

NAVAL AVIATION

NEWS



Naval Aviation: 1944
Color on a Carrier
Survival on Display

Jan. 15, 1945
RESTRICTED



GIMME A TARGET



At a very low level,
he pulled out and
skimmed over the water

"*Frances* at 12:00 o'clock," snapped through the intercom. Lt. S. immediately swung into a climbing turn and momentarily concealed the giant PB4Y in a bank of clouds. Pulling out within range, the bow gunner fired a long burst into the Jap's wing. No damaging effect was apparent.

Although the bow turret had expended its ammunition, and the starboard gun was out of commission, John R. Pfeiffer

was confident. He called his pilot . . . "Gimme a target, I'll lob 'em with my port gun."

Losing no time, the pilot put the PB4Y in a steep dive, rapidly closing the distance between the *Liberator* and *Frances*. At a very low level, he pulled out and skimmed over the water. They were far below the Jap plane and completely out of range for a .50 calibre machine gun, but Pfeiffer knew it would be their last

chance to get a shot. He tried his luck.

Opening up with his one remaining gun, Pfeiffer lobbed the bullets in a wide arc toward the racing Jap plane. His marksmanship was excellent, his allowance for gravity drop and relative speeds faultless. The Jap port engine exploded; the entire nacelle dropped away. Losing altitude rapidly, the *Frances* spiraled into the waves and sank instantly.

Aircrewmen have what it takes

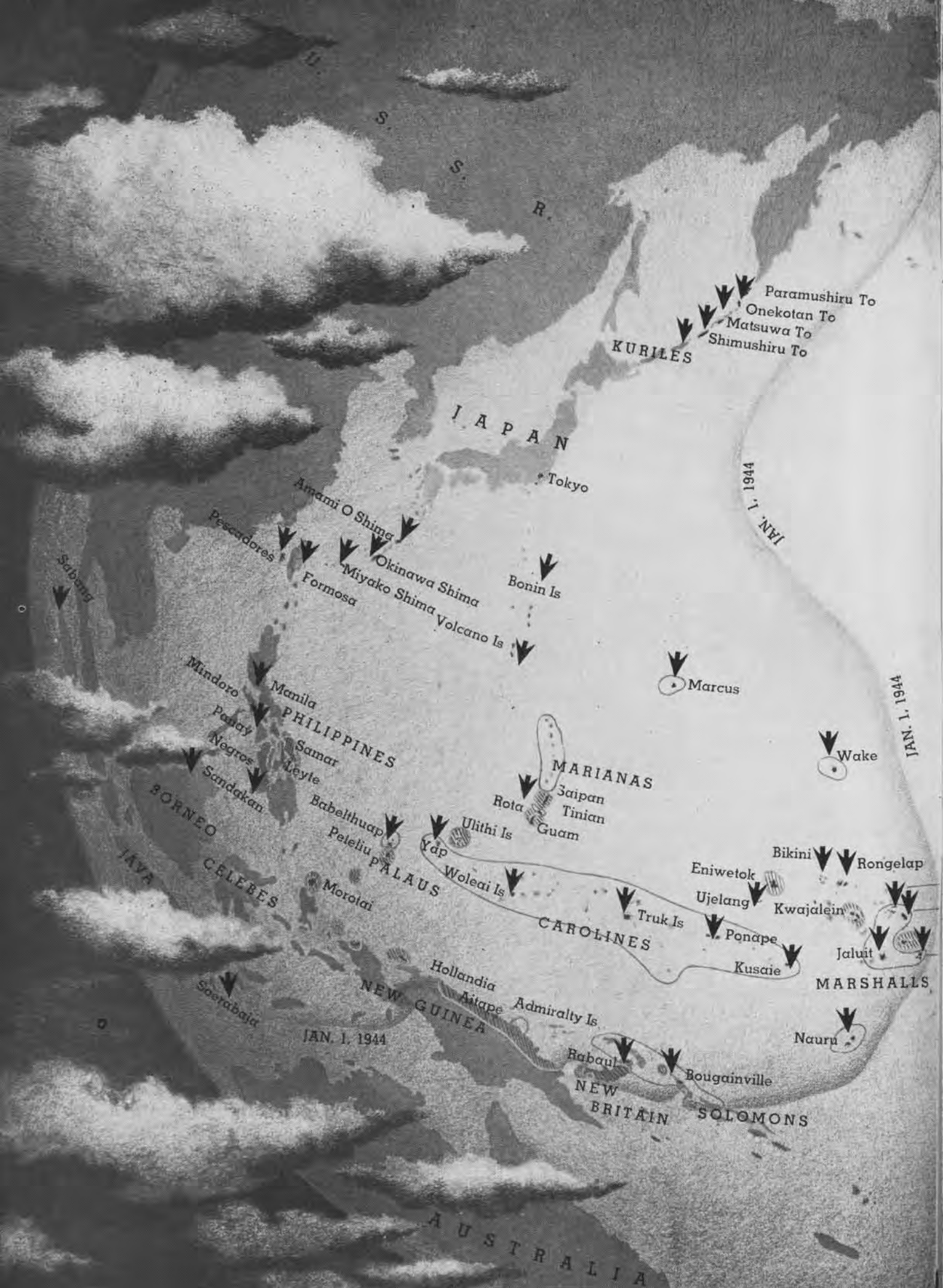


NAVAL AVIATION IN 1944

ALTHOUGH in 1944 Naval Aviation operated principally in the Pacific, Navy aircraft from carrier decks and land bases flew and fought in almost every theater of war. They supported amphibious landings in Europe, blasted enemy submarines in the Atlantic, pounded Jap shipping and choked off its supply lanes, spearheaded invasions, flew patrol, search and rescue missions and transported personnel and cargo over vast expanses.

Back in the homeland, at desks and behind planning

tables, in laboratories and at testing stations, experts in design, engineering and maintenance studied combat experience reports, weighing hints they contained for technical improvement. This, with intensified training and tactical superiority, could be counted on to increase the edge over the enemy in combat. The Navy did not espouse the doctrine of an easy victory, which gained momentum on the home front, but kept its efforts at peak required for complete and final victory over the foe.



S
S
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Paramushiru To
Onkotan To
Matsuwa To
Shimushiru To
KURILES

JAPAN

• Tokyo

JAN. 1, 1944

Amami O Shima
Pescadores
Formosa
Miyako Shima
Okinawa Shima
Volcano Is
Bonin Is

• Marcus

JAN. 1, 1944

• Wake

Mindoro
Manila
Panay
Negros
Samar
Leyte
PHILIPPINES

MARIANAS

Rota
Saipan
Tinian
Guam

Sandakan
Babelthuap
Peleliu
Morotai
PALAUS

Yap
Ulithi Is
Woleai Is

CAROLINES

Bikini
Eniwetok
Ujelang
Ponape
Kusaie
Rongelap
Kwajalein
Jaluit

MARSHALLS

BORNEO
CELEBES

JAN. 1, 1944

Hollandia
Aitape
Admiralty Is.

• Nauru

Rabaul
Bougainville
NEW BRITAIN
SOLOMONS

AUSTRALIA

Sabang

Soerabaja



1944 

OPERATIONS

MORE than 3,000 miles separate Tarawa in the Gilbert Islands from Mindoro in the Philippines. American forces covered this sweep of the Pacific in 1944. After consolidating gains in the Gilberts in the latter part of 1943, U.S. troops invaded the Marshalls in February, by-passed Truk and the other Caroline Islands, smashed in to the Marianas in June and July, reduced the Palaus in September and launched the Philippine invasion in October. In mid-December, the Army landed on Mindoro.

To these large-scale operations and other important but lesser known engagements, Naval Aviation made heavy contributions. Every major landing was preceded by a softening-up period in which both carrier- and land-based planes bombed and strafed vital installations on islands earmarked for invasion. Navy planes blasted enemy shipping to wreak havoc on his supply schedule, and helped neutralize enemy-held territory.

Naval airmen harassed Jap shipping and installations from the Kuriles to New Britain in the first month of the year. Carrier-based aircraft hit Jap warships in Kavieng Harbor and Gazelle Channel. SBD's and TBF's attacked concentrations of shipping in Simpson's Harbor (Rabaul), and PB4Y's struck Kusaie Island in the Carolines.

Kwajalein in the western Marshalls was invaded in February. Also in the second month, American and New Zealand troops landed on Green Island in the Solomons; a task force blasted Truk; Navy planes hit Paramushiru and Shimushiru in the Kuriles; troops invaded the Admiralties.

U.S. Troops Landed at Aitape and Hollandia in April

In March, Navy medium bombers hit the Kuriles, and a task force blasted the Palaus. Highlights of April were the Army landings at Hollandia and Aitape and the bombing of Truk, Satawan and Ponape.

In May, Army, Navy and Marine planes hit Jap bases in the Marshalls; Navy medium bombers hit Nauru Island; Army and Navy heavy bombers attacked Truk and Woleai islands and Guam, and a carrier task force struck Soerabaja.

Marines invaded Saipan in June, following heavy task force blows. The Bonin and Volcano Islands were hit by a task force. Carrier planes sank a Jap carrier, damaged many warships and drove off a big Jap fleet near Saipan in First Battle of Philippines Sea.

July saw amphibious forces invading Guam and Tinian, warships and planes blasting the Volcano and Bonin Islands and a task force hitting the Palaus, Yap and Ulithi.

In August, warships and carrier planes again battered the Bonins and Volcanos and other previously hit areas. The Marines invaded the Palaus and the Army occupied Morotai Island and Ulithi Atoll in September.

October witnessed the return to the Philippines and saw the Jap Fleet "defeated, seriously damaged and routed" in the Second Battle of the Philippines Sea. Carrier planes hit the Ryukyus, Marcus, Formosa, Pescadores and Luzon.

In November carrier planes continued to rip Philippine air bases and shipping concentrations, as bad weather slowed ground operations. The Mindoro landing, covered by Army and carrier-based planes, was outstanding in December.

1944



CAMPAIGNS

MARSHALLS

Preceded by powerful attacks by Army and Navy planes and supported by a large concentration of various types of ships, combined U.S. forces landed on Kwajalein, world's largest atoll, in the western Marshalls on February 1. Marines seized five small islets flanking Roi and Namur Islands at the northern tip of the atoll. At approximately the same time that operations began in the north, units of the Army's Seventh Division landed against little opposition on the tiny islands of Enubuj, Ennylabegan, Gea, Nini and Gehh, northwest of Kwajalein Island, which lies at the southern tip of the atoll. The following day landings were made on Kwajalein Island.

Navy Planes Hit Truk While Troops Landed on Eniwetok

In mid-month, while carrier task forces were assaulting Truk, Marine and Army forces landed on Eniwetok atoll, 300 miles northwest of Kwajalein, and completed the occupation in less than a week. This invasion followed extremely heavy air and ship bombardment by the task force covering the operations. Mille, Maloelap, Wotje and other islands in the Marshalls not invaded suffered terrific poundings from carrier planes during the other operations.



CARRIER AA GUNNERS DOWNED BETTY IN TASK FORCE RAID ON SAIPAN



JAP SHIPPING OFF MARSHALLS TOOK POUNDING FROM NAVAL AIRCRAFT

MARIANAS

Leaping nearly half-way to the Philippines from the Marshalls, U.S. forces struck furiously at Saipan in the Marianas in June. Commencing on the 11th, a two-day attack by carrier-based aircraft was carried out against the islands of Guam, Rota, Tinian and Saipan. On the 13th a task force including battleships and cruisers steamed in to shell Saipan and Tinian, as aircraft continued to bomb the islands. Marines landed on Saipan on the morning of the 15th. Finally goaded into action by this invasion, the Jap fleet came out of hiding to exchange blows with the United States Navy. As at Midway two years before, all of the offensive action was by carrier-based aircraft, the two fleets engaging each other at distances of approximately 300 miles. This was the Marianas turkey shoot in which naval aviators and aircrewmembers accounted for more than 400 Nip aircraft and 14 ships sunk or damaged.

Bombing and Shelling Softened Guam and Tinian

On the 21st, Marine and Army units hit the beaches of Guam. Three days later Marines landed on Tinian Island. Seventeen consecutive days of air bombardment and a week of shelling by surface vessels preceded the Guam landings. Tinian had been hit by ships or aircraft on almost every day since the beginning of the Marianas campaign.

Tinian fell on August 1 and by August 9 Jap resistance on Guam was at an end. Bloody as was the Marianas' campaign, U.S. strategists figured it was well worth the price. The Marianas have served as bases for attacks against the Bonin and Volcano Islands, the Philippines and the Jap homeland. At year's end, the Army's B-29 *Superfortresses* had used Saipan to bomb the enemy's heart.

The Marianas Islands were mandated to Japan in 1920.

PALAU U.S. amphibious forces landed on Peleliu and Angaur islands, southernmost of the Palau group, on September 15-17. The landings followed a period of sustained air and sea bombardments, said to have been the heaviest ever hurled against Japanese defenses in the Central Pacific. Not only were enemy positions in the Palau bombed and shelled by aircraft and ships but airfields and shipping within a radius of more than 600 miles, including the southern and central Philippines, were struck repeatedly by carrier aircraft. Heavy losses to the enemy resulted.

Carrier Planes Blasted Jap Island Installations

Operations against the Palau began on September 6, with a carrier-based fighter sweep of Japanese installations on the islands. This was followed the next day by a heavy bombing attack, during which cruisers and destroyers moved in to hammer at installations. On these two days and on the 8th, Yap and Ulithi islands, 300-400 miles northeast of Palau, also were under attack of U.S. carrier aircraft. Japanese airfields and shipping in the southern Philippines were hit on the 9th by carrier planes, which on the 12th, 13th and 14th returned to effect great destruction among enemy aircraft, shipping and ground installations in the central Philippines. Meanwhile, at Palau, aircraft and surface vessels, including battleships, on the 10th renewed their attacks on shore installations and beach defenses, concentrating their attention mainly on Peleliu and Angaur islands. For five successive days bombs and shells rained on the islands. Hundreds of tons of high explosives, as well as great numbers of rocket projectiles, hit the airfields, coastal and anti-aircraft gun emplacements, pill boxes and other defenses on the beaches and inland. Within two weeks of the initial landings, all but scattered pockets of resistance had been eliminated on Peleliu and Angaur islands.



PALAU LANDINGS FOLLOWED MONTHS OF BOMBING BY CARRIER PLANES



CARRIER-BASED AIRCRAFT VISITED MANILA BEFORE LEYTE INVASION

PHILIPPINES

Retribution: AMPLIFYING REPORTS ON THE SECOND BATTLE OF THE PHILIPPINES SEA, ALTHOUGH STILL SUBJECT TO REVISION AS MORE INFORMATION IS RECEIVED, INDICATE AN OVERWHELMING VICTORY FOR THE THIRD AND SEVENTH UNITED STATES FLEETS. THE JAPANESE FLEET HAS BEEN DECISIVELY DEFEATED AND ROUTED.
—PACIFIC FLEET COMMUNIQUE 168

THUS the Navy succinctly summed up the greatest air-sea battle in history in which U.S. surface units engaged capital ships of the Japanese Navy for the first time since the Battle of Guadalcanal in mid-November 1942. Included in the bag of vessels definitely sunk by U.S. surface craft, submarines and aircraft during the October 23-28 period were two battleships, four carriers, six heavy cruisers, and two light cruisers; 13 ships so severely damaged that they may have sunk, and 21 ships damaged—in all, 58 sunk or damaged. This was one of Japan's worst defeats in history.

Leyte Landings Brought Out Japanese Fleet

The Second Battle of the Philippines Sea was forced by the landings of the Sixth Army on the island of Leyte. The invasion on October 20 achieved complete surprise. The Third and Seventh Fleets supported the landing, which was midway between Davao and Luzon. In the first 24 hours a large number of men was put on the beach. Ten days after the Sixth Army troops landed, Leyte and Samar were firmly under American control, although hard fighting lay ahead to rid the islands of all Japanese resistance. Pushing up from Leyte in a surprise amphibious thrust, Army troops landed on Mindoro Island in mid-December. This move, covered by Army and Navy aircraft and surface vessels, put U.S. forces only 130 miles from Manila. The year-end invasion cut the Philippine archipelago in two. It gave the Allies a springboard to the China Sea, supply route between Japan and Southeast Asia. The enemy lost many planes in the operation.



MARINE MECHS PREPARE CORSAIRS FOR GRUELLING WORKOUTS. THOROUGH CHECKING BY SKILLED MEN ASSURES PEAK PERFORMANCE AT ALL TIMES

1944 

MARINES

THE END of 1944 marks a distinctive epoch in the history of Marine aviation. Leatherneck pilots participated in every major advance in the South Pacific, and contributed to those in other areas.

The first outstanding mission was directed toward Rabaul with a solid aerial punch of 100 Allied fighter planes. Representative squadrons in this sweep were the *Black Sheep*, *Fighting Corsairs*, *Bulldogs*, and *Hell's Angels*.

Heckling the Japs by night were the *Flying Nightmares*, first Marine PBJ squadron to see action.

In the Marshalls, Marine dive bombers were given the task of rooting out Jap forces with relentless precision bombing. Meanwhile two Marine *Liberators* took off from the Solomons on a daring reconnaissance mission. After battling through tropic storms and freak weather for 1,200 miles, they photographed Jap fortifications which resulted in the attack on Truk by a powerful naval task force.

Marine Action Demanded Many Changes

Grinding away at enemy installations was the next important mission, and the Marine *Corsair* plane became a fighter-bomber. The *Corsair's* speed in arriving over a target had surprise value; its getaway time, bomb weight away was short. On final strafings, the blast from its six wing-mounted .50's was devastating. During seven weeks, one fighter squadron dumped more than 200,000 pounds of bombs on the enemy.

In near future, Marine squadrons will operate from carriers in support of amphibious and ground movements.



PRACTICE RUNS WITH WATER-FILLED BOMBS INSURE MORE ACCURACY



GUNS ARE CHECKED AND AMMUNITION LOADED FOR ACTION IN AIR

NAVAL AIR Transport Service broke its own records in 1944. In its biggest year, NATS flew nearly 77,000,000 plane miles in carrying more than 550,000 passengers and 76,121 tons of cargo and mail. Total route miles flown increased from approximately 65,000 at the beginning of the year to a peak of 80,000. Number of transport aircraft increased from 179 to 348.

NATS' basic organization—comprising three transport wings, ComNatsLant, ComNatsWestCoast and ComNats-Pac, and one ferry wing, Comairferons, operating under CNO—was not changed in 1944. Three new transport squadrons and one seaplane ferrying squadron were commissioned: VR-9, NAS Patuxent River; VR-12, NAS Pearl Harbor; VR-13, Advance Pacific Area, and VRF-4, NAS New York. This brought the total number of transport squadrons to 13 and ferrying squadrons to four. There is one ferry service squadron, VRS-1, while four of the VR squadrons are maintenance or headquarters squadrons. Missions of these squadrons do not include the operation of transport aircraft.

Mars and Skymasters Plied Long Over-Water Routes

NATS started 1944 with the assistance of four contract operators: PAA Atlantic Division, PAA Pacific-Alaska Division, PAA Pacific-Alaska Division—Alaska Sector, and American Export Airlines. During the year, Navy's contract



ning of the year, was extended to Montevideo, Uruguay.

Transcontinental operations were intensified to the point where six daily trips in each direction now are operated, primarily to produce plane commanders as well as to carry cargo, and an increasing number of important naval and supply establishments are being served.

NATS' operations in the Pacific have been expanded greatly to keep pace with military developments. The South and Southwest Pacific routes, which terminated at Brisbane,



THE MIGHTY MARS HELPED NATS SHATTER LOAD-CARRYING RECORD. ON RECENT OCEAN HOP, SHE HAULED NEARLY 14 TONS OF CARGO AND PERSONNEL

with PAA Alaska was terminated owing to changing military requirements and the ability of NATS' squadrons operating in Alaska and the Aleutians to meet needs. NATS also terminated all contractors' service in the Atlantic areas.

NATS Expanded Transatlantic Operations

Because of the increasing importance of overseas routes, R5D *Skymasters* and the *Mars* were put into service for the long over-water Pacific hops, and the smaller type planes gradually will be retired from operation as additional larger types, including the JRM's, are acquired.

Operations in the Atlantic were expanded considerably in early 1944 by the assignment of additional four-engine landplanes and by the inauguration of military seaplane service over the North Atlantic route in the spring. Changing military requirements led to the elimination of the Transatlantic seaplane service in the fall. The South American route, which went to Rio de Janeiro at the begin-

Sydney and Auckland at the beginning of the year, were inter-connected with the Central Pacific routes by inauguration of service from Kwajalein to Guadalcanal and Manus. Other routes now connect Samoa with Tarawa and Kwajalein; Sydney and Brisbane with Milne Bay, Finschhafen, Manus, Hollandia, Biak and Peleliu.

Latest NATS service to the Fleet in the Pacific is the flying of whole blood. A daily service moving this life-saving essential now operates from San Francisco to the blood center at Palau. NATS is the first carrier of whole blood in the Pacific area. The extension of the freshness of whole blood is made possible by a special refrigeration device perfected by BuMed. Whole blood is necessary in many cases where plasma alone is not sufficient to build up blood count.

NATS personnel strength grew from 18,687 on January 1, 1944 to 22,800 at year's end. Of the latter total, all but 2,500 were Navy personnel, the others being employees of contract operators, who had employed 9,542 a year earlier.



BLIMP ON PATROL DROPPED LIFE RAFT TO THIS SURVIVOR OF CRASH



LTA EXPERIMENTAL PROGRAM WAS EXPANDED CONSIDERABLY IN 1944



HIGHLIGHTS of the year in lighter-than-air were the first flight of standard K-type non-rigid patrol ships across the Atlantic and their subsequent operations in the Mediterranean area.

In the western hemisphere, blimp patrol activities were extended farther south to give coverage from Canada down through the Caribbean, around the hump of Brazil and on below Rio de Janeiro. Squadrons in the Caribbean and South American areas kept up the steady routine of antisubmarine patrol and convoy escort. South American ships staged a number of rescues in remote sections of the jungle, being able to land in swampy areas to pick up crash survivors.

In the United States, fleet airships on both coasts flew patrol and convoy escort missions. NAS Lakehurst, long the Navy's main LTA base, saw a sharp decrease in training of

pilots and crews, but engaged in a constantly expanding experimental program. The latter included work on gear and armament designed to increase the blimp's effectiveness.

Blimps on Search Aided Air-Sea Rescue

Lighter-than-air development of the year that received the greatest public attention was the increasing usefulness of the blimp as a rescue medium over both land and water. Ability of the blimp to search wide areas slowly and to hover in mid-air over an inaccessible patch of jungle or above a life raft in the open ocean has meant the difference between life and death for survivors.

For the first time in 1944, personnel downed at sea were hoisted aboard a hovering airship or, as happened in one instance, a doctor was lowered to the surface to attend a stricken crew member of a small ship.

The first rescue in which a man was hoisted aboard a blimp occurred off the Pacific Coast when a Marine Corps plane crashed in the ocean, injuring the pilot. A blimp lowered a parachute harness, into which the pilot was fastened by his mechanic. The flier then was hoisted aboard. Directing surface craft to the mechanic, the blimp headed for shore and in a short time the pilot had been transferred to an ambulance and rushed to a hospital.

Already at work on rescue gear when this incident occurred, the Naval Airship Training and Experimental Command had the advantage of actual experience to back up its efforts.

A number of land rescues also were made during the year.



WITH SPECIAL FITTINGS, SEA HAWK CAN BE FLOWN FROM LAND BASES



PV-2 HAS INCREASED ARMAMENT, GREATER RANGE THAN PREDECESSORS

1944 

NEW PLANES

AMONG new planes developed for the naval service in 1944 were the PB4Y-2 *Privateer*, PV-2 *Harpoon*, SC-1 *Sea Hawk*, FM-2 *Wildcat* and the F7F *Tigercat*.

The dominating feature of the PB4Y-2 is the huge single fin and rudder. The twin platters of the B-24 tail have disappeared and the tailplane now tapers on both edges. The Davis wing has been retained, but a 7-ft. extension has been added to the fuselage forward of the wing so that the plane now has a much longer nose. The new *Privateer*

carries much heavier armament than its predecessors.

The *Harpoon* represents a great improvement over the PV-1. A lower wing loading was achieved by the addition of 9½ ft. to the wingspread; greater range by increased protected fuel capacity, greater stability and lighter controls from a newly designed tail assembly. Armament has been increased to a total of five 50-cal. fixed guns in the nose.

The Sea Hawk May Be Recognized Easily

The SC-1 is replacing the older SOC and OS2U as the eyes of the Fleet. Like its predecessors, the *Sea Hawk* is primarily a ship-based aircraft, designed to be launched from catapults on cruisers and battleships. However, it can be fitted with a fixed-wheel undercarriage for operation from land bases.

The FM-2 is fundamentally the same design as the F4F-4, except that it has more horsepower and less gross weight. At low altitude its performance compares favorably with the much higher powered, heavier F6F-3 and F4U-1. The new *Wildcat's* short take-off run, low stalling speed, low gross weight and small size make it a most desirable Navy fighter for small carriers. It can carry forward-firing rockets.



SINGLE FIN AND RUDDER GIVE SINGULAR APPEARANCE TO NEW PB4Y-2



FM-2 WILDCAT'S SMALL SIZE MAKES IT IDEAL FOR ESCORT CARRIERS

1944



TECHNICAL ADVANCES

NAVY Department Bureaus and activities in the field backed up Naval Aviation's fighting fronts in 1944 by making outstanding contributions in design, engineering, maintenance and operational planning.

During 1944 the monthly rate of production of aircraft for the Navy reached the point required to maintain Naval Aviation at its peak level. Acceptances of planes from Navy prime contractors and from the Army averaged approximately 2,500 per month, compared with 85 per month in the second half of 1940. At the end of 1944, the Navy had on hand more than 16 times as many airplanes as at the end of 1940.

Acceptances of fighters increased to such an extent that a 20 percent cutback in the fighter program for the second half of 1944 was ordered. In the dive bomber category, the solution of certain production difficulties resulted in record deliveries of SB2C's, and permitted the closing out of SBD production.

▶ One of the year's significant developments was establishment of the Integrated Aeronautic Program, drawn up by a board of which Rear Admiral A. W. Radford was senior member. Simply stated, the program earmarks new planes for combat, keeps them in use there a shorter period, and returns those that have been in combat a stated time for reconditioning and use by training commands for forming and reforming squadrons. The board realized that Fleet maintenance could be improved if it were possible to keep all planes on hand in a constant state of readiness. At the end of 1944, details of the Integrated Aeronautic Program were being disseminated widely throughout the aeronautical organization.

▶ The Service Test Unit was established at NAS Patuxent River in July. This activity was set up to conduct accelerated field tests of new models of aircraft to establish mainte-

nance procedure and to obtain information on spare parts requirements. New aircraft are operated in a manner simulating as closely as possible operating or combat conditions. This program is designed to raise standards of maintenance of naval aircraft by eliminating defects in new models by early proved changes, and by disseminating to the field early information as to how maintenance trouble may be avoided.

▶ The Secretary of the Navy in General Order No. 210 designated as Air Bases all seven of the existing Naval Air Centers and extended the Air Bases concept to the rest of the naval districts. In this manner the Navy met administrative problems that grew out of tremendous wartime expansion in naval aeronautical activity on land. The order created three types of commands: Naval Air Bases, Naval Air Training Bases and Marine Corps Air Bases.

Advanced Stages of Pilot Training Were Emphasized

▶ The aviation training program was revised in 1944 to step up pilot standards by placing increased emphasis on the advanced stages of training. One of the main reasons why this was possible was that the rate of survival in battle proved to be greater than had been anticipated. Training of aircrewmembers and other enlisted personnel in Naval Aviation also was intensified during the year to meet combat demands.

▶ To keep abreast of improved plane models, the Navy developed or continued to improve in 1944 innumerable items of equipment relating to handling, servicing and operational efficiency and safety of aircraft. These included wing and tail de-icers, droppable gas tanks, improved parachutes and flight clothing, mirror-like surface finishes, improved lubricants and greases, protective coatings, shoulder type safety belts, and casualty handling equipment. Development of life rafts and various air-sea rescue devices helped to recover more men and made an outstanding contribution to morale in Naval Aviation.

▶ Jet assisted take-off devices and catapults of greatly increased capacities for launching heavily loaded aircraft were put into service during the year. These devices enable aircraft to take the air under overload conditions that were not thought possible as recent as four years ago. In addition, catapults have been designed and supplied for the Navy's new battleships, cruisers and carriers, while obsolete models have been replaced on the older ships. New and improved arresting gear of greater capacity and reliability has been designed and provided for carriers.

▶ Fire power of naval aircraft has increased not only by the addition of greater numbers of guns of larger caliber and improved reliability, but also by the incorporation of forward firing rockets, power-operated turrets and jettisonable package gun containers that can be attached to the external bomb racks of various types of naval aircraft.



NEW PLANES ARE KEPT IN POOL FOR ISSUE TO AIR GROUPS AND SQUADRONS. BATTLE-WORN AIRCRAFT NOT WORTH REPAIRING GO TO SALVAGE PILE



ENLISTED MEN ON CARRIER WHEEL ROCKETS INTO POSITION FOR LOADING ON PLANES THAT STRUCK FORMOSA IN OCTOBER'S DEVASTATING RAIDS

Planes Got Improved Communications Systems

▶ Improved aircraft communications, utilizing frequency ranges hitherto employed experimentally, were incorporated in Fleet planes. Radio altimeters, direction finders and electronic rescue aids are a few of many devices that enable naval aviators to search out and attack the enemy under adverse conditions. Electronic weapons have played a decisive part in prosecution of the war, and application of new and improved devices is expected to increase still further the future margin of superiority over the enemy.

▶ To aid the pilot and his crew in control and use of the many new devices placed at their disposal, a simplification of aircraft instrumentation has been achieved by the introduction of new automatic features. Principal among these are automatic engine controls that relieve the pilot of the necessity of observing and controlling numerous dials and gages. The pilot also has been given improved electrical gyro instruments that operate reliably under extreme conditions of temperature at all altitudes and throughout vio-

lent maneuvers, new and superior compasses both gyro stabilized and remote indicating types, and air position indicators that simplify navigational procedure.

▶ With the production of new and improved aircraft, the development of aircraft types that hitherto were not a part of Naval Aviation has been prosecuted vigorously. These include amphibious gliders, helicopters, target aircraft for the improvement of antiaircraft fire, and guided missiles. Electronic weapons too have played a decisive part in prosecution of the war.

▶ Naval photography made important strides in 1944. Among new equipment and materials made available or put under procurement during the year were a 16 mm "Universal" film for gun cameras, a K-3A Houston developing machine for 16 mm film, prepared chemicals for use in processing 16 mm film, the Sonne Printer for printing or duplicating aerial roll film, stereo viewers for film made with the Sonne stereo cameras, a film stamping machine for titling aerial roll film and Speed Graphic 4" x 5" combat cameras.



JET-ASSISTED TAKE-OFF DEVICES ENABLE AIRCRAFT TO TAKE THE AIR UNDER OVERLOAD CONDITIONS NOT THOUGHT POSSIBLE SEVERAL YEARS AGO

1944



SPECIAL DEVICES



COMBAT-EXPERIENCED AVIATORS AID IN DEVELOPING SPECIAL DEVICES



CARRIER EMPLOYS 3-A-2 DUAL PROJECTION TRAINER WITH TBF TURRET



SPECIAL DEVICES HAVE PROVED BOON TO AVIATION TRAINING PROGRAM

THE ENEMY'S large proportionate plane losses have been due in large measure to the Navy's highly-trained pilots and aircrewmembers. During 1944 thousands of fighter pilots mastered proper deflection on the Gunairstructor. Turret gunners learned how much to lead attacking enemy fighters on the 3-A-2 Dual Projection Trainer, which one commanding officer thought so valuable he was willing to remove some of the ship's guns to make room for the device.

Recognition has been sharpened by the Flash Projector and other devices that project planes on a screen in a split second. Refresher training is provided in many ready rooms by the Flash Quizzer. Navigators have learned to keep their bearings on long flights from carriers and return safely by use of navigation aids, including the Celestial Navigation Trainer. Airmen learn crew cooperation on the ground in the Operational Flight Trainer and Crew Navigation Trainer. Mechanics study maintenance problems on mock-up systems of aircraft that show what can go wrong, why, and how to prevent it. These are some of the ways devices have served.

Officers Studied Training Needs in Combat

Many devices perfected stem from training needs studied in combat areas. New war training problems are relayed to engineers by officers upon return from combat theaters. Research, engineering and device development follow. Thus, one pilot who spent a total of seven years on the *Lexington*, *Saratoga* and *Enterprise* now is developing a series of devices for flight safety and pilot efficiency. Another who has made more dive bombing attacks than any other pilot in the Pacific is working on a dozen devices, one of which is designed to help rescue men down at sea.

Early in the war, it was believed that in gunnery, radio, navigation, maintenance and engine operation, synthetic training equipment could save thousands of hours of non-productive flight time and at the same time make airmen more competent. The combination of learning on the ground with synthetics and practicing in the air has proved more effective and more economical in lives, time and money.

A student may now learn to fly a blimp on the ground. Another late development is a complete cabin of a helicopter that takes off, turns, hovers and lands—in a hangar.

Special Devices Division formerly was concerned only with development of aviation training equipment. Today it provides devices for many other branches of the Navy to serve anti-aircraft units, armed guard schools, submarine and amphibious warfare. Bureau of Ships is allotting special compartments for training devices on carriers. Upon authorization of CNO, hundreds of special devices now are regularly installed aboard carriers, battleships and other craft. Devices also are being used in aero-medical studies, for personnel selection and for veteran refreshment under BuMed and BuPers cognizance.

Special devices were used originally to help speed up the aviation training program. It now is apparent that training by special devices is of great value even when time is not so pressing. The year 1945 will see still greater development in training devices, and large scale production and distribution of those that were initiated late in 1944.

INTEGRATED AERONAUTIC PROGRAM


Reports Spark Radford Board Plan

For years, American motorists have understood and used basic principles embodied in the Integrated Aeronautic Program developed by the Radford Board. Many of them traded in the family car when the "new" had worn off because they knew last year's model would cost more for maintenance and repairs than a new car, would lack late improvements and would fall short in performance. In a nutshell, that is the principle of the Integrated program—fight the war with new planes, use re-conditioned ones for forming squadrons and for training.

Yet, when a squadron officer fails to send in his monthly reports on form NavAer 1872, he is short-circuiting the Integrated program and might one day find himself fighting the war with back model airplanes. For monthly reports are the spark for the entire program.

All the Navy knows that John Q. Pilot has plenty to occupy his time out in the Pacific. Taking on form 1872 was like starting an individual diary for all the planes aboard. He may wonder why it was necessary—what becomes of that piece of paper he sends in to CNO, OP-31-R.

John Q. happens to be engineering officer of a *Hellcat* squadron out in the Pacific. Contrary to some of the break-fast commentators, the Japs are no push-overs and they put 10 of this squadron's *Hellcats* out of the running in December. This all shows on the form 1872 John Q. mailed to OP-31-R.



Balanced Operation Requires INFORMATION

- ▶ How many new planes to build
- ▶ How many new planes to fleet
- ▶ How many new planes to forming and training
- ▶ How many planes returned from float-forming-training
- ▶ How many planes re-conditioned by A&R
- ▶ What parts shall be cannibalized — how many
- ▶ How many reconditioned planes to forming and training
- ▶ How many new parts to buy— which ones
- ▶ Where to deliver parts — when
- ▶ Where to store parts — how many
- ▶ How many planes to be abandoned

By the time the report has reached Washington, John has secured 10 more planes. These came from a pool of surplus planes the Navy maintains at strategic places available to the Fleet. John's report reaches OP-31-R, is

compared with his report for the past month, and thoroughly edited for accuracy. Then it goes to FIELD CONTROL which double-checks for accuracy and writes letters if more information is needed. The STRIKE SECTION gets it, then, notices that 10 planes were stricken for the month and removes these from the list of all planes the Navy owns.

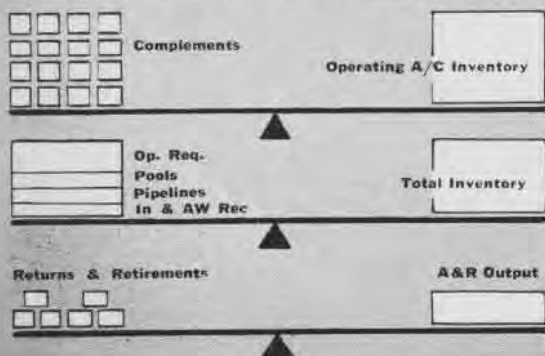
The next stop is the TABULATING MACHINE SECTION where every plane on the report acquires its own index card and all information about that plane becomes seemingly nothing but a strange pattern of holes in the card.

By the thousands, these cards then are fed into another robot machine and the punch holes magically become long columns of words and figures on a general summary that shows exactly how many planes the Navy has in any war theater, how many were lost, how many have been in battle the stated number of months and are ready for retirement under the Integrated Program to non-combat duty.

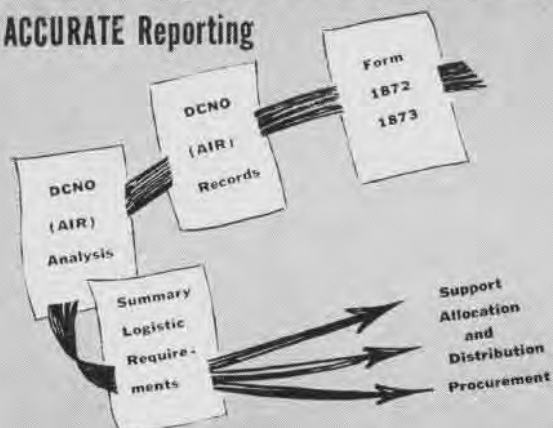
From OP-31-R this summarization goes to CNO PLANNING DIVISION which analyzes it and sets the Integrated Program in motion. New planes flow out to the Fleet, others come back for general overhaul and a new cycle of use in non-combat duty. The pool which furnished John Q. Pilot 10 planes to cover his losses, gets 10 more.

Had John Q. missed the boat with his report which is due to be air-mailed not later than the fifth of each month, his theater pool would have been short 10.

Sound ALLOCATION and ASSIGNMENT are Vital to Aeronautic Support



Sound Planning is Based on PROMPT and ACCURATE Reporting



GRAMPAW PETTIBONE

Epitaph

The following is quoted from a Board of Investigation:

"This student was not wearing his shoulder harness at the time of the crash as required by existing orders, although such harness was properly installed in the plane. Had he worn the harness, it is likely that fatal injuries would not have been suffered."



Grampaw Pettibone says:

Don't let a board of investigation write this as your obituary.

This student didn't expect to crash—and neither do you. But what if your engine quits on take-off and you are too low to jump? You wear a parachute—why be too proud or too careless to wear your shoulder harness?

Death Lurks In Traffic Circle

Two PV's about to enter the traffic circle converged at an angle of approximately 40° and collided. Both aircraft crashed to the ground out of control. Four men in one plane and two in the other were fatally injured. From the



testimony of observers it was apparent that neither pilot was aware of the imminence of a collision, as there was no avoiding action taken by either plane.

One of the aircraft was on a routine training flight with the instructor at the controls and the student in the co-pilot's seat. The other plane was on an engine run-in flight and was manned by just one pilot and a mech who apparently was occupying the co-pilot's seat at the time of the collision.

To prevent recurrence of such a tragic accident this unit has taken the following action:

"The accident and its causes have been widely publicized in the organization in an effort to impress pilots with the necessity of maintaining a sharp look-out at all times. Also, in view of the possibility that a qualified pilot in the co-pilot's seat of the second plane might have seen the other aircraft in time to avoid the accident,



two pilots are now required for all flights of dual control multi-engine service type planes."

Wrong Grade Fuel

Due to loss of engine power, a TBF-1 with target in tow, experienced difficulty in climbing after take-off. The pilot dropped the target in an effort to stay in the air, but the plane fell into a spin and crashed, killing the entire crew. 91/96 fuel was being used on this flight.

► **Comment**—Of course, the pilot was at fault in climbing so steeply as to lose flying speed.

He might have had more power, however, and thus avoided the accident, if this squadron had not ignored the provisions of TBF-1 Airplane Bulletin No. 78 which prohibits 91/96 fuel in this airplane when towing.

On One Engine

Seven hours out of Alameda on the way to Honolulu, a small fire was detected in the starboard engine of a PBM-3D. The engine was cut and the fire went out. The engine was re-started twice, but each time the fire began again and blazed until the engine was stopped. The propeller then was feathered. All loose gear and bomb bay tanks were jettisoned and the plane trimmed for single engine operation.

Altitude was lost until at 900 feet, with 2400 rpm, 42 inches h.g., and an airspeed of 90 to 95 knots, the pilot found that he was not only able to maintain altitude but could climb slowly. Fuel consumption at this time was

157 gallons per hour. The pilot leveled off at 2500 feet and by gradually decreasing rpm and throttle, consumption was reduced to 97 gallons at 2300 rpm and 33½ inches h.g.

Fuel exhaustion finally forced the plane down short of its destination. A good landing was made in the open sea with no injury to the crew nor damage to the plane.



Grampaw Pettibone says:

Good work!

The competent handling of the plane in this case, brings to mind the verse written by my old friend, Edgar A. Guest:

*Somebody said that it couldn't be done
But he, with a chuckle, replied,
That maybe it couldn't but he would be
one
Who wouldn't say so 'til he'd tried.*

Parrot Fever



Grampaw Pettibone says:

When you hear anybody blowing about how hot a pilot he is, don't take it too seriously. Remember the parrot—among birds he is the best talker and the worst flier.

Repair Tickets

The crew chief of a fighter plane noticed a hydraulic leak in the bank valve of the landing gear and installed a new valve only to find that it, too, leaked. The next morning he put a new bank valve in the ship and obtained another mechanic's help to connect the hydraulic lines. A third worker was left to clean out the cockpit when the others went to chow. This man was not told that the landing gear still had to be checked. In an effort to be helpful, he started the engine. However, the bank valve was not correctly aligned and the landing gear collapsed.

As a result of this accident, the following repair procedure, which should effectively forestall accidents of this nature, has been established in this squadron and is recommended for general use:

"The engineering department has been instructed to adopt measures whereby aircraft undergoing repairs of any kind will have placed upon the propeller blade a large and conspicuous notice, covering in detail the work that has been done and that remaining to be done. An identical notice should be placed on the instrument panel."

A & R Shops
LET
NANNEWS HEAR
FROM YOU!

Constant gunnery practice is necessary to keep a carrier's anti-aircraft crews in readiness for enemy aerial attacks; dive bomber tows sleeve past carriers in Pacific war area



Tab-Caused Crashes

Case 1. During take-off, an R5C-1 was seen to leave the ground after an unusually short run. The tail was never raised to normal take-off position. After becoming airborne, the aircraft entered a very steep climb, stalled at 200 feet with practically full power being developed, fell off on the left wing, and crashed. Evidence indicated that the pilot had attempted take-off without neutralizing the elevator trim tabs after the last landing.

Case 2. The direction of take-off of a PBM-3 in semi-restricted waters was approximately 35 degrees out of a 15 knot wind and into fairly heavy swells. At the start of the take-off the pilot had his flaps up and his elevator tabs set at 7 degrees "up." Flaps were lowered to 20 degrees when the speed reached 45 knots and then to 30 degrees, at which time the elevator tabs were set to the full "up" position.

Shortly after this, the plane either was prematurely pulled off the water or was bounced into the air by a swell. Whichever the case, the plane could not maintain altitude, owing to its slow speed and high angle of attack. The airplane stalled. The throttles were closed when the nose dropped. The plane hit the water at an angle of approximately 20 degrees and bounced sharply into the air, nose up. Throttles were applied on the bounce, but the full up elevator tab setting made it impossible for the pilot to push the nose forward and prevent another stall.

The airplane stalled and bounced three times, each time to a higher altitude. It crashed from approximately 80 feet, following the third stall.



Grampaw Pettibone says:

The greatest attention must be paid to weight, balance and tab settings of heavy airplanes. As weight and size of airplanes have been increased, the tabs also have had to be enlarged to exert a greater effect. Consequently, tab settings on these large airplanes can create forces, even at low speeds, greater than can be overpowered by the pilot.

Better get tab conscious before you get caught in some such predicament. Tabs are a big help to pilots in counteracting heavy control forces, but they are also a source of great danger if improperly set during take-offs, landings or dives. I know whereof I speak, having practically looped an SOC off the end of a cruiser catapult once when I neglected to correct the large UP tab setting left on after the last landing. The only thing that saved me was the fact that the stick forces in that plane were relatively light.

Don't Commit Suicide

The photograph above shows how an SB2A pilot brought about his own death. Note how, apparently to pre-



vent the ends of the shoulder harness adjusting straps from flapping around, they have been tied together, thus forming a loop across the pilot's chest.

In this case a forced landing was made in a river. The plane sank rapidly. The passenger had time to get out, but the unfortunate pilot had *tied himself in* and sank with the plane. His error is one pilots should not repeat.

GRAMPAW'S SAFETY QUIZ



All aviators should know the answers to these questions. In the air, the penalty for not knowing may prove fatal. If you miss an answer on the ground, penalize yourself by looking up the reference.

1. What type of flying may be engaged in when carrying women members of the armed services?
2. Is it necessary that a competent operator be in the pilot's seat when an aircraft engine is started or is running?
3. While on civil airways, at what altitude should you fly when heading:
a East. b West. c North. d South.
4. What is the correct procedure for turning over cold engines and engines that have not been operated for a period of one hour?
5. On all oxygen familiarization flights in aircraft that do not provide dual controls for instructors, is it necessary that accompanying planes be designated?

Answers on Page 40.

Wheels-Up Landings

Wheels-up landings continue to be a source of frequent crashes in spite of check-off lists and warnings from the tower. One large command went a step further by stationing a signalman at the end of the duty runway. The signalman is required to check the landing gear and give an "R" if the gear is extended. If the gear is not extended he gives a "wave off" which is mandatory to the approaching pilot.

The manpower saved in overhaul and salvage more than justifies stationing a signalman at the end of the runway. The number of wheels-up landings is reported to have been materially reduced. Unfortunately, no record was kept of the total number of planes which were prevented from making destructive wheels-up landings.

It is appropriate that all air activities, where a problem of wheels-up landings exists, should consider the above outlined procedure as a possible solution. Such procedure in no way relieves the pilot from his responsibility, nor does it in any way modify existing instructions regarding use of pyrotechnics during night operations.

Wing Failure

An SB2C-3 pilot (531 hours) was engaged in dive bombing practice. His third dive was very steep. During high "c" recovery, the wing failed at the inboard end of the slat. Both the pilot and radioman were killed in the crash.

The following is quoted from the report of the investigation:

"The pilot had made it a habit to wrap up his plane on coming out of his dives, in order to observe his own drops. In this fatal dive, he was very steep. There is no question that the airplane was subjected to high "c" during pullout, as evidenced by marked wing-tip streamers during the early part of the recovery. The additional stresses imposed on the wing by the addition of hard left rudder and hard left aileron exceeded the ultimate strength of the right wing, with consequent failure."

► *Comment*—The board's opinion is concurred in.

The danger of using ailerons during pullout has been repeatedly stressed in this section. T.N. 72-44 also warns against this practice. Paragraph 9 of T.Q. 101-44 further points out that the light elevator control forces in this airplane make it possible to impose severe stresses during pullouts and strongly recommends that accelerometers be used to acquaint pilots with accelerations encountered in combat maneuvers.

DID YOU KNOW?

Navy Sets Record in Bond Drive

December 1-7 Sales Total \$64,000,000

Breaking all established records for similar campaigns, Navy's Pearl Harbor Day extra war bond sale, 1-7 December, totaled \$62,730,000, according to incomplete tabulations, with the final total expected to exceed \$64,000,000. This total compares with \$47,843,122 for the Independence Day sale last July 4th and \$23,000,000 for the 1943 Pearl Harbor Day sale.

The Third Naval District led the bond parade with its total of \$8,945,057. Other headliners were the Fourteenth Naval District and the Pacific Fleet whose incomplete total was \$6,026,088; Twelfth District, \$5,915,067; Ninth District, \$5,599,755; Fifth District, \$5,501,080; Eighth District, \$5,277,734, and Thirteenth District, \$4,280,179.

The outstanding aeronautics activity, according to the semi-final figures, was NATB Pensacola, with \$1,347,000.

Names of recently conquered or liberated areas in the Pacific war theater spotlighted the over-all report. Naval personnel on Manus Island, for example, bought \$1,039,756 worth of war bonds during the seven-day campaign.

The Pearl Harbor Day total brought the grand total of Navy war bond purchases since October 1941 to approximately \$925,000,000.



TWO NEW RATING BADGES will blossom soon upon the arms of enlisted personnel. A specialty mark for aviation boatswain's mate and one for mailman were adopted by the Navy recently for these new rates.

Navy Officer Wins 1943 Trophy

Capt. de Florez Earns Collier Award

For his work in the development of synthetic training devices, Capt. Luis de Florez, USNR, director of the BuAer Special Devices Division, has been awarded the coveted Robert J. Collier



WALLACE GIVES TROPHY TO CAPT. DE FLOREZ

trophy for 1943. The award for distinguished service to aviation was presented by Vice-President Wallace in the United States Chamber of Commerce auditorium on the anniversary of the Wright Brothers' flight at Kitty Hawk.

The board considered development of synthetic training devices in this category and awarded the 32-year-old trophy to Captain de Florez, "for his contribution to the safe and rapid training of combat pilots and crews."

False Armistice Wildly Hailed

Natives Celebrate Germany's Surrender

BLIMPRON 51—The K-32 flew over a native village one night, and so impressed the inhabitants with all its colored and blinking lights that they believed Germany had surrendered. Seizing this opportunity, the entire village went on a terrific binge that lasted most of the night. Deepest sympathies were extended the following day when the natives awoke to bad hangovers.



FIGHTER DIRECTOR officers plot positions, check incoming information, and send out directions over interphones in this sand-bagged dugout at an advanced Pacific base. All intelligence relating to the area's aerial activities flows in here and all instructions regarding tactics and operations are issued from this clearing house. Depicted here is the nerve center of history-making battles. This is fighting the war from the ground

BEST ANSWERS

Mountain Peaks

Pick the best choice to complete the statements below, then check your answers on page 40.

- The five highest mountains in the Western Hemisphere north of the Panama Canal (10° N. Lat.) are—
 - a—McKinley, St. Elias, Whitney, Rainier, Shasta
 - b—McKinley, Logan, St. Elias, Foraker, King
 - c—McKinley, Orizaba, Navado de Tolica, Popocatapetl, Logan
 - d—McKinley, Logan, Santa Marta, Orizaba, St. Elias
- The mountain that shows the greatest progressive rise from level base to summit is—
 - a—Everest (India-Nepal)
 - b—Mauna Kea (Hawaii)
 - c—McKinley (Alaska)
 - d—Kilimanjaro (Tanganyika)
- The geographic point on the surface of the earth that is farthest from the earth's center is the peak of—
 - a—Mt. Thorvald Nilson in Antarctica (alt. above sea level 15,400 ft.)
 - b—Mt. Everest on the India-Nepal border (alt. above sea level 29,141 ft.)
 - c—Mt. Aconcagua in Argentina (alt. above sea level 22,834 ft.)
 - d—Mt. Chimborazo in Ecuador (alt. above sea level 20,577 ft.)
- The highest peak in the vicinity of the northern Italian border is the summit of—
 - a—Monte Rosa
 - b—Mont Blanc
 - c—The Matterhorn
 - d—The Jungfrau
- The highest spot between Burma and Southeastern China has an approximate elevation of—
 - a—25,000 ft.
 - b—29,000 ft.
 - c—20,000 ft.
 - d—18,000 ft.
- Among the islands of the Pacific, the highest point above sea level is the peak of—
 - a—Mauna Loa (Hawaii)
 - b—Carstensz (New Guinea)
 - c—Fuji (Japan)
 - d—Kinibalu (Borneo)
- The summits of the 10 highest mountains on the North American continent all lie between approximately—
 - a—17,000 and 20,000 ft. above sea level
 - b—19,000 and 22,000 ft. above sea level
 - c—14,000 and 20,000 ft. above sea level
 - d—15,000 and 19,000 ft. above sea level



FOR RESCUE work in the face of Japanese gunfire, five pilots and two aircrewmembers of Kingfishers recently received awards from the commanding officer of a carrier task force. The awards highlight a relatively new role for the slow, lightly armed floatplanes. In a carrier strike it now is common practice to employ a number of Kingfishers solely for rescue. They sometimes operate without a rear seat aircrewman, thus providing additional space for rescued personnel. New Sea Hawks were designed specifically as scouts

Waves Become Flight Orderlies

Specialists Get A Thorough Training

Navy women are making their appearance as NATS flight orderlies on all continental trips, demonstrating again the versatility of the Women's Reserve and its contribution to the war effort. Special courses for WAVE flight orderlies have been in progress some time.

Not long after Bureau of Naval Personnel granted authority to rate enlisted women as Specialist (V), which is the transport air rating, a training program was launched. It included practical instruction in flight control, space control, cargo shed and the Air Transport Office. Also, instructional watches in squadrons based at Patuxent River, Md., gave the candidates practical transport experience prior to their assignment for actual flying duty.

SB2C Crews Practice Ditching

Use A Wrecked Plane For Training

BOMBING SQUADRON SIX—This squadron stresses the vital necessity of training pilot and radioman in speedy ditching with all necessary gear. Each plane crew is required to make at least two emergency practice ditchings in B-6, a wrecked SB2C. B-6 has been equipped with Very's pistol, cartridges, water bottle and first aid kit in pilot's cockpit and life raft and water bottle in rear cockpit. When pilot and radioman in flight gear are in their cockpits with safety belts and shoulder straps locked, a stop watch clocks the time they take

to abandon ship with all specified gear.

It was found that in the rush to get out, some item of equipment frequently was forgotten. But after a few tries the crew usually was able to hit the deck with all required gear in less than 20 seconds. On the first try, time averaged 24 seconds. On the second or third try, time averaged about 18 seconds. Estimated time the SB2C should remain up in an ordinary sea is 50 seconds.

In the case of a deferred forced landing where time permits the crew to secure equipment items before ditching, time required for abandoning the plane would be cut to less than 18 seconds.

This squadron has a standard ditching procedure detailing steps to be taken by a plane crew working as a team in case of a landing at sea. The squadron commander states that practice in B-6 has brought home to air crews practical problems involved in leaving an aircraft in an emergency and that this practice is valuable to squadron training.

► **Comment**—This training in SB2C ditching is recommended. Practice on the ground results not only in increased ability



AIRCREW PRACTICES DITCHING WITH ALL GEAR

to leave the aircraft quickly when need arises but to leave it without forgetting equipment vital to survival.

Pamphlets Get a Lower Rating

Training Books Reduced to Restricted

Seven training pamphlets dealing with fixed gunnery and combat tactics have been reduced in classification from CONFIDENTIAL to RESTRICTED to make them more easily available to all naval aviators.

The change was made after consultation between gunnery training, armament section of BuAer and security officers of DCNO (Air) and BuAer. One pamphlet of the series, on *Combat Air Patrol*, remains CONFIDENTIAL.

Those reduced to RESTRICTED:

- How to Get Hits with the Illuminated Sight*, NavAer 00-80V-27
- Fighter Escort*, NavAer 00-80S-19
- Attack Against Bomber Formations*, NavAer 00-80S-20
- Offensive Tactics Against Fighters*, NavAer 00-80S-15
- Defensive Tactics*, NavAer 00-80S-17
- Gunnery Approaches*, NavAer 00-80V-59
- Snoopers and How to Blast Them*, NavAer 00-80S-18

The Illuminated Sight and Gunnery Approaches pamphlets are used in intermediate training and the others in operational activities. Copies are available from Office of CNO, Training Literature Section, Op-33-J-11.

Motion pictures on the above subjects, with the exception of MN-84i



THESE ARE AMONG PAMPHLETS NOW RESTRICTED

"*Fighter Combat Tactics—Combat Air Patrol*," have been reduced in classification from CONFIDENTIAL to RESTRICTED, as follows:

- MN-84a *Fighter Combat Tactics—The Use of the Illuminated Gun-sight*
 - MN-84b *Fighter Combat Tactics—Gunnery Approaches*
 - MN-84e *Fighter Combat Tactics—Attacks Against Bomber Formations*
 - MN-84f *Fighter Combat Tactics—Offensive Tactics Against Enemy Fighters*
 - MN-84g *Fighter Combat Tactics—Defensive Tactics Against Enemy Fighters*
 - MN-84h *Fighter Combat Tactics — Fighter Escort*
- Two films, already classified as restricted, remain in that category:
- MN-84c *Fighter Combat Tactics — Snoopers and How to Blast Them*
 - MN-84d *Fighter Combat Tactics — Don't Kill Your Friends*
- Films are available at Aviation Film Libraries.

BuAer Has Air Forces Pamphlets

All Army Air Forces publications should be obtained via written request from Manuscript Procurement Section, Publications Branch, BuAer, 2210 E St., NW., Washington, 25, D.C. All other Army publications should be requested through Publications Division, Executive Office of the Secretary, Navy Dept., Washington, 25, D.C.

FLIGHT SAFETY



"KEEP 'EM FLYING" originally was a slogan used to promote production and financing of airplanes. But all personnel working for aviation safety might well adopt it as their slogan, too.

Aircraft Accident Boards and safety officers of Navy squadrons have a special assignment to keep 'em flying. They first investigate a crash and hear the story while it is fresh in mind and, more important, they can first spot a remedy and, by taking action, prevent an accident from happening.

The job of Aircraft Accident Boards is to gather information on what caused each crash and then do something about it. Maybe a design change is indicated. Possibly further flight restrictions on that model are needed. Or it may be a question of spreading the word, information already in the pilots' handbook but unread by most of the fliers in the squadron.



► Aviation Circular Letter No. 48-44, the "Bible" for units preparing aircraft accident reports, established new procedures to provide more and better information on each crash. In addition to the report sent to BuAer, immediate superior in command, and other pertinent commands, use of a work sheet and a medical officer's report was inaugurated to aid the boards.

The work sheet gives the three members of the squadron's Aircraft Accident Board a guide on which to make rough notes before filling in the formal report. The medical officer's report supplies technical information on injuries and psychological aspects involved in the accident.

Enclosures to this circular letter give details on how to make out the AAR.



► After nearly every crash, one may hear some self-styled expert on aviation safety, either smugly or glumly, blaming it on "Pilot Error." It contributes little information if the difficulty is assigned 100 per cent to the general classification of pilot error, then dismissed. It will help if this information is broken down into the wide range of fields contributing to the pilot's errors. Listed in the Aviation Circular Letter cited above are, for example: POOR JUDGMENT, FAULTY TECHNIQUE, DISOBEDIENCE OF ORDERS, CARELESSNESS OR NEGLIGENCE, POOR REACTION, OR DISEASE.

While fewer and fewer accidents will be ascribed to mechanical failures as improvements are incorporated into airplanes, these same aircraft usually are more complicated to fly. They are faster, more powerful and can fly longer distances under less favorable conditions. Thus, an average pilot who can handle a training plane may be unable to cope with faster and heavier combat aircraft.

The Navy is seeking to screen out unsatisfactory fliers, but additional general information is helpful in completing the picture. Painstaking filling-in of the AAR is one way of helping fill gaps in available information.

If the trouble is solely with a material failure, an RUDM is used. The RUDM facilitates reporting of material difficulties and of recommendations for remedying them. The report is not used for reporting damaged material unless the trouble was caused by defects or unsatisfactory conditions in the material itself. Any commissioned officer in a command may be designated as the investigating officer and he makes a report on each difficulty.



► Aviation Circular Letter No. 50-44, which directed establishment of Flight Safety Boards for training and operational commands, also ordered that each squadron appoint its own safety officer. Many squadron commanders have named their aviation equipment officers because of their special knowledge in this allied field. To perform the assignment successfully, this officer must know procedures and equipment that safeguard his squadron mates.

SINCE safety is vital to efficient operation of any squadron, a well-informed safety officer can contribute immeasurably to its performance record. By supervising periodic inspections of his own squadron, he may be able to insure that action is taken before, rather than after, an accident happens. His activities can be extended to general safety precautions and to insuring correct operational practices, including clearance, control tower techniques, air discipline and briefing of pilots. He should conduct such inquiries, however, so that he contributes to the safety program and does not assume the role of a snooper.

THIS IS THE FOURTH IN A SERIES OF REPORTS ON WHAT THE NAVY IS DOING IN AVIATION SAFETY.



MURAL MAP DEPICTS VEGETATION AREAS AT MUSEUM. EXHIBIT BEGINS WITH DITCHING AND TAKES VISITOR THROUGH ORDEAL OF SURVIVAL

SURVIVAL MUSEUM

THE Survival Museum at Pensacola was designed to disseminate rescue and survival information to naval personnel. To tell an aviator how to survive is one thing, to show him, another.

This museum contains six rooms and offers graphic answers to progressive problems of the plane-wrecked aviator. The parachute room is built around a descending chute from which a suspended mannequin shows control in relation to direction and rate of descent.

One of the largest and most complete

displays is the "Afloat" room. Pilot and crew are depicted as being adrift in rubber life rafts, aboard which they have employed the complete survival kits which are a part of the equipment of all aviators.

Birds that are to be found at varying distances from shore are overhead, and in the ceiling, pin point lights depict constellations of stars that can be used as navigational fixes. A small aquarium built into one side of the wall of the exhibit room contains poisonous and edible fish that the men will be able to catch. Life in the middle of the unknown becomes relatively simple.

Polar Room Portrays Arctic Survival

In the Polar room, a cave is built into a simulated snow bank. The occupant demonstrates best use of available clothing and parachute silk for the greatest possible protection. On the plateau of snow is built a spruce lean-to, and over the camp fire a large polar

rabbit and birds of the region are being cooked. Proper use of snow shoes is indicated by a mannequin whose footprints reveal that prior to his donning his snow shoes, he was hopelessly stranded in the snow. Modernistic architecture has been used through the exposition, and in this way, startling realism is achieved in all of the six museum exhibit rooms.

SoPac Previewed In The Tropical Room

The tropical room is a large greenhouse containing vegetation and trees of the tropics. Bamboo lean-to, bough shelters and a parachute silk tent offer protection from tropical weather. Parasite plants whose leaves hold as much as a pint of drinkable water, tropical fruits, and certain grass shoots indicate to what extent man is able to live off the land. A model camp has been built outside the building and it was constructed entirely from material men could salvage from a plane or jungle.



When crew members hit the silk, they must know the proper procedures for a safe landing. In the Parachute Room, a mannequin demonstrates how control can be exerted and the results to be gained. Airmen consider this a "must" on their tour of the museum



The Afloat Room explains the watery phase of survival. A one-man life raft and mannequin illustrates survival pack use, while exhibits around the wall display the water purification apparatus. Graphic examples prove valuable to Pensacola's future airmen



Future combat crews scheduled for the South Pacific learn many survival hints in the Tropical Room. A thatched lean-to illustrates varied uses of bamboo and coconuts, and men are taught how to exist by living off the land. Exhibit is proving popular



Student pilots become familiar with all types of Arctic equipment in case of a forced landing in some polar region. The pine bough lean-to and mannequin demonstrate true circumstance and methods of surviving. This exhibit occupies one room in museum



A model camp built outside the museum shows what can be done with material salvaged from crashed plane and jungle. An improvised foxhole, shower bath, cook stove, mess table, benches, and food cooler help to provide many of the comforts of home



Survival includes more than battling elements, and many lives can be saved by the proper administration of blood plasma. This demonstration is given to visitors of the survival museum, and its importance stressed to prospective combat pilots and crewmen

A leaf from the book . . . COLOR ABOARD A CARRIER



THE AIR OFFICER SAYS:

MANY people often ask why it is necessary for flight deck personnel on an aircraft carrier to be dressed up like a circus band in red jerseys, yellow jerseys, green helmets, etc. Long years of experience have shown us that this standard color identification system, which is identical on all carriers in our Navy, serves a very necessary purpose. It may be compared with two first-rate football teams wearing bright colors and large numbers so that the numbers can pick out their team mates instantly, and, more important, so that the coach on the side lines can spot who is doing what.

A carrier flight deck in action is something like three or four football games going on simultaneously on the same field. The plays in use are planned and timed to be completed in split seconds. If we did not have a quick and ready means of identifying our key men and special groups, we could not begin to attain the speed and efficiency which carrier operations require.

Another important factor is the frequent change of pilots, squadrons, and air groups between carriers. In the operations now in progress covering the invasion of the Philippines, it might be necessary today for us to land, service and take off a large group of planes from another carrier. The pilots of such a group should be able to do this with ease, since they can instantly and instinctively recognize the same familiar dispatcher with his checkered flag, the flight deck officer with his title stamped on his yellow shirt, the plane captain in his brown jersey and helmet,—and guide their actions accordingly.

Since we must be constantly prepared to receive strange pilots on board at any moment, all hands on the flight deck who are designated to do so must be scrupulous in wearing the correct identifying clothing at all times. It follows naturally that personnel not in the flight deck crew should not wear such uniforms, since it would compromise the success of the whole system.

It's a pretty good bet that the most efficient flight decks in the fleet are those which are ready at any instant to have Metro-Goldwyn-Mayer and the March of Time land aboard to make colored movies showing exactly how the most efficient flight deck in the fleet should be run.

From *U.S.S. Manila Bay*

SQUADRON NOTES

Three Squadrons Are Cited. Three Navy patrol squadrons operating long range *Liberators* have been awarded the Presidential Unit citation for outstanding performance in search missions and anti-shipping attacks in the Bismarck Sea area from September 15, 1943, until February 1, 1944. The three squadrons, VPB-11, VPB-34 and VPB-52 operated on the sea route between New Ireland and New Britain islands attacking Jap shipping so effectively that the enemy was prevented from reinforcing his important bases. In addition to unit citations for the squadrons, their commanding officers received individual decorations.

Earned 110 Decorations. Pilots and aircrewmembers of Air Group 31 who returned lately from eight months in the Pacific war theater, earned 110 decorations for action in 18 campaigns and operations during their tour of duty. The group destroyed 148 Jap planes in the air and sank 48,000 tons of enemy shipping. Of three high scoring fighter pilots who paced the hard-hitting squadron, one alone is credited with 15 confirmed kills, winning the Navy Cross, Distinguished Flying Cross, Air Medal and Purple Heart.

Corsairs Claim Shortest Strike. An air strike by 20 *Corsairs* of a Marine squadron at Peleliu is believed to be one of the shortest in aviation history.

The planes took off at dawn in a blinding rainstorm with 1000 lb. bombs and dropped them on enemy-held caves, some only 1400 yards from the runway.

Sinks Jap With Guns. Undaunted by the fact that his bombs failed to sink a Jap merchantman not long ago, the pilot of a Navy *Helldiver* swooped back to the attack and sank the 4,000 ton freighter with his machineguns and 20 mm. cannon. The Jap was steaming along 135 miles northwest of Chichi Jima when sighted by a pair of Navy planes. When the bombs fell short the Navy pilots began strafing the freighter. The ship suddenly exploded with a terrific blast which caught the *Helldiver* in a column of smoke and debris. Returning aboard his carrier he found two, four-foot gashes in a wing of the plane and a two-foot slit in the gas tank.

Pilots Become Mechanics. In a turn-about procedure rare in Pacific aviation, Marine *Corsair* pilots of a fighter squadron now operating from Peleliu's former Jap airstrip served as their own mechanics and ground crewmen for several weeks prior to the beginning of the operation against the Palau group.

In anticipation of an early conquest of the important airstrip permitting immediate base for fighter aircraft, pilots of the "Death-Dealers" were schooled to perform their own maintenance with the aid of a

skeleton crew of technicians. Ground crews were thus able to make the trip from a rear base by troop transports. When the squadron, first *Corsair* group to land on the island, brought the planes to a stop on the airstrip, flight crews immediately began the work of preparing them for bombing and strafing strikes against the island caves.

Less than 24 hours after they arrived, the *Corsairs* began bombing and strafing runs in support of the landings on nearby Ngesebus and Babelthuap Islands.

Odds Meant Nothing. Although more than 30 *Zeros* were approaching, the odds meant nothing to eight Grumman *Hellcats* of Air Group 32 during an encounter in the Pacific not long ago. The carrier-based *Hellcats* went about their work in a business-like fashion and when they had finished, 21 *Zeros* were down without a single American casualty. Now home for a rest period, the air group holds a score of 109 enemy planes destroyed, 51 enemy vessels damaged and 28 ships sunk.

Kingfisher Survives Odds. Out-gunned and out-numbered, a Navy *Kingfisher* observation plane not only survived an attack by three Jap *Zeros* over Iwo Jima but returned to its mother ship after shooting down one of the enemy. Because it is designed for observation rather than combat, the OS2U is comparatively slow and lightly armed while the *Zeros* carry heavy armament, are fast and highly maneuverable. The *Kingfisher* was directing naval gunfire on the island when attacked. As one made a stern approach the OS2U gunner fired a perfect burst into its engine, apparently killing the pilot, since the *Zero* roared straight at the *Kingfisher*, shearing off a tip of the starboard wing as it plunged on down to the sea. Fighting off the two remaining *Zeros*, the *Kingfisher* returned to its cruiser.

Mistaken for a Jap. His ability as a thespian may have saved the pilot of a Grumman *Avenger* torpedo bomber who was shot down not long ago near a Jap-held island in the Pacific. Forty-five minutes after he had bailed out, two Jap pilots spotted him and one came over at 30 feet wagging his wings. The Navy pilot began waving at the Jap and smiled his toothiest grin. "I must have looked like the real Japanese McCoy," said the pilot, "because a Nip torpedo bomber came back in 20 minutes

dropping me a life raft and a bag of brown slick." Shortly afterward a Jap small boat put out from the enemy-held island to rescue the TBF pilot, but a wave of American planes happened to arrive, scaring the would-be rescuer back to shore. Four hours later two Navy fighters sighted him and he was taken aboard an American cruiser still in good condition except for sunburn and minor lacerations.

Truck Spoils a Record. One truck which ventured across a runway at Tarawa at the wrong time spoiled an almost unparalleled record for VB-108. Aside from this mishap the squadron had put in a year of continuous flying without a single operational accident. By gunning his motors and partially hopping over the truck, the pilot avoided fatalities and minimized damage to his plane. First *Liberator* search plane squadron to enter the Marshall-Gilbert campaign, VB-108 also was first PB4Y outfit to initiate bombing from tree-top and masthead height. In 12,000 hours of flying, VB-108 sank 20 and damaged 22 Jap ships, shot down 25 Nip planes, damaged 13 more, and completed 65 bombing and 40 strafing missions.

Not a Cancellation. One of the Navy's big boat squadrons, VPB-202, has returned home for a rest after an eventful 10 months' tour of the Pacific during which 800 individual missions were flown without a cancellation. It was the first Navy *Mariner* squadron to operate in Pacific combat, and its Pacific itinerary, which covered more than a million miles of flight, reads like a check list on our invasion of Japanese-held territory.

Squadron Rescues 58. During the last three months of its tour on rescue operations, one PBV squadron made 24 open-sea landings, rescuing 58 officers and men. The majority of those rescued were Army airmen, shot or forced down during bombing raids on such targets as Truk, Yap, Kavieng, Rabaul and Bougainville. Having finished its Dumbo duty, the squadron has taken the offensive with other PBV squadrons attached to Commander Aircraft, Seventh Fleet, and is making night strikes on Jap shipping deep in enemy territory.

Tokyo Rose Sinks Them. On two different occasions during their 10 months of dishing it out to Japs in the Pacific, members of the Navy's Composite Squadron 66 heard themselves "sunk" by Radio Tokyo. Both attacks on which Tokyo Rose received her "bum steer" were from enemy submarines and in both cases squadron members watched the torpedoes go past their carrier. The squadron recently returned home for a rest after participating in 43 bombing and strafing attacks on Jap positions in the Marshalls and islands of the broad Pacific.



A & R Shops
LET NANNEWS
HEAR FROM YOU!



ALL OF THESE 600 BULKY BLUEPRINTS ARE COPIED ON ONE ROLL OF MICROFILM. COMPLETE SET OF PLANE PLANS GOES INTO ONE FILING CASE

MICROFILM UNIT

LATECOMER in the photographic field is microfilming as the process is now used in wartime aviation. This mighty midget of the V-mails is proving an ally indeed to the Navy, saving tons of space in shipping, speeding tremendously the distribution of vital information and of engineering plans and stepping up the repair of aircraft overseas at a saving in cost and time.

Although not the only microfilm unit in the Navy, the one operated by BuAer's Maintenance Division, Aircraft Maintenance Group, Overhaul Branch, is of chief interest to naval facilities concerned with the repair and maintenance of naval aircraft.

Midget Film Rushes Plane Plans to Fleet

This drawing and microfilm section was created in May 1943 to meet the need for a rapid and facile means of disseminating vital engineering information to the field.

Prior to that time the Navy had to rely upon the old blueprint method but this did not fill the bill. Blueprints were slow to produce in large quantity and frequently new plane models were in combat before facilities for their repair had been furnished engineering plans.

In Postage Stamp Size, All Engineering Plans Speed Out To Activities In Record Time

Thanks to microfilm, complete plans get there now ahead of the planes, going out by airmail all over the world to naval aviation repair facilities.

BuAer's microfilm section maintains four two-man teams of photographers in the field working at aircraft factories holding Navy contracts. As fast as plans are available, these are microfilmed and the master negative rushed back to the Washington laboratories.

After master film has been processed and checked for error, it goes to the Photo Science Laboratory at NAS Anacostia. Here skilled technicians with the best in laboratory equipment make scores of positive copies.

The positive copies are returned to the laboratory for sorting into sets and are placed in special cases for shipment. In short order the plans go out by air to overseas as well as continental repair activities. This section is supplying 465

Naval, Marine and Coast Guard repair maintenance and supply activities with microfilmed engineering plans and now is starting a monthly supplemental service covering all changes in plans, which will keep the service up to date.

Since the section opened, it has made microfilm copies of 38,718,534 separate engineering drawings exclusive of strip films also produced by this unit. The saving in space might be realized when it is considered that blueprints on the 9,000 drawings for an F4U-1 would fill an ordinary kitchen while microfilm for the same drawings would fill only the breadbox.

Strip film covering all BuAer bulletins, airplane service changes, technical orders and the like is sent out to 400 different activities within 24 hours of issuance by the Bureau.

Microfilm Will Make A Photo Enlargement

Not all activities are using the film to make duplicate photo enlargements of the drawings for distribution to their repair personnel. A request to Chief of BuAer will bring to any aviation repair activity a special enlarger for making such copies. The section already has supplied 58 such enlargers in addition to 887 projectors and 163 readers. For that matter, any Navy photo laboratory can make enlargements with the standard type equipment. Enlargements frequently are an aid in repair of planes.



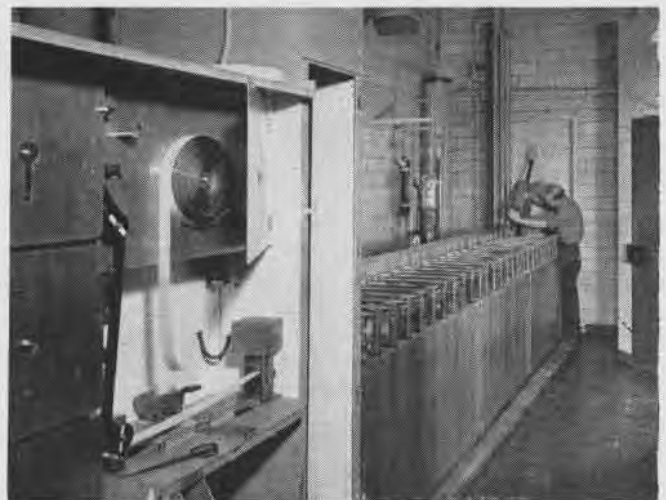
Although blueprints require 200 times as much space as microfilm, emphasis does not lie on this saving because without midget film such plans in most cases simply could not go out to all Navy air repair activities. Microfilming plans on one plane saved \$23,000



With readers such as this, checking the microfilmed plans is not at all difficult. From its reel the long roll of film can be fed through the viewing machine which projects image of the film on the glass. Operators check reels against list of airplane parts



Special enlargers for making prints of microfilmed plans have a reel device which facilitates handling the many feet of film. A transparent type of paper can be secured and, with it, activities can produce any number of extra copies by the blueprint method



By nearly automatic process, hundreds of positive copies of the master negative are made here at Anacostia. Belt-like, the copies run from case at left through tanks that develop, fix and wash them. Going through wall into drying room, copies come out dried



Strip film of all new service changes, technical orders and like data is cut up and placed in glassine envelope for mailing. Night crew copies new orders, rushes negative to Anacostia for multiple copies and in 24 hours has film on way by air to the activities



Special cases containing complete plans for a plane are carried by NATS. Cases are retained by activity, forming permanent filing cabinet. A new monthly service will keep the plans up to date on all important airplanes, combat and tactical, in use by the Navy

PUBLICATIONS

For every page in that mountainous *Erection and Maintenance Manual* there's a headache—in the possession of some editor, engineer, or proofreader who helped make that manual. To prove it, an outline is given—but briefly—of steps required to produce that *Repair Manual* or *Handbook of Service Instructions*.

The contractor's handbook supervisor is responsible for turning a contract and a specification into a handbook. He starts effecting this miracle by assigning a writer the job of preparing a preliminary illustration list and outline.

Handbook Shuttles Through Many Hands

This list and outline (products of much thought and concentrated study of changes and miscellaneous data on equipment covered by the handbook) then are returned to the handbook supervisor, where both are reviewed. The illustration list is turned over to an illustration coordination department, which works under a group supervisor and assists the writer in determining how many and how large the illustrations are to be.

After he has decided that the outline is complete and that it adheres closely to that bully, the specification, the handbook supervisor has it approved by the Navy representatives (who visit the plant regularly to assist him in preparing this manual right the first time).

Copies of the skeleton publication then go to 1 an editor who watches carefully to see that it is followed, and 2 another writer, who makes a rough draft from it.

Technical Expert Checks Its Accuracy

When the rough draft is ready, it is sent to an editor who knows his nuts and bolts. He checks it for technical accuracy and shoots it to (yet another!) writer for incorporation of his corrections. Then back it goes to the editor for checking against the outline and for removal of "ain'ts."

At this point the supervisor pops in again, makes this pronouncement, and sends our now-almost-presentable rough draft to the proper desks for okays of all types. Then the proofreader takes over with his blue pencil.

While all this is going on, the illustration supervisor (assistant to the handbook supervisor) and his coordinators are sorting and selecting pictures (photographs and drawings which have been made of the equipment), adding

key numbers, and writing titles. After final selections are made and keyed, the photo lab man makes reproductions of the original artwork.

Printer Finally Gets His Hands On It

These reproductions then go, with the rough draft, to the layout desk. After coordination there, the whole business is sent to the printer. Then a succession of proofs are shuttled around among writers, layout desk, editors, readers, and printer—ending in a manuscript of reproducible pages, which are presented (again via the handbook supervisor) to the Navy unit involved.

The manuscript then is pronounced A-N. A copy of the rough draft goes in the handbook files, the artwork in the illustration files, the manuscript (after printing, which takes perhaps 30 additional days) in the Bureau files—and the *Handbook* is then distributed.

SHOW ME THE WAY TO GO HOME



Radio Fix

At 1045 depart from Par-tackey, Lat. 46° 33' S, Long. 58° 49' W, for the U.S.S. *Stevens* located at Lat. 49° 17' S, Long. 63° 24' W. TAS 136 k. Wind 21 k from 203°.

1. What is *cus*? _____
2. What is *distance*? _____
3. What is *TH*? _____
4. What is *GS*? _____

At 1124 a relative bearing of 295.4° is taken on the Falkland Islands, Lat. 49° 31' S, Long. 58° 30' W.

At 1132 a relative bearing of 053.3° is taken on Point Gaffney, Lat. 47° 13' S, Long. 163° 18' W.

5. What is 1130 fix? Lat. _____
Long. _____
From _____
Force _____

(Answers on page 40)

TOKYO TALKS

TO JAPAN

Smokers now may buy seven cigarettes a day instead of six. The Japanese Ministry also ordered an increase in the price of all liquors made from grain, grapes and sweet potatoes. The latter was due to rise in price of various basic materials and increase in freight charges.

TO THE UNITED STATES

Three separate groups of Japanese government leaders—the cabinet, Diet leaders and the "Liaison Council to cope with air raid disasters"—recently discussed damages caused by B-29 raids on Tokyo, and measures for strengthening the capital's air-defense system.

TO OCCUPIED MANCHURIA

Japanese authorities have launched a campaign in all cities to abolish use of discardable chopsticks as a direct aid to wooden ship building.

TO CHINA

Americans prefer to "rely on the sacrifices of other peoples" and have to be "lured into buying war bonds. What a huge difference there is between the people of the United States and the people of Japan. In the former country, nobody wants to buy war bonds, while the people of Japan all voluntarily rush out to display their share of patriotism."

TO THE UNITED STATES

The 86th extraordinary session of the Japanese Diet convened December 24. Legislators were prepared to work rapidly to escape the possibility of undergoing air raids. Full precautions, however, had been taken to enable the Diet to get through its business regardless of whatever situation might arise from intensified enemy air raids.

TO SOUTH AMERICA

In the city of Tokonawa, near Tokyo, all jobs at the railway station are now filled by girls 15 to 21 years of age. The girls not only sell tickets, but also handle baggage and perform all of the other tasks in connection with the operation of the station. They have achieved such excellent results that they recently have been given a labor service award.

TO THE UNITED STATES

American propagandists are badly mistaken and merely indulging in wishful thinking, if they think that the Tokyo people have been thrown into a panicky state by American bomber raids.

TO JAPAN

Fifty thousand cherry trees on the Sanrizuka stock farm of the Imperial Household department in Chiba prefecture, near Tokyo, will be cut down and turned into charcoal. To provide transport for badly needed fuel for Japan's factories and homes, the government has decided to mobilize secondary school students to move firewood and charcoal in hand-carts by relay to consumption points.

25 YEARS AGO THIS MONTH

Naval Aviation in January 1920



BILLY MITCHELL

January — Brig. Gen. Billy Mitchell, Army Air Service, made the prediction that artillery soon would be mounted on and fired from American aeroplanes. "Many persons believe aeroplanes cannot stand

the strain caused by the firing of cannons mounted on them, but I believe the plan is perfectly feasible and that artillery will be effectively utilized on aeroplanes in the next war." General Mitchell also predicted a new use of parachutes in the art of warfare. Men, armed with machine guns, would be dropped from aeroplanes into enemy territory with demoralizing effect.

January 3—The U.S.S. *Shawmut* reported that wing surfaces on the F-5-L flying boats were not likely to last for the six months contemplated stay at Guantanamo Bay. Arrangements were made to have seven sets of surfaces shipped express to the *Shawmut*.

January 5—It was suggested that a battery of three-inch guns be established at NAS San Diego for instruction in antiaircraft defense and in spotting from aircraft.

January 8—The Chicago Aeronautical Show, organized by the Manufacturers Aircraft Association, opened in the Coliseum January 8 and ran through January 15. This was the first post-war

opportunity to study recent achievements in aviation. Included in the Navy exhibition was an F-5-L flying boat, M-2 baby seaplane (to have been used for submarine patrol work), and a model dirigible inflated with helium. Eddie Rickenbacker's famed Spad also was on display.

January 9—Satisfactory bids were received for construction of the Marine flying field at Parris Island. Awards on bids were to be made immediately.

January 10—An observation flight by the Aerial Fish Patrol was reported at NAS San Diego. Three small schools of sardines were located in the cove off La Jolla. Position was radioed immediately to the office of Fish & Game Commissioner. Within five minutes approximately twenty fishing industries were notified.

January 12—Japan welcomed the American Commission who arrived to organize the First Aerial Derby Around the World. Japanese officials heralded the derby as an important factor in promoting peace. Viscount Kaneko, His Majesty's Privy Counselor, said: "The commission is sowing the seed of international friendship upon the entire world, and you are doing a noble, wonderful and magnanimous work."

January 12 — Interest of fliers in Washington was centered on a new type of plane at NAS Anacostia. This miniature monoplane, called the *Loening Kitten*, had a wing spread of 10 feet and length of eight feet over all. It was supplied with a three-cylinder Anzani

motor of 45 horsepower. The plane was being prepared for tests under conditions simulating taking off from the gun platform of a ship.

January 14—A motion picture cameraman was ordered to the Navy Yard, Philadelphia, to record pictorially details of the NC-3 construction.

January 24 — The Aeromarine Company wanted to secure planes of the H-16 or F-5-L type for conversion into passenger carrying machines. They sought to make arrangements with the Navy for the purchase of such planes.

January 30—The National Advisory Committee for Aeronautics met to discuss the subject of aviation and aviation legislation. The following resolutions were adopted:

1. The Army and Navy should each have their independent service.
2. A body should be created to control civil aviation.

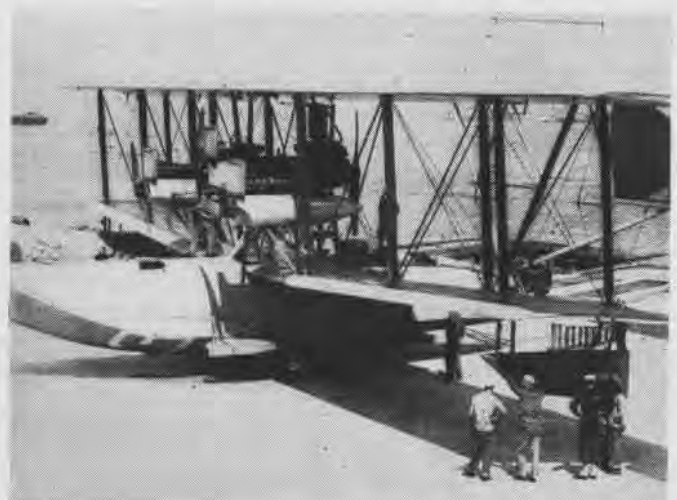
January 31—Pathe Weekly requested permission to photograph construction of the model airship shed to be built at NAS Lakehurst.

January 31—During the next sealing season an attempt was to be made to use Navy airplanes on the coast of Newfoundland and Eastern Canada to locate seal herds. The undertaking was considered feasible and profitable.

January 31 — The Bureau of Steam Engineering received pictures of Dr. Alexander Graham Bell's hydro-plane known as the HD-4. This boat was equipped with two power plants, each one identical with that installed on the heavy HS-1 type of flying boat.



Lower right wing of an F-5-L flying boat shows mold and rot caused by water and long service during maneuvers at Guantanamo



After NC-4 flight, infant aviation claimed equally young movies' interest. Above is picture of NC-3 in last stages of construction



FOUR STRIKES AGAINST THEM

THE SECOND pilot in the picture who is just stepping on to the flight deck (cover, *Naval Aviation News*, 1 December 1944) is about to climb into his plane with three strikes against him, and a third with one.

THE safety-conscious officer-in-charge of the parachute experimental unit, whose men make on the average of 100 parachute jumps a month at NAS, Lakehurst, called the first strike. He said:

① Attention is invited to the parachute harness of the pilot at the top of ladder. It is to be hoped that this pilot did not hook up his QAS (quick attachable seat) with the webbing underneath the back strap as in the attached picture. Results of a bailout are not pleasant to consider.

BuAer noted two additional discrep-

ancies indicating both pilot carelessness and negligence on the part of the parachute rigger. BuAer comment:

“Here the camera has caught a real situation showing pilots scrambling up the ladder to man their planes for an actual combat mission. No better illustration of the most common errors in the adjustment of parachute harness could be provided. In addition to the pertinent comment of the OinC, parachute experimental unit, attention is directed to these discrepancies:

② 1. The absence of connector webs at the shoulder is noted on the harness of all of the three pilots mounting the ladder. Army-Navy harness should be equipped with a webbing between the shoulder straps

at the back of the neck in order to hold the harness in position. This installation is covered in T.O. 34-44.

③ 2. Leg straps of the pilot No. 2 are not evenly adjusted. (Note correctly adjusted leg straps of the first pilot striding across the deck with chartboard.) Disregard of leg strap adjustment injures the jumper.

④ Another BuAer comment is: “Technical Note No. 55-44 indicates the desirability of a back strap on life vests conforming to specification AM-V-18 to prevent the vest from slipping over the head of the wearer while making an emergency jump or while in the water. Pilots No. 2 and 3 do not have such straps installed.

TECHNICALLY SPEAKING

Tool Speeds Bushing Insertion

CASU 1—Spark plug bushings can be inserted without removing the cylinder from the engine through use of a tool designed by a chief aviation machinist mate attached to this activity.

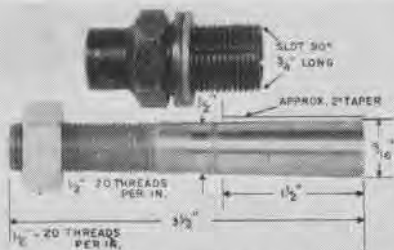
Use of the tool by this unit has resulted in great savings of time and labor. It consists of a C-34-S spark plug with the center core removed and drilled to $\frac{1}{8}$ " inside diameter. The threaded part of the plug is slotted at 90° angles for expansion. A tapered pin and nut completes the assembly.

In actual use the tool is screwed into an oversize bushing and the nut tightened to expand the plug within the bushing. The threads are coated with a mixture of litharge and glycerin.

With a regular spark plug wrench, the bushing is screwed into the cylinder head. It may be necessary to tighten the nut two or three times during the operation. To remove the tool, the nut is loosened, the pin tapped lightly to release pressure inside the bushing and extracted with a spark plug wrench.

[DESIGNED BY WILLIAM P. HARTLEY ACMM]

► **BuAer Comment**—This is a good idea, provided the cylinder head is heated to 205° around the spark plug hole and the bushing chilled. After the cylinder has cooled to room temperature, the bushing should be tested for tightening, using a discarded spark plug, to 600" lbs. torque. The bushing is to be inverted to the proper depth and the cylinder blown out with high pressure air to remove any chip that



TOOL HELPS WITH INSERTION OF SPARK PLUG

may have fallen into the cylinder. See Pratt & Whitney R-2800 Engine Bulletin #70 and supplement #1, dated 20 Sept. 1943. The subject of this bulletin is *Spark Plug Bushings, Field Installation of*.

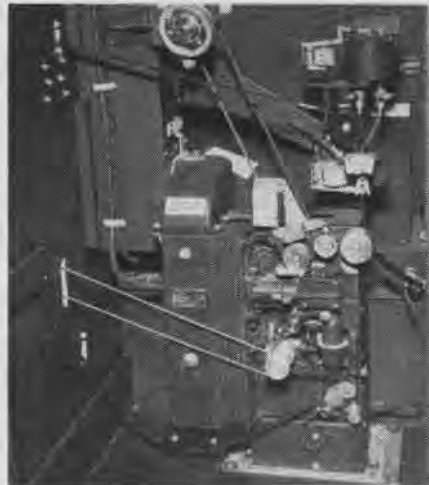
Pratt & Whitney A 1593-1 is similar to the idea submitted. One advantage of the CASU-1 design over the PWA 1593-1 is that it can be made locally owing to simplicity of construction. A disadvantage of the Hartley design is that it may

slip owing to the straight bore of the spark plug, since the tapered pin applies expanding forces over a relatively small area in comparison with that of the PWA 1593-1.

Unit Doubles Projector Capacity

FLEET AIRSHIPS, ATLANTIC—A conversion unit for the cabinet projector trainer, Device 3-C-23d, developed by this activity, permits showing 2,000 ft. of film without affecting the continuous rewind mechanism that normally limits a projector's capacity to 1,000 ft. films.

An extended pulley was attached to the take-up sprocket. Reel arms were attached to rear of the cabinet in which two slots were cut and film passed



FILM PASSES THROUGH SLOTS IN CUT CABINET

through two guide rollers attached to each slot. A spring belt was extended from the take-up sprocket to the rewind reel. All the parts were made in the machine shop except Victor reel arms.

► **BuAer Comment**—This is a good idea where increased capacity is desired.

Shoulder Harness Is Stronger

Rated strength of type viii webbing (Spec. AN-JJ-W-151) now used in shoulder harness is 2900 pounds, representing an increased strength of 1100 pounds over type vi webbing previously used in the standard harness,



NAF 1201-3 supplied by the Bureau.

Apparently some activities fabricating harness locally are unaware of this change, and are continuing to manufacture harness using weaker-type webbing. The change was made by BuAer because of reports of shoulder harness breaking in crash landing. It is imperative that activities making harness use the stronger type viii webbing which can easily be identified by the black thread sewn along the center.

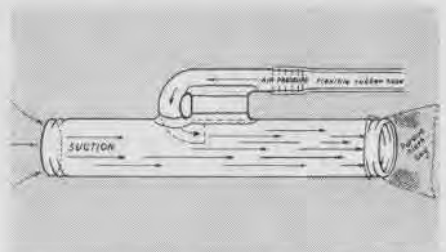
► In situations where harness already installed in aircraft is made of type vi webbing, it is recommended that it be replaced by new harness made of type viii webbing whenever available and replaced harness salvaged in accordance with Aviation Circular Letter No. 41-44.

► In field activities where type viii webbing and facilities for making harness are available the conversion can be made by using the same hardware.

► All harness currently being procured by BuAer is constructed of type viii webbing. The change was put in effect with the promulgation of alteration 3 of NAF Standard Sheet 1201, dated 9 October 1944 which refers to alternation 3 of NAF Drawing 69753 for manufacturing details.

Cleaner Works In Tight Spots

NAS PEARL HARBOR—A civilian employee in A&R shop at this station has designed a small, inexpensive vacuum cleaner for removing such refuse as drill shavings, rivets, rivet heads, small



VACUUM CLEANER IS EASY AND CHEAP TO MAKE

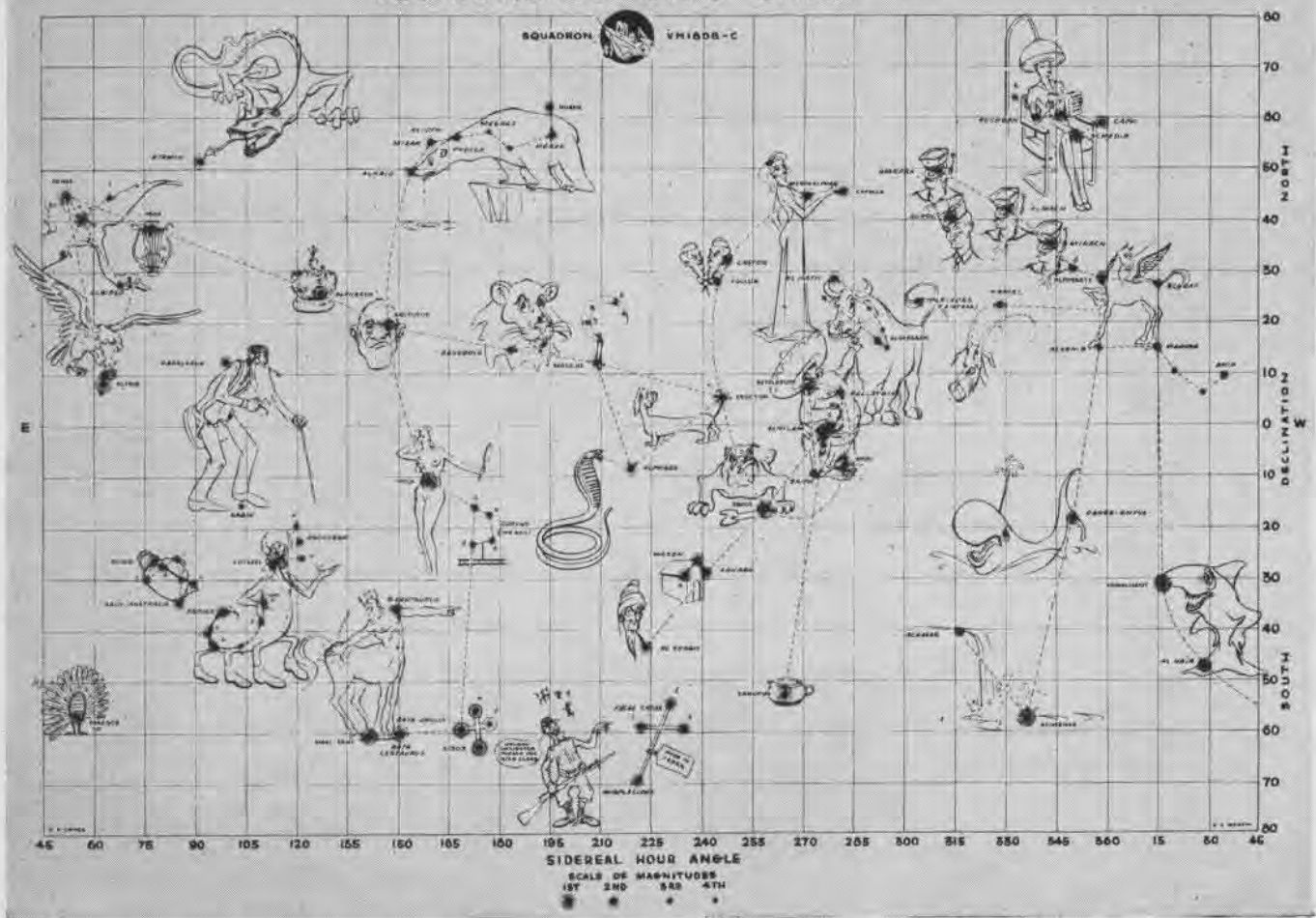
screws and even steel nuts from the interior of wings and small assemblies.

Suitable surveyed acetylene or oxygen hose can be used for the air line. This makes a limber and small connection useful in close quarters. The cleaner has helped to produce better work while saving considerable time.

[DESIGNED BY WARREN E. LIVINGSTON]

► **BuAer Comment**—A useful tool that can be made easily in any A&R department.

NAVIGATIONAL STAR CHART



NAVY STAR-GAZING has been streamlined to fit the trend of the times. Cadets in twin-engine celestial navigation who are in training at NATB Corpus Christi now learn the names and locations of stars with this modernized navigational star chart developed by several Squadron VN18DS-C navigators

The results have been both stimulating and edifying as the new chart gives pilots and cadets a complete picture of the heavens and all the navigational stars. Students say they will be a long time forgetting such heavenly bodies as Spica and Antares, Menkalinan and the Ach Ach boys, Mirach, Almach and Marfak

BuAer Suggests Parachute List



The parachute is a very delicate piece of equipment performing a tough role in naval aviation. It is often ungently handled; it is sat upon for hours at a time; it is exposed to extremes of temperature and to varying moisture conditions. In operation it is expected to perform and does perform under conditions of violent stress with incredible reliability.

Such performance is no accident. It is the result of much care and much careful inspection and devotion to detail. It is traditional of a parachute rigger that he will stand by any parachute that he packed or repacked, and he will jump with it if necessary.

To facilitate and insure detailed pre-flight inspection of parachutes, BuAer recommends that such a form as is set forth on this page be prepared by each squadron for the benefit of the para-

chute rigger. Inspection of an individual chute can be accomplished in a matter of 20 or 30 seconds by any qualified parachute rigger.

PARACHUTE ISSUE CHECK-OFF

Chute No. _____ Date _____
Pilot or Crewman _____ Time _____

- 1.—Exterior of pack checked for visible defects, deterioration, oil or acid stains.
- 2.—Safety thread securing rip cord in place and tied.
- 3.—Rip cord ring checked to insure that it is properly and securely placed in pocket.
- 4.—Corner flaps of pack in place and completely enclosing silk.
- 5.—Opening elastics are taut and firmly secured to the eyes.

- 6.—Paracraft secured according to directions in Technical Notes and Orders.
- 7.—On the ss and gas the lift webs are tacked outside the back straps.
- 8.—On the ss and gas the lift webs and back straps are properly tacked to the back pad.
- 9.—The riser snaps and "D" rings on the qac and gas parachutes are properly secured in place.
- 10.—The harness is properly fitted to wearer.

Initials _____ PR/c

Sextant Bubble Gives Trouble

A large proportion of the Pioneer bubble sextants in overhaul shops are awaiting spare bubble assemblies, a highly critical item, because of failure of the bubbles. It is possible that damage has been inadvertently caused by navigators through failure to observe rules for proper care of sextants.

It should be noted that the vacuum-type bubble with the screw knob must be released after use, since prolonged strain on the diaphragm will cause it to set and make the bubble assembly



A & R Shops
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NAVY NEWS HEAR
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inoperative. This warning has been emphasized not only in various Technical Orders but also in the form of the words "Return to normal after use," engraved on the diaphragm adjusting nut.

Air and vapor bubbles in later Pioneer sextants, R88-S-350, and the Bausch & Lomb sextants, R88-S-375, are formed by pumping air from a small reservoir into the bubble cell. Because no strain is involved in the formation of the bubble, this air need not be taken out of the bubble chamber after use of the sextant.

However, this type of bubble cell still is in limited production and the majority of bubble sextants in service are fitted with the vacuum type. Although sextants are not so critical as previously, they still are not numerous enough in service to warrant careless handling which will remove them from service while awaiting repair. Workload in overhaul shops is heavy and every effort should be made to prevent unnecessary damage due to carelessness.

Change Speeds Container Removal

VPB-125-Very's pistol containers with the cartridges can be quickly removed from their mounting in PV-1 airplanes by use of a "Lift-a-Dot" fastener modification designed by this squadron.

In case of imminent ditching, a crew member, using the new mount, can save all the Very's cartridges in the containers. With the present method of securing containers to the mount plates by bolts a crew member must



CREWMAN REMOVES VERY'S PISTOL CONTAINER

unzip the case and remove cartridges individually.

The change is made by replacing eight securing bolts around the perimeter of Very's pistol container with six "Lift-a-Dot" fasteners. No effect on the strength of any structural part of the airplane is caused by the change. The difference in weight and balance is negligible. There is no tendency for containers to slip the mounting except by a definite pull on the container.

►**BuAer Comment**—This proposal is an excellent one and should be of interest to other squadrons besides those flying PVI's.

AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

Test Ordnance Equipment With Shop Unit

To permit shop testing and spare and replacement items of aviation ordnance equipment installed in PBJ type airplanes, Marine Bombing Squadron 413 devised a small test unit consisting of a discarded intervalometer case, salvaged wire, parts.

Items that can be accurately tested in the shop using maximum and minimum voltage likely to be encountered in the plane's electrical system include: bomb release, type A-2; intervalometer, K-2 or K-2A, illuminated sights; electric trigger controls, G-9 or G-11; lamps, gunsight

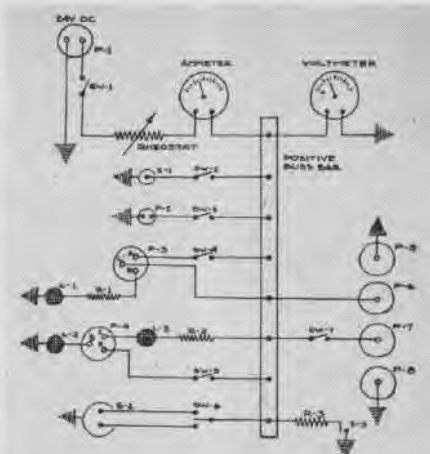
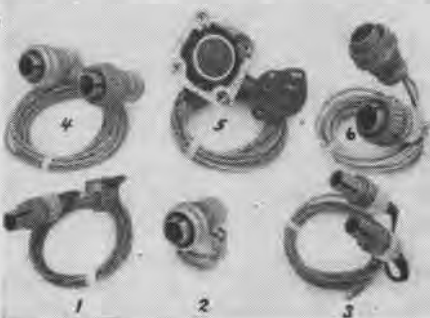


DIAGRAM SHOWS WIRING OF SHOP TEST UNIT

or bomb station indicator; and bomb arming controls.

Six sets of test leads, with connectors constructed from salvaged material as pictured, are required to test these items of aviation ordnance equipment. Lead #6 and receptacle P-3 are used for testing intervalometers. Lead #5 and receptacle P-4 are used to test bomb releases. Lead #4 and receptacles P-7 and P-8 are used whenever a controlled 24 volt power supply is desired. Lead #2 and receptacle P-1 are used to connect the test unit to power supply, either battery or generator.

After making proper connections between test unit and the items under test, this procedure is followed:



SIX SETS OF TEST LEADS MADE FROM SALVAGE

Bomb release type A-2: cock A-2 release mechanism and note whether lamp L-3 is on. Turn Sw-5 to on position sending impulses to release mechanism. Correct operation is indicated by functioning of the release and transfer of electrical energy from Lamp L-3 to Lamp L-2.

Intervalometer: turn Sw-4 to on position sending impulses to intervalometer. Correct operation is indicated by Lamp L-1 lighting with each impulse.

Illuminated sights: Turn Sw-3 to on.

Light bulbs or lamps: insert lamp into appropriate socket. Operate Sw-2 to test single contact lamps and Sw-6 for double contact lamps.

Electric trigger control and bomb arming controls: connect to controlled power supply, P-7 and P-8, turn on Sw-7. Correct operation is indicated by normal operation.

Equipment necessary to construct and wire the test unit includes: R-1, R-2 and R-3 135 ohm resistors; Sw-1, Sw-3 and Sw-7 single pole, single throw switches; Sw-2, Sw-4, and Sw-5, single pole, single throw, spring loaded to return to the "off" position switches; S-1, single contact lamp socket; S-2, double contact lamp socket; S-3, bomb station indicator lamp socket.

Other equipment required includes: L-1 and L-3 3 volt bomb station indicator lamp; L-2, 28 volt lamp; P-1, P-2, two pole (male) receptacle; P-3, three pole (male) receptacle obtained from intervalometer; P-4, three pole (female), receptacle obtained from auxiliary switch box of bomb rack; P-5, P-6, single pole (female) receptacle; P-7, P-8, single pole (male) receptacle; volt meter and rheostat.

New Aviation Supply Depot Established

Ordnance publications and ordnance equipment allowance lists that are of general interest to squadrons and activities that service aircraft are now available at the newly established aviation supply depot Navy No. 825.

Action has been initiated to establish similar publications distribution points at aviation supply depot's Navy numbers 939, 3201, and 3205. It is expected these distribution points will be prepared to function early in February 1945. A definite announcement will be made later.

BuOrd Distributes New 20 mm. Shells

BuOrd has procured and distributed initial quantities of a new series of ballistically matched 20 mm. ammunition. Information concerning the new ammunition is contained in NAVORD OCL AV27-44 dated 6 November 1944. Paragraph 3 of the above ocl states that rebore-sighting of the guns is essential. Operating activities may take exception to this statement since gravity drop of the projectiles at short ranges (300 yards) may be ignored. However, activities engaged in strafing may desire to lower the sight line to compensate for gravity drop at longer ranges.

Following data is for the above ammunition at 300 knots air speed at sea level.

	Projectile Drop in Mils				
	400 yds.	800 yds.	1200 yds.	1600 yds.	2000 yds.
Level flight	2.0	5.0	8.0	13.0	20.0
30° dive	1.7	4.3	7.0	11.0	17.4
60° dive	—	2.5	4.0	6.5	10.9
80° dive	—	1.0	1.3	1.7	2.2

SPECIAL DEVICES SCHOOL

Enlisted personnel with a high mechanical aptitude and knowledge of electricity learn to maintain the Navy's special devices during an intensive 18 weeks course



Trouble shooting becomes second nature to trainees at Special Devices School. Trainees at work on the Gunairstructor during the fourteenth week of their course make delicate adjustments on the movie unit. Students operate Gunairstructor



Fifteen seamen second class and two Marines make up each class that enters the Chicago school. Students are quartered in a University of Chicago gymnasium. Former naval aviation cadets selected for high mechanical comprehension make up personnel



Electricity and the fundamentals of electronics are emphasized. Because of the shortness of the course, application of electronics is made as soon as possible. Theory is kept to a minimum. Electronic mockups are used extensively during first week

SPECIAL devices in practically every naval air station and at many advanced bases now are maintained by enlisted personnel trained at Naval Training School (Special Devices) in Chicago.

The school, operated under the Naval Air Technical Training Command, Chicago, has been in existence since March 1943 and now has nearly 1,000 graduates. Recommendations concerning the school are made by Special Devices Division of BuAer.

Until recently a new class of 15 seamen, second class, and two rated Marines entered the school each week and

graduated 16 weeks later. Under a new schedule, effective this month, the course is extended to 18 weeks to provide ample time for instruction on all special devices used at air stations.

Former naval aviation cadets, specially selected at naval training centers on the basis of mechanical aptitude and knowledge of electricity, make up classes that enter every fortnight. These former cadets enter as seamen second class and graduate as Special Artificer (Devices) strikers.

In addition, qualified men, nominated at shore stations and in the Fleet for any portion or all of the course, will

be trained at Chicago. Information concerning quotas and methods of selection will be announced at later date.

SELECTED graduates of the school are sent on for specialized training on larger devices such as the 7-A-3 Bombing Trainer and device 2-F, Operational Flight Trainer. Other graduates serve as instructors at the school.

A "learning by doing" method of instruction is carried out in every classroom. Each graduate is capable of maintaining the delicate and complicated but highly important special devices pilots and aircrewmembers train with.



Putting the "do the job yourself" principle in operation, these artificer trainees dismantle a Link Trainer. In an adjustment shop trainees find and correct maladjustments created by the instructors. On air stations these men will maintain devices



Trainees give the Panoramic "battle in a box" Gunnery Trainer attention in an inside and out check. The trainer is dismantled in class for detailed study. Trainees are guided by work-jobs charted on sheets that show step-by-step progress of task



Students learn to operate and maintain the Flight Engineer's Panel during the twelfth week of their course. This device, used to train pilots and flight engineers in twin-engine plane operation, must be mastered. Instructor is a former trainee



While electronics is stressed, trainees learn all there is to know about the fixed gunnery deflection trainer as well as the electro-mechanical scoring system that is typical of those found in special training devices. Lectures and work go hand in hand

PILOT GOES ON MONOXIDE 'JAG'

CARBON MONOXIDE is a subtle, dangerous poison. Not the least important point about carbon monoxide is that it may so befuddle the victim that he doesn't know what's wrong with him and therefore fails to do anything to combat it. The following case report was made by a flight surgeon with the fleet. It is an excellent running account of a case of carbon monoxide poisoning which had a fortunate outcome.

DURING low altitude strafing runs on a task force, the port exhaust deflector cowling of an F6F buckled outward. This occurred at its attachment to the forward firewall in such a manner as to form a scoop which forced the exhaust gases into the accessory section of the engine. After burning out the fabric ventilation tube, they entered the cockpit. Fumes also entered through a 1½" opening in the after firewall on the port side.

The aircraft were launched at 0900 and at 0930 the first low altitude run was made. Following this the pilot noticed excessive heat and exhaust fumes in the cockpit. The trim tabs on the port side were too hot to handle either due to conduction or direct entry of exhaust. He opened the hood and put on his oxygen mask (Type A14), and switched the flow to straight oxygen (Pioneer, demand-dilutor). After about 15 seconds he discarded the mask and did not use it thereafter, relying on the open hood except during the runs. Seven runs were made and the section leader reported his flying normal except for a tendency to lag.

The section then went to 10,000 ft. to practice high altitude runs, the first starting at 1032 and the last completed at 1058. During this period, the pilot noticed a headache, became nauseated and gagged once but did not vomit. He wrote data pertaining to the runs on his plotting board and this was later examined aboard ship. The first written line was accurate, giving time of start and finish, altitude, course, speed and relation to ship. The second line gave time of finish as 10430 (1043), altitude as 43 (actually 14,300). In the course column the speed was written, scratched out and the course written, 125 and barely legible. In the speed column was written 95 (195) and scrawled unevenly and illegibly was the abbreviation for starboard, "STBD." He vaguely remembers his head pounding and his eyes watering and discontinued writing.

Plane Begins to Do Some Fancy Flying

He and his section leader circled at 10,000 ft. awaiting rendezvous with the division leader. According to the section leader, who stayed close by him throughout the morning, his aircraft began to waver and kept falling out of formation. He responded very slowly to the join-up signal and usually overshot violently. Then he began a series of dives and steep climbing turns similar to wing-overs but stalling and falling out of the top of each one. He failed to answer repeated calls and once made a clumsy movement toward his ears with his hands. During this time he was flying with full throttle and hood al-

most closed. The aircraft occasionally decelerated violently which was later found to be caused by the engine alternately cutting out. The pilot remembers trying to switch from reserve to the left main tank but continually turned the selector to right main or belly, both of which were empty. He finally left it on reserve not being able to mentally negotiate the switching of fuel tanks. After repeated hand signals to open the hood, he suddenly dropped his flaps. The section leader finally persuaded him to raise them, open the hood and throttle back. During the descent to lower altitudes, he entered a thunderhead and did another aimless wing-over eventually recovering at 1,500 ft. Under the constant tutelage of the other pilot, he circled the task force and recovered to the extent that he answered radio calls. The section leader said his face was haggard, red and wet with sweat. Upon being requested by the ship to turn on his emergency RF, he flicked the red destructor switch and blew up the apparatus. He did not hear the explosion although he believes he noticed some smoke in the cockpit. At this time or shortly after he put on his oxygen mask and turned the dilutor off. There was marked clearing of his sensorium and soon after he made a creditable landing aboard this cvt.

Pilot Fails to Remember Aerial Antics

The pilot says that events following the high altitude runs were very hazy. He emphatically states that he never completely lost consciousness, but had marked difficulty with his vision. He could dimly make out the instruments, but could not always see his section leader, the horizon, or clouds. He remembers that his hand shook violently and he had difficulty in grasping the throttle. He was cognizant that something was wrong, but did not know what and figured "What's the difference?" He does not recall the wing-overs nor flying through cloud. Had it not been for the repeated stimulus of the section leader's voice, he is certain that he would not have survived this flight.

Examination immediately after landing revealed no abnormal physical findings. He was still slightly confused and complained of a dull headache. Unfortunately, equipment was not available to determine blood carbon monoxide concentration.

SUMMARY: Most of the exhaust from three port stacks entered the cockpit. Either by conduction or direct contact with the exhaust, the trim tabs and throttle were heated to a high temperature. Apparently at low altitudes with the hood open, a high concentration of carbon monoxide can be tolerated. In this case, the methemoglobin probably increased gradually but did not reach a toxic level. At 11,000 ft. the reduced oxygen tension was sufficient to induce anoxia. Oxygen is the obvious antidote provided the individual is aware of his predicament and can turn the dilutor off.

Part of the above was supplied by the pilot but most of the data came from the observant section leader.

(This article is reprinted from the Aviation Supplement of the BuMed News Letter.)



PHOTOGRAPHY

Information on 16 mm. Film Measurement

In order to reduce film-jamming in motion picture cameras (including gun cameras) the following tolerances have been adopted as standard by the SMPE and ASA: (Measurements in inches)

Dimension	Tolerance
Film, width	0.629 -0.001
Perforation pitch	0.3000 -0.0005

The above standards of course apply only immediately after slitting and perforating since photographic film does not have perfect dimensional stability. Film undergoes a small amount of permanent shrinkage due to loss of residual solvent from the base as well as reversible dimensional changes produced by heat and moisture.

It can be seen easily from this that part of the trouble encountered with film in the gun camera magazines is caused by improper film storage.

Technical Library For Navy Photo Labs

Why not? It may be impossible for a one-man laboratory but for the larger units—Yes. Your suggestion in selecting the books is solicited. Forward suggestions to the Photography Division, BuAer, through regular channels. List should include three conditions:

1. A five-book library.
2. A 10-book library.
3. A 20-book library.

Pre-hardener Bath Can Spot Negatives

A photographic officer states that from field experience he has found that excessive soaking of film in the pre-hardener solution (51-P-2482-30) causes water spots. About six minutes at 80° with five minutes' development should produce good negatives if they were properly exposed. Soak only the minimum length of time required to maintain emulsion in condition.

Anso Sheet Color Film Now Available

Anso Color Film in 4" x 5" and 8" x 10" sizes, Daylight and Tungsten types, are now being added to the Standard Photographic Stock List. A Photographic Technical Bulletin now being prepared, will list stock numbers of film, developing kits and filters, also exposure and processing instructions.

Preliminary tests and information indicate the film is satisfactory—it can be processed in the field. This film should produce some remarkable results in news and historical photography. Another definite value will be in the field of medicine and surgery.

▶ One unit in the field reports that a plain soap and water bath does the trick for all but obstinate, advanced fungus deterioration caused on negatives by damp storage.
▶ Written complaints to BuAer on faulty films or photographic paper must bear the emulsion number and a history of procurement and subsequent storage before intelligent corrective action can be taken.

System Speeds Tubing Production

NAS CORPUS CHRISTI—An improved method for production of aircraft tubing through use of straight tube templates, devised by an aviation metal-smith, has been installed in the A&R department.

Fast, simple and economical, the method has proved highly adaptable to mass production requirements. Use of straight tube templates eliminates trial and error procedure and many of the other disadvantages of conventional aircraft tubing production methods. In recent tests the new procedure has proved to be 50% faster than conventional methods of tube building.

Once templates are made, tube bending operations may be handled by



DESIGNER DEMONSTRATES METHOD TO CAPTAIN

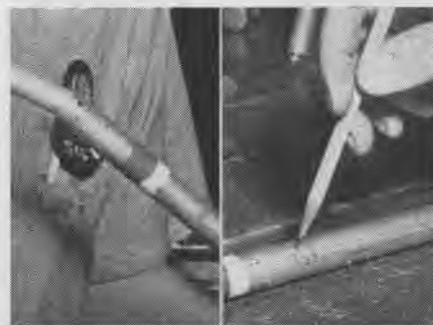
inexperienced mechanics without sacrificing the high degree of accuracy and precision that installation demands.

Straight tube templates require only one-third the storage space needed for bent-up templates. A similar amount of space is saved in shipping. No waste of material is involved because the finished product does not require trimming.

Detailed procedures governing manufacture of straight tubing templates should be requested from this station.

[DESIGNED BY ROBERT M. JONES, AM1C]

▶ **BuAer Comment**—This suggestion appears to be one that would be of interest to all tubing shop personnel.



AM INSERTS TUBE IN TEMPLATE FOR MARKING

OVERHAUL

Plant Equipment & Tools

One section of Overhaul Branch specializes in shop equipment and tools required for aircraft maintenance at naval air bases. Actual procurement or supply is not accomplished, but requisitions, letters, shipment requests, and project order requests for shop equipment technically controlled by BuAer are reviewed for approval or disapproval.

Careful checking by experienced personnel is necessary to insure that technical requirements are correct and clearly worded, and that the exact equipment desired or needed will be procured. After such review, the requests are forwarded to procurement agencies, supply depots, or are returned to the originating activity for local procurement.

Standardization and more efficient tools and equipment have resulted, and will continue to result, from such technical control. The chances of duplicating inefficient or worthless equipment at more than one base is minimized.

The usefulness of this section and continuation of above results necessarily depend on personal contacts with representatives of naval activities visiting the Bureau, as well as commercial representatives discussing suitability and need of their products for aircraft maintenance work, and visits by personnel of this section to commercial firms and naval air bases.

Air Bases Should Share Worthy Ideas

All naval air bases are encouraged to submit to this section ideas that possibly may be developed to increase production. Reports on defective, inefficient, or unsuitable machines, tools and equipment should be reported.

It has been noted that many bases are hesitant about reporting receipt of equipment unsuitable for work to be performed. It is hoped this hesitancy will be dispelled, otherwise the same mistakes will be made in outfitting new stations. Give the Bureau this necessary cooperation—tell them what you like and what you don't like about tools and equipment—what you would like to have, or what you could do without.

Submission of beneficial suggestions is encouraged. These suggestions are reviewed by engineers, and recommendations made as to their suitability, adaptability, and the need or advisability of disseminating these ideas to other naval air bases.

Field Unit Tests New Shop Equipment

A field experimental unit has been created to perform practical tests of new or modified maintenance gear and tools.

Allowance lists of ship equipment and tools have been or are being prepared for all classes of naval air bases, aircraft carriers and repair ships. The lists are under constant revision as equipment specified is modified, becomes obsolete, or new equipment and tools are developed for use.

PIX QUIZ

WHAT DO YOU KNOW ABOUT

SHORE SURVIVAL?

GETTING along in strange and hostile territory after sojourning at sea in a life raft is not to be confused with a Sunday School picnic. Ask the man who knows. Take a fling at these questions, then see the answers on page 40 of this issue.

[QUESTIONS FROM BUAEER SPECIAL DEVICES VISUAL QUIZZER FILM No. 59, SURVIVOR ON LAND]

Write your answers here

1.
2.
3.
4.
5.
6.




Question 1



What should you do first?

1. Make signal fire.
2. Try to conceal your presence.
3. Rest and plan next move.
4. Hike immediately toward sea.

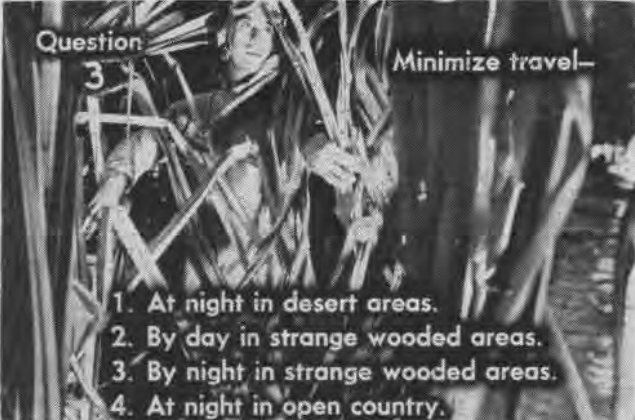
Question 2



To travel a relatively straight course:

1. Follow land contours.
2. Line up 2 or more trees or landmarks.
3. Follow the sun's course.
4. Travel animal trails.

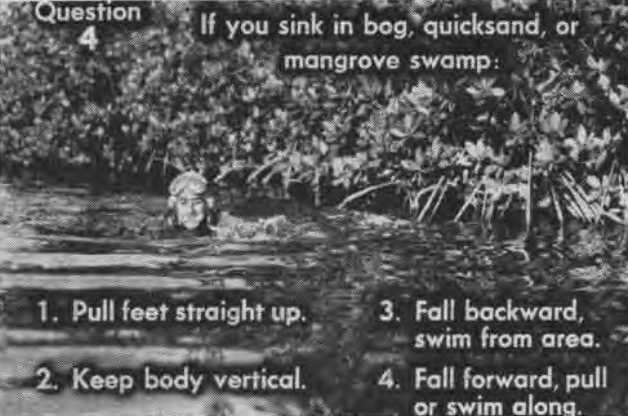
Question 3



Minimize travel—

1. At night in desert areas.
2. By day in strange wooded areas.
3. By night in strange wooded areas.
4. At night in open country.

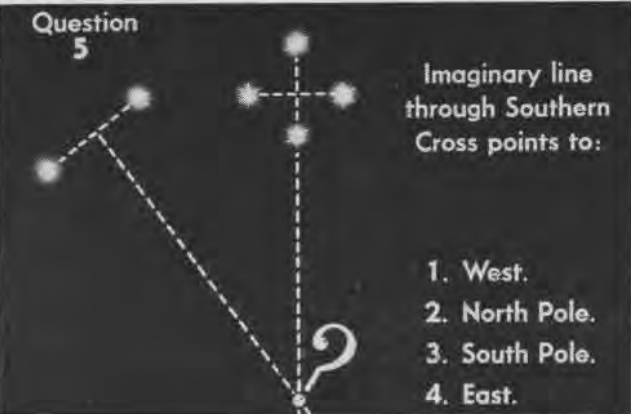
Question 4



If you sink in bog, quicksand, or mangrove swamp:

1. Pull feet straight up.
2. Keep body vertical.
3. Fall backward, swim from area.
4. Fall forward, pull or swim along.

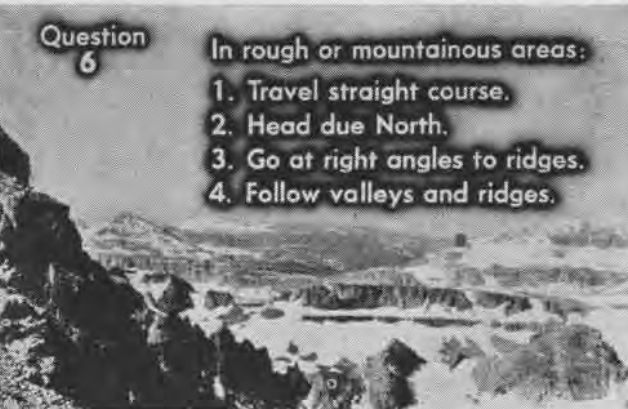
Question 5



Imaginary line through Southern Cross points to:

1. West.
2. North Pole.
3. South Pole.
4. East.

Question 6



In rough or mountainous areas:

1. Travel straight course.
2. Head due North.
3. Go at right angles to ridges.
4. Follow valleys and ridges.

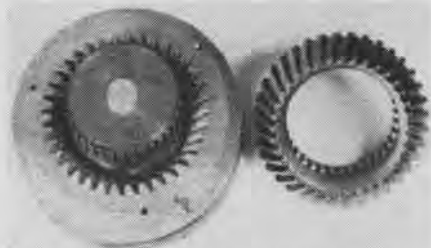
SCREEN NEWS

Jig Checks Prop Gear Index

NAS PEARL HARBOR—A civilian employe of A&R shop has developed a jig for checking and correcting the index of Curtiss power gears on propellers.

To make the jig, a correctly indexed power gear was mounted on a splined shaft taken from a power unit and an impression made of the gear teeth while so mounted. From this a casting was made and after being correctly aligned with the splines was bolted to the spline flange. The recess and notch was machined into the end of the spline to take an indexing plate.

To check index marks on a power gear, it is only necessary to slip the



JIG HELPS CHECK ON CURTISS PROP INDEXING

gear over the splines on the jig and see if the teeth mesh properly with the impressions in the casting. If the marking prove wrong, they can be removed and then remarked with aid of the index plate.

[DEVELOPED BY C. J. FARARDEAU]

San Diego Develops Link Sorter

A convenient means of sorting brass and links from expended machine gun rounds has been devised by students at Border Field Machine Gun Training Center, San Diego. In addition to the convenience afforded by this locally manufactured table, students report a saving of time and labor in its use in comparison with other sorting methods used.

The table, 4'x8'x9', will accommodate a working crew of four with ample space for sorting empty case and links at the



TABLE SPEEDS UP SORTING OF BRASS, LINKS

same time. Construction is simple and material needed should be available at any activity.

One added value of the table comes after links and brass are sorted by emptying the box containing sorted brass on the table and double checking for any possible live rounds. This might save some lives.

Dummy takes the rap. In forced landings, when a plane stops suddenly and emphatically, occupants tend to keep on going until halted by the nearest immovable object. This phenomenon is in accordance with Newton's law of gravity, and since the law has never been successfully ignored, wearing of safety harness to minimize injury from landing shocks has become a must among airmen. The common sense need for such a device is dramatically illustrated in:

MA-4488 *Your Safety Harness* (Restricted, 9 min.)

A dummy in a simulated cockpit bloodlessly but effectively demonstrates the chances of getting hurt in forced landings without safety gear. Results of the experiments prove that without any safety devices, serious injuries would be sustained; with a safety belt only, head injury is likely; with both safety belt and harness, the hazard of getting badly smashed is greatly reduced.

Fight talk. Unaccustomed as we are to public speaking, no one thought that voice culture ever would have anything to do with beating the wings off the enemy. But since we took to talking while we fight, the art of getting ourselves understood has become almost as important on the intercom up there in the ozone as it used to be down in a phone booth lining up that date for next Saturday night. Hence the film:

MB-4483 *Over to You* (Unclassified, 21 min.)

Before getting down to details of larynx and lungpower, the film firmly establishes the fact that in the speed of battle, when words are hot as bullets and life hangs on split seconds, you can't say that again—it's too late. The voice must punch through engine noise and static, deliver its message clear and sharp.

To this end, the film analyzes the formation of vocal sounds, records voices and plays them back to the speakers for their own amazement, discusses correct mike technique, recommends speaking rules guaranteed to help airmen talk as well as they fight.

Direction, please. The compass that can't be bothered by deviation, to any great extent, is described in:

MC-4290 *The Remote Indicating Compass* (Restricted, 22 min.)

CONTENT: Examines compass sensitivity and the theory, construction, operation and installation of the mechanism.

Obstacle race. Getting the stuff there—all in one piece—has never been easy in any war, but in the current scrap the problems of logistics make all previous obstacle courses look like a children's playground.

Some of the hazards, such as lightning, are beyond human handling. Other causes of damage, such as rough handling, wrong

containers, improper storage, poor packing, can be removed by improved efficiency, as demonstrated in:

MA-4896b *Supply Problems in the Southwest Pacific* (Restricted, 20 min.)

Covers: correct manner of packing, with interior and exterior bracing; use of containers that keep out seawater, rain and sun; storing to allow for air circulation; use of power equipment designed to make material handling easier.

Three other motion pictures go into greater detail on logistical matters:

MA-4718a *Preparation of Material for Overseas Shipment—Part I—Cleaning, Preservation and Wrapping* (Restricted, 30 min.)

Covers: need for care by logistics personnel in proper cleaning, skill in wrap-



SUPPLY MUST GET IT THERE ON TIME, INTACT

ping of packages and common sense in following established preserving techniques.

MA-4718b *Preparation of Material for Overseas Shipment—Part II—Packing and Boxing* (Restricted, 29 min.)

Covers: use of interior set-up boxes, folding cartons, fiber board boxes, V-board boxes, sleeves, types of wooden exterior containers, case liners, tape and glue for waterproofing. Explains packing procedure and operating principles for the packing engineer.

MA-4718c *Preparation of Material for Overseas Shipment—Part III—Crating* (Restricted, 29 min.)

Covers: construction of crates and moisture proof barriers; also, packing of disassembled gear inside the crate.

Where to get 'em: The above films are being distributed to Aviation Film Libraries at:

ComAirPac	MCAS Navy # 61
NAB Navy # 140	NAS Seattle
NAB Navy # 939	NAS Alameda
Navy # 3233	NAS San Diego
ASD Navy # 3205	NAS Norfolk
Hedrons 4, 10, 12,	NAS Patuxent
16, 17	NAS New York
PAW 7, 15	NAS Atlanta
NAOTC Jacksonville	NAS Quonset
NATB Pensacola	NAS Clinton
NATB Corpus Christi	NAS Moffett
NATEC Lakeland	NAS Navy # 115
MCAS Cherry Point	NAS Navy # 116
MarFairWestCoast	NAS Navy # 117
4th MAW	NAS Navy # 720

87th & ANTHONY

NATTC Builds Turbo Supercharger Model

A turbo supercharger mockup, built by Naval Air Technical Training Center, Chicago, is used in the carburetor course.

The mockup provides excellent visual instruction of control rigging from cockpit to regulator and from regulator to waste gate. Students gain an excellent conception of the lubrication system. Operation of waste gate regulator, both manually and automatically by manifold, is clearly simulated by use of a salvaged oxygen tank and regulator.

Instrument Course Uses Mockup Plane

A mockup plane that contains a complete installation of position transmitters and indicators for landing gear is used in the NATTC instrument course. Instructors find this mockup, constructed from salvageable material, valuable in training.

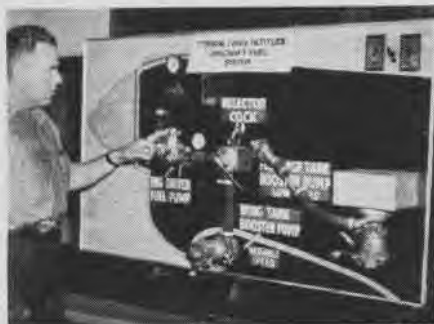


MOCKUP SHOWS THE POSITION TRANSMITTER

Power to raise or lower the landing gear is provided by an aircraft landing gear light motor. Micro switches control locks on the miniature landing gear. Students, using a wiring diagram, are required to hook up the many wires correctly so that proper indication of position of the plane's landing gear shows on the remote indicator.

Mockup Shows High Altitude Fuel System

A typical high altitude aircraft fuel system is used as part of the instructional program in the carburetion course offered at NATTC Chicago. Elimination of fuel vapor, transfer of fuel, fuel pressures, selector valve usages, and operation are shown. The mockup includes a pressurizing unit, as well as an integral tank pump, and actually flows fuels through its pipes.



MOCKUP SHOWS OPERATION OF FUEL SYSTEM

Depots Carry Watertight Lights

Two-cell watertight flashlights, suitable for use as survival equipment by flight personnel, are available in quantities at all BuSandA Naval Supply Depots. The flashlight, developed by BuShips, is carried under stock number 17-F-13550.

Aviation personnel should secure flashlights from the nearest Naval Supply Depot under cognizance of BuSandA. BuAer TO 119-44 terms these flashlights as standard NSA material. Carrying of the flashlight in the emergency container is not mandatory, but since it has value as survival equipment it may be carried at the discretion of force or type commanders.

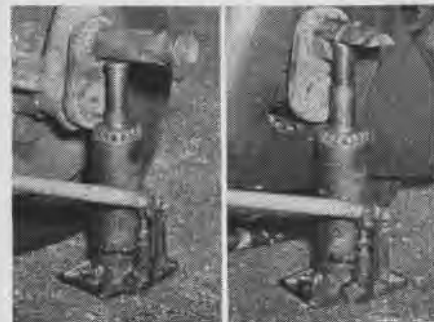
Tests now are under way on improved models of watertight flashlights for use by aviation personnel.

CASU Develops A Jack Adapter

CASU 38—An offset wheel jack adapter has been found useful and practicable by this unit for line maintenance in changing wheels of SB2C-1, -1C, -3, -4, and F6F-3, -5 airplanes.

The adapter is versatile in that it is applicable to two common types of aircraft, one end machined to fit under the SB2C planes and the other F6F's.

In the past, broken wheels have resulted in attempting to raise an airplane by using two jacks, *i.e.*, placing one against the outer rim of the wheel casting and the other under the axle. This is also a hazardous practice. The alternate method of initially raising a



JACK ADAPTER FITS ON HELLDIVER OR HELLCAT

wheel with a flat tire to place a jack under the axle is to pull the wheel upon a chock with a tractor. This method is destructive and often impossible on a crowded deck.

► **BuAer Comment**—A similar adapter has been made by almost every operating unit, since it is the only practical method of jacking the F6F and SB2C with flat tires under the existing arrangement of jack points. BuAer is attempting to have adequate and useable jack points incorporated into every new model plane. In addition, a new standard axle jack is being sought which will be useable on present and future aircraft without use of such special equipment adapters. CASU 38 is commended for its universal type of adapter.

POWER PLANTS

Oversize Taps Solve Exhaust Problems

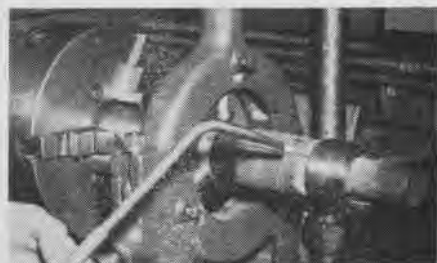
Considerable difficulty has been experienced with exhaust couplings inserts pulling out of R-2800 engine cylinders. No salvage procedure has as yet been worked out by the Pratt & Whitney Division. In the absence of any factory procedure sev-



SPECIAL WRENCH SCREWS INSERT IN CYLINDER

eral naval activities have worked out their own salvage procedure. One procedure, developed by J. W. Lewis, AMM1c at NAS, Vero Beach, is shown in the accompanying photographs.

Several sizes of oversize taps, used in conjunction with a special guide, are pro-



TORCH HEATS MANDREL TO EXPAND THE INSERT

vided for cleaning up and tapping to an oversize the female threads in the cylinder head. An expanding mandrel for expanding the threaded section of a coupling insert is mounted in a lathe chuck. With the mandrel turning over the insert is heated with



SEVERAL SIZES OF OVERSIZED TAPS ARE USED

a torch and the threaded section is gradually expanded by screwing the expander screw into the mandrel.

Threads of insert are expanded to 0.020 inch over the size of the threads in the cylinder head. With the threads of the insert well lubricated, and using a specially-constructed wrench, the insert may be screwed into the cylinder head cold. Heating the cylinder head and cooling the insert will make the installation much easier.

Cartoon Aids in Training Cadets

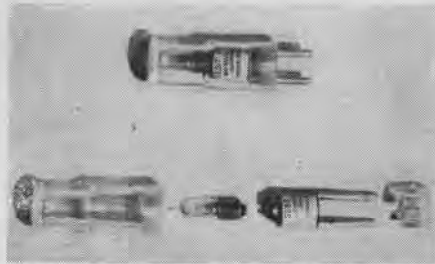
NAS FORT LAUDERDALE—To emphasize fundamental rules in proper aircraft communications and keep them before student pilots and aircrewmembers while in training, a "Mickey Mike" poster idea has been developed at this station. This idea was developed by a communications training officer and an enlisted communications instructor.

"Mickey Mike" was introduced to station training personnel through a cartoon. A new cartoon is posted weekly in a conspicuous place in the main hangar and in the ground school. A print of each poster appears in the "Learn and Live" section of *The Avenger*, station newspaper. Ideas for "Mickey Mike's" doings and sayings are received from both instructors and students on the station.

(SUGGESTED BY LT. M. C. ANDREWS AND RUDY AMATO, ARM3/c)

BuAer Has Rocket Circuit Kit

Procedure for testing rocket circuits can be appreciably simplified by use of circuit test devices, the Launcher



TEST PLUG ASSEMBLY FITS INTO BACK OF CASE

Circuit Test Kit Model 2 and the Circuit Test Plug Model 1, resulting in a saving of time and an increase in safety.

The Launcher Test Kit Model 2 was designed to test for stray "low voltage" in the aircraft rocket launcher. It consists of a case containing a 2-volt light bulb, five pencil-type flashlight cells, a resistance, a receptacle, a switch and a short electric lead with a plug to fit the rocket launcher receptacles.

The test kit receptacle is designed to receive either the plug of the kit or the pins of the Test Plug Model 1 so that the bulbs of these testers may be readily checked. As a safety measure, how-



BUAER MAKES NEW TESTER FOR ROCKET CIRCUIT

ever, shorting pins of a rocket pigtail are not long enough to make contact with the battery circuit.

The Circuit Test Plug Model 1 is a compact plastic plug with a 28-volt light bulb and extra long electric contact pins that will fit the rocket launcher receptacles. This plug was designed to test only for "continuity" in the rocket firing circuit and not for stray "low voltage."

The Launcher Circuit Test Kit Model 2 (Stock No. R94-K-500200) and the Circuit Test Plug Model 1 (Stock No. R94-UNA-SK-27) are available from the A.S.O. through supply channels.

(Succeeds List dated 20 November 1944)

LATEST BULLETINS ENGINE, POWER PLANT ACCESSORY, 19 DECEMBER 1944

ENGINE	BULLETIN	DATE	SUBJECT	EXPLANATION
PRATT & WHITNEY				
R-1830	384	9-17-44	Automatic Spark Advance—Modification of	Describes the reoperation of the spark advance control body
R-1830	385	Being issued	Magnets, American Bosch SF14L U-8 and SF14LC-8	To prevent corrosion
R-1830	386	9-27-44	Breather, Main Crankcase—Shortening of to	To prevent loss of oil
R-1830	387	Being issued	Prevent Loss of Oil Rear Oil Scavenge Pump	To prevent the rear oil scavenge pipe from falling out of position in the case
R-1830	388	9-29-44	Carburetor—Chandler-Evans, Model 1900-CPB-3	To insure idle valve positioning during flow bench test
R-2000	None		Valve Setting on Flow Bench	
R-2800	156	10-31-44	Governor Drive Bushing—Plating of	Information on subject part
R-2800	157	12-11-44	Gaskets—Dual Vacuum Pump Adapter	To prevent blockage of oil passage by possible use of wrong gasket
R-2800	158	Being issued	Supercharger Pressure Regulator Pad Hole	Describes method of plugging subject hole to prevent oil leakage
R-2800	160	Rev. No. 1 12-11-44	Propeller Shaft Thrust Bearing Cover Studs	To change torque value for nuts for subject studs to correct value of 100 to 150 inch pounds
R-2800	162	Rev. No. 1 Being issued	Protector for Valve Tappets, Guides, Rollers and Pins	To increase the replacement clearance for tappet to tappet guide
R-2800	163	Being issued	Generator Drive Vent and Drain Holes	Instructions for plugging gasket holes to prevent oil vapor leakage behind generator seal
R-2800	164	Being issued	Propeller Shaft—Modification of	To prevent oil leakage to the reduction gear pinion
R-2800	165	11-17-44	Automatic Spark Advance—Modification of	Describes the reoperation of the spark advance control body
R-2800	166	12-9-44	Fuel Feed Valve	To insure correct installation of fuel feed valve covers
R-2800	169	11-27-44	Diffusers—Fitting of	To insure correct fittings of diffusers
R-2800	170	11-20-44	Ignition Distributor Finger—Replacement of	Information concerning replacement of subject finger with new improved type
WRIGHT				
R-2600	127	Supp. No. 1 10-27-44	R-2600 Generator Locking Plate and Special Tools	Instructions for use of an approved locking plate and special tools in servicing engines
R-2600	149	Rev. No. 1 11-23-44	Information on Exhaust Valve Guides, WAC Part Nos. 118583 and 114366—Replacement Procedure at Overhaul	Clarifies existing instructions on installation of subject guides at overhaul
GENERAL ENGINE				
	54	Supp. No. 1 12-7-44	Caution Cards—Radial Engines ASC Form No. 00501—Use of	To change reference numbers of subject cards
POWER PLANT ACCESSORIES				
	68	10-15-44	Fuel Pumps D17 Electric Driven Auxiliary Fuel Pumps—Venting of Seal and Reinstallation of Drain Lines	Information relative to proper reinstallation of drain pipes to eliminate failures of fuel pump motors
	72	10-26-44	Miscellaneous J12 and Fuel Pumps 20—Thompson Products Engine Driven and Electric Motor Driven Fuel and Water Pumps with Diaphragm Seal Snap Ring, Part No. T.F. A-873—Replacement of	Inform personnel of change in pump design

LETTERS

SIRS:

The 15 December issue contained a notice concerning formation of a Sea Squatters Club but completely omitted any mention of how to obtain a membership in the club. It would be very fitting for you to include a notice of the name and address of the concern which has organized this club and to which one should write to obtain membership and emblem. NAS, Patuxent River COMMANDER, USN.

¶ Headquarters of the Sea Squatters Club for air personnel who have come down at sea and taken to rubber life rafts is at 140 Cedar St., New York 6, N. Y. Information on membership can be obtained there.

Sms:

Enclosed you will find the best photograph we could make of the first squadron insignia, an eye between a pair of wings, which was incorporated into a Christmas card in 1925. It was pretty hard to pho-



tograph and you may be able to do better in the Bureau of Aeronautics photo lab. U.S.S. GUADALCANAL COMMANDER, USN

Sms:

The aircraft pictured on the back cover of NAVAL AVIATION NEWS dated 1 November 1944 is described as an *Avenger*.

Although I still have much to learn about recognition, the aircraft in question does not appear to me to be an *Avenger* but a *PBM Mariner*. Please note the rounded shape of the rudder and wing tip which is not an *Avenger* characteristic.

LIEUTENANT (jg), USN
Fleet Air, West Coast, San Diego

¶ Recognition section of DCNO (Air) confirms NANews' statement that the plane is a *TBF*. Viewed from an angle ahead of the bow, from which the picture was taken, a *PBM* would show its



twin rudders. Rounded appearance of rudder and wing tip noted by the writer probably are due to lack of sharpness in print because of extreme distance of the plane from the photographer's ship.

Sms:

Kindly advise whether any of the editorial contents of NANews may be reprinted. If so what is the procedure for clearance and/or release of such desired material.

PERSONNEL RELATIONS OFFICER
USMCAS, Cherry Point

¶ Service publications classified as restricted or higher may freely reprint articles from NANews. For unclassified station papers, each article must be treated separately and clearance obtained via NANews, except items in the Shore Stations section, which are unclassified and may be reprinted at will.

SIRS:

We of the Naval Air Facility, an advance base unit in North Africa, think you may be interested in the enclosed photograph. It shows the various types of personnel currently based at this station. From left to right we have: a Senegalese sailor, a French naval aviation rating, a French naval officer, a member of S.F.F. (French



Wave), one of our own pilots, and an air-crewman, a local Arab civilian, and one of the famous Gouns.

You will be happy to know that this heterogeneous family lives in peace and accord.

Fairwing 15 LT. COMDR. USN

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ANSWERS TO QUIZZES

● NAVIGATION PROBLEM (p. 26)

- | | |
|------------|-------------------|
| 1. 229° | 5. Lat. 47° 30' S |
| 2. 247 mi. | Long. 59° 59' W |
| 3. 224° | From 235° |
| 4. 117 k | Force 39 k |

(Tolerances of 2 or 3 miles or 2 or 3 degrees from ans. are considered correct)

● PIX QUIZ (p. 36)

- 1.3 2.2 3.3 4.4 5.3 6.4

Films available from BuAer, Special Devices, for showing in Visual Quizzer, Device 5-X. Standard slide film version may be obtained from Training Films, BuAer.

● GRAMPAW'S QUIZ (p. 16)

- Limited to straight and normal flight. Ref: ACL 111-44, p. 2.
- Yes. Ref: BuAer Manual, Art. 14-101.
- a. Odd thousands, b. even thousands, c. odd thousands, d. even thousands. Ref: CAA Regs. 60.580.
- Before starting an engine that has not been operated for an hour, and once a day for engines not to be turned up, the propeller will be pulled through in the direction of normal rotation to give at least two complete revolutions of the crankshaft. Ref: BuAer Manual, Art. 14-101 and 14-201.
- Yes. Ref: TN 24-44.

● BEST ANSWERS (p. 18)

- 1.d 2.b 3.d 4.b 5.a 6.b 7.a



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What would YOU do in their place?



Yes, they've been drilled in Recognition. But if they doubt you're friendly—and you fail to identify—they'll let you have it!

In the Final Analysis...it's you OR your ship



Identify... WHEN APPROACHING FRIENDLY SHIPS



JAP TARGETS

Naval Aviation is operating full-blast in waters around Philippines, knocking out Jap ships ranging from carriers to barges, with rockets, bombs and torpedoes. Strafing usually sinks smaller craft

HELLDIVER'S 1000-POUND BOMB SINKS LARGE JAPANESE LANDING CRAFT WHICH DODGED AND TRIED VAINLY TO ESCAPE IN PHILIPPINES ACTION



COASTAL STEAMER BURNS AFTER BOMB HITS SCORE FORE AND AFT CARRIER DIVE-BOMBERS PLASTER A NOGAMI-CLASS HEAVY CRUISER

