

NAVAL AVIATION

NEWS



Naval Air Transport
Radar Countermeasures

March 1946

RESTRICTED

SHARE
THIS
COPY

MARINE CORPS AERIAL GUNNERY

TELL IT TO THE MARINES!

Tell it to the Navy too, but first tell it to NAVAL AVIATION NEWS. The situation may be well in hand but there's a story behind it. Let NAVAL AVIATION NEWS tell it to the entire aeronautical service. Whether the story is long or short, terrific or just technical, include it in your activity's next monthly News Report. It's up to the commanding officers of aviation activities to insist that adequate reports be submitted.*

TRACER SETS UP AN INTERESTING AND COLORFUL PATTERN ON THE NIGHT AIR PRACTICE NIGHT FIRING DEVELOPS THE CAPABILITIES OF MARINE AERIAL GUNNER

Many Marine aviators returning from overseas are sent to the aerial gunnery school at MCAS to receive training. This school does not train new gunners. Instead, veterans are given a thorough refresher course.

Incoming Marines are interviewed to discover any unusual problems that confronted the aviator during their combat duty. The course of instruction then is supplemented to give veterans

all the latest information gathered in the field. The shortcomings of aerial gunnery training that were prevalent during the early stages of the Pacific war have been eliminated through the work of this school.

As the Marines increased their operations from carriers, coded message centers and blinker have been used by key and blinker. Requirements call for more and more. Requirements call for a gunner to be able to take a minimum

of twelve hours of instruction. Accounted in the practice training code practice throughout the entire 11 weeks course.

The standard United States aerial gun is the air-cooled caliber 50 Browning machine gun. An aviator's job is to be enough of a machine gun expert to use and care for the gun properly and to make emergency repairs on



MARINES LEARN TO FOLLOW TARGET WHEN VISION IS DIFFICULT



STUDENTS SET UP THE RU-15 RECEIVER AND GP TRANSMITTER

4. Mission and publication will be of interest to the columns of Naval Aviation News including aerial gunnery and overhaul developments.
5. To accomplish this mission, commanding officers of all aircraft carriers, aircraft squadrons attached to the Fleet, Naval Air Stations and Fleet Air Bases, Marine Corps Air Stations and separate aviation units afloat or ashore, including Naval Reserve Aviation Bases and detachments are directed to submit monthly news reports. These reports, together with necessary illustrative photographs and/or drawings will be forwarded (via immediate superior if required) to Chief of Naval Operations.
6. Activities submitted to Naval Aviation News should be classified as directed.

Suggested Subjects:

information about safety, survival, technical, maintenance and overhaul.



Navy's Airline Spanned Oceans, Sustained Beachheads, Speeded Wounded to Hospitals

FORGED in the flames of Pearl Harbor and built solidly on the shoulders of U. S. commercial air lines experience the Naval Air Transport Service has grown from a set of paper plans and the signature of SecNav to a vast operation spanning a continent and two oceans. In the days immediately preceding Pearl Harbor NATS was little more than a dream of Captain C. H. Schildhauer, the man who created Pan American's trans-oce-

anic empire. Five days after the Japs struck in the Pacific, a carefully planned air transport program was placed on the desk of the late Secretary of the Navy Frank Knox. His signature affixed to that plan paved the way for an airline that has made record after record.

Within four months of the signing of the order that established Naval Air Transport Service the first NATS operating squadron VR-1 was commissioned. This was in March, 1942. The organization boasted 27 officers and 150 enlisted men plus one-half of a landplane hangar at NAS NORFOLK and four B4D's. Not an auspicious beginning for an airline destined to become one of the largest transport operations in the world!





HAWAII AND DIAMOND HEAD ARE FAMILIAR SIGHT TO NATS FLIERS

Vital Combat Zones Brought Closer To Home Front Production Lines by NATS

AXIS SUBMARINES dictated the first routing of NATS planes. Prowling Atlantic coastal waters and the Caribbean, these subs took a terrific toll of shipping thus forcing the need for supplies in this area. So scheduled operations went south to Corpus Christi, Miami and Cuba, before going northeast to Reykjavik, Iceland. Less than a month later NATS turned its operational attention to the west and southwest, and on April 1, 1942, NATS squadron VB-2 was commissioned at NAS ALAMEDA.

"Too little, too late!" That was the cry and a tiny NATS organization was rushing to still that growing voice. Under the impetus of war NATS branched out: To Hawaii in May of '42 and after that step by step until NATS was arriving in combat zones with the first assault waves. As rapidly as the high command named an atoll or island to be taken by our forces, just as rapidly did NATS plan their invasion, landing on some strips while fighting was still in progress, until finally a roster of NATS Pacific units read like a chart of the Navy's oceanic operations.

Early in 1943 the first four-engined flying boats went into service with the Pacific wings. Later that same year the beginnings of the now-great fleet of B-24 aircraft went into service. Prior to the advent of these four-engined craft the entire burden of NATS far flung program rested on the sturdy wings of the twin-engined B-17 and the PBM *Mariner*.

In the Pacific, NATS planes moved in on the heels of the invasion forces. During the battle of Shuri at Okinawa the troops found themselves badly in need of mortar ammunition. NATS and the Army Air Transport Command split the job and flew in more than 30,000 81mm. mortar shells in an emergency movement that was a definite aid in securing the island. Far on the



NATS PILOT RELAXES ON PARIS HOP



WHOLE BLOOD SPEEDIED BY NATS SERVED WHEN PLASMA FAILED

other side of the world in February, 1944, a French battleship bombarding the beachhead at Anzio ran out of ammunition. The call went out to NATS. Ten tons of shells were delivered from America in time to keep the BB in the scrap.

Training of personnel went on apace. To bring a neophyte pilot to the status of plane commander of an B-24 required more than a little time. NATS geared up to turn out 60 plane commanders a month! Candidates were processed through six separate stages of training. Consecutively these were: Instrument Flight Instructors School, Atlanta, Ga., co-pilot stage in NATSPAC; B-24 co-pilot; B-24 plane commander; B-24 transition and then B-24 acting plane commander. When first turned loose the newly-processed pilot flew at least 200 hours on cargo-only schedules. As B-24 plane commanders were needed they moved into transition school and thence onto the line. Ex-airline pilots were called in to help in the transition and several commercial airlines aided in the transition work. At war's end rapid demobilization resulted in substantial losses among pilot personnel, however assignment of fleet personnel with multi-engine experience is expected to alleviate the situation.

EARLY in the history of NATS it became apparent that the airline formula of "preventive maintenance" would have to be the order of the day if proper utilization of aircraft was to be realized. But NATS remarkable safety record was no accident. Maintenance was divided into two phases; the part falling in the category of major overhaul and repair being designated as "heavy maintenance" and that part entailing servicing being designated as "service maintenance". Maintenance being a matter of evolution, NATS finally evolved the present system of "progressive heavy maintenance".

This system is simply a method of determining the probable service life of each component of an aircraft on the basis of operating hours and then organizing a schedule for reconditioning and replacement of these parts. Constant revision of work schedules takes place, but the basic NATS maintenance system remains unchanged. Fundamental soundness of the program has been definitely established by the performance record.

Since demands for air transportation far exceed capacity available, NATS found it necessary to institute a priorities system for cargo and passengers. Of the many thousands of



THE 1000TH ATLANTIC CROSSING WAS ROUTINE WORK FOR NATS



NATS PASSENGERS EAT HOT MEALS SERVED ON MAXSON SKY PLATES

high priority items carried by NATS, medicines ranked first. During the Philippines action whole blood was flown within 48 hours from the time it was donated in San Francisco to Leyte beachhead, 6500 miles distant.

At NATS' birth far seeing Navy men called on those existing organizations experienced in over-ocean flying. Thus Pan-American Airways came under NATS far-flung wings and formed an integral part of the NATS Pacific division. The same sort of program brought American Export Airlines into the NATS fold on the Atlantic coast. As the mili-

tary situation permitted and as NATS squadrons expanded, these contractors were assisted in returning to their former commercial status by the Navy.

Operating under NATS, Pan American flew a total of 57,000 passengers, 133,453,000 passenger miles and accounted for more than 23,536,000 ton miles of cargo. Total plane-miles equalled 600 trips around the world, using 17,000,000 gallons of gasoline, the equivalent of a train of tank cars 15 miles long. In developing its Pacific routes NATS made full use of Pan American Airways facilities.



NATS' BIGGEST TASK WAS THE EVACUATION OF WOUNDED MEN FROM BATTLE ZONES TO THE COMFORT OF MAINLAND HOSPITALS



CARGO HANDLERS USE THEIR 'SAILORS KNOTS' PLUS INGENUITY

From Battleship Propellers to Maxson Meals Nats Provided Speed and Comfort

THERE is probably no single item of war that has not at one time or another found its way into a NATS airplane. At an advance base a warship was thrown out of battle with a broken propeller. A three-weeks trip from the East coast of the USA seemed the only way the new propeller could be obtained. But NATS split the 40,000 pound load into five parts, put them in five *Skymasters* and the repair job was completed three weeks ahead of schedule.

NATS pioneering the use of the Maxson food system was first to serve full course hot meals. The meals are partially cooked at the Maxson plant in New York and then sealed after being flash-frozen in metal, foil-lined boxes. Aboard

the plane the "sky plates" are placed in a Maxson oven where they thaw out and finish cooking. The dish itself is destroyed after the meal. Maxson food is being served on all of the Pacific runs.

At the end of the war NATS moved into Japan, the first NATS planes landing 22 miles southeast of Tokyo on VJ day. Twenty-four hours later NATS planes were taking off with the first of the liberated prisoners on the 1550-mile over-ocean flight to Guam. During 16 flights the first week, *Skymasters* returned 518 Allied prisoners to Guam along with 38,000 pounds of cargo and 17,000 pounds of mail.

The very complete job done by NATS and her *Airevac* squadrons in evacuation of wounded men from battle areas is probably a story that will never be fully told. Medics, nurses, flight crews and ground personnel worked around the clock to bring wounded back to hospitals in the United States. Piping hot meals and the realization that they were being brought home in air-hours rather than in surface-weeks was a factor in their rapid rehabilitation.

THOUGH VJ day has come and gone NATS is still fighting. The enemy this time is the weather at the top of the world on the Alaskan-Aleutian run. Mail, cargo and high priority passengers must still get through and NATS is making it possible.

A regular airline operation is being carried out despite some of the most prohibitive flying weather in the world. Blanketing the entire Alaskan-Aleutian area, R4D's and R5D's are reaching those posts that usually are impossible to reach the year around. NATS men knew little about operations in weather that was consistently hitting 30° below zero but they learned—the hard way. In two months, April and May of 1945 more than two million pounds of cargo had been flown to one small Seabee station at Umiat. Heavy pipe, tubing, oil drums, drillers equipment, caterpillars, food supplies and housing equipment were flown throughout Alaska by NATS.

Today, passengers boarding NATS planes at many points find themselves greeted by a Wave flight orderly who will accompany the flight, serve meals, answer questions and see that the passengers are generally comfortable. A special



'HELLO FRISCO HELLO' IS STANDARD TALK FOR NATS TRAVELERS WHO COME AND GO DAY AND NIGHT OVER SAN FRANCISCO BAY

training school for these orderlies was established in Kansas. Trained in all the duties commensurate with those of the average airline stewardess these girls are flying on a majority of the domestic runs and in between San Francisco and Pearl Harbor.

The scientific packing and handling of war cargoes was taught to naval personnel at a "packaging school" sponsored by BuSANDA at University of Wisconsin. Ingenious methods of cargo tie-down and the stopping of cargo shifts in flight were developed by NATS and packaging was improved to the extent that the weight of shipments was cut as much as 35 percent.

NOT ALL NATS cargo flights are mere routine flying jobs. More than one enemy submarine found this out as NATS planes swooped out of cloud flecked skies to report submarine positions. Early in 1943 a U. S. transport was torpedoed and sunk. Only 48 men survived to be left floating in a storm-tossed sea. A Pan-American Captain flying for NATS made aviation history when he brought his *Mariner* down in rough seas to affect the rescue. All 48 men were saved. During the crucial hours of the Midway battle NATS rushed Marine torpedo bomber ground crews to Midway. This job was done with three *Coronado* airplanes.

In November, 1944, Rear Adm. Dewitt C. Ramsey, then Chief of the Bureau of Aeronautics said, "NATS was organized on Dec. 12, 1941, to meet the requirements of the fleet and naval shore establishment for rapid transportation on schedule and under sole and complete control of the Navy Department of urgently needed cargo, personnel and mail. The great distances from the USA sources of supply to the theatres of active battle in both hemispheres, and the ever increasing complexity of machines employed in battle made it essential that means be provided for rapid delivery of repair and replacement parts for equipment, and for expeditious movement of mail between the United States and the forces in the field."

The officers and men who have made of NATS a criterion for good airline procedure have carried out the mission Rear Adm. Ramsey outlined for this service that has meant so much to the war effort and wounded men of all services.



WAVE FLIGHT ORDERLIES WERE NEW AND HAPPY NATS INNOVATION



MAINTENANCE IS RESPONSIBLE FOR AMAZING NATS SAFETY RECORD RESTING IN QUIET LAGOON A NATS FLYING BOAT AWAITS CARGO



GRAMP AW PETTIBONE

First Jet Landing

On 6 November 1945, while in the groove for a carrier landing, the pilot of an FR-1 noticed a rapid decrease in RPM and manifold pressure. Realizing he had little time to find and correct the trouble, he quickly started his jet engine. With the jet engine developing full power, he managed to complete the landing, but due to a faster approach speed than usual, the plane overshot slightly, engaging the last wire and the #2 barrier.

► **Comment:** Congratulations to this pilot for his quick thinking and skillful handling of an unusual emergency, that surely prevented a much more serious accident.

Another noteworthy fact about this incident is that, according to available information, it was the first jet power landing aboard a carrier. The British Navy reported a carrier landing by their *Vampire* (a purely jet-propelled aircraft) on 4 December 1945.

Bareback

About 15 minutes after takeoff, the non-flying officer passenger of a J2F called the pilot on ICS:



"Is it all right to loosen the safety belt?"

"Yes," the pilot replied, "make yourself comfortable."

The passenger interpreted this to mean that he could unfasten the safety



belt and did so. A few minutes later at 1200 feet, the plane suddenly dropped in a severe downdraft, leaving the passenger sitting on his imagination outside the cockpit. Still clutching his microphone cord, he spent the next few minutes riding the fuselage bareback until the 'phone cord parted. Fortunately, he remembered to pull the rip cord. The parachute worked as usual and at last reports our friend, who learned about flying from this, was still shaking.

Grampaw Pettibone says:

Can't help pointing out something here. This incident may be amusing to some people now, but it wouldn't have been if there hadn't been enough altitude for the 'chute to open or if the passenger had been hit by the plane. To avoid nightmares of this sort, I urge you pilots to insure that non-flying passengers are thoroughly indoctrinated before giving them a ride.

My Happy Passenger:

In response to Grampaw's appeal last month for "near-accident" experiences, a young aviator dropped in the other day and told this one:

"I was taking off on an urgent extended flight. With full load of gas, a

couple of depth bombs and a heavy passenger (a member of our Allied Forces), my old OS just didn't seem to have enough pep to get off the water in time. The seaplane area was small, and being further discouraged by a row of tall hangars directly in the take-off path, I chopped the throttle and went back for another try.

"This time I knew I had to get off the water; each minute counted. I was going to use every bit of available area and as a further help, I shut both cockpit canopies to streamline the plane as much as possible. Then I started my second take-off.

"We were off the water and I could see we were going to make it over the hangars, with not much to spare, when suddenly there was a rush of air on the back of my neck and I realized my passenger had opened his canopy. The plane, already struggling valiantly, began to drop off in its rate of climb, due to the increased drag resulting from the open canopy.

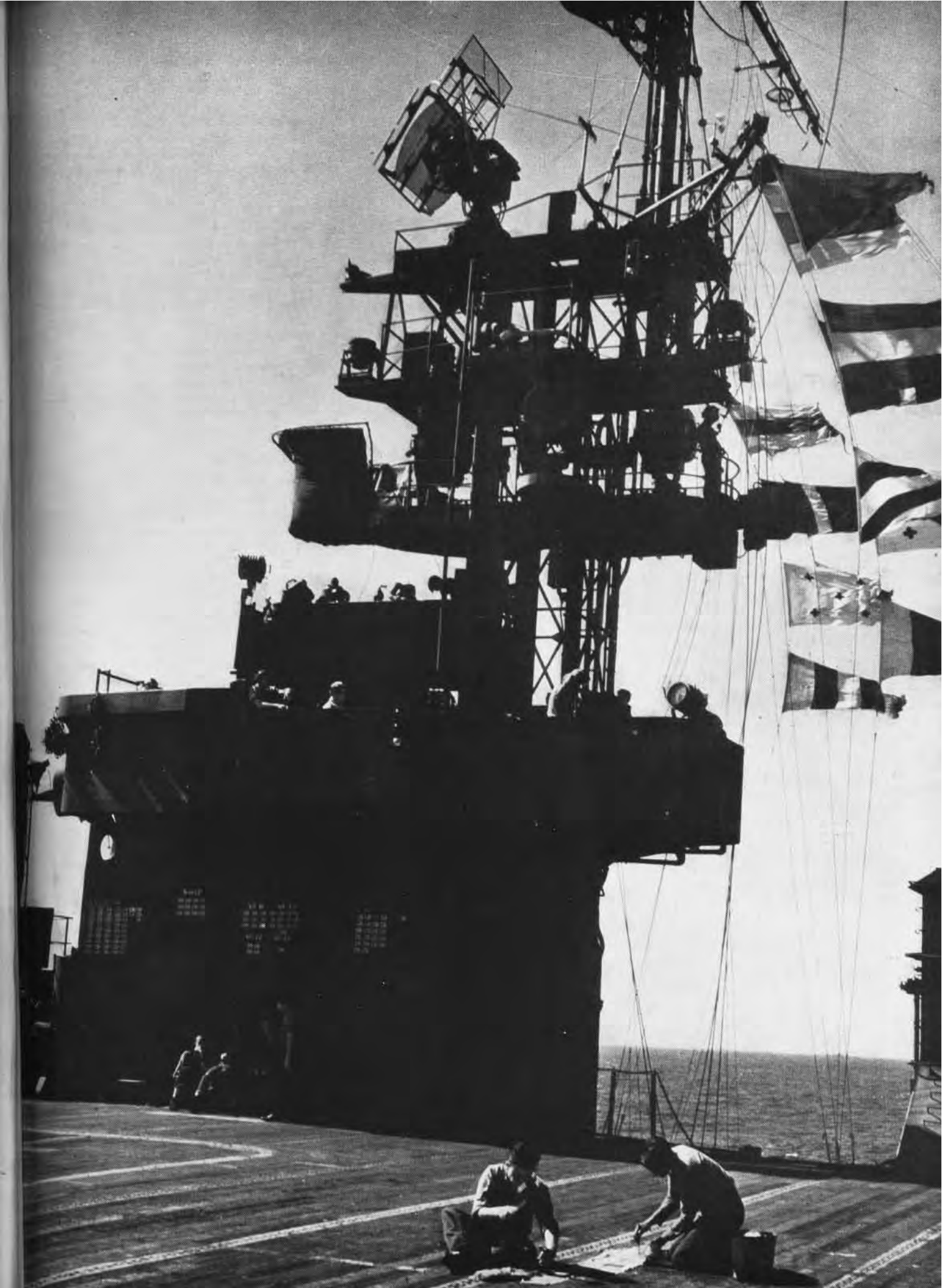
"I gestured wildly for my passenger to shut his canopy, but, as you know, the conditions in an OS aren't exactly ideal for putting over a pantomime. I was just reaching for the interphone when I realized that the guy was French and couldn't understand a word of English. I managed to catch a glimpse of his face and I'll never forget his expressions, enjoying the ride and totally unaware of the critical situation; he had a big happy smile all over his face. By this time those hangar doors looked like the gaping mouths of hell and I was scared stiff. To this day I don't know how we made it, but we did and I haven't been the same since that experience.

"Believe me, after that, whenever I took up *anybody*, I made damn sure they were indoctrinated as to what to do and particularly as to what *not* to do."

INDEPENDENCE TO SERVE AS ATOM BOMB TARGET

THE DAYS of battle action, of roaring planes taking off to strike Japanese targets, of vigilant radar and lookout searches for Kamikaze attacks are past. Aircraft carriers of today either are doing Magic Carpet duty bringing home overseas veterans or are settling down to a slower pace. More attention can be paid to safety measures and proper repairs, such as are being done by crewmen of the Independence, calking up new planking to re-

place some dug up by an errant Hellcat. Still emblazoned on the island are the battle records of the Independence's squadrons—VF-6, VF-22, VF-33, VC-22, CVLC 41 and 46. Flag hoists give turn and speed orders. The Navy recently announced the selection of the Independence as one of the targets for the atomic bomb test. Seven times during the war bombs hit the "Mighty I's" deck and bounced off. Will she weather the atom bomb too?





An Emergency during a night landing approach forced this pilot to take a wave-off. His airplane flew into trees. The picture testifies as to violence of the crash. The pilot lived because his shoulder straps were tight!

An Aid to Memory:

The following pilot's statement is quoted from a recent AAR:

"I was in my final approach when the tower called and said the runway had been changed to 81. I had already lowered my wheels but raised them in order to go around again. I forgot to lower them for my second approach and landed wheels up.

"There is no excuse for my own carelessness, but I do want to mention that this plane did not have either a landing or take-off check-off list. I noticed this fact when I was getting ready to taxi out for take-off, but due to my familiarity with this type plane I did not hesitate to make the flight. However, if the check-off list had been installed, the accident in all probability would not have happened, as I always go over the list before every landing and take-off."

► **Comment:** This plane should not have been accepted for flight until a check-off list was provided.

To forget is human. That is why Article 6-110 in BuAer Manual requires that landing and take-off check-off lists be provided in all naval aircraft and that pilots follow these lists carefully in their given order to insure that all steps are performed.

When check-off lists are made up, it is highly important that the arrangement of items be in logical order as to normal sequence of control operations. Unfortunately, sufficient thought and attention has not been given to this subject by flying and maintenance personnel. For instance, in many airplanes the first item on the landing check-off list is "Landing Gear". While this item is of paramount importance, it properly is not the first landing preparation. The sequence of landing preparations logically is dependent upon the speed of the airplane. Therefore, it is believed that the landing check-off list should be arranged and grouped in that order, namely:

- (a) Those preparations which can be made at cruising speeds as the plane approaches the landing area.
- (b) Those preparations to be made at slower

speeds while circling the landing area.
(c) Those preparations to be made in the final part of the approach.

A sample landing check-off list is as follows:

- | | |
|-------------------------|-----------------------|
| (a) Gas (best tank) | (b) Landing gear down |
| Mixture | Hood open |
| Supercharger | (c) Propeller |
| Armament | Flaps |
| Tail wheel | Shoulder straps |
| Carburetor air | (tighten) |
| Hook down (for carrier) | |

The take-off check-off list also should be arranged to provide for the normal sequence of preparation.

A proper organization of all check-off items would eliminate the present tendency of pilots to skip over certain items (and later forget them) in order to conform to the natural sequence of preparations. The latter is believed to have contributed to many accidents.

Get That Stick Forward!

As an FM-2 was turning into the groove for a carrier landing, the engine sputtered and then stopped. The pilot failed to get the nose down in time to avoid a stall and the aircraft spun into the water. The pilot was not recovered. Apparently he was knocked unconscious or killed on impact and went down with the plane.



Grampaw Pettibone Says:

This is only one of a number of recent similar crashes following engine

failure. Some pilots seem to have forgotten the old cut-gun emergency drills in primary when: "get that stick forward" was beaten into their heads. Well, the reason we had to learn this drill letter perfect was in order to instill in us such a deep concern over flying speed that under any emergency, no matter how unexpected, we would guard against a stall. Now, it doesn't make sense if we learn something that well, and then forget it when the lesson would really pay off; does it?

If you have to make a forced landing the important thing is to make a good one. Even in extremely rough water or terrain, you stand a very fine chance of escaping without injury if your plane lands in normal landing attitude and your shoulder straps are tight. But if you spin in during your approach, your chances are pretty slim. Remember, if you are at low speed and your engine sputters or cuts out, *get that stick forward and keep flying speed.* The lower the altitude, the quicker your reaction must be.

Common Enemy

We have heard of man's common enemy—the housefly. It's a pretty sure bet that he is not a vicious character. He really didn't mean any harm when he walked on baby's spoon; he didn't intend to kill baby with typhoid. He was just flying around and happened to get in the house after having such a good time in the barnyard.

Well, in aviation we have a less subtle but a deadly common enemy—the flat-hatter! A flat-hatter is a thoughtless, egotistical ingrate who either occasionally or habitually endangers the lives and property not only of himself, but, and this is far more grave, those of harmless by-standers. In most cases the flat-hatter has dependents who are absolutely innocent of his crimes but who pay dearly when he is court-martialed or is killed in a flat-battering crash. Besides the immeasurable mental anguish they must bear, the law decrees that no death benefits will be paid if the deceased's death is held to be as a result of his own misconduct and not in line of duty.

Frequently, flat-hatters selfishly endanger the lives of passengers for whom they are responsible. There are all kinds of tragic cases on record in official files. One such case describes a member of the worst species of our "common enemy"—the *habitual* flat-hatter:

"Immediately after take-off the pilot pulled his old stunt of buzzing the field. In so doing, his wing struck a radio antenna, causing the plane to go out of control and to crash in flames. Both pilot and passenger were killed. The passenger was on emergency leave, returning home to his wife, who was having a baby."

GET THE IDEA, FLAT-HATTERS?

GRAMPAW'S SAFETY QUIZ



1. When flying CFR at an altitude of over 700 feet above the surface or terrain, what is the minimum distance you must keep from clouds:
 - a. In airport traffic zone?
 - b. Elsewhere?
2. What is the minimum visibility under CFR for flight over 700 feet:
 - a. Inside control area without traffic clearance?
 - b. Inside control area with traffic clearance?
 - c. Elsewhere?
3. If, while you are assigned as pilot of an aircraft, a higher ranking aviator comes aboard as passenger and thereafter demands to fly the plane, should you give in to his demand in favor of his rank?
4. Are all commands operating aircraft required to maintain complete files of Technical Orders and Technical Notes?
5. What is the main difference between a Technical Order and a Technical Note?

Answers to Quiz on Page 40

Merger Symposium

FOR THE information of members of the Naval Aeronautical organization, NAVAL AVIATION NEWS here presents a digest of opinions expressed on the proposal now before Congress to merge the armed services into a single department of national defense. Statements quoted are the personal opinions of individuals or newspapers concerned as expressed in recent statements or editorials and do not purport to represent the views of the administration. Statements quoted are excerpted from the official press releases.



James Forrestal, SECRETARY OF THE NAVY

Let me make clear that the Navy's policy on the adjustment of our national security system in the light of the experience in the war just closed is not one of

flat negation. On the contrary, we have both a basic conviction and a positive suggestion. Our conviction, born of the recent war, is that the national security is too vast a concern to be assured by any single department. Our suggestion is a systematic integration, patterned after the Joint Chiefs of Staff, of all Government agencies concerned with our security.

Chester W. Nimitz, FLEET ADMIRAL, USN

A single Department of National Defense will have one of two consequences for the naval component. Either the Navy will retain all the autonomy, integrity and prestige necessary to carry out its functions, in which case it might as well remain a separate department; or it will lose these advantages, either gradually or at once, and become a secondary service. This may not be in accord with theory but I believe it will be the fact.



A. A. Vandegrift, GENERAL, USMC

This is the atomic age. However greatly science influenced the war just past, certainly we all agree that its part will be infinitely greater in the war to come—

if there is one. The War Department solution to this problem seems woefully weak to me. Each of the subordinate arms of the merged services would conduct its own research. The developments of each would, in all cases, be dependent upon the reaction of the Chief of Staff of the Armed Forces and his immediate subordinates. If the Chief of Staff did not subscribe to any development it would soon be stifled and die on the vine. If, for example, he were a man with an Army background, here is what might have happened in the 20 years just passed. The aircraft carrier might never have got beyond the drawing board;—the radial air-cooled airplane en-

gine, which is standard throughout the world, might never have been adopted. These were both Navy ideas and were, at one time or another, vigorously opposed by the War Department.



William D. Leahy, ADMIRAL, USNR

After thoughtful consideration of the proposal, I am unable to see any advantage in a single department to either the efficiency of the economy or the national defense. Its inauguration would

cause for an indefinite period a disorganization in the administration of the Army and the Navy. It would, in my opinion, be disadvantageous to efficient administration of the Navy, both in peace and in war. It would necessitate considerable change in existing statutory provisions. It would weaken civil control of the military by committees of the Congress. Such a revolutionary change in long established procedure should, in my opinion, be made only in the face of a necessity therefor.

Luis De Florez, REAR ADMIRAL, USNR

What this country needs is adequate defense. That defense in the future, will stem from originality in research and engineering, which can be purchased only through the maintenance of competition, the fostering of honest differences of opinion, and the pursuit of separate lines of

attack to military problems. This procedure may seem an expensive one, but the need for security is our greatest need, and we must be willing to pay for it.



Edward V. Robertson, U. S. SENATOR, WYO.

What is the acid test to be applied to any innovation such as the Army proposed merger? Surely it is results. We've just come through a colossal war. We've

come through it with flying colors. Is it then possible to contend that the four great services made vast blunders, blunders that have been kept from the public, blunders so great that it is imperative to put all four—the Army, the Navy, the Marines, and Air Forces—under a new command that is under one command? A unified command that would be so stupendous, so powerful, maybe, so dictatorial, that it would not only be possible, but quite within the realm of probability, that it might alter the republic's structure.

Editorial Opinion

▶ *Comment*—Military policy can no longer be made up in one hermetically sealed compartment, packaged neatly and delivered to the civil authorities for use as desired. The military services must be tied closely with the State Department, the Treasury, and the agencies responsible for industrial mobilization, allocation of resources and man-power utilization, as well as with the White House, if anything like an adequate national policy is ever to be developed. The Navy reorganization plan, based on independent departments, specifically recognizes this imperative need and provides for a national security council which would bring together civil as well as military policy heads in one policy-making body.—*New York Herald Tribune*

▶ *Comment*—The real troubles are not going to be solved by a shotgun wedding of the armed services at the top. The wedding, like most such, would be far from a happy one.—*The San Francisco Chronicle*.

ANALYSIS OF ARMY AND NAVY PROPOSALS

OBJECTIVES

POSITION TAKEN

	ARMY	NAVY
Civilian Chief of each service	Against	For
Direct civilian Administrative Control	Against	For
Control of Budget by civilian Secretary	Against	For
Single Chief of Staff of Armed Forces	For	Against
Integration with Foreign Policy	?	For
Over-all Centralization of Intelligence	?	For
Integration of Education and Training	?	For
Integration of Military Programs with civilian Economy	?	For
Coordination of Strategic Planning	For	For
Integrated Budget	For	For
Integration of Procurement and Supply	For	For
Coordination of Scientific Research & Development	For	For
Unified Command in Field	For	For



Independence saw action in every Pacific war zone. "Mighty I's" tote board showed more than 100 Jap planes at war's end

THE 161 NATIVES ON BIKINI ATOLL'S 20 ISLANDS MUST MOVE OUT DURING BOMBINGS

CARRIERS TO JOIN ATOMIC TASK FORCE

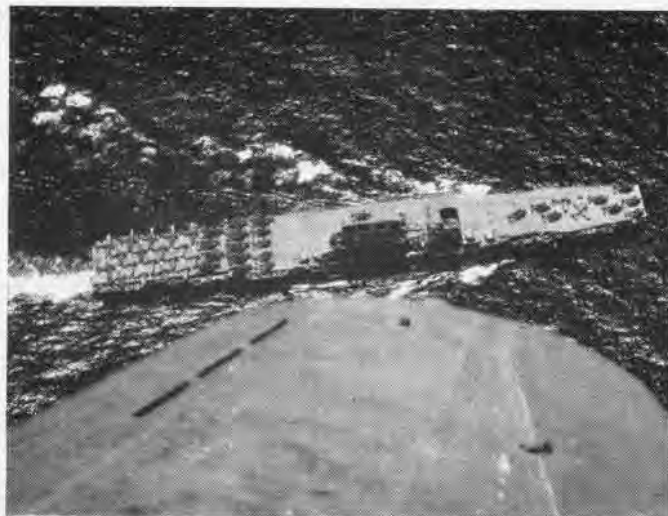
AS PART of Joint Task Force One, two of Naval Aviation's most famous flattops, the *Saratoga* and the *Independence*, soon will head for the Marshall Islands to become targets in the first test of atomic bombs against ships. The first test is scheduled in May.

In addition to the two battle scarred carriers, 96 other ships including combat types, transports and landing craft, will become atomic targets. The tests, referred to by the code name "Crossroads" will be a joint Army-Navy operation under command of Vice Admiral W. H. P. Blandy.

Mission of the joint task force operation is primarily to determine effects of the atomic bomb upon naval vessels to gain information of value to national defense. Ultimate results of the tests, so far as the Navy is concerned, will be their translation into terms of U.S. sea power. A secondary purpose will be to afford training for Army Air Force personnel in attack with the atomic bomb against ships and to determine the effect of the bomb upon military installations and various types of gear.

Boeing *Superfortresses*, the same planes that dropped the first two atomic bombs over Japan last August, will bomb the unmanned ghost fleet anchored in Bikini Atoll in the Western Marshall island chain. In the initial atomic test the Army B-29 will release the bomb to explode several hundred feet above the water. In the second test, tentatively scheduled for 1 July, the atom bomb explosion will occur at the water's surface. The third test, which because of the technical difficulties involved will not take place until 1947, will involve a deep underwater explosion.

The site for the atomic tests was carefully chosen and is ideally suited for the purpose. It is located 170 miles east of Eniwetok and the same distance northwest of Kwajalein. The target



SARATOGA WAS SCHOOL FOR NAVY'S AIR ADMIRALS FOR 16 YEARS



ships will be anchored about 1400 yards from a sandy beach at Bikini Island. Depth of the water at that point, about 66 feet, will permit the close inspection by divers of any ships that may be sunk.

Pilotless, radio-controlled *Hellcats* will be operated in the area to obtain closeup recordings of radio activity. From ingeniously-shielded shelters on the island ring surrounding the anchorage, automatic motion picture cameras will record explosions visually. So far as the tight schedule permits, use will be made of all modern scientific techniques to observe, measure, and record.

In addition to the *Saratoga* and *Independence*, combat vessels listed for atomic targets include: battleships, *Arkansas*, *New York*, *Nevada*, *Pennsylvania*; heavy cruisers, *Salt Lake City*, *Pensacola*; destroyers, *Mayrant*, *Trippe*, *Stack*, *Rhind*, *Bagley*, *Helm*, *Ralph Talbot*, *Mugford*, *Lamson*, *Flusser*, *Conyngham*, *Smith*, *Anderson*, *Mustin*, *Wainwright*, *Hughes*, *Wilson*; subs, *Shipjack*, *Tuna*, *Parche*, *Dentuda*, *Searaven*, *Skate*, *Pilotfish* and *Apogen*. Three foreign warships the battleship *Nagato* and light cruiser *Sakawa* (Japanese) and the heavy cruiser *Prinz Eugen* (German) will be part of the fleet.

OLDEST carrier in the Navy, the *Saratoga* (CV-3) was commissioned at Philadelphia in 1927. Since 11 Jan. 1928 when Lt. Comdr. M. A. Mitscher (now an admiral) made the first landing aboard her, the *Saratoga* has recorded 98,549 carrier landings, more than any other ship in the Navy. The *Sara* today bears the scars of three major damages received in action against the Japs. The "Old Lady" of the flattops covered the first Marine landings at Guadalcanal, supported the invasion of the Gilberts at Tarawa and was in on the Marshall landings. Later she served with the British Eastern Fleet hitting Jap installations in the Dutch East Indies. With a night carrier air group aboard the *Sara* ended her Pacific combat duty supporting the Marines off Iwo Jima. Stripped of her planes the *Sara's* most recent duty has been on the *Magic Carpet* run.

Name ship of the CVL class, the *Independence* is known throughout the Fleet as the "Mighty I." Since her commissioning early in 1943 she was in on major actions from Tarawa right up to Tokyo Bay. The first of the fast carriers to take aboard a full operational squadron of *Hellcats*, the "Mighty I" also was the first night carrier.

Among the air groups that flew from her deck was the famous Fighting 22 led by Lt. Comdr. "Butch" O'Hare. Later Night Air Group 41 made naval aviation history aboard the *Independence* with 5 months of night operations.



CATAPULT RUNWAY EXTENDS FROM 'TUBE' HANGAR TO BOW; BB NAGATO IN BACKGROUND

JAPAN'S SUBMARINE 'HANGARS'

ONE OF the Japs' unusual war weapons was the "Item" or I-class submarine, capable of carrying three *Glen*-type seaplanes and launching them from a deck catapult and recovering them again.

The big subs were nearly 400 feet long, 40 feet wide and had more than 3000 tons displacement, compared to the 300-foot length and 1500-ton displacement of the most common U.S. subs. The Jap submarine carried three demountable planes, which had the main wing removable as well as both gas tanks, upper and lower fin, floats and all struts. They could be assembled and launched in 15 minutes and recovered and stowed in 30.

The planes operated from Pearl Harbor to Zanzibar. Prisoners of war said about a quarter of them were lost by accidents during launching or recovery. They were two-place aircraft with 9-



GLEN COULD BE DISASSEMBLED QUICKLY

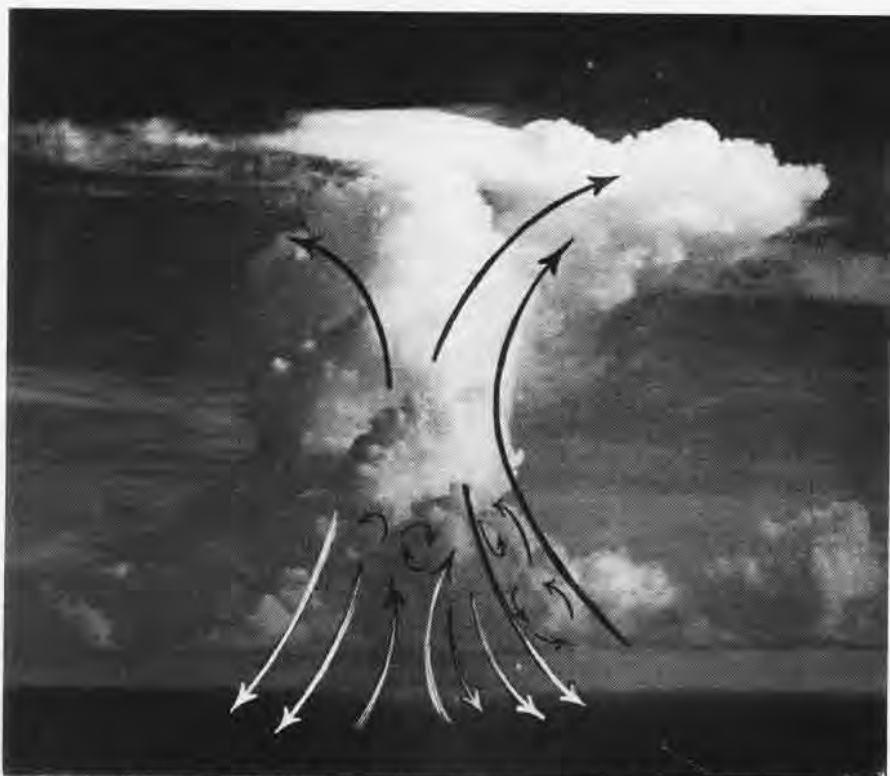
cylinder radial engines, capable of cruising 500 miles at 80 knots, with a max. speed of 190 knots in a 35° dive.

They carried a lone 7.7 mm machine gun in the rear cockpit and about 300 rounds of ammunition. No armor was present and the possible bomb load not known. The plane had a 36-foot wingspan, was 28' long and 12' high.

Although idea was novel one, sub hangars' effectiveness was not impressive.



THIS IS TUBE OR HANGAR WHICH HOUSED THREE GLEN-TYPE FLOAT PLANES ON THE SUBS



DRONES WILL TEST THE VIOLENT UPDRAFTS AND DOWNDRAFTS INSIDE THUNDERSTORMS

BAITING A THUNDERHEAD

WHAT GOES ON inside a thunderhead? How strong are the forces that grab an unwary pilot inside one of those towering beauties and toss his plane thousands of feet aloft?

The Navy, in cooperation with the Army Air Forces, the U. S. Weather Bureau and numerous civilian agencies, proposes to find out. To accomplish this, the Naval Thunderstorm Research Project has been set up, with headquarters at NAS BANANA RIVER, to make the scientific study this spring and summer.

All the latest scientific devices and techniques of the Navy and Army will be called into play to divulge the innermost secrets of those turbulent aerological cells. Planes have flown through thunderheads and come out in one piece, but they also have gone in and been torn to pieces by the up and down drafts that reach terrific velocity, estimated as high as 200 mph.

The researchers plan to use piloted planes, balloons and drones to gather data of what forces are at work in the cells. Special instruments which may be used include automatic pilots, air-speed-altimeter units, three-component accelerometers, movie cameras to photograph instrument panels, electric field recorders, spanwise pressure measurement equipment, water content and

drop-size recorders, temperature and dew-point recorders, aircraft radar VHF sets and equipment to measure positions of and forces on control surfaces. Planes will fly simultaneously into thunderstorms at different altitudes to plot internal conditions.

Present plans call for the Army Air Forces to fly B-29's and B-25's with crews from their Orlando base while the Navy from Banana River will dispatch F6F drones and F7F control planes from XVJ-25. Aerological balloons will be released in large numbers in thunderstorm conditions. They will carry rawin targets, radiosondes to get thermodynamic details and radio-transmitting gear to measure turbulence, rate of climb and vertical air speed. All balloons will be tracked by radar, as will aircraft, it is planned.

Radar also will be used to study water content and extent of thunderclouds. It is expected modifications and special attachments will be developed to adapt radar to the requirements of the project. Approximately 50 surface stations in a micro network will be located in the vicinity of the testing area to help gather data. These will be mobile, self-recording station units including microbarographs, wind vane-anemometers, hygrothermographs and recording rain gages. These will meas-

ure temperatures, pressures, humidity, wind velocity and direction and rainfall in the test area.

Among the things the researchers hope to find data on are such things as the phases of the life cycle of thunderstorm cells, what parts of them, if any are safe for flying, engineering stresses on surfaces, and the micro structure of thunderstorms. Data are expected to improve aircraft operational techniques in and around these phenomena.

Other agencies which will participate with the Navy and Army in the studies include the National Advisory Committee for Aeronautics, University of Chicago, Naval Research Laboratory, University of Mexico, Massachusetts Institute of Technology and the Soaring Society of America. They will look after such things as developing instruments to measure gusts and vertical motion of aircraft, special balloon-borne equipment, aircraft electrical field recorders, thunderstorm electricity research, radar cloud studies and measuring water content and drop size of clouds. The Soaring Society has indicated its interest in sending gliders up to participate in the scientific studies.

The usual thunderstorm cloud is crowned by a flat spreading top, known as the *anvil*. Inside, a violent boiling motion takes place, with updrafts and downdrafts sometimes close together. Greatest activity usually is in the lower two-thirds of the thunderstorm area. The average height of the storm in temperate latitudes is 15,000 to 20,000 feet, while in tropics they may go as high as 60,000 feet. Large planes have been flipped over on their backs and forced aloft at a rate of 1,000 feet a minute. Inside, hailstones of huge size may damage the plane. Lightning found around them usually will not damage an all-metal, closed cockpit plane, judging from past reports.

The following training films on thunderstorms are available at your nearest film library:
 MN-119C—Aerology-Thunderstorms.
 MN-311a—Weather at War—Pacific campaign.



F6F DRONE WITH F7F PARENT AIRCRAFT

DID YOU KNOW?

Grosse Ile Licks Ice Problem

Check-off System in Air-Sea Rescue

NAS GROSSE ILE—For the first time in the station's history, air-sea rescue is provided the year around. Previously, rescue had to be discontinued during winter months when the boat house and seaplane area were frozen.

This year, however, through cooperation and courtesy of a large public utility nearby, rent-free space for air-sea rescue boats has been provided on a hot water basin. Thus, pilots are given protection if forced to make a water landing in ice-free areas of Detroit river and Lake Erie.

A check-off system is being established for air-sea rescue planes and boats so that each will be certified to be completely equipped, as well as in operating order, at the beginning of flight operations. An inventory list is attached to the plane yellow sheet so that items for air-sea rescue are inventoried daily.

Another similar inventory form is used daily for the boats to insure an accurate daily sight check of all such equipment. It is planned to remove equipment occasionally to provide a check against inaccurate desk inventories.

► *DCNO Comment*—A bouquet of roses to NAS Grosse Ile.

Small Link Course Is Revised

Station Adds Cross-Country Procedures

NAS NORFOLK—Need for a more thorough checkout in cross-country radio navigation brought a revision in the Small Link Training Course at this station. Using the American Airlines procedure as a guide, an officer of the Training Department built up a revised 12-hour course.

It is in two parts. The first half is a minimum of six hours of radio range instruction, consisting of beam bracketing and different methods of orientation with standard instrument approach and let-down procedures stressed. The second six hours is devoted to the use of the direction finder equipment that to date has been neglected.

Practice in the use of both the Manual and the Automatic Gear is desirable, and boxing procedure with let-down to the field is covered. Twelve hours is the minimum, but, when needed, a pilot may get additional work

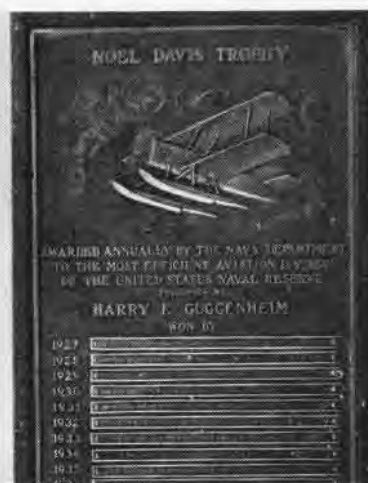
in any one phase before going on to the next.

[DEvised BY MARY E. BAKER, LT. USNR]

Reserve Units Vie for Award

Noel Davis Plaque to Be Reinstated

With the organization of a Naval Air Reserve program for post-war flying, interest is revived in the Noel Davis



LIVERMORE HAS TROPHY FOR WINNERS

Trophy which was awarded in pre-war years to the outstanding Reserve aviation division. The trophy now reposes at NAS LIVERMORE.

Harry F. Guggenheim, a Naval Reserve aviator during World War I, donated the trophy in the memory of Lt. Cdr. Davis, USNR, who was active in advancing interests of Naval and Naval Reserve aviation. He was killed in an

attempted trans-Atlantic flight from New York to Paris when his plane, the *American Legion*, crashed near Langley Field, Virginia.

Since outbreak of World War II the award was discontinued but will be resumed as Reserve aviation is reinstated. Winners of the trophy in past years were:

- 1927—3rd Division, VT30 Sqdn., Philadelphia, Pa. Lt. Comdr. R. S. Hedtler, Commanding.
- 1928—Aviation Division VN-5RD4, Philadelphia. Lt. Comdr. R. S. Hedtler, Commanding.
- 1929—1st Division VN-15-RD13, Seattle, Wash. Ens. O. C. Drury, Commanding.
- 1930—Aviation Division VR-5RD4, Philadelphia, Pa. Lt. Comdr. R. S. Hedtler, Commanding.
- 1931—Aviation Division VN-12-RD9, St. Louis, Mo. Lt. J. F. Fisher, Commanding.
- 1932—1st Division VN-2-RD1, Squantum, Mass., Lt. S. G. Colwell, Commanding.
- 1933—1st Division VN11-RD9, Minneapolis. Lt. (jg) A. R. Helm, Commanding.
- 1934—1st Division VN-6R, Anacostia, Lt. M. M. Cloukey, Commanding.
- 1935—1st Division VN-11-RD9, Minneapolis, Minn. Lt. A. R. Helm, Commanding.
- 1936—VN-17-RD9, Kansas City, Lt. Comdr. D. W. Tomlinson, Commanding.
- 1937—Division 1 VS-12R, Kansas City. Lt. Comdr. D. W. Tomlinson, Commanding.
- 1938—Division 1 VS-12R, Kansas City, Lt. Comdr. D. W. Tomlinson, Commanding.
- 1939—VS Squadron 2R, Squantum. Lt. Comdr. R. D. Thomas, Commanding.
- 1940—VS Squadron 15R, Oakland, Calif. Lt. Comdr. E. H. Walter, Commanding.

Glynco Is Headquarters Site

6th District Air Bases Command Moves

Headquarters, Naval Air Bases Command, for the Sixth Naval District were transferred from Charleston, S. C. to NAS Glynco, Ga., effective 15 January.

The Headquarters, Naval Air Bases Command, previously was located at Sixth Naval District, Charleston, S. C.



Newest in the line of Navy fighting aircraft revealed since the end of hostilities is the first all-jet powered plane, the FD-1 Phantom, designed for carrier operations. The Navy already has the FR-1 using both jet and conventional prop for power. The FD-1 is rated at better than 500 mph, weighs under 10,000 lbs. with full combat load, has a 1,000-mile range and high rate of climb. Two jet engines are located at the wing roots.

VPB-73 Gets Survival Training

Instructor Eats Insects, Proves Point

VPB-73—Numerous land and sea survival excursions to the seashore and surrounding wooded areas have been conducted by this command, with assistance of a Hedron survival officer. During this time 80% of squadron personnel were familiarized with methods of sustaining life at sea and on a tropical island.

Rafts and personnel were cast adrift to simulate actual rough sea conditions. All personnel were instructed and actually participated in securing equipment, catching fish and extracting potable water.

Everyone helped prepare or cook the various tropical food available near the shore. Fresh water was obtained by digging beach wells and hacking vines. Shelters were constructed from palm branches, which had previously been "rubberized" by heating. The instructor ate a few insects from time to time to prove that they could be used for food to sustain strength and life.

Aeronautical Board Reinstated

Domestic, Foreign Sale to be Handled

The Aeronautical Board, established in October 1916 for joint Army-Navy planning, procurement and coordination of air power, has been reorganized to resume functions which during the war were handled by such agencies as the War Production Board and Joint Aircraft Committee.

During World War I, the Board reviewed appropriations for Army and Naval Aviation, helped plan establishment of air bases and stations and made studies relating to national air defenses.

The new board includes the Navy's DCNO (Air), Assistant Chief of BuAEN and director of aviation logistics plans. The board's working committee will prepare joint aeronautical standards, coordinate release for domestic and foreign sale and manufacture of aeronautical equipment and release technical information.

Enlisted Men Can Now Enter V-5

Flight Candidates Must Be Under 23

Qualified enlisted personnel now on active duty may become candidates for commissions as Naval aviators through the pre-flight stage of the Navy's flight training program.

Candidates must be less than 23 years of age on the date of their application for admittance to the pre-flight stage, and must be unmarried and agree to remain unmarried until commissioned. Requirements for selection and assignment to the program include completion of a minimum of

four academic semesters in an accredited college. However, applications are being accepted from enlisted men with less than four academic semesters for the naval aviation preparatory program under requirements currently in effect.

Provided the prospective candidate meets academic, physical and other requirements and is accepted for pre-flight training, he will be transferred from his rate and classification to the grade of aviation cadet, class V-5.

Any student in the flight training program who falls below standards in ground school or flight training will be transferred to his previous class and rating, if fully qualified, and will be returned to general duty to serve out

his former enlistment, unless subject to demobilization under point scores.

Magic Carpet Run Is Near End

Combat Ships Speeded Homecoming

From September 1945 to 31 December 1945 the Navy lifted 440,000 Army troops from the Pacific theater while the number lifted in cooperation with War Shipping Administration totaled 916,775.

Shipping has already returned 2,568,604 Army personnel in the Atlantic-European theater, and 948,239 from the Pacific and China-Burma-India theater. Air transportation has been used to return 175,356 Army personnel in the Atlantic-European area, and 73,571 in the Pacific.

Five thousand eight hundred and fifty-nine naval personnel have returned by air from the Pacific. The grand total returned in the Atlantic theater is 2,780,681 and in the Pacific-CBI theater, 2,106,909.

The *Magic Carpet* run of combatant ships in the Pacific was nearing completion by close of 1945.

Marines Receive Survival Data

Refresher Course Brings Out New Dope

MASG-44—This Marine air support group has incorporated into its training program a streamlined sea survival course, giving refresher work in handling of survival equipment and pointing out recent changes in the equipment.

This one-day course was originated for the benefits of pilots and aircrewmembers of carrier air groups operating from this base during final phases of their training.

The course gives them a condensed but practical review of the use of sea survival equipment. The morning phase consists of practical instruction in use of life raft equipment. In the afternoon they go to the sea survival beach where instruction is given in use of life rafts in the surf and handling of essential survival equipment under actual water conditions. It stresses familiarization of the latest type of equipment.

► *DCNO Comment*—An on-the-ball outfit. Pilots and aircrewmembers can't get enough of this stuff.

Air Navigation Project Set Up

Charlestown to Handle BuShips Studies

The mission of NAAS CHARLESTOWN, R. I., has been expanded to include support of the Air Navigation Electronics project, a BuSHIPS activity formerly known as Instrument Low Approach Project and located at NAF GAINESVILLE.

The project will work on design, development and test engineering of air navigational aids and traffic control.

SHOW ME THE WAY TO GO HOME



SECTOR SEARCH

In this problem the navigator should be able to obtain a maximum of accuracy.

Var. 15°E, Flt. Alt. 1000', Wind at 1000'—250/30

Mid-Lat. 21° 00' N., Mid-Long. 142° 00' E

(High Speed side of Disc)

Carrier: Time 0500, Lat. 20°-50' N., Long. 139°-57' E.

Cus. 101, Speed 20

Depart Carrier at 0600, search geographic sector 050-080 for 150 miles.

Required:

1st Leg,
IAS, CCH, GS, TTT

2nd Leg,
CH, TTT

3rd Leg,
CH, DRM, ETI, GPI

Lat.

Long.

Deviation Table

Mag.	000	030	060	090	120	150
Comp.	002	033	064	093	122	150

Mag.	180	210	240	270	300	330
Comp.	179	208	237	267	299	330

Airspeed Calibration Table

Cal.	70	80	90	100	110	120
Ind.	72	84	96	106	114	122

Cal.	130	140	150	160	170
Ind.	130	138	145	154	164

(Answers on Page 40)



NAVAL AIR RESERVE PILOTS ARE FLYING OPERATIONAL-TYPE PLANES TODAY AT MANY OF THE 22 AIR STATIONS TO BE UNDER PROGRAM

AIR RESERVE TRAINING

FROM the ranks of its wartime aircraft pilots, aircrewmembers and ground personnel, the Naval Air Reserve Training program plans to draw more than 25,000 men for an up-to-the-minute Ready Reserve, many thousands of others for the Standby Reserve, and nearly 9000 on active duty to operate Reserve Air Stations.

An interim program of training, permitting voluntary flight time from two to four hours a month, has been put into effect pending Congressional action on funds for the new fiscal year beginning July, 1946. Meantime, many separated Reserve officers and men can qualify for good peacetime jobs in the program by applying for active duty at air stations assigned to the Reserve air program.

Fifteen naval air stations have been transferred to the Naval Air Reserve Training Command—New Orleans, St. Louis, Minneapolis, Squantum, New York, Memphis, Willow Grove, Atlanta, Columbus, Dallas, Livermore, Los Alamitos, Grosse Ile, Olathe and Glenview. Seven others having regular

Navy duties also will train reserves—Anacostia, Norfolk, Jacksonville, Miami, Seattle, San Diego and Hutchinson. Because of continuing wartime missions at some stations, facilities to sup-

port refresher flight training may not be immediately available. Commanding officers at all designated stations will begin interim program when possible.

Anyone interested in the Reserve program or staying on active duty at reserve stations can secure information from commanding officers at the above stations. The Navy wants to keep in contact with former pilots and ground personnel who will activate the program. Reserve training will be integrated with Regular air training, insuring adoption of new techniques.

The Ready Reserve will be organized in air groups, squadrons and units corresponding to the inactive fleet. Pilots will get about 100 hours of flying annually. Non-flying officers and enlisted men will attend 48 drill periods a year. Standby Reserve pilots will get about 50 hours of flying. This branch is for officers and men who cannot regularly attend drills or otherwise qualify for training to be given the Ready Reserve. They will fill in training, technical and administrative billets afloat and ashore in an emergency.

Planes available for reserve fliers include F6F-5, F4U-1D, SB2C, TBM, SNB, JRB, SNJ, SC-1 and J2F. Later, PBY-5A, PV, PB4Y-2 and PBM planes may be made available.

Who? When? Where?

Q. Is there a place in the Reserve program for anyone besides pilots?

A. Yes, it also will include training and operational activities for enlisted men and non-flying officers.

Q. Where can I get the latest dope on the program?

A. The Commanding Officer of any of the 22 naval air stations listed here will have information on it.

Q. Will I be paid for my activities?

A. There is no Congressional appropriation to pay men in the program up to the new fiscal year beginning July, 1946. Meantime, the interim program permits voluntary flying from two to four hours a month.



How Good are you at identifying the various bedsprings, wires, poles, wheels and miscellaneous electronics installations on the *Lexington's* island? Those in the know can recognize the confusing array. The rest can check their guesses against the following list: 1. to 3. radio communications; 4. fire-control radar; 5. to 9. radio communications; 10. air-search and height-finder radar; 11.

radio communications; 12. radar test equipment; 13. surface-search radar; 14. radio communications; 15. homing beacon; 16. to 20. radio communications; 21. air-search radar; 22. radio homing beacon; 23. air-search radar; 24. and 25. radio communications; 26. identification radar; 27. and 28. radio communications. Of course there also are sundry flag hoists, instruments and gear.

FR-1 Makes First Jet Landing Engine Brings Plane to Deck Safely

What is believed to have been the first jet power landing aboard a carrier was made by Ens. J. A. West of VF-41, flying an FR-1 on 6 November 1945.

The pilot had made three conventional landings and was making his fourth approach when his front engine lost RPM and manifold pressure. He started his jet engine at full power and was able to complete his approach and make a landing.

Because he was using jet power his approach speed was faster than normal and as a result he overshot slightly, engaging the last wire and the #2 barrier. Without the power from the jet, the *Fireball* would have had to make a water landing, resulting in loss of the plane and possible injury to the pilot.

His quick switching on of the jet unit undoubtedly saved both.

The Royal Navy claimed the first landing by an aircraft propelled by jet power alone when a DeHaviland *Vampire* made four landings on H. M. S. *Ocean* on 4 December. The plane on its first landing came in at 95 mph. and caught the first wire. It took off in half the length of the carrier's 690-foot deck.



FIREBALL MAKES HOT BUT SAFE LANDING

Postwar Stations Are Changed Plans Altered for Operations of Some

Several changes have been announced in postwar plans for Naval and Marine Corp air stations and activities since the list printed in November, 1945, issue of NAVAL AVIATION NEWS. All data following is revised as of 4 February 1946.

Future plans for several not listed at the time also have been revealed. NAAS Hyannis has been declared surplus. Otis Field, slated to be closed the first quarter of 1946, was put on caretaker status. NAF South Weymouth, which was to have been on caretaker status was put on a maintenance status.

Fentress field was elevated from caretaker status to full operations. Middle River was closed, Weeksville raised from caretaker to maintenance status.

Richmond was lowered from reduced operations to caretaker. NAS Clinton, scheduled to be released the last of 1945 will be declared surplus in the second quarter of 1946. NAF Hitchcock and NAS Houma were raised from caretaker status to maintenance.

Salton Sea was scheduled to be a caretaker operation but will be closed down the first quarter of 1946. NAF Point Mugu was made a full time operation. NAAS Arcata will be retained for five years for FIDO test work. The LTA base at Tillamook, which was to have been under caretaker, was raised to maintenance status.

Barin field was put under full-time operation under NATB Pensacola instead of being under caretaker and Ellyson raised to maintenance status. Rodd field was raised from reduced operations to full time and Kingsville, slated to close this year, was retained on full operation. Whiting field was changed to reduced operations. NAF Columbus, slated to close in 1945, was transferred to CNART. Fort Lauderdale was raised from reduced status to full operations and Hutchinson, scheduled to close the second quarter of 1946 was put on reduced operations.

Among Marine Corps stations, Gillespie, slated to close the second quarter of 1946, was shut down earlier. Mojave was to have been on maintenance operation but was turned over to the Navy for pilotless aircraft work.

Planes Sank Most U.S. Ships

Aerial Assaults Proved Most Effective

Out of 695 U.S. naval vessels, ranging from district craft to warships, lost during the war, Japanese or German aircraft sank 115 ships, mostly larger units, according to released figures on losses.

The figures demonstrate the efficiency of the airplane as a weapon and are in line with losses inflicted on Japanese naval vessels by U.S. planes. Out of 319 major Jap units sunk or put out of action, the Navy's planes sank 87 ships, 22 of them heavy cruisers or larger.

Next to airplanes in destruction of U.S. ships during the war were grounding and capture by the Japs, mostly when the Philippines fell early in the action. In each of those categories 94 ships were lost, all of them small.

Jap or German mines accounted for 69 ships and Jap surface vessels sank 57. In the group of ships lost of heavy cruiser size or larger, Jap planes sank 9, surface vessels sank 6 and submarines 5.

Other U.S. losses were listed as follows:

Foundered in heavy weather 56, submarines 52, overdue on patrol 46, un-

determined explosion 29, collision 26, shore guns 15, scuttled 13, unknown sinking 12, amphibious operations 9, fire 3, unknown torpedo 2, bombed or captured in drydock 2, enemy action 1.

Almost all of the vessels lost in action were in the Pacific. The only size-

	Aircraft	115
	Grounding	94
	Captured	94
	Mines	69
	Surface Gunfire	57
	Storms	56
	Submarines	52
	Overdue on Patrol	46
	Explosions	29
	Collisions	26
	Shore Guns	15
	Scuttled	13
	Unknown Sinking	12
	Amphibious Oper.	9
	Fire	3
	Unknown Torpedo	2
	In Drydock	2
	Enemy Action	1

able warship sunk by the Germans was the escort carrier *Block Island*, on Atlantic convoy.

Vessels lost during the war by types: Battleships 2, aircraft carriers 5, escort carriers 6, heavy cruisers 7, light cruisers 3, destroyers 71, destroyer escorts 11, submarines 52, minelayers 3, minesweepers 24, subchasers 18, gunboats 12, Coast Guard vessels 15, seaplane tenders 3, motor torpedo boats 69, LST's 40, LSM's 9, LCT's 67, LCI's 22, LCS's 6, tugs 10, tankers 6, troop transports 21, district patrol craft 36, miscellaneous district craft 152, cargo vessels 4, miscellaneous 22.

Task Force Practices En Route

Two Units Search for Each Other in Plan

VB-89—"Task Force 58," en route from Chinese waters to Japan in December to join the Fifth fleet, held flight operations while in transit for training purposes which proved beneficial to all concerned.

The *Antietam* and *Boxer*, with destroyer screen, made up the "Force." Operations included searches, dive bombing, glide bombing, strafing and rocket firing at a towed sled. One day's operation of special training value to ship and air group was plan "Wherizzy."

The task force divided into units of a CV and two DD's each. Orders were to operate within a 100-mile radius of a specified point. At the time of launch each unit was to pass through another specified point unknown to each other and then to proceed at their own discretion within the 200-mile circle.

The air group formed its own plans of attack and launched searches and attack groups simulated actual operations attacking an enemy fleet. Later in the month a similar "Wherizzy" plan was run despite a 9/10 cloud cover over the target. Due to accurate contact and tracking of the enemy force by a search plane and full use of electronic aids, a successful operation was carried out.

Lone Ranger Rescue Saves FR-1

Chief Rides Stabilizer To Hold Down

NAS SAN DIEGO—A spectacular Lone Ranger "rescue" of a FR-1 Fireball which appeared headed for a landing crash was featured on the runways at San Diego recently.

Word was passed from the control tower to crash crew to stand by the runway because the jet fighter was coming in with nose wheel in possible unlocked down position. As the plane touched down the procession of crash jeep, equipment truck, fire engine and "Bay City crane" swung into the chase in case trouble developed at the end of the roll.

Chief Machinist W. A. Wright, crash officer and driver of the jeep, closed in on a stern run and with due regard for possibility of a nose-up of the FR as the roll speed decreased enough to prevent nose-high elevator control, gave the wheel to his co-pilot.

Hanging over the jeep side in Lone Ranger style he made ready to grab onto the plane's horizontal stabilizer. When the tail gave indications of lightness he departed from the jeep and with three strides, marked by smoking heel rubber, bounded up and sat firmly upon the tail. The plane stopped without accident, thanks to the "rider."



GIANT WURZBURG RADAR ANTENNA USED TO TRAIN GERMAN STUDENTS AT KOTHEN RADAR SCHOOL; VARIOUS TYPES OF GEAR ON FIELD

Navy's Radar Countermeasures Kept Jap 'Electronic Eyes' Blinded; Battle of Scientific Wits Sees U. S. Victorious

RADAR and the part it played in winning the war has been widely publicized but little has been said about the spectacular success of the Navy's program of radar countermeasures—RCM—to jam and make useless the enemy's electronic eyes.

Radar and related electronic devices completely changed the tactics of modern warfare by making it possible to "see" and attack an enemy hidden by smoke, fog or night. Radio impulses from a radar, however, are subject to interception, measurement, direction finding and interference. This is where RCM won out; it could neutralize use of radar to control gun and rocket fire, air raid warning, fighter direction, tracking and intercept and blind bombing.

Radar is like a man shouting and hearing his "echo" bounce back from a cliff. His "echo" is faint compared to the original power of his shout. Anyone standing on the cliff could, with

considerable less lungpower, drown out his returning "echo". That is how radar countermeasures work. Radar stations have to send out radio impulses of tremendous strength to insure a faint echo coming back. These stations can be heard at a much greater distance than the furthest range at which they can locate an object. Thus the radar itself can be detected easily, a fact which made radar countermeasures so successful against enemy search radar.

Countermeasures is essentially a battle of wits with enemy scientists. The enemy developed radar sets broadcasting impulses on frequencies which jammers would not operate and U.S. scientists in turn broadened operational possibilities of radio jammers to cover these frequencies.

Radar has four weaknesses. *First*, its signals can be detected far beyond the range at which it can locate objects. *Second*, it betrays its location by the

signal and by use of a radio direction finder, can be pinpointed and destroyed. *Third*, because the returning "echo" is so weak, a fairly weak "noise" will cover up the echo. The *fourth* weakness is that radar has difficulty in distinguishing between actual targets and free falling strips of aluminum foil, called *Window*.

TWO MAIN types of RCM were used during the war to blind enemy search radar or throw off the AA and searchlight control radars, or radio-controlled bombs—electronic jamming and use of aluminum foil called window or rope. Because each radar set operates on a particular frequency, it is necessary that the jammer—which is fundamentally a small radio transmitter—be tuned to that same channel.

This necessitated carrying of jammers tunable over wide frequency ranges. On the enemy radar scope, jamming looks like many fine blades of grass moving about at random. Echoes from airplanes, which usually look like vertical spikes on the radar scope, become lost in the "grass" screen.

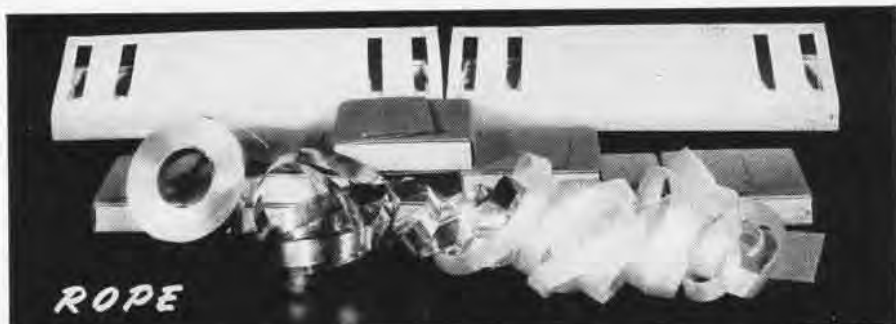
BEFORE any counter measures equipment can be developed, something must be known of the enemy's equipment against which it is to work. Jammers must operate closely to the frequency of enemy radars. *Window* is cut in various lengths according to the wave length to be jammed, common types running from $\frac{1}{8}$ " to 60". *Rope*, streamers of aluminum foil, is 400 feet long.

If a number of *Window* packets are dropped out of a plane, a trail is produced in which a radar no longer can distinguish a real target. The plane's echo is lost among the *Window* echoes. The Germans countered this by trying to develop radar that would distinguish between a moving target and falling *Window*. These anti-*Window* devices, however, made their radar more vulnerable to electronic jammers.

Radar countermeasures, as a weapon, came into prominence in Europe after the fall of France in 1940. English and U. S. forces co-operated in developing means of ferreting out German radar installations, determining their frequencies and jamming them. The Germans early standardized on Wurzburg-type radar, a fatal mistake which enabled the Allies to work out effective RCM to block it.

Through use of jamming and *Window*, Allied losses in bomber raids over German were cut as low as a quarter of those suffered before RCM was put in full use. Used in combination, they were more effective than either type alone to throw off German flak controlled by radar or to neutralize night-fighter plane radar. By V-E day, at least two radar jammers were carried in every heavy U.S. bomber and some 10,000,000 lbs. of window littered fields.

Naval vessels carried jammers, corner reflectors, *Window*-loaded rockets and shells to help them blank German coastline radar for the Normandy invasion. Navy patrol planes used direction finders to locate surfaced German



American aircraft tossed out window of various lengths according to wave length of enemy radar or utilized the 400-foot streamers of 'rope' which proved effective radar jammers

U-boats using radar and sink them.

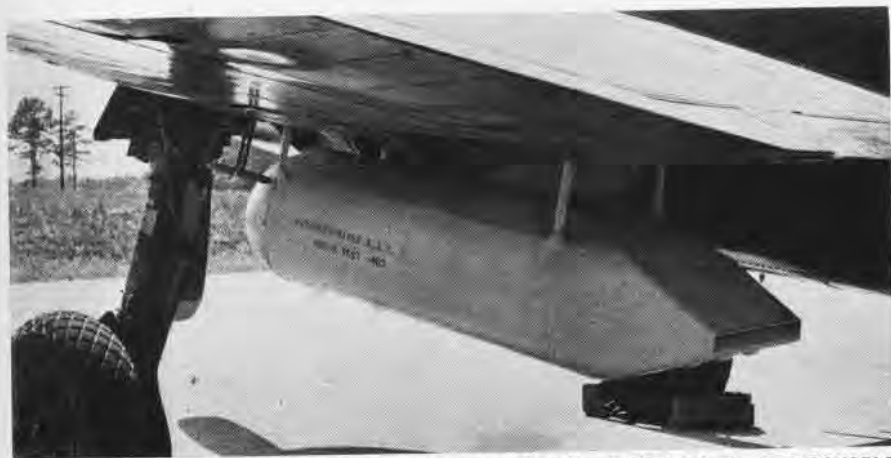
In the Pacific theater, the Japanese were far behind other warring nations in radar. The U.S. effort was directed toward obtaining frequencies, characteristics, locations and operational use of radar by the Japs. Early types of Jap radar ground sets were captured on Guadalcanal and Kiska and enabled us

to work out countermeasures.

By the fall of 1943 the Japs had a rather extensive radar net in operation and the Navy equipped many planes to locate, photograph and bomb these installations. Geography of the war could have made radar a strong weapon for the Japs but it did not because their development work was slow and because our RCM was so effective.

RCM-equipped planes flew over Jap-held islands, charted their radar defenses and weak points. This information helped attacking planes later by revealing radar blind spots from which they could sneak in on raids, as was done at Truk and other Jap island strongholds.

Jap use of radar by their own ships and planes was turned against them. Their signals were intercepted, the direction plotted and the attacks headed off by U. S. planes or ships. One submarine, the *Batfish*, sank three Jap subs this way. German U-boat commanders got so they refused to use their radars to find prey because their signals betrayed their locations before their search impulses found a target nearby.



AUTOMATIC WINDOW DISPENSER FREES PILOT FOR FLYING; NEWER MODEL JETTISONABLE



SHIPBOARD RCM INSTALLATION WITH DIRECTIONAL SCOPE IN CENTER, RECEIVER ABOVE

RCM Installations Find Enemy Radar Signals, Analyze Them and Neutralize Them by Jamming or Use of Window or Rope

THE NAVY equipped many types of planes with RCM—*Black Cats*, *Privateers*, *PV-2's* and *TBF's* and even fighters. Because of its weight, complete installations could be made only in larger planes. More than 700 *PB4Y-2's* and about 75 *Liberators* were equipped with RCM. Certain *Hellcats* carried a radar homing system which was effective in locating Jap radars.

When fully equipped to permit radar intercept work on all frequencies likely to be encountered, the prototype *Privateer* was so studded with antenna, radomes and other external gear it was called *Wart Hog* (see below). A complete system of RCM search included:

Intercept Receivers — Sensitive receivers which can be tuned over a broad frequency band so that each different

type of enemy radar can be picked up. A trained operator can tell how many different radars the enemy has and the operating frequency of each. He can detect when the enemy radar "sees" him and can take steps to jam it.

Pulse analyzers—An intercept receiver can tell whether the enemy radar is turned on and on what frequency. To jam it the operator has to know other characteristics. He has to know the pulse length and this is accomplished with a pulse analyzer. Besides this, the analyzer determines the pulse repetition frequency, an identification aid.

Panoramic Adapters—Enemy radars may be found at almost any radio frequency and the job of searching for them is tedious. To help in this search, panoramic adapters display on a scope

screen a chart of all signals which are being picked up by the receiver. All signals show as pips on the screen.

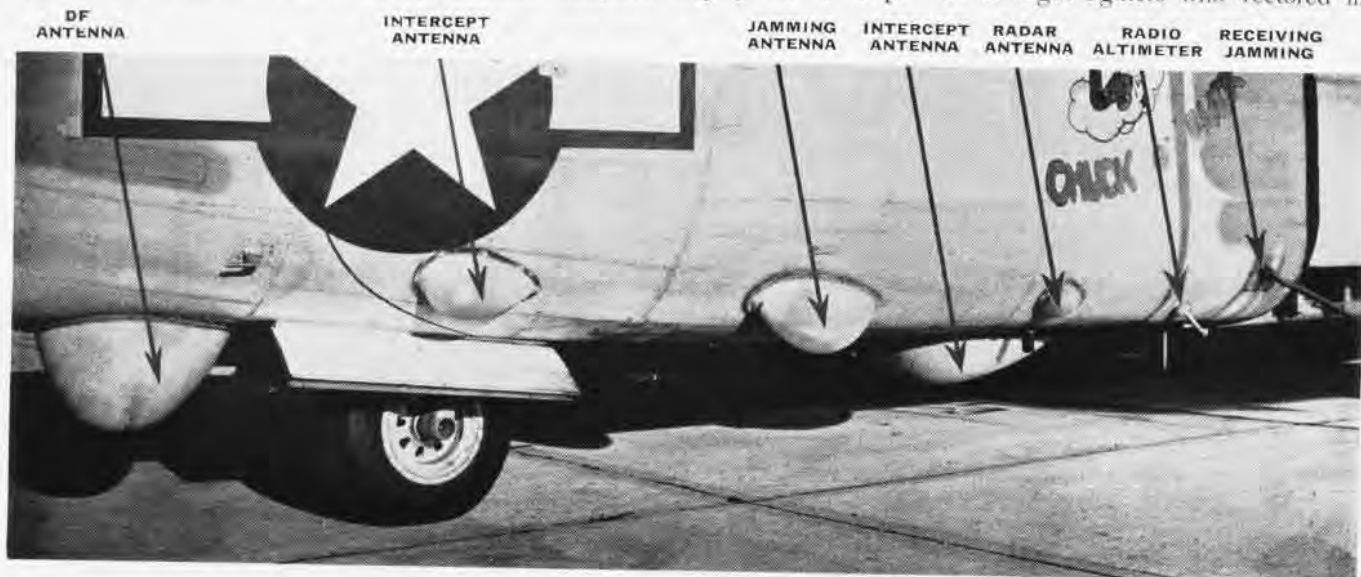
Direction Finders—To locate enemy radar, an auxiliary equipment similar to automatic radio direction finders is used. More elaborate radar direction finders show the information on a scope.

Electronic Jammers—Once a signal is identified as being an enemy radar, and the plan calls for offensive operations, the radar jammer is set on the frequency. These are special radio transmitters that broadcast a type of signal that interferes with enemy radar. Jammers can be tuned over a fairly wide frequency range, but to cover the spectrum, several jammers are needed.

Window—Window and Rope both were used extensively by the Navy in the Pacific. The problem of dispensing is relatively simple — a crewman tosses packages out a hatch. For the busy fighter pilot, an automatic jettisonable dispenser is put on the bomb rack.

TRAINING of officers and men to handle the Navy's airborne RCM program was done at a school on San Clemente Island, off the California coast. Earlier, these men were trained at Naval Research Lab, Anacostia. At first a few RCM teams were sent out. Later in the war as use of RCM by planes and ships widened and their operations became Fleet-wide, RCM was installed on each capital ship.

When the Japs began to equip night torpedo planes with radar to find U. S. ships in the dark, a new use for RCM was developed. A carrier task force made rapid modifications in its equipment and jammed incoming Jap planes' radar. The effect was startling. The Jap pilots lost their targets, orbited aimlessly and many were shot down by U. S. night fighters who vectored in.



AIRBORNE RCM

- 1 Intercept
Enemy Radar Signal
- 2 Analysis
of Signals
- 3 Panoramic
Adapter
- 4 Direction
Finder
- 5 Jam Enemy
Radar
- 6 Drop
Window



RCM INSTALLATION ON PV PUTS ALL INSTRUMENTS WITHIN REACH OF OPERATOR, WHO RECEIVES, ANALYZES AND JAMS ENEMY RADAR

Carrier planes supporting Okinawa operations used quantities of window. They worked out a scheme to cut plane losses by maintaining a 24-hour air patrol over Jap airfields when the Kamikaze went on the rampage. Teams of bombers and fighters orbited around these fields to hunt down suicide planes, using window or jamming on AA.

With carrier task forces, RCM played other important roles. It checked on unidentified contacts by examining the radar they carried, it coached long range air search radars on the target, and it often permitted through its use alone the splashing of bogeys before the enemy knew the task force was in the vicinity. It intercepted Jap search radar signals and gave early warning. It helped detect Kamikaze planes coming in for attack by finding radar-

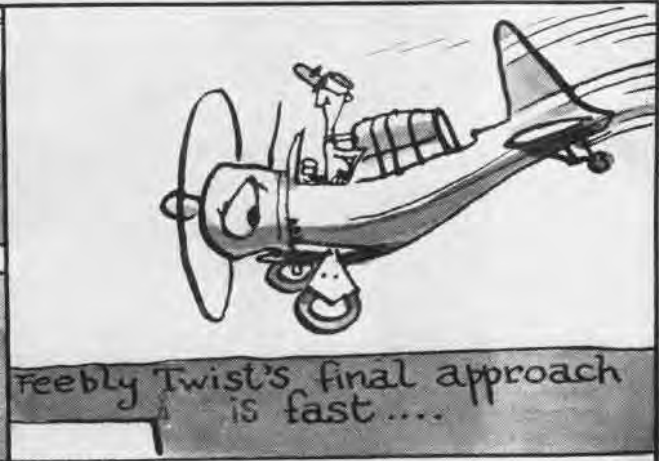
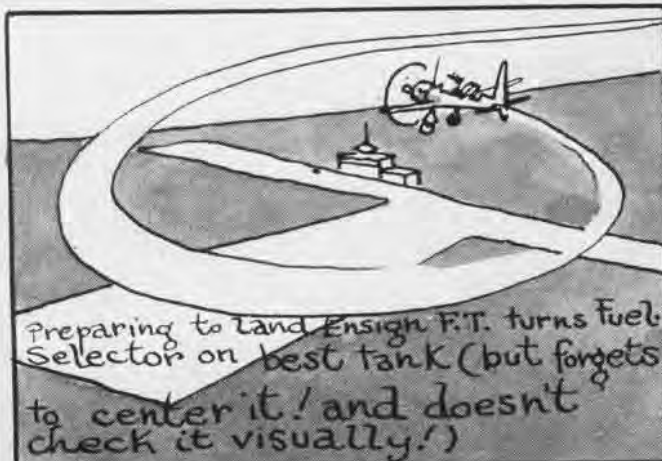
equipped guide planes which might be in the party. It threw off radar-controlled shore batteries and cut down beachhead losses at many landings.

The following training films on radar countermeasures are available at nearest film library:
 MN-955j—Radar Jamming.
 MN-2867a—Window.

MN-2867b—Radex ASB.
 MN-2867c & d—Fire Control Radar.
 MN-2867e—Radex Airborn PPI and B Scan.
 MN-5828—Radar Countermeasures.
 MA-6060a—Radar Anti-Jamming for the Radar Operator, Part I, Receiver Adjustment.
 MA-6060b—Radar Anti-Jamming for the Radar Operator, Part II, Recognition.
 MA-6060c—Radar Anti-Jamming for the Radar Operator, Part III, Window.



JAMMING MAKES CLEAR SIGNAL ON SCOPE (LEFT) UNREADABLE WITH 'GRASS' (RIGHT)



Ensign FEEBLY TWIST

Moral: Know how to handle your fuel supply



A RECENT information indicates that there is a post-war trend of increasing carelessness in handling of the fuel supply. Case histories show that some pilots run into trouble when they attempt to take-off or land on tanks restricted to cruising conditions. Other pilots run one tank dry and either fail to shift to another tank containing fuel or shift back and forth from

one tank to another without allowing sufficient time on any one tank to regain suction. Some shift to "off", to an empty tank, or to a bomb-bay tank or drop tank which is not installed. Still others fail to center the selector valve correctly, fail to use auxiliary fuel pump to give positive fuel head, or run a fuel tank dry at too low an altitude.

B. The below accidents taken at random from our files will give you an idea of how these things could happen to you. All these pilots were assigned 100% Pilot Error.

1. The pilot of an FM-2 inadvertently moved the gas selector two-thirds toward the off position while cranking his flaps to the "up" position.
2. The pilot, after completing a tow hop, experienced

complete engine failure at an approximate altitude of 50 feet. The right main tank was found to be empty, though the gage read 20 gallons. The pilot had forgotten to change to his best tank before landing—he had not changed tanks during the entire hop, his other tank was full.

C. These and many other examples of mishandling of the fuel supply result from carelessness and lack of knowledge of the fuel system. Here are some good rules to follow:

1. Know your full system and how to operate it.
2. Always keep a running mental check on your fuel.
3. Never run a tank dry at low altitude. Watch your fuel gages closely and shift at first indication of fuel pressure fluctuation. When you shift, be sure that your fuel selector valve is centered, and use your auxiliary fuel pump.
4. Have plenty of altitude if you run a tank dry, and be sure you know how to regain fuel suction.
5. Always save your best tank till last and shift to it for combat maneuvers and low altitude flying, including take-offs and landings.

D. How to regain suction:

1. Shift to proper tank with positive, visual check of selector valve position.
2. Switch on auxiliary fuel pump, or use hand pump.
3. Retard throttle to $\frac{1}{4}$ position.
4. Place mixture control at idle cut-off until adequate pressure is built up, then return to auto-lean or auto-rich. (To prevent premature starts and minimize backfire.)
5. Nose over to maintain airspeed.
6. Use primer if necessary.

Remember, if you run a tank dry at low altitude—below 3000 ft.—there may not be sufficient time to regain suction. NEVER RUN A TANK DRY AT LOW ALTITUDE.



TRY FINDING YOUR BUNK IN THIS ARRAY ON SOME DARK NIGHT WHEN YOU'RE SEASICK

TENDER BECOMES TROOP SHIP

HOW to get more than 2000 overseas personnel aboard a seaplane tender and make them as comfortable as possible for their trip back to United States was demonstrated by the U.S.S. *Albemarle* (AV-5), a typical example of how the Navy's *Magic Carpet* came into being.

Changing over from the job of maintaining PBM's and other big planes to that of troop transport was accomplished quickly. Aviation spare parts and other heavy equipment was crated and sent back to supply. A survey showed 664 five-decker bunks could be installed in the hangar, 407 in wing storage, 53 in the parachute packing space, 30 in the flag office, and 16 in office spaces. Cots were spot-welded here and there also in passageways and sheltered weather decks.

Head and washroom space being inadequate, the aviation metal shop gave way to a head. Batteries of washstands displaced loose gear and equipment from lower hangar bays. The decontamination room became a shower room. Gasoline tanks which once held high test aviation gas were filled with fresh water as a reserve supply. Magazines that carried bombs, torpedoes and other explosives were used for mail and luggage stowage. Boats that once ran like water bugs between the ship and her planes were left on the beach at San Francisco.

Not only was the ship stripped of equipment, but men as well. An air de-

partment of 150 men shrank to 26. Other departments were cut to make available 500 more berths. Soon it became apparent the men aboard needed something besides bunks. Basketball, volley ball, badminton and shuffle board courts were laid out on the boat and main deck aft and intramural sports started. Movies were shown nightly and frequent smokers were held, at which competition for prizes and exploitation of any talent found aboard, always packed the house. The gedunk stand, an institution itself, always did a whale of a business.

BETWEEN September, when it left Norfolk, and December the *Albemarle* carried 6000 passengers and covered some 27,000 miles. All of the changes made to the ship have been of a temporary nature. On short notice, the ship can be cleared of all the evacuation gear and ready to resume its duties—tending aircraft of the Navy.



ALBEMARLE IS A TENDER OF 13,880 TONS

SHORE STATIONS

▶ **MCAS EL TORO**—A Marine pilot parachuted to safety from a disabled aircraft and was rescued from the sea in what is believed to be record time. According to the radio report of the action, only 19 minutes elapsed from the time of the crash until the rescue.

1114—Fighter pilot radioed El Toro that Marine lieutenant bailed out of disabled plane at 10,000 ft.

1115—El Toro contacted Navy Air-Sea Rescue Center, San Diego who dispatched Coast Guard PBY-5A.

1133—PBY-5A picked up Marine lieutenant.

1155—PBY-5A landed at El Toro with rescued pilot.

▶ **NAS FT. LAUDERDALE**—Clouds of mosquitoes ignoring zoning laws at this station were directly responsible for the organization of a "spray group." This group, comprised of six experienced pilots, is spraying the entire station with DDT.

The spraying will continue until the entire area is covered and reasonable assurance of "bite freedom" is obtained.—*The Avenger*.

▶ **NATTC NORMAN**—"To what do you attribute your popularity with enlisted personnel?" an inquiring photographer asked the executive officer.

"The enlisted personnel who got the scuttlebutt that I was popular," Comdr. Shields replied modestly, "probably didn't ever have to stand Mast. And I sincerely hope," he continued, "they will go along under the same misapprehension."

The Bull Horn

▶ **NAS MINNEAPOLIS**—Through all the processing for separation went "Ginnie" holding her honorable Navy canine discharge. Her master, W. H. Rodman, SK1c, was discharged here last week, and the little dog never left his heels for a moment.

"Ginnie" went with Rodman when he was sworn into the Navy three years ago and remained with him until he shipped out to the Caribbean area. Now joyously reunited with her master, she obeys his every command and is quite a show-woman when it comes to tricks. *Penguins*.

▶ **NAS SAN DIEGO**—Visiting pilots approaching North Island may be startled to hear the tower instructing them to land on the runway because there are "gophers" on the mat. The name is applied to some imposing pieces of equipment used by Public Works to make wheel load tests on the mat. Holes three feet square are dug and subsoil checked for density and stability under pressure. Every morning the tower gets the word on the area to be tested and directs traffic accordingly. The tower must be specially alert for inevitable *Dilberts* who come in without radio contact and have to be given a quick wave-off.



CGAS BROOKLYN DEVELOPS METHOD OF USING MORE-POWERFUL MK 5 HOIST FOR BOAT

AR-8 LIFE RAFT PLACING ON PBV IS MADE EASIER

DIFFICULTY has been experienced by operating units when hoisting the AR-8 Airborne lifeboat with the Mk 6 manual bomb hoist on the PBV-5A.

It is understood that the Mk 6 has an allowed hoisting capacity of more than 1000 pounds. When correct size work stands are not available, it is necessary to hoist the AR-8 boat with one or two men in it to engage the displacing gear in the trunnions and guide the suspension bolts through the hull. The total weight with the men in it is approximately 1800 pounds and has several times caused internal failure of the Mk 6 manual hoist, due to overload.

An electric bomb hoist Mk 5 has been adapted for use on the PBV-type aircraft. This hoist has an allowed capacity of 2000 pounds with single cable hoisting. This provides an ample margin of safety when hoisting the 1500 pound AR-8 with one or two men in it.

The conversion of this hoist for PBV use is easily accomplished by station personnel. It is necessary to bolt two skids to the base of the hoist. (These may be of wood faced on the bottom with rubber to prevent creeping of the hoist and are approximately 2" x 4" x 16") Remove the snap hook at the extreme end of the hoisting cable and

use the cable eye splice found there. The hoist is then converted for use. As this is principally an electric hoist, the necessary 24 volts is supplied by a portable gasoline-powered generator.

The hoist is then placed over the rack to be loaded. As the passageway through the wing, for the hoisting cable is long and narrow and runs fore and aft across the wing, it is necessary to position the hoist with cable winding drums fore and aft. When the cable and drum have been selected (this hoist has two drums and cables but it is only necessary to use one at a time), the cable to be used should be positioned at either extreme end of the opening in the wing (depending on which drum is used), when the cable is in the all-the-way up position. If it is not positioned properly, the cable will not be able to move horizontally on the drum as it descends. This would cause the cable to bind at the end of the opening in the wing on the way down and to wind unevenly on the drum when hoisted.

The use of this hoist enables the AR-8 to be hoisted with greater safety due to the difference in rated capacity of the Mk 5 hoist as compared to the less-powerful Mk 6 hoist. The electric up-down switch can be operated by the man riding the boat thereby facilitating the alignment of the displacing gear with the trunnions on the gunwales of the boat. The Mk 5 hoist requires fewer personnel to hoist the boat as no one is required to be on top of the wing to operate the hoist. This factor makes for greater speed and smoothness as there is no necessity for calling out instructions to a person on top of the wing while cranking the hoist as in the case of a Mark 6 manual hoist.

Navy Had Variety of Squadrons Many Designations Changed During War

Naval aviation was composed of a complex organization of squadrons, hedrons and supporting units numbering into the scores, according to a history of Naval and Marine fleet aviation units completed recently.

The following tabulation shows the various types of units which were in operation at one time or another from start of the war to January 1946. In some classifications the highest numbered squadron will be greater than the total squadrons in existence since some numbers were skipped.

In some cases, a squadron was changed from one designation to another, such as VP and VB squadrons which were changed to VPB squadrons. Many CASU's and PATSU's became CASU(F). A number of special task squadrons were formed and later changed to other designations which further complicates the overall picture.

Air Transport Evacuation Squadron.....	1
Blimp Headquarters Squadrons.....	5
Blimp Squadrons.....	15
Blimp Utility Squadrons.....	1
Bombing Fighting Squadrons.....	48
Bombing Squadrons.....	101
Carrier Air Groups.....	88
Carrier Aircraft Service Units.....	61
Carrier Aircraft Service Units, Forward.....	36
Composite Squadrons.....	83
Composite Spotting Squadrons.....	2
Escort Fighting Squadrons.....	4
Escort Scouting Squadrons.....	29
Evacuation Squadrons.....	3
Experimental & Development Squadrons.....	2
Ferry Transport & Service Squadrons.....	5
Fighting Squadrons.....	95
Fleet Air Base Units.....	7
Fleet Air Photo Groups.....	2
Fleet Air Wing Hedrons.....	19
Fleet Air Wings.....	17
Fleet Airship Wings.....	7
Fleet Training Units.....	5
Interpretation Squadrons.....	2
Marine Artillery Spotting Divs.....	4
Marine Bombing Fighting Squadrons.....	6
Marine Bombing Squadrons.....	16
Marine Fighting Squadrons.....	59
Marine Headquarters Squadrons.....	38
Marine Night Fighting Squadrons.....	8
Marine Observation Group Hedrons.....	2
Marine Observation Squadrons.....	13
Marine Operational Training Squadrons.....	4
Marine Photographic Squadrons.....	6
Marine Scout Bombing Squadrons.....	39
Marine Scouting Squadrons.....	1
Marine Service Squadrons.....	33
Marine Torpedo Bombing Squadrons.....	24
Marine Training Squadrons.....	4
Marine Transport Squadrons.....	8
Marine Utility Squadrons.....	11
Marine Wing Service Squadrons.....	5
Night Fighter Squadrons.....	25
Night Torpedo Squadrons.....	9
Observation Fighter Squadrons.....	3
Patrol Bombing Squadrons.....	116
Patrol Service Units.....	21
Patrol Squadrons.....	67
Photographic Squadrons.....	65
Rescue Squadrons.....	6
Scout Observation Service Units.....	3
Scouting Squadrons.....	44
Special Air Task Force Squadrons.....	10
Special Air Task Groups & Hedrons.....	3
Torpedo Squadrons.....	78
Transport Squadrons.....	13
Utility Squadrons.....	19
Utility Transport Squadron.....	1
Weather Reconnaissance Squadrons.....	2



Ammunition ship in Servron Six passes ammunition to an Essex carrier while underway at rendezvous off Japan



Loaded cargo nets are passed from supply ship to the carrier by means of "burtoning" method. Personnel move from ship to ship on the trolley rig

SERVICE SQUADRON SIX

THE FLEET That Came To Stay, thanks to the tankers, ammunition ships, escort carriers, tugs, storeships and other auxiliaries included in Service Squadron Six, actually was the Fleet that didn't have to go home.

For eight months prior to the defeat of Japan, Servron Six provided vital supplies to the hard-hitting fast carrier groups operating in and near Japanese home waters. Started as an experiment, Service Squadron Six under command of Rear Admiral Donald B. Beary, first operated in direct logistic support of the Fifth Fleet during the Iwo invasion. His flagship was the 23-year-old cruiser U.S.S. *Detroit*.

During the Okinawa invasion Servron Six was on hand with floating fuel dumps and arsenals refueling and rearming the fast carriers for further strikes. In this action elements of the task force remained at sea for 79 consecutive days without the necessity of returning to fixed bases for supplies,

Navy's Secret Ace In Hole Supplied Fleet with Bombs, Bullets, Beans and Black Oil

a feat unparalleled in naval history.

Servron Six was a secret weapon that gave the Fleet power to wage an unlimited offensive which completely baffled the Japanese. At rendezvous points thousands of miles from its nearest land bases, fast task forces could refuel, rearm, reprovision and strike again almost without interruption.

The transfer of all types of supplies while underway on the high seas had been perfected to such a degree that the continued operation of the Fleet off the coast of Japan was limited only by battle damage and human and mechanical endurance.

In supporting the Iwo and Okinawa invasions and the final assault against

Japan, Servron Six supplied the Fleet with 15,871,000 barrels of fuel oil, enough to fill a train of tank cars 555 miles long. Other supplies delivered at sea included 37,097,000 gallons of aviation gasoline; 25,000 tons of bombs, rockets and bombardment ammunition; 8000 tons of fresh and dry provisions; and 24,000 sacks of mail. In the Okinawa operation alone Service Squadron Six supplied 2,700,000 packs of cigarettes and a million candy bars.

Tankers operated a shuttle service between Ulithi and rendezvous points at sea. Escort carriers, operating as plane transports, enabled Service Squadron Six to maintain the air striking power of the Fleet task forces. Jeep carriers transported planes and personnel to replace combat losses maintaining a shuttle service to Guam. Servron Six's CVE's furnished the Fleet with 1673 planes and 399 flight crews in eight months of operation.

Masterful seamanship and ship handling made it possible for tankers to refuel two ships simultaneously while underway. Ammunition ships in the squadron could transfer 710 tons of ammunition during a single day at sea.

AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

Procure Electric Target Line Release

A new, electrically-operated target release for use on F4U and F6F-type planes has been designed and developed by Edward T. Valenzuela, AOM 1c of CASU 28. It has been tested by VF-152 and VBF-152 and reported as satisfactory, serving to simplify work of pilots when dropping targets.

The release, mounted on the bottom of a plane's fuselage, is actuated by a solenoid mounted above it, inside the plane. Operation is simple as moving parts aside from the solenoid plunger consist only of the release hook and cam. The accompanying photograph of a rough test model, later refined, shows how most of the towing strain is taken up directly by the frame, with the release hook serving mainly to



AOM'S TOW TARGET RELEASE WORKS WELL

hold the target release ring in place. This makes possibility of hang-ups slight.

All that is required to make the tow-line fast before flight is to place the ring in place and cock the release by hand pressure on the hook. BuOrd is having a number of these releases made for further testing.

Positive Lock Device for Mk 51 Rack

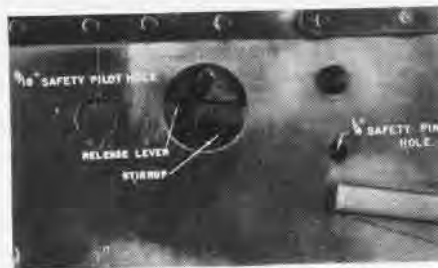
VB-13 and CASU 50 reported the inadvertent release of radar equipment from a bomb rack, Mk 51 Mod 7, considered to be locked safe by the method outlined in OTI v27-43. It was found by investigation that this accidental release was due in part to a damaged release lever stirrup within the bomb rack which made ineffectual action of the installed safety pin.

Similar reports of bomb rack locking failures have been received in BuOrd and the need for a more positive locking device was realized. One unit recommended inserting a bolt through the 9/16" lock-and-relatch pin holes in the side plates of the Mk 51 rack. This bolt would block downward travel of the release pawl during release and prevent suspension hooks from opening.

After testing this method of locking, BuOrd recommends use of a 3/4" bolt with at least 1 1/2" of unthreaded shank and to be secured in position with a nut and cotter pin. The unthreaded shank will prevent

any possibility of the nut being tightened against the side plate and causing damage to the internal mechanism of the bomb racks.

With the rack locked solely by this means, any actuation of electrical or man-



RACK SHOWN WITH MECHANISM UNTRIPPED

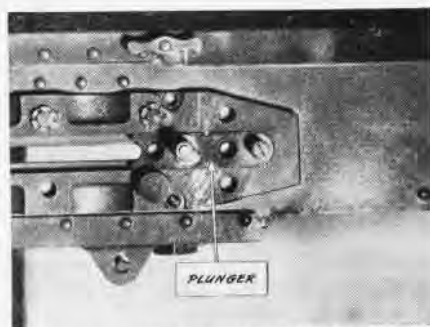
ual release will disengage the release lever from the release pawl and permit the pawl to drop on to the locking bolt. When this has occurred any load being suspended from the bomb rack must be raised by an amount sufficient to relieve the weight on the suspension hooks before the rack can be relatched or the bolt safely withdrawn for lowering the load.

Activities are authorized by OP 1375, change 1, to use the lock-and-relatch pin hole for a safety pin hole. The previously-used 3/4" locking pin is to be discarded and only the 9/16" lock-and-relatch pin hole is to be used for locating a locking device.

Heavier Tension on Retracting Slide

Some activities have found that the retracting slide of the retracting slide group on the BAM gun caliber .50, AN-M2, does not stay in the forward position when gun is fired. This may result in an irregular or reduced rate of fire, greater dispersion, or even a gun stoppage. This is particularly true in the Grumman turret 150 SE.

Thomas Victor Murphey, AOM 2/c, of NAS Barbers Point, suggested that an additional retracting slide plunger and spring be installed in the retracting slide group assembly. This affords a more positive locking of the retracting slide in its forward position. The illustration demonstrates the manner in which this additional plunger and spring assembly is installed.



ADDED PLUNGER-SPRING SPEEDS 50 CAL.

Navy Debunks Too Easy "Nofog"

Much Publicity But Real Tests Evaded

Widely publicized claims of a cheap short cut to fog clearance for airfields made by the Nofog Corporation need to be taken with several grains of salt, according to the Navy's weather experts. "Nofog," a chemical process developed by C. R. Pleasant of California, sounds like the answer to every fog-bound pilot's prayer in recent newspaper and magazine write-ups, but the catch is that it hasn't produced results under test.

In 1942 the facilities of NAS ALAMEDA were made available to the "Nofog" interests for a period of four months, and a J2F aircraft was set aside for the specific use of the fog dispersal project. All tests were conducted at government expense and test apparatus was manufactured under the direction of "Nofog" engineers at the A&R department. Every test conducted during the four months period produced negative results; the only positive result attained was corrosion of the test aircraft by "Nofog" chemicals to such an extent that an overhaul was necessary. The current publicity hasn't mentioned these Navy tests.

The Navy also invited the "Nofog" interests to conduct tests of their equipment at the Landing Aids Experiment station, Arcata, California in October 1945. Navy assistance was again offered in assembling equipment and in financing the tests, but the offer was not accepted. The weather conditions at the Arcata station permit conclusive tests of fog dispersal equipment, and the Navy hoped that "Nofog" could be scientifically evaluated along with FIDO and other fog dispersal techniques which have been developed and successfully tested there.

Drone Group will be at Mojave

Pilotless Aircraft Program Is Set Up

The newly-created Pilotless Aircraft Unit, based at MCAS MOJAVE, will handle testing and tactical evaluation of special weapons such as drone aircraft and missiles, according to an aviation planning directive.

PAU will include the functions performed by the special weapons engineering development group of Naval Air Modification Unit; the propulsive device research and development project, and the Loon test and shipboard groups. Detachments of PAU will be located at NAF POINT MUGU, Calif. Command of the unit will be under BUAE and the 11th Naval District, with CNO handling management and technical control. (See NANews, Pilotless Aircraft, January 1946 issue.)

Maintenance

BACK ABOARD HIS CARRIER AN SB2C PILOT GETS OUT THE 'BEEF SHEET' FOR A MAINTENANCE CONFERENCE WITH PLANE CAPTAIN



l
e
j-
d
e
f.
er
ct,
nd
ys,
(.)
ted

TBM Takes 2 Tow Sleeve Reels

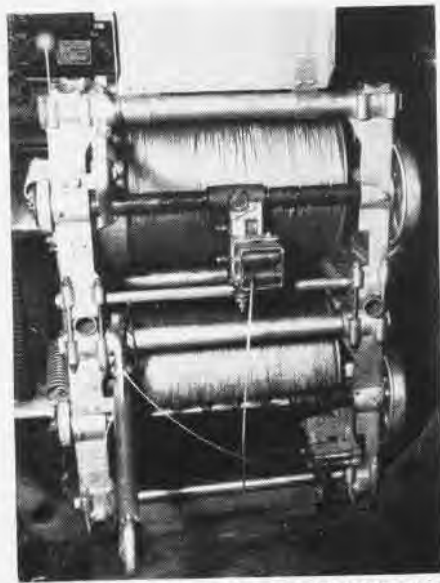
VJ-4-Twin Mk 5 Mod 3 tow reels have been installed in a TBM aircraft as shown in the accompanying photograph. In addition to Pearl Harbor TBM local change 42, another Mk 5 Mod 3 tow reel is mounted directly above the original change 42 installation, separated by two pieces of steel tubing.

The source of power to the top reel is derived from a silent chain drive attached to the bottom reel extension shaft. One outrigger is used by both reels and one impeller for power.

Twin engine planes had an advantage over single engine aircraft because of the twin tow reel installation. With the twin installation incorporated in the TBM, the only advantage of a multi-engine plane is a longer range and time on station and a greater degree of safety in the event of an engine failure.

► **BuAer Comment**—This is an interesting method of increasing reliability and capacity of target reel installations. However it is not approved or recommended for the following reasons:

1. It is believed that the new impeller brake which has been designed and is now



BUORD TESTS ONE REEL TO REPLACE PAIR

being tested by BuOrd will occupy the space used for the chain drive take-off on the lower reel, in which case it would be impossible to drive the upper reel by the means shown.

2. The upper reel introduces another 90° change in direction of the tow cable over a relatively small roller. This will reduce life of the cable and impose a severe strain on the level wind.

3. The use of only one outrigger limits flexibility and advantage of a twin reel installation.

4. The exposed silent chain drive presents a hazard—this could be alleviated by providing a metal cover or guard.

5. Neither of the level wind guide roller assemblies pictured appear to be standard.

The capacity of two Mk 5 Mod 3 reels is 11,200 ft. of 3/8" cable (5,600 ft. per reel). The installation of Mk 8 Mod 0 reel, which soon will be available, with a capacity of 12,000 ft. of 3/8" cable would be preferable from a servicing and maintenance viewpoint.

Jeep Spots Aircraft at Night

FAIRWING TWO—This activity developed a "follow-me" jeep which is useful in spotting multi-engine landplanes in daytime or at night. Besides



LIGHTED ARROWS OVER SIGN DIRECT PILOT

the large painted sign on the rear of the vehicle, it carries three lights which are for night use.

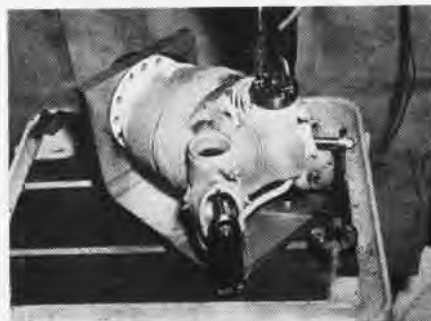
Two arrows point to the right or left and in the center panel above the sign is the word "stop." The driver manually controls which light is turned on. Shaded lights also illuminate the "follow me" sign at night without shining in the eyes of the following pilot.

► **BuAer Comment**—If lights are installed on "follow me" jeeps, the switches should be so arranged that the operator sees a duplicate of the lighting arrangement and only one arrow or the "stop" light can be illuminated at one time.

Drilling Saves Dollars, Time

NAS ALAMEDA—Removal of exhaust stack sleeves by drilling, developed by a machinist at this activity under the Navy Employees' Suggestion program, cut man-hours by two-thirds and effected an annual saving of approximately \$2,500. Drilling accomplishes a former 25 minute job in seven minutes and permits the milling machining to be used for other purposes.

Approximately 25 percent of the R2800 engine cylinders overhauled at this station had worn or corroded ex-



DRILL SIMPLIFIES REMOVAL OF STACKS

haust stack sleeves which must be removed and replaced. In the suggested method of removing these sleeves, a three-fluted drill is guided by a special jig equipped with guide bushings so that the three 3/8" holes can be drilled down the side of the sleeve, almost cutting through the wall but not damaging the threads of the cylinder.

The small section of the sleeve, between the more closely spaced holes, is then carefully knocked out with a hammer and chisel. The remaining section then can be collapsed easily with the fingers and removed.

[SUGGESTED BY LEROY M. VAN]

Cleaning of Links Made Easier

NAAS BARKIN FIELD—When the vacuum cleaner shortage hit even the Navy it did not stop the Link trainer maintenance men here. Unable to find a suitable cleaning device for the interiors, they made their own out of odds and ends.

The assembly consisted of a 110-volt turbine motor, one 10-gal. container, plus several feet of hose which supplies vacuum and heads the dust into the container where it is caught in a re-



ODDS AND ENDS MAKE A VACUUM CLEANER

movable bag made from a tow sleeve target. The whole thing was mounted on a rolling carriage for easier moving.

The cleaner was constructed by Paul Johnson, Dean Osborn, Bill Prendergast and Ed Schiane, all SA(D) 2c.

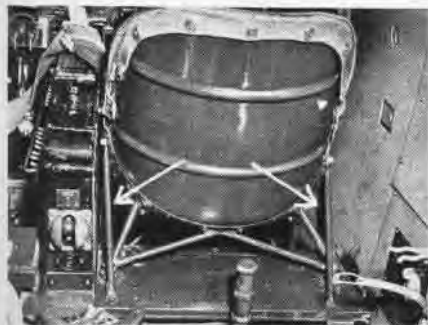
Reinforcing PV-1 Co-pilot Seat

NAS LAKE CITY—To prevent the carrying-away under abnormal load of the co-pilot's seat in PV-1 aircraft, a method of reinforcement of the seat has been developed by maintenance personnel here.

As a result of an emergency crash landing the co-pilot of a PV-1 airplane

received severe facial lacerations when the seat tore loose from its supporting structure under high decelerating loads. To provide additional security of the seat, two reinforcing members, shown in the attached photograph, were fabricated from SAE 4130 heat-treated steel tubing, 1/2" diameter, .040" thick.

These members secured the co-pilot's seat to the bulkhead assembly at fuselage station 147, between the pilot's and radioman's compartment in the plane.



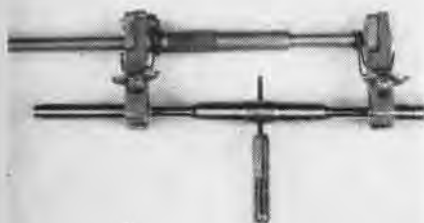
BRACES STRENGTHEN PV CO-PILOT SEAT

► *BuAer Comment*—PV Aircraft Service Change No. 170 sets forth a feature of a somewhat similar nature—incorporation of shoulder straps in the co-pilot's seat. Of the two changes, No. 170 appears more satisfactory. However, incorporation of both 170 and the Lake City idea appears desirable. Change 170, dated 20 Sept. 1945, should by this time be in the aircraft.

Turnbuckle Holder Saves Time

NAS KODIAK—A time-saving tool for rigging control cables has been designed by a mechanic at this activity under the Navy Employees' Suggestion Program. Tension of aircraft control cables, varied by adjusting turnbuckles in the cable assembly, must be accomplished without twisting control cables, otherwise cable tension will drop during service. Various special tools are in use to simplify this operation, as without them the mechanic must hold two wrenches in addition to the turnbuckle adjusting pin.

This newly-devised tool is superior in some respects since it is adjustable and has been designed to accommodate any size turnbuckle. It can be quickly



DEVICE CUTS CONTROL CABLE TWISTING

placed and the control cable tightened evenly, without twisting. This tool is made by attaching a clothes-pin-type clamp to one end of rod on which is mounted a slidable sleeve having a second similar clamp.

In use, the stationary clamp is attached to one end of the turnbuckle, and the movable clamp is positioned and clamped to the other end. The mechanic can then hold the tool in one hand while tightening the turnbuckle with the other hand.

[DESIGNED BY M. N. KANE]

New Fix For AN-B-10 Stop Pins

CASU-6—This activity has developed a field fix for F4U-4 planes whose AN-B-10 bomb shackle has not been replaced by the M-8 Mod 0. The spacer or stop pin located at the forward end of the shackle has been failing, due usually to one of three causes: improper adjustment of sway braces, strain when bombs are released or defective welds.

To overcome this failure a piece of stainless steel strap 5 1/4" x 1/2" .032 is



NEW STRAP ON SPACER PREVENTS FAILURE

placed around both side plate assemblies and secured temporarily with a "C" clamp. A 3/16" hole then is drilled through the steel strap, side plates and forward spacer or stop pin. The parts then are secured with an AN-23-14 clevis bolt, an AN-310-3 castellated nut and an AN-3820-C-2 cotter key.

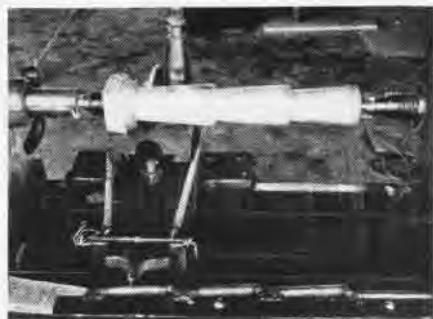
All edges of the strap should be free from burrs in order that bombs may be released freely.

Bomb Plugs Are Mass Produced

NAS FORT LAUDERDALE—A joiner here has suggested an improved method for speeding production of wooden water bomb plugs under the Navy Employees' Suggestion Program.

By converting the wood-working lathe into a copying lathe, the production of wooden plugs has been increased and machining costs reduced. These plugs, made in two sizes, are machined three at a time on the wood working lathe. The tool is mounted on a spring-actuated sliding carriage controlled by a pointed pattern-follower.

The jig or pattern is set on an angle support in back of the lathe. The pattern used for turning bomb plugs con-



COPY LATHE MASS PRODUCES BOMB PLUGS

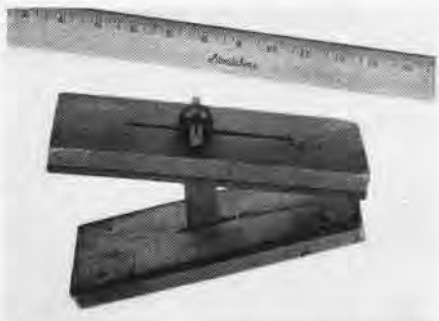
sists of three pieces of round bar stock welded to a flat steel bar drilled for attachment to the angle support by means of screws. The length of each bar section equals the length of one plug and is positioned at an angle to guide the cutting tool at the required taper. Three plugs are formed from the same rough stock and then sawed apart.

[DEvised BY CHARLES J. ZIRKLE]

Simple Control Surface Batten

CASU-53—Simply constructed self-adjusting control surface battens are being used successfully at CASU-53. The battens consist of two slotted pieces of wood approximately nine inches long with the inner surfaces lined in sponge rubber. The two sections are held together by a metal bar running through the slots. The battens require no other attachments and adhere to control surfaces by the wedge action and sponge rubber cushion.

► *BuAer Comment*—This appears to be a simple, economical and satisfactory batten for ordinary use, but it may not be adequate for extreme wind conditions. Technical Note 86-45 should be consulted for provisions covering such added protection.

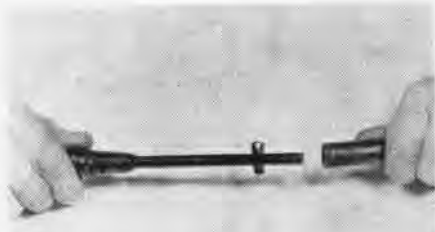


SPONGE RUBBER CUSHION ON NEW BATTEN

Tool Cuts 30 Cal. Gun's Carbon

NAS CECIL FIELD—An aviation ordnanceman here has developed an efficient carbon scraper for cleaning out the muzzles of .30 cal. Browning flexible machine guns.

The stem of the tool is inserted in the muzzle end of the bore and given one



OLD SCREWDRIVER, FILE MAKE SCRAPER

complete turn to the left. Carbon removal in the past was done by scraping the muzzle with a knife.

The tool is made by removing the bit from a screw driver and slotting the shank to permit inserting of a wedge-shaped cutter. Half of the cutter is ground or beveled to the right, the other half to the left. By rotating the handle to the left, a cutter is presented to the carbon on either side of the shank, which acts as a guide or pivot for the cutters. Cutter was made from a file.

[DEVELOPED BY W. K. MOORE, AOM2C]

► **BuOrd Comment**—It is felt that although the tool performs its designed operation efficiently and well, the construction of such a special tool is not warranted due to the small amount of time and labor necessary to remove the subject carbon. This bureau considers use of the tool optional, but recommends that the cut off end of the steel shank should be rounded to prevent damage to gun barrel rifling.

Wing Sling Saves Time, Money

NAS NORFOLK — A wing-handling sling has been developed by an employee at this activity under the Navy Employees' Suggestion Program. The sling, made from belting, is used to transport wings to various locations.

The old method of removing the wings from trucks to positions on the floor for repairs usually required four to six men working approximately one-



WING HANDLING SLING MADE OF BELTING

half hour to move one set of wings. With the new type sling it requires only two men and can be accomplished in five minutes without damage.

[DESIGNED BY MAX A. KOWALSKI]

Marines Develop Gear Container

MAG-91—This air group has developed a container scheme for safety and survival items added to life jackets as called for in BUER TN 15-45. Old type jackets are modified through adoption of the design, to serve until such time as new type jackets, developed to accommodate the specified safety and survival items, are available.

Containers are held in place by Lift-a-Dot type fasteners. These are placed so as to open when the CO₂ bottle lanyards are pulled, inflating the life



FLAPS SNAP LOOSE AS JACKET INFLATES

jacket. Flaps can also be opened by inserting fingers inside and pulling.

To restrict movement the containers are secured at both top and bottom. The container eliminates the obvious disadvantage and hindrance caused when the required safety and survival items are attached loosely to jackets.

[DESIGNED BY M/T SGT. BYRON L. WEBER AND W/O W. B. EDMONDSON]

Cover Would Save Door Handle

MCVG-11—Due to men stepping on and bending the bomb bay selector in the TBM gunner's compartment, the pilot's bomb bay selector becomes extremely hard to operate. A hinged cover such as the one covering the hydraulic shut-off valve in the pilot's cockpit of the SB2C-4 would be easy to install and would reduce maintenance.

► **BuAer Comment**—Suggested use of hinged cover to protect the selector is an excellent idea. Either due to carelessness or hurried movement, passenger personnel and crewmen often step on it. A cover would be satisfactory provided it would not interfere with operation of the control handle. MCVG-11 apparently refers to the bomb bay door control handle since the door is usually operated from the pilot's cockpit. At any rate, the idea is good.

Marking Hits on Sleeve Target

VF-11—This squadron uses a unique marker for scoring gunnery sleeves. Using a commercial item known as the Marsh felt tip marker, sleeves are scored thoroughly and easily in a standard manner. The upper part of the marker is filled with indelible mark-



SLEEVE MARKER WORKS TO RECORD 'HITS'

ing ink and it works like a fountain pen.

Locations of gunnery hits are recorded individually according to color on sample banners drawn on a stencil and mimeographed. The sheet has banners for five colors and plain. Its use permits pilots to know where on the sleeve their bullets hit so they can criticize their gunnery.

BuAer Continues Moisture 'War'

Even though the shooting war has ended, the serious battle with "old man moisture" must not be forgotten.

In an effort to eliminate the menace of moisture to electrical connectors, BUER has prepared and distributed TO 64-45. It describes a method of waterproofing connectors by packing them with a water-excluding compound (Dow Corning #4) and bars all soldering fluxes except non-corrosive resin. Since failures due to moisture and those caused by corrosive flux are so closely related, the two types were treated in the same TO.

The order was issued after extensive tests were conducted to determine the most satisfactory method of waterproofing electrical connectors and preventing corrosion. Results showed: 1. That use of corrosive flux in soldering invariably will cause extreme failure of the connector, and, 2. That unless water-excluding compound is properly applied, the connector will fail regard-



EXCESS MOISTURE CORRODES CONNECTOR

less of the type of compound used. To help BuAer check on effectiveness of TO 64-45, activities are urged to submit reports comparing the number of connector failures before and after compliance with the instructions. If connector failures still are being experienced, information should be submitted on RUDM's (Form NavAer 4112), together with samples of the failing connectors. If the TO has proved beneficial, comments may be sent to BuAer Engineering Division.

In the battle against moisture, additional BuAer action now is underway. Improved connectors having melamine inserts (khaki in color) instead of phenolic inserts (black) now are being used in production aircraft and will be made available for replacements as soon as sufficient quantities have been produced. Further, a new standard waterproof-type electrical connector, designed to minimize failure from moisture and assure more satisfactory operation of electrical and electronic equipment, is now under development.

Camera 'Capsule' Being Tested

MCVG-11—Experiments are being conducted by this air support group to install portable cameras in TBM's as well as F4U's to eliminate necessity of using three types of aircraft aboard ship with the attendant problems arising therefrom. The experiments are under direction of Lt. Col. W. E. Clasen, carrier group commander.

Both wing and centerline installations of the K-17 camera fitted into the standard 150-gallon droppable tank are contemplated. The experiments still are in the embryonic stage but it will prove worthwhile if it can be developed.

► **BuAer Comment**—Aeronautical Photographic Experimental Laboratory in Philadelphia has been testing a capsule arrangement and it is anticipated that in the near future it will be possible to supply fleet squadrons with them.

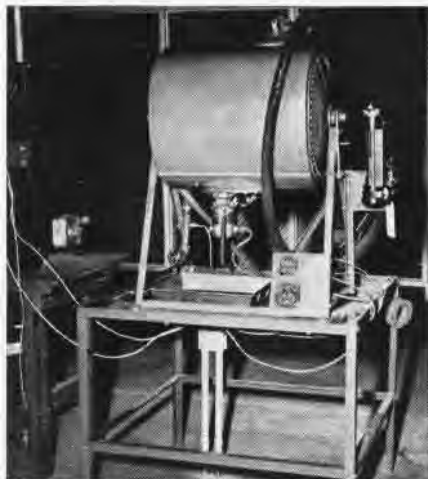
Test Sun Glasses For Aviators

Bureau of Medicine and Surgery has completed 18 months of research on the color transmission of various types of sun glasses used by flying personnel. Research has shown that use of the present green and amber lenses has two disadvantages: the tinted lenses disturb or distort color vision, and night vision is impaired by the adaptation of the eye to excessive sunlight, which results when personnel are stationed in areas highly illuminated by the sun. BuMED accordingly has recommended that a neutral glass with a light transmission rate of from 14% to 24% without reference to ultra-violet and infra-red absorption be used in aviators' sun glasses.

In accordance with the recommendations of BuMED, 30,000 pairs of sun glasses with neutral gray lenses are being procured. ASO stock number 137-c978 has been assigned. 18,000 pairs have been allocated to the Aviation Supply Annex, Oakland, and 12,000 pairs to the Naval Aviation Supply Depot, Philadelphia.

Stand Aids Booster Pump Test

MCAS CHERRY POINT—Testing of overhauled booster pumps has been accelerated with the development of a new type test stand by an enlisted man here. Consisting of a 15-gallon tank, round in shape and containing a liquid of approximately the same specific gravity as aircraft fuel, but less volatile,



BOOSTER PUMP TEST STAND FINDS FAVOR

the stand makes it possible to check fuel flow, fuel pressure, voltage and amperage required to operate the electric motor and seal leakage.

The tank is supported by two end centers mounted in a metal framework, thus allowing the entire tank to be rotated and eliminating the necessity of draining the tank each time.

Attached to the framework are a pressure gage, combination voltmeter-ammeter, toggle switch and a flow control valve. Use of this test stand increases the efficiency with which aircraft accessories of this type may be tested and speeds production.

[DESIGNED BY HOWARD H. COHAGAN, PFC.]

Marines Solve F7F Door Change

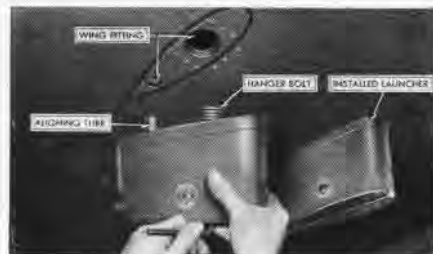
MAG 53, EAGLE MT. LAKE—As a result of the shortage of nacelle doors on the F7F, this air group found a way to modify a right outboard nacelle door to a left inboard door in two steps.

First remove the metal plate from the wheel recess of the right outboard door. Then install a knock-down board on the right outboard door to conform with any left inboard door from a plane.

Pylon-type Launcher Cuts Drag

Production models of new naval aircraft designed to permit rocket firing now are being equipped with the Mk 9 Mod 2 aircraft rocket launcher which replaces the old two-post zero length launcher used during the war.

The pylon-type has about half the



LAUNCHER REMOVABLE FOR STREAMLINING

drag of the earlier models and is quickly detachable so that it can be used interchangeably with the Mk 55 bomb rack or removed to leave the wing clean. It can be used with the 3.5", 5" AR and 5" HVAR rockets. Using the present adapter and sway braces, 2.25" sub caliber aircraft rockets can be fired.

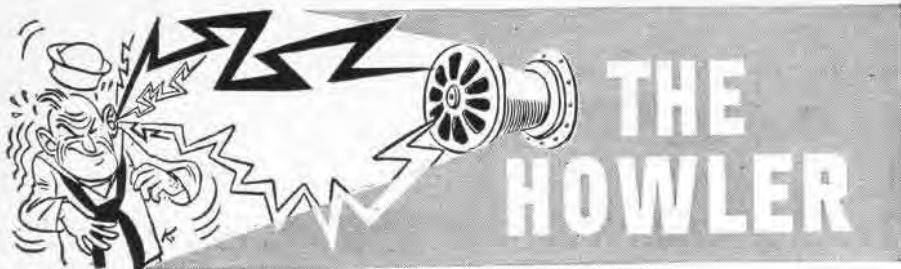
The Mk 9 Mod 2 is 9 inches long, 6 inches tall and 3 inches thick at its thickest point. To improve streamlining, the rocket pigtail receptacle is placed in the wing instead of the launcher.

It is held on the wing by a single hanger bolt which screws into a fitting in the wing. Because it is so easily removed, the launcher is disassembled, cleaned and repaired without difficulty. Zero length launchers cut the speed of fighter planes of the F4U type about 10 miles an hour, it was estimated, after rockets were fired. This is twice the drag of the new pylon but less than the old rocket rails used early in the war.

Rockets will not come off the pylon-type launcher during arrested landings. It incorporates an electric latch which requires no shear wire and no mechanical connection between the rocket pigtail and launcher. This is the first latch that proved 100% successful in accelerated service tests, which included firing, catapulting and arrested landings.



TWO LUGS HOLD 3.5" ROCKET IN PYLON



Protect Landing Gear Piston. Nicked and pitted pistons in the F8F-1 landing gear hydraulic cylinder assembly, Grumman P/S 56210, are reported by NAS NAVY No. 128. When the landing gear is in the down position the piston is exposed and becomes badly damaged on the forward side. This

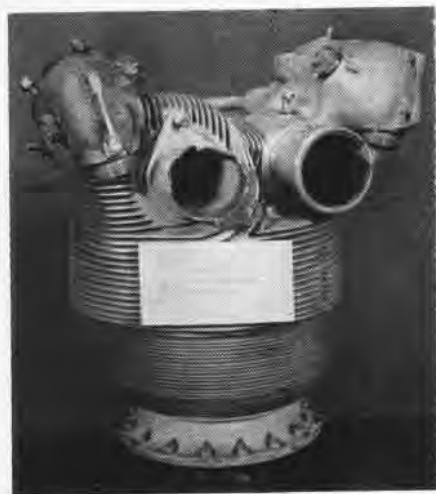


LANDING GEAR PISTON, PROTECTIVE BOOT

condition has been found on three out of four of the F8F-1 aircraft at the reporting activity.

The contractor is being requested to submit comment and recommended remedial action. As an interim fix BuAer suggests NAS NAVY No. 128 Model F8F-1 Local Change No. 1, dated 13 November 1945. This local change (given wide distribution to fleet commands, air stations, and CASU's by copies of NAS NAVY No. 128 RUDM 89-45) gives directions for making and installing a canvas boot (see cut) which will protect the piston without restricting its operation.

Exhaust Collector Being Tested. A recent RUDM reports a broken rear exhaust flange, part P&W 20801, on a PB4Y-2 aircraft after 142 hours of operation. (See cut.) Since this is one of many trouble reports on the same difficulty, a test is being set up at NATC



EXHAUST FLANGE FAILURE FROM VIBRATION

Patuxent River to investigate the serviceability of a continuous ring exhaust collector in place of the two-piece present collector which has failed because of vibration stresses at the ends. Cutting down the amount of collector vibration should relieve stresses which cause failures of the exhaust flange. Activities will be kept informed of the results of the BuAer investigation.

Damage From Loose Lock Nut. Negligent maintenance on an R-1830-94 resulted in engine failure with three mutilated cylinders, damaged pistons, valves, and deflector. No. 9 piston, cylinder head, and deflector all had holes punched in them by broken pieces of valve.

According to the log, No. 9 cylinder had been removed for inspection and replaced.



DAMAGE STARTED FROM A LOOSE LOCK NUT

Subsequent operation resulted in engine failure when the valve adjusting screw lock nut came off, adjusting screw backed out, intake valve was sucked into cylinder and then driven out through the cylinder head. When the valve adjusting screw backed out, the rocker arm depressed the valve spring washer allowing the split cones to fall out, subsequently allowing the valve to be drawn into the cylinder on the intake stroke. On the compression stroke the valve stem was driven through the top of the cylinder and through the deflector assembly. At the same time, the head of the intake valve was snapped off and the top of No. 9 piston was punctured. On the succeeding strokes of the piston the broken pieces of the valve mutilated the top of the piston, the top of the cylinder, and the head of the exhaust valve. Eventually the broken pieces were forced out through the intake port and through the intake pipe into the blower

section where they were carried into the Nos. 10 and 11 cylinders via the intake ports. Pieces of No. 9 valve mutilated the heads of Nos. 10 and 11 cylinders and pistons. The pieces were then expelled through the exhaust ports.

This vicious circle of damage was caused by someone's negligence during the replacement of No. 9 cylinder when it was first removed for inspection. All operating



WANDERING VALVE STEM CUTS CYLINDER

activities should take steps to insure proper valve settings and security of adjusting screw lock nuts.

The Truth—The Whole Truth. Don't hesitate to use extra sheets, if need be, on RUDMs.

A recent RUDM stated that RBM-5 returned to base with port propeller feathered. The #1 cylinder was raised approximately 1½ inches from crank case and seven cylinder hold down studs were broken off, four of which were recovered. All remaining studs were stripped of their nuts and pal nuts. None of these nuts was recovered. Piston and oil ring were damaged. (See cut.)

The history as given on the RUDM described only the performance of the aircraft on the flight when the trouble occurred. Requests for more information finally brought the rest of the story of abuse—accidental full feathering of the props on take-off on the preceding day, and exceeding manifold pressure in three attempts to get the plane into the air two hours before the engine failed.

Let the men at the technical desks in BuAer know all the facts on the first report. It will save their time and yours.



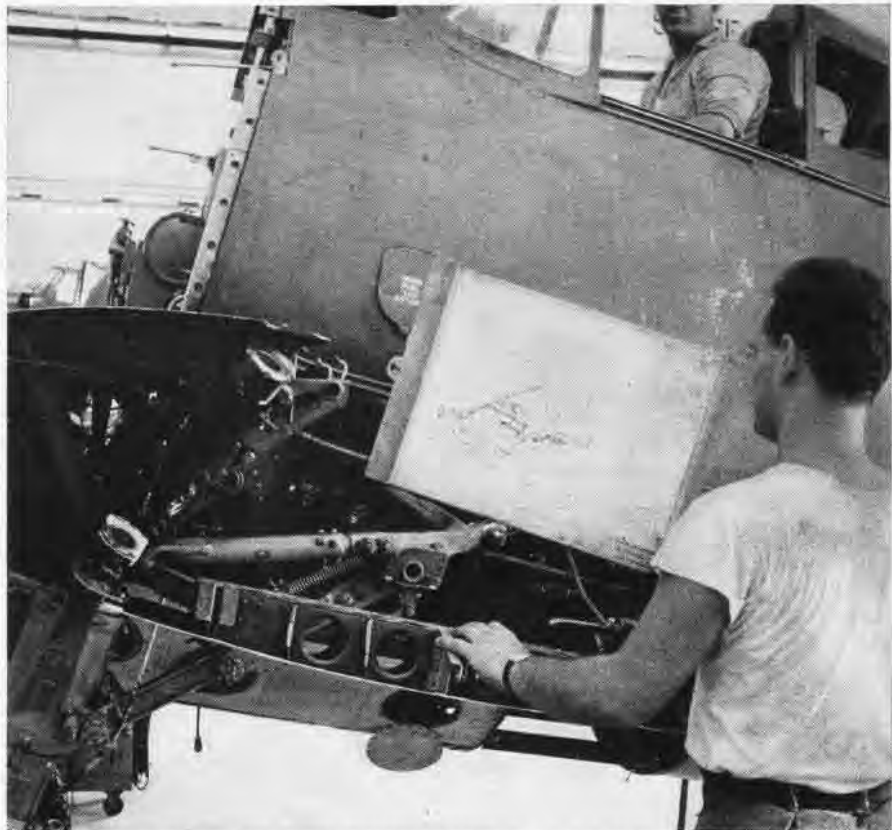
WHAT CAUSED THE DAMAGE? LET 'EM GUESS

TRAINING IN A&R BY VISUAL AIDS

ONE PICTURE is worth 10,000 words" is as true in training for aircraft overhaul jobs as it is in the fields of advertising, publicity, or education, according to the A&R department at NAS NORFOLK. In fact, visual aids are rather widely used in overhaul activities throughout the country. Experience at Norfolk indicates that the use of perspective drawings of the various features of an airplane gives the fellow who is as yet unskilled in blueprint reading a short-cut to understanding his job. Trained aircraft mechanics, material personnel, and foremen also appreciate their usefulness in various phases of the overhaul program.

A&R departments have faced the problem of getting maximum production from personnel not previously experienced in any type of technical work. It has not always been possible to give these recruits the basic knowledge of blueprint reading which their work calls for and which would take months of intensive study and practical experience to acquire. But with the perspective drawing the worker has an actual picture of a system as it should be when the repair job is done. The problem then becomes one of comparison of the plane on hand with the complete pictured plane having all required parts.

Perspective drawings aid the trained



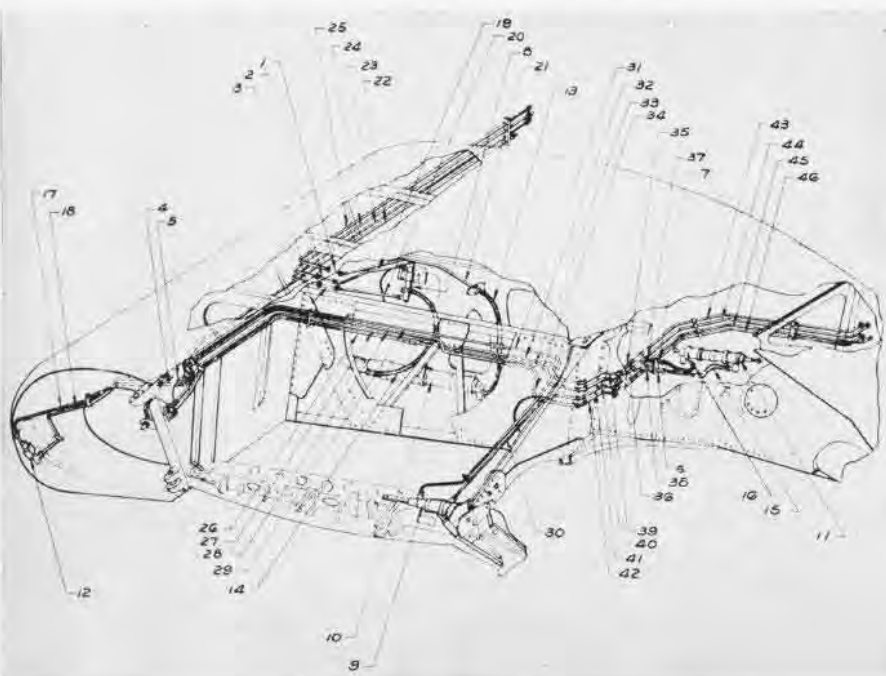
COMPARISON HELPS MECHS; IF IT DOESN'T LOOK LIKE THE PICTURE SOMETHING'S WRONG

aircraft mechanic because they summarize what is normally shown on a whole series of blueprints. The perspectives increase this mechanic's efficiency since he, like the unskilled worker, can make quick and effective comparisons. Both the trained mechanic and the novice find the drawings a help in learning all systems, such as landing gear, fuel and oil, hydraulic, and elec-

trical. These visual aids also assist the foreman in solving the problem of training and assigning his men in a situation which requires flexibility of personnel because of the variety of stages of disassembly in which the aircraft are received.

SINCE no two planes are necessarily disassembled to the same extent, the quantity and type of parts required varies for each one. If complete information is not compiled and submitted to the Parts Control Division before the aircraft goes on the assembly line, the required parts will not be available for installation. Each missing part causes delay which disorganizes scheduled assembly procedure. The perspective drawings, allowing quick visual comparison, aid material personnel in identifying parts and assembling a complete inventory. Each drawing contains an itemized part-number-name list.

Drawings can be prepared to cover various parts of the plane, corresponding to operations accomplished at different stages on the assembly line and on the various parts, components, and systems in feeder shops. As a training device and means of convenient reference both for mechanics and material personnel, perspective drawings have proved valuable in many A&R establishments. The extensive program of visual aids worked out at NAS NORFOLK has well proved its effectiveness.



PERSPECTIVE DRAWING SHOWS THE F6F-5 HYDRAULIC SYSTEM IN VISUAL AIDS FOR A&R

SERVICE TEST

INTERIM REPORT DIGEST

F2G (79 Hours)

Wing Flap By-Pass Valve—Subject valve froze in a by-pass condition causing flap system to be inoperative. Cause is undetermined.

Conduit, P/N G-60465. On this line from the ignition junction box to the booster coil the conduit coming out of a 90° connector was found to be badly crimped. *Recommend* installation of straight connector on ignition junction box using Titeflex conduit in place of Breeze shielding.

Conduit P/N 63410. This conduit found chafing in three places. At one point it is chafing against the hydraulic line from the hydraulic reservoir to the port firewall. At another location subject conduit was chafing against starboard upper leg of engine mount. Badly crimped conduit was found between the engine section box and tachometer generator. *Recommend* rerouting and suitable clamping.

Generator Blast Tube. Found to be loose and chafing against lower legs of engine mount and bottom cowling. Condition may be corrected temporarily by clamps installed on lower legs. *Recommend* for a permanent fix generator blast cooling be taken from port oil diffusion cooler duct and run to generator, not using starboard duct.

F2G-1 (104 Hours' Test)

Cockpit. Cockpit enclosure handle obstructs view of fuel gage when canopy is full forward. *Recommend* adjustment.

Oxygen Regulator. Oxygen flow indicator on the oxygen regulator has been relocated beneath, forward, and outboard of the oxygen regulator, affording better accessibility in operation of VHF radio.

Hydraulics. Wing flap control valve, P/N 4V-48948, requires six man hours to remove or install. Valve should be relocated for easier accessibility and servicing or the obstructing flap control hydraulic lines should be relocated.

Carburetor Air Scoop Assembly. Removal of carburetor air scoop assembly requires three man hours. One man hour is required for removal of the front two bolts of the eye bolt assembly. Suggest that the two bolts be replaced with spring loaded quick disconnect.

Rocker-Box Covers. During first 60 hour check two of the new type rocker-box covers,

P/N 99406, were found to be leaking. They were replaced with white gaskets. P/N 99338 and torqued to 60 inch pounds. New covers are being inspected every two days. Cause of leak is undetermined.

Starter Motor. At 79 hours, starter motor, JH ANPR would mesh but would not energize electrically. Positive terminal ring lead going to field coils was open. Screw holding terminal block to case was properly secured with safety wire but loose about 2.5 turns. Evidently heat due to current through the ring lead released some tension of the screw securing the terminal block, which is quite loose when not secured. Vibration of terminal block caused the ring to crack open. *Recommend* that a tighter fit terminal block or a flexible lead be used in place of the rigid ring lead going to the field coils.

FR-1 (173 Hours' Test)

Propeller Governor Gasket. Propeller went into low pitch and could not be controlled by automatic. When governor was removed, shipping gasket was found still installed. This gasket, swollen after contact with oil, kept oil from reaching governor. Gasket R-87-CE-110044 should have been installed. *Recommend* closer factory inspection.

FR-1 (229 Hours' Test)

J. P. Unit. Unit, 1-16-C6, X000225, pumped lubrication oil out of the breather pipe. Lubrication pump was removed and scavenger side of oil pump was found inoperative. A piece of steel wire, found imbedded in oil pump housing, sheared



the woodruff key. The following parts were damaged: gerotor, outer #2 scavenger, P/N GA7893; body, housing, P/N GC-180C; woodruff key, scavenger pump shaft, P/N GA791. When oil scavenger pump failed, the rear accessory section filled with lubricating oil. Oil was then pumped out from breather vent and tachometer generator base. This J. P. unit will be disassembled.

Eclipse Booster Coil. Coil, type 653, model 7A was adjusted to one ampere at 28 volts instead of 1.8 amperes at 28 volts. High tension lead was shortened two inches to prevent its touching on the combustion chamber of the jet unit. It is believed that original current setting is too high a value, as only one spark plug is energized.

PBY-6A (823 Hours' Test)

Landing Gear Scissors. Nose wheel strut and scissors were inspected and reworked in compliance with PBY Aircraft Bulletin No. 130. Nose landing gear scissors bolts, P/N 28L1053, were found deformed and bolt holes were elongated. Necessary parts were manufactured locally, and no difficulty was found in complying with bulletin.

Spark Plugs. Plugs, LS86AC, were installed during 60 hour engine check at 692 hours. Plugs were operated for 124 hours before removal. They were removed with no difficulty. Previously used C34s plugs gave trouble in removal, six being broken off in the bushings. The LS86AC plug is more satisfactory for this installation.

Bow Wheel Tire. Tire was replaced for second time during 817 hours, first replacement after 329 runway landings, second after 109 runway landings. Service life of second tire was shortened by nose wheel shimmy.

Landing Gear Actuating Cylinder. Port actuating cylinder, main landing gear again developed hydraulic leak after 10 hours. "O" ring seal, P/N B83-20312-093, was damaged and leaking. Seal had ragged edges cut by threads at top of cylinder barrel during installation. Service personnel should follow the correct installation procedure: "O" seal should be seated in groove at top of cylinder barrel and cylinder head carefully screwed on while barrel is being held upright. Do not place seal in cylinder head first as seal may not seat properly and will be scuffed and torn by threads of the cylinder barrel.

Skyheat Heater. Heater was inoperative after five hours of use. Investigation showed that pump motor, Eclipse aviation anti-icer pump, type 774, model 3, was filled with gasoline which had seeped through single rubber bushing, through gears, and into motor. Pump was designed for anti-icer use but was being used in this case as a fuel pump. *Recommend* that pump motor type 774 model 10 be substituted for model 3 as model 10 has double rubber bushing and a vent hole connected to suction side of pump to remove any gasoline that may escape through the bushings.

F8F-1 (400 Hours' Test)

Stabilizer. Due to an unsafe condition stabilizer on this aircraft was to be replaced. During installation of replacement stabilizer it was found that holes for attaching the elevators to the elevator horn assembly were 3/16 of an inch out of alignment. In lining up stabilizer and holes on the horn assembly considerable strain was imposed

on elevator horn hinge bolt, the elevator hinge bolts and fittings. Stabilizer was removed and a new one requested direct from contractor. Upon arrival this stabilizer was checked against the original one and location of right after fitting was found to be 3/32 of an inch too high. This stabilizer was installed without difficulty, although elevator attachment holes were found to be slightly out of alignment. Test flights proved satisfactory. *Recommend* contractor investigate assembly jigs for proper location of this fitting.

Hydraulic Main Pressure Relief Valve. Right main landing gear would not retract and landing flaps could not be lowered below 20°. Investigation revealed that subject valve was relieving at 1300 P.S.I. instead of 1700 P.S.I. Valve face and seat showed signs of beating from erratic operation. Valve stem side clearance was approximately .010 inch. It is believed that trouble was either caused from erratic operation of unloader valve at its unloading position, or that subject valves pressure was set originally too close to unloader valves preset pressure. Original pressure was not checked upon acceptance of airplane. New valve is installed and will be closely watched for recurrence of trouble. Further developments will be reported.



P&WR-2800-34W Engine. As previously reported in November Interim report engine was removed because of gear tooth being found in rear accessory section sump plug. This tooth proved to be from rear counter balance intermediate compound drive gear. P&W representative states "this is first report of failure of this gear in the field, though similar failures occurred previously during manufacturers tests. Possible cause of this failure could be from slight engine surges which would reverse load on these gears."

Voltmeter-Type E-3 R-17-V-880. Readings were running two volts higher than normal. Barrel of voltmeter had become loose and allowed reset arm to bend. This prevented an accurate reset. Also the three screws holding the barrel were loose. *Recommend* Glyptol or lacquer be employed as method of locking screws.

Radio Noise Tests. These tests were to be run on Titeflex ignition grounding wires but have been delayed. It is apparent, however, that Titeflex is a "must" on all ignition systems to have a noise free system. No noise has been reported since installation of Titeflex cable.

Corrosion. The lower wing surface at that station covered by bomb rack pylon fairings showed excessive corrosion. Believed

that this corrosion is due to moisture and gun gases. *Recommend* a protective coating of Par-alkatone applied on this area on new airplanes.

F8F-1 (414 Hours' Test)

Hydraulic Distribution Panel. Panel was redesigned by contractor, using heavier gage material to eliminate failures of tubing as recommended in service test report of 1 July. Redesigned panel also has proved unsatisfactory, with three failures of tubes between system filter and unloader valve and two failures of short tubing running from unloader valve to accumulator. Further investigation indicates that failures are caused not only by shocks induced in the tubing from the unloader valve reaching its maximum preset pressure but also by pivoting of the unloader valve on the one 1/4 by 28 bolt that secures it to the panel. A new bracket has been manufactured locally of 4130 steel for securing unloader valve in position. Bracket has three securing points designed to eliminate twisting movements. This fix has been installed and will be tested.

Hydraulic Actuating Cylinders. Six specially treated cylinders were received from Grumman for service testing. They are P/N 56218 nitrided pistons, P/N 56210 Parker Lubrite pistons and anodized barrels.

Brake Liners. Goodyear liners, P/N 510717-18, 19 were replaced when worn to the prescribed limits after 97 hours with 63 landings and 128 taxiing miles. Since some familiarization flights were made during the period, the low operational life of liners is considered acceptable.

Exhaust Troughs. Troughs received for service testing have been installed. It is not believed that cracking will develop during 120 hours, but later. Suggest that test period be increased to the normal 450 hour accelerated service test.

Main Landing Gear Tires. Both tires, P/N T-6483, were reversed on their wheels at the routine 60 hour check period and when removed were found to be worn evenly. Tires had 120 hours of operation with 163 miles of taxiing and 80 landings.

VPB-20 Wins Navy Unit Award

Patrol Bombing Squadron 20 has been awarded the Navy Unit Commendation for its work against the Japanese in Indo-China, Borneo and Netherlands East Indies areas from 1 Nov. 1944 to 1 June 1945. Pilots, aircrewmembers and ground crews attached to the squadron between those dates are authorized to wear the ribbon.

The squadron engaged in night and day offensive searches, night convoy escort and barrier patrols. It destroyed 42,000 tons of shipping and damaged 82,000 more tons. Its planes supported landing at Tarakan Island, Brunei Bay and Balikpapan and blocked enemy evacuation activities in Northern Borneo by repeated low-level raids on shipping.

PUBLICATIONS

The following Flight Safety Bulletins, Aviation Circular Letters, Technical Notes and Technical Orders have been issued since 1 January 1946. Copies are available on request to Publications Division, Bureau of Aeronautics.

FLIGHT SAFETY BULLETINS

- 1-46 Bomb Releasing Technique,
- 22-43 Non-Pilot Accidents.

AVIATION CIRCULAR LETTERS

- 150-45 Disposition and Handling of Salvaged, Exchanged, and Returned Aeronautical Material including Aviation Ordnance Equipment within Continental Limits of United States.
- 1-46 Excess Aircraft for Disposal as Surplus to Reconstruction Finance Corporation—Removal of Installed and Loose Equipment from and Retention of Spare Parts for.
- 2-46 Aircraft Engines Awaiting Overhaul—Disposition of.
- 3-46 Handbook, Manuals, and Catalogs; revised classification of.
- 4-46 Miscellaneous Flight Operational Letters in Effect.
- 5-46 Use of Parachute Flares.
- 6-46 Vertical Cross Section Weather Diagram, Use of.
- 7-46 Training Type Aircraft—Retention, Redistribution and Disposal of.
- 8-46 Security Control of Aeronautical Publications Containing Flight Information.
- 9-46 Establishment of Re-inspection Periods and Clarification of the Disposition and Handling of Class 88 Aircraft Instruments Having a Re-inspection Date.
- 10-46 Commercially Saleable Aircraft.
- 11-46 Sales to Officers and Enlisted Personnel Personal Property (Flight Clothing Items) Having a Sentimental Value.
- 12-46 Daily Control Tower Operations Log NavAer Form 2077A, and Monthly Runway Traffic Report NavAer Form 2077B.
- 13-46 Operation of Multi-engine Transport Aircraft, Policy Regarding.

TECHNICAL NOTES

- 101-45 Parasitic Oscillations in AN/ARC-1 Equipment—Elimination of.
- 2-46 Life Raft Equipment for Use in Cold Climates.
- 3-46 Replacement of "Machined Products Co." Type B-4 Relay.
- A-46 (Confidential) Confidential Technical Notes—List of Those Cancelled and Those in Effect.

TECHNICAL ORDERS

- 103-45 Model R4D, R4D-3, R4D-4, R4D-5, R4D-6 and 1R4D-7 Airplanes Restriction on Cruising R.P.M.
- 1-46 Model F6F5 Airplanes Restrictions to be Observed in Operation.
- 2-46 AN/ARC-1 Dynamotor Interference Filter Condenser, Installation of.
- 3-46 Model SB2C Type Airplanes Restrictions to be Observed in Operation.
- 4-46 Model PBM Airplanes Center of Gravity Limits.
- A-46 (Confidential) Confidential Technical Orders—List of Those Cancelled and Those in Effect.



**A & R
Shops**
LET NANNEWS HEAR
FROM YOU!



SUPPLY NEWS

FROM ASO AND SUPPLY DIVISION BUAER

Policies In Gathering Usage Data

Representatives of ComAirPac, ComAirLant, the Training Command, and the Aviation Supply Office met in conference at ASO to draft policies and procedures governing the future collection of maintenance usage and consumption data.

It was agreed and emphasized by all conference members that the collection of this information by standardized methods is essential to a realistic approach to the problems involved in balancing procurement and distribution with actual consumption by operating activities in the field. All conferees were in complete accord with the principle that only by means of accurate usage and consumption rates, established through the uniform collection of a large volume of data, could be the following desired objectives be obtained: 1. establishment of overall naval aeronautical maintenance requirements; 2. establishment of range and quantities of maintenance items to be set as standards for use in initial provisioning of new aircraft; 3. establishment of range and quantities of items to be published as standard allowances; 4. effecting proper distribution of maintenance items and quantities thereof among various functional commands; 5. determination of maintenance operational costs for budgetary purposes.

The Section "B" Report and Requisition Form (BRR) and the Section "A" Report and Requisition Form (ARR) were agreed upon as standard reporting mediums to be used by operating maintenance activities under the cognizance of the commands represented. Additional data on the number of items repaired and salvaged by reporting activities will be included in all future BRR reports. The Aviation Supply Office will shortly release instructions to place into effect the policies and procedures adopted by the conference.

Out of Production Plane Spares

In order to obtain sufficient material to support the post-war operating programs promulgated by CNO for out-of-production airplanes, BUAER and ASO instituted joint provisioning programs involving the screening of production surplus material to cover shortages and the recovery of parts from older aircraft.

Final spares provisioning teams were sent into factories for the purpose of screening production surplus material to balance or round out naval stocks. The general principles of JAC Case 5025 and provisioning directives in effect were continued. The provisioning teams were made up of representatives from ASO, BUAER Maintenance Division, and such A&R or supply representatives as were available. The grand total of the life-of-type esti-

mated "Operating Plane Months"—OPM's—was provided the spares selection team. OPM usage data compiled from BRR's and the like were used in gauging additional quantities required after deducting quantities on hand and in sight.

In collaboration with BUAER Maintenance Division a program is being established for spare parts recovery from older aircraft of the out-of-production models which are declared excess to naval requirements. The facilities of the major continental A&R departments are to be utilized to the maximum extent in the work.

CNO has developed the redistribution within operating commands of all aircraft required to maintain the naval aeronautic organization, including those aircraft which are to be retained in storage by BUAER for future use. All aircraft not included in this redistribution will be considered excess and will become available to BUAER for the spare parts recovery program or disposal otherwise.

Any shortages remaining after spares have been recovered from production surplus material and from dismantling of excess airplanes will be covered by one of the following means: from surplus aircraft being delivered to RFC at NAS CLINTON; local cannibalization from crashes; manufacture by NAF.

Four Technical Supply Bulletins

Beginning with February publication, Technical Supply Bulletins were consolidated into the following four regular series instead of the 27 separate bulletins issued during the war: *Carrier Planes*—including all TSB information on fighters, dive-bombers, and torpedo-bombers; *Patrol and Transport Planes*—including all TSB information on all other plane types; *Avia-*

tion Equipment—including all TSB information on accessories, instruments, power plant and propellers, tools and ground handling gear, equipment and bulk materials, etc.; *Preservation-Packaging-Packing*—covering the same information as before.

Mailing lists for TSB's have been revised, dropping addressees in some cases and reducing the quantities of bulletins mailed to others. Any addressee may be re-instated by notifying the Publications Officer, Aviation Supply Office, Oxford Avenue and Martin's Mill Road, Philadelphia 11, Pa., of the titles and quantities required.

Requests for Power Plant Parts

All A&R and Supply Officers and other station personnel concerned with requisitions on the Aviation Supply Office for engine, propeller, and accessory parts should read ASO Circular Letter A2-11 (c/l 142)/-1.8-2(032791) ASO-CPO dated 3 January 1946. This letter points out why ASO asks that justification be given for the quantities of material requisitioned on an ad interim basis between replenishments. Examples of good justification are given, such as "Mandatory engineering change," "BUAER authorized overhaul increase," or "Previous incorrectly reported inventory." Similarly examples of inadequate justification are shown, such as "Past issues higher," or "Dependent activity requested and did not give reason." The provisions of this circular letter should expedite the handling of ad interim requests.

Valve-Flap Control By-Pass Use

RUDM's from the field indicate that vs-34495, valve-flap control by-pass used on F4U-1 has been supplied for use on F4U-4. This is a mistake. VS-44914 (equivalent to Air Associates HC-2380-M3) is the correct valve for F4U-4 but will be extremely critical until after February.

Processing Class 265 Material

Procedures for the handling and disposition of salvaged, exchanged and returned aeronautical material have been consolidated and modified by the Joint BUAER, BUORD, BUSANDA letter, Aviation Circular Letter #150-45, dated 29 December 1945. This letter cancels and supersedes ACL #39-45 dated 17 April 1945 and incorporates the latest modifications for speedy and efficient processing of Class 265 aeronautical materials. Cancellation of 20 ACLs was accomplished by inclusion in this publication. Enclosures to the letter are attached in such a manner that revisions may be made and distributed for any of the single enclosures without a complete rewrite of the letter.

Incorporated in this letter is the definition of "Class 265" material as formulated and agreed upon at the conference of Supply Officers and A&R Officers held at ASO in October 1945: "Insofar as aviation activities are concerned, Class 265 material is considered to be salvaged exchanged or returned material which has been processed by a Screening and Identification Unit, considered to be repairable, and taken up on the accounting records."



"I hear there's a performance of Macbeth tonight."

—Flight Deck (British)

SCREEN NEWS

Get It Right the First Time Based on the theory that there may come a day when pilot and crew must bid a fond farewell to their carrier-based plane far from the nearest landing strip, a new film gives a thorough review of the procedures which must be followed when ditching is on the docket.

Three ditchings are dramatized. An F4U pilot hits the drink using standard operating procedure and is rewarded by a Dumbo rescue. A wounded snec pilot and his aircrewman illustrate Scout Bomber ditching technique and are picked up by a surface ship. All hands aboard a TBM save themselves by their quick thinking and are ready and waiting when a rescue sub arrives in answer to their signals.

The film gives a detailed but lively description of procedures for ditching the three types of carrier-based planes with a short briefing on such survival gear as the PK-1 raft, Mae West, and various publications.

MN-5825 *Hit the Drink — Ditching Carrier Aircraft* (Restricted, 30 min.)

What Is It? The latest in recognition films will bring you up to date on five of the Navy's newer plane types. Included are the F7F Tigercat; PB4Y-2 Privateer; SC-1 Seahawk; FR-1 Fireball; and F8F Bearcat.

MN-2596ak *Aircraft Recognition—Quizcraft #22*

The Coming Thing The swing is toward voltage regulators of the carbon pile variety. This gadget, called the brain of the aircraft electric power system, has been troublesome in the past because of its complexity and a tendency toward instability. However, carbon pile voltage regulators, when properly adjusted and maintained, give better performance than any other type and are expected to be used eventually in all naval aircraft. The word on this equipment is given in the following recently-released sound motion pictures. The films deal with direct current voltage regulators, but will also help clear up problems concerning alternating current types. Adjustment procedures shown have been tested and approved in the field as well as by the Bureau of Aeronautics.

- MN-4361 (Series) *Carbon Pile Voltage Regulators* (Non-classified)
- MN-4361a *Principles of Operation* (9 min.)
- MN-4361b *Paris and Their Functions* (13 min.)
- MN-4361c *Test Equipment and Inspection* (13 min.)
- MN-4361d *Tests and Adjustments with the Vari-Drive* (17 min.)
- MN-4361e *Tests and Adjustments with Constant Speed Test Stand* (14 min.)
- MN-4361f *Parallel Operation — Principles and Applications* (10 min.)

Grampaw's Mad Too many pilots are still switching to empty fuel tanks or to wing tanks they forgot to bring along. These and other 'Exhibit A's' in the case of the Fuel Tank Selection Crimes are given a thorough going over in the most recent flight safety film. Cartoon character Grampaw Pettibone takes top billing.

MN-4353e *Flight Safety — Fuel Tank Selection* (Restricted — 5 min.)

Other Films Shipped:

- MN-2808g *Commandments for Health—Use Your Head* (Non-classified, 5 min.)
- MN-3474j *Primary Flight Training — Race Track Patterns — Part I* (Non-classified, 21 min.)
- MN-3474k *Primary Flight Training — Race Track Patterns — Part II* (Nonclassified 21 min.)

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

NAVAL	
NAMTD, NAS Memphis	NATB Pensacola
CASU (F) 42	NATB Corpus Christi
NAB Seattle	NATEC Lakehurst
NAMC Philadelphia	TAL Navy #128
NAAATraC, Jacksonville	TAS, NOB Norfolk
NAS Kodiak	TAL Navy #226
NAS New York	
NAS Patuxent	
NAS Quonset	
NAS San Diego	
NAS Navy #115	
NAS Navy #116	
NAS Navy #117	
NAS Navy #720	

MARINE	
MCAS Cherry Point	
MCAS Eagle Mountain Lake	
MCAS El Toro (Santa Ana)	
MCAS Parris Island	
MCAS Quantico	
MCAS Navy #61	

Army Air Transport 'Grows Up'

ATC Did Thriving Business During War
The Army's Air Transport Command had no airplanes and a total personnel of three—two officers and one civilian on 5 June 1941. At war's end, the ATC numbered 41,520 officers and 166,026 enlisted personnel, 23,752 civilians and boasted 3,707 aircraft.

Estimated value of the command's VJ-day fleet was \$780,000,000. Its planes landed on 336 points on foreign shores. Incomplete records show the

ATC carried 3,525,000 passengers, of whom 305,600 were sick and wounded patients. Besides passengers and freight, the ATC ferried 49,778 combat

PHOTOGRAPHY

Inventories of Photographic Equipment

Fleet photographic units are cautioned that a careful inventory of photographic gear should be taken and all equipment carefully stowed. A number of instances have arisen where cameras have disappeared while ships were in port or in Navy yards for repairs.

All photographic equipment should, in such instances, be secured in spaces that can be locked or a watch should be kept in the laboratory if locking is impossible to guarantee safety.

Navy Plans Gun Camera Standardization

Cessation of hostilities found the Navy with excess quantities of gun cameras on hand. Rather than disposing of obvious surpluses of all the 10 different types and makes in use at that time, it was considered desirable to reduce types to the minimum required to obtain necessary photographic coverage. Henceforth, all aircraft requiring gun cameras for use in camera gunnery training are to be equipped with one of the following types: stock numbers 18-C-308-150 (AN-M4A, 12-volt, without overrun control), 18-C-308-205 (AN-N4A, 24-volt, without overrun control), 18-C-308-260 (AN-N6A, 24-volt with overrun control). These cameras are manufactured by Bell and Howell company.

Any of these gun cameras may be obtained by requisition to the nearest photographic supply depot.

The following gun cameras on hand, ready for issue, in use, or in class 265 have been declared surplus by BUAER letter AER-PH-20-WWC, serial 295958: stock numbers 18-C-308-145, 18-C-308-200, 18-C-308-250, 18-C-308-251 (made by three manufacturers), 18-C-308-100. These stock numbers will be deleted from subsequent issues of the *Standard Photographic Stock List*, NAVAER 453.

For purposes of disposal these cameras may be considered obsolete and are to be disposed of in accordance with existing instructions. In reporting these cameras for disposal reference to BUAER letter AER-PH-20-WWC will indicate their being surplus to Navy requirements.

aircraft and made 220,139 deliveries.

V-5 Units Close at Two Schools

Kentucky, Iowa Activities Affected

Two U.S. Naval Academic Refresher Units (V-5) located at Cornell College, Mount Vernon, Iowa and at Murray State Teachers College, Murray, Ky., were disestablished late in 1945.

The Navy school at Cornell College was officially disestablished as of 30 November 1945 while the school at Murray was closed on 15 December.

A & R Shops

LET NEWS
HEAR
FROM YOU!



LATEST BULLETINS ENGINE, AUXILIARY POWER PLANT, ACCESSORY, PROPELLER Dated 1 February 1946

ENGINE	BULLETIN	DATE	SUBJECT	EXPLANATION
PRATT & WHITNEY				
R-985 R-1340 R-1830	425 Sup. 1 to Rev. 1 430 432 Supp. 2 437 444 447 118 Supp. 1 to Rev. 1 121 124 127 128 130 133 134 93 Supp. 2 188 Supp. 1 214 Supp. 1 to Rev. 1 217 Supp. 1 240 253 Supp. 1 257 263 Rev. 1 264 Rev. 1 265 265 Supp. 1 267 268 269 13 17	12-12-45 12-11-45 12-19-45 1-5-46 12-14-45 1-5-46 12-12-45 12-19-45 1-5-46 12-11-45 1-5-46 12-18-45 12-28-45 1-5-46 12-10-45 12-11-45 12-12-45 12-18-45 1-5-46 1-4-46 1-5-46 1-10-46 12-29-45 12-14-45 1-11-46 12-17-45 1-11-46 12-19-45 12-18-45 12-20-45	<i>Fuel Feed Valve Assembly and Related Parts...</i> <i>SF14R(L) 9 N-8 Magnetos—Rework of...</i> <i>Crankshaft Center Bearing...</i> <i>Lead Flash Plating of Impeller Oil Seal Rings...</i> <i>Automatic Spark Advance System—Rework to Render Inoperative and to Remove...</i> <i>Low Ratio Clutch Cone Internal Splines—Copper Plating of...</i> <i>Fuel Feed Valve Assembly and Related Parts...</i> <i>Crankshaft Center Bearing...</i> <i>Lead Flash Plating of Impeller Oil Seal Rings...</i> <i>SD14R(L) N-8 Magnetos—Rework of...</i> <i>Tachometer Drive, Left Hand—Removal of...</i> <i>Shaft Accessory Drive Adapter...</i> <i>Spark Advance Fittings...</i> <i>Low Ratio Clutch Cone Internal Splines—Copper Plating of...</i> <i>Oil Scavenge Pump Discharge Pipes...</i> <i>EM</i> <i>Impeller Fuel Strainer & Split Rings—Rework of...</i> <i>Fuel Feed Valve Assembly & Related Parts...</i> <i>Coupling, Overize Cylinders, Exhaust Port—Use of...</i> <i>Lead Flash Plating of Impeller Oil Seal Rings...</i> <i>Diffuser Rear Studs—Removal of Nuts & Washers...</i> <i>Front Oil Pump Intermediate Drive and Lower Front Cam Gear Assembly...</i> <i>Impeller Shaft Front Oil Seal Ring Carrier...</i> <i>Fuel Strainer Clearance and Impeller Rear Clearance...</i> <i>Automatic Spark Advance System—Rework to Render Inoperative and to Remove...</i> <i>Automatic Spark Advance System—Rework to Render Inoperative and to Remove...</i> <i>Rear Oil Pressure Pump...</i> <i>New Blower Case and New Primer Tubing...</i> <i>Accessory Spring Drive Gear...</i> <i>Pinion Shaft, Single Vacuum Pump Adapter—Replacement of...</i> <i>Throttle Balance Assembly, Stromberg PR-100 Carburetor—Instructions for the Use of...</i>	<p>Informs activities of a change in Part No.</p> <p>Provides an improved method of reworking magnetos to eliminate radio interference Discontinues incorporating plain friction type bearings in place of roller type plain center main bearing Informs activities of lead flash plating procedure for impeller seal rings. Informs activities of procedure for rendering automatic spark advance system inoperative. Provides rework instructions on low ratio clutch cone internal splines, reducing part usage at overhaul. Informs activities of a change in Part No.</p> <p>Discontinues incorporating plain friction type bearing in place of roller type plain center main bearing Informs activities of lead flash plating procedure for impeller oil seal rings Provides an approved method for reworking subject magnetos to eliminate radio interference Provide for removal of left hand tachometer drive Distributes information relative to a new type drive shaft adapter which is now being incorporated in applicable engines by manufacturer Outlines rework procedure for threaded spark advance pressure gauge fitting hole Provides rework instructions on low ratio clutch cone internal splines reducing parts usage at overhaul Provides information on one piece pipe used to replace presently installed center oil drain pipe and rear oil drain pipe Corrects application of original bulletin</p> <p>Informs activities of a change in Part No.</p> <p>Authorizes boring exhaust ports to remove out-of-roundness and metal unsuitable for tapping. Informs activities of lead flash plating procedure for impeller oil seal rings Requires removal of nuts and washers from applicable engines installed in aircraft equipped with exhaust driven turbo superchargers Maintains more closely concentricity between journals of gears Provides more clearance between impeller front oil seal ring carrier and mating face of impeller thrust liner Eliminates necessity of selective fitting of impeller and shaft assembly Informs activities of procedure for rendering automatic spark advance system inoperative Informs overhaul activities of changes in primer line support necessary on single stage engines when spark advance tubing is removed Prevents oil from coming in contact with stud which passes through oil outlet passage of oil pressure pump body Outlines differences in blower cases and carburetor to primer distributor tubing used on R-2800 "C" single stage engines Insures correct assembly of accessory spring drive gears of applicable engines at overhaul Insures proper lubrication of pinion shaft</p> <p>Advises activities in field when throttle balance assembly should be removed</p> <p>Eliminates possibility of error during assembly of subject unit after overhaul by incorporating dowel pins in different sections of unit</p>
WRIGHT				
R-1820	400	1-7-46	<i>Dowel Pins, Water Injection Control Unit—Installation of...</i>	Eliminates possibility of error during assembly of subject unit after overhaul by incorporating dowel pins in different sections of unit
R-2600 R-3350	—	—	—	—
GENERAL ENGINE BULLETINS				
	87 0 Rev. 3	1-5-46 12-28-45	<i>Gasket, Magneto Scintilla, Part No. 10-21788Y—Inspection of...</i> <i>General Engine Bulletin Index</i>	Provides information regarding correct gasket for applicable magnetos Lists engine bulletins in effect
POWER PLANT ACCESSORY				
	6-45 Supp. 1 57-45 Supp. 1 60-45	12-20-45 12-27-45 12-20-45	<i>Miscellaneous Accessories, 5-15 Intercoolers—Testing of...</i> <i>Fuel Pumps, D-33 (Engine driven fuel pumps—Installation of)...</i> <i>Starters, b-29...</i>	Modifies testing requirements for F6F intercoolers fabricated by Bush Mfg. Co. Adds PESCO number 2B-227-DB pump to list of Navy approved type engine driven fuel pumps Provides instructions for salvage of barrels with broken driving stem
AEROPRODUCTS				
	2	1-14-46	<i>Aeroproducts Single Rotation Propellers, Model A843—Governor—Modification to Improve Low RPM Governing...</i>	Modification of propeller governor to eliminate sludge in RPM—cruise range of 1300-1700 RPM.

Machine Installs Hose Fittings

NAS SAN DIEGO—A machine for installing large numbers of hose fittings, designed by a machinist at this activity under the Navy Employees' Suggestion Program, has proved a definite time and money saver.

This machine has a metal base, one end of which supports an air-actuated vise for clamping the hose while the other end sustains an air-operated mechanism for moving the plunger which holds the fitting insert. The machine is fitted with the following



ADAPTERS ACCOMMODATE VARIOUS SIZES

adapters: "A" Hansen fitting; "B" and "C" acetylene and oxygen hose fittings; "D" compressed air pipe fittings. Actuating cylinders, selector valves and fittings are salvaged from old planes.

With the selector valve "E" in position, the vise is in an open position and

the plunger "F" is retracted. The hose is inserted in the vise and the adapter and fitting inserted in the plunger "F" with the locking pin "G" placed in the hole "H". The fitting is forced into the hose by merely turning the selector valve a quarter turn counter-clockwise. This causes the vise to close and moves the plunger forward. The pin then is removed and the selector valve turned a half turn clockwise. This causes the plunger to retract and the vise to open, completing the operation.

Bar Smooths Dents, Saves Time

MCAS CHERRY POINT—A bumping bar for damaged wing tips, developed by a Corporal at this activity under the Navy Employees' Suggestion Program, saved 16 man-hours in one operation.

An F4U wing tip was dented and smashed together in handling so that removal and installation of a new wing tip would have been necessary.

Time required to make up a new wing tip in addition to the necessary material were saved by removing a row of screws near the damaged tip, inserting bar and bumping out dents.

[DESIGNED BY HERBERT R. WRIGHT, CORPORAL]



STRAIGHTENING WING DENTS MADE EASY

ARMAMENT TEST

Armament Developments in VPB Types

Hydraulic gun chargers on the eight fixed .50 caliber nose guns of the pv-20 are the Interstate type 450-H-4. These are identical with the Interstate type 450-H-3 except that the hydraulic port on the -4 chargers is 180° from the position of the hydraulic port of the -3 chargers. Space limitations in the nose assembly prohibit replacement of the new chargers with either Interstate 450-H-3 or Bendix Mk 2 Mod 1 chargers.

The contractor has been requested by BuAER to continue with the PBM-5 prototype Mk 8 bomb shackle installation. Development was delayed because Mk 1 release unit that operates Mk 8 shackle would not always function when used in conjunction with an rs-2 rail selector unit.

Tests to determine feasibility of the Mk 9 aircraft rocket launcher installation in the PBM-5 soon will begin at NATC PATUXENT RIVER. The contractor has now completed the PBM-5 prototype Mk 9 aircraft rocket launcher installation.

Stoppage Failure Is Solved by Oil

The T-31 20 mm. guns have been subject to stoppages due to failure to extract. Frequent oiling of the belted ammunition permits satisfactory firing although the oiling method itself is unsatisfactory. Test activities are endeavoring to perfect a device to oil the ammunition at the time of firing rather than at the time of stowing. Test results using prototype oil devices gave highly satisfactory results.

Navy Now Testing Foreign Armament

Tests are now underway on various kinds of foreign guns and ammunition. The German 30 mm. Mk 108 gun is particularly interesting because it fires a high velocity projectile that has the highest known ratio of explosive weight to total weight. The gun is simply constructed and light. Rate of fire is fairly high.

Navy Plans Flexible Rocket Launcher

BuAER is initiating a program for the development of a flexible powered rocket launcher utilizing the 5" spin stabilized rocket. Representatives of interested contractors will be given an opportunity to visit Naval Ordnance Test Station, Inyokern, to secure information on spin stabilized rockets. A design competition for a flexible rocket launcher for aircraft installation is planned.

Wing Tip Turret Installation Studied

Close liaison is being maintained with Army Air Forces concerning development of wing tip turret installations. The primary considerations in wing tip turret installations appear to be those involved in the sighting system. For the present the Navy will not initiate its own development program. At such times as the Army's efforts do not parallel Naval interests BuAER will conduct its own developmental work.

Succeeds List of 1 January 1946

1 February 1946

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

Aircraft	Bulletin	Date	Change	Date
F6F	133	1-9-46	96	12-20-45
F4U-F3A-FG	269	1-18-46	237	12-20-45
F7F	29	1-16-46	32	1-4-46
F8F	8	1-23-46	3	11-27-45
FR	11	11-7-45	9	12-28-45
GH-NH	13	12-13-45	22	6-15-45
PV	178	12-28-45	189	1-10-46
PBM	161	12-27-45	181	12-29-45
PBY	138	12-27-45	187	10-19-45
PB2Y	74	10-19-45	156	8-9-45
PB4Y	218	1-10-46	186	1-7-46
R5C	71	1-4-46	157	12-18-45
R4D	54	12-20-45	48	10-3-45
R5D	85	1-15-46	140	1-15-46
RY	87	1-7-46	33	1-7-46
SB2C-SBF-SBW	231	1-11-46	157	1-7-46
SC	97	12-18-45	48	12-20-45
TBF-TBM	218	12-4-45	247	12-5-45
TBY	22	12-18-45	6	10-26-45

For complete list of Aircraft Service Changes and Bulletins, see Naval Aeronautics Publications Index NAVAER 00-500 and supplement 00-500A.

LETTERS

Sirs:

The *Ranger* with a new lease on life is now getting a much-needed overhaul at Naval Ship Yard, Philadelphia. She will soon report to the Commander Naval Air Bases, Pensacola, for carrier qualification duty.

During the overhaul, in addition to general repairs to the ship, areas of the flight deck which have experienced some 36,000 landings since last renewed are being replaced. The after clip house has been removed to permit an additional 25 feet of landing area, this will eliminate a hazard to pilots and save many right wing tips.

As a matter of interest, on 30 October 1945 three F4U's took-off while the ship stood down the Mississippi river. It is believed this is the first time aircraft has been launched from a carrier on the father of waters.

U.S.S. *Ranger*

J. A. RUDDY
ACTING C.O.

Sirs:

The caption on picture No. 3 on the inside of the front cover of the January 1946 issue of NAVAL AVIATION NEWS is thought to be incorrect. There are no H4 catapults on the *Independence*. The *Independence* carries H2 Mod 1 catapults.

E. J. S. YOUNG

COMMANDING OFFICER

NAAS KINGSVILLE

¶ We stand corrected.

Sirs:

We regret seeing an error in ditching technique in the photograph captioned *Survival Training Pays Off in Emergencies*, on pages 8 and 9 of the January, 1946 issue of NAVAL AVIATION NEWS. Ordinarily the turret gunner is the first man out of a ditched TBM, because, if correctly managed, the turret is a good ditching station and a quick, easy exit is possible. This, however, is true only if the



turret clutch is locked with the turret fore-and-aft, which is not the case in this published photograph. Reference (b) which is a prepared ditching bill for VT planes, makes this point clear.

We are happy to see the radioman coming out of the second cockpit, because most casualties in TBM ditchings have

been radiomen who were in the bilge compartment at the time of ditching.

ROBERT W. HARRISON
LT., USNR

NATB PENSACOLA.

Sirs:

The face of a clock with a bomb for the hour hand and a rocket for the minute hand, set at the squadron's number "one thirty" has been approved by Chief of Naval Operations as VPB-130's official insignia. The clock face is superimposed



upon a plan view of a Ventura aircraft with the star-set background.

J. L. PENNELL

Commanding Officer

Sirs:

The U.S.S. *Belleau Wood* is currently engaged in the "Magic Carpet" operation and news items pertaining strictly to aviation do not present themselves.

In lieu of non-existent aviation news, the following poem is submitted as being of passing interest:

"OLD GALLANT LADY"

With apologies to Oliver Wendell Holmes

Ay, fence her rolling flight deck in!

Well did her eagles fly,

Her pilots' eyes have danced to see

That haven from the sky:

Upon her rung the battle shout

And burst the *Hellcat's* roar.

The empress of the sea and air

Shall sweep the clouds no more.

Her deck once red with hero's blood

Where crashed the buka foe

While Kamikazes met the flood

Of anti-aircrafts blow,

No more shall feel the *Corsair's* trend,

Or cast *Avengers* free;

The *Conqueror's* men has vanished from

The guardian of the sea!

O Bitter fate, her hangar deck,

Once shelter for her flocks;

Shall harbor now a thousand bunks

With troops to dump on docks;

Weld to her decks these iron sacks,

Her crew and gear revamp,

Reduce her rate for valor great

To "Magic Carpet" Tramp.

J. B. MOSS, COMMANDING OFFICER

U.S.S. *Belleau Wood*



The Cover Some Alaska-bound officers and enlisted personnel file aboard one of VA-5's F5U's at Seattle. The 3000 mile run to Attu in the Aleutians requires 16 hours. This is a familiar scene at every station where NATS is operating.

CONTENTS

Naval Air Transport . . .	1
Grampaw Pettibone . . .	6
Army-Navy Merger . . .	9
Atom Bomb Test . . .	10
Jap Sub Hangars . . .	11
Baiting A Thunderhead . .	12
Did You Know? . . .	13
Air Reserve Training . . .	15
Radar Countermeasures . .	18
Flight Safety . . .	22
Tender Becomes Troopship .	23
Service Squadron Six . . .	25
Maintenance . . .	27
Norfolk Visual Training . .	33
Service Test . . .	34

Grampaw Safety Quiz 8, Navigation Quiz 14, Shore Stations 23, Aviation Ordnance 26, The Howler 32, Supply News 36, Screen News 37, Photography 37, Engine Bulletins 38, Aircraft Changes 39, Armament Test 39, Letters 40.

ANSWERS TO QUIZZES

● RECOGNITION QUIZ

(inside back cover)

1. Essex class CV 2. South Dakota class BB 3. Midway class CVB 4. King George V (British BB) 5. Atlanta class CL 6. Summer class DD

● NAVIGATION QUIZ (p. 14)

1st leg: IAS, 134; CH, 033; GS, 168; TTT, 0654. 2nd leg: CH, 152; TTT, 0727. 3rd leg: CH, 262; DRM, 278; ETI, 0841; GPI Lat. 22-03N, Long. 140-12E.

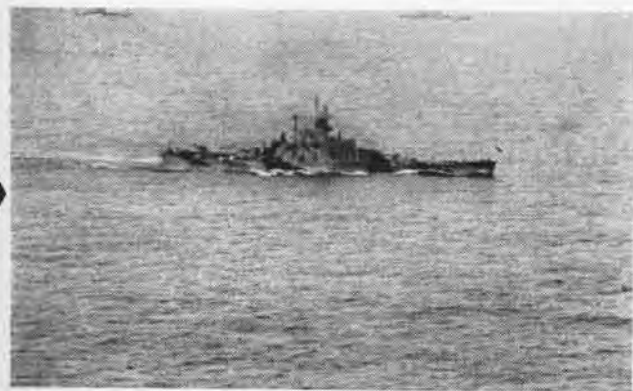
● GRAMPAW'S QUIZ (p. 8)

1. a. 500 feet vertically and 2,000 feet horizontally. b. Same as for a. Ref: CAR 60.110.
2. a. 3 miles. b. 1 mile. c. 1 mile. Ref: CAR 60.110.
3. No. Ref: BuAer Manual, Art. 6-103.
4. Yes. Ref: BuAer Manual, Art. 26-205.
5. Technical Orders contain mandatory data. Technical Notes are not mandatory. Ref: BuAer Manual Art. 26-205.

RECOGNITION QUIZ

**Plane and Ship Identification
Was a Life Saver in Combat;
We Must Not Neglect It Now**

NAVAL and Marine Corps aviators and other aviation personnel can never afford to neglect recognition training. The importance of good recognition, learned the hard way during early days of World War II, must never be forgotten. Proficiency in ship and plane identification requires constant practice, adequate training and an eagerness on the part of all hands to keep abreast of new developments in airplanes and ships. Check out on these.





JAPANESE FLATTOPS

SHORN of their anti-aircraft armament and planes, the Jap carriers *Kasagi* and *Junyo*, present a deserted look as they lie in Sasebo Harbor, awaiting the fate to be decided by the U. S. Both were 28,000-tonners with 745-foot flight decks.

CHARACTERISTIC BENT SMOKESTACKS OF THE UNFINISHED JAP CARRIER *KASAGI* IN SASEBO HARBOR SWEEP OUTBOARD AFT OF THE SHIP'S SMALL ISLAND

JUNYO LIES IN SASEBO HARBOR WITHOUT GUNS; NOTE DECK PLANKING

JAP SAILOR ON *JUNYO* DURING DISARMAMENT WORK SIGNALS TO A TUG

