

NAVAL AVIATION

# NEWS



Speed Parachutes  
Plane Preservation  
Pacific Playaround

March 1947  
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**KNOW WHERE YOU ARE?**

If you don't recognize the air station above, you had better go through aviation training again. The bottom one is on the West Coast. The answers are on pg. 40.





# SPEED CHUTES

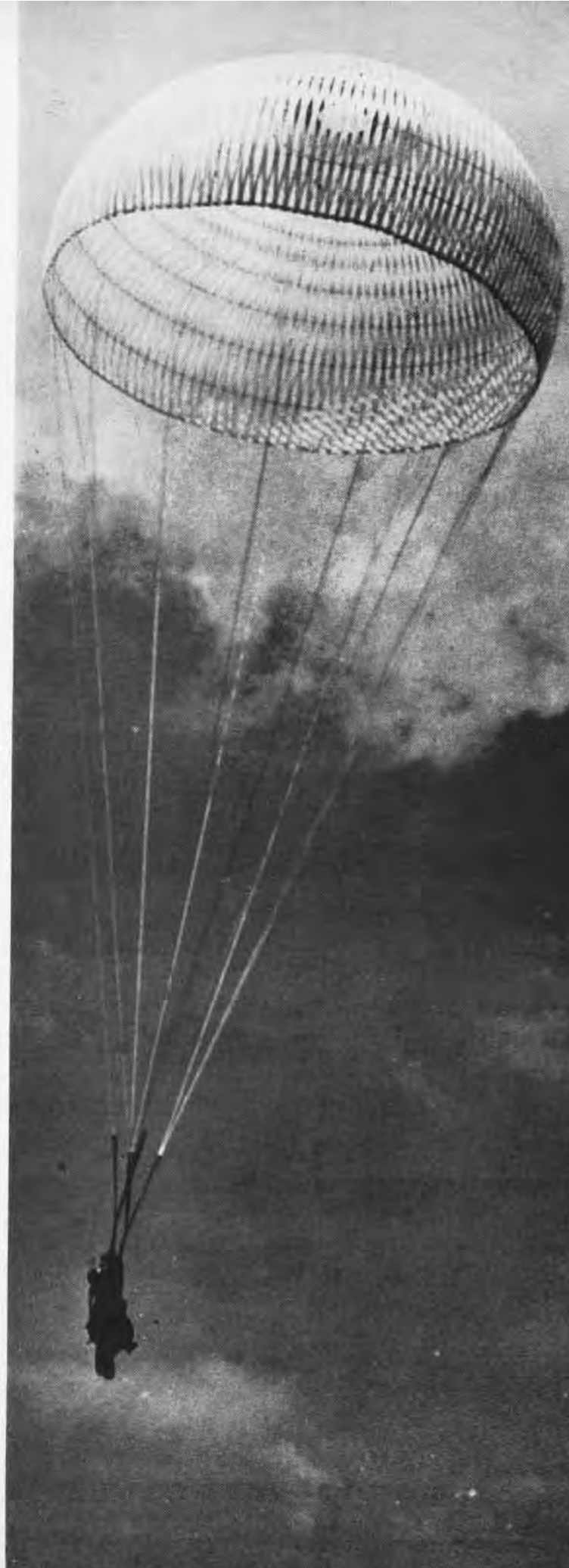
WHILE aircraft designers are racing to produce higher and higher speed aircraft, other scientists are busy trying to figure ways of getting the pilot out of those planes alive.

Most of their ideas revolve around use of some kind of parachute on the pilot or perhaps on his "escape capsule." The shape of these chutes and the material used to make them is the subject of many experiments and much study.

Bureau of Aeronautics' Airborne Equipment section is working out the chute problem, aided by the Parachute Experimental Unit at NAS LAKEHURST and the Naval Air Material Center at Philadelphia. Private contractors and German scientists also are lending a hand and working on projects.

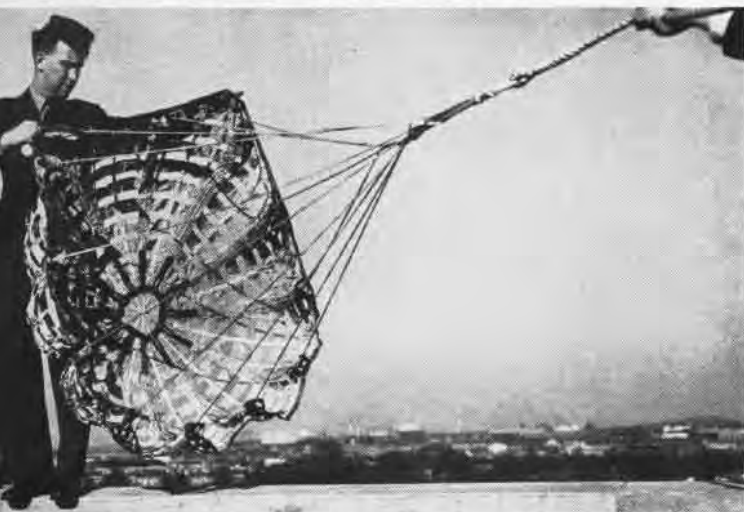
The Parachute Unit, which soon may move to El Centro, Cal., to get more space for high speed experiments, has tried out some 40 different ideas and designs in an effort to find the answer to high speed bailouts.

Even though the jet plane of the future provides escape via a "capsule," it will have to have a parachute of some type to bring it safely to earth. A small drogue chute may slow it down to a speed where a more-conventional type can be broken out for the final "lap." Present chutes function adequately at speeds up to 250 mph.; for faster plane ejections new techniques and equipment are in process of development by BUAER.





TEST BOMB WITH PARACHUTE INSIDE SLUNG UNDER B-25 FLOWN BY LT. A. J. PERKETT OF LAKEHURST UNIT TO GET HIGH SPEED DATA



CAPTURED GERMAN DROGUE CHUTE USED TO BRAKE JET PLANES

## Bailing Out of Speedy Jet Planes Highly Dangerous; Parachute Strength Critical

**E**VEN IF a pilot could bail out in the slipstream of his plane going 600 mph. without hitting the rudder and was not killed by the air blast exploding his lungs or tearing his flesh from his face he still would have plenty of trouble ahead of him.

Today's parachutes are not made to withstand the opening shock of those high speeds without splitting or ripping. Even if they could, the pilot probably would be killed by the terrific G forces when the canopy unfurled.

BUAER has various branches working on several approaches to the high speed plane safety problem. Speed brakes may be incorporated in planes to slow them down to where a pilot can be jettisoned or bail out. Cockpits or front sections of the planes may be ejected. More efficient parachutes which open with less shock are under experiment.

The ultimate chute must be three things: 1. It must be small enough to get inside today's small cockpits. 2. It must be easy to manufacture in mass production in case of sudden war, and 3. It should be designed so the opening shock will not exceed 16 G's.

One way of meeting the problem is being explored thoroughly—that of air escapement to cushion the opening shock. Every known idea, including many used by German scientists, is being investigated. Research data of the Germans is being studied to get information on their high speed parachutes. German scientists under contract with the Army Air Forces are loaned to the Navy to assist in research. One Dr. George Madelung, director of Graf Zeppelin Research Institute, was an advisor to Martin Aircraft back in the 1920's. During the war he was active in solving scientific survival and escape problems in Messerschmitt, Heinkel and Junkers aircraft. Since the Nazis were ahead of the Allies in using jet planes in combat, their research on survival is being studied closely.

They equipped their jet pilots with Kosteletsky ribbon-type parachutes (see photo, pg. 1) and produced jettisonable nose sections on their rocket fighter aircraft, the *Viper* or *Natter*, a wooden 575-mph. interceptor which was launched straight up. The Navy is studying these ideas,



AAF USES RIBBON CHUTE IN NOSE OF ROCKET 'WAC CORPORAL'



with the knowledge that the Germans themselves during the war reportedly failed to rescue a single pilot alive from a high speed aircraft.

**T**HE KOSTELETSKY chute was given full tests at Lakehurst. Eleven drops were made at speeds from 200 to 375 mph. and at varying altitudes, with 200-lb. dummy weights. It was found the chute unfurled slowly, fell rapidly and had a very low opening shock and oscillation (see chart, page 4). It fell an average of 43 feet a second, twice as fast as the Navy considers safe for a man to hit the earth. It took an average of five seconds to open up, twice as long as the Navy believes permissible. From a low altitude, a pilot would hit the ground before his chute opened fully.

Other disadvantages of the 32-foot ribbon chute design were that it was too bulky and heavy, its construction was complicated, and the ribbons wrinkled and failed when packed for a time or under moist conditions. The Navy is borrowing its good features and adapting them to other ideas of parachute construction.

It looks now as though the chute of the future, worn by man or attached to his "escape capsule" may have vents around the top, with covers that would tear off or otherwise allow air escapement if used at high speeds. It may have whole sections removed or seams left unsewed.

Another idea being investigated is to have undrawn nylon risers, shrouds or chute canopy which would stretch as much as five times its normal length under stress. The trouble with this material to date is that under test it shows unpredictable characteristics and snaps under moist air conditions.

If the unylon could be adapted to parachutes, it would have a double value. In addition to stretching greatly to spread the opening shock, the material also would become more porous when extended. Air-escape-ment was found to be 10 times as great when stretched. It does not "rebound" into shape again like rubber and its stretching is unpredictable and sometimes uneven in different directions.

Another proposal is to incorporate rubber in parachutes, their risers or shroud lines. Rubber, however, becomes brittle in cold temperatures and loses some of its elasticity. Future flying at frigid 40,000 foot levels would complicate its use.

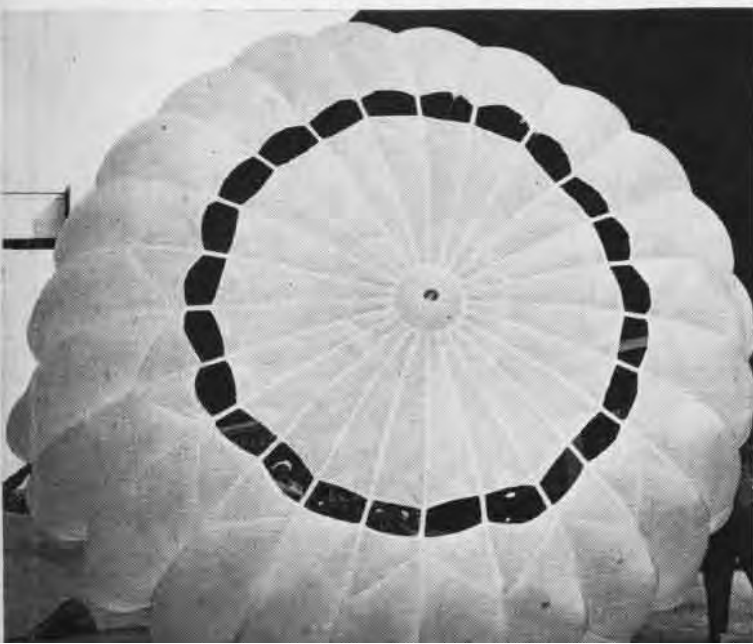
**B**UAER has a project set up with Pioneer Parachute Co., and Chance-Vought to develop a parachute to slow down a plane in flight, similar to the idea used by the Germans to land their speedy jets on short runways. The Nazis came in at steep angles, broke out the tail chute (see photo, pg. 2) and slowed themselves down so they could land at about 150 mph.

Such a proposal might be used to slow a plane down so the pilot could bail out or be ejected. B-24 crews in England, coming in with crippled landing gear, used personnel chutes to achieve slower landing speeds.



EXPERIMENTAL CHUTE JUMPER SHOWS GOOD FORM IN CONTROLLED LEAP

TWO EXPERIMENTAL CHUTES TESTED BY LAKEHURST PARACHUTE UNIT TO TEST AIR ESCAPEMENT THROUGH CHUTE'S CANOPY HOLES



## Unit Tests 41 Ideas for New Parachutes To Save Lives of Speedy Jet Plane Pilots

CENTER of BUAE's program is the Parachute Experimental Unit at NAS LAKEHURST. The unit has 10 officers and 59 men attached. In its laboratories and workshops, all manner of tests and experiments are made.

The Unit has tried out 41 different kinds of parachutes or modifications to try to find the answer to high speed flight. Under the heading of vent-type parachutes are those with vent slits, panel vents, self-closing vents, circular vents, mesh panels or gores, missing gores, missing vents, oversize main vents closed by elastic, multiple vents and blow-out vents.

All are designed with the idea of cushioning the initial shock when a parachute opens in a terrific wind. Three ribbon-type chutes also were investigated, the Wako and Kosteletsky models and a U. S. design with latitudinal ribbons set at an angle like an airfoil of a wing.

Other ideas were tried. One chute had a highly porous peak to let air escape. Others had variable porosity peaks that stretch under pressure, or elastic gores. Some shroud lines or risers were made of elastic material or undrawn nylon. Chutes came in the shape of cones, baseballs, triangles, lobes, squids, with multiple or collapsing canopies. One was a "squidding" chute whose canopy collapsed partially at high speeds with resulting loss of drag. Some chutes had hesitator canopies which deployed first, slowing down the jumper before the main chute was unfurled.

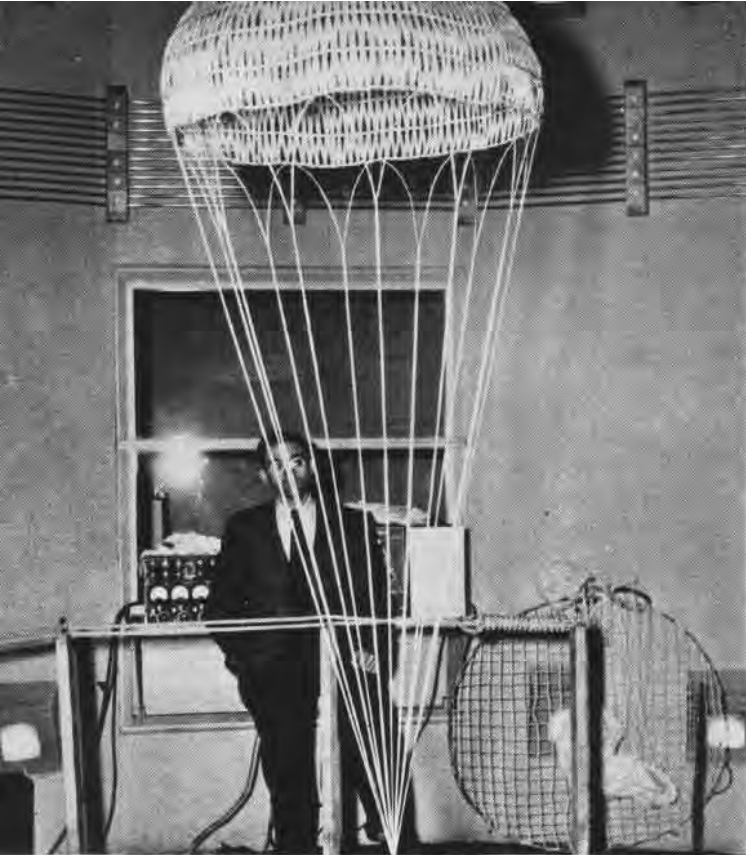
There is a wide difference of opinion as to what the final high speed parachute will be like, or how it will be used. At this time, some authorities contend that fliers must have two chutes, one for high speed use and one for low-altitude, low-speed use. The present trend of thought in BUAE is that it may be possible to perfect one parachute for both high and low speed work, and most experiments are carried out with this possibility in mind. The final parachute probably will incorporate individual features from several different designs of canopies.

The Parachute Experimental Unit has many laboratories and workshops to do research on its ideas. A tensile testing machine shows fabric strength, another indicates permeability of cloths to determine how much leakage of air exists. Porous cloth which permits air to sieve through gives less opening shock. The unit also has machines for burst pressure testing and static and dynamic loading of fibers. It is equipped to give the parachute researcher facilities for testing elements of chute design, such as splices, seams, glued joints, combinations of weaving and fabrics, and effects of mildew, moisture, drying and wear.

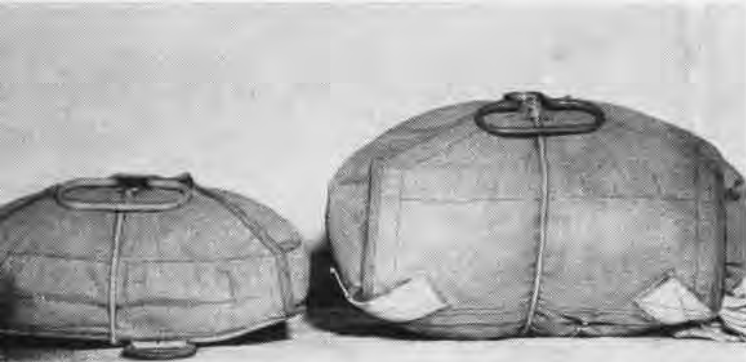
PART OF the laboratory is given over to photographic work because the success of chute testing is aided by high speed movies showing functioning of the canopy under high altitudes and speeds.

Chief Machinist John Geary of the unit developed a 250-lb. bomb-type dummy for testing chutes at high speeds with an F&F. Dropped like a bomb, the tail shears off, releasing the chute of conventional type with top cut out and a heavy porous material inserted. This enables opening shock to be kept to 16 Gs. It has worked up to 500 mph.

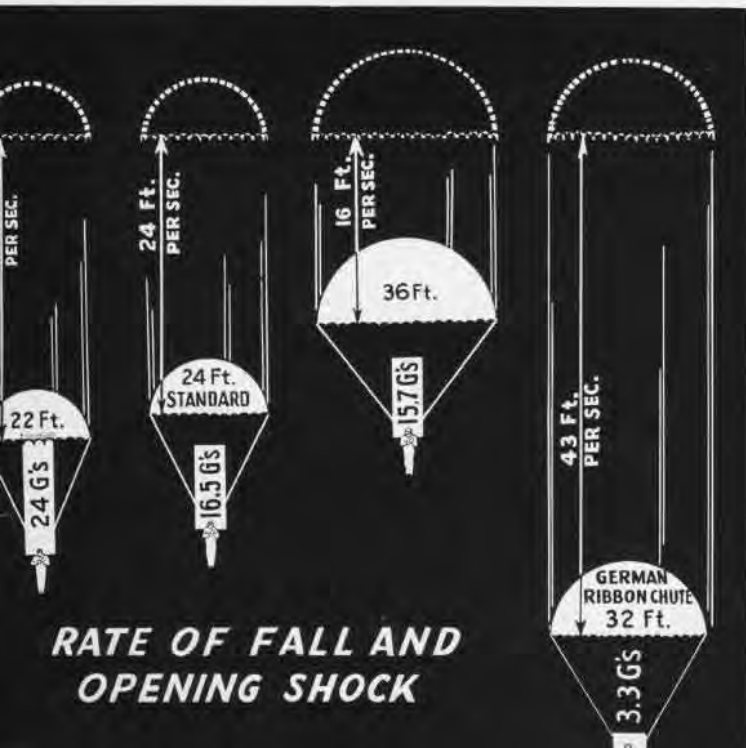
As a safety device, an arming wire is incorporated which releases the canopy in case of premature opening, thus preventing any drag on the plane or test bomb. A hydraulic timing device, developed by the Unit, is incorporated. It permits release of the canopy at any pre-determined time after the bomb is released. For special tests a movie camera is attached to photograph the deployment and operation of the canopy. A tensiometer, giving magnitude of opening



GERMAN SCIENTIST WATCHES HIS RIBBON CHUTE DESIGN TESTED



STANDARD U.S. CHUTE IS SMALL BESIDE A GERMAN RIBBON TYPE



◀ RIBBON CHUTE FALLS SO FAST PILOT RISKS SERIOUS INJURIES



shocks and their duration in seconds and fractions, also is included.

Photo theodolites are used by the Unit to measure rate of descent and oscillation of test chutes. A third use for photography is to take color micrographs of mildew on fabrics, a prime enemy of cloth in tropic areas.

Lakehurst's Unit has an 85-foot "whirl tower" in which a packed chute can be whirled at speeds up to 300 mph. and the canopy released from the pack. This permits economical testing in any kind of weather when flying is not feasible. Controlled data and photos can be secured.

There are workshops to produce high grade testing devices, test stands, replacement parts and mockups of working parachute models. Much has to be done from rough sketches and oral instructions from parachute engineers. A fabric shop has all kinds of machines that can sew leather, canvas, silk or nylon. Scale models as well as full-sized chutes have to be made to try out different shapes and ideas of construction.

Four aircraft are used by the unit to test its parachutes. An R4D-7 is used for live jumps, a PV-2 for multiple drops of dummies, an SBW for dummies dropped from the bomb bay, and the F8F for high speed work. Flights are made to test the chutes under service conditions. Parachute brakes for planes must be released, reefed and retracted. Special apparatus to measure shock of opening and other data must be installed.

Because aviation in the future is looking toward high altitude flying as well as high speeds, the Unit found it was hampered by the comparatively thickly settled countryside around Lakehurst. Steps are being taken to acquire the old air station at El Centro, where desert land affords lots of room with no danger of dropping 200-lb. dummies on top of Little Iodine's playpen.

The location at El Centro also has topography nearby which lends itself to construction of a high speed horizontal gun or catapult which can fire dummies with parachutes over a cliff under controlled conditions. This way movies can be made of the entire operation to see how the chute functions and what its weak points are. Existing Navy, Army and NACA wind tunnels will be utilized where necessary to augment laboratory testing to eliminate potential failures before they reach the flight-testing stage.

As the chart on the preceding page indicates, the larger the parachute canopy, the slower it falls—until you get in the ribbon-chute class, which lets air slip through it at a great rate. There is a 10 feet-a-second difference in the rate of descent between a 36-foot and a 22-foot parachute. That is a lot of difference, enough to save a broken leg, but other things enter in. The big chute is too bulky to get inside a small cockpit and airplane designers, in their



NAZI 'VIPER' HAD CHUTE IN TAIL; NOSE SECTION JETTISONABLE

search for higher speeds, object to anything that requires a bigger fuselage.

A 200-pound man falls 26 feet a second in a 22-foot chute and 43 feet in a ribbon-type chute. If he were to bail out and fall free, his body speed would range all the way from 100 miles an hour to 225, depending on the position of his body and the wind resistance of his apparel. In a standard chute, he falls at about 16 miles an hour.

A small drogue chute, which may find wide use in high speed bailouts, is not such a construction problem as the larger life-saving chute. Similar canopies were used during the war to slow the fall of aerial mines (see photo below), to stabilize them and prevent oscillation.

A two-foot drogue with a six-inch hole in the top was used to stabilize the seat used in the first live ejection made from a JD-1 by the Lakehurst Chute unit (NANEWS, Dec. 1946). This small chute pulled out the large 28-foot one attached to the man's seat. Two chutes, a seat and chest types, were attached to the man for safety use. The ejection seat chute was to prevent it from being damaged.

BUAER is considering the idea of attaching a chute only to the seat and not on the man. This would lessen the opening shock by spreading it over the seat and shoulder strap area rather than to just the chute harness straps on the pilot's body. A shoulder harness and lap belt would hold the man in the seat and he would ride it down.

Nobody has ever claimed that parachutes are 100 percent effective in getting every pilot down to earth alive. If they could be used under ideal controlled conditions, like paratroops bailing out in a comparatively slow, straight-and-level flight, few would get killed. Flight safety records show only 2/10 of 1% of the men who bailed out during the war in this manner were casualties.

The jet plane has arrived but such things as pilot safety, carrier operations, fighting tactics and the like are still in the thinking and research stage for the most part. Today's jet pilots fly their sleek aerial steeds with crossed fingers.

CHUTE ON MINE (LEFT) MIGHT SLOW FUTURE PILOT'S 'ESCAPE CAPSULE'; OTHER PHOTOS SHOW ODD A.A.F. DESIGNS OF NAZI SCIENTISTS




# GRAMPAW PETTIBONE

## F4U-4 Handbook Troubles

Records indicate that quite a few F4U-4 pilots do not know the proper procedure for the emergency landing gear extension. It is readily apparent that pilots have either forgotten what they learned or perhaps never read the Pilot's Handbook on the F4U-4, particularly section 1, paragraph 7 on the hydraulic system, and section 4, paragraph 1B on Emergency Operation Instructions.

In emergencies too many pilots are first trying the hand pump instead of using the CO<sub>2</sub> bottle to extend the landing gear. If the CO<sub>2</sub> bottle is actuated subsequent to such an attempt it is possible for both the carbon dioxide gas and any remaining hydraulic fluid to be exhausted over the side and the pilot will never be able to extend and lock his gear.

 Grampaw Pettibone says:

Looks like an epidemic of forgetfulness which is common to pilots who fly the same plane so long that they forget what to do in emergencies or fail to bring themselves up to date on new procedures. Perhaps some of these pilots never did know. It is possible, believe me!

I am willing to bet that during most emergencies some or all of these pilots wished they had reviewed their handbooks or had them along. Actually carrying a handbook is impractical, because the pilot has his hands full in an emergency. Moreover he seldom has time to look up the answers. He should know ahead of time the best procedures for any emergency.

Well, here's some good info taken right from the handbook that all F4U-4 pilots should digest. "It is wrong to use the hand pump first because it draws fluid from the bottom of the hydraulic reservoir, whereas the engine draws fluid from the half gallon level. If the failure of the hydraulic line has permitted all fluid available to the engine-driven pump to be pumped overboard, your one-half gallon reserve remaining in the bottom of the reservoir is sufficient for *one operation each* of wing flaps, cowl flaps, and gun charging by use of the hand pump. The one-half gallon reserve is not sufficient for full extension of landing gear so that if the loss of fluid is the cause of emergency landing gear extension the pilot will be required to use the CO<sub>2</sub> bottle anyway and the depletion of the half gallon reserve precludes the operation of wing flaps.

Briefly, here is the correct procedure to use for emergency extension of the



landing gear:

- (A) Reduce speed to 110 knots. (This is very important.)
- (B) Release CO<sub>2</sub>.
- (C) Reduce speed to 90 knots while the landing gear is extending.
- (D) In event CO<sub>2</sub> bottle does not fully lock landing gear down, the hand pump may be used.
- (E) If the above operation has been successfully completed, then the hand pump may be used to extend the wing flaps.

All these facts are in the F4U-4 Pilot's Handbook and should be thoroughly learned.

Those of you who check out F4U-4 pilots should put more emphasis on this part of your instruction.

Maintenance personnel should check CO<sub>2</sub> bottles more frequently because quite a few faulty bottles have been reported in recent months.

## A Rough One!

It was a clear moonlight night and the R5D Plane Commander turned the


### Attention SB2C-4 Pilots

Space limitations prevent printing an article on recent accidents in the SB2C-4E caused by malfunctioning of the flaps. Indications are that instructions in SB2C-SBF-SBW Aircraft Bulletins Nos. 239 and 246 are not being followed. Read these and live longer.

controls over to his first pilot and retired to a bunk. A few minutes later the first pilot got out of the seat to get a bowl of soup, leaving a relatively inexperienced copilot at the controls. The flight orderly came forward and asked the copilot if he cared for any soup. He said that he did not and in his own words:

"Just then the orderly tapped me and pointed out a cloud ahead that we were about to go into. I immediately took the plane off the automatic pilot and made a slight bank to the right to avoid the cloud . . . Seeing that I could not avoid it I straightened the plane and eased back the throttle to 20 inches of manifold pressure. The turbulence was slight for the first ten seconds and I pulled back on the yoke to slow the airspeed down to between 170 and 180 MPH. The turbulence became very severe for about 5 seconds and then there was a violent downdraft . . . I did not have my safety belt fastened. When the plane hit the downdraft I left the seat and my head hit the ceiling. Holding onto the yoke and watching the instruments all the time I did not notice any rolling of the plane. The rate of climb which was reading 2,000 feet per minute up when we hit the downdraft went to 5,000 feet per minute down. The entire turbulence did not last over 30 seconds.

Of the 26 passengers and crew members aboard, 11 were injured. The plane commander after his rude awakening checked on the condition of the aircraft and passengers and decided that the flight could safely continue to Kwajalein. A number of the passengers whose injuries were serious were apparently suffering from shock and did not realize the extent of their injuries when they were questioned by the plane commander. About three hours later morphine was administered to those in severe pain. Kwajalein was notified by radio that there were injured passengers aboard the flight and a doctor and ambulance were standing by when the plane completed the eight-hour flight from Guam.

 Grampaw Pettibone Says:

Some jolt, eh, fellows? It's a mighty good idea to have your safety belt fastened at all times when you're at the controls and there isn't much excuse for flying through a cloud on a



bright moonlight night without warning the passengers to fasten theirs. In this case only one passenger had his safety belt on, and the injuries to the others which consisted for the most part of scalp and head lacerations would have been minimized if all had been instructed to secure their belts before the plane entered the cloud.


In the interest of accurate navigation it isn't practical to dodge every cloud encountered, but I guess you fellows will think twice next time you meet a vertically developed cloud which could be easily avoided. This type of cloud packs a big wallop. Dodge 'em if you can, and if you see that you can't go over, under or around such a cloud, be sure to enter it in straight and level flight and reduce speed at the first sign of turbulence.

P.S. As a result of this accident Commander Naval Air Transport Service has promulgated an order requiring pilots to keep their safety belts on and securely fastened whenever on duty at the flight controls of a NATS aircraft.

## F4U Inverted Spins

A group of four F4U-4's were on an authorized division tactics flight. Near the end of the period the flight leader put the planes in column formation and performed some acrobatics. While attempting an Immelman at about 11,000 feet, the number three plane lost airspeed at the top and fell off in an inverted spin. The pilot attempted to recover for five or six turns and, being unsuccessful, bailed out as the plane spun past the 5000-foot mark.

He did not jettison his canopy and as a result suffered minor abrasions on his left arm from contact with the canopy while disengaging himself from the plane. The pilots' parachute opened promptly, while the plane continued to spin for about three more turns and then went into a diving spiral and crashed into the ground at an angle of about 60 degrees.

 *Grampaw Pettibone says:*

Unfortunately, this pilot had not read Technical Note No. 20-46 on Spin Recovery Characteristics in the F4U. He was attached to a squadron operating in China and this Technical Note was not received until a few days after the accident. Had he been familiar with the proper recovery procedures, he would have pulled his throttle and RPM controls back as soon as he realized that he was in an inverted spin. He would in all probability have effected a quick recovery, for flight tests have demonstrated that it is difficult, if not impossible, to enter an inverted spin in an F4U except at high power settings. These same tests showed that while the plane would spin to the right, inverted spins to the left could not be induced even with high power settings.

Voluntary spins, either normal or inverted, are prohibited in the F4U because of the high control forces which may be required for recovery. (T.O. 67-45.)

However, any pilot who flies an F4U should know the correct recovery procedures for both types of spins. Read Technical Note No. 20-46. As one F4U pilot put it:

"It's worth reading even if it only saves one life—particularly if it happens to be mine."



## Rough Rider

One rainy day, a mechanic was busily engaged in "checking the mags" of an SNJ. As he was "revving up" the engine, he stuck his head down into the cockpit to watch the tachometer closely. The next time he looked up, he was in a different spot in the line, and he was confronted with the sign in the above picture. While this mechanic had his head down, he blazed a marked and distinct trail among planes and buildings located on or near the line. See the picture. Here's the list of damage done:

1. Right wing of SNJ clipped windshield off one jeep, which caused plane to swerve to the right.
2. Right wing and propeller tips struck operations building, causing the SNJ to ground loop violently.
3. Then left wing struck operations building.
4. The SNJ's tail inflicted minor damage to wing and cowling of one

## GRAMPAW'S SAFETY QUIZ



1. If you are lost and faced with a forced instrument let down over terrain you do not definitely know, what should you do?
2. When pulling a propeller through by hand prior to starting an engine, in which direction should it be rotated?
3. On takeoff when the horizon is obscured by darkness or overcast, what is the safest procedure?
4. While on civil airways, at what altitude should you fly when heading: (a) East. (b) West. (c) North. (d) South?
5. If necessary to bail out in a spin, in which direction should you leave the cockpit? Why?

(Answers on Page 40)

JRB parked in front of the building.

5. SNJ suffered major damage to right wing, cowling, propeller, tail and engine.

 *Grampaw Pettibone says:*

What a day! This mechanic did quite a job. He said the brakes were on, but I kind of wonder about that. This episode reminds me of a bull in a china shop. The picture shows that he met one too—El Toro, himself.

## "Dear Grampaw Pettibone

"We are an Air Control Group which until recently had no planes or the facilities to maintain aircraft. Now we have one plane assigned to our group which does provide flight time for some of the twenty Naval Aviators assigned. As far as this plane is concerned we assume the responsibility for checking out all pilots who fly it to insure that they are competent.

"In other cases, where our pilots fly aircraft belonging to other organizations we believe it should be the responsibility of the Commanding Officer of the organization having the aircraft to check the pilots out. We thought we could prove this by reference to the *BuAer Manual* but have not been able to find it in writing. In *Naval Aviation News* 1 February 1945 and 15 June 1945 you say the Commanding Officer is responsible, but after carefully checking all your references we still can't determine which Commanding Officer is responsible, the one the planes belong to or the one the pilots belong to.

"Assistant Operations Officer"

 *Grampaw Pettibone says:*

You're right. It is the Commanding Officer of the unit to which the planes are attached who is responsible for assuring that pilots are thoroughly qualified before they are permitted to fly any aircraft. Although he normally will delegate this responsibility to his Operations Officer, the primary responsibility rests with him as Commanding Officer of the unit to which the planes are attached.

I don't think you looked too thoroughly in the *BuAer Manual* for the answer. The paragraph quoted below is from Chapter VI, Section 1, Art. 6-103 of the Manual of the Bureau of Aeronautics:

"COMMAND OF AIRCRAFT—(a) No aircraft will be taken into the air at any time without authority from the proper source as designated by the Commanding Officer of the unit to which the aircraft is attached."

## TOMBSTONE

Beneath this stone lies Ensign Wright Whose clearance called for contact flight. He felt too proud to turn around And now he's six feet underground.



# DID YOU KNOW?

## Ronne Expedition Heads South

### Scientists Take Three Light Planes

Three light airplanes will be used by Commander Finn Ronne's Antarctic Expedition now en route to the south polar region. These planes include a Beechcraft c-45 *Expeditor*, a Northrop TC-64 *Norseman*, and a Consolidated L-5 *Sentinel*.

The expedition is sponsored by the American Antarctic Association. Mr. Ronne, who served in the Navy during the last war with the rank of commander, has participated in two previous expeditions to the Antarctic.

His group of 22 explorers and scientists plan a 14-months stay in the Antarctic. The expedition will permit its vessel to be frozen in the ice pack during the intensely cold Antarctic winter. The group expects to conduct various types of research including a study of cosmic rays for the Bartol Research Foundation.

## Marines Escape China's Winter

### Squadron Goes Long Way to Practice

VMF-218, CHINA—As winter blew its cold breath across the Great Wall into North China, pilots and men of this squadron enjoyed a 3-weeks' respite from the icy blasts by going to Tsingtao for gunnery firing and operations with Seventh Fleet units.

Weather there proved balmy and invigorating and ideal for gunnery work. Extensive preparations were made for the trip, inasmuch as we had to operate from a strange field on which only a transport squadron is based, with no maintenance facilities for fighters.

Planes had to be flown back to Peiping for checks, but in spite of these problems plane availability never fell below 75%. Ammunition, banners, and lithographic ink for painting the rounds had to be secured. The latter proved a difficult item to obtain in China. Each pilot flew several dummy gunnery hops, including camera gun firing, followed by a minimum of five actual firing flights before shooting for qualification. All pilots qualified, averaging 8.9% hits for record and 4.7 for the overall firing mark. Minimum qualification score was 5%.

Operations with the fleet units included GCI, strafing towed spars, simulated dive bombing, glide bombing and low level attacks on surface vessels.



PLANE BREAKS UP IN PRACTICE BOMBING

## Hellcat First to Eject Pilot

### Marine Flyer Involuntarily Hit Silk

Accidentally, and luckily, ejected from the cockpit of a disintegrating F6F in December 1943, Marine Lt. G. C. Carrington claims the doubtful honor of being the first Navy pilot to experience seat ejection.

Carrington was left flat on his back at 20,000 feet with no airplane when his *Hellcat* broke up at high speed after a prolonged dive over Barber's Pt. T.H. After reading of the Navy's recent seat ejection tests in the December issue of *NANews*, Carrington wrote in to tell of his unofficial but thrilling experience.

He estimates that he was thrown clear of the plane at a speed of more than 600 mph. after the tail section broke off, allowing the plane to somersault. His story follows:

The plane which I was flying would not recover from a dive at high altitude due to compressibility and consequently it broke up at high speed. After feeling the impact of hitting the canopy and air stream, I found myself in mid-air and fell for a considerable distance.

I tried to get my chute open and could not succeed. After I had pulled the rip cord, I attempted to release the pilot chute by hand and discovered that the seat and I had not parted company. Release of the safety belt and shoulder harness allowed the canopy to blossom.

The F6F broke up at around 20,000 and the chute opened at eight or 10,000. I landed in the water off shore where I was picked up by an anti-sub patrol ship which was nearby.

I believe that being thrown out in the seat enabled me to withstand the terrific force of the air flow which tore off helmet, gloves, shoes and twisted my Mae West up like a rubber band under my chute harness. Other than a fractured right knee and several cuts and bruises, I suffered no serious ill effects from the fall.

## Air Group Quiz Features Gramp

### Questions Come from Aviation News

ACAG-1—What is the Kollsman number? Many an experienced pilot was seen to scratch his head and take a second look when they encountered questions such as the above on a recent test administered by Air Group One.

The quiz, a part of the group's closely integrated training program, consisted mainly of the type of questions that make a pilot realize that things learned in training often become hazy in the brightest of minds, and in some cases are forgotten entirely.

The questions were selected by CAG himself, whose main source of supply was the *N A News* Safety Quiz instigated by one G. Pettibone. However, various other subjects were incorporated, such as ship-board inspections, deck and integrity watch standing, and other daily squadron responsibilities. Many of the questions led to long, loud, and, of course, valuable debates.

After grading, the tests were returned and each individual question discussed freely. It is strongly felt that while an over-all survey of pilot aptitude was attained, the individual pilot profited even more, and since questions pertaining to Naval aviation are absolutely limitless, additional quizzes are being planned.

## Blast Routs Shivering Marines

### China Ammo Dump Damages One Plane

VMF-211, CHINA—An unanticipated reversion to wartime conditions was experienced by this squadron when an explosion of five tons of dynamite at a Chinese ammunition dump, sent rocks and debris flying over the airfield where the squadron planes were operating.

The only damage to planes resulted when a large rock crashed through the roof of the hangar where one plane was being repaired. The rock landed a few feet from the folded right wing and burst into pieces on the concrete deck. Several holes were knocked in the wing and the internal structure damaged in two places, necessitating a wing change.

The explosion occurred at 0630, shortly before reveille. Officers and men were quick to leave their bunks, some even neglecting to take along necessary clothing to protect themselves from the frigid winter weather outside.



## Navy School to Start New Class

### Intelligence Courses Open to Aviators

Planning to provide the Navy with a nucleus of highly trained Intelligence officers, the Naval Intelligence School at Anacostia, D. C., will convene a new class on 1 July of this year. All interested officers may apply as directed in ALNAV 552 of 10 Oct. 1946.

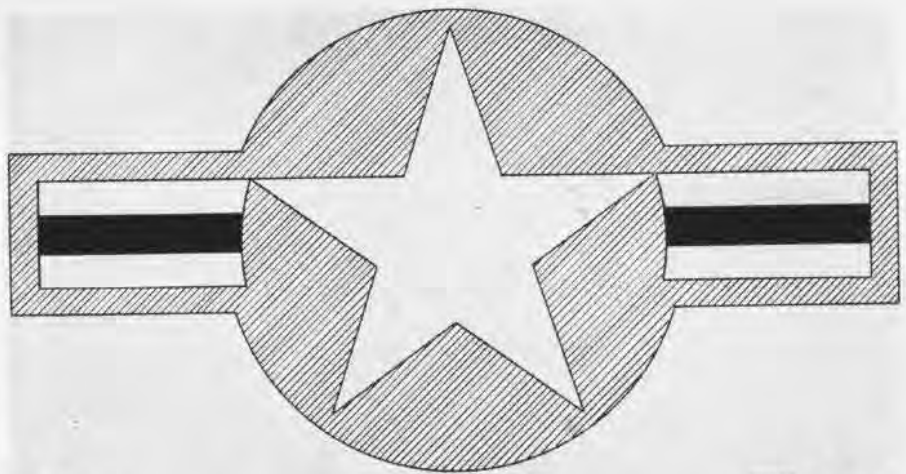
The school, which began operation last July, offers instruction in the basic fields of operational, strategic amphibious and air intelligence. Organization of the school was a result of experiences gained in the last war. A proficient and permanent Naval Intelligence organization is now recognized as a prime essential of modern naval warfare.

Approximately 50 Naval and five Marine officers are selected for the classes which convene every six months. These include Reserve Officers transferring to the regular Navy, and graduates of the Naval Academy.

Officers at the school point out that there is a definite need for those who have specialized in aviation. Although a select few will be classified IDO (Intelligence Duty Only), the majority will rotate between Intelligence duties ashore and regular sea duty billets.

After completing 30 courses covering a period of seven months, officer-students are divided into two groups to undergo 10 weeks' practical instruction at sea under simulated battle conditions. Two such groups are now on maneuvers in the Pacific and Atlantic.

Following the tour at sea, students return to the Intelligence School for intensive language studies. Each is required to master one language such as Spanish, French, German, Italian,



■ RED      □ WHITE      ▨ BLUE  
HORIZONTAL BAR OF RED HALVES RECTANGLE ON NEW NATIONAL INSIGNIA FOR AIRCRAFT

Portuguese, Russian, Chinese or Japanese.

Length of these courses will range from three months for Spanish to a maximum of 18 months for Chinese. This language study requires approximately 14 hours per day. Working individually with instructors, students practically live their chosen language, dispensing with English after the third day.

Some graduates will be assigned as Naval Attaches or Assistant Naval Attaches in foreign countries, where they can put their highly specialized knowledge of language and area to good use. Others will be assigned to the Fleet as Staff Intelligence Officers, and some will go into the Office of Naval Intelligence and to Naval Districts.

## Death Takes Lt. Gen. Roy Geiger

### Marine General Flew in World War I

The fifth Marine to wear the gold wings of Naval Aviation, Lt. Gen. Roy Stanley Geiger died Jan. 23 at the Naval Medical Center, Bethesda, Md. General Geiger was Naval Aviator No. 45.

At Okinawa, General Geiger became the second Marine in history to lead an Army when he became commander of the Tenth Army following the death in action of Lt. Gen. Simon Buckner, Jr., U.S.A.

General Geiger until recently was Commanding General of Fleet Marine Force, Pacific. During the Pacific war he was with the Marines during their fight for a toehold on Guadalcanal. Later he was at Bougainville, Guam, Peleliu and Okinawa.

In the first World War he flew against the Germans in France and received the Navy Cross for extraordinary heroism in action. General Geiger also had seen service in Cuba, Nicaragua, Panama, the Philippines and China.

## Army, Navy Alter Plane Insignia

### Red Coloring Goes Back onto Aircraft

By joint action, the War and Navy Departments recently approved changes in specifications of the National Insignia for aircraft. The new insignia, fourth since the beginning of the war, will again contain the red, white and blue colors so familiar before the war.

The amendment, dated 14 Jan. 1947, reads as follows: The national insignia shall be an insignia white five pointed star inside an insignia blue circumscribed circle with an insignia white rectangle. It shall be one radius of the blue circle in length and one-half radius of the blue circle in width.

Extending on each side of the star, the rectangle shall be placed so that the top edges form a straight line with the top edges of the two star points beneath the top star point.

The new insignia is to have an insignia red horizontal stripe centered in the white rectangles at each of the insignia. Width of the strip will be one-sixth the radius of the star. An insignia blue border one-eighth the radius of the blue circle in width will outline the entire design.

When the insignia is to be applied on a sea blue, dark blue or black background, the insignia blue circumscribed circle and the insignia blue border may be omitted.

## Blue Garrison Caps Out June 1

### AINav 15 Covers Only Male Personnel

After 1 June 1947 blue garrison caps or white garrison caps cannot be worn by male naval personnel. This ruling, issued in ALNAV 15 dated 16 January, is equally effective on reservists in training.

The blue and white garrison caps were authorized during World War II. Other uniform changes announced in ALNAV 406-46 are effective Oct. 1948.

## NAVIGATION QUIZ

### BRAIN TWISTERS

1. Which leg of an expanding square search, with uniform visibility, should be flown first?
2. With a compass heading of 126°, no deviation, var. 27°W, and 9° left drift, what course is your airplane flying?
3. Can a fix be obtained from a good set of local apparent noon observations?
4. An airplane maintaining 203 K G.S. and consuming 35 gals. of fuel per hr. has covered 500 nautical miles on cus. How much fuel has been consumed?
5. Relative to Ques. 4, at the same rate of G. S. and fuel consumption how much fuel will be required to continue the flight for 165 nautical miles?

Note - See *Air Navigator's Handbook*, NAVAER 00-80-32, for other interesting navigational facts.

(Answers on Page 40)

## Navy Harpoons Fly Over Mexico

### Four Squadrons Take Part in Air Show

VP-ML-6—This medium landplane squadron flew from Barber's Point to Mexico City, via Corpus Christi, to participate in inaugural ceremonies for the president-elect of Mexico in December.

Task Force 63, under Vice Admiral G. F. Bogan, was composed of four squadrons of Lockheed *Harpoons*. En route to the Mexican demonstration of Naval aviation honoring the new president, the squadron stopped at Alameda and then Miramar for training and staging before rendezvousing at Corpus to join the task force.

Admiral Bogan briefed the fliers, stressing the fact the mission was a rare opportunity for officers and men

of the Navy to act as goodwill emissaries for the United States. After a four-hour flight, the four squadrons landed at the 7,000-foot Mexico City airport, where they were welcomed by El Capitan Soto of the Mexican Army.

The following day all hands went sightseeing among the beautiful cathedrals, parks, and monuments which make Mexico City a tourist attraction. On 1 December, the inaugural parade was flown over the city. It was an excellent two-hour display of air power and formation tactics, and was well received by the civilian populace.

On completion of the Navy's part in the air parade, the Mexican Air Force put on a remarkable display of precise formation flying in P-47's, SBD's, J4B's, and SNJ's. The next day, all American pilots were guests at a

ceremony in which they were presented pilots' wings and honorary memberships in the Mexican Air Force, the first presentation of its kind in Mexican history. Awards were presented by Brig. Gen. Antonio Cardenas Rodríguez, chief of the Ministry of Aeronautics, who was host subsequently at a sumptuous buffet luncheon. More sightseeing filled the final day in Mexico, the squadrons returning to Corpus for dissolution.

## NATS Pilot Lands on Lone Road

### Brings PV-2 Down in Mountainous Vale

NAS ALAMEDA—Diving at 140 knots with both engines of his PV-2 dead, Lt. Ferdinand Howell of VRF-2 brought the big plane down to a perfect landing on a lonely country road in rugged country 50 miles west of Bakersfield.

Howell and his co-pilot Lt. (jg) J. Gaetzen prepared to make a belly landing in the only open terrain in the vicinity. When he leveled off he noticed a road and decided to put down his landing gear and bring it in there.

A nearby rancher witnessed the descent and a few days later a relief crew from Alameda flew the *Harpoon* off the rancher's newly-graded 2400-foot landing strip some distance away. The rancher, Dewey Wurling, also guarded the plane while the marooned fliers summoned aid.

## Wandering Barge Makes Target

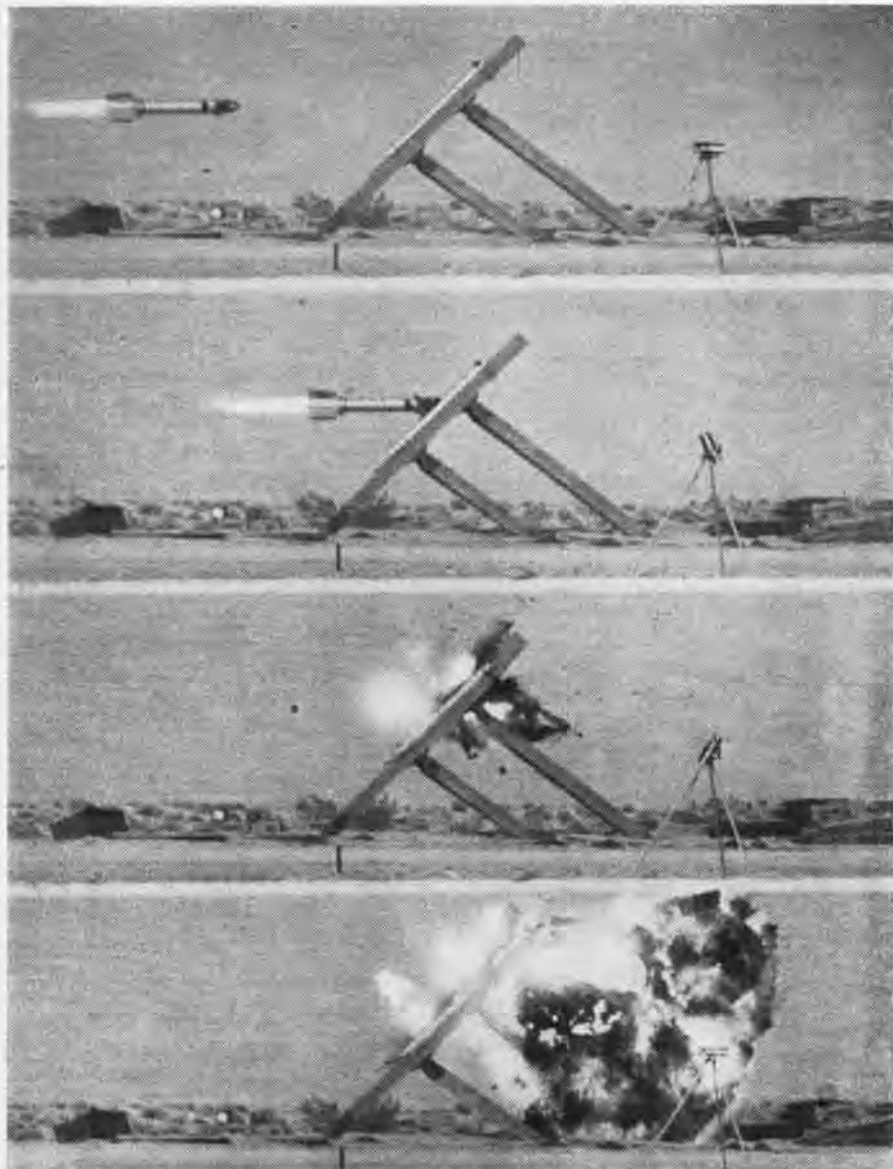
### Patrol Squadron Intensifies Training

VP-MS-3 PHILIPPINES—Though hostilities have long since ceased, this squadron still gets an occasional chance to fly a bombing and strafing mission. Recently three planes were assigned to search for a derelict barge some 300 miles north of Manila.

On the second day of the search, a crew on a routine navigation hop spotted the wayward barge 200 miles west of Manila Bay. Three planes loaded with depth charges and .50 cal. ammunition immediately took off and sank the barge.

Because of the nearly complete turnover of squadron personnel, the time involved in the first live bomb loading was far above normal. Each crew is now being checked out in regular practice sessions and loading time has been reduced by an average of 50 percent. Training will continue with supplementary lectures on fuzes, bombs and safety precautions.

Every two weeks one complete crew is sent to the Navy Fleet Rehabilitation and Recreation Center at Baguio, Luzon, P. I. The city of Baguio is the summer capitol of the islands and visitors enjoy horseback riding, bowling, movies and two 18-hole golf courses.



TERRIFIC POWER of the Tiny Tim rocket was recently revealed to the press in a special show at NOTS INYOKERN. Excellent series above shows the missile in its natural habitat, boring and exploding its way through three-inch armor plate and a wood bulkhead. Explosion following penetration of thick outer covering would play havoc with innards of ship or blockhouse. Revolving bar at right helps engineers time the rocket flight.



# AND THERE I WAS...



## Whose Leg Got Pulled?

IT WAS twilight on Guam and the air group was settling noisily into the routine of shore duty after a long trip from Pearl aboard a Jeep carrier. The boots were returning from the boondocks loaded down with loot and the more experienced aviators were loafing around the ammo case waiting for the beer to get cold.

To most of the pilots the war seemed far away. Several of them had been aboard a carrier which was sunk by torpedoes but there had been long rehabilitation leaves in the states. After that came a lengthy training period. Combat was still a few months in the future for the men who would make the first carrier strikes on Tokyo.

But inside the Quonset huts the tracers were flying. The veterans of the first tour were blazing trails of glory through the skies—all for the benefit of those who hadn't yet looked at a meatball through a gunsight.

Chili, so named because of his love for south-of-the-border menus, soon tired of the tales of heroism and decided to take the heroes down a notch. While Zeros dropped flaming into every corner of his Quonset, the young ensign picked up his portable phonograph. Selecting a record used to teach personnel the various shipboard battle alarms, he sneaked out of the hut unnoticed.

Several cans of beer later, the scene had changed to Rabaul and a tremendous battle was in progress over Simpson Harbor. One dauntless aviator was on his back at 8,000 feet about to squeeze the trigger when he froze in mid-air.

Through the window came the sound of a gong—general quarters—and a bugle blowing like mad—"torpedo defense!"

A Quonset hut has but one door. But when one of these huts is about to be torpedoed, that is no problem . . . the younger officers watched with mouths wide

WITH this issue NANews begins what it hopes will be a popular addition to the magazine. Since the war ended, sea stories have been flying so thick and fast, it was decided to run a few of them. If you have one, send it in together with the scrambled eggs from your commanding officer's cap and/or a short 12,000 word affidavit of authenticity from any naval aviator. Any stories concerning activities above 30,000 feet in positions other than horizontal must be accompanied by photographs.

open as the fearless plane drivers of the first tour headed for battle stations in the boondocks. The first and most senior did not even stop to open the latched door of the hut.

When they returned several minutes later, sheepishly silent, they discovered that the torpedo defense call had not been groundless. Only the beer cans had been torpedoed.

In a corner of the hut a phonograph was playing "Who's Sorry Now?" Its red-haired owner, horizontal on a cot nearby, sipped his beer and nearly choked as he concluded a dissertation to a tearful group of officers:

"Yessir that nervous old firehorse should have been pastured long ago, but he just couldn't resist an alarm. . . ."

## Prepare to Bail Out!

DOWN in the Islands the nights were long and the women were black, so the lads played poker and thought up new ways of harassing the island's Flight Surgeon—one Lt. (jg) Bradshaw.

The good Doctor flew occasionally, and one day he went along on a long and monotonous flight with a certain Lt.

Robert Hunt and his crew. Too bad!

About mid-morning the effects of the night before began to weigh on the Doc, so he hit the sack. The venerable physician was soon snoring gently in tune with the engines. Unfortunately, Big Bob happened to notice the Medico's serene countenance—the foul plot was on.

Instructions went out over the interphone and soon every man in the crew was in full emergency dress, parachuted, Mae Wested, with flares sticking out of pockets and a copy of *Shark Sense* in each hand. The plane entered the overcast and the starboard engine was feathered. Port engine was reduced to very low RPM and manifold pressure. All was quiet, for a moment—then all Hell broke loose.

The emergency alarm was spiked down, crew members began rushing along the catwalk roaring various hair-raising and colorful phrases, such as *Fire*, *Abandon Ship*, *Man Overboard*, *All Hands Away* and *Hit the Silk*. Everyone completely ignored the able man of pills in the lower bunk.

Now any man, no matter who, is at best somewhat excited at the prospect of leaving a plane in mid-air. But foul up his gear, scream bloody-murder in his ear and sound the gong; all just as he awakes from a deep dream of peace and the old blood pressure is apt to rise.

Doc's pressure was no exception. By the time he got back to the after-station helplessly entangled in his Mae West and parachute harness, and after having been shoved around several times by scurrying crew members, he was in no state to operate. He was, however, ready, willing and wanting to leave the airplane in a great hurry. It took Robert and two husky aides to keep him from jumping over the side.

When he was finally convinced it was all a hoax, the good Doctor said not a word. He just marched back to his bunk. Nor did he move until the plane was safely tied up at anchor in the lagoon. Then he roundly blistered the air with certain salty and profoundly profane observations after which he stalked away to his tent and didn't appear at the mess hall for two days. The moral of my story is: Some days it's entirely too wet to plow!



## Pilots Build Own Island Target

### Abandoned Cistern Becomes Bullseye

VF-1A—Rock formations jutting out of the sea will suffice as targets for bombing, rocket firing or strafing but leave a lot to the imagination when it comes to assessing hits or near misses, especially with miniatures.

Feeling themselves handicapped by lack of really good spot targets, pilots of this squadron did something about it. After a study of aerial photographs of proposed target sites in the area, Aguijan island, 35 miles south of Saipan, was selected.

Ten squadron pilots, equipped with rubber life raft, several guns and 25 gallons of white paint headed for the island in a picket boat. Arriving off Aguijan by mid-morning they discovered 100-foot cliffs that looked far more ominous from the sea than they had from the air. Close inspection revealed a landing spot, the island's only one it turned out later. Part of the group swam in and others came ashore with the gear in a rubber raft.

The climb up the cliff was tough but the real magnitude of the task became apparent when they reached the top. It took more than an hour of hard work to cut through dense vine-grown jungle before a clearing was found. Here they located a large covered cistern built by Japs that once occupied the island. Search for other sites was halted and all hands began applying white paint. The top of the cistern soon became a fine bullseye target.

The island's only inhabitants were swarms of king-size flies, yard-long lizards, herds of wild goats too wary to be approached, and some type of as yet unseen bovine animal that left large tracks about the island.

In the weeks that followed the Aguijan target served squadron training needs well.

## Pilot Can K.O. Passenger Pests

### Automatic DDT Spray Controls Insects

While aircraft are hailed as an effective means of destroying insects through wide-spread spraying of DDT, they also are blamed for the spread of infestation by giving quick transportation to hitch-hiking immigrant bugs.

This danger of disease bearing insects and agricultural pests being carried into the United States by aircraft is being combatted successfully with equipment developed by members of the U. S. Public Health Service and the Navy Medical Corps. Planes are debugged by the use of aerosols and residuals alone and in combination.

The spray equipment used on the interior of the aircraft during flight consists of a small cylinder containing



DDT MIST SPRAYS FROM UNIT, TOP LEFT

dispersal material and DDT which produces aerosol (fine mist), a solenoid operated shut-off valve, and a timer and counter—all combined into a single unit weighing about one-half pound. These units are located within the aircraft in various numbers, depending on the size of the plane, and are electrically connected to a switch on the pilot's instrument panel. When the pilot closes the switch, the aircraft is automatically sprayed with the aerosol, thereby disinfecting the entire interior of the airplane. The timer and counter are adjusted on each unit so that a killing amount of aerosol is dispersed throughout the space occupied by that particular unit.

Tests are being conducted to determine the number and location of units required per airplane, the amount of time each unit shall spray to completely immunize the cabin interior, the servicing requirements for the equipment, and the effect on passengers and cargo, if any. If the results of these tests prove this equipment to be effective it is expected that planes operating between the United States and other countries will be so equipped.

Work on insect control by spraying terrain with DDT from aircraft is continuing. (NANews, July 1946.) Thirty kits of equipment for aerial spraying from OV-1 airplanes are being procured under an Army contract, with delivery accomplished by BUAER Maintenance Division.

Fifty dispersal units for insecticide, Aero X1A, are being manufactured by the Naval Gun Factory. A manual of instructions for use of this dispersal unit has been prepared by BUAER.

## Aviation Units Win Navy Award

### Nine Cruisers Receive Commendations

Aviation personnel who were aboard nine cruisers during specific actions of the war are entitled to wear the Navy Unit Commendation ribbon for their part in the battles.

Awards were made to the *Birmingham*, *Honolulu*, *Philadelphia*, *St. Louis*, *Salt Lake City* and the four ships in Cruiser Division 12, the *Cleveland*, *Columbia*, *Denver* and *Montpelier*. The latter four ships won the award for outstanding heroism against Jap ships

off Empress Augusta Bay on the night of November 1-2 and the hostile air attack on the morning of November 2. VSO unit personnel aboard on those dates are entitled to the ribbon.

The *Birmingham* won its award in the Battle off Samar, October 24, 1944, when it fought to save the carrier *Princeton* which was mortally hit. The *Honolulu* award was for action in the Battle of Tassafaronga, Nov. 30, 1942; the battles of Kula Gulf and Kolombangara, July 5 and 13, 1943, and operations at Palau and Leyte, September 12 to October 20, 1944.

The *St. Louis* was honored for its actions at Kula Gulf and Kolombangara, and Philippine Islands campaign from November 15 to 28 and the Okinawa campaign from March 25 to 28. The *Philadelphia's* award covered action in the Mediterranean theater off Sicily and Salerno supporting amphibious landings. Heroism in the naval engagement of Kommandorski Island, March 26, 1943, off the Aleutians won the commendation for the *Salt Lake City*. It helped turn back a large Jap naval force heading for Attu and Kiska.

## Navy's Aviation Interest Is Old

### Roosevelt Enthusiastic Over Aerodrome

Just when the U. S. Navy showed its first interest in aviation is not known, but what may be one of the first documents showing official cognizance of the amazing new discovery of flight has come to light.

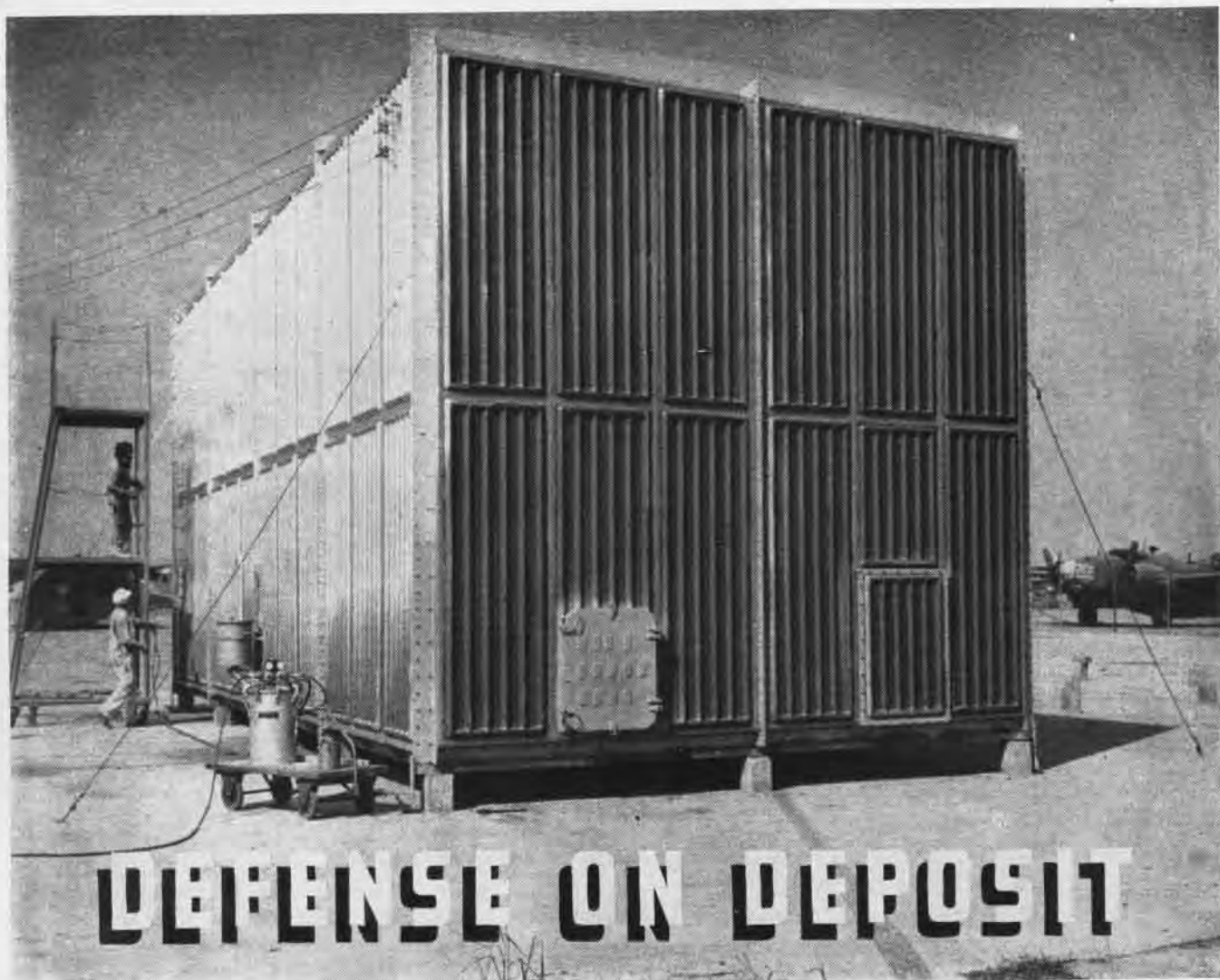
It is a letter written by Theodore Roosevelt, then Assistant Secretary of the Navy, on 25 March 1898 regarding Professor Samuel P. Langley's "flying machine."

"The machine has worked," Roosevelt commented enthusiastically in his letter to Secretary of the Navy John D. Long. "It seems to me worth while for this government to try whether it will not work on a large enough scale to be of use in the event of war.

"For this purpose I recommend that you appoint two officers of scientific attainments and practical ability, who in conjunction with two officers appointed by the Secretary of War, shall meet and examine into this flying machine, to inform us whether or not they think it could be duplicated on a large scale, to make recommendation as to its practicability and prepare estimates as to the cost. I think this is well worth doing."

The military moved fast in those days. A month later a joint Army-Navy board had investigated Langley's aerodrome, reported it feasible and recommended \$50,000 be allotted to help develop a larger model so designed as to be capable of transporting one man.





# DEFENSE ON DEPOSIT

SAFELY STOWED INSIDE RIGID STEEL CONTAINERS WITH CONTROLLED HUMIDITY, NAVAL AIRCRAFT ARE PRESERVED READY FOR USE

## EXTENSIVE TESTING PROGRAM DEVELOPS LONG-TERM PRESERVATION METHODS FOR AIRCRAFT

AT THE close of the war Naval Aviation had a large number of new and nearly new aircraft far in excess of peacetime needs. Anticipating the attrition rate and with one eye on economy, a solution to this problem had to be found. Aircraft replacement and economy would both be served if the airplanes could be placed in long-

DESICCANT BAGS AID IN INITIAL DRY-DOWN



time preservation and storage. Preservation, yes. But long-time aircraft preservation was something new.

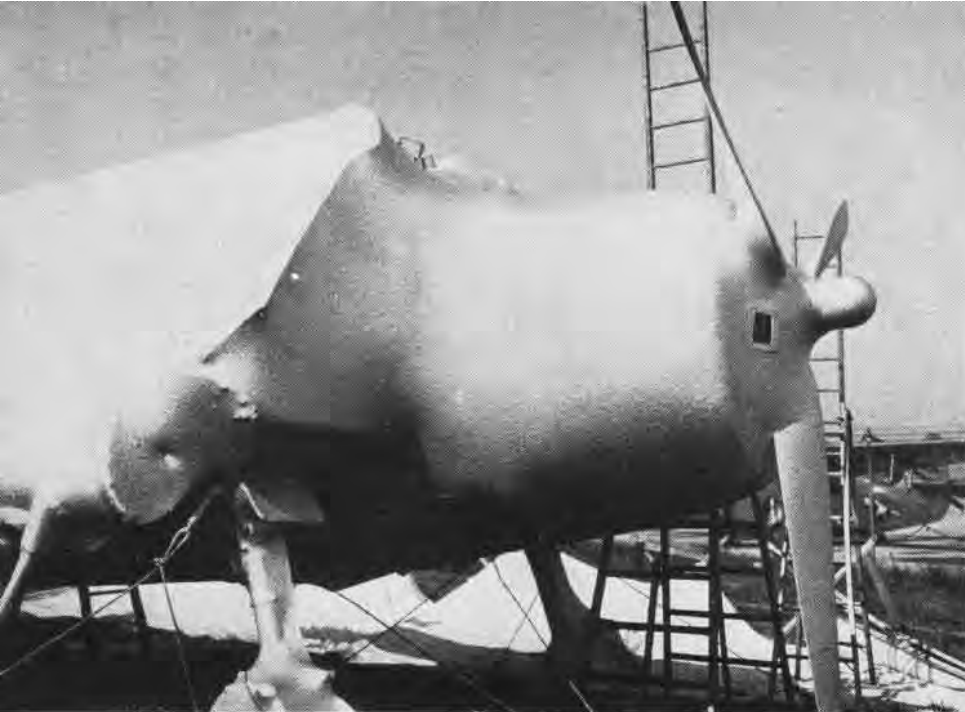
When the Bureau of Aeronautics Storage Program came into being to meet this need, an entirely new aspect entered the aviation spectrum, for large-scale, long-term storage of aircraft had never before been done in the history of aviation.

The Bureau of Aeronautics was directed to preserve and store, in direct support of the naval aeronautic organization, several thousand of these new and nearly new aircraft for a period up to five years. These aircraft, covering thirty types, are to be deployed strategically throughout the United States and are to be stored and maintained in as near a flyaway condition as possible.

Such a storage program required

research and new scientific investigations extending beyond the usual airplane maintenance problems. It is doubtful if there is any other one invention that incorporates so many different materials and so many dissimilar metals in its make-up as the airplane. And although the progress made by the aircraft industry has been rapid and spectacular—bringing East and West hours apart, overtaking and passing the speed of sound—yet, with all its speed, the airplane has never been able to outdistance its shadow, the shadow of corrosion and deterioration clinging to it at rest or in flight.

At the beginning of the long-term storage program, BUAEF was faced with two problems of considerable magnitude. The first was to provide immediate protection for the aircraft assigned to the storage pool; the second, to develop a method of long-term preservation. With aircraft coming in rapidly and the elements intent on making the most of it, planned strategy became subservient to quick action.



AN F6F HELLCAT RESTS IN ITS COCOON; PLEXIGLAS WINDOW SHOWS HUMIDITY INDICATOR

THE PROBLEM existing at the time the preservation investigations started was what to do with the aircraft in the meantime. This was solved through the expediency of what was termed "Interim Preservation" — increasing aircraft protection through enlarging and intensifying existing preservation methods.

Next came the problem of determining whether to disassemble the aircraft and store it in parts, or to attempt to store it intact in as close to a flyaway condition as possible. A thorough review of all long-term storage methods used by all agencies known to be active in the field was undertaken, with a view to adopting the method most practicable for aircraft use and to eliminate unprofitable investigation.

The information thus gained led to a basic approach in favor of preserving the entire aircraft intact. Laboratory reports established the theory that corrosion does not occur on metals maintained in a clean atmosphere of 30% or less relative humidity. Tests were made on a variety of materials subjected to clean atmospheres over the complete range of humidity. As a result of this review and a careful consideration of the types of deterioration that may be expected, it was decided that dehumidification was the most practicable method.

An early experiment during the first month of the program enclosed an airplane in a conforming wrap. This TBM (picture bottom of page 16) was wrapped with 65-pound Kraft paper and spray coated with 1/16 inch thickness of Protek-Coat, an as-

phalitic base material. The work was performed in December 1945 at NAF SOUTH WEYMOUTH, Mass. The temperature in the hangar was 10°. It was necessary to brush the pressure sensitive tape with gasoline to induce its sensitivity, impaired by the low temperature.

The preservation and storage program advanced rapidly, but not without initial grave misgivings, headaches, and voluminous pilgrimages into every phase of science and engineering. Laboratories within and without the Navy, with other government agencies and industry, were contacted, and every source of information exhausted before arriving at the present series

of tests being conducted at NAS NORFOLK. Norfolk was chosen at the exposure site for the over-all experimental program because of its wide variety of weather conditions accompanied by high humidity, and its proximity to Washington.

Two types of outdoor containers are undergoing tests, flexible or non-rigid barriers and rigid metal containers. The non-rigid barriers include those materials such as fiber-glass, aluminum foil and various scrimback metal foils, and plastic substances.

THE "COCOON," now undergoing tests, is a sprayed poly vinyl plastic strippable coat. This material is capable of great expansion and contraction, and when finished with an additional coat of a mastic compound possesses a low moisture vapor transmission rate. The material is rapidly stripped from the airplane in large pieces; it is estimated that two men can strip an entire fighter in seven minutes. The advantages claimed for the "Cocoon" type barrier are low cost, flexibility, ease of application and removal, as well as adaptability to irregular shapes.

The material is applied by spray gun. With several coats used over tape and webbing, the plastic material adheres to the outer contour of the airplane. The initial step is to bridge the gaps and voids with strips of tape to decrease the width of open spaces to 18 inches or less. The first coating is an aero-resingel compound which, when sprayed through the air with a spray gun, forms a heavy cobweb-like film which adheres tenaciously to the strips. The operator builds this up by successive passes of the spray until it resembles coarse cotton gauze in thick-

NORFOLK STORAGE EXPERIMENT AREA SHOWS BOTH TYPES OF PRESERVATION UNDER TEST





ness and in the structure of the material.

This first coat has little strength. Its purpose is to provide a continuous blanket over the entire aircraft to support the following coats of heavier and stronger plastic. Three successive coats of plastic, each one of a different color to insure complete coverage of the former coat, are applied.

This is followed by a coat of mastic material to give toughness, decrease the moisture vapor transmission rate (MVTR), and to prevent the ultra-violet rays of the sun from reaching the plastic coating. A final coat of Gilsonite, an aluminum pigmented material, is applied to reduce the heat absorption of the pack. The "Cocoon" has a tensile strength of 1,750 to 2,000 p.s.i.

After the "Cocoon" is completed, openings are cut in several places and silica-gel is placed inside for dehumidification. Plexiglas windows with humidity indicators attached are placed in the openings. The edge of the frame is sprayed again to close any openings and insure a weather-proof fit.

A variety of comparative tests are being conducted on maintaining the relative humidity within the enclosures. Desiccants such as silica-gel, sova bead, and dricoel are being employed as static charges. Varying weights and amounts of these materials are placed within the enclosure. The tests will determine the amounts required to reduce the moisture in the enclosure and maintain the desired relative humidity of 30%.

**T**HE RIGID containers undergoing test are being erected in several sizes. The knocked-down containers are furnished in sections of 10-foot wide corrugated steel panels. Each panel



COMBINATIONS OF CONTAINER UNITS CAN BE HOOKED UP IN SERIES UP TO 400 FEET LONG

has welded flanges on the vertical edges pre-drilled for bolts to facilitate assembly and bolting together in the field.

A container to house one F6F, or one F4U, or one SC, is 40 feet long, 19 feet wide, and 17½ feet high. Containers to house one TBM or one SB2C are 40 feet long, 24 feet wide, and 17½ feet high. Combinations of units are being hooked up in series in varying multiples up to 400 feet long. The multiple erection is accomplished by leaving the ends out of abutting containers. There are 21 containers, of various lengths and housing a total of 50 airplanes, undergoing a series of tests.

Vapor tight access doors are provided

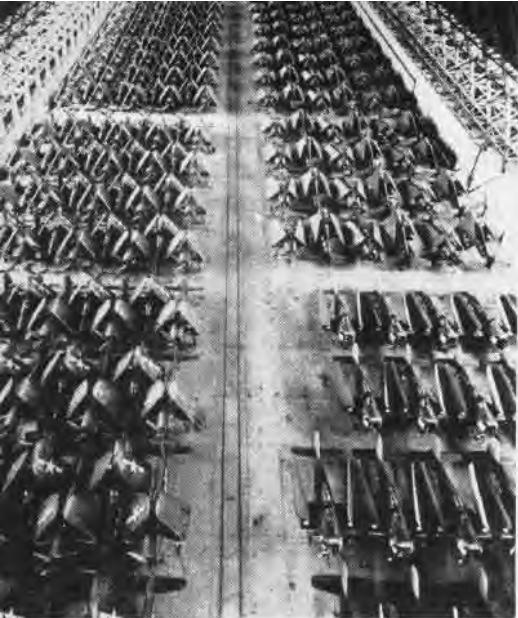
in each container to permit entry for airplane inspection. Glass inspection windows strategically located in the container allow interior readings of temperature and relative humidity to be recorded from the outside without the necessity of entering the container.

**S**O IMPORTANT is the information derived from the atmosphere within the test containers that readings are made hourly around the clock. Recordings also are made on data sheets giving the ambient temperature and relative humidity outside the container. The surface temperature of the container is also recorded. There are five instrument positions inside the 40-foot containers and 23 instrument positions inside the 400-foot containers. Readings are recorded from the temperature and relative humidity indicators located at each position.

Thus, on one 400-foot container during a 30 day period over 44,000 recordings are charted on data sheets. One can find the temperature at any hour at any of the 23 locations and can tell the humidity for any hour at any of the 23 locations. Every variance, every fluctuation is analyzed for portent and effect. An unusual change might indicate poor gasketing or faulty sealant. Or perhaps a static charge of desiccant at some given location reached the absorption point, or the dehumidification equipment may be performing inadequately. Compounds, insulation or coating may be performing badly. After containers are set up and readings become consistent over a given number of days, recordings are made at four hour intervals, continuing until tests are completed.

COMPOUND SPRAYED OVER NETWORK OF STRIPS OF TAPE FORMS A CLINGING COBWEB FILM





PART OF THE BACKLOG AWAITING STORAGE

THE VARIOUS methods of dehumidification are being carefully watched and are being compared for effectiveness, performance, and cost. Of the methods and combinations of dehumidification being tested, both static and dynamic and combinations of the two have proved highly successful.

The static method consists of using a desiccant, or drying agent, such as silica gel, sova bead, or driocel without aid from any mechanical equipment. The desiccant, able to remove large quantities of moisture from the air, is distributed at selected spots throughout the aircraft and container.

The dynamic method depends upon the use of mechanical and electrical equipment in the form of a dehumidification machine. Such equipment circulates and re-circulates the air throughout the container. The machine contains a charge of desiccant, usually silica gel. The principle of operation follows two definite cycles, the adsorption cycle and the reactivation cycle.

After the aircraft is placed in the container the adsorption cycle starts. Drying of air within the container is brought about by sucking the inside air of the container through a filter in the dehumidification machine, on past a circulating fan that drives the air through a bed of desiccant. The desiccant removes the water from the air. Once the machine is set in operation it continues automatically, but the desiccant never reaches its saturation point. This is because the second cycle, the reactivation cycle, goes into operation. During the reactivation cycle, outside air is drawn in through the machine, is heated and forced through the desiccant bed where it picks up moisture and carries it off.

To prevent build-up of pressure (or

vacuum) in the container, several types of breathers have been installed and are undergoing tests.

Individual and scheduled combinations of sealants, coatings, atmosphere recording instruments, desiccants, and dynamic dehumidification equipment are undergoing comparative test evaluation on, and within, the containers. Skin temperatures and radiation tests are run. Surface cooling data are being recorded on water cooling equipment which simulates rain and is controlled by an automatic valve for varying the spray. The simulated rain is so controlled that the water evaporates from the top and sides of the container instead of running off on the ground.

Other types of roof cooling and insulation in connection with coatings, paints, sealants and gasketing material are being tested for ageing characteristics. Individual leakage tests are made and the complete container is pressure tested. Foundation technique and terrain preparation are also being compared during the program for effectiveness and cost data. Several types of recording instruments are being tested, and evaluation made of their efficiency over the entire temperature and humidity range.

CONSIDERING all the aspects of preservation, storage, and controlled relative humidity, there remains one unknown factor in the long term preservation and storage of aircraft. This is the condition of organic materials: rubber, plastics, oils and greases, paper and wood, fabric, leather, glue, felt, etc. The ageing characteristics of these materials are not the same, and in some instances have not been fully established.

It has been the experience of the past that when dissimilar materials made up an assembly, preservatives could not be expected to carry the burden of protection, and if used might actually harm some of the materials. For instance, an oil or grease which may be used as a preservative for metal, an inorganic material, would definitely harm and cause deterioration of rubber, an organic material. But under the present program, where former preservatives will be held at a minimum, and supplanted by the new major preservative of a controlled humidity, the normal life expectancy of some organics may be extended beyond their present service. At the end of the five years the program may well contribute new data on aging characteristics of organics, now gravely lacking.

Another incompatible condition in the preservation of dissimilar materials

is that inorganics require a safety factor of 30% or less relative humidity, while some organics thrive better on a slightly higher rate. Too low a relative humidity would deprive some organics of their natural moisture content, without which they could not live. The over-all scientific data have indicated a relative humidity range of between 20% and 30%. This is based on the maximum protection that is considered necessary for the most critical items of the plane.

Such installed items as generators, instruments, and electronic equipment cannot be preserved by oils or greases. And although their initial corrosion rate is slower than some materials, there is a point at which their deterioration is greatly accelerated. These critical items constitute approximately one-third of the aircraft's original cost. A controlled, dehumidified atmosphere will preserve this material.

THE NORFOLK tests have progressed to the point where it has been determined that rigid containers with dynamic dehumidification and combinations of static and dynamic dehumidification are satisfactory for aircraft in long-term preservation and storage. Before termination of the entire test program, sufficient data and working knowledge will be had to enable the erection of rigid containers at the selected storage points. BuAer representatives have been stationed at the potential storage points for the past several months. Detailed instructions will be given personnel at the storage points under an established indoctrination program conducted by these representatives.

At the close of December 4,000 aircraft were in interim preservation under covered storage provided by the various lighter-than-air hangars located along the coastal areas. Before long a portion of these aircraft will start moving into a permanent storage status.

FIRST EXPERIMENT USED PAPER WRAPPING







ALWAYS AN AIR ADMIRAL, MARC A. MITSCHER WENT ALOFT IN A HELLDIVER TO WATCH THE OPERATIONS OF HIS EIGHTH FLEET

# MARC A. MITSCHER, USN



**F**EW OFFICERS in American history have crowded so much action and so many honors into one career as did Admiral Marc A. Mitscher.

During the years of bitter naval combat in the Pacific, his name and the words "fast carrier task force" came to be synonymous. Carrier forces led by Admiral Mitscher gained and maintained control of sea and air up to the very shores of Japan.

Worn and obviously weary from those long and exhausting Pacific campaigns, Admiral Mitscher died at Norfolk Feb. 3, just one week after observing his sixtieth birthday. Listed as Naval Aviator No. 33, Admiral Mitscher was graduated from the Naval Academy in the class of 1910 and completed flight training at Pensacola in 1916.

His biography reads like a history of naval aviation. In 1919, for piloting the NC-1 on its long overseas flight from Newfoundland to the Azores, he was awarded the Navy Cross, the first of three such awards received during his career. His other assignments between wars included tours as commanding officer of NAS ANACOSTIA, air officer on the *Saratoga*, exec of the *Langley*, commanding officer of the *Wright*, and commander of PATROL WING ONE. He commissioned the old *Hornet* just two months before Japan struck at Pearl Harbor.

Then a captain, he commanded that ship when she carried General Doolittle's B-25 raiders into Japan's home waters for their famous Tokyo raid. Seven weeks later he skippered the *Hornet* through the Battle of Midway. Later as commander of a carrier division Admiral Mitscher contributed directly to the success of the Marshall invasion.

It was early in 1944 that he took command of the now famous "Task Force 58." For the next six months his carriers ranged the Central and Western Pacific striking the enemy hard and often, cutting away Japan's defensive ring.

Early in 1945 Admiral Mitscher's carriers began a series of operations that led them deep into Japanese waters in what proved to be the beginning of the end for that island empire.

With the Pacific war nearly over, Admiral Mitscher on July 10, 1945 returned to the Navy Dept. as DCNO(Air). His tour of shore duty was brief, however, and in March 1946 he became Commander of the Eighth Fleet. In September he became Commander in Chief of the Atlantic Fleet, the command he held at the time of his death.

MITSCHER WITH PRESIDENT TRUMAN ON BRIDGE OF THE FDR





COMDR. DAVID MCCAMPBELL USN DISPLAYS 34 JAP FLAGS TO ADM. EWEN, RESERVE HEAD

stationkeepers and twenty-three additions to the Organized Reserve.

We note with interest that the NARTU MIAMI Basketball team has been organized and has entered the YMCA league and is now participating in the regular games. They always win first quarter in all games. (Ed. Note: What happened to that pre-flight endurance? Or Wine, Women and Basketball.)

● **NAS NEW ORLEANS**—A station recruiting Committee of nine officers was formed to speed recruiting for the Organized Reserve. The drive was given good play in newspapers and the radio. Classified advertisements beamed toward inactive enlisted men and non-veterans obtained good results. The personal contact work of officer and enlisted personnel received splendid results after being coordinated. Personal contacts with prospective stationkeepers have proved excellent and during the month of December one hundred fifty-eight men have been enlisted in the Reserve program including sixteen Marines.

## PUBLIC INFORMATION BEST RECRUITING OFFICER

THE VALUE of publicity cannot be overemphasized, whether in a campaign for selling soap or to swell the ranks of the Naval Air Reserve.

Proof that as your newspaper print index goes up, your stock goes up with it is this month's news from NARTU SAN DIEGO.

As a result of an official survey being conducted to determine whether or not that Unit should remain in San Diego, a rash of front page publicity broke in local papers. In addition, the Public Information Officer and the Commanding Officer of the station were invited to speak before the Chamber of Commerce and the Junior Chamber of Commerce. Public interest perked up considerably and a very noticeable increase in squadron enlistments over the preceding month was noted; this was attributed directly to the wide publicity received.

This might have been considered negative publicity, but it received positive results. Keep hitting the front page.

Los Alamitos NARTU directs our attention to another example of "publicity results." November 24, 1946 This Week Magazine ran a story on "Sunday Fighter Pilots." Sixty-one letters of inquiry from twenty states and the District of Columbia were received. Fifty-two of the letters requested information on station-keeper duty, with the remaining nine directed toward membership in the Organized Reserve.

Get the name spelled right and get the name in the newspapers!

The Reserve station at St. Louis, Missouri, did an outstanding bit of

advertising when they got the Naval Air Organized Reserve on the weekly street car pass of the St. Louis Public Service Company. Two hundred and ten thousand passes were sold each bearing the Organized Reserve ad. Results are already apparent, and are bound to continue.

● **NAS MINNEAPOLIS**—Former NATS personnel are eager to join newly organized units. When VR-69 was commissioned on 2 December at this station, a full complement of former NATS pilots were available for the squadron.

This VR unit will have definite weekend schedules to major airports in the vicinity. On these trips the unit will pick up organized reserve enlisted men who will participate in drills at the naval air base and so have an opportunity to participate in the reserve program.

● **NAS OTTUMWA**—In conjunction with the new Aviation Midshipmen program, one hundred and forty five Aviation Cadets were sworn in as Midshipmen, on 14 December, 1946 at this station. An additional two hundred three were sworn in on the 17th and forty three more after that date. Aviation Cadet attrition is reaching new lows with only one being dropped during the month of December on this station.

● **NAS MIAMI**—Florida is one spot where winter weather isn't affecting hours in the air. December saw a new high in flight time set at this base, with active and inactive pilots flying a total of 1082.6 hours during the month.

Marine organized reserves bounced from 35.6 for November to 146.1 in December, an increase of 110.5 hours or about 400% Not bad!

Recruiting is driving ahead in the land of sunshine. They collected nineteen new

● **NAS COLUMBUS**—Despite bad weather and the December Holiday weekends, the station's reserve pilots logged a total of 957.4 hours during the month.

Stunting at low altitude caused the death of two Reserve pilots on 8 December, and brought with it the usual bad publicity. A front-page editorial labeled "Warning to Columbus Reserve Flyers" contended that Army and Navy Reserve pilots didn't get to fly often enough to do so without hazard to themselves. The same paper carried a rebuttal from a Station officer a few days later, in which the fact that the accident was due to a deliberate violation of safety flight regulations was brought out. However, some damage was irrevocably done to the program as well as the loss of two pilots.

The station released to press and radio a request by the Commanding officer that local residents report any low or abnormal flying by Navy planes. The CO also reviewed the drills in flight safety and air discipline which all pilots received, and the punitive recommendations made by boards of investigation against pilots found guilty of violating air discipline. **STRESS THAT SAFETY PROGRAM.**

● **NAS FLOYD BENNETT**—A squadron of Instrument Instructors has been formed, composed of Volunteer Pilots with Commander R. A. Proctor of St. Albans, New York in charge. The squadron has 32 former instrument instructors who are volunteering their services every weekend to instruct and assist pilots in obtaining their red, white or green cards.

All Naval Aviators attached to Naval Air Station, Floyd Bennett area required to have four hours Link time per month, which keeps them abreast of the latest changes in radio and instrument procedure. During December, one hundred sixty-six hours were logged in the Station Links and forty aviation training films were shown.



● **NAS OLATHE**—An Open House was held aboard this station for all school children in the Greater Kansas City area on December 7, 1946, the fifth anniversary of Pearl Harbor. An air show, dummy parachute jumps, continuous movies, jeep rides, and various exhibits were among the special features. Steel ramps were drawn alongside each plane so the youngsters could make their own inspection of the cockpit.

● **NAS NORFOLK**—One hundred sixty-four stationkeepers have been recruited aboard. This is 84% of the complement allowed. 78% of the allowed ratings of second class and above have been recruited and 90% of the allowed third class and below. The old standby system of "Passing the Word," has proved the best medium for the Enlisted Recruiting Program. Many men that have signed up have never been on our mailing list or discharges.

An increased amount of interest has been shown in the Marine Organized Reserve in the past few weeks as a result of a series of newspaper articles and two to three radio spot announcements per day over the Norfolk radio.

● **NAS ANACOSTIA**—Much publicity was gained during the month of December by having numerous social and athletic events for both the organized and stationkeeper reserve. The local newspapers collaborated with the Naval Air Reserve Training Unit by using all press releases. Two radio releases were sent to eight local stations with results of approximately forty-five broadcasts made.

With the return of the instructors from NATTC MEMPHIS, this department has increased its man hours of instruction over the preceding months and has established a training program for the enlisted personnel of the organized reserve. The instructors are fully utilizing the two Eastman Kodascope projectors and the strip film projectors recently procured. The two projection rooms have been in constant demand.

● **NAS WILLOW GROVE**—An amateur radio station which will offer continuous service

to men in the reserve program, is being established. World wide amateur communications should result with NAS WILLOW GROVE becoming known far and wide. The problem of procuring identification tags was overcome by Naval Shipyard agreeing to stamp sufficient tags to take care of the need. Addressograph plates will be used, attached to the article with a new type cement. This will result in a big saving as bids received from contractors to furnish tags ran as high as \$1,000.

Commencing in January, movies will be shown in the afternoons on weekends. This should serve as an additional inducement for wives and children to accompany their husbands to the station on drill days.

87% of the allowed complement of stationkeepers have already been enlisted or re-enlisted aboard.

Marine Fighter Squadron 451, now a Reserve Unit stationed aboard at this activity received a Presidential Unit Citation for duty aboard the U.S.S. *BUNKER HILL* from 16 February 1945 to 11 May 1945, during which time this squadron was part of the Marine Air Group aboard.

● **NAS MEMPHIS**—Newspaper space for December included 161 column inches in daily papers in this area. A single want ad in the Memphis newspaper brought ten inquiries and resulted in several men enlisting for stationkeeper duty. A series of ads are being planned for January.

Flight time at this base decreased less than 1% during December despite inclement weather. Reserve pilots flew a total of 490.1 hours while station and attached personnel flew 2110.8 hours during the month.

NAS colored personnel played host to the NATTC colored personnel at a party in the colored recreation hall on December 6. Approximately 100 people enjoyed the party. Soft drinks and a buffet supper prepared by the commissary were provided.

The Naval Air Station, Memphis, was the only naval activity in the Eighth Naval District to remain within its assigned communication appropriations for the first half of the fiscal year, 1947. Communications

expenditures were reduced 63% from July 1st to December 31st.

● **NAS OAKLAND**—In an effort to eliminate "Dilbert stunts," pilots who make them have been assigned duties parallel to their mistakes. A pilot who landed with wheels up was assigned the flag watch at the end of the runway. A pilot who damaged a plane was assigned to aircraft maintenance to help repair the damage.

A questionnaire requesting pilots to indicate the best time for the two weeks training period shows the dates from 6 February to 20 February to be the most popular.

● **NAS ATLANTA**—Reports so far received on two weeks active duty for the Organized Reserve indicate a need for allowing some officers and men to perform their two week duty in small groups. About half of the high schools in and around Atlanta were visited by the Public Information Officer together with the Technical Training Officer. Leaflets explaining the program for 17 to 18½ year old boys were given out and talks made to interested groups in several of the high schools. An attempt was made to get the science teachers interested in the program as well as the principals of the schools. Several of the teachers of scientific subjects made appointments to come out to the station and bring members of their classes after school re-opens following the Christmas holidays. Twenty-three boys have been given the AQT test and seventeen passed.

● **NAS SQUANTUM**—On 5 December, seven planes from NAS Squantum assisted in the search for Paula Weldon, missing Bennington College student, who vanished in the hills on Sunday, December 1. Rescue personnel was fully equipped with emergency equipment of all kinds, including medicine and food, flares and skis, and were ready to jump had anything been sighted. Radio and Press in the First Naval District carried wide and very favorable publicity on the "volunteer Rescue mission," especially in respect to the Organized Air Reserve. Classified advertising is still being used to augment the recruiting program. It has proved very successful in the past. A contest opening 15 January will award prizes to those members of the Organized Air Reserve that recruit the greatest number of new personnel.

● **NAS GROSSE ILE**—The number of enlisted stationkeepers aboard the station increased from 208 on 1 December to 296 on 31 December, bringing the total onboard enlisted men count to 314.

The final air show of the 1946 season was presented at Toledo, Ohio, on 7 December by a formation of planes from this station. During December Inactive Reserve pilots flew a total of 781.6 hours.

**NATSLANT**—Ers. L. A. Giovanetti, NATS ferry pilot, runs way ahead of the proverbial traveling salesman for being on the jump. He left San Diego on 31 October with a TBM and got back to North Island 36 days later after being on the go continuously, delivering three planes.

IT PAYS TO ADVERTISE: ONE METHOD THAT SWELLED THE RESERVE RANKS IN ST. LOUIS





EXCLUSIVE ROPE ROOM WAS BUILT BY OFFICERS OF VA-1A FROM JUNKED MATERIAL; ELECTRICAL GENIUS MADE AN ICE MACHINE

## ◆ SAIPAN... Pacific Playground

PEACE has returned to the Pacific. In the minds of inhabitants of the tropical islands the noise and terror of war has receded far into the almost forgotten past.

Life on the sun-drenched isle of Saipan, however, has not sunk into a dull peacetime routine. At least, not since Attack Carrier Air Group One moved ashore.

With each pilot's flying time restricted to a maximum of 35 hours per

month, both officers and enlisted men find considerable time for the pursuit of outside interests. Since interests normally pursued in the States are lacking, these extra-curricular activities range all the way from rebuilding Quonset huts to sweating out a shipment of new auto spark plugs.

Most popular pastime is beautifying living quarters. The litter and junk left by the war offer all manner of materials for attaching patios or porches

to Quonset huts. Erecting awnings and landscaping the grounds with coral walks and fancy brick patterns has worked wonders.

In the patios are numerous barbecue pits, some almost professional in appearance. Others consist of an empty oil drum mounted on a few bricks to raise it off the ground.

Seated comfortably under tarpaulins which ward off local showers, members of the air group (formerly CAG Four) enjoy light snacks or full sized meals prepared by men who loudly compare their cooking abilities with those of "Oscar of the Waldorf." Steaks, chops,

ENLISTED MAN'S BIKE WAS ONCE PART OF SEVERAL JUNK HEAPS



SAIPAN SEDAN, 1947 MODEL, HAS DELICATE AND RUSTY INNARDS







SAILORS' DAY OFF; GROUP HAS A LARGE FLEET OF SMALL BOATS



FLIGHT GETS BRIEFED IN QUONSET FOR HOP FROM KOBLER FIELD

the delicious longusta—a member of the lobster family—and any other food which falls into the wrong hands meets its fate here.

For those less inclined to siesta, there remain other interests. There are innumerable jeeps on the island, but to obtain one taxes the ingenuity of every potential owner. The usual procedure is to scour the boondocks until a junked jeep is discovered amid the rubble.

It has been estimated, unofficially, that twice the maintenance time is required to keep a jeep flying than is needed for a carrier plane. Assembly of garnered parts usually produces a vehicle which will tick.

Squadron paint shops have been set up to give the jeeps an identifying color scheme and protect them from the ravages of tropical humidity. Too often, the case has been "Ashes to ashes and Jeeps to rust."

Equipment of all types may be procured on the island, if an individual

looks hard and far enough. No one can pinpoint the location of all material, but by cross-checking against a fellow "scrounger," suitable junk can be located.

The verb, "to scrounge," may be a new one. On Saipan it means "to search for anything that might possibly be used or traded to advantage at some time or another." There are scores of abandoned camps that offer a multitude of articles which can be renovated—tables, chairs, rusted tools, junked motors (for homemade boats), electrical gear and building supplies.

**A**LTHOUGH the scrounged material sometimes has doubtful value, the young minds in the Air Group can not stand to see equipment rusting and deteriorating in the jungles.

On the athletic side, the spirit of pertinent directives has been enthusiastically complied with. Lt. Comdrs. and above have formed a "brass" softball team and each squad-

ron has formed two such ball clubs.

At present the "Brass" team is the hottest thing in the league. The squadrons have also formed an enlisted men's league, with interest running high. Other athletic activities include horse-shoes, swimming, touch-football, tennis, basketball and golf on the local nine-holer.

Probably the most strenuous form of athletic endeavor is that shared by the scroungers. A man will work for 10 hours, sweating blood and tears to get a rusty jeep back to camp in order to salvage a few parts. Needless to say, all hands have an excellent tan.

Despite all this activity, education is not slighted. Some members of the group attend evening courses at "Saipan University" for language, mathematics, refrigeration and clerical subjects. Others are hard at work on their Naval Intelligence Correspondence Courses and all are managing to remain well up on all the latest stateside literature.

BRASS OUTFIT WON SEVEN-TEAM LEAGUE, DEFEATED ALL COMERS



OFFICERS AND ENLISTED MEN PICNIC AT GROUP'S BARBECUE PIT



# LOONEY GOONIES..

The following humorous dissertation about the gooney birds, found only at NAS MIDWAY, is reprinted in part from *NATS Packet*. It will recall fond (?) memories to all Naval aviators who stopped at that garden spot of the Pacific.

IN HIS recent book, comedian Joe E. Brown remembers that "everywhere I went in the Pacific I was the first comedian to entertain the boys. Everywhere but Midway. The gooney birds were there ahead of me."

And for years the huge albatrosses have been entertaining service personnel on Midway.

As far as anyone knows, Midway—1,134 miles northwest of Honolulu—is the only home the goonies have. They are "at home" from September—the mating season takes place in November—until late February, when they go on patrol.

In addition to being dignified, the goonies are ceremonious characters. Their mating begins with the "gooney dance,"—an active affair sometimes involving eight or 10 couples—consisting mainly of raising their heads to the verticle and then lowering them to the ground. This is accompanied by a whinnying noise—and much clacking of bills. Sometimes the jokers just stand around and clack bills.

The male gooney trades off with the old lady in sitting on the eggs, which are large white and brown jobs. Relieving the watch on a gooney egg is also accompanied by ceremony—mostly bowing and bill clacking. While he sits on the nest, the gooney spends his time by picking up grains of sand and packing it around him. Thus the nests grow into little mounds.

When junior arrives, he is just like his old man. He just sits and looks around. Most of the time you have to stop your jeep and move him out of your way so you can go on.

He seems to learn slowly. Although NATS planes have been stopping at Midway for several years—affording plenty of object lessons—it takes a long time for the kids to check out on aerial flight.

Baby goonies enjoy being tossed into the air—fat, dumb and happy—just flapping their wings enough to get a cheap thrill. When the pilot chops the gun, they spin in, squawking at the injustice meted out by the Navy pilot.

The gooney also is independent—he does what he wants to in the matter of takeoffs and landings, and often completely ignores the traffic pattern. Hence there are gooney bones all over the place.

When he gets ready to take off, he just takes off in the direction he happens to be facing at the moment. If it's downwind, he lumbers along for blocks, often ground-looping or going full tilt into a sand dune. He'll get up, shake the sand out of his feathers, and look around with that "who pushed me?" attitude or to see if anyone's watching him. But when he's ready to try again—he still ignores the wind direction.

Often the gooney will start his take-off run in the lee of a building. About the time he is airborne he emerges from the shelter of the building and goes into a side slip and crashes because of the cross wind. When that happens, he'll usually walk back to the starting point and try again.

When the goonies come in from patrol, there are dozens of pileups—caused by failure to drop their landing gear as they come in to land. But this is understandable, since it has been months since they have made anything but a water landing. Once back on Midway, however, they practice their landings and takeoffs.

ONE DAY, Dave Grether and Herb Wagner—those two NATS scientists—watched a large white gooney trying to take off in a gale. He chose as his runway a quiet spot behind a large sand dune. After a long run, he'd rise just exactly to the height of the hill—then the burble would catch up with him. And he'd spin in. He tried four times before he finally gave up.

Another time the naturalists watched a gooney who had chosen a roof for



A COUPLA CHARACTERS TALK THINGS OVER

his bounce drill. He'd start from one end of the roof, take off, than land at the other end. Then he'd walk back to his starting point and try it again. He was so engrossed in his practice that he forgot where he was. When he decided to knock off field operations for the day, he stepped off the end of the building and landed two stories down on his duff.

Once they are airborne, however, it's a different story. Their flight is one of the most beautiful of natural sights—graceful and sweeping. Sometimes they brush the water or the earth as they go into a graceful turn. After three months at sea, they are sleek and fat as they return to Midway to breed and entertain the servicemen.

## Marine Pilot Has Chilly Night

### Stray Bullet Causes China Incident

VMF-218, CHINA—The Great Wall of China, which is the northern boundary of the Marine zone of operation, was not enough to keep one of our pilots from getting a little insight into how things are run on the Manchurian side of the tracks.

A ricocheting .50 caliber slug from his wingman's guns, which pierced the left oil cooler of his F4U-4, caused First Lieutenant S. W. Reese of this squadron to search anxiously for an emergency field when his oil pressure failed. The *Corsair* division had been practicing strafing on smoke bombs off the coast of the northern portion of our zone of operation when the mishap occurred.

Returning to the coast, Lieutenant Reese spotted a strip just north of the Great Wall and was able to effect a normal landing with power, although his oil pressure was down to 10 pounds. Had he been aware of the leak before losing all his oil, use of the oil cooler shut-off would have forestalled the necessity of a forced landing.

He was greeted by numerous local Chinese, and was uncertain as to their sympathies in regard to the present conflict. However at sundown the arrival of about 100 Nationalist troops allayed his uneasiness on that score. A Marine detachment was dispatched from our outpost at Chin-Huang-Tao, twelve miles to the south, and arrived at 0100 after a forced night march to guard the pilot and plane.

Oil was flown to the strip the following day and the Lieutenant flew the aircraft back to the base with the left oil cooler shut-off in operation—none the worse for his experience of having been one of the few Marines north of the Great Wall except the memory of a very uncomfortable night spent by his plane in pouring rain and chilly night temperatures along the China Coast.



# AFLOAT AND ASHORE

**NAS TERMINAL ISLAND**—Although on a reduced operations status, this station provides full-time services and facilities of a class "C" A&R department. Station aerologists provide weather forecasts and advisory storm warnings on a 24-hour basis, a service important during winter when violent "Santa Ana" storms hit the Pacific. FASRON-202 is based here, supporting an average of 25 SC-1 aircraft from the fleet.

**VA-2A**—Based at Kobler Field, Saipan, during most of December this squadron decided to do something about the lack of communication between ready room and line shack. Poles were driven into coral where trees were unavailable and wire was strung by driving a jeep through the shoulder-high sugar cane. Two battery-operated telephones, salvaged from discarded materials, were installed and the telephone system was in operation. While the crank type telephone system lacks the interesting conversations usually associated with a country party line, it does keep the squadron duty officer informed on latest status of planes and the line advised of changes in flight schedules.

**NATS PACIFIC**—A Hawaiian-bound NATS plane teamed up with a Navy destroyer in an effort to save the life of a Coast Guard seaman, stricken with appendicitis aboard the *Minetonga* about 1,000 miles off California. The *N5D* turned off its regular course, flew down within 500 feet of the ship, and dropped a container of penicillin just as the seaman was being transferred aboard the destroyer.

**NATSLANT**—Modern transport planes are pretty rugged, but one NATS *N5D* took a beating when it met head-on with a vulture in midair. What was left of the vulture was found inside the #1 main tank, which was leaking gasoline through an 8x12" hole when it landed at Patuxent. The bird tore through  $\frac{1}{8}$ " of rubber de-icer boot, .05" of Dural skin, two Dural extrusions and one heavy hat stringer before it got into the gas tank proper.

**NATS ATLANTIC**—If you want to see the world, or at least North America, get assigned to VRF-1 and deliver PBM's. Here's how it worked for Lt. Cmdr. Patriek J. Byrne and his seaplane crew: On 3 Dec. they departed Weeksville on the East Coast and five days later arrived at Seattle. On 12 Dec. they were aboard another PBM headed for San Diego. By 14 Dec. they had reached Coco Solo. En route home for a Christmas holiday in Norfolk they paused long enough to deliver an R4D from Jacksonville to Quonset. Box score: 14,450 miles flown, 4 PBM's delivered, and 88 flight hours logged.

**NAS JACKSONVILLE**—Rain plays hob with the paint job on the Navy's experimental jet FD-1. When Lt. Cdr. W. W. Kelly flew it down to Miami for the All-American air show, he ran into a rain-storm. The drops peeled the new lacquer off the leading edges of the wings. Kelly made the 325-mile trip in 42 minutes.—*Jax Air News*.

**NAS TILLAMOOK**—This station was a naval establishment afloat for a time this winter. Nineteen inches of rain fell in one week, forcing rivers and creeks over their banks and flooding portions of the station and surrounding territory under water up to five feet deep. The air station itself was undamaged.

**NAF HONOLULU**—A crashboat crew from this station recently proved themselves super-efficient when they rescued a crew three minutes after they ditched their plane in the seaplane landing area. A civilian pilot, test-hopping a surplus Lockheed *Lodestar*, experienced engine failure soon after takeoff and made a crash landing in the water. The boat crew rescued the plane's crew and towed the plane to the beach before it could sink.—*Honolulu Air News*.

**NAS JACKSONVILLE**—Herlong Field, which was used by the Navy for practice carrier landings since April 1942, has been formally turned over to the city of Jacksonville. It will be used by private pilots and eventually may become a landing field for air-freight service.—*Jax Air News*.

**NAS GROSSE ILE**—Favorable publicity was received by the station when 200 sailors and Marines cooperated in capturing two prisoners from the Federal prison at Milan. Two enlisted Marines made the actual capture after county, state and federal authorities joined in the hunt on the island.

**VF-2A**—A chronological account of this squadron's travels to Panama, San Diego, Pearl Harbor, Saipan, Yokosuka, Tokyo, Sasebo, Tsingtao and Shanghai was included in the holiday greeting sent by VF-2A to all former squadron members. The letter, in mimeograph form, was prepared by the Executive Officer and covered the organization's activities from the time it left NAS NORFOLK in June 1946 aboard the U.S.S. *Tarawa*. Commentaries were made on cities and countries visited and recreational facilities available. Personal messages from the Commanding Officer and Air Group Commander were included. The list of officers and enlisted men formerly attached to VF-2A represents a personnel turnover of nearly 200 percent since May 1945 commissioning.

**NAS PENSACOLA**—The Navy's oldest chief has retired after 36 years of honorable service. He is Chief Commissary Steward Henry Commer, known as "the iron man of wooden ships of 50 years ago." He enlisted in 1891 and retired in 1927 after 31 years service. When the war started he passed a physical exam at the age of 72 and served four years and nine months more at Commissary Stores without a day's sick leave. He served with Admiral Dewey in the Battle of Manila Bay.—*Gosport*.

**NAS TILLAMOOK**—The station duty officer got an urgent call from a neighboring citizen to help put out a fire. A pumper was sent to the scene. The fire crew greatly surprised to find a smoke house full of hams and salmon instead of a blazing inferno.

**VMF-513**—Despite fog and bad weather this carrier based squadron (U.S.S. *Saidor*) participated in two strikes against the enemy during Fleet Exercises held off the Southern California coast.



VPM-3 EXPLAINED ITS JOB TO THE PUBLIC

## Weather Squadron Has Display Air Show Fans Learn of VPM-3 Patrols

As soon as the outdoor show was over for the afternoon at the Miami Air Maneuvers, 10-12 January, crowds swarmed inside the hangar to have a look around. Immediately a line formed beside the modified *Privateer* weather plane which VPM-3, stationed at Master Field, had thrown open for exhibition.

Floridians are hurricane conscious, so the air show customers were interested in getting a close view of one of the seven giant weather patrol planes with which the Navy is helping safeguard lives and property in the Caribbean area. A trip through the interior of the PB4Y-2, equipped with weather instruments rather than armament, proved an interesting supplement to the spectacular maneuvers of Navy fighter planes previously witnessed on the field.

Charts and photographs graphically interpreting the job of hurricane tracking were on exhibit and received considerable study.

This was VPM-3's second opportunity to acquaint the public with the valuable work of the squadron. On Navy Day the same material had been on display to enlighten the many visitors.



ADMIRAL WAGNER PRESENTS BASEBALL TROPHIES TO COACH OF PENSACOLA'S CHAMPIONS

football title. NATB PENSACOLA, with four wins and no defeats, came out on top. Other conference teams in the order of their 1946 standings were: Jacksonville, NATB CORPUS CHRISTI, Ottumwa and NATC MEMPHIS.

With 15 teams competing for the conference baseball title this year, the loop has been divided into Eastern and Western divisions. A five game little world series in August between the two division leaders will determine the conference pennant winner.

The 1946 diamond champion was NATB PENSACOLA with NATC WARD ISLAND, NAS JACKSONVILLE and NATB CORPUS CHRISTI finishing in that order. Other teams from the 1946 league that will be out to upset Pensacola this year include Ottumwa, NATC JACKSONVILLE, and NAS BANANA RIVER.

Eight teams, new to conference baseball competition are on the 1947 schedule. They are: NAS GLENVIEW, NAS NEW ORLEANS, NAS DALLAS, NARTU JACKSONVILLE, NATC MEMPHIS,

## NATC ENJOYS BOOM IN MUSCLE BUILDING

BECAUSE the extensive athletic training program for naval aviators established early in the war paid off in combat, there has been no de-emphasis in physical training for student pilots.

Though all but 30 of the original 2000 handpicked athletes and coaches who directed the wartime V-5 program are gone from NATC their physical training system goes on. In the heyday of naval pre-flight schools star-studded aggregations from St. Mary's, Iowa City, Chapel Hill, Del Monte, and Athens, Ga., met the top athletic teams in America on even terms.

To carry on that spirit of athletic competition, Rear Admiral Frank D. Wagner, last February, established the Naval Air Training Athletic Conference. Using funds from the inactivated St. Mary's pre-flight school athletic fund, the conference financed activities.

Now, with one highly successful year of peacetime athletic competition chalked up in the record books, the conference is heading into 1947 with heavier schedules and increased morale.

Annual major sport competition includes baseball, football, and basketball. In addition, wrestling, boxing and swimming meets are scheduled. Any one of the Naval Air Training Command's 30,000 officers and men is eligible for team or individual competition. To encourage enlisted participation no more than one half of any competing team can be officers. Any activity within the Command is eligible to par-

ticipate. Intercollegiate rules govern all sports except baseball where National League rules prevail.

The 1947 Conference swimming meet was held in Jacksonville Feb. 20 and 21. At last year's meet, also in Jacksonville, 164 swimmers and divers representing 14 activities participated. Team competition was won by Ottumwa pre-flight with Jacksonville second and NATB PENSACOLA third.

The 1947 basketball season opened Jan. 8. Every team is out to replace Pensacola's defending champions. The two top conference teams compete in the all-Navy basketball tournament at Great Lakes on March 26, 27, 28 and 29. Teams competing there for the Secretary of the Navy's trophy will represent the entire naval organization with squads from shore establishments and Atlantic and Pacific Fleet units.

TEAMS COMPETING in the 1947 conference title race include: NATC MEMPHIS, NAS BANANA RIVER, NATB CORPUS CHRISTI, NATC JACKSONVILLE, NAS JACKSONVILLE, Ottumwa Pre-flight, NAS WHITING FIELD, NATB PENSACOLA, NAS GLENVIEW, NATC WARD ISLAND, NAS ST. SIMONS, and NAS DALLAS.

The annual conference wrestling tournament will be held in Pensacola on March 6 and 7 with the conference boxing tourney following at Ottumwa on March 20 and 21.

Five teams battled for the 1946

NATC OLATHE, NAS WHITING FIELD and NAS CECIL FIELD.

Large silver trophies, both permanent and rotating, go to all championship teams. The conference emblem, embossed with Navy wings, is struck in gold, silver and bronze medals.



PENSACOLA YEOMAN WINS GRID TROPHY



## Navy Lists All War Casualties

Report Tabulates All Aviation Losses

Total Navy, Marine Corps and Coast Guard dead and missing for the period between 7 December 1941 and 1 January 1947 is 88,939. This figure was announced by the Navy Department in its first official and detailed breakdown of World War II casualties.

Divided by services the losses were: Navy, 62,484; Marine Corps, 24,446; and Coast Guard 1,912. A breakdown of the aviation personnel losses for the period covered in the report follows:

	Officers	Enlisted	Total
Air combat (Navy)	1490	1585	3075
Operational crashes overseas (Navy)	1231	1553	2784
Crashes non-operational overseas (Navy)	449	193	642
Aviation accidents not crashes (Navy)	26	177	203
Operational crashes Navy in U. S.	166	1071	1237
Crashes non-operational in U. S. (Navy)	2260	833	3093
Non-crash accidents in U. S. (Navy)	28	85	108
Killed in action (Marine)	199	247	446
Plane accidents overseas (Marine)	316	226	542
Plane accidents in U. S. (Marine)	673	220	893

## Photo Services Are Reorganized

Interpretation Unit Is Incorporated

All naval photographic activities have been consolidated into a peacetime program under a reorganization order issued early in 1947, by W. John Kenney, Acting Secretary of the Navy.

The Photographic Science Laboratory, located at NAS ANACOSTIA, is renamed the Naval Photographic Center and designated major activity for photographic production. The motion picture production group is integrated with the film and paper processing units at Anacostia. In addition the Navy Photographic Interpretation unit, now located at the Anacostia Receiving Station, becomes a subordinate unit of the Naval Photographic Center.

Equipment, contract, procurement and fiscal functions of the Naval Photographic Service are transferred to BUAEH. Cataloging and distribution of training films becomes a function of BuPERS and BuSHIPS will have charge of photolithographic personnel and material functions.

Under the realignment order Capt. L. A. Pope, USN, former chief of the Naval Photographic Service, becomes Chief of Photography for the Navy. In this post he joins the staff of the Chief of Naval Operations where he will assist in the planning of future naval photography. His duties include determination of present policies affecting photography, and maintaining of liaison with all offices of the Navy, Marine Corps, other branches of government.

## NATS Uses GCA on All Landings

Pilots to Practice Simulated Approaches

GCA, which has been adopted by the Navy as standard for a low visibility approach, has been very successful in increasing the safety and regularity of NATS operations under unfavorable weather conditions.

In order to realize the full benefit of this equipment NATS now has a directive requiring that all approaches at stations where a GCA unit is located are to be simulated GCA approaches unless weather conditions require an actual GCA approach.

The only exceptions are: (1) when Air Traffic Control will not authorize it for reasons such as other traffic in the area, (2) when the flight is already late and any further time lost would result in a delayed departure in the case of a turn-around flight, and (3) a defect in the GCA unit due either to materiel or personnel.

A new order will prescribe the method in which the GCA approach is to be set up so that there will be no uncertainty or delay. All NATS plane commanders and Class A co-pilots will be required to check out in GCA at intervals not greater than six months. These qualifications will be entered in their qualification records.

## Shanghai Liberty CAG-81 Reward

War Games Held Off Coast of Orient

CAG-81, PACIFIC—Pilots of this air group's VB and VBF squadrons, after spending a few days liberty in Shanghai, are ready to endorse it heartily as fitting reward for good showings in training activities.

As a reward for performance in in-

tensive battle problems with the Seventh Fleet, they were given four-day liberty in that Chinese port via cruiser or destroyer. Some wangled plane rides to Peiping. As a whole, the behavior of officers and men on these trips was excellent. Such rewards prove a valuable incentive in maintaining high standards necessary in a squadron.

Most of October was spent in Yokosuka and Sasebo, Japan, and Tsingtao, China, where shore trips were both enjoyable and educational as few personnel had been able to visit Oriental cities before.

During the month a force composed of CarDiv2, CruDiv15 and DesDiv11 and 12 stood out of Sasebo for Tsingtao and conducted war games with Task Force 71 and Marine planes from China and patrol planes from Okinawa. Ensuing exercises were well performed and combat conditions simulated as nearly as possible. There were dawn launches, CAPs, searches, and strikes.

## Watch Your Hand Signals, Mac!

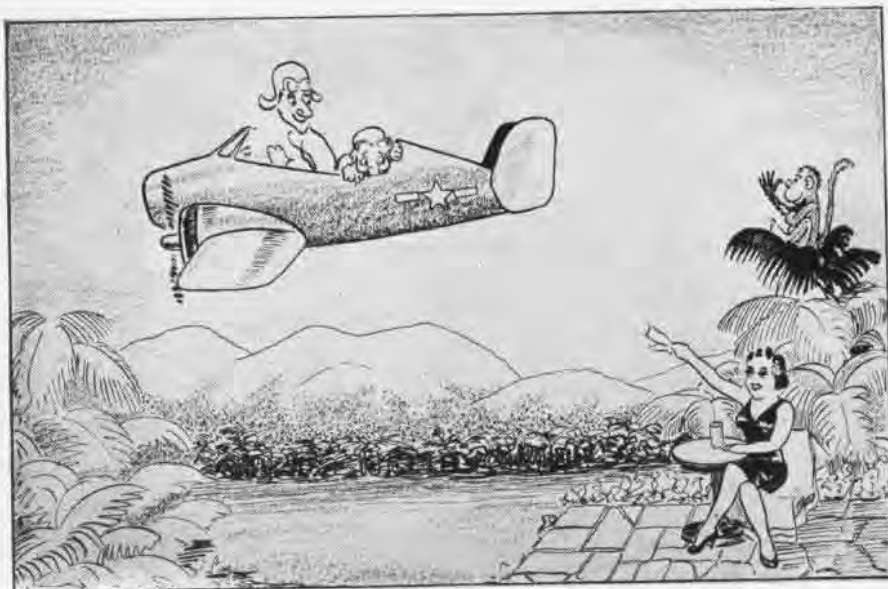
CAB Adopts NATS Custom of Licensing

How soon will aerial traffic cops use "high scattered" to hide behind? Some NATS pilots say it won't be long, noting adoption by CAB of a long-standing NATS custom requiring all pilots to carry valid licenses on their persons.

The new Civil Air regulation took effect on 15 Feb. and required all civilian pilots to carry these licenses while piloting any civil aircraft. These pilots also are required to show such tickets to any local or state law enforcement officer upon request. This "driver's license" carries information of the sort contained in NATS' Pilot Qualification Record, Form No. 100.



A FAR CRY from the ski-equipped planes of former expeditions are the RAN's lashed to the deck of the Navy's newest flattop, the Philippine Sea (CV-47), shown here heading south to the Antarctic. Six of the transports were deck-launched by JATO some 500 miles off the Antarctic continent and landed on a 5000 ft. strip of steel-pierced plank matting at Little America. The strip will serve as base for exploration flights.



## TRAVELING THE TROPICS?

**M**CAS CHERRY POINT—Flying to Coco Solo by the overland route? Then you will be interested in some valuable advice from the commanding officer of MAG-22 and one of his pilots who ferried an SNB-3 from this station to the Canal Zone via Mexico and Central America.

Diplomatic clearance was obtained through the U. S. Army and is necessary. To obtain this clearance, regulations require inoculations, the same as for overseas duty. It is advisable to carry some proof unless you desire to be given booster shots again. Clearance was obtained through Foreign Operations Section at Kelly Field, San Antonio, Texas. The ferry pilot should inform that section of the intended itinerary in advance, and should land there for briefing.

The trip is of vivid interest if you like scenery of volcanic mountains, rivers and jungles. However from a pilot's viewpoint, a conveniently-placed landing field with 100 octane gas and service is more desirable. Pan-American, in conjunction with the USAAF, make this possible for the trip. Airfields are long and the Army gas dumps well supplied.

Distances between good fields vary from 50 to 150 miles, with poor (in wet weather) emergency fields frequently encountered. The status of these fields is not firm as to which will be retained by the U.S., and latest information should be obtained from Kelly Field.

Almost always weather is a hazard that is rarely surmountable in the afternoons. It is highly desirable to make flights in the mornings and early after-

noons. The backbone of mountains along Central America causes cumulus clouds to ride the crests and ridges, due largely to mechanical convection. At times the weather takes on the appearance of a frontal line and can be as threatening, reaching from the ground to 15,000 feet or higher. This is quickly formed without much advance warning. Being weather wise is safety wise in flying this area in the afternoon.

In accordance with existing regulations (ACL) it is possible to draw advance money to take care of expenses that might arise unexpectedly. Amounts up to \$500 can be drawn in advance to take care of this situation. On this trip, however, it was not necessary to use this money because of the well-placed Army gas dumps and the cooperation by Pan-American Airways to send all communications.

**A**DEQUATE Geodetic Survey maps can be obtained for the entire trip. In addition, the Army Air Forces has the trip (from Brownsville, Texas, to Coco Solo, Canal Zone) charted on three maps for convenience. These maps have the courses marked with magnetic headings, and distances in statute miles. These maps are excellent, but noted heights were reported by pilots as not being too accurate. Instrument flying, including over the top, is not permitted however, so this is not too important.

Adequate radio facilities exist, including excellent radio beacons and fairly weak radio ranges. Tower operators speak a good brand of English, and Spanish is not required.

On one occasion on this trip, weather

closed in at Managua, Nicaragua, and it was necessary to return to San Salvador, the closest field, and to land after dark. No lighting facilities were available, although had time and fuel permitted kerosene pots would have been put out. The tower operator, who spoke English, gave excellent directions, and placed a car on each end of the runway for lining up. Approach was made between peaks on radio compass, and let-down to landing altitude was made over an adjacent lake. Approaches were clear, and the landing was completed with no trouble.

### Dilbert Aids Squadron Safety

#### Pilot's Posters Help Establish Record

VA-1A—The presence of an accomplished artist within the squadron has led to an extensive safety program during the last 10 months. With the help of NANews' "Dilbert," Ens. R. E. Hall



Dilbert needed help the day he wore all his equipment on his life jacket



Smiler never thought of cleaning out his cockpit until he entered a dive

has used squadron activities and his buddies' bombers to illustrate his safety posters.

Dilbert's activities take in a wide field of subjects from sorties ashore to the operation of flaps or how to make a dive bombing run. Once in a while one of the air group's "characters" creeps into his illustrations.

From 12 May to the present time, the squadron (formerly VB-4) has had one fatal accident. The Dilbert posters, hung in various squadron areas, are considered to have played a large part in attaining this safety record. Cartoons also aid the group safety programs.



# TECHNICALLY SPEAKING



STAND ON CASTERS HELPS JAX ORDNANCEMEN LOAD SCARS ON WING RACKS OF HELLDIVER

## STAND HELPS JAX IN ROCKET LOADING

NAS JACKSONVILLE—A stand to increase efficiency of rocket crews in loading the SB2C-4E has been developed by VSB-(ATU#1).

Because of limited apron space *Helldivers* with the unit are parked wings folded. Rockets are suspended on the individual rails while planes are in the parking area and are plugged in by the rocket officer and his crew after they reach the taxiway adjacent to the runway in use. The new stand cut time required to load rockets to a minimum.

It is constructed of  $\frac{1}{2}$ " steel tubing with all joints welded. Height is 54" and a 28"x28" working platform is installed at the top. Rungs are provided to enable the loaders to mount the platform. Two trays are built into the bottom to accommodate enough SCAR rockets for two planes (16 rockets).

[DEVELOPED BY JOHN C. HOYDIE, ACM]

► *BuAer Comment*—This appears to be useful and is recommended to service activities for facilitating loading.

### Portable Heater Unit is Handy

NAS WILLOW GROVE—This winter it was found necessary for the station to manufacture engine heater covers for different types of aircraft. This necessity occurred due to the fact 90 percent of our planes are made available for week-end

operation, while the remaining planes under repairs use up hangar space.

A Walker-Shaw auxiliary power unit and a Herman-Nelson pre-heater were mounted on an Mk 11 bomb trailer which can be towed over snow or transported easily. A cover was installed on the stack for the Herman-Nelson pre-heater to keep off snow and rain. The experiment proved satisfactory and expedites engine starting.



BOMB TRAILER MAKES HEATER PORTABLE

► *BuAer Comment*—Engine covers Stock No. R83-C-600100 and R83-C-600150 would be more satisfactory if the weather is below zero.

### Electrically - heated Suit Warm

VMF-115 PACIFIC—Pilots have been using the Colvinex electrically-heated flight suit when flying since temperatures often are well below freezing. In all cases they found them comfort-

able and warm in the coldest weather.

The heavy winter fleece-lined suits were found too heavy and bulky and their use impractical for fighter-type aircraft. The electric flight suit combines better protection from cold and a greater degree of movement in the cockpit.

Most of our pilots, despite 0° C., temperatures and below, have found it unnecessary to use heat in the suit itself, the automatically heated gloves and boots being sufficient to keep them comfortable.

### NATS Operates Mechs' Training

NAS OAKLAND—Offering an outstanding educational opportunity, the Naval Air Transport Service's Educational Office is providing instruction leading to qualification for a CAA's mechanic's license. In five schools at different NATS bases these courses have been established.

The school is located in the metal shop of VR-4. The instructors are experienced aviation mechanics, Oakland's chief in-



NATS' MECHS LEARN OF LIGHT AIRCRAFT

structor being the regional inspector for the CAA.

The schedule calls for 14 to 16 weeks of work which will enable most men to complete the requirements for a license and insure them a chance to enter commercial aviation upon discharge. The Seattle school reports the highest enrollment, with 78 men taking the course. Oakland has 38. Other schools are at Floyd Bennett, San Pedro, and Pearl Harbor.

### Drop Tanks Lick China Winter

VMF-211, CHINA—Operating in a frigid area, this squadron has found a new use for salvaged Mk 5 droppable fuel tanks, putting them to work as fuel tanks for heaters in shops and in personnel quarters.

A stand for the tank is erected outside the building so the fuel will flow by gravity to the heaters. The 150 gallons of fuel the tanks hold lasts about two weeks in the cold here.



THREE CASTERS ROLL BOATS DOWN RAMPS

### Wheeled Boat Helps in Beaching

NAS TRINIDAD—To speed up operations and help make up the deficit in personnel, this station has adopted an "amphibious boat" for use by the beaching crew handling PBM's.

The boat, parked on the ramp, needs only to have the "chocks" pulled, and it rolls into the water, ready to aid any of the beaching crew who may get into trouble. It further assists in securing the beaching gear. The boat is useful for unloading VIP at the buoy, thus saving them the uncomfortable wait in the tropical heat during the time the plane is being readied for beaching.

The boat was designed by A. E. Benoit, ex-MM2, now serving in a civilian capacity on the station, and built by the carpenter shop. It is 11½ feet long, has a beam of 4½ feet and a draft of four inches. Its mobility is provided by three casters five inches in diameter.

### Prop Racks Cut Storage Space

NAS ALAMEDA—Storage racks developed on this base now provide more compact storage for Class 265 propellers. Lumber used was obtained from salvage at no expense to the Supply Department.

Different type racks provide for two, three and four-bladed propellers. They are so constructed that the weight of the propeller rests on the hub, relieving all stress on the blades.

Consolidation of storage space has resulted in a gain of approximately 40%. In addition to space savings, these racks also save in terms of man-hours because of ease in handling and inventory.



NEW PROPELLER RACKS DEvised AT ALAMEDA CONSOLIDATE STORAGE AREAS, SAVE SPACE

### Aviators Take Over Line Duties

A visitor to NAS KAHULUI, Maui, T. H., would be led to believe that the Marine Corps had taken over plane captain duties on Air Group 11 aircraft. Shortage of maintenance personnel has caused the use of pilots on the line.

Uniform for work details is trousers, utility, with or without jackets, which were acquired from a decommissioned Marine activity in the area. Pilots of two divisions are assigned line duties daily and augmented by the squadron complement of six enlisted men.

The line crew handles an average of 22 flights per half-flying day. One day per week is set aside as wash day with all hands inspecting and scrubbing down aircraft.



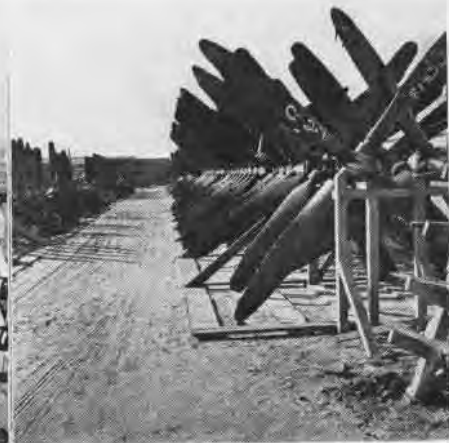
PILOTS MANNING LINE EXPEDITE TRAINING

### A&R Trains Men on Norfolk Duty

NAS NORFOLK—This station set up an elaborate training program for the large number of aviation ratings who have been assigned here for A&R training. A total of 1417 men has been authorized, with 568 on board.

The program is based on the premise that each man will be in the A&R department during a normal two-year tour of shore duty. It is divided into two categories: 1. Non-rated men PO3c and PO2c will be instructed primarily as skilled mechanics. 2. PO1c and CPO will receive training which stresses supervision.

Full advantage is being taken of the Navy work improvement program which is outlined in NCPI 230. PO1c and CPO's will attend supervisory training classes conducted by the vocational training officer. Others are under cognizance of shop training instructors. Except for those two



classes, each man is given training similar to that given apprentices.

This allows for thorough training in fundamentals by slightly modifying and expanding a long established training system and obviates necessity for setting up a separate training course. In addition to the special A&R instruction, each man will be required to complete the conventional Navy Training Courses for his next higher rating.

### Vapor Blast May Halt Corrosion

VR 2, ALAMEDA—This squadron reports hope that the JRM corrosion bugaboo may be eliminated partially by use of vapor blasting on aluminum plates. A&R Alameda has been making tests on metal which has undergone 1200 to 2000 hours use under all types of service.

The tests showed that the metal after being vapor blasted lost one-thousandth of an inch of the Alclad surface and was cleaned of all corrosion. An unusual feature of the vapor blasting is the fact that there is no apparent damage to the Buna-type gaskets under the hull bottom rivet heads.

This process has been submitted to BU&ER by NAS ALAMEDA for consideration and approval. Unfortunately, there are no portable vapor blast units available. Alameda anticipates completion of one that can be used in aircraft possibly in January or February.



COVERED TRUCK HAULS LIBERTY PARTIES

### Liberty Truck Is Weatherized

MAG-24 SERVON—With the advent of cold weather this squadron recently converted a 40-ft. semi-trailer into a liberty bus. Capable of accommodating 65 people the new rig was constructed entirely from salvaged parts and equipment. The trailer offers complete protection from the weather for men going on liberty.

### Marines Devise Paint Thinner

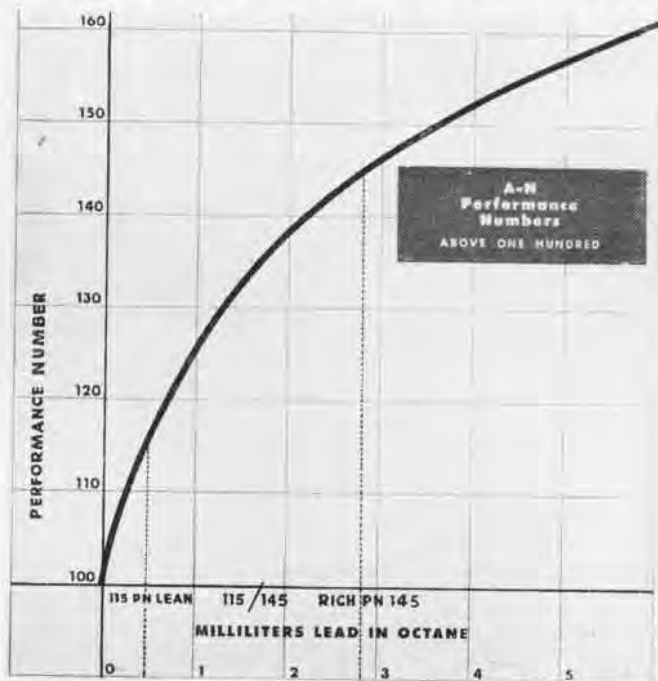
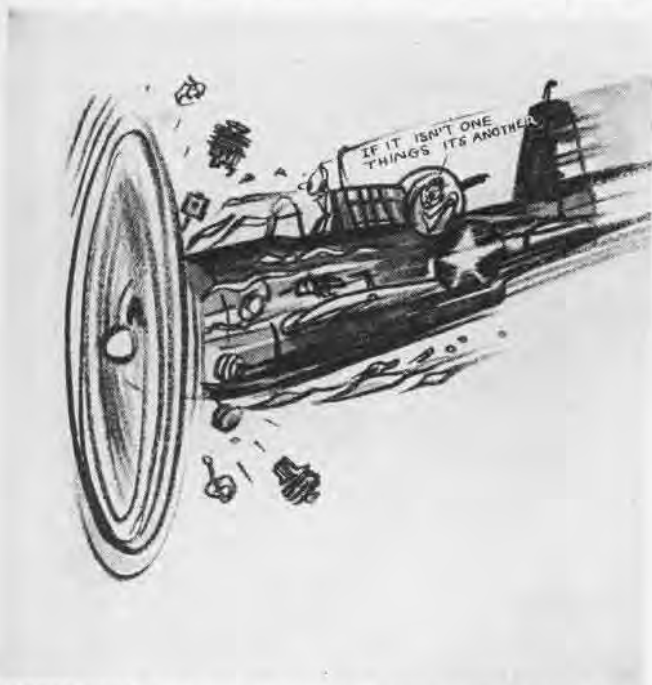
MAG-24—When the supply of paint thinner was exhausted recently Headquarters Squadron flight section faced the problem of putting a finish on the propellers of their HC's without the proper mixture. Several experiments showed that Paralketone was a satisfactory and easily applied substitute.

If the propeller is first washed with gasoline and then painted with one coat of Paralketone, rust will be prevented from forming for at least 60 hours of flying time.

► **BuAer Comment**—Prior to the painting of propeller blades, Paralketone was in common use on props as rust preventive.



# NAVY PLANES TO USE HIGH PERFORMANCE FUEL



DILBERT USED 115/145 RATINGS THO TANKS CONTAINED 100/130

A NEW high performance gasoline which will increase the range and striking power of naval aviation will become standard fuel for combat planes by this summer. The new fuel, which is grade 115/145, will be used in all engines of 1800 cu. in. displacement and above.

This fuel was developed during the war and was ready for issue at the cessation of hostilities. However the huge strategic target reserve of grade 100/130 remaining in this country prevented its previous adoption. The present adoption of grade 115/145 as the combat fuel coincides with the depletion of the above reserve supply.

In anticipation of the use of this new fuel before the war's end, several engines were assigned power settings to utilize the extra power available from its use. Delay in the adoption of the new fuel resulted in power restrictions.

The above engines can now return to their higher power settings and most other combat engines can be raised in power. The increase in power will vary with different engines and engine-airplane combinations. Instructions for the power increase to be assigned engines with grade 115/145 will be issued by BuAER.

As an example of the increased performance using the new fuel the F8F will realize an increase of 10% in take off power. This will result in shorter take-off, increased rate of climb, higher maximum velocity or longer ranges.

The grade designation of the new fuel is expressed in terms of performance numbers which are based on anti-knock comparisons with mixtures of tetraethyl lead and octane as shown in the chart above. Grade designations up to and including 100 are expressed in terms of octane number.

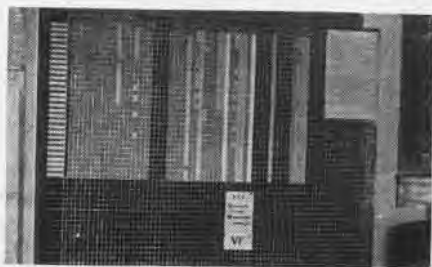
During the transition period from grade 100/130 to grade 115/145 all pilots are cautioned to operate engines only on ratings established for grade 100/130. The purple color of grade 115/145 will distinguish it from the green 100/130 grade.

All extended cross country or ferry flights will be conducted at engine ratings for grade 100/130 fuel since grade 115/145 may not be available at all fueling stops.

## Board Charts Progress of Work

CASU-32—This service unit uses a chart-board for posting Bureau of Aeronautics changes and bulletins, giving a quick estimate of the compliance therewith.

As each change or bulletin is completed the squares are painted red,



COLORS TELL STATUS OF JOBS

if undergoing construction or modification, the squares are yellow. Those awaiting parts before being carried out are painted brown and those not applicable are white. Each type of aircraft has its own chartboard of changes and bulletins. Boards are mounted by hinges to a corner stanchion in the log office and can be swung back against the bulkhead when not in use.

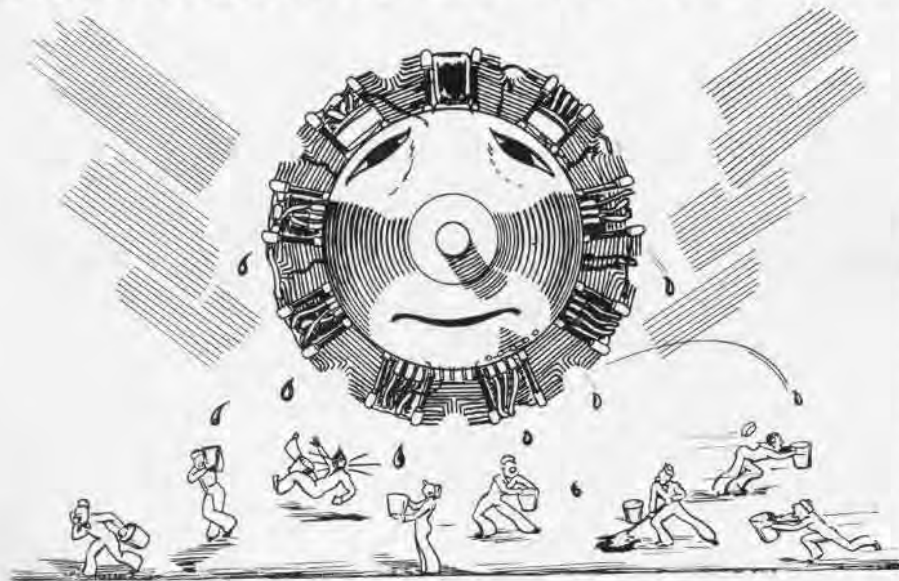
## Handbook Helps Worker Training

NAS JACKSONVILLE—Several years of careful study, collecting of information, writing and editing have developed a 24-page Inspector's Handbook which is issued to each person in the Inspection Department to familiarize him with general organization, policies, and procedures of the department.

This handbook was prepared to obtain a better organization through standardization of information to experienced and new employees and contains such subjects as chain of command, responsibilities of a supervisor and inspector, handling of inspection stamps and badges, various inspection's and shop rules, general inspection procedures, handling of technical information, handling of material during inspection and training.

As changes are made, correction pages are issued to the handbook making it an up-to-date source of information. A new employee can, in a week of conscientious study of the Inspector's Handbook, have a good working knowledge of the Inspection Department which previously has taken several months to absorb through Inspection directives and verbal training. Employees in the Department are guided by all the information in the handbook.

# PREVENTION OF ENGINE OIL LEAKS



**D**URING the last few months Bureau of Aeronautics has received a number of RUDM's reporting a high frequency of minor oil leaks. Offending points of leakage are largely confined to sources around cylinder assemblies in radial, air-cooled engines. These small leaks are generally accepted as nuisance problems and are too often neglected as a source of RUDM material; yet, in their sum, a large percentage of maintenance time is spent in correcting such minor discrepancies.

As a step toward reducing these maintenance problems, engine manufacturers are frequently forwarded reports of service difficulties experienced on their equipment, and in many instances the frequency of these reports on a specific, offending source has led to major redesign work. At the same time, new types of gaskets, hoses, and packings are continually under investigation in an effort to find or develop materials with more durable sealing characteristics.

Since the problem of oil leakage is inherent in all pressure lubricated engines to a greater or lesser degree, and since such leakage presents a definite flight hazard, it is important that this limitation be recognized and precautions taken to minimize the frequency of leakage at troublesome locations.

It is apparent, and quite understandable, that the power section of radial engines is a number one source of oil leakage, since this section operates at elevated temperatures with attendant expansion of parts. Under most circumstances the physical properties of packings and gaskets are not adversely affected during the expansion or contraction of power section components, since these materials are quite supple and pliable. However, these properties are altered and the materials become deformed and brittle when exposed to excessive heat over a prolonged period of time. When a seal or gasket becomes thoroughly baked and embrittled, it cannot be

expected to retain proper sealing characteristics, and additional pressure applied to surfaces or joints between which the material is installed will not measurably improve its sealing ability or effect a permanent correction. This may, in part, explain why many oil leaks recur at gland nuts, rocker boxes, rocker shaft nuts, etc., which had been retorqued to greater values when leakage at these points was initially evidenced. It is therefore important to determine the condition of the sealing materials before attempting to repair this type of oil leak, as the cause of leakage may be a failure of the material rather than lack of sufficient pressure.

Minor leakage has in some cases caused operating activities to pull engines prematurely for a reason loosely called "excessive maintenance." These engines are usually classified as failures, since oil leakage had become such a chronic trouble that maintenance time spent on the engine was judged to be not commensurate with the short utilization period gained before additional work was required.

**W**HEN engines are pulled for work load reasons, there is always a question as to whether causes for minor oil leakage were properly diagnosed and corrected when first experienced, or whether inadequate methods were used and recurrent leaks and discrepancies accrued along until the lengthy task of correcting the sum of all discrepancies appeared out of proportion in view of the ease of an engine change. It is conceivable that, in the interests of complete, accurate data, the records should list these engines not as service failures, but as maintenance failures.

At the same time, it is quite possible that operational abuse, rather than the accrual of a large number of improperly corrected discrepancies, is responsible for much chronic oil leakage. As previously mentioned, sealing materials of a soft, pliable nature deteriorate rapidly when

subjected to excessive heat, and engine operation should therefore be investigated when oil leaks are cropping up at a high rate. The background to this problem is tied in closely with the overall cooling system which is used on high-powered radial engines.

To achieve proper cooling through a wide span of operating powers, air baffling systems and tight cowlings have been devised to force air around cylinder barrel and head finning in order to provide an adequate air-cooling pressure drop. During flight, ram air, controlled by cowl flaps, can be varied to maintain a flow of air through this baffling system in an amount consistent with engine cooling requirements and thus prevent overheating of the engine. During ground operation, however, a definite cooling problem exists, since little ram air is available to maintain an adequate flow of air through the baffling system. Figuratively, the engine is in the same position as a fish out of water; the fish, by nature, can't be expected to show its swimming ability when on the ground, and the engine, by design, can't be expected to show its operating ability when on the ground.

**G**ROUND running of an engine, even though head temperatures may not be excessive, tends to heat up the nacelle by the same convection and radiation principles that make an electric oven so successful. When the engine is shut down, the little air blast, gained from the propeller blade shanks or cuffs, ceases, and the highest temperatures within the cowl are recorded a few minutes thereafter. During this time of no air and no oil circulation, seals, gaskets, etc., are subjected to residual engine heat which is quite intense, especially on the top side of the engine. This accounts for power section oil leakage being more pronounced around top-side than it is around bottom-side cylinders.

To minimize residual engine heat, it is recommended that when conditions are favorable, engines be operated for several minutes at low RPM after ground checks or post flight taxiing in order to reduce head temperatures to a minimum value consistent with outside air temperature and the particular nacelle's ground cooling characteristics. Needless to say, all ground running should be done with cowl flaps wide open and, if possible, it would be desirable to shut the engine down with the airplane headed into the wind with cowl flaps open until the engine is well cooled.

If these few points on leakage correction and engine ground operation are followed whenever possible, minor power section oil leakage will be reduced and far less maintenance will be required to keep engines in a satisfactory operating condition.

VP 53—Members of this squadron have taken added interest in squadron efficiency, organization and morale. A suggestion box has been provided and the Commanding Officer has authorized the Welfare Officer to give five dollars from the welfare fund to each man whose suggestion is accepted.





AIR CONTROL CENTER WITH PIPELINES TO THE KEY OFFICES TO DIRECT NIGHT FLYING

## Radar Keeps Close Control on Marine Night Fighters During All Time They Are in The Air

MARINE Air Group 31, back in United States after a long tour of duty in the Orient, has developed a control center at MCAS MIRAMAR which gives finger tip control of all planes in night operations. An aircraft is never out of radar control from the time it is airborne until its wheels touch the runway.

The group is composed of VMF-534 and 542, the former with 12 F7F-3N aircraft equipped with SCR-720 radar. The latter squadron has *Hellcats* but is receiving 12 F4U-4N's.

Nucleus of night operations for MAG-31 is the control center called *Gusty*. Composed of an ARC-1 VHF transmitter and receiver, set upon a regular executive desk, it permits a staff duty officer to control all night flying. He has an operating area chart on the desk before him to keep check on planes in the areas which are assigned before take-off.

Upon being airborne pilots are required to check with *Gusty*, then again when leaving an assigned area. When over the base for landing, pilots again are required to check in. This avoids the hazard of a plane going down and not knowing its position.

Within easy reaching distance of the staff duty officer is a station phone which connects him with aerology, the tower, station operations and the dispensary. Also within easy reach is a direct phone to the Ground Control Intercept and Ground Controlled Approach station.

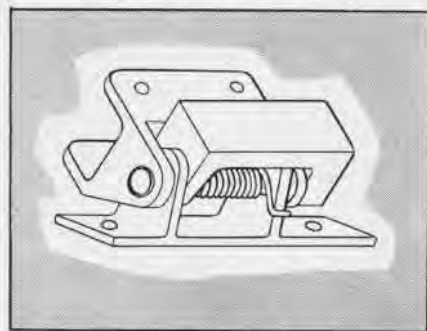
VHF channels are assigned to each squadron as operating channels and are monitored by the staff duty officer to check on pilots and RO efficiency

and RT procedure. However, one channel is guarded by the duty officer in case a plane should return because of trouble. A replacement is ready and warmed up upon arrival of the pilot, saving valuable time.

*Gusty* has proved itself invaluable as the connecting link between the GCI station and the GCA unit located on the field.

When an aircraft on a night flight, under control of the GCI, requires a controlled approach to the field, the GCI station vectors him to a certain approach point at a specified altitude. When the aircraft is in this position, the GCI station notifies *Gusty* over the direct telephone line. *Gusty* in turn calls GCA station (*Checker*) over VHF and gives a position report of the aircraft. When *Checker* picks up the plane, *Gusty* notifies the plane to switch VHF channels for *Checker* control.

Also with the control center is a teletype machine set up to receive latest weather sequences. With undesirable weather due planes are recalled quickly to the field with little trouble.



COCO SOLO DEVICE CUTS HINGE BREAKS

## Tool Aids in Seat Tear-Downs

NAS COCO SOLO—Upon disassembly of the gunner's seat hinge on PBM-5 aircraft, it was found that breakage of

either the male or female hinge (GLM Part Nos. 162B721527 and 162B721539) occurred in 90 per cent of the assemblies.

This activity manufactured a tool to take up the stress imposed by the disassembly of the subject parts. The tool has reduced breakage to a negligible amount. Manufacturing specifications and method of use are shown in the accompanying drawing.

## Intake Pipe Fails at 8000 Feet

VMR 153—In flight, after a climb to and level-off at 8000 feet, an R5C-1 P&W-2800-51 engine that had been recently overhauled, began cutting out and backfiring. Manifold pressure was immediately reduced, but it was found that the pressure would not drop below 27-inches.

At intervals the engine would run smoothly although a maximum of only 31-inches could be obtained at full throttle. The plane was flown back to the field where the engine completely stopped while taxiing to the line.

The engine had 30.4 hours flying time since it had been overhauled by the Army at Shanghai. Inspection showed that the front cylinder intake pipe, Pratt & Whitney P/N 84997, had been damaged so that desired pressure could not be maintained in the cylinders.

► *BuAer Comment*—This is the first report received on failure of Part No. 84997 Intake Pipe.

The probable cause of failure is believed to be the result of over priming or other faulty starting technique, causing ignition of fuel in the induction system.



INTAKE BLEW THROUGH FAULTY STARTING

NAS TILLAMOOK—The first of the ex-Navy blimps, being erected in the hangars by Douglas Leigh Sky Advertising Corp., of New York, was flown to Moffett Field, Cal., with Lt. Cdr. Orazio Simonelli, USNR (Inactive) at the controls. Lt. George Steelman, USN (Retired) who was in charge of the erection, accompanied him on the flight south in the former L-10.

MCAS EL TORO—Shutterbugs wanted! When the need became acute recently for photographers, the station photo officer began a training program at the lab for 12 aspirants for aerial photographers' jobs. Only men with an SSN of 521 were considered and had to have past photo experience as civilians or an intense interest in the art of banging away with a camera.

# AVIATION PROGRESS

Short gleanings from Progress Reports of various BuAer sections are presented below. They represent progress during December, contained in January summaries.

## Airborne Equipment Division

**Supersonic Project**—BuAer personnel have discussed the merits of a supersonic image inspection process with Sperry Products, Inc. The process, described in a German report, involves projection of the object by means of sound waves and acoustic lenses on to a receiver film or screen that, due to its special properties, changes the acoustic image to an optically visible picture. Consensus of opinion is that the method has promising possibilities with advantages over current inspection methods.

**Non-Inflammable Hydraulic Fluid**—Hydrolube "U" has been installed in the AD-1 airplane that is undergoing accelerated service test at Patuxent River. Tests of the hydraulic system operation will be given priority so that the normal operating life can be simulated in the first 120 hours of flight. Anti-wear additives have been found that will double or triple pump life in bench tests but the stability of the additives is still not entirely satisfactory.

**Engine Preservatives**—Further work on the development of heavier bodied preservative compounds indicates that much better protection can be obtained in engine interiors than with the standard material under conditions of long term storage where dehydration is not practical. Specifications are being prepared for the new type compound.

**Synthetic Rubber**—Certain specifications for foamed, sponge and general utility rubber that do not require gasoline, oil or flame resistance are being considered for revision. The rubber industry is urging a relaxation of restrictions on use of natural rubber in government specifications now that natural rubber is becoming increasingly available.

**Engine Containers**—A light weight metal engine container for the R-4360-4 and -20 and the Westinghouse 24-C turbo jet engine is being considered. The experience of BuAer and NAF in developing the container for the 19XB engine will provide a yardstick for evaluation of the proposals.

**Dye Marker**—A prototype dye marker for use on snow has been developed at BuAer request by Aerial Products Co.

The marker is a liquid type contained in a plastic flask holding one pint of rodamine dye solution. It is exploded by a bouchon actuated squib. Upon delivery of an initial lot, tests will be staged to determine the practicability of this or a similar type device for marking survivor locations in snow areas.

**Messing Gear**—Six insulated food lockers are being forwarded to NATS for the purpose of service evaluation and recommendations.

**Anti-Blackout Gear**—An improved model anti-blackout suit made by the David Clark company was ready for testing in January. This suit utilizes a capstan type pressure bladder on arms as well as on legs. The bladder is easily adapted for altitude work. It is contemplated that the final "g" suit will be a combination "Henry type" altitude suit and anti-blackout suit.

**High Altitude Suit**—A contract for development of a pressurized suit for high altitude flying is being negotiated with Douglas Aircraft Corp., El Segundo Division. This suit will incorporate all of the features developed to date, and will be used in conjunction with pressure cabin type aircraft for emergency use in event of loss of cabin pressure or necessity for bail-out at extreme altitudes.

## Ships Installation Division

**U.S.S. Valley Forge**—Shops and facilities assigned for air departments aboard this carrier (CV 45) are more satisfactorily equipped than on previous ships of class.

**JATO**—All 12AS1000 JATO except the 12AS1000 D-3 and D-4 units are suspended

from use. The 12AS1000 D-3 and D-4 (Mk 2 Mod 3) units are most recently produced with best reliability and quality control. Additional procurement will be of the latest type with provision in the contract for supplying improved paraplex type propellant if the development of paraplex is sufficiently advanced and satisfactory to BuAer. It is considered desirable to use the 12AS1000 D-3 for all JATO operations except JRM, High jump and other cold weather operations in which only 12AS1000 D-4 shall be used. All 8AS100 JATO are now suspended from use. It is intended to standardize on 12AS1000 JATO and eliminate use of 8AS1000 model entirely. Mk 151 Mod 3 and Mk 51 Mod 3 are the latest-type igniters with most reliable ignition characteristics and shall be used in JATO operations.

**JATO Installations**—No report has been received concerning installation or usage of JATO kits shipped to U.S.S. Pasadena, U.S.S. St. Paul and U.S.S. Columbus for use on SC-1 planes.

**Rapid Fueling and Defueling**—Adaption of jet airplanes for carrier use has increased in scope the attendant shipboard fueling and defueling problems. By means of fueling and defueling equipment produced by the Wayne Pump Co., fuel can be delivered to aircraft at a greatly increased rate with additional advantages of being able to fuel and defuel through the same hose. Adaption of this system is being considered by BuSHIPS and BuAer.

**Catapult Launching Bulletins**—Bulletins for the H4-1, H4B and H2-1 catapult for model TBM-3W planes have been prepared and are being reviewed by NAMC before issue.

## Piloted Aircraft Division

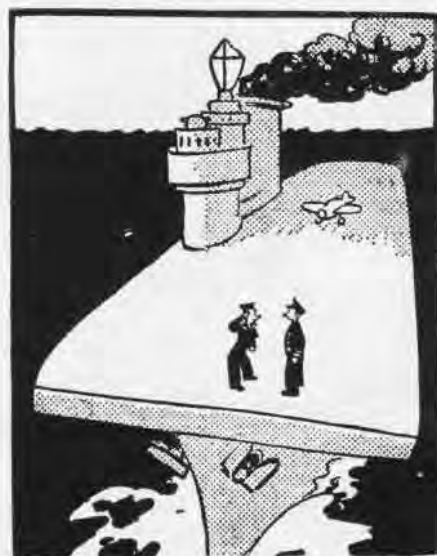
**Goodyear Airship**—The Goodyear Aircraft Corporation has submitted a proposal for an engineering study of an airship capable of picking up sea-water ballast and refueling at sea so that she can remain with a convoy for an indefinite period.

**KR60-1**—This Lockheed cargo transport plane is undergoing complete inspection rework of landing gear, bearings, installation of test equipment and Ceco carburetors.

**JRM-2-A** ground vibration survey with Curtiss 830 and 1016 blade propellers with the stiffened hull structure has been completed on this seaplane cargo transport plane. A set of experimental baffles for one engine is being supplied by Pratt and Whitney for cooling evaluation. Test flights for vibration and cooling were resumed in January.

**F7F**—Dives of the F7F-4N indicate that a new operating restriction technical order will be necessary because of buffeting caused by 20 mm blast tubes.

**F8F-1**—Grumman is developing a new fin configuration to overcome rudder reversal in steady sideslip with belly tank. Tests of jettisonable wing tips are proceeding simultaneously. Grumman service Bulletin 84 will be incorporated in all F8F-1's to remedy wing and fuselage wrinkling encountered in recent carrier operations.



"BUT I SOLOED A CUB IN WTS, SIR."



**FR-1**—These planes are still restricted to 6.5 G's pending completion of an NAMC static test and incorporation of some structural changes. Rework at the contractor's plant is nearing completion.

**F4U-5** — Fifty photographic versions, 50 night versions and 228 conventional F4U-5's are to be procured.

**P84Y-1P**—NAS CORPUS CHRISTI'S A&R department has completed a prototype of the new photographic configuration. The plane is now being flight tested.

**XPBM-5A**—NATC PATUXENT RIVER reports that landplane take-off characteristics of the XPBM-5A are considered unacceptable in that stick forces are excessively high and that take-off cannot be accomplished at minimum flight speed due to insufficient control force to obtain take-off trim until undesirable high speeds are reached. To overcome this trouble contractor's representatives and BuAER engineers have decided to install a combination spring loaded, balance and trim tab on both elevator surfaces. It was also decided to increase the tab span to give greater tab effect.

**XBT2D-1** — In tests at Inyokern, aileron failures due to rocket blasts have been experienced with Mk9 rocket launchers. The airplane has been returned to El Segundo for installation of re-designed, strengthened ailerons.

**XBTM-1**—Considerable difficulty has been experienced with exhaust stack failures on this Martin attack plane. A set of re-designed stacks was made available early in January.

**AD-1 and AD-1Q**—Six AD-1's have been delivered. The contractor expects to meet the revised production schedule calling for delivery of 19 planes by January 1947. The first 20 planes are allocated to COMAIRPAC with the second block scheduled for COMAIRLANT.

**AM-1 and AM-1Q**—This plane successfully completed its first flight on 16 December. It is thought the present schedule of 63 planes by 1 July and 8 per month thereafter will be met. The first 10 planes will go to test activities and AM-1's should start going to the Fleet the latter part of February. CNO has allocated all AM-1's to COMAIRLANT for the CVB's.

**TBM-3N-A&R**—Norfolk has completed re-wiring necessitated by discrepancies found in this plane by Electronics Test at Patuxent. The TBM-3N modification line of 33 planes had a mid-January completion date.

**HTL-1, (Army YR-13)**—The Navy will receive two of these trainer type helicopters in February according to the latest Army delivery schedule. Pilots and mechs are taking instructions at the Bell school.

**SC-2**—Three modifications were determined necessary to eliminate tail buffeting reported by Patuxent. These modifications are: seal off inboard portion of slat; install wing fuselage fillet; install

fillet at dihedral break. Contractor estimates that a demonstration plane with these changes incorporated will be ready for Patuxent in six weeks.

**SC-1**—Because of cost involved the modernization program has been cancelled. Since the turbo will not be removed, a service bulletin will be written instructing operating units to block off the turbo.

## Power Plant Division

**Project Squid**—Representatives of Project Squid have visited all service contractors and agencies working on liquid rocket and pulse jet to make a field survey of existing problems. Information gathered will be placed in a report and submitted with recommendations for work necessary to solve pertinent problems. Action has been initiated to expand Project Squid to include atomic energy as a source of power for aircraft propulsion.

**R3350-8 Engines**—VR-2 has experienced trouble on three R3350-8 engines because of concentric groove valve seats loosening and causing loss of compression. A close check is being made on the trouble and the cylinder assemblies will be released to the WAC representatives for shipment to the manufacturer for investigation.

**R3350-8 Engines**—Failure of two R3350-8 engines on the JRM found to have resulted from trouble with the intermediate impeller drive gear (PART NO. 131307). Three earlier failures at the factory led to closer inspection procedure. This procedure started on 14 May and all gears manufactured subsequent to that date are considered satisfactory for service operation. Although only two failures have been experienced in over 20,000 hours of engine operation it is recommended by contractor that all gears in R3350 engines be replaced at next overhaul. Gears removed should be shipped to contractor for inspection and, if rejected, will be replaced at no cost to the government. A total of 229 engines are affected.

**R3350-24W Engines**—The oil modification has been made on 53 out of the total of 275 R-3350-24W engines scheduled. Because of other higher priority projects progress has been slowed considerably.

## Armament Division

**XP2V Gun Mounts**—Ground firing tests of the Mk III and Mk IV gun mounts, as installed in the nose and tail respectively of the XP2V, have been conducted by Lockheed at Port Hueneme. Results indicate that these modified mounts are improvements over their forerunners in that gunsight vibration and gun fire dispersion are reduced. These mounts will be installed in the 17 P2V-1's. The nose mount will be replaced in the P2V-2 by a 6x20 mm fixed gun nose. Commencing with the twenty-fourth P2V-2 the tail mount will be replaced by a 2x20 mm Emerson tail mount.

**Fighter Cockpit Temperatures**—The winter phase of determination of cockpit temperatures in fighters incorporating the

Mk 23 gunsight is underway. The summer phase will not be completed until later in the year.

**Gunsight Controller**—BuAER has requested the W. L. Maxson Corp. to submit informal quotations on manufacture of production quantities of controller AERO X2B and the GRIP AERO X4B for lead computing sights. Delivery will probably not take place before Sept. 1947. The Maxson design was adopted for service use after evaluation of both Maxson and Jandor prototypes.

**.60 Caliber Guns**—Twin .60 caliber gun installations in two F6F-5 planes are undergoing ground and air firing tests at NPC DAHLGREN. Except for ammunition link troubles good operation is reported.

**Variable Boresight**—NATC PATUXENT is testing a light weight device to enable a pilot to choose the alignment of his guns for either air to air or strafing fire. The device is being tested with a twin 20 mm gun installation on an F6F wing.

**Icing Tests On Release Gear**—A project is under way to obtain testing data on effects of various icing conditions on release gear linkages. Project involves design, construction and testing of simple linkages with provisions for controlling several variables affecting icing such as distance between link components, surface finishes and surface areas. Effectiveness of enclosed areas will be tested with regard to condensation effects, breathing, gasketing and use of desiccants.

**Rocket Circuit Tester**—Tests have been completed on the aircraft rocket circuit tester and a recommendation made for its service use.

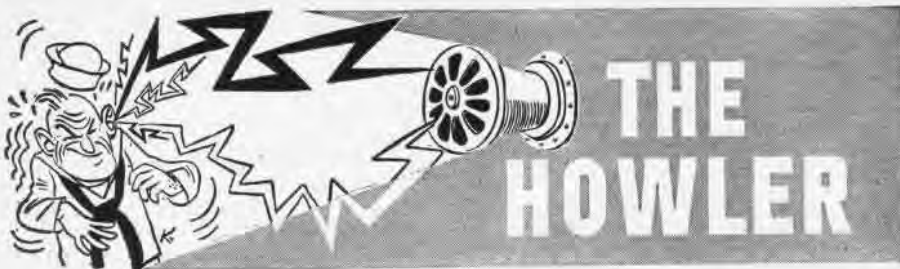
**Insecticide Dispersal Unit**—Fifty insecticide dispersal units AERO X1A, are being manufactured by Naval Gun Factory as an interim measure for dispensing DDT from planes. The first of four units has been shipped to NAS SAN JUAN. Remaining units will be shipped to NSD MECHANICSBURG for storage as BUAEAR AR-27 Res. Stock. A manual of instructions for its use is being distributed.

**Power System**—Under temperature conditions to -20° F the Mk I Mod 0 hydraulic power system operates satisfactorily with no modification. When by-pass valve is modified to provide additional clearance between cylinder walls and piston the system remains operable to -60° F.

**Banner Target Adapter**—This adapter permits air launching of two banner targets per plane and possesses many advantages over drag take-off methods. Information on this adapter, which can be manufactured locally, will soon be made available to the Fleet.

**F6F**—When the Mk 6 aircraft fire control system is produced it is to be retroactively installed in F6F aircraft.

NAS JACKSONVILLE—Beneficial suggestion awards brought \$11,624 to 206 NAS employes during 1946. It is estimated their ideas saved the Navy a total of \$776,568.—*Jax Air News*.



**Undetermined Engine Failures.** Many RUDM's on engine failures are received by BUAE in which the cause of failure is definitely undetermined. The reason given for engine removal is usually "Metal particles in main oil sump." In many instances a complete disassembly inspection would have to be performed by an overhaul activity to determine the source of these metal particles; therefore, the responsibility of "pointing out" an engine that has been removed because of an undetermined failure rests with the operating activity.

General Engine Bulletin No. 64, Supplement No. 4 gives the procedure to be followed in cases of undetermined engine failure. Identify those engines having undetermined failures by a yellow "X." This procedure will expedite the eventual disassembly inspection, insuring the opportunity to incorporate corrections to the engine parts causing the particular type of failure. If you can't determine the cause of engine failure, comply with GEB No.

### Squadron Develops Oxygen Unit

VU-1, NAS PEARL HARBOR—A machinist's mate in this squadron recently devised a portable high pressure oxygen unit which is believed superior to the present low pressure assembly now standard equipment on the JM-2. Compact and self-contained, it can be used without fuselage structure modification.

Making use of a shut-off valve, the bottle can be stored for long periods without loss of pressure. This also permits quick change of oxygen bottles.

The assembly is about two thirds the size of the low pressure unit although it has approximately the same weight. Vacuum cup feet will hold the unit on any smooth surface if not subjected to excessive movement.

[DEVELOPED BY ROBERT S. BLACKBURN, AMM3]

► **BuAer Comment** — The portable high pressure oxygen unit is well designed and



ELASTIC HOLDS VULNERABLE PART ON TOP

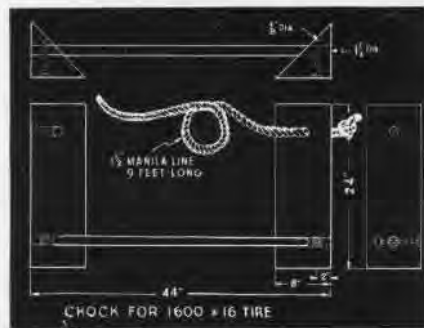
64, Supplement No. 4 in your procedure.

**Use Correct Packings.** According to word received by BUAE, overhaul activities are still installing Stromberg manual mixture control stem packings, P/N 70490, or some equivalent. All green cork packings should be discarded and the brown and red packing be used. In this connection, see RUDM Digest, NavAer 00-65-500, dated July 1946.

**Carburetor Throttle Lever Installation.** Twenty-eight cases of inferior workmanship in the installation of the throttle levers to the throttle shafts on various Stromberg carburetors have been reported recently to BUAE. Proper clearances are not being maintained between the eccentric stop and the throttle lever when the throttle shaft and lever are drilled. The importance of having this clearance correct should be brought to the attention of all overhaul personnel and inspectors.

demonstrates a practical appreciation of the equipment and problems involved. Its inventor should be commended for his resourcefulness. Individual diluter demand units, however, have been developed by BuAer for passengers in VJ-VR aircraft and their use is directed by BuAer T. O. No. 116-44.

These portable units are listed in the Naval Aircraft Oxygen Equipment Handbook Navaer 03-50-517 dated 15 Oct. 1945 and are designated by ASO stock numbers R-83-C-7515 and R-83-C-7510. The low pressure units provided in the JM-2 are Army equipment. If high pressure units are found desirable it is recommended that the Navy standard units be utilized.



LINE HELPS HOLD CHOCKS TO THE WHEEL

### This Chock Will Not Blow Away

VP-144—This squadron experienced some difficulty with having chocks blown from under wheels by prop wash of aircraft taxiing in the vicinity. To avoid

further troubles, heavy-duty chocks were made in the squadron.

Although there are some variations in the wooden block section of these chocks, information given here shows chocks of latest manufacture and is typical of all presently in use.

As shown in the sketch, the line is secured to one side of the open end of the chock. When the chock is in place, the line is led through an eye at the inboard end of the axle, through the hole in the end of the opposite side of the chock and is then secured to itself by half litches.

When in place, this chock has about 2" clearance from the tire, thus facilitating removal of the chock. The line is unlashed before starting engines. Chock was made of a piece of wood 8"x8"x24"; a 1 1/2" galvanized iron pipe 44" long; 3/8" bolts 6" long; 3/8" washers and nuts, and 9' of 1 1/2" manila line.

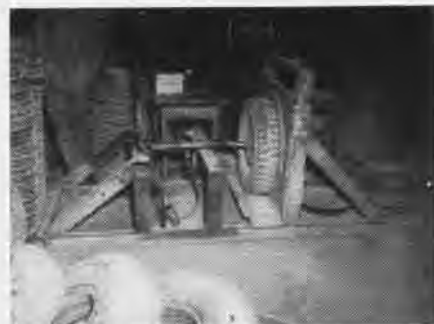
► **BuAer Comment**—The idea is commendable and the design satisfactory for squadrons experiencing this difficulty.

### Efficiency Plan Boosts Working

NAS JACKSONVILLE—A&R department has revised the method previously used in calculating shop efficiency. In the past they were based on the number of units per person produced by each shop. Now shop efficiency is based on the ratio of man-hours earned to man-hours available.

Man-hour figures have been assigned to each production operation by the Management Engineering section. These are used with the number of operations performed to give man-hours earned each month. Man-hours available are computed from total personnel working in the shop exclusive of personnel on leave up to a maximum of 10%.

Shops maintaining an 80% efficiency for three consecutive months will win a production pennant and the supervisors received a letter of commendation from the CO.



INGENIOUS RIG EXPEDITES TIRE CHANGES

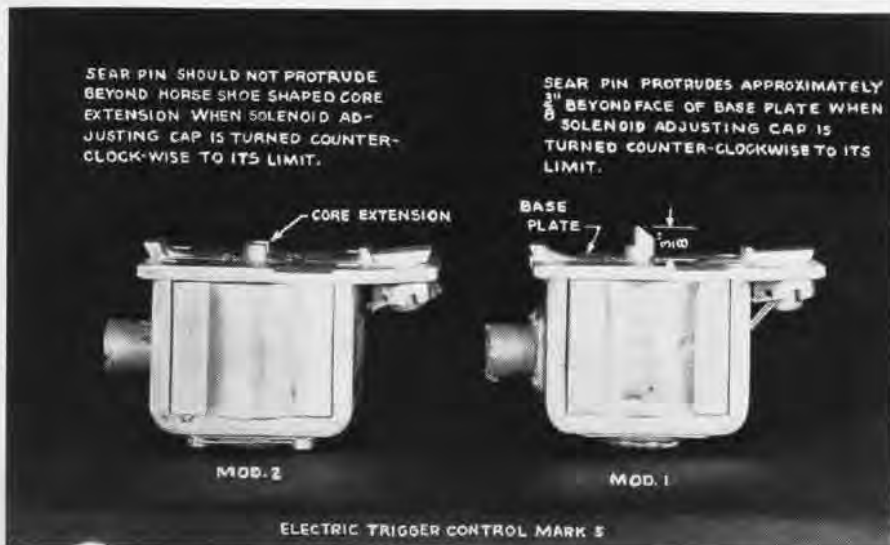
### Hydraulic Press Changes Tires

MAG-24 SERVON—Changing large tires is no longer a chore in this squadron since a Marine in the tire shop invented a device to do the heavy work. A frame holds the tire while a hydraulic press pushes the rim out thus separating rim and tire with a minimum amount of effort. Besides expediting tire changes, the press eliminates using hammers or leverage tools which could injure the tires if carelessly used.



# AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE



SEAR PIN PROTRUSION MARKS DIFFERENCE BETWEEN MK 5 MOD 1 AND MK 5 MOD 2

## Identifying MK 5 Mod 2 Trigger Control

Information available to BuOrd indicates the existence of a number of Electric Trigger controls, Mk 5 Mod 2 that are marked Mk 5 Mod 1. BuOrd is in process of eliminating use of electric trigger control Mk 5 Mod 1 in its present form and replacing it with the Mk 5 Mod 2. Authorization for this changeover has been issued to all squadrons assigned to ships.

Due to the possibility that some of these improperly marked controls might have been issued to the Fleet, the following information (see cut) is given to aid activities to positively identify all Mk 5 Mod 2 controls:

Although numerous external features characterize each Mod, the primary and most reliable means of identification shall be by reference to protrusion of sear pin. In order to correctly identify each control as either a Mod 1 or Mod 2 the following comparison of sear pin protrusion is applicable:

### MK 5 MOD 1

(a) When control is not energized and when solenoid adjusting cap is turned counter-clockwise until it comes to a stop, sear pin will protrude beyond face of base plate an average of approximately  $\frac{3}{8}$ ".

(b) When control is energized and when solenoid adjusting cap is turned counter-clockwise until it comes to a stop, sear pin will normally protrude slightly more than  $\frac{3}{8}$ " beyond face of base plate.

### MK 5 MOD 2

When control is not energized and when solenoid adjusting cap is turned counter-clockwise until it comes to a stop, sear pin will not normally protrude beyond horse-shoe-shaped core extension.

When control is energized and when solenoid adjusting cap is turned counter-clockwise until it comes to a stop, sear pin will protrude  $.337" \pm .000" - .022"$  beyond face of base plate.

Because the electric trigger control Mk 5 Mod 1 does not incorporate the safety feature of "limited sear pin protrusion" that has been designed into Mk

5 Mod 2 control, ordnance personnel maintaining aircraft guns using the electric trigger control, Mk 5 Mod 1 are again urged to review ORDNANCE TECHNICAL INSTRUCTIONS V13-43, dated 14 April 1943; ORDNANCE MODIFICATION INSTRUCTIONS V2-43, dated 23 November 1943; and ORDNANCE PAMPHLET 1400 (preliminary) dated 27 December 1944.

## BuOrd Cancels Use of NOrd Form 146

NOrd form 146 is no longer required and has been cancelled. Operating activities that have or use bombsights Mk 15 and Mods; stabilizers Mk 15 and Mods SBAE Mk 2 Mod 1 and/or related equipment are no longer required to submit the special quarterly report.

Cancellation of NOrd FORM 146 will be confirmed in a forthcoming issue of the *Navy Dept. Bulletin*. Future reports to BuOrd on the equipment will be made yearly on NAVORD FORM 148A (REV. 4/46) along with other on hand aviation ordnance equipment. The first page of NAVORD FORM 148A describes the proper method of submitting that report.

## BuOrd Halts Use of More JATO Units

Additional JATO units have been suspended by BuOrd dispatch 032137 January. (For previous list of JATO suspensions see *Aviation Ordnance* NANews Dec. 1946.)

The only remaining usable JATO units are 12AS1000 D3 and 12AS1000 D4 or Mk Mod 3. At the same time all JATO igniters were suspended except igniters Mk 51 Mod 3 or Mk 151 Mod 3.

The 12AS1000 D3 units are approved for all except cold weather and JRM operations. These units have a lower temperature limit of plus 30° F. The D4 units that have a lower temperature limit of 0° F. are approved for all operations.

## Battery Nearly Wrecks Corsair

VF-2A—A wandering battery seriously damaged the innards of an F4U during a recent launching but the accident was not discovered until the following day. The squadron's (formerly VBF-4) check crews found the battery lodged in the fuselage.

Breaking loose from its mountings during a catapult shot, the battery struck the control column and veered to the starboard side of the fuselage, causing considerable structural damage. The pilot, an experienced carrier aviator, landed at Kobler Field, Saipan, with all controls and instruments functioning normally.

A 90-hour check revealed that a large amount of acid had splashed around the compartment and the two bottom frames at stations 205½ and 211½ requiring replacement. The horseshoe angle on bulkhead 218 was cracked and had to be replaced and the entire lower corner of the bulkhead was reinforced.

This accident might have been more serious had the battery gone to the port side of the fuselage where it could have jammed or sheared the trim tab and rudder cables. A thorough inspection of all squadron aircraft revealed all other battery mounting in good condition, but a periodic check is now being made.

## Canvas Air Ducts Warm Hangar

NAS WILLOW GROVE—In order to keep the hangar area warmer, this station's maintenance department has manufactured canvas air ducts of 15' lengths that extend downward from the overhead blowers.

These canvas air ducts pipe warm air to lower levels greatly increasing heat in the hangar. The blowers are located entirely too high to allow heat to centralize and circulate in the working area.

► *BuAer Comment*—This idea may be of interest to other activities having similar blower arrangements in their hangars. Canvas sleeves are satisfactory for blowers with steam or hot water heat. In cases where hot air is obtained from gas heat a metal duct would be required as a fire prevention precaution.



SLEEVES CONVEY HEAT TO WORKING AREA

# MARINE RADAR ON CHINA FIELD



INTERCEPT SQUADRON HAS GOOD SET-UP

MAG-24, CHINA—Ground control for night and day interceptions by fighter aircraft in the Peiping area is the primary assignment of Marine Ground Control Intercept Squadron 7, at Nan Yuan airfield. It is believed to be the only unit with semi-permanent installations which give greater freedom of movement and ease of maintenance. It also furnished early warning radar and air navigation aids.

The radar section of the squadron consisting of three sets of AN/TAS-1B and one SP-1M set was winterized to meet the rigors of the cold Chinese winters. The console of the latter was removed from the operations van and installed in a Quonset hut (see Pictures No. 1 and No. 2).

A VE-1 remote repeater, modified to use a 12" tube, has been installed at one end of the SP-1M console. Information from either of the two AN sets can be fed into this remote indicator. As shown at the lower right of Picture No. 2, a switch allows the controller using the VE-1 to choose the AN set furnishing the best information at the time during the problem.

At the lower right can be seen a control box resting on the radar switch box. This allows the controller to select either of four communication channels furnished by MCCIS-7 communication section or any of the nine channels furnished by an ARC-1 set installed in the radar area. Four speakers allow constant monitoring of channels 1, 5, 7 and 10. An SCR-127A is installed directly in front of the VE-1 to furnish identification of aircraft. (Picture No. 3.)

Of the two AN sets now in operation, one is mounted in an SCR-573 truck from which radio gear was removed. The other (see Picture No. 1) is sheltered by a standard pyramidal tent and mounted on top of the SP-1M operations van. It was thought that the difference in heights of the two sets would allow each to cover the fade area of the other. This has not been as effective as hoped for.

Primary power for the above equipment is furnished by the GM series 70 Model 3016E motor generator set. Relief power consists of one Navy type 73029 gasoline engine-generator set. Radar installations occupy about a third of the Quonset hut; the rest is devoted to shop space, tool room and office. All vans are set on blocks with radiators drained and engines winterized. Vans may be closed off with heaters installed for winter.

## Hot Weather Ruins Bungee Cord

MAG 24—Extremely high temperatures of the Chinese summer created a number of problems for this group during the past season. One such problem was that of replacing bungee cords on RAD's. Hot weather caused these cords to break with annoying frequency and replacements were limited.

In attempting to remedy the situation, maintenance crews replaced the cords with compensator cylinders and assemblies from RAD-6's. This change has proved satisfactory.

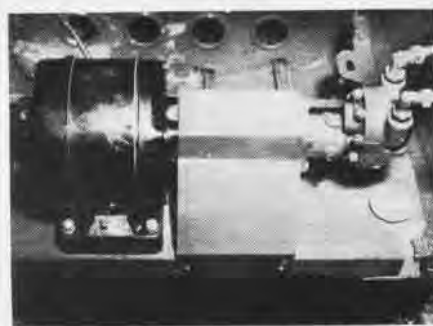
## Gibson Girl May Get Aerial Use

VR-5, SEATTLE—Communications department of this NATS squadron is exploring the possibility of using the Gibson Girl emergency transmitter while in the air in case of complete power failure. This and the emergency battery range receiver, in such a situation, would be the only means of radio communication in the 150.

New racks were constructed for the range receiver, which formerly was placed on the cockpit floor. The unit is a Boonton Radio Corp., type 185 receiver and type 186 battery box using one battery of 1½ volts and two batteries of 45 volts each. It has a range of well over 100 miles. The battery box and receiver are connected with snap slides and cushion mounts, making one compact unit.

The receiver rack is a simple arrangement that fits compactly on the jump seat spring pins between the radioman's compartment and the cockpit. The receiver unit is attached to this rack by two clamps already installed on the battery box. This puts the receiver dial and phone jack directly over the pilot's right shoulder, and the antenna and ground connections within 13 inches of the radioman's BC-348 antenna and ground terminals.

The complete installation including rack and batteries weighs less than 17 lbs. When not in use it can be stowed on the rack above the radioman's position between the SCR-718 radar altimeter and the ARC-1 transeiver where it is out of the way.



MOTOR OPERATES LANDING GEAR, FLAPS

## Stripped SNJ Used in Training

NAAS BABIN FIELD—For demonstration purposes in engineering ground training, a stripped SNJ was equipped with a ½-hp motor of 1850 rpm, attached to a regular engine hydraulic pump Pesco 263-E. This enabled the engineering instructor to demonstrate fully the action of the landing gear and flaps as they are operated through several cycles, while the students can observe all the operating mechanisms.

The ½-hp motor and engine hydraulic pump are joined by direct drive on a wood stand placed in the semi-monocoque just aft of the rear cockpit. This setup produces the full 1000-pounds per square inch pressure necessary to operate the hydraulic system. In attaching the pump to the motor a hard rubber connection was used, and this with the wood stand effectively absorbed vibration.

Tests are being made by the A&R shop at this field to determine the adaptability of a device of this kind to shop use in testing hydraulic installations.

## Corsair Engine Leak Troubles

VMF-452, PACIFIC—This Marine squadron on the Badoeng Strait (CVE-116) has experienced oil leaks in several instances in the R-2800 engine of the F4U-4 using the neoprene synthetic rubber type gaskets and packings.

It is recommended that a different type pushrod cover packing and rocker box cover gasket seal be issued that is able to hold original position as hardening and crystallization occur. In numerous instances, leaking pushrods and rocker box covers have been removed to find that the packings and gaskets have become brittle and hard. Some pushrod packings had to be chiseled out and some gaskets sanded off. Leakage was attributed directly to this condition.

►BuAer Comment—The contractor is aware of the oil leakage problem at the pushrod cover packings and is currently conducting a service test on an improved packing material and arrangement which is expected to eliminate this problem.

The leakage is caused to a large degree by hardening of Part 288917. However, the tendency to develop oil leakage after several hundred hours of operation may be overcome to a great extent by lightly greasing the pushrod cover packings with a mixture of 90% Dow Corning 24 compound and 10% graphite, tightening the gland nuts to a torque of 150 in. lbs. and safety wiring the nuts to secure them.



### New Super-High Strength Alloy

A new super-high strength aluminum alloy has been developed on an experimental scale which has properties superior to any previously known alloy for aircraft structural applications.

The 75s and R-303 aluminum alloys developed during World War II have been the strongest aluminum alloys commercially produced. These alloys have only recently come into general use in naval aircraft construction. They are members of the aluminum-zinc base alloy system. The new alloy is a member of this same family and owes its superior properties to a new combination of alloy percentages.

In most previous instances when a new alloy was introduced to the aircraft industry not much was known about its forming properties. Knowledge of its forming properties had to be gained by using it which was often costly and delayed its full and efficient use.

Bureau of Aeronautics is attempting

to reduce these difficulties in the case of the new alloy by making extensive tests to serve as a guide for improvement of the alloy and provide the know-how for its use before it is ready for commercial use.

The test work is only in its preliminary stages now, and no conclusive values can be stated for any property. The alloy itself may be altered before it is ready for commercial production. The preliminary tests below, however, indicate a probability that the new alloy may replace presently used alloys in applications requiring high strength and not requiring severe forming.

The tests when completed will provide comprehensive data on the mechanical, structural, metallurgical, physical, chemical, corrosion, joining, and forming properties of the material.

Limited tests have already been made, and some of the typical mechanical properties are listed below. Typical properties of 24S-T and 75S-T are listed for comparison.

	New Alloy Extrusion	New Alloy Sheet	75S-T Sheet	24S-T Sheet
Ultimate Tensile Strength, p.s.i.	100000	92000	82000	68000
Tensile yield Strength, p.s.i.	98000	84000	72000	46000
% Elongation (in 2 in.)	5.5	6.5	11	19
Approx. Min. Bend Radius (90° Cold Bend)	10.7T	9.6T	6T	4T

### Locking Nut May Save A Plane

VP-MS-2—For want of a locking nut this squadron nearly lost a PBM during routine launching operations at NAS SAN DIEGO.

The near mishap occurred when a slight bounce set up a whipping oscillation in the restraining cable at the caterpillar hitch. The eye of the whipping cable caught the clevis pin in a slightly worn spot throwing it clear.

When the aircraft started over the side at a 45° angle the tail bar man, wearing waders, was unable to keep pace with the plane. Sensing the condition the pilot added power in an attempt to gain rudder control and straighten the course of his aircraft.

Quick-acting beachmaster, George D. Stine AOM 1c, gained control of the tail bar, straightened course and guided the plane into the water undamaged. His action prevented the aircraft from going over the side of the ramp midway to the water which was at low tide. Serious dam-

age if not total loss of the aircraft and possible injury to the crew members would have resulted if the plane's course had not been righted.

Although the clevis pin that was whipped out in the near accident extended two full inches below the hitch at the caterpillar, a chrome vanadium steel pin with threads and a locking nut is now used to prevent any recurrence of this type accident.

### Squadron Removes Defuel Valves

VF-1A—Investigation of gas fumes which had been filling the cockpits of this squadron's F4U's recently revealed that leaky defueling valves were filling the bilges with gasoline. Defueling valves were removed and found to be leaking excessively around the rotor stem and leaking at top and bottom plates and all side plates.

Since spare parts were at a minimum, in fact almost nil, the growing list of planes A.O.G. awaiting spare defueling valves was viewed with alarm. With the permission of the Bureau, however, this squadron devised its own remedy.

The defueling valve removed from the aircraft in its entirety and replaced with a plugged and safety-wired "T" fitting. The new fitting performed all the necessary functions with a saving in weight and a gain in simplicity.

The part can be drawn from regular stock issue and installed in two hours. The remedy was devised by ACMM Petway and AMMH3 Glokner.

► **BuAer Comment**—The temporary fix to relieve the A.O.G. condition for F4U-4 aircraft is satisfactory. However, Power

Plant Accessories Bulletin No. 6-46 provides for the modification of the Parker Defueling Valve P/N4136-1 which will prevent external leakage as reported by this activity. Activities are cautioned to request BuAer permission for this installation.



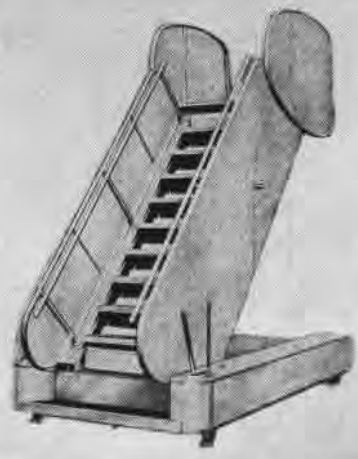
MARTIN RAMP HAS LIGHTS, SPIRAL STAIR

### NATS To Get New Loading Ramp

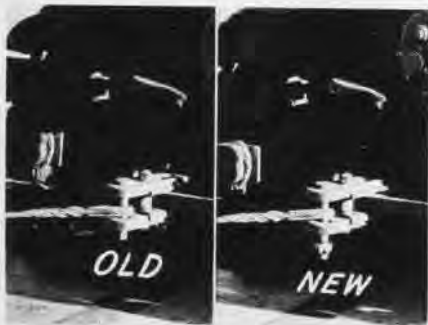
In an attempt to standardize passenger loading ramps for NATS, the Bureau of Aeronautics is procuring six ramps of a type currently being used by major air lines. Three of Glenn L. Martin's circular-type ramps and three of the Airquipment Company's "Aero-ramps" under procurement.

The Martin ramp, shown in figure 1, is of aluminum alloy construction with a height of 10' 11", an overall length of 11' 2" and an overall width of 6' 2". A 24-volt DC lighting system is installed with two lights at the center and one each at the top and bottom landing. This unit is mounted on 2-10" and 2-16" rubber tread wheels with brakes installed on the wheels to lock the ramp while loading and discharging passengers.

The "Aero-ramp," shown in figure 2, is of tubular steel construction and covered with aluminum exterior panels. The platform is hydraulically operated at any position from 49 to 120 inches. The unit is mounted on 2-10" and 2-16" rubber tread aft and 2-12" aluminum castor wheels, providing mobility and steering features.



'AERO-RAMP' CAN BE RAISED OR LOWERED



UNSECURED PIN WHIPPED OUT BY CABLE

# AERONAUTIC PUBLICATIONS INDEX

## Aviation Circular Letters

Title	Order No.
§Handbooks, Manuals, Catalogs, Specifications, and Equipment, Revised Classification of.	A.C.L. 173-46
§Security Classification of Naval Aircraft, (Confidential)	A.C.L. 174-46
§Monthly Reporting of Naval Aircraft Instructions Concerning Striking and Disposition of Naval Aircraft—Instructions Concerning.	A.C.L. 175-46
§KDR-2 Pilotless Aircraft Model Designation: establishment of.	A.C.L. 1-47
§KDR-1 Pilotless Aircraft Model Designation: establishment of.	A.C.L. 2-47
§Aircraft Log Books—Monthly entries in.	A.C.L. 3-47
§Records Management Program.	A.C.L. 4-47
§Personnel (Officer and Enlisted) of Naval Aviation Shore Establishments and Fleet Aviation Units—Relationship between and coordination of.	A.C.L. 6-47
§H. O. Publication 510A, Naval Airways Pilot, Alaska, Declassification of.	A.C.L. 7-47
§TBM-3J Model Designation; establishment of.	A.C.L. 8-47
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§Procedures for Air Navigation Services (Six Volumes), North Atlantic Region, Provisional International Civil Aviation Organization (PICAO).	A.C.L. 10-47

## Technical Notes

§Technical Notes—List of Those Cancelled and Those in Effect.	T.N. 0-47
§Modified Buoy Spider Incorporating Pick-up Loop and Reflector.	T.N. 1-47
§Method of Distinguishing Corrosion Resisting Steel and Inconel.	T.N. 2-47
§Confidential Technical Notes—List of Those Cancelled, Down-graded and in effect.	T.N. A-47

## Technical Orders

§Technical Orders—List of Those Cancelled and Those in Effect.	T.O. 0-47
§Model PBV-5A, -5, -6A and Model PB2B-1 Airplanes, restrictions to be Observed in Operation.	T.O. 1-47
§Confidential Technical Orders—List of Those Cancelled, declassified and in effect.	T.O. A-47

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### Section B

F4U-1, -4B, Reissued Jan. 1947.	NavAer 00-35QB-54
J2F, Reissued Feb. 1947.	NavAer 00-35QB-57
§AD-1, -1Q, Jan. 1947.	NavAer 00-35QB-71
R5D-1, -3 Reissued Jan. 1947.	NavAer 00-35QB-61

### Forms

§Aircraft Flight Report—VT, VA, VFM, VF, VO, and VU-100 sheets.	NavAer 2430
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## Accessories

§Anti-Icing System, b-5 Eclipse Anti-Icing Pumps—Model 744—Conversion, Rework and Test of, Dec. 17, 1946.	6-46
§Aircraft Tires—Size 32 X 8—Rayon Cord Construction—Removal and Replacement of, September 16, 1946.	18-46
§Landing Gear, f-23	19-46
§Miscellaneous Accessories, i-5 Supplement No. 1 Weatherhead Hose Assemblies; Low, Medium and Medium High Pressure Using AN773, AN787, AN788, and AN789 Detachable End Fittings—Instructions for, Sept. 20, 1946.	22-46
§Airframes Accessories Bulletins—Index of Effective Bulletins, Jan. 24, 1947.	0-47
§Power Plants Accessories Bulletin No. 0-47, Jan. 24, 1947.	0-47

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### Pumps

§Operation and Service Instructions for Hydraulic Oil Pump Model RD-4950, Aug. 2, 1946.	AN 03-30CQ-4
Hamilton Standard Propeller Bulletin: Torsional Vibration Absorber for Blade Drawing 6353A—Installation of, Jan. 10, 1947. Rev. #1.	40

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--	--------------

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§Designates New Publication.

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## Airplane Bulletins, Changes

### F4U-F3A-FG

Change §Electrical—Instrument Panel Lighting 28 Volt Lamps—Installation of, Jan. 21, 1947.	243
Bulletin §Fuselage—Tail Section—Stations 288 to 310 Rivets—Inspection of, Jan. 17, 1947.	292
§Electronics—Combination Earphone and Mask Microphone Cord, Type CX-922/AR Installation of, Jan. 21, 1947.	291

### F4U-FG

Bulletin §General—Aircraft Service Changes & Aircraft Bulletins—Omission of F3A Designation, Jan. 14, 1947.	295
---	-----

### F4U

Change §Lubricating System—Oil Dilution System—Installation of, Dec. 27, 1946.	257
--	-----

### F6F

Change §Furnishings—Pilot's Seat Installation—Strengthening of, Jan. 14, 1947.	97
--	----

### F7F

Change §Engine Accessories—Generator Blast Tube—Replacement of, Jan. 24, 1947.	42
--	----

### F8F

Change §Wings—Outer Panel-Aileron—Modification of, Jan. 7, 1947.	18
§Wings—Center Section—Main Beam and Skin—Reinforcement of, Fuselage—Skin—Reinforcement of, Jan. 7, 1947.	24

### FR

Change §Fuel System—Check Valve—Installation of, Dec. 27, 1946.	30
---	----

Bulletin §Electrical—After Power Plant Electrical Wiring—Inspection of, Jan. 24, 1947.	26
--	----

### JD

Change §Landings—Gear—Nose Wheel—Side Braces—Replacement of, Jan. 17, 1947.	2
---	---

§Landing Gear—Nose Wheel—Strut—Torque Arm Bolts—Replacement of, Jan. 10, 1947.	3
--	---

### JRB/SNB

Bulletin §Engine Nacelle—Exhaust Tail Pipe Shroud—Inspection of, Jan. 21, 1947.	58
---	----

### PB4Y

Change §Furnishings—Ditching Provisions, Installation of, Jan. 14, 1947.	204
--	-----

Bulletin §Electrical—Canvas Covers Over Electrical Connections—Replacement with Non-inflammable Type, Jan. 3, 1947.	242
---	-----

§Instruments—Static Vents—Replacement of, Jan. 14, 1947.	246
--	-----

§Fuel, Hydraulic and Electrical Systems—Lines in Bomb Bay—Inspection of, Jan. 14, 1947.	247
---	-----

### PV

Bulletin §Instruments—Fuel Quantity Transmitter and Switch Units—Modification of, Jan. 7, 1947.	193
---	-----

§Instruments—Pitot Tube Installation Airspeed Piccard—Installation of, Jan. 14, 1947.	194
---	-----

### R4D

Bulletin §Navigation Equipment—Installation, Dec. 31, 1946.	61
---	----

§Furnishings—Flair Release Tubes—Installation of, Dec. 31, 1946.	64
--	----

### R5D

Change Safety of Flights: 153	
§Electrical—Dish Guard for Cargo Space Lights—Installation of, Jan. 21, 1947.	153

### SB2C-SBF-SBW

Change Safety of Flight: 169	
§Power Plant Controls—Propeller Pitch Control Switch—Relocation of, Dec. 31, 1946.	169

§Designates New Publication

(Continued on next page)



Title	Order No.	Title	Order No.
<b>SC</b>			
Change §Hydraulic System—Flap System Relief Valve—Installation of, Jan. 3, 1947.	57		
<b>TBF/TBM</b>			
Change Safety of Flight: 248 §Power Plant Controls—Flexible Controls—Replacement and Rerouting of, Jan. 21, 1947.	248		
Bulletin §Armament Provisions and Gun Mounts—Reinforcing of, Jan. 10, 1947.	229		
<b>Aircraft Armament Bulletin</b>			
§Aircraft Rocket Launcher, Mark 6—Modification of When Used with Aircraft Rocket Launcher, Mark 9 Mod. 2, Dec. 27, 1946.	105		
<b>Armament</b>			
<b>Tow Target</b>			
§Handbook for Anti-Aircraft Target Reel Mark 8, Mod. 0, July 15, 1946.	NavAer 28-10A-500		
<b>Instruments</b>			
§Miscellaneous Manufacturers of Class 88 Aircraft Instruments, Dec. 31, 1946.	37-46		
§Liquidometer Instruments, Dec. 31, 1946.	38-46		
§All Published Aircraft Instrument Bulletins in effect, Jan. 1, 1947.	1-47		
§Pioneer Instruments, Jan. 21, 1947.	2-47		
<b>Automatic Pilots</b>			
<b>G-1: G.E. (Electric-Hydraulic)</b>			
Overhaul Instructions for Automatic Pilot, Revised July 18, 1946.	AN 05-45AE-2		
<b>Gyro Horizons and Directional Gyros</b>			
Parts Catalog for Attitude Gyro Indicator Navy Stock No. R88-1-1310 and Army Type J-1, Re-issue Dec. 1, 1946.	AN 05-20GD-6		
<b>Indicators</b>			
<b>Airspeed</b>			
Parts Catalog for Type F-4 Airspeed Indicators, Re-issued Oct. 21, 1946.	AN 05-10-25		
<b>Flowmeter (Anti-Ice)</b>			
§Operation & Service Instructions with Parts List—Twin—Anti-Ice Flowmeter, R88-M-119, Oct. 1, 1946.	NavAer 05-65-541		
<b>Selsyn and Autosyn</b>			
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Parts Catalog for Liquid Level Autosyn Transmitters Float-Type and Pressure-Type (Hydrostatic), Revised Nov. 12, 1946.	AN 05-55B-12		
<b>Sextants and Octants</b>			
Operation, Service and Overhaul Instructions with Parts Catalog for Bubble Sextant, R88-S-375, Revised Dec. 6, 1946.	AN 05-35-27		
<b>Tubes and Vents</b>			
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<b>Photography</b>			
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§Designates New Publication			
<b>Manuals</b>			
Handbook of Overhaul Instructions for Aircraft Engines R-1820-56, -56WA, -62, -62A, -66, -72W, -72WA, -74W and -76N, Revised Nov. 1, 1946.		AN 02-36GD-3	
Parts Catalog for Aircraft Engines Model R-1830-02, Revised Oct. 1, 1946.		AN 02-10CC-4	
Service Instructions for Models R-2000-7 and -11 Aircraft Engines, Revised Sept. 1, 1946.		AN 02-10FA-2	
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Overhaul Instructions for Aircraft Engine Models R-2800-21, -27, -31, -43, -51, -59, -63, -71, -75, -79, Revised Nov. 1, 1946.		AN 02-10GA-3	
Handbook of Overhaul Instructions for Engine Models R-3350-S, -14, -24W, Revised Jan. 15, 1947.		AN 02-35JB-3	
Modification Instructions for Aircraft Engine R-4360 Series, Revised Dec. 16, 1946.		NavAer 02-10H-500	
Overhaul Instructions for Models R-4360-2, -2A, -4, -4A, -18, -27, and -35 Revised Aug. 15, 1946.		AN 02-10HA-3	
<b>General Engine Bulletins</b>			
§Markings: Special Identification on Markings on Aircraft Engines and Primary Engine Accessories—Policy Concerning and List of those Currently in Use, Jan. 17, 1947. Supp. #1.			64
§Resin Coating—Permanent Protection of Internal Metal Parts of Aircraft Engine with, Dec. 31, 1946. Rev. #1.			66
§List of Effective Engine Bulletins, Jan. 10, 1947.			95
§Packing—Poppet Valve P-70089—Replacement of, Jan. 29, 1947.			96
<b>Radio/Radar</b>			
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§Handbook of Maintenance Instructions for AN/ APA-65 Remote Control-Monitor Group Mark 2, Mod. 1 and Associated Equipment, Mar. 27, 1945.		CO-NA 16-30 APA 65-500	
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<b>Aerology</b>			
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§Terminal Forecast Groups to Hourly Weather Reports from Certain Stations, Change in Code Form of, Dec. 31, 1946.			30-46
§Standard Items, Tide Tables, Pacific and Indian Oceans; Tide Tables, Atlantic Ocean; and American Nautical Almanac, Discontinuance as Standard Items, Jan. 10, 1947.			1-47
§Monthly Aerological Summary. Additional Instructions Concerning, Jan. 20, 1947.			2-47
§Designates New Publication			

## LETTERS

SIRS:

The officers and enlisted men of Fleet Aircraft Service Squadron ONE HUNDRED FOURTEEN take a great deal of pride in submitting to NAVAL AVIATION NEWS the inclosed facsimile of their recently approved squadron insignia.

Several excellent ideas and sketches were submitted to the squadron by its members.

All of them showed a great deal of originality and effort, but the insignia submitted by Lieutenant Finis E. Holland, USN(T) was finally selected.

In view of the mission and location of FASRON 114, it is felt that the inclosed insignia is very apropos.

J. B. JOLLY, LT. CDR., USN  
COMMANDING OFFICER.

§See the back cover on this issue for FASRON-114's colorful insignia.

NAS MOFFETT FIELD—Sardine-lovers will be glad to note that ZP-51 is now aiding the fishing industry. In flights from California coast, blimps have carried expert spotters as far as 150 miles to sea to discover large schools of these fish just below the surface. They report back to shore by radio.

The blimps have located scores of schools ranging from 30 to 100 tons. Requested by CNO, this work is carried on in conjunction with the California Bureau of Marine Fisheries and the San Francisco Sardine Association.—Moffett News.

# LETTERS

Sirs:

Here you find pictorial representation of what demobilization does to an operating squadron. The "Before" picture was taken on 13 May 1946, of what was optimistically assumed to be our permanent outfit all the Reserve officers either having applied for transfer to USN or for retention until July 1947. The "After," perhaps better labeled "Now," is as of 15 January 1947 and shows only those of the permanent (?) outfit remaining.



The pictures tell only the part of the story since May 1946. Prior to May the figures were worse. In addition to those detached, this squadron has received a total of 23 new pilots and has detached five of them. And I believe our situation is typical.

Just to prove that we are an operating squadron in spite of pilot demobilization, Quonset weather and limited plane availability (AMM's were demobilized too) the squadron has flown a total of 3050 hours and made 991 carrier landings since 13 May 1946.

M. COURT NORRIS, JR., LT. CMDR.  
VF-7A (EX VF-18)  
NAS QUONSET POINT

NAS WILLOW GROVE—When private contractors bid as much as \$1,000 to make dog tags for stationkeeper personnel at Willow Grove, Supply Department decided to make them from addressograph plates.

Sirs:  
After reading the letter written by Capt. W. A. Moffett, U. S. N., on "firsts" for VB-101 in your December 1946, issue of NAVAL AVIATION NEWS, it was felt that many more "firsts," rightfully the claim of the same organization, were made prior to the 1943 period mentioned. The below list of "firsts" are offered to augment those listed in Capt. Moffett's letter and are the credit of VP-51 originally commanded by Lt. Cdr. D. T. Day and later by Capt. W. A. Moffett. VP-51 officially became VB-101 early part of 1943.

1. June, 1939 to February 1941—VP-51 was one of the first, if not the first Navy squadron to maintain a continuous year round flight schedule in areas North and East of the New England states, including Nova Scotia and Newfoundland areas. This detachment was under the command of the now Capt. L. B. Southerland, U. S. N.
  2. December, 1941—VP-51 was the first VP Squadron to leave the continental limits of the U. S. after December 7th, 1941, and was the first VP Squadron to land at Kaneohe Bay after the Japanese attack on Pearl Harbor.
  3. December, 1941—A plane of VP-51 piloted by Lt. (jg) F. M. Flister and Lt. H. Wagner AMM 1/c. (NAP) was the first PBY to make a call of mercy air sea rescue of nine Army fliers 550 miles south of the Hawaiian Islands in ground swells estimated to be between 40 and 50 feet. These two pilots were the first VP squadron, if not the first naval, personnel to be decorated with the Navy Cross by Admiral C. W. Nimitz after his assumption of command at Pearl Harbor, T. H.
  4. December 25th, 1941 to June, 1942—VP-51 maintained as many as 22 PBY type planes in ready for flight condition.
  5. June, 1942 to October, 1942—VP-51 was the first and only squadron to operate its planes simultaneously in three different areas of the Pacific theatre—all being combat areas at the time: Midway, Dutch Harbor, and Fiji and Espiritu Santos.
  6. 7 August 1942—A plane of VP-51 was the first and only plane to make contact with the 10th Fleet under the command of Admiral Kinkaid. This lone plane preceded the 10th Fleet into Kiska Bay acting as a weather relay and anti-submarine patrol.
  7. June 3, 1942—Two planes of VP-51 made the first VP torpedo attacks on the Japanese fleet then attacking Midway Islands.
  8. VP-51 was the first naval combat squadron to receive PB4V-1 aircraft and was the first to take them into action against the enemy.
  9. VP-51 was the first operating squadron to conduct a complete mobile training course on the PB4V-1 aircraft using working mock-ups made from actual parts salvaged from damaged aircraft. This school trained over 850 Army, Navy and Marine personnel in the maintenance and operation of the PB4V-1 aircraft in areas still under bombing attack.
  10. During the period January 1943 to September 1945, VP-51, alias VB-101, maintained the highest aircraft availability schedule of any VP Squadron in the Guadalcanal area operating the same equipment. During this period not one aircraft was lost due to maintenance.
  11. VP-51 was the first squadron to use their PATSU as an integral part of the operating squadron, training and employing PATSU personnel as replacement combat air crews.
- Finally, it is felt that VP-51 alias VB-101, deserves the final "first" in that although this squadron has contributed in lives and effort above and beyond the normal call of duty, to this date has not been cited or commended for a job "well done."

H. L. HOPE, LT. (jg) USN  
R. C. GORE, LT., USN

MAINTENANCE DIV., BUAEF



The Cover At anchor off NAS NORFOLK, the CVB Roosevelt forms a backdrop for liberty parties going ashore in a shore boat. Wide stack of CVB's makes them an easy ship to recognize from a distance.

## CONTENTS

Speed Chutes . . . . .	1
Grampaw Pettibone . . . . .	6
Did You Know . . . . .	8
And There I Was . . . . .	11
Defense on Deposit . . . . .	13
Marc A. Mitscher, USN. . . . .	17
Reserve Flying . . . . .	18
Saipan Playground . . . . .	20
Looney Goonies . . . . .	22
NATC Muscle Building . . . . .	24
Traveling Tropics . . . . .	26
Technically Speaking . . . . .	27
High Octane Fuel . . . . .	29
Oil Leaks . . . . .	30

Grampaw's Safety Quiz 7, Navigation Quiz 9, Afloat and Ashore 23, Aviation Progress 32, Howler 34, Aviation Ordnance 35, Publications 38.

## ANSWERS TO QUIZZES

### ● GRAMPAW QUIZ (p. 7)

1. Bail out. Ref.: Flight Safety Bulletin 10-45.
2. Always in the direction of normal rotation to clear oil from the intake pipes. Ref.: BuAer Manual, Art. 14-201.
3. Check flight instruments before takeoff and go on instruments immediately upon becoming airborne. Assume and maintain a safe rate of climb. Do not make unnecessary turns and do not operate auxiliary controls or radio equipment until you are above 500 feet. Ref.: Flight Safety Bulletin 10-45.
4. (a) East—Odd thousands.  
(b) West—Even thousands.  
(c) North—Odd thousands.  
(d) South—Even thousands.  
Ref.: C.A.A. Regulations.
5. Toward the inside of the spin to avoid hitting the tail surfaces which will be on the outside of the spin. Ref.: Page 90, "Parachute Sense."

### ● RECOGNITION QUIZ

- (inside back cover)
1. FD-1
  2. P-82
  3. Vampire (Br.)
  4. P2V
  5. Constitution, XR60
  6. IL-4 (DB3F) (Russian).

### ● NAVIGATION QUIZ (p. 9)

1. The upwind leg 2. 090° T 3. Yes 4. 86 gals. 5. 28 gals.

### ● AIR STATIONS QUIZ

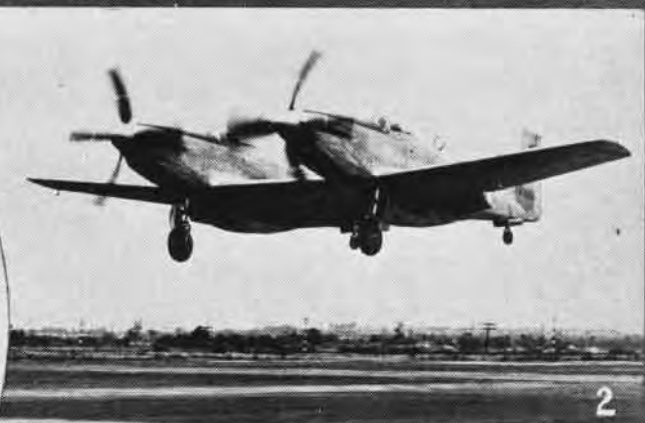
(inside front cover)  
Top—NAS Corpus Christi. Bottom—NAS Seattle.



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# Giants and Jets



RECOGNITION QUIZ

NAVAL AVIATION  
**NEWS**

ANSWERS ON PAGE 40



## SQUADRON INSIGNIA

COLORFUL insignia from heraldic designs to Walt Disney's fantasies feature this month's squadron insignia. VF-14-A's insigne honors Capt. Hoskins, CO of the *Princeton*, CV-37, who lost a leg on the old *Princeton*. The pirate is symbolic of the squadron's *Corsairs*. VA-8-A's insigne has a knight on horseback, holding a torpedo. His helmet wings symbolize aviation, the anchor on the shield sea duty. Animals appear to be popular with insignia-artist. VF-22-A has a black panther with rocket and bomb, symbolizing its *Hellcats*' striking power. FASRON-114's bear and mountains bespeak its cold locale, in the frigid Aleutian Islands



VA-8-A



VF-22-A



FASRON-114



VF-14-A