, they should be forwarded to the Office of Naval Intelligence for translation and release.

PROHIBITED TOPICS

Under no circumstances shall open or hidden reference be made in any personal communications or messages to any of the following (these shall be posted at ships and stations for the information of all personnel):

- 2 The location, identity, movement, or prospective movement of any merchant ship, aircraft, naval vessel, or naval or military force. (In the case of merchant shipping and commercial aircraft, approximate but not precise dates of sailing are permissible.)
- 3 The defensive or offensive forces, weapons, installations or plans of the U. S., or her allies. Discussion of strictly naval information such as fire-control apparatus, turret gear, torpedoes, mines, guns, target practice, radio apparatus, aviation equipment, contents of secret or confidential publications, etc., is also prohibited. Reference shall not be made to weather conditions.
- 4 The production, movement, or supply of munitions, or the location or progress of war industry in any form.
- 5 The routine or employment of any naval or military unit of the U. S., or her allies.
- 6 The effect of enemy operations, or casualties to personnel or material suffered by the U. S., or her allies, previous to the official publication of such information.
- 7 The criticism of equipment, appearance, physical condition, or morale of the collective or individual armed forces of the United States, or her allies.
- 8 Matter, the dissemination of which might benefit enemy military, economic, or financial interests, or which might interfere with the national effort of, or disparage the foreign relations of the United States, or her allies.

CENSOR'S NIGHTMARE

6

Dear Spunk:

Things are really happening in this part of the world. Five merchant ships were sunk off here July 15th. Bits of lumber from the packing cases have been washing ashore ever since, littered with such names as General Motors, Westinghouse, etc. so that's a lot of lend-lease material for Alvy Jones. The ships were of the new Liberty type: Albemarle, Jan Glosrom, Sarasota, Argosy and Covington. Most of the crews were saved, as two U.S. destroyers, the Johnston and the Chapin, happened along about an hour later.

Is the draft board still blowing on your neck? Whatever you do, Spunk, be sure to tell them you want the Army when you're called up - that is, if you want to get in the Navy. It seems they seldom assign a man to the service he actually wants.

That's the way this whole war is being run. Screwing isn't the word for it! Take that last task force, for example. I wouldn't have handled it that way at all. As it was, plenty of Japs got away. If I were running this thing, no Japs would get past me. Believe me I'd make it plenty hot for them.

Guess I'm the dumb guy, though - getting into this man's war. So dumb I don't even know enough to come in out of the rain (probably why they sent me here - hasn't rained for 24 days).

I'd like to tell you about the American battlewagons (4) but we're not supposed to reveal the names or whereabouts of our ships. When they all steam into port there sure are plenty of sailors wandering around these tropical towns. We sure raised hell the other night - practically tore one joint into little pieces. Laid up some of the local police - sailors too - but not as many as we lost in that last battle, not by a long shot!

So that you can understand what I mean without my coming right out and saying it, here's an idea: when I speak of fellows we know, it will mean battleships; when I talk about Japs, it will mean cruisers (I love that!) and when I refer to old school teachers it will mean destroyers.

Well, I'd better sign off now, Spunk. Mail goes out from here only one day per week (Friday) at 1 p.m. and this is it and it's 11:30. Give my best red garter (regards) to all the girls. From here we go to Sydney, Australia and I'll drop you a line from there.

As ever,
Aludley

5

LETTER IS A COMPOSITE OF CENSORSHIP VIOLATIONS.
THE NUMERALS REFER TO KEY ON THE PRECEDING PAGE.

2

GRAMPAW PETTIBONE



Your Life Depends on Oxygen

The radio gunner, on an oxygen familiarization flight in an SBD-4 was instructed to start using his oxygen at 12,000 feet. The plane ascended to 17,600 feet and remained above 12,000 feet for approximately 20 minutes. On returning to the line, the gunner was found unconscious with the oxygen mask still on his face. All efforts to revive him were of no avail.

Examination of the MSA Re-breather showed the lock nut on the admission valve adjusting screw to be loose and the screw to have backed off sufficiently to prevent oxygen from entering the rebreather bag. Several other rebreathers in the squadron were found in similar condition.

► **BUREAU COMMENT.**—This is a maintenance problem. All rebreathers should be checked frequently to insure proper operation, including a check of this lock nut for tightness. An Instruction Manual and Parts List is furnished with each rebreather. Figure 1 of this manual is a general assembly drawing showing the location of the admission valve adjusting screw and lock nut. Page 7 gives an explanation of the function of this valve. BuAer restricted let-




ter, serial No. 4703 of January 11, 1943, explains how to adjust this valve.

Oxygen equipment is life-saving equipment. As such it merits the most careful attention. It is of vital concern to all squadrons that competent personnel be assigned to the upkeep of all oxygen equipment and that all flight crews be fully instructed in its use.

Numskull-ery

Washing out a brand new JRF-5 by landing it in the water with the wheels down.

The pilot knew better; he had 2,150 hours. He called it "temporary pre-occupation"; said he "mechanically" lowered his wheels; admitted not using the landing check-off list.

 Grampaw Pettibone says:

"Temporary pre-occupation," my ankle! They wouldn't print what I call it.

This is the sister dunce act of the one which gets so much publicity; that of landing on an airfield with the wheels up.

Here's the case of a famous landing made before retractable wheels were invented to confuse pilots: A torpedo plane squadron, which had been operating on wheels, had just recently gone back on floats. The squadron commander, upon returning from his first flight after this transfer, started to land on the station field (no doubt, due to "temporary pre-occupation"). He was barely prevented from doing so by the radioman, who frantically warned him that he was on floats.

This pilot then circled the field and made a good landing in the bay. After taxiing up to the ramp, he got out on the wing, turned to the radioman and said, "Good work! That certainly was a dumb stunt, trying to land on the field on floats." And with those few kind words, he jumped from the wing onto the field—I mean into the water up to his neck.

Both to Blame

A fatal take-off collision occurred under the following circumstances. The pilot of an F2A taxied to take-off position on the right side of the correct runway. The pilot of an SNJ taxied past the F2A down the left side of this runway and started across, evidently intending to take off on another runway. The tower called the SNJ pilot, notifying him of the correct runway. It is not known whether this communi-

cation was received. In the meantime, the F2A commenced its take-off. The tower called the F2A, attempting to stop the take-off, but this message was not received. Upon collision, both aircraft burst into flames, resulting in the death of the SNJ pilot.

The Trouble Board considered both pilots equally responsible. One pilot for not positively insuring the runway was clear before starting take-off; the other pilot for passing an airplane in take-off position, for not checking the wind and for not checking the take-off course. Communications in both cases left much to be desired.

Prop Trouble

Propellers, like everything else in aviation, need to be handled intelligently to give proper service. Pilots cannot be expected to know all about adjustment and overhaul of propellers; these are matters for propeller experts. Pilots must, however, in self-defense, know how to operate them properly in the air. Here are a few of the pilot errors in connection with propellers; culled from recent aircraft accident reports:

(a) Attempting to take-off with prop in high pitch. You can seldom get off in this setting, but accidents occur because pilots persist in their take-off run too long. If you aren't picking up speed properly, check your propeller setting—and don't carry a doubtful take-off too far down the runway.

(b) Landing in high pitch. This is the twin-sister error of (a). You can land safely, if everything goes right. It is only when you have an emergency



and have to give her the gun to go around again that trouble arises. Then you won't have the necessary power to climb. And when you need that power you need it right now. That is why all landings should be made in low pitch.

(c) Your power seems to fall off or just isn't there, but the engine sounds all right. When this occurs, or your rate of climb is slow, or similar difficulty is encountered, get in the habit of checking your propeller setting. The trouble is often there.

(d) If your propeller control unit becomes inoperative with the electric propeller in high pitch, remember, you have a manual control unit. Use it!

Get acquainted with your propeller; learn its habits and its troubles. Know how to operate it.


Classification of Reports

It is noted that numerous Aircraft Trouble Reports, Boards of Investigation and Administrative Reports are being classified as confidential when they do not contain anything of a confidential nature. In order to simplify the handling of paper work as much as possible, it is requested that these reports be not made confidential unless so required by the nature of their content or for security reasons.

In this connection, whenever confidential photographs are enclosed with any report, the entire report must be made confidential. Photographs of aircraft accidents are not necessarily confidential and should not be so marked unless they contain information of a confidential nature. The standard rubber stamp inscription, as now used on the reverse of such photographs, will insure that they are not released for publication unless specifically cleared by the Chief of the Bureau of Aeronautics.

Rubber Necks Aren't Rationed

A student pilot in an SNJ-4 was unable to retract one wheel after take-off. Seeing another plane in the area, he flew over to it to show his predicament. In the meantime a third pilot had sighted the crippled airplane and flew over to warn the pilot. This third pilot had good intentions, but his execution wasn't so good. In his enthusiasm he neglected to watch out for other aircraft—he ran right into the second airplane from behind.

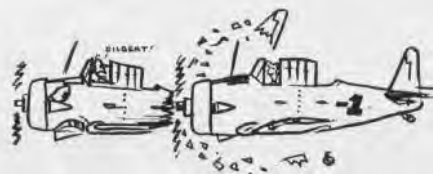
 **Grampaw Pettibone says:**

It takes a swivel-neck pilot to avoid collisions these days. It requires constant vigilance, and the danger isn't only straight ahead. It is also above, below, and on either side of you, and, as in this case, even behind you. Keep a constant lookout!

And this doesn't mean "lookout" as the conductor meant when he passed through the train and yelled, "Lookout for the tunnel!" In that case an immigrant opened the window and did, and got hit on the head. I really mean LOOK!

Parachute Sense

An accident which occurred recently in the Aircraft Delivery Unit at NAS Dallas gives several pointers on parachute sense. Two SNJ's collided resulting in the complete destruction of the rear fuselage section of one of the planes. The graphic statement of the pilot shows the value of keeping a clear head:



"While engaged in level flight at 7,000 feet, one of the wing planes struck the rear of my ship and cut off the tail or fuselage a few feet back of the rear seat. A few seconds before being struck, I noticed that a collision was inevitable, as his propeller was within a few feet of my fuselage. I applied full power just as I was struck. My ship nosed straight up and then fell into a forward rolling fall with the nose and remaining fuselage rotating around an axis from one wing tip to the other.

"The plane made about four of these forward somersaults, during which time I found that the aileron pressures remained positive. By holding right stick the plane rolled to the right and started to spin violently with the nose down. After a few turns the nose came up and the plane engaged in a flat spin with the nose close to the horizon. I knew I would have to leave the ship so I shut off the gas, the ignition, and the master switch. As my clothes were in the rear seat, I thought I could prevent a fire and be able to save them.

"I tried to stop the propeller by engaging the starter, but I had already shut off the master switch so the starter would not engage. As the

ship was spinning to the right, I believed the best plan was to jump between the right wing and the nose. I then opened the hood at 5,000 feet, unlatched the safety belt, stood up on the seat and jumped.

"At this point, I nearly broke my neck as I had forgotten to remove my



head set. However, I fell clear of the plane and dropped straight down without rolling. It did not seem as though I was falling and everything was quiet. I could hear the plane above me making a swishing sound.

"The small change from my pocket was falling up past me. My concern at this point was that the plane was falling directly above me and it might strike the parachute when I opened it. I did not feel as though I had a parachute on so I felt around to make sure it as there. I waited until the ground was very close before opening the chute. The plane missed me a few feet and crashed below me. The wind drifted the chute over some trees, so in landing the branches tore off my remaining clothes.



"As I removed the chute harness, I noticed parts of the plane still falling and also that my plane was burning. My clothes were destroyed. The other plane had only damaged his propeller and landed on a road a short distance away. The free fall and the ride prior to leaving the ship were very enjoyable, although the moment the chute opened the jolt was quite severe as was the landing on the ground. It surprised me that I had so much time to think, and also that there was at no time any cause for panic or fright. Would like to again make a jump at some time, only under more favorable conditions."

DID YOU KNOW?

Flight Offense: Don't Fly Over Restricted Airspace

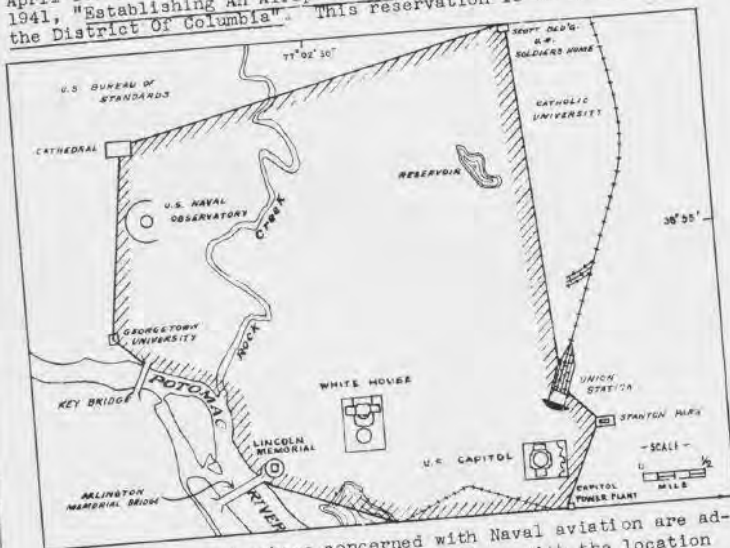
MEMORANDUM FOR AVIATORS

2 August 1943.

No. 108.

DISTRICT OF COLUMBIA; AIRSPACE RESERVATION

Reference: Memorandum for Aviators No. 39 of 16 May 1942.
Executive Order No. 9153, signed by the President on 30 April 1942, amended Executive Order No. 8950 of 26 November 1941, "Establishing An Airspace Reservation Over A Portion Of the District Of Columbia". This reservation is as follows:



Aviators and others concerned with Naval aviation are advised to thoroughly familiarize themselves with the location of this reservation. No Naval aircraft shall be navigated within the confines of such area except by express authority of the Eastern Defense Commander.

C. & G. S. Aeronautical Charts: Washington, 10M, 23DF, 26DF.

G. S. Bryan,
Rear Admiral, U.S. Navy, (Ret.),
Hydrographer.

R E S T R I C T E D

There have been recent reports of aircraft flying over the District of Columbia Airspace Reservation. This is a serious offense. The attention of all pilots is directed to Memorandum For Aviators, No. 108, which is shown. Aviators should familiarize themselves with this area.

Special Devices School

Trains Men in Equipment

The complex character of many synthetic training devices used in BuAer's training program indicates the need for specially trained maintenance personnel to insure continued operation of the devices. In view of this need a Special Devices Maintenance School has been established under the cognizance of the Naval Air Technical Training Command,

Navy Pier, Chicago, Illinois.

Selected men are given an intensive 12-weeks' course of instruction in the maintenance of synthetic training devices. Upon completing this training, these men are assigned to activities having need for them. Official requests for such personnel should be directed to the Bureau of Naval Personnel via BuAer.

Stations that desire to have their own men trained at the school should submit requests to Bureau of Naval Personnel via BuAer. Men selected

from ships and stations for this training should have mechanical or electrical aptitudes with a recommendation of their commanding officer.

Aeronautical Publications

Hydrographic Office Asks Orders

The Hydrographic Office, Washington, coordinates distribution of relevant Civil Aeronautics Administration Publications to naval activities, among which are *Weekly Notice to Airmen* and *Air Navigation Radio Aids*. These publications are being ordered in quantities that appear to be inconsistent with station needs.

So that the Hydrographic Office is able to keep its mailing lists current and to supply publications in appropriate quantities, all aviation activities are requested to forward a statement of the quantities of these publications now actually needed to meet unit requirements.

To reduce the work required in distribution, henceforth all material for naval air stations will be forwarded to operations officer. Other station components will be expected to procure them from that source.

Tail Light Dizziness

Single Gleam Caused Vertigo

Growth of night flying in the present war revealed a new scientific problem—dizziness of pilots caused by too close watching of the single tail light of the plane ahead in formation.

Fixation of vision on a single point of light resulted in an illusion that the light was roving or changing direction. By installing two tail lights the Navy was able to offset the vertigo that its pilots suffered, with its resulting erratic flying tendencies.

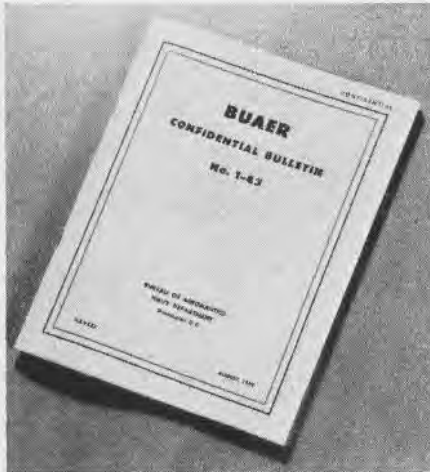
DID YOU GET ACCURATE
WIND DRIFTS?



BuAer "Bulletin" Out

Confidential Paper a Monthly

The first issue of the *BuAer Confidential Bulletin*, a new monthly publi-



BULLETIN DISCUSSES NEW TACTICS & DESIGNS

cation of the Bureau of Aeronautics, has been sent to aviation activities to furnish latest notes on tactics, design, and development of naval aircraft. The *Bulletin* is being distributed to fleet headquarters, outlying bases, all carriers, naval air stations and establishments, naval training commands, and Navy Department bureaus.

REST THE EAGLE!

BuAer NEWS has been tipped off that too many new designs for squadron insignia incorporate the features of the eagle. Now that faithful old bird has been nailed by its feathers to far too many enterprises, in many cases against its will. This has induced a state of fatigue that undoubtedly is beginning to show up facially in later sittings. Just as a hint, designers should lay off the old standard bearer. In sterner tones, BuAer reminds that further exploitation of the toil-worn patriarch may be disapproved.

Frigates Sail Again

New Corvettes Reincarnate Classic American Vessels

Once more frigates of the Navy will help protect our sea lanes. The historic designation "frigate" has been given to a new type of twin-screw cor-

vette, scores of which are being built for the Navy.

Just as the first American frigates were built to intercept surface raiders of the Barbary pirates, the modern frigates have been designed specifically to combat undersea raiders.

The new frigates are larger than the standard type British corvette, which has rendered such valiant and successful service during the present war. Somewhat similar to American gunboats, the frigates are primarily heavy duty vessels. They have an overall length of 303 feet and a beam of 37 feet 6 inches. Their speed will be adequate for their anticipated duty in the North Atlantic, where durability, detecting devices, and ordnance are prime factors.

Congress authorized construction of first six American frigates in 1794.

Air Information Wanted

Hydrographic Office Gets Data

The Division of Air Navigation of the Hydrographic Office collects, evaluates, and disseminates air operational information by means of aviation charts, publications, periodicals, memoranda and dispatches. Field work in obtaining and reporting this type of information has been done for the past 20 years by the entire aeronautical organization of Navy. The present stress of war operations has reduced the volume of this data to a low level. All commands are urged to forward any and all air operational information that affects aviation charts, naval air pilots or airway pilots, route manuals, aircraft facility directories or radio aids for aviators, to Hydrographic Office, Navy Dept., Washington.

SHOW ME THE WAY TO GO HOME



FICTITIOUS SHIP— RADIUS OF ACTION

Mid Latitude 32° N
Mid Longitude 175° W

You receive orders to depart from your carrier at 0730 to scout out on a course of 015° as far as possible and return to the carrier. Your fuel supply is for 3 hours 30 minutes (not including reserve). Carrier's position at 0730 is Lat. 30°-35' N, Long. 177°-15' W, on course 070°, speed 21 knots. From Aerology you determine the wind at the desired flight altitude 3,000 feet to be from 120°, force 30 knots. Temp. at that altitude + 15° C. True airspeed 120 knots. Variation 9° E.

Magnetic heading	-----	Speed of relative motion	-----
True heading	-----	Course	-----
True airspeed	-----	Ground speed	-----
Calibrated airspeed	-----	Miles on course	-----
Direction of relative motion	-----	Minutes on course	-----

At 0815 you sight a convoy bearing 310° true, distant 26 miles. Convoy is on course 050°, speed 12 knots. You are ordered to intercept the convoy and follow it as far as possible, then return to your carrier without using any of your reserve fuel.

Magnetic heading	-----	Course	-----
True heading	-----	Ground speed	-----
Direction of relative motion	-----	Miles on course	-----
Speed of relative motion	-----	At what time do you leave the convoy?	-----

What is the position of interception with the carrier? Lat. _____
Long. _____
(Answers on page 29)

BEST ANSWERS

V—First Aid

Pick the best choice to complete the statements below, then check your answers on p. 32.

1. First-aid treatment for irritation caused by marine life such as large jelly fish, sea nettles, etc., is to—

- a wash well with soap and water and apply calamine lotion
- b rub the affected part with clean sand, bathe in ammonia water, and apply baking soda paste
- c wash with clean water and apply iodine
- d wash with soap and water and apply baking soda paste
- e remove the slime with rubbing alcohol and apply a good antiseptic

2. The order in which treatment of injuries takes precedence in first aid is—

- a bleeding, poisons, asphyxia, shock
- b asphyxia, poisons, bleeding, head injuries
- c shock, bleeding, asphyxia, poisons
- d bleeding, asphyxia, poisons, shock
- e asphyxia, bleeding, shock, poisons

3. An important fundamental to remember in the transportation of an injured person is that—

- a most cases do not require breakneck speed
- b an injured person should be moved to a hospital in a hurry
- c morphine should always be given before moving the victim
- d stimulants should always be given before moving the victim
- e in no case should a person with a head injury be moved without the consent of a physician

4. When survivors of "exposure in an open boat" are treated, a good rule to follow is to—

- a keep the survivors lying down with heads low and feet raised
- b keep the survivors lying down with heads raised and feet lowered
- c keep the survivors lying down and place hot water bottles or other direct heat against their bodies, particularly the feet and legs
- d apply cold applications to the heads of the survivors
- e administer stimulants, morphine, and aid breathing by artificial respiration

5. A primary objective in the treatment of "immersion foot" is to—

- a relieve pain by use of heat
- b keep the feet and legs moist
- c restore circulation gradually
- d warm the feet and legs immediately
- e cool the victim to lower body temperature

Watch the Little Things

Army Maxims Urge Care

The only way to lick smart and crafty enemies like the Nips and Nazis is to be smarter and craftier than they are. And this applies to little, seemingly inconsequential things as well as to grand strategy.

The following common-sense rules were published recently in *Aviation Engineer Notes*. Though written for Army consumption, the maxims are considered equally appropriate for naval aviation personnel. Here they are:

¶ Don't walk in the open. Every time you put your foot down you leave a minimum-sized mark of 48 square inches to attract enemy attention.

¶ Avoid gathering in groups. The dispersion of men insures longer life for all.

¶ Don't throw or leave papers, boxes, tins, cans, munition cases, or any refuse in the open. They should be concealed or buried as they indicate activity in the area.

¶ Never dry clothing in the open. This also will attract the attention of the enemy observer to your location.

¶ Flashlights and matches should never be lighted outdoors at night in a combat area. Such lights serve the enemy as well as a beacon does a pilot.

¶ A truck should never be parked with the windshield uncovered. Any reflection is liable to attract the wrong kind of visitors.

¶ Inspect the camouflage material frequently and correct any changes made by displacement or wilting.

¶ Blast marks on the camouflage from the gun will disclose a concealed position to the enemy. Such damaged parts should be repaired or replaced as necessary.

Early Christmas Coming

Home Folks Must Shop and Ship Promptly for Armed Services

Christmas comes early this year for the thousands of naval aviation personnel on overseas duty, according to the post-office department. The 6-week period from September 15 to October 31 has been designated as the time during which all Christmas mail should be posted for men at overseas stations. These packages will be marked "Christmas Parcels" and be given special handling.

Planes Old In 1953

Developments to Come Fast

There are so many developments under way in aviation engineering that our 1941 pre-war planes will be as out of date in 1953 as the 1916 Model T Ford was when the Model A appeared, according to R. S. Damon, president of the Republic Aviation Corporation.

"These improvements," he said, "start with the fundamentals of aerodynamics including the suppression of all external protuberances such as rivet heads, air intakes, and exhaust outlets. The smooth 'flying wing,' suppressing even the fuselage and tail itself, is an example and will probably reach its highest fruition in the largest type of planes where headroom for convenience and a maximum of absolute dimension within balancing limits of the center of gravity will be possible.

"Ultimately, the present engine and propeller itself may be suppressed and part of today's structural weight. This type, I feel, will reach the highest potential in the high speed supercharged high altitude plane, whose cruising speed to be economical will have to be in what are today's top pursuit speed brackets."

Post-War Air Traffic Large

Heavy Atlantic Travel Seen

Post-war air traffic between North America and Europe will reach 600 passengers a day, according to a recent prediction by Edward P. Warner, vice chairman of the Civil Aeronautics Board.

London-New York schedules will take 15 hours, while in the opposite direction they will average 21 hours, he said. Departures from London at 4, 6, 8, 10 p. m. and midnight are visualized. Allowing for flights that may start from points on the Continent, an all-inclusive round-the-calendar average of eight schedules daily in each direction seems a reasonable goal, Mr. Warner said.

"An average of 300 passengers per day in each direction, spread out among 8 schedules, would put an average of 37 passengers on each plane. Allowing for the 65 percent load factor which seems to be about the maximum—that would call for an aircraft providing accommodations for 57 passengers."

TRAINING TECHNICIANS



NAVAL AIR TECHNICAL TRAINING



GROUP I CENTERS



Each is a separate command. Commanding officer is directly under CNATechTra.

- Aviation Machinist Mates
- Aviation Ordnancemen
- Aviation Radiomen
- Aviation Metalsmiths
- Aviation Electricians' Mates
- Aviation Radio Material (Officers and Enlisted Personnel)
- Aviation Radar Operators (AMM, AOM, ARM)

GROUP II CENTER



A separate command within the physical limits of another command. CO is directly under CNATechTra.

- Aviation Machinist Mates
- Aviation Ordnancemen
- Aviation Radiomen
- Aviation Metalsmiths
- Aviation Radar Operators (AMM, AOM, ARM)
- Bombsight and SBAE
- Officers' Gunnery

GROUP III SCHOOLS



Each is part of another command whose CO has military authority. CNATechTra has charge of all training matters.

- Aviation Machinist Mates
- Aviation Metalsmiths
- Parachute Material
- Aerography
- Photography
- Control Tower Operators
- Bombsight
- Officers' Indoctrination
- Officers' Air Combat Information
- Officers' Photographic Interpretation
- Motion Picture Camera
- Link Celestial Navigation
- Trainer Maintenance

GROUP IV SCHOOLS



Small establishments for specialized training at factories and educational institutions. CNATechTra has charge of all training.

- Aeronautical Engineering
- Aerology
- Control Tower Operators
- Aircraft Maintenance



BuAer NEWS Chart

TRAINING TECHNICIANS

As the Fleet's air arm expands, more and more technical ratings are needed to fill aviation billets; the Navy's mammoth program trains 120,000 in aircrewmanship, plane maintenance, and repair

For every aviation pilot in the Navy, 10 to 20 officers and men are needed for technical aviation duties. This illustrates the size of the job cut out for the Naval Air Technical Training Command. Since the outbreak of the war, the pace of training aviation technicians has quadrupled, with approximately 100,000 of them needed every year until the war is won. . . .

WITH headquarters in the towering Chicago Board of Trade Building, NATechTraCom was established a year ago by the Secretary of the Navy to meet problems arising from rapid growth of wartime training. It comprises in general all schools giving air technical training except those which train flight students.

A rear admiral heads the command. As Chief of Naval Air Technical Training (CNATechTra), he is the direct representative of the Navy Department, including all its bureaus and offices, in all matters affecting activities of his command. His immediate superior is VCNO.

To make an inspection tour of all the activities of his command, the CNATechTra has some 50 stops to make. The schools are scattered up and down the country.

GROUP I CENTERS.—Each a separate command. Commanding officer is directly under CNATechTra.

GROUP II CENTER.—A separate command within the physical limits of another command. Commanding officer directly under CNATechTra.

GROUP III SCHOOLS.—Each part of another command whose commanding officer has military authority. CNATechTra has charge of all matters regarding training.

GROUP IV SCHOOLS.—Small establishments at factories and educational institutions. CNATechTra has charge of all matters connected with training.

Center At Chicago Controls Command

Chicago is the central stop on any inspection tour. In addition to headquarters in the Board of Trade Building, there are two Group I centers in the area. At Navy Pier, men fresh

from boot camp study to be aviation machinist's mates or aviation metal-smiths. There is also a course for men specializing in the maintenance of synthetic training devices. At 87th and Anthony, rated AMM's (most of them back from the Fleet) get advanced or "refresher" courses in carburetors, engines, ignition, instruments, propellers, turrets, and hydraulics. There are also advanced courses for aviation electrician's mates and aviation ordnancemen.

All the Group I and II centers contain a series of different schools. South to Memphis, basic training is provided AMM's, AOM's, and aviation radiomen. In Norman, the same is true for AMM's, AOM's, and AM's. Both Memphis and Norman have advanced schools which give courses in aviation radar, as does Jacksonville.

Most of the students in the Group I and II centers are studying for one of the "big four" rates. These are AMM, AOM, ARM, and AM. Jacksonville provides basic training for all four of them. In addition to the school for aviation radar operators, this center has schools teaching the maintenance of bombsight and stabilized bombing approach equipment and officer's gunnery school with ord-

nance training for nonflying officers.

Corpus Christi has a Group I school which gives advanced work in the maintenance and repair of communications equipment. Both officers and enlisted men attend this school.

Train Officers for Combat Work

In the Group II schools there is a wide variety of training activities. Officers receive courses of indoctrination and air combat information at Quonset Point, photographic interpretation at Anacostia. Officers and enlisted personnel get together at Pensacola for photography courses. For enlisted personnel there is another bombsight school at San Diego.

At Seattle and Quonset Point, men learn how to service Link Celestial Navigation trainers. There are parachute material schools at San Diego, Corpus Christi, and Lakehurst. Aerography also is taught at Lakehurst. There are courses in motion picture camera work at Anacostia and control-tower operations at Atlanta. The great variety of technical jobs in naval aviation makes inspection tour of NATechTraCom activities interesting to say the least.

The tour doesn't stop with strictly naval establishments. Some eight universities and technical institutes provide training in aeronautical engineering, aircraft engines, aerology. Some 40 manufacturing plants give specialized training in maintenance of specific type airplanes, airplane parts, and equipment. All this comes under the heading of Group IV schools. At the present time, most of the factory schools are in the process of being incorporated into the large Group I center at 87th and Anthony Avenue, Chicago. The 100,000 graduates a year from NATechTra schools includes Waves and Marines. The Group III school at Great Lakes gives ratings to colored AM's and AMM's.

It is entirely possible that the Navy may need to train more than 100,000 aviation technicians in succeeding years. If so, NATechTraCom is ready to answer the demand. Millions of dollars have been spent installing new schools and up-to-date equipment.

Experts from private life and veterans from the war zones have been recruited as instructors. There are some 4,500 of them in the three groups.



WAVES TRAIN TO REPAIR ENGINES.



You can kill Germans and Japs with needles
if you know how to USE them!

THOUSANDS OF TECHNICIANS TRAIN FOR THE "BIG FOUR" RATES

MOST of the students training in NATechTra schools are headed toward one of the "big four" ratings. These are the AMM, AOM, ARM, and AM classifications. Some of them are seamen straight from boot camp seeking their third class "crows." Others are petty officers studying to be chiefs and specialists.

The number getting AMM training this past year far outdistances all other classifications. There were 47,000 AMM's to 18,000 AOM's, 16,000 ARM's and 9,000 AM's. The high proportion of AMM's is easily explained. Those with this rating have more work to do around airplanes than any of the other aviation technicians.

AMM's are responsible for the maintenance of naval aircraft. In their charge is the cleaning, fueling, servicing, and making of emergency repairs on all types of airplanes and airplane engines. The job covers a lot of territory. It requires a knowledge of engines, ignition, carburetors, propellers, hydraulics, turrets, instruments, accessories. AMM's specialize in the various phases of the job.

For all technicians in the "big four" bracket, there is a basic curriculum designed to give a general knowledge of airplanes, hand tools, shop mathematics. After this, they take up the specific training of the various specialist ratings.

Ordnancemen Handle Many Tasks

AOM's are "responsible for everything a plane fights with." Their concern is firepower. They must be able to dismantle, clean, maintain, assemble, install all ordnance equipment. They must know machine guns, bombs, torpedoes and be proficient in small arms. The whole gamut of pyrotechnics—float lights for taking drift, rockets for identification, flares for lighting enemy targets—constitutes the AOM's job.

In third place among the "big four," ARM's have the important job of aircraft communications. This means more than the ability to send and receive code at the prescribed rate of 24 words a minute. ARM's must know communications procedure, practical operation of radio equipment, including training and servicing

electrical circuits—also signal flags, semaphore, and blinkers.

AM's are specialists in airplane structures. They may be called upon to do oxy-acetylene welding, riveting, sheet-metal work, heat treating, electroplating. They must know metal-work methods and materials.

Specialists Trained for Many Jobs

While "big four" is used to describe the aviation rates having the largest enrollments, it does not follow that these rates are more important than those smaller in size. Specialists are needed, for example, to supply such things as combat, weather, and traffic information. Without them naval aviation would be as handicapped as a pilot without a parachute.

In the past year, some 3,000 trainees studied in NATechTra schools for ratings as parachute riggers, aerographers, and photographers. The numbers for each rate were about evenly divided. In addition, several hundred control-tower operators graduated with "Specialist T" ratings.

Two new rates, aviation electrician's mate and aviation radio technician, were started during the past year. This fact accounts for their small enrollment figures. AEM's specialize in maintenance and repair of aircraft electrical systems. ART's do the same for radio and radar.

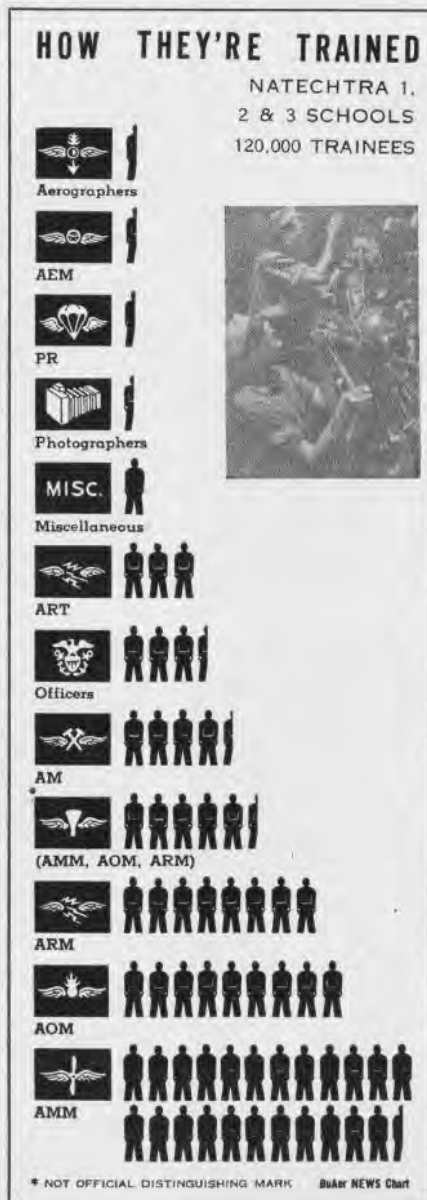
As a rule, those charged with the care and upkeep of synthetic training devices, such as Link Trainers and Link Celestial Navigation trainers, are AMM's. Specialists in the maintenance of bombsight and stabilized bombing approach equipment are AOM's. Enrollments for aviation radar operation include AMM's, AOM's, ARM's, and last year numbered something like 11,000 men.

Take Advanced Work

All in all, there were about 120,000 enrollments in NATechTra schools between July 1, 1942, and June 30, 1943. Some of this number are duplicates, for certain specialists, after attending one school, move to more advanced work in other schools. Out of the grand total, some 7,000 trainees were officers getting indoctrination for aviation administrative duties or technical instruction to qualify them as ordnance, radar, photographic, or combat-information officers.

The grand total, however, includes only officers and enlisted personnel receiving training at the Group I, II, and III schools. In the course of the year, probably another 20,000 found instruction at the Group IV schools in factories and educational institutions.

While the "big four" ratings outdistanced all other classifications last year, there are indications at present that this may not happen again. Consideration is being given to breaking up some of the big rates and classifying aviation technicians still further according to their specialties.



NAVAL AVIATION TRAINS MEN A

INDOCTRINATION



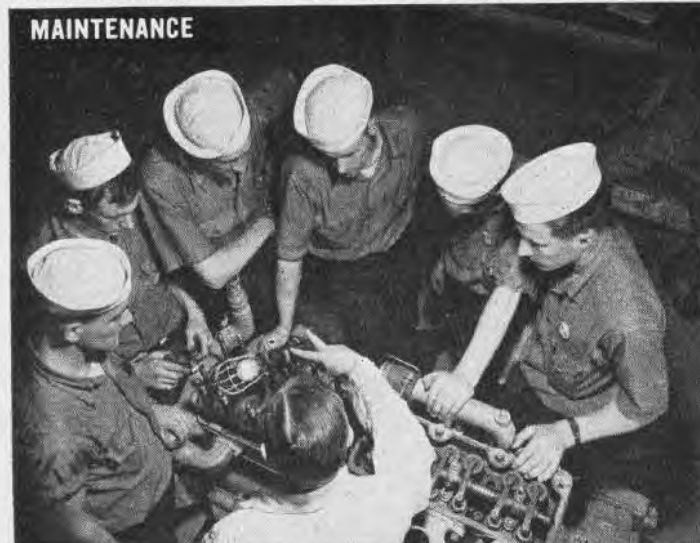
OFFICER CANDIDATES LEARN SEAMANSHIP AT QUONSET POINT SCHOOL

CONTROL TOWER



TECHNICAL TRAINING TEACHES WAVES TO OPERATE CONTROL TOWERS

MAINTENANCE



MACHINISTS MATES BIGGEST JOB IS TO KEEP NAVAL AIRCRAFT FLYING

METALSMITH



MARINES AT JACKSONVILLE LEARNING ACETYLENE WELDING

ELECTRICIANS



AVIATION ELECTRICIANS MATES PRACTICE UP ON TECHNIQUE

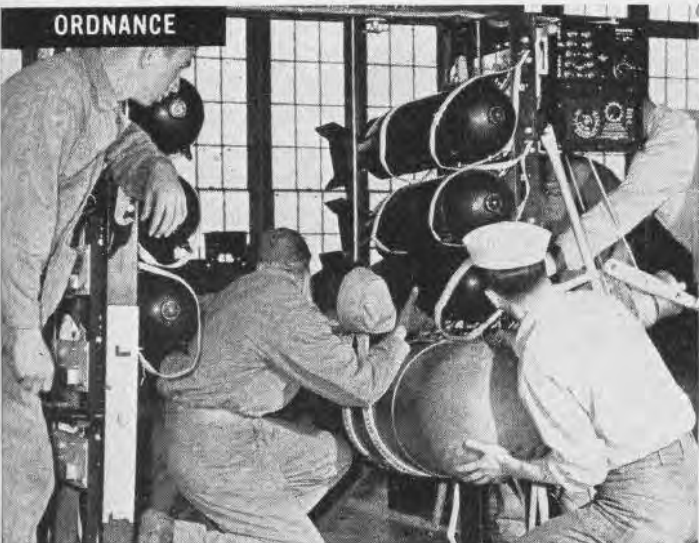
PARACHUTES



PARACHUTE RIGGING IS TAUGHT AT LAKEHURST INSTITUTION

ND WOMEN TO FILL THESE JOBS

ORDNANCE



ORDNANCEMEN AT NORMAN FIND OUT HOW TO LOAD BOMBS

INTERPRETATION



ANACOSTIA LABORATORY TRAINS OFFICERS TO INTERPRET AERIAL PHOTOS

PHOTOGRAPHY



AVIATION PHOTOGRAPHERS OPERATE CAMERAS AT PENSACOLA

RADIO OPERATION



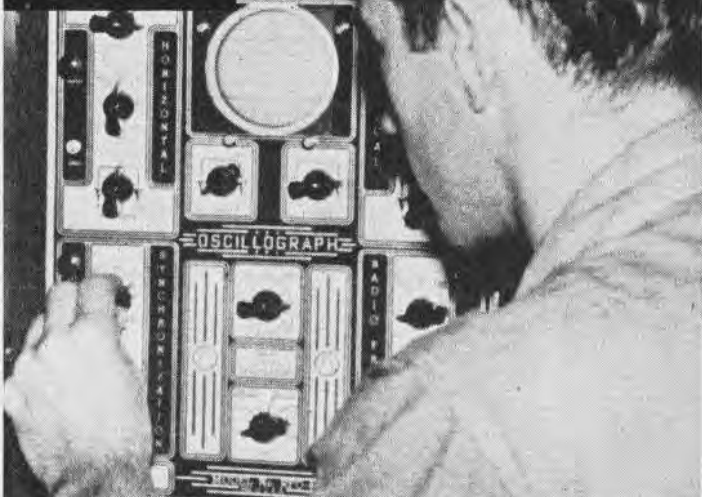
AVIATION RADIOMAN PLAYS LEADING ROLE IN NAVAL BOMBING MISSIONS

AEROLOGY



AEROGRAPHERS AT LAKEHURST OBSERVATORY MAP WEATHER

RADAR



STUDENT LEARNS INTRICACIES OF ELECTRICAL OPERATION AT PENSACOLA

"TRIPLE THREAT" MEN STAR IN NAVAL AVIATION



RADIOMAN SHOOTs DOWN 3 JAPS IN BATTLE

Naval aviation has thousands of men who go the old phrase one better and actually "triple in brass." First of all, these men are sailors with a background in seamanship. Second, they are technicians with a knowledge of airplanes and the thousand-and-one maintenance tasks required to keep planes in the air. Third, they are flight crew members and gunners. In this capacity, they treat mechanical troubles aloft

and know the satisfaction of personally pouring steel at the enemy.

It takes plenty of training to qualify as one of these triple-threat men. After boot camp indoctrination in seamanship and traditions of the Navy, the trainee volunteers for aviation duty. If selected, he is sent to NATechTra schools to study for an aviation rating and further lessons in seamanship. Then, if he is 5 feet 10 inches tall and less than 160 pounds in weight, he volunteers for flight duty. It requires more schooling to give him the split-second know-how of aerial gunnery. But it is this final ability that makes him a three-edged threat to the Axis.

Generally, the men who "triple in brass" are AMMs, ARMs, and AOMs. All of them are enlisted personnel. They wear air crew wings as a mark of distinction and ride right behind pilots as the "back-seat heroes" of naval aviation.

Waves Rank High in Training for Naval Aviation Technical Positions

More than 2,500 Waves are being trained in the five technical jobs that naval aviation offers women, and hundreds of graduates already fill positions throughout the country, relieving men for combat duty. The Navy opened the doors to Waves for ratings as AMMs, AMs, aerographers, parachute riggers, control tower operators, and some as instructors in those fields. As evidence that women have the technical skill required to do the work, out of a graduating class of 100 aerologists at Lakehurst lighter-than-air station recently, the four highest were Waves.

After completing their four weeks of basic training at Hunter College recruit camp, the enlisted Waves are given interviews, aptitude tests, and mechanical-ability examinations to see if they would be fitted for any of the five technical ratings naval aviation offers women.

Those chosen go immediately to technical schools where they attend classes alongside the men studying for those same ratings. The only limita-

tions are their own physical ones and the law requiring that they be stationed somewhere in the United States.

About a thousand Waves are training at the Memphis and at Norman NaTechTraCom centers. Others are learning parachute rigging and aerography at Lakehurst, while control-tower operators are being taught at Atlanta.

The first class of 148 Waves with AMM ratings was graduated from Memphis on June 26 after 21 weeks of training which included everything that was taught men at the same school. The women were sent to 15 different air stations. Graduates of other technical schools also are in the field.

Some of the Waves also are being used as code instructors at the Memphis aviation radio school. Approximately 150 women Marines are taking technical aviation training in the same five branches as their sisters in blue. On graduation, they are dispatched

to Marine air stations for duty. As with Waves, Marines are given a choice of entering the technical field rather than becoming office assistants.

TECHNICAL TRAINING

20 Years Ago

[From BuAer NEWS July 12, 1923]

Further reports from the Naval Air Station at Pensacola, Fla., on the success that has been attained in teaching radio code to student aviators in their sleep give interesting information on the progress of this novel and useful experiment. In fact it may be said that the experimental stage in the trials has been past and the method has become standard, as a means of saving students from failure in the course.

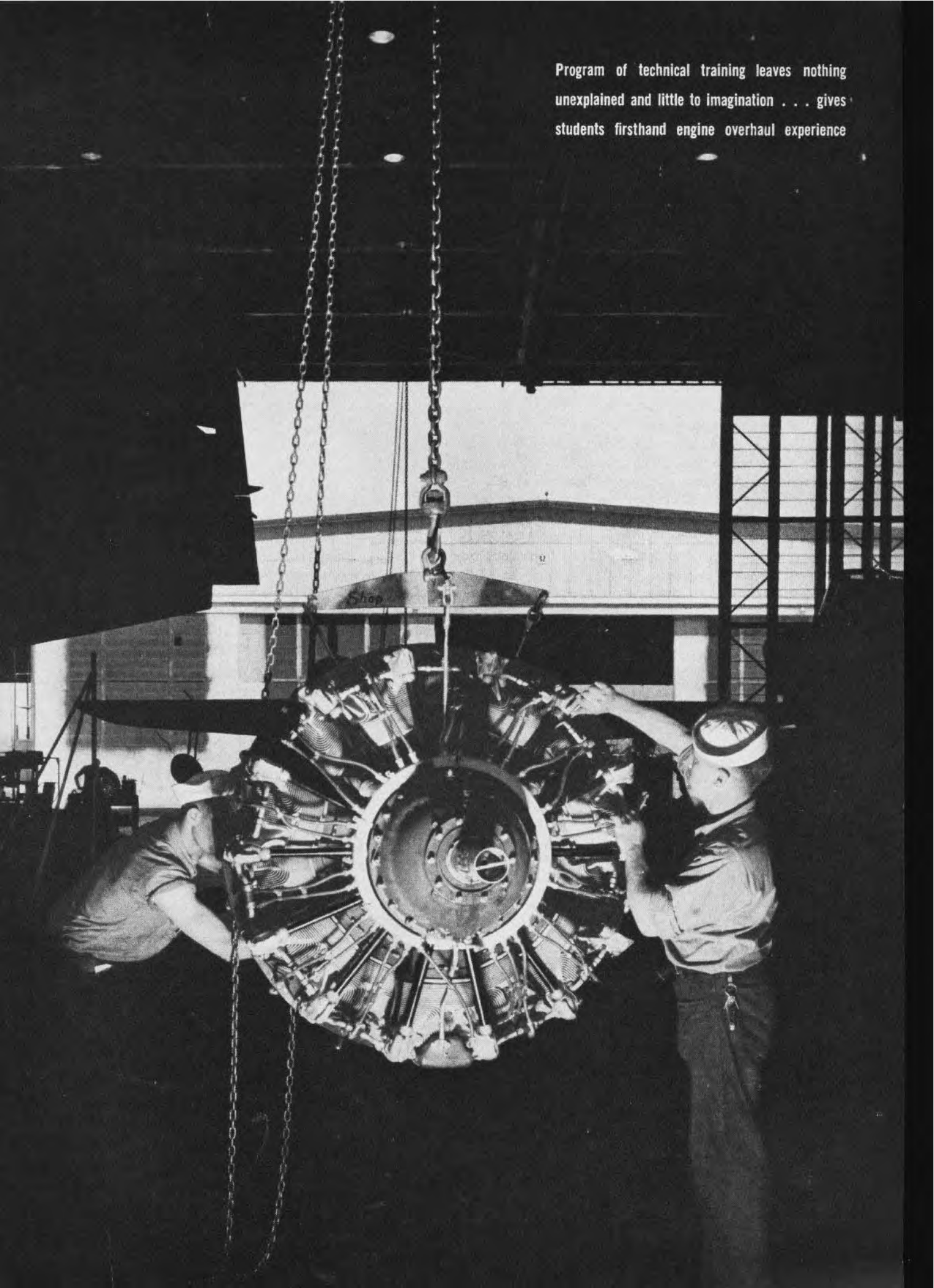
When the test was started 12 students were unsatisfactory in their progress in radio code. After two nights during which radio code was sent to the students in their sleep, only two of the students were unsatisfactory, and these two men had left before the experiment was finished, professing disbelief in it.

The procedure has been to have the students sleep on the tables in the radio room where the code is taught in the regular school periods. Operators send messages at varying speeds all night. The students concentrate on the messages that are sent through until they drop off to sleep. [It was evident from an earlier report that in his conscious hours the following day, the student was able to receive messages at the speed at which they were sent to him while he was asleep.] To quote a report on the subject:

"It is very interesting to watch the students during one of these night periods. If the operator intentionally and continuously makes errors in sending, the students will toss around most unusually in their sleep. If the sending stops or the rate of sending changes appreciably, it is sure to disturb them, and in most cases will arouse them. Even in the midst of their deepest slumber, the call S O S at a different rate of speed will awaken them instantly."

It is planned to secure electrical sending machines which will send all night and do away with the necessity for an operator for future classes.

Program of technical training leaves nothing
unexplained and little to imagination . . . gives
students firsthand engine overhaul experience



Taxes for Navy Personnel

Latest News—Servicemen on Active Duty September 15, 1943, May Defer Filing Declaration of Estimated Tax and Pay Taxes as Late as March 15, 1944, According to New Treasury Department Ruling

THE new income-plus-victory tax plan is not quite as simple to figure out as a Chinese crossword puzzle, but it *can* be understood. And it has many advantages for the man in the services which will ease your tax burden.

You may not even have to pay any tax, either for 1942 or 1943. There are really two taxes that are payable. The first is an income tax; the second is a victory tax. However, no single serviceman whose sole 1943 income is less than \$2,000 of service pay has to pay an income or victory tax on his 1943 income. And if the serviceman's sole income in 1942 was a salary of \$14,000 or less, the tax on that salary is completely abated and any payments he has already made will be refunded or credited to him.

A married serviceman (living with his wife) whose sole income is less than \$2,700 service pay does not have to pay an income tax on 1943 earnings. He pays the 5 percent victory tax if he receives more than \$2,124, but this victory tax may be reduced as much as 40 percent through post-war credits.

Here are some questions which the new law poses:

1. What big difference in paying income tax has been created by the new law? In previous years, tax was paid during following year. Now tax is on pay-as-you-go basis.

2. What is the withholding tax and how does it affect the man in the military service? It is not really a tax but a method of collecting taxes by withholding at the source, 20% of a person's salary and wages, after deducting his withholding exemption. It does not affect the man in active military service. None of his service pay is withheld for this purpose. (Pensions and retirement pay includible in gross income are subject to withholding.)

3. Which serviceman must pay taxes on his 1943 income? A serviceman must pay an income tax if he has a net income remaining after he subtracts the following from his gross income:

- \$1,500 of his service pay.
- Personal exemption of \$500 for a single man, \$1,200 for a married man living with wife, and \$350 for each additional dependent (as defined by the Internal Revenue Code).
- The other usual deductions allowed by law.

A serviceman must also pay a victory tax of 5 percent on all victory tax net income remaining after he deducts:

- \$1,500 of his service pay.
- \$624 individual exemption.

4. Which serviceman will have to pay taxes on his 1942 income? If his income represents returns from investments, etc. (other than earnings), he may be taxed on this income (known as "unearned" income). The law requires the serviceman to pay (A) his 1943 tax (if any) plus (B) excess of 1942 tax over that of 1943, less amount of excess due to "earned net income" (i. e. wages, etc.), plus (C) one-fourth of the 1942 or of the 1943 tax, whichever is less (see chart opposite page).

5. Which servicemen need not pay taxes on their 1942 income? No serviceman whose sole income in 1942 was "earned net income" needs to pay a tax on this, unless he has to pay a tax for 1943. *Earned net income* consists of wages, salaries, and compensation for personal services not exceeding \$14,000. *If taxpayer's net income is not more than \$3,000, his entire net income (from all sources) is considered to be "earned net income."*

6. How does a serviceman compute the total 1943 tax? Assuming that his 1942 tax is greater, he has to pay excess of 1942 tax over 1943 tax after deducting that part of his 1942 tax attributable to wages up to \$14,000 (or "Earned net income"). *For example, take a lieutenant (jg). He has no 1943 tax on his service pay, let us say, but earned \$4,500 in 1942, of which \$3,000 was salary. He deducts \$3,000 from his total income because it was earned income. But he will have to pay the excess of his 1942 tax (in this case on the additional \$1,500 income) plus one-fourth of the taxes for the lesser year. The lesser year's taxes are zero, so he only pays taxes on \$1,500 income of 1942. But if his 1943 tax is greater than his 1942 tax, he merely pays his 1943 tax plus 1/4 of his 1942 tax.*



7. How much tax is forgiven under the new plan?

- When the 1942 tax is greater than the 1943 tax, civilians must pay the difference, but in the case of a serviceman that portion of this difference due to earned net income in 1942 is completely abated.
- The law also provides, in all cases, that the 1942 tax is forgiven up to 75 percent of the lesser year's tax; unless the tax for the year is \$50 or less, in which case the entire amount will be forgiven. If the tax is more than \$50 and less than \$66.67, then a flat \$50 will be forgiven.
- If the serviceman dies in active service on or after December 7, 1941, and before the end of the war, all unpaid income taxes for any year are abated.

8. What is the Declaration of Estimated Tax, and how does it apply to servicemen? This is a form used to estimate your taxes for the current year. Civilians must file their declaration by September 15, but by a new ruling of the Treasury Department, members of the armed forces on active duty on that date may: (1) defer filing the Declaration of Estimated Tax and (2) postpone paying their taxes until March 15, 1944. To take advantage of the installment privilege, servicemen may file a declaration on September 15 (or later if they wish). Naturally there is no need to file a Declaration of Estimated Tax after December 31 as your full tax can then be computed.

9. Which servicemen should consider filing a Declaration of Estimated Tax on September 15? Every serviceman who has a 1943 tax to pay on income from any source whatever. The advantages to him are that he may

CONTINUED ON PAGE 22

HOW THE SERVICE MAN COMPUTES HIS

1943 TAXES

SOURCE



6 PER CENT NORMAL TAX plus a VARYING SURTAX

ON INCOME REMAINING
AFTER DEDUCTING

1. \$1500 SERVICE PAY
2. INDIVIDUAL EXEMPTIONS
SINGLE \$500
MARRIED \$1200
DEPENDENT \$350 (EACH)
3. MISC. DEDUCTIONS

A



EXCESS (if any) of 1942 TAX over 1943 TAX

EXCEPT
WHERE EXCESS IS DUE TO
1942 WAGES UP TO \$14,000
("EARNED NET INCOME")
►SERVICEMEN PAY ONLY THE
EXCESS ON INVESTMENT INCOME
OVER \$3,000

B



25 PER CENT of LESSER TAX (1942 or 1943)

- EXCEPT WHERE TAX IS:
1. \$50 (OR LESS)—
THEN THE TAX IS ABATED
 2. \$50—\$66.67—
THEN \$50 IS ABATED

C

**TOTAL 1943
Income Tax = A + B + C**



5 PER CENT VICTORY TAX

ON ALL INCOME REMAINING
AFTER DEDUCTING:

1. \$1500 SERVICE PAY
2. \$624 INDIVIDUAL EXEMPT.
3. SPECIAL VICTORY TAX
DEDUCTIONS

D

**TOTAL 1943
TAX = A + B + C + D**

BuAm NEWS Chart

What's New in Taxes?

1. **PAY-AS-YOU-GO**, instead of paying last year's taxes from this year's income, is the major feature of the new Tax Payment Act of 1943, which further provides for:

2. **DECLARATION OF ESTIMATED TAX**, filed on September 15th by civilians. Servicemen are entitled to a deferment.

3. **VICTORY TAX** (5 percent) on 1943 income (part will be returned in post-war credit) plus usual income tax.

4. **Partial (in some cases complete) FORGIVENESS OF 1942 TAXES.**

5. For military personnel, many advantages, including a \$1,500 service-pay exemption, covered in this story.

Tax Facts for Servicemen

Who pays? See questions 3, 4, 5, 6, and 19.

How? The serviceman's pay is not withheld by the Government. He pays taxes out of his own pocket.

How much? The serviceman may not have to pay anything, or possibly less than he thinks (see story). But this year there are two taxes to pay: 1943 income tax and Victory tax.

When must payment be made? By March 15, 1944. Taxes may be paid this year in two installments, September 15th and December 15th. (Payments made in March and June of this year against 1942 tax will be credited to 1943 taxes.)

Who files a Declaration of Estimated Tax? See questions 8 and 9.

Servicemen at sea or on foreign shore duty: See question 11.

Tax Calendar

September 15th, 1943

Servicemen may file a Declaration of Estimated Tax and make installment payment on 1943 tax. (Declaration may also be filed later.)

December 15th, 1943

Servicemen may pay second tax installment (if any) of estimated tax.

March 15th, 1944

File regular income tax return on 1943 income. Pay 1943 tax (if installments not previously paid). File Declaration of Estimated 1944 tax and pay first quarterly installment.

[TAXES CONTINUED]

exercise the installment privilege and avoid paying all his taxes at once next March 15, when the first payment of estimated 1944 taxes also becomes due.

10. When does a final return have to be made by servicemen? The final returns on 1943 taxes will be made on or before March 15, 1944. At this time also a Declaration of Estimated Tax will be filed for the year 1944. There will be two forms, the 1040 form for 1943, and the 1040 ES form for 1944.

11. If a serviceman has to pay a tax, can he wait until the war is over to pay it? Only in certain cases. If he is on sea duty or out of the country on the due date, he can defer filing or payment until his return to the United States, or until the close of the war. The return will be due on the 15th day of the fourth full month after his return, or after the war's end. If servicemen return to this country and leave before the allowed time limit is up, they are not required to file a return or make a payment until they again return.

12. What part of a navy man's pay is taxable? His base pay and longevity pay, including all allotments from this pay; retired pay (except that of servicemen retired due to physical disability resulting from active service); specialist rating pay, extra compensation for special duty, such as aviation, submarine, or sea or overseas pay. Also mileage allowances in excess of actual traveling expenses, and transportation allowances for families of naval personnel.

13. What part of a navy man's pay is exempt from taxation? In addition to the exemptions and exclusions already mentioned, he is not taxed on his service allowances for subsistence, quarters and uniforms, nor is he taxed on per diem allowance in lieu of subsistence. A serviceman is also allowed the other legal deductions, such as alimony payments, losses incurred, bad debts, certain sales taxes, state income taxes, etc.

14. Which servicemen are allowed the full \$1,500 service pay exclusion from taxable income? Every man may deduct as much as \$1,500 from his active service pay. However, if he receives only \$900 service pay, he may not deduct more than \$900 from his taxable income. For example, a single enlisted man with an income of \$3,000 of which only \$900 is service pay, may deduct \$1,400 (\$900 exclusion plus \$500 personal exemption) and is taxed on the remaining \$1,600.

15. What is the victory tax and how much income can be exempted from taxation by servicemen? The victory tax is an additional war tax on income amounting to 5 percent of a serviceman's victory tax net income. This amount provides for an exclusion of \$1,500 service pay and \$624 personal exemption. A single man may reduce his victory tax as much as 25 percent (but not more than \$500) and a married man may reduce his as much as 40 percent (but not more than \$1,000) through post-war credits.

16. What are post-war credits? These are credits allowable after the war on account of victory tax payments. However, credits may be claimed on your victory tax returns if you make payments of a non-inflationary nature: towards life insurance and debts (contracted prior to September 1, 1942), and towards increasing your net holdings

of U. S. Savings bonds outstanding September 1, 1942 (Series E, F, and G).

17. What is the total tax rate on income? It varies with individuals. The victory tax is 5 percent of the victory tax net income after deducting the \$1,500 exclusion from service pay and the personal exemption of \$624, a total of \$2,124. The income tax is divided into two parts: (1) a normal tax of 6 percent on the normal tax net income, and (2) a varying surtax, the minimum rate being 13 percent of the surtax net income. Normal and surtaxes are computed together on the optional (short form) income tax return (Form 1040A).

18. If a serviceman on sea duty or overseas wishes to file a return, where does he mail it? He should mail it to the Collector of Internal Revenue for his home district or, if none, at Baltimore, Md.

19. If a serviceman finds it difficult to pay his taxes due to his service pay, what relief can he get? He may secure, upon application to the Collector of Internal Revenue, a deferment extending for not more than six months after the termination of his "active duty" military service, without interest or penalty payments.

20. Can a serviceman file a joint return with his wife? A serviceman may file a separate or joint return. If he files a separate return and claims the entire \$1,200 personal exemption, his wife may not claim part of that exemption.

21. When will a serviceman get any refund due to him on income tax already paid on 1942 income? The law makes no provision for refund of 1942 overpayment to be made prior to March 15, 1944. Amounts already paid on his 1942 tax will be credited as payments on his 1943 tax.

22. What is the windfall tax and does it affect men in the service? This is a special provision to prevent abatement of taxes on abnormally high war income during 1942 or 1943. It affects only those whose income during these years exceeded pre-war income by more than \$20,000.

23. What is a simplified 1943 tax formula for the serviceman? The man in the service pays:

Income tax on that part of his 1943 income remaining after subtracting \$1,500 service pay and personal exemption and deductions

Plus

Excess of his 1942 tax over 1943 tax

Less

All of such 1942 excess attributable to earned net income up to \$14,000

Plus

Twenty-five percent of the lesser tax of 1942 or 1943 (\$50 is abated on taxes of less than \$66.67).

Plus

Five percent victory tax on that part of his 1943 income remaining after subtracting \$1,500 service pay, a personal exemption of \$624, and victory tax deduction (see chart).

24. Can allotments of service pay be made to pay taxes? Allotments for taxes cannot be made to the Commissioner of Internal Revenue. Servicemen may, however, make allotments to personal representatives (lawyer, banks, etc.) for taxes.



APPROXIMATE INCOME TAX ON NAVY PAY

BUAER NEWS Chart		MONTHLY PAY		YOUR ANNUAL INCOME TAX *Computed from short form 1040a			VICTORY TAX
RANK OR RATING		BASED ON LESS THAN 3 YEARS' SERVICE		SINGLE	MARRIED and Wife Claims Half of the Personal Exemption on Her Separate Return	HEAD OF FAMILY With Wife and 2 Children	ASSUMING YOU HAVE NO DEDUCTIONS
		TO GET APPROXIMATE TAX ON SERVICE PAY ADD INCOME TAX PLUS VICTORY TAX					
ADMIRAL	FLIGHT	OVERSEAS	*\$1,100.00	\$3,005.80	\$2,967.80	\$2,481.80	\$553.80
	SEA FSD	USA	*1,000.00	2,557.00	2,523.00	2,081.00	493.80
	SHORE		*733.33	1,536.20	1,506.20	1,140.20	333.80
COMMODORE AND CAPTAIN	FLIGHT	OVERSEAS	*550.00	945.40	919.40	613.40	223.80
	SEA FSD	USA	*500.00	793.00	771.00	485.00	193.80
	SHORE		366.66	411.00	389.00	142.00	113.80
COMMANDER	FLIGHT	OVERSEAS	*481.25	744.85	722.85	436.85	182.55
	SEA FSD	USA	*437.50	632.50	610.50	329.00	156.30
	SHORE		320.83	309.00	290.00	47.00	86.30
LT. COMDR.	FLIGHT	OVERSEAS	*412.50	568.30	546.30	273.80	141.30
	SEA FSD	USA	375.00	431.00	409.00	159.00	118.80
	SHORE		275.00	214.00	195.00		58.80
LIEUTENANT	FLIGHT	OVERSEAS	330.00	331.00	312.00	64.00	91.80
	SEA FSD	USA	300.00	266.00	247.00	7.00	73.80
	SHORE		220.00	102.00	83.00		25.80
LIEUT. (J. G.)	FLIGHT	OVERSEAS	275.00	214.00	195.00		58.80
	SEA FSD	USA	250.00	162.00	143.00		43.80
	SHORE		183.33	24.00	6.00		3.80
ENSIGN	FLIGHT	OVERSEAS	247.50	158.00	139.00		42.30
	SEA FSD	USA	225.00	110.00	91.00		28.80
	SHORE		165.00				
COMMISSIONED WARRANT OFFICER	FLIGHT	OVERSEAS	288.75	244.00	225.00		67.05
	SEA FSD	USA	262.50	188.00	169.00		51.30
	SHORE		192.50	46.00	27.00		9.30
WARRANT OFFICER	FLIGHT	OVERSEAS	270.00	206.00	187.00		55.80
	SEA FSD	USA	225.00	110.00	91.00		28.80
	SHORE		180.00				
CHIEF PETTY OFFICER	FLIGHT	OVERSEAS	248.40	162.00	143.00		42.84
	SEA FSD	USA	207.00	76.00	57.00		18.00
	SHORE		165.60				
PETTY OFFICER 1st CLASS	FLIGHT	OVERSEAS	205.20	71.00	52.00		16.92
	SEA FSD	USA	171.00	4.00			
	SHORE		136.80				
PETTY OFFICER 2d CLASS	FLIGHT	OVERSEAS	172.80	4.00			
	SEA FSD	USA	144.00				
	SHORE		115.20				
PETTY OFFICER 3d CLASS	FLIGHT	OVERSEAS	140.40				
	SEA FSD	USA	117.00				
	SHORE		93.60				
AVIATION CADET			75.00				
SEAMAN 1st CLASS	FLIGHT	OVERSEAS	118.80				
	SEA FSD	USA	99.00				
	SHORE		79.20				
SEAMAN 2d CLASS	FLIGHT	OVERSEAS	97.20				
	SEA FSD	USA	81.00				
	SHORE		64.80				
APPRENTICE SEAMAN			50.00				

WHAT THIS CHART DOES

1. It gives you an idea of the income and Victory tax on your 1943 service pay. It is not your total tax. (See other chart and story.)
2. The income tax is based on optional short form 1040a (except on monthly pay marked with an asterisk). It is the average income tax on Navy pay after making all exemptions and average deductions.
3. Longevity pay is taxable. If you do not fit into tax chart because of longevity, figure out your monthly pay and taxes separately (or take the nearest income figure in the Pay Column to find approximate tax).
4. If you were promoted during the year, both income grades must be computed for taxes.
5. Victory tax is figured here after deducting \$1,500 service pay and \$624 personal exemption. It does not allow for special Victory tax deductions you may take.
6. If the man in service has more than average deductions, he will save by working out his taxes from the regular tax form 1040. All pay marked with an asterisk should be computed on the regular tax form.

*Income taxes on pay marked with an asterisk are computed without any deductions other than \$1,500 service pay, exemption for self and dependents, and earned income credit. They represent MAXIMUM tax on that income. Use form 1040 to compute these taxes.

Question #1

This cloud is typical of the:

- 1. Summer cold front
- 2. High pressure area
- 3. Winter warm front
- 4. Anticyclone area

Question #2

You might find "bumpy air":

- 1. Over altocumulus
- 2. Under cumulus
- 3. Near cirrus
- 4. Over stratus



HOW GOOD ARE YOU IN AEROLOGY?

The answer to these problems is duck soup if you're up on the fundamentals of aerology—fog, cloud formations, winds, weather, and other conditions encountered often in flight. Of course, every pilot should be. In case you miff, you'll find correct answers on page 32.

Write your answers here

- 1 _____ 4 _____
- 2 _____ 5 _____
- 3 _____ 6 _____

Question #3

These symbols mean:

- 1. Cumulus
- 2. Cirrus
- 3. Stratus
- 4. Cirrostratus

Question #4

Is this fog called:

- 1. Steam fog
- 2. Frontal
- 3. Advection
- 4. Radiation

Question #5

Stay well away from:

- 1. Nimbostratus
- 2. Cumulonimbus
- 3. Altocumulus
- 4. Altostratus

Question #6

This represents:

- 1. A low
- 2. A high
- 3. Low clouds
- 4. Poor weather

OXYGEN FLIGHT

BuAer fliers in TBF visit major naval air stations, flying over 25,000 feet in test oxygen hop

FINDINGS on the use of oxygen rebreather apparatus were reported by BuAer representatives who recently completed a 10,000-mile survey flight to all major naval air stations having oxygen low pressure training chambers except Pearl Harbor.

The flight was made in step with the increased interest and activity in the field of high-altitude flying. Repeated flights were made at oxygen altitudes, 15 hours being spent above

25,000 feet and 9 hours between 20,000 and 22,000 feet.

The airplane used was a TBF-1 equipped with standard central supply oxygen rebreathers located in the pilot's cockpit, turret, and tunnel gunner's positions. Oxygen supply consisted of two 514-cubic-inch high-pressure (1,800 pounds per square inch) bottles located in the second cockpit position.

In addition, a single individual supply rebreather was located between the flare tubes in the after section of the tunnel gunner's area. Models 3A demand regulator and diluter-demand regulator, each with a 295-cubic-inch cylinder, were on the port side of bombardier's seat. The extra equipment was provided principally for comparative purposes and use only a small part of the time.

Flight Reaches Five Miles Up

Maximum altitude on the flight was 26,400 feet at which the outside air temperature was -40° F. With this prevailing outside air temperature, the pilot's ankles were uncomfortably chilled but he was otherwise comfortable in spite of the fact that his clothing consisted of only summer khakis and a lightweight summer flight suit. Fresh air vents were both closed and the cockpit heater was on. However, upon opening the fresh air vent, located above the windshield, it felt as though an icicle had been thrust into the cockpit.

While the pilot was comparatively comfortable for the two-hour period of this flight, the observer located in the bombardier's seat dressed in similar manner was chilled, despite the additional warmth of two lightweight



Oxygen-test chamber at NAS, Corpus Christi, gives student pilots a chance to experience sensations of high-altitude flying. Here they have donned their oxygen masks and, under the watchful eye of a pharmacist's

mate, are "descending" into denser air after their stratosphere "flight." Some hold their noses and blow to relieve the air pressure on their ear drums. While in the chamber they try to work out mathematical problems.



CHECKING REBREATHER OPERATION IN FLIGHT

1. Make sure high-pressure supply cylinder pressure gage reads 1,800 plus or minus 50 p. s. i., before take-off and that low-pressure gage (if installed) reads between 10-15 p. s. i.

2. Observe breathing bag for normal movement.

3. Check mask fit frequently for tightness by squeezing off breathing tube and inhaling lightly—if mask collapses on face, a tight fit can be assumed.

4. A "hot" canister indicates proper chemical operation. Nevertheless, change canisters after every two hours of use, and never re-use previously opened canister.

5. Exhausted or defective canister can be identified by its uncomfortable or excessive resistance to exhalation. Before replacing a suspected canister, vent a portion of contents of the breathing bag to determine whether or not exhalation resistance possibly

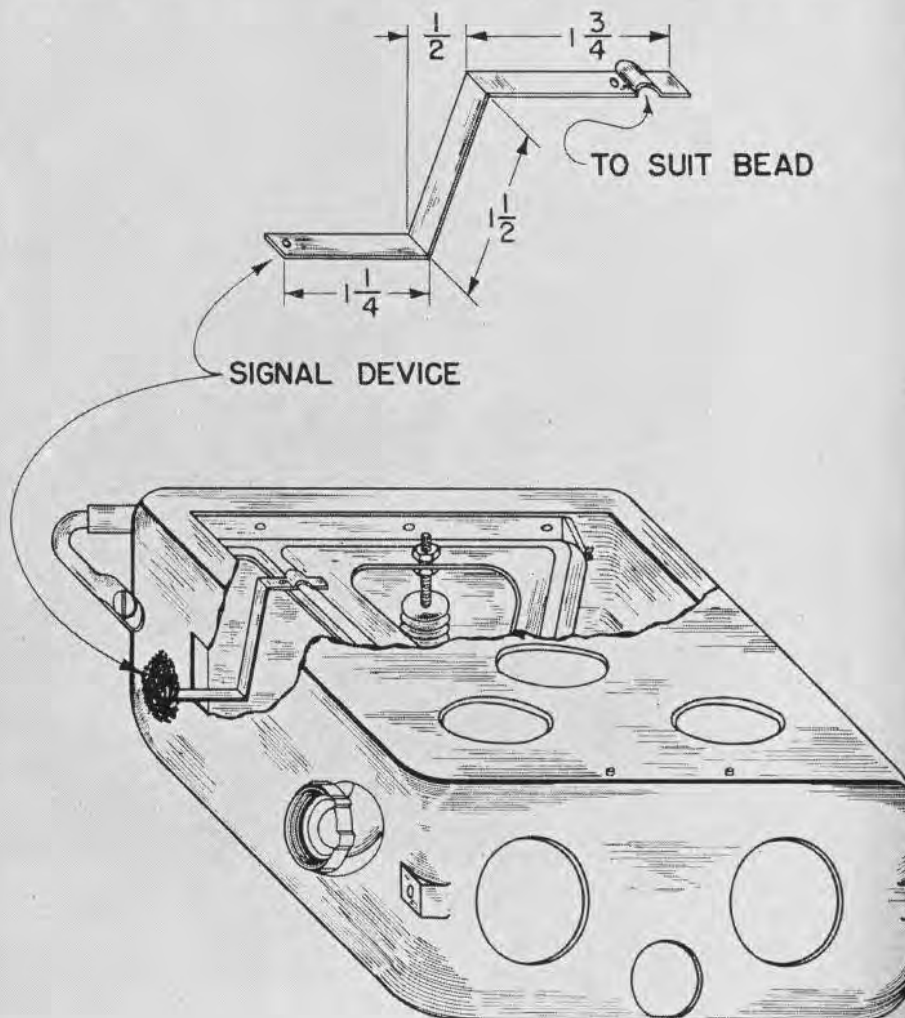
leather jackets, one worn conventionally, the other wrapped around the lower portion of his body. Under these severe conditions, as well as over the desert of Arizona where the temperature at lower altitudes reached well above 100° F., necessitating the pilot's holding his hands in the slip stream to scoop in additional fresh air, the oxygen equipment continued to function in a normal manner.

While at an altitude of 25,000 feet over Red Bluff, California, the pilot communicated with the Red Bluff airport, using the new ANB-M-C1 mask microphone. Throughout the entire trip this new mike gave excellent service and was so superior to the hand-held microphone that repeatedly it was used for normal communications when entering or leaving airport traffic.

As a result of the experience gained in use and operation of the rebreather

apparatus during this trip, some practical suggestions are offered as possible assistance to others.

BY USING THIS REBREATHER APPARATUS, FLIERS GET GREATER EFFICIENCY OUT OF OXYGEN USE



Installation of Signal Device ➡

Loosen top and bottom Dzus fasteners and remove case cover (Part #16561). The metal strip previously formed is attached to admission valve lever arm (Part #16562) with opposite end of metal strip projecting through rectangular hole in case. Then secure suitable amount of cotton waste to signal device arm using hole in end of metal strip. Test assembly for proper clearances of rebreather bag and signal device arm under simulated rebreather operation. Replace, secure case cover.

is due to an over-extended breathing bag. If resistance still persists, change canister.

CHECKING PERSONAL CONDITION

1. Before take-off or at low altitudes, check color of finger nail beds (usually pink) to familiarize one's self with their normal appearance. Then when at altitudes when oxygen is being used frequently, check finger nail beds for comparison to normal color. An abnormal white or bluish appearance indicates insufficient oxygen.

2. Test clarity of vision using different objects near and distant for comparison with normal eyesight. Any marked impairment in vision is apt to be due to an inadequate oxygen supply to the body.

3. Compare writing before flight to handwriting at altitude. It is important to note that a noticeable change in the individual's handwriting becomes apparent only as the need for oxygen becomes most critical; hence it

is not advisable to use this method except as a double check.

If, while on an oxygen flight, any of the above mentioned checking methods are used with results indicating a subnormal physical condition—**ACT AT ONCE!** Use emergency supply of oxygen—Check oxygen supply and apparatus—if there is no improvement, bring plane down to safe oxygen levels. (For emergency oxygen: Rebreather—depress admission valve: demand or diluter-demand apparatus—turn emergency valve ON.)

GENERAL HINTS

1. Check oxygen apparatus while plane is on ground prior to take-off. Any defects found in the supply or equipment should be remedied immediately or replacement equipment installed by trained oxygen personnel.

2. Canister metal sealing caps can

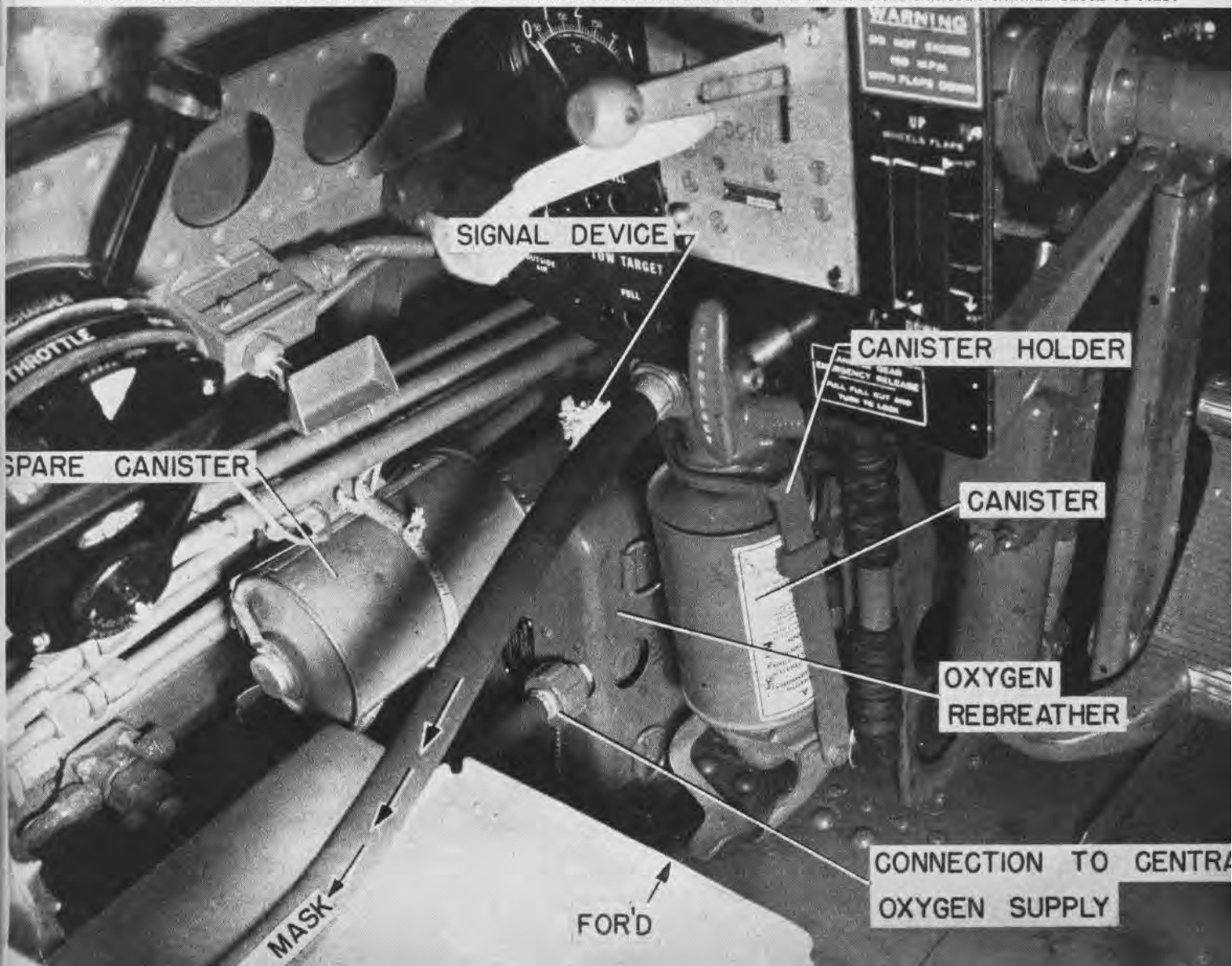
be removed easily from canister ends by grasping opening tab and pulling firmly outward, then lifting upward.

3. In the TBF front cockpit, a central supply type rebreather is mounted in such a position that movement of the rebreathing bag is not readily visible. A simple signal device may be easily installed to give visual indication of operation. The signal device consists of a small strip of metal attached at one end to the rebreather admission valve lever arm (MSA Part No. 16562) and extending outward through the only rectangular opening in side of case (slot normally used for canister holder attachment) to a distance of approximately 1 inch outside. A small bit of cotton waste or other similar material is secured to the end of the metal strip outside of the rebreather case. Thus the actual movement of lever arm and breathing bag during operation is visibly represented by back and forth motion of metal strip and cotton waste.



PILOT WEARING AN OXYGEN MASK

OXYGEN EQUIPMENT INSTALLED IN FRONT COCKPIT OF TBF-1 IN WHICH NATION-WIDE TOUR WAS MADE: SPARE CANISTER CARRIED CLOSE TO PILOT



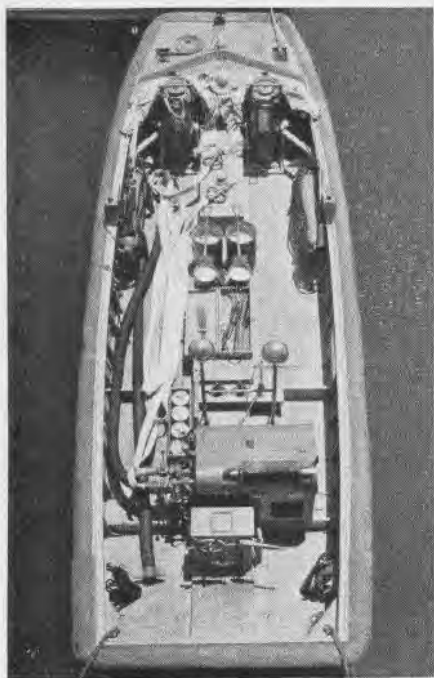
TECHNICALLY SPEAKING

Three-Purpose Craft Has Chrysler Land Fire Engine

NAS, BANANA RIVER, FLA.—A three-purpose craft has been constructed at this station, capable of functioning as a standard fire boat, an emergency salvage craft, and a fire-fighting engine ashore.

The craft is a 33-foot rearming boat, driven by a standard gasoline motor. The fire equipment consists of two 40-gallon foam generators, 200 pounds of linked CO₂ nozzles, asbestos suits, special fenders, boat and grappling hooks, axes, bolt cutters, and other emergency means of entering aircraft on the water.

A unique feature is installation of a standard Chrysler type land fire engine. This pumper services two standard 2½-inch fire hoses, and in addition has the ability to withdraw at least 500 gallons of water per minute from the hull of a damaged seaplane. The boat can function as an emergency salvage craft due to its ability to pump efficiently the bilges of a damaged plane. It can also perform as a fire-fighting engine ashore because it can lay off the apron in deep water, fur-



BOAT DOES SALVAGE JOB, FIGHTS LAND FIRES

nishing 160 pounds of pressure to two standard fire shore hoses.

The multi-purpose fireboat contains this service gear:

- Asbestos suits.
- Twin 40-gallon Foamite generators.
- "Mine type" inhalator.
- Twin 100-pound CO₂ bottles with extra length hose and nozzles.
- Twin 2½-inch high pressure hose.
- Twin 4½-inch hard suction line.
- G. I. cans, sand, shovels, and buckets.
- Grappling irons, boat hooks, etc.
- Emergency tool kit, bolt cutters, pinch bars, and the like.
- High pressure spray nozzles.
- Foam generator.
- Twin floodlights.
- Chrysler, gasoline engine driven, high pressure pumper.
- Twin 15-pound CO₂ bottles.

Sand Ballast Should Be Properly Lashed

BuAer Lists Suggestions

The danger of having loose ballast in a plane was demonstrated recently when the pilot of a PV-1 applied both brakes full trying to avoid a collision, causing the plane to nose over.

Luckily, no one was injured in the landing. However, upon inspection immediately following the accident, it was found that the 400 pounds of sand bag ballast which had been lashed to Sta. 494-508 was strewn about the after part of the fuselage in a manner as to have caused serious injury to any personnel stationed in this part of the fuselage. These sand bags were secured by lashing with approximately 60 feet of 5/32 white line.

► **BUREAU COMMENT**—The necessity for lashing the sand ballast in an airplane properly is obvious from the above trouble report. It is believed that if the following precautions are taken the ballast can be secured so that it will remain in place under all but the most severe crashes:

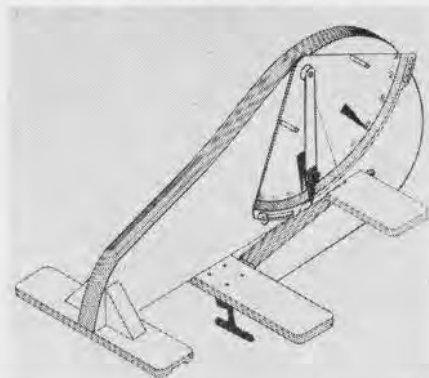
1. Select structure that is strong enough to hold the ballast even under crash conditions. Avoid lashing ballast to structure with sharp edges which will cut the line. If sharp edges cannot be avoided, they should be padded at the point of attachment.
2. Secure ballast with a line of sufficient strength to withstand the shock of a crash landing.

3. Provide for some form of positive line attachment to the ballast. In the case of sand bags, this may be provided by securely sewing straps to the bag.

4. When possible, place ballast at a point where the forward part of the ballast will be bearing against some basic structure.

Adjust Travel of Ailerons

NAS, ST. LOUIS.—Two protractors used for adjusting the travel of Stearman and N3N ailerons have been developed at this station. A pair of these, one on each aileron, permits the up-and-down travel from the streamline position to be checked quickly by one man sitting in the cockpit. The protractors are adjusted so that the work may be performed even though the ship is not leveled, and the same limit marks can be used.



PROTRACTORS SAVE TIME IN AILERON CHECK

The smaller protractor is used in conjunction with the above to check the travel of the other surfaces. This protractor is also used on other types of planes when leveled for rigging. Savings in time by the use of these protractors have amply repaid the time spent in their development.

► **BUREAU COMMENT**—The development of a surface control protractor at St. Louis may suggest ideas to other stations for the development of similar devices.

DID YOU GET ACCURATE
WIND DRIFTS?



Tire Removal Press Used

Drawings Available to Stations

NAS, PENSACOLA.—In use at the various A & R shops here is a tire-removal press hydraulically actuated, which makes it easy to remove tires of any size up to those used on PB4Y beaching gear, even though tires are "frozen" to the wheels.

This is a vertical press unit in which the wheel and tire assembly is held between two steel rings of the correct diameter, one of which is secured to the upper horizontal member of the press and one of which rests on a horizontal platform which may be raised by a 10-ton hydraulic jacking element.

The press eliminates possibility of damage to tires which may occur if they are hammered off by any but the most careful and even-tempered mechanics. Drawings are available upon request at the Plant Section, A & R Dept. of NAS, Pensacola.

ANSWERS TO FICTITIOUS SHIP— RADIUS OF ACTION

Magnetic heading	020°	154°
True heading	029°	163°
True airspeed	120 k	
Calibrated airspeed	114 k	
Direction of relative motion	006°	186°
Speed of relative motion	114 k	107 k
Course	015°	175°
Ground speed	124 k	100 k
Miles on course	210	181
Minutes on course	101 1/2	108 1/2

Magnetic heading		136°
True heading		145°
Direction of relative motion		
Speed of relative motion	339°	159°
Course	42 k	55 1/2 k
Ground speed	050°	152°
Miles on course	12 k	94 k
Time left convoy	17 1/2	106
Position of interception:	0953	
	Lat. 31°-00' N	
	Long. 175°-53' W	

NOTE: Tolerances of two or three miles or two or three degrees from the answers are considered correct.

(See page 9)



FRANKLY, MR. DINGLEBERRY, I DON'T THINK YOUR IDEA WILL REPLACE WING DE-ICERS.

Examine Heating Equipment

BuAer Furnishes Check List

It is recommended that all airplane heaters and heating equipment be examined and operated prior to arrival of cold weather to insure that it is in proper operating condition. In addition to making certain that personnel are trained in the operation of the equipment, particular attention should be given to the following:

1. *Gasoline engines of engine-driven units.*—Check for corrosion, sticking of valves and for proper carburetor setting.

2. *Roots or Sutor-built fuel-air mixture blowers.*—Check for corrosion and freedom of motion of the rotating parts. These units should not be serviced in the field but should be returned for replacement if defective.

3. *Exhaust tubing for conveying exhaust gases from heaters and engines to the outside.*—Check for corrosion and pin holes or fractures due to corrosion and vibration.

4. *Electric motors.*—Check brushes and bearings for wear.

5. *Combustion chambers and fire checks.*—Check for deposits of lead, lead oxide, and carbon. All such deposits should be removed.

6. *Igniters.*—Replace defective igniters.

7. *Controls.*—Check operation of all safety controls to make sure that they operate properly.

8. *Electrical wiring.*—Check all electrical circuits for shorts, open circuits, and loose connections.

9. *Heat exchangers, intensifier tubes, and mufflers.*—In all airplanes having engine exhaust type heaters, make careful check of heat exchangers to insure freedom from pin holes or cracks caused by corrosion or vibration.

In each case the Erection and Maintenance manual for the airplane and the heater manufacturers operating instructions for the heater should be used as a guide in checking this type of equipment. If these instructions are not available or have been lost they should be requested from the Bureau.

Requisitions for necessary replacement parts should be made at the earliest possible date so that these parts will be on hand when needed and, upon arrival of cold weather, heaters will function properly and personnel know how to operate them.

Dolly for PB4Y-1's

Requires Minimum Time, Labor

FAIRWING 7, ATLANTIC.—When PB4Y-1's arrived at this base considerable difficulty was experienced in handling them on the ground because



BOILER PLATE DOLLY SOLVES PB4Y PROBLEM

of breaking of lightly constructed drag strut linkage fitting. This fitting breaks easily, allowing the actuating cylinder rod to bend and prevent the skag from retracting when plane is in flight.



GROUND HANDLING SUGGESTION APPROVED

A detachable dolly consisting of a rubber-tired ball-bearing caster was then constructed. Attaching parts were manufactured of 1/4 inch boiler plate. The dolly can be attached and detached to the tail bumper gear assembly with a minimum of time and labor.

► **BUREAU COMMENT**—This suggestion bears approval for ground handling. However, actual design may be subject to slight change with modifications in the present bumper gear. Model PB4Y-1 Airplane Change No. 36 calls for replacement of present skid plate with a cast steel shoe, in addition to other slight modifications of the bumper gear. This change will be issued at an early date.

New Catalog Lists Devices

BuAer's Synthetic Equipment Also Instructs Army Air Forces

A list of synthetic devices made available by the Navy to its own and to Army Air Forces aviation personnel has been prepared in the form of a *Catalog* by BuAer's Training Division.



CATALOGUE LISTS USES OF TRAINING DEVICES

It is a looseleaf publication 8 $\frac{7}{8}$ by 11 $\frac{3}{8}$ inches smartly designed with text and illustrations, including devices that range from the simplest which require little explanation, to more complex technical equipment demanding considerable instruction.

Ground training with exact models and genuine replicas makes it possible to instruct large groups of students simultaneously. If a student makes an error, the instructor easily can freeze the problem and correct what was done wrong while the subject is fresh in every mind. Special devices have proved their merit in teaching procedure, tactics and familiarization to the point where personnel instinctively apply what they have learned to actual flight experience.

The *Catalog* also gives specific details about each training device—weight, size, power, space requirements, student capacity. Distribution has been made to naval, Marine and Coast Guard activities responsible for training, and Army Air Forces has placed an order covering all its air training stations. Copies may be procured from the synthetic training officer locally.



In 1864 Admiral David Glasgow Farragut used the abandoned Pensacola Navy Yard as his base for operations against ship and shore batteries along Mobile Bay.

Airmat Filter Paper

For Air Gyroscopic Instruments

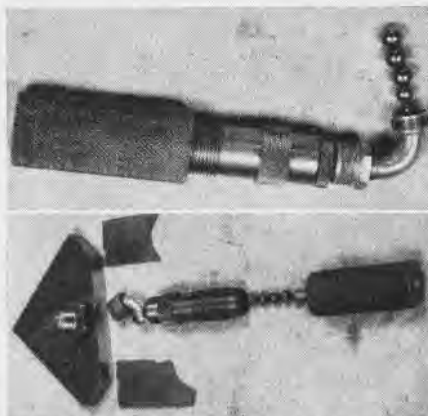
Airmat filter paper is now available for use in individual filters of air-operated gyroscopic instruments. By removing the screen wire in the filter new paper may be inserted and stapled to the wire. Filters for air-operated instruments should be inspected frequently and changed at the first sign of accumulation of dirt.

It is recommended that airmat filter paper be requisitioned and used freely. Experience has shown that proper filtering increases the life of gyroscopic instruments considerably. This paper may be obtained by a shipment request to the Aviation Supply Officer, Naval Aviation Supply Depot, Philadelphia.

Handy Tool Is Timely

Straightens Metal Tubes

NAS, SAN JUAN, P. R.—A handy tool has been developed at this station for straightening ignition harness el-



TOOL STRAIGHTENS IGNITION HARNESS ELBOWS

bows. Because of the difficulty in getting spare elbows, the tool has proved of great value. It also may be adapted to other types of tube straightening.

[DESIGNED BY P. P. CONDAXIS, AMM1c.]

► **BUREAU COMMENT**—This tool is highly recommended by the Bureau. In the interest of metal parts conservation it is believed that the majority of bent or dented ignition harness elbows can be salvaged by this simple and efficient tool. Drawings, specifications, and general information for station use are available at the Bureau by requesting tool data number SJ743.

DID YOU GET ACCURATE
WIND DRIFTS?

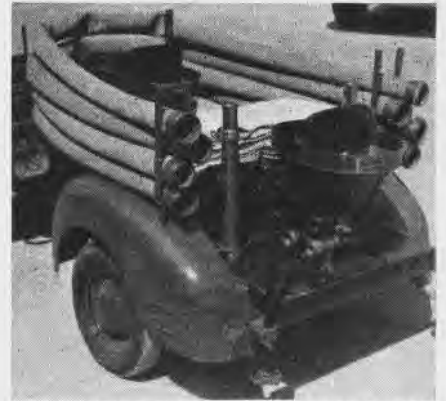


Cart Gives Mobility

Carries Foamon Fire Equipment

NAS, BERMUDA.—A member of the fire-fighting division at this station was commended recently for a development that increases mobility of foamite fire-fighting equipment.

The equipment uses an auxiliary



FIRE-FIGHTING PUMP CART IS TOWED BY JEEP

pump cart on which has been placed the Foamon apparatus used to make the extinguisher. The cart can be hooked to the rear of a jeep and towed to scene of any fire requiring foamite.

Gunsight Mount on F4U-1

Fighting Squadron 17 has designed a new fixed gunsight mounting bracket for the F4U-1 airplane which permits gunsight to be raised about two inches, thus increasing vision over the nose from about 90 mils to approximately 105 mils. Details of this installation are available at NAS Norfolk. The Bureau does not intend to make this a service change, as the raised cabin is on the production line now and will be in service shortly. Lead over the nose in raised cabin model F4U-1 airplane is approximately 120 mils.

SBD Flexible Gun Latch

Bulletin Outlines Remedy

Several reports have been received of the SBD Flexible gun post latch not being strong enough to retain the gun on the ring. SBD-3 bulletin number 49 outlines a remedy for this trouble. This consists of undercutting the lip of the latch about $\frac{1}{8}$ inch with hack-saw or file and by replacing the spring with a stronger one obtained from the supporting A & R shop. The contractor has been instructed to remedy this deficiency.

Sailing LIFE RAFTS

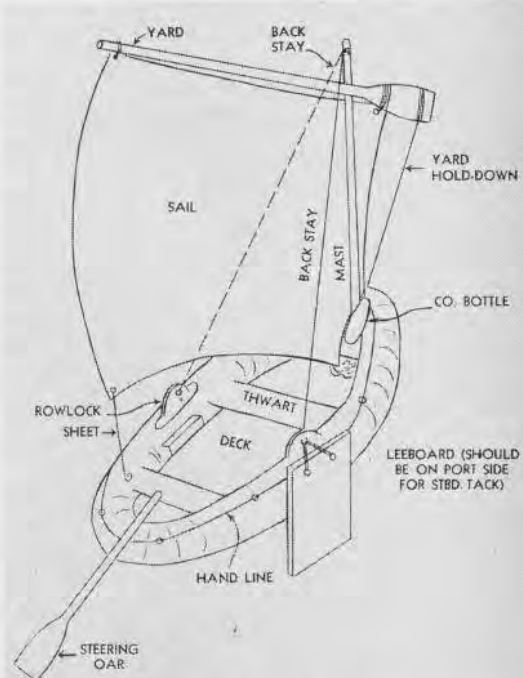
NAS, Norfolk conducted tests recently to determine the most practicable method of sailing life rafts fabricated in accordance with Navy Aeronautical Specification M-3Q, using only the equipment now provided. Results of these indicate that it is not possible to point higher than 90° on the wind under any condition, and that the lug rig is more easily handled than

the square rigged sail. Life rafts procured under specifications M-3Q and AN-R-2 were designed primarily for seaworthiness, rather than for sailing characteristics. However, the Bureau is investigating the possibility of obtaining a type of raft whose design affords seaworthiness and good sailing qualities. Several rafts of this type are now under procurement by the Bureau.



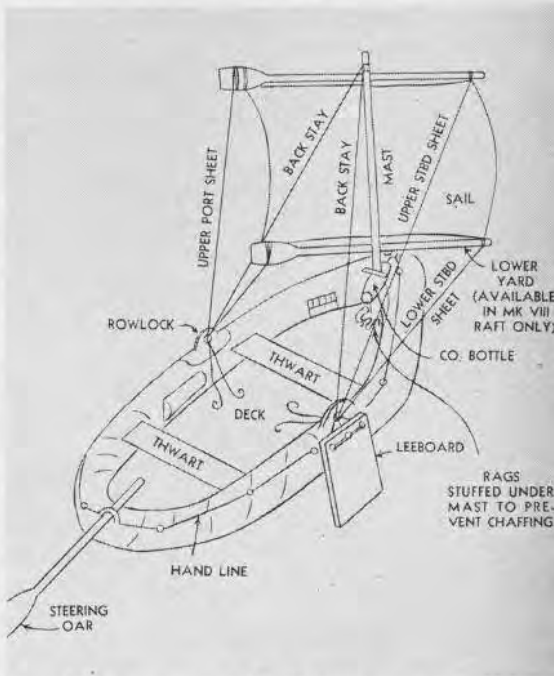
LUG RIGGER

This life raft with its lug-rigged sail proved to be easier to steer and handle than the one below. Note the portable oar used for a boom and the sail made fast to the mast at the bottom, next to the raft. A little cramped but seaworthy.



SQUARE RIGGER

By rigging the sail square, the life raft provides more room for its passengers but was found by NAS, Norfolk, to be harder to handle. Tests were made with standard Navy rafts, but new ones may be secured through the Bureau.



LETTERS

SIRS:

The following statement was made on page two of *BuAer News* of Aug. 1, 1943:

"Two less widely known activities of the intermediate training command are the School of Aviation Medicine and the Photography School at Pensacola."

SecNav letter of Sept. 11, 1942, which authorizes establishment of the Air Functional Training Commands, places NTSch (Photography), NAS, Pensacola, under the cognizance of CNATechTra.

CHIEF OF STAFF, NATTC.

Chicago, Ill.

NATTC is correct in claiming the photo school for its command. Also, the School of Aviation Medicine, while housed at the headquarters of NATTC, Pensacola, operates under the cognizance of BuMed.

SIRS:

The spread you gave to the aircrewmembers' insignia in the June 15 issue of *BuAer News* has received good response here. In



fact one of the squadron commanding officers, whose lads have been performing in this area, said that it was the best morale boost he had seen for aircrews since the war started.

COMMANDING OFFICER.

U. S. S.

Improve Steering Gear \$10 For Parts Does Job

NAS, LIVERMORE.—After having much difficulty with the steering mechanism of "midget shop mules," machinists mates at this station, perfected a system of using old axles and steering gear purchased from auto wreckers.

Both trunion and tire failures were so numerous, the A & R shop made changes on the mules to provide greater safety and less wear and tear. The only disadvantage of switching front axle systems was that the turning radius was increased from six to eleven

SIRS:

Information is requested as to the possibility of this Headquarters being placed on the regular distribution list for 50 copies of *BuAer News*.

ACTING ADJUTANT GENERAL,
AAF Matériel Command.

Dayton, O.

SIRS:

In the Aviation Metalsmith School at this center, Waves work and study right alongside the men, and they are certainly holding their own.

According to a recent directive, only 50 percent of the students graduating from the school may be rated upon graduation. In the class graduated July 24 there were 10 Waves in a class of 120. Seven of these girls, or 70 percent, earned their crowns.

In the class graduated July 31 the two highest students in the class were members of the Women's Reserve; in fact, five out of the top eight were Waves.

COMMANDING OFFICER, NATTC

Norman, Okla.

SIRS:

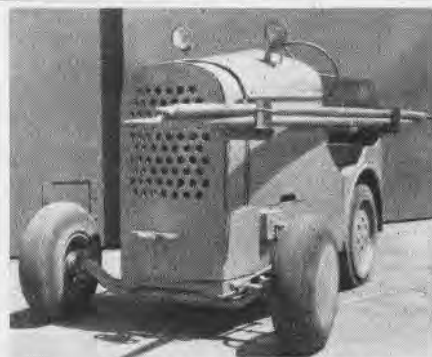
Inasmuch as *BuAer News* is not generally available to the V Fighter Command, it is requested that this office be placed on your mailing list if such procedure is not contrary to naval regulations. Back issues will be appreciated.

FLOYD F. VOLK, Lieut. Col., AC
Headquarters V Fighter Command

[Dispatch]

REQUEST AVIATION SUPPLY DEPOT NOUMEA BE PLACED ON BUREAU'S MAILING LIST TO RECEIVE BUAER NEWS

AVIATION SUPPLY DEPOT
Noumea



INGENUITY AND OLD AXLES IMPROVE STEERING feet. Front wheels and tires were surveyed plane parts. Total cost of the change-over was only \$10.

BEST ANSWERS

To questions on page 10
1. b 2. d 3. a 4. a 5. c

ANSWERS

To Pix Quiz on page 24
1.1 2.2 3.2 4.3 5.2 6.2

Aircraft Shipwreck Kit →

BuAer Desires Comments on Experimental Equipment to Aid Driftees Pending Rescue

An experimental quantity of aircraft shipwreck kits are being procured and delivered in the indicated quantities and priorities to these naval air stations:

Pearl Harbor... 100	Miami..... 12
Noumea..... 150	Cherry Point, MCAS..... 12
San Diego..... 100	Saint Thomas, MCAS..... 12
Norfolk..... 100	Philadelphia, MCAS..... 12
Quonset Point.. 100	Corpus Christi.. 12
Seattle..... 100	Pensacola..... 12
Coco Solo..... 12	Philadelphia (NASD)..... 43
Guantanamo Bay 12	Norfolk (ASA).. 43
Trinidad..... 12	Oakland (ASA). 43
San Juan..... 12	
Jacksonville.... 12	

Inasmuch as no specifications are available for these kits, they should be requisitioned from these points as "Contract NOa(S)-923 Aircraft Shipwreck Kit."

The kits are intended to be dropped from an airplane to shipwrecked survivors in the water, and container and packing have been designed to preclude damage to contents upon impact with the water. A sample kit was dropped at an altitude of 75 feet by a plane traveling 95 knots, and kit and contents withstood the impact without damage. It is recommended that when kit is to be dropped, airspeed be maintained at a minimum consistent with safe operation and altitude be held below 75 feet, if practicable. V-rings are provided in the event it is desired to attach kit to bomb rack. The kit is approximately 36 by 14 by 8 inches, weighs 45 pounds, and contains the following items:

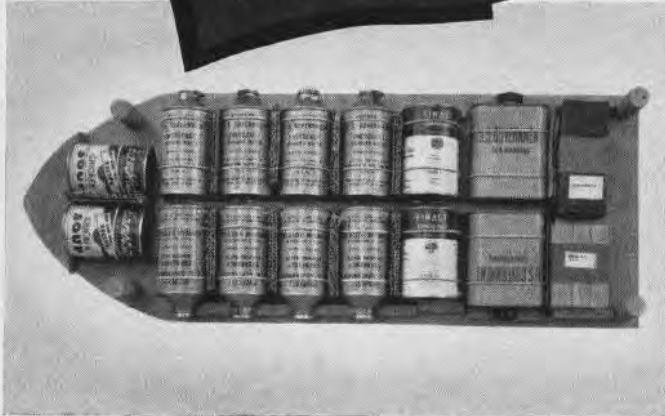
Woolen blankets • First Aid Kit • Sunburn Ointment • Chicken Broth • Tomato Juice • Water • Safety Pins and Adhesive Tape • Cigarettes • Flashlight • Graduated Drinking Cup • Sea Markers • Very's Projector and shells • Compass and Matches • Whiskey • Cotton Line • Whistle • Reflector • Knife • Fishing Kit • Chewing Gum • Malted Milk Tablets • Citric Acid Tablets.

The Bureau will appreciate receiving comments on the effectiveness of the kits, together with recommendations as to desirable modifications which should be incorporated to increase the usefulness of this item.

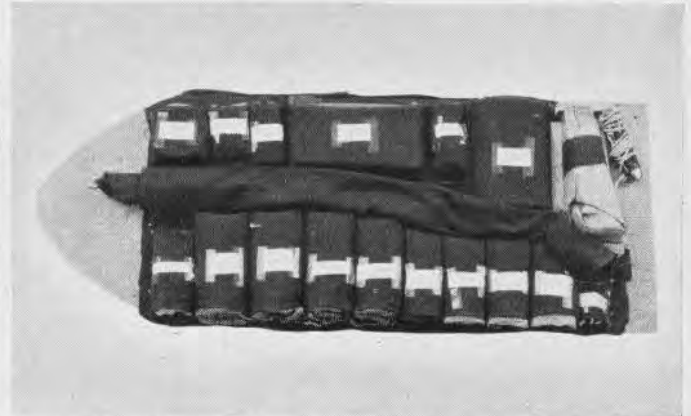
AIRCRAFT SHIPWRECK KIT

**BUAER DESIRES
COMMENTS ON
NEW EQUIPMENT**

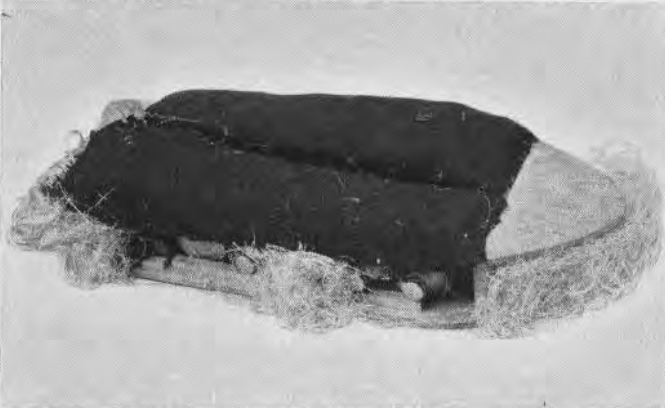
BuAer has ordered a quantity of Aircraft Shipwreck Kits for experimentation by activities. These may be requisitioned from supply points in accordance with specifications on page 32. Comments and recommendations for improvement are solicited by the Bureau.



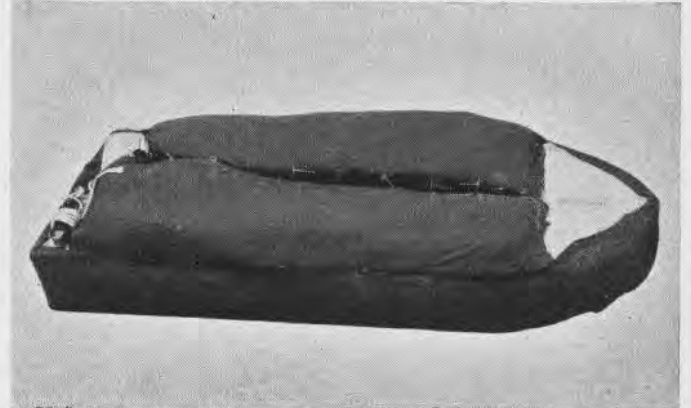
1 BOTTOM SHELF—Items strapped to plywood base include drinking water, tomato juice, dye sea markers, pyrotechnic projector, Very's cartridges, etc.



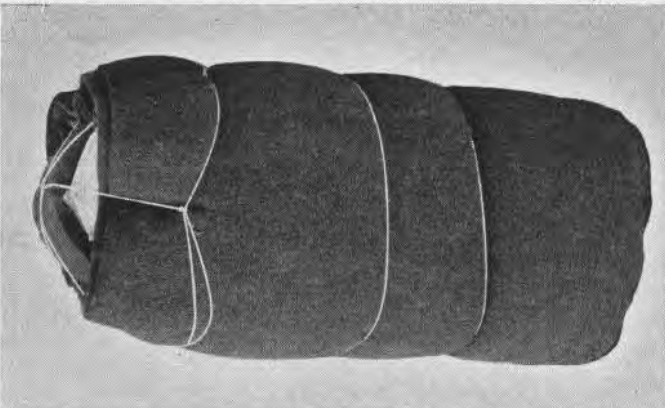
2 TOP SHELF—Fits on top of bottom shelf; includes compass, reflector, drinking cups, cigarettes, chewing gum, adhesive tape, salt tablets, etc.



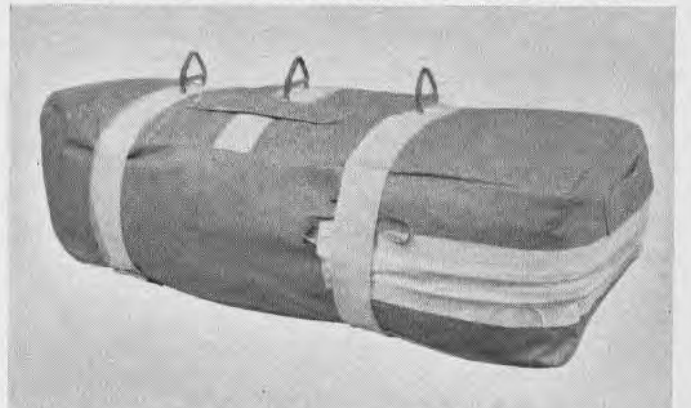
3 ASSEMBLED—Top shelf is padded with excelsior, then wrapped in cloth, superimposed on bottom shelf. Excelsior then is packed between layers.



4 WRAPPED—Fabric keeps excelsior well packed, seals off inner contents of kit. Nose streamlined cuts drag if unit is supported on bomb racks.



5 BLANKETED—Unit tightly wrapped in two woolen blankets receives additional padding. Blankets serve primary purpose of keeping drifttees warm.



6 COMPLETE—Kapok pads are placed on top of blankets and kit then is inserted, sealed into container with V rings attachable to bomb racks.



JUNKERS Ju 87

GERMAN DIVE BOMBER

Span—45 feet 4 inches.

Length—36 feet 6 inches.

Service Ceilings—30,000 feet (not loaded), 25,000 feet (normal load).

Maximum Speed—225 m. p. h. at 15,000 (with load), 245 m. p. h. at 15,000 (bombs unloaded).

DISTINGUISHING FEATURES—Low inverted gull-wing monoplane with in-line engine. Long nose and large spinner. Big rounded radiator below nose. Fixed landing gear with wheel fairings. Prominent square cut single fin and rudder with taper to leading edge of fin. Braced rectangular stabilizer and elevator are also its characteristics.

INTEREST—One of the most widely used German planes, the "Stuka" has proved to be extremely vulnerable. Hundreds of these planes have been shot down by Allied air pilots and by AA fire. During the fighting in Poland and the Low Countries, this dive bomber earned a reputation as ugly as its appearance. A later model, the Ju 87D is now in use. It has a modified cockpit cover and less conspicuous radiator.

