

NAVAL AVIATION

NEWS



Attack Aircraft
Rocket Engines
Flying in Storms

December 1947





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Attack Aircraft

THE DAY of the slow old torpedo bomber is passed. Along with it, toll the knell of the dive-bomber aircraft, designed and built for that one purpose.

Two new general-purpose attack aircraft now in or nearing fleet usage, the AD-1 *Skyraider* and the AM-1 *Mauler*, represent Bureau of Aeronautics' conception of what a carrier-based World War II attack aircraft should have been.

Both the AD-1, which now is in the fleet in considerable numbers, and the AM-1, now being tested at Patuxent River, are single-man planes. Neither has an internal bomb bay such as was used on their predecessors, the TBF and the SB2C. The new planes can do everything the *Avenger* and *Helldiver* could do, and more—and fly 100 miles an hour faster.

The TBF went out to fight with bombs in its bays, carrying a pilot, turret gunner and tunnel gunner-radioman in the fuselage. Besides the weight of the extra men, the guns and turrets they operated added hundreds of pounds to the plane weight. Because the plane had to carry them, bigger fuselages had to be put on aircraft. This represented more weight, which required a larger engine and more fuel—more weight.



AVENGERS SUCH AS THIS OFF THE RANDOLPH ARE SEEING LAST DAYS

BuAer Meets 'Power' Cry

BUAEER became convinced in the spring of 1942 that the carrier-based airplane designed to carry bombs and torpedoes must have more performance and load-carrying capacity than such airplanes as the TBM, SB2C, SB2A and XSB2D. It was obvious that every equipment, every operator, every concept or idea that was not truly and incontrovertibly essential to the attack mission with bombs or torpedoes must be stripped out of the airplane.

The basic conception was the exact equivalent of that of a fighter, in which the necessary performance can be attained only by omitting every item which is not completely essential to the fighter mission. So out of the attack airplane went such items as turrets, flexible guns, bomb bays, automatic pilots, and radio and radar operators.

The theory in its simplest form was that if the fighter pilot can operate from a carrier and execute his mission, and get along without these items, so can the attack pilot.

The first such carrier-based attack airplane—the XBTC-2—was initiated in the spring of 1942. This fell far behind schedule, primarily because of Curtiss' wartime preoccupation with the SB2C and SC airplanes and Pratt & Whitney's pre-



ATTACK BOMBER FORMATION OF TODAY; THIS GROUP IS OFF THE FDR

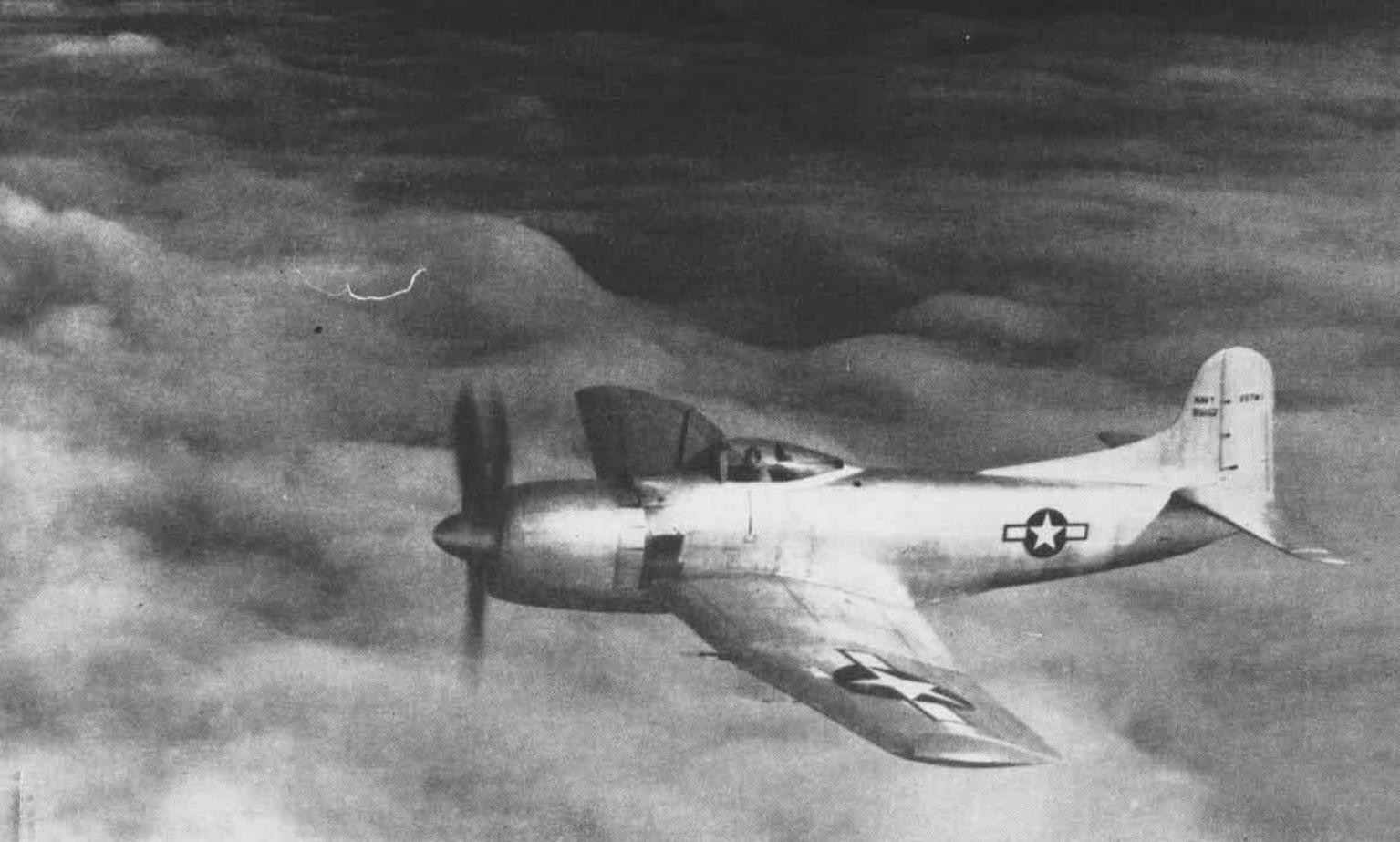
occupation with the R-2800 engine. The XBTC-2 and its XR-4360 engine with dual rotation nose did not get a break.

Accordingly, in late 1943 and early 1944, three more airplanes of this type were initiated—the XBTK around the R-2800 engine, the XBT2D around the R-3350 engine, and the XBTM around the R-4360 engine. The XBTK was terminated after VJ day, but the latter two were continued, to become the AD *Skyraider* and the AM *Mauler*.

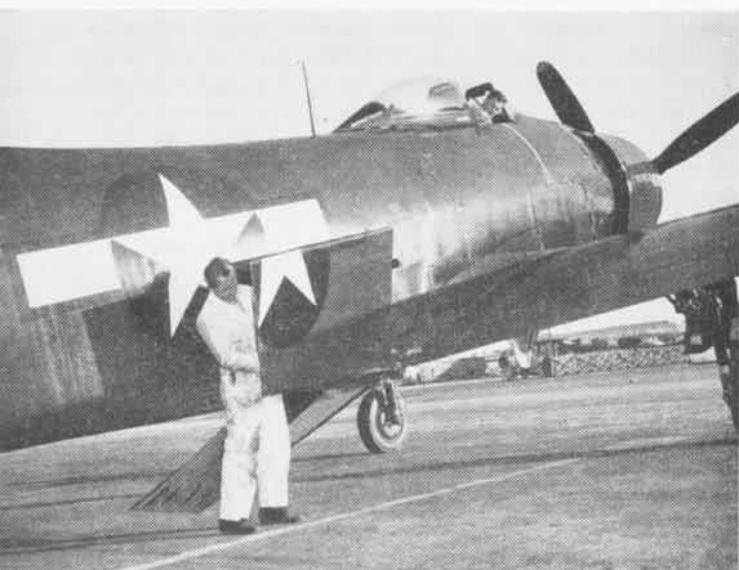
These airplanes were conceived to carry on the fight against Japan. Part of their conception was that the speed of the fighters with which they would be contemporary should be compromised about 40 or 50 knots in favor of a fighting aircraft with range and load-carrying capacity.

THREE 'BEASTS' LOOKING ALMOST LIKE FAITHFUL ANIMALS, OBEY TAXI SIGNALMAN; NEW ATTACK PLANES SOON WILL DISPLACE SB2C'S ON CARRIER





FASTER, LARGER AND MORE HEAVILY ARMED THAN ITS PREDECESSORS IS THIS AM-1 MAULER, WHICH IS A SISTER PLANE TO THE DOUGLAS SKYRAIDER



SKYRAIDER'S DIVE BRAKES ARE HUGE FLAPS HINGED FROM FUSELAGE

It was not part of the conception that an airplane with a 50-knot speed disadvantage could cope with stiff fighter opposition. However, it was considered that such airplanes would make the escort fighters' job much easier and the fighters more effective in their defense of the strike group. Also, it was believed that such an airplane, if caught by itself away from protecting fighters, would have a much better chance than an attack airplane greatly slowed by unessential equipment.

Since the planes have no 650-pound turrets, or bomb bays with their heavy doors, bomb-displacing gear, and accessory equipment, considerable weight is saved. More important than this obvious weight-saving are the much less obvious weight reductions. The simple truth is that in a single-engine, tractor-type airplane, there is no natural place for

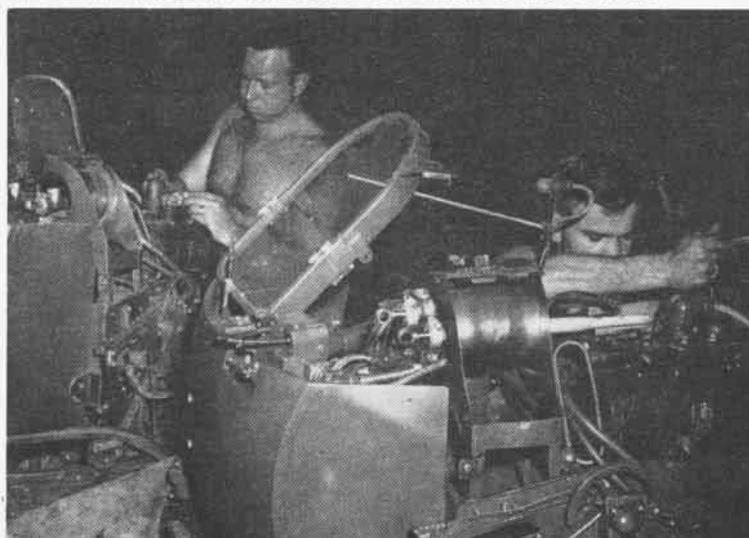
a bomb bay without accepting numerous other sacrifices.

It should be a low-wing monoplane, so that that very heavy weight item—the main landing gear—will be as short and light as possible. The junction of the low wing with the fuselage becomes the heart of the airplane insofar as strength is concerned. This is where the largest structural loads are carried and the heaviest structural members are found. However, this is also where the center of gravity of the airplane is located, very near which must be carried large expendable loads such as fuel and bombs.

To put a bomb bay at this point means that very heavy structure must be built around the bomb bay, greatly increasing weight. Also, with a bomb bay here, fuel must be disposed in a large number of small tanks in the wing. This would greatly increase weight of the fuel installation.

Both aircraft carry plenty of firepower. The AD-1 has two 20 mm. guns in its wings and the AM-1 has four of these cannon to defend itself. Both are capable of better than 300 knots when relieved of heavy armament loads.

TURRETS LIKE THIS ADDED 650 POUNDS OF WEIGHT TO AN AVENGER



Navy Abandons VA Bomb Bay

THE DECISION to eliminate the extra gunners and make the new attack planes single-man jobs was a momentous one for BUAER to make. The earliest fighting planes carried their torpedoes and bombs externally because bomb bays then were unknown. The TBF was the first carrier aircraft to carry its lethal load internally.

While it might at first look like a step backward to go to external armament carrying again, such as was used by the old baling-wire and canvas airplanes, BUAER decided the idea would give it the best possible attack plane, capable of getting away from its target fast once it had dropped its load. Development of aircraft rockets like the 5" HVAR's and 11.75" *Tiny Tims* helped sell the Navy on abandoning bomb bays on this type plane. Some experiments were made with the SB2C to carry the big *Tims* in its bomb bay but the idea was not developed operationally during the war.

Tiny Tim rockets, 12 feet long, weigh 1300 pounds apiece. They are the largest carried on aircraft today and will go through three feet of reinforced concrete. The HVAR's plus the *Tims* give the attack plane more firepower for one salvo than a light cruiser. The whole load can be fired singly or in pairs, each chasing the other earthward 140 feet apart at a speed of 1500 mph., twice the speed of sound. All are released within the space of a second.

During its tests, the *Skyraider* was put into dives from 20,000 feet with 7 G pullouts at 5000 feet at 500 mph. This many-purpose plane can accommodate a 6,000-pound load of bombs, torpedoes, napalm bombs, radar units or extra fuel tanks without having to change armament installations.

Both the AD-1 and the AM-1 aircraft are slightly larger planes than the old *Avengers* and *Helldivers*. The *Mauler* is about 50% heavier than the AD-1, despite the fact it has somewhat similar overall dimensions. It has a bigger engine, more gas tank capacity and more and heavier armament.

The *Mauler* has a 3,000 hp P & W engine, largest recip-



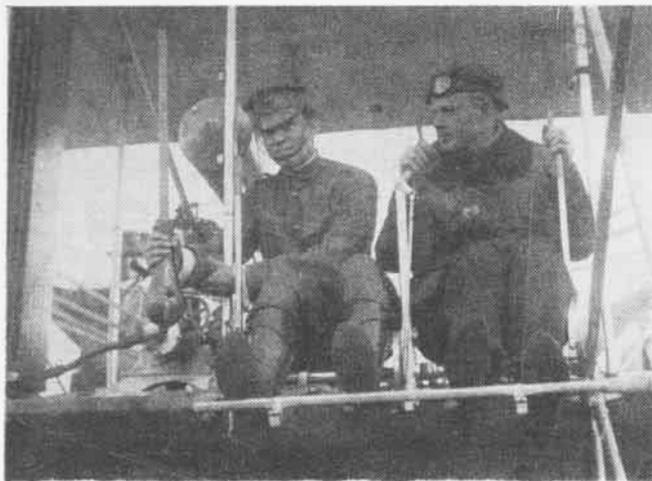
NEW ATTACK PLANE HAS NO BOMB BAY LIKE THIS, REDUCES WEIGHT

rocating engine in any Navy fighting plane, putting it in the 300-knot class. It has a 1700-mile range, and can carry 6,000 pounds of torpedoes, rockets and bombs. The Douglas attack bomber weighs about 14,000 pounds with combat loading, minus bombs, compared to 19,200 pounds for the Martin plane. Both have 50-foot wingspans.

Now compare this to their predecessors, the TBF and SB2C, sometimes known as the *Beast*. Both of these weighed in around 16,000 pounds gross weight. Their speeds were about 100 knots slower than the new attack planes—and that is some drop. Their R-2600 engines turned up less than 2,000 horsepower, compared to the 2,500 hp R-3350 engine in the AD-1 and the AM-1's still-larger power plant of 3,000 hp.

FLAPS DOWN AND ROCKET PYLONS EMPTY, AD-1 ROARS DOWN FLIGHT DECK OF ROOSEVELT ON TAKEOFF; NAVY HAS SEVERAL AD SQUADRONS





LT. CRISSY DROPS FIRST EXPLOSIVE AERIAL BOMB FROM WRIGHT SHIP

ONE REASON for the general excellence of the AD-1 might be the fact that a comparatively large number of experimental models could be built and tested before the final *Skyraider* was decided on. In carrier qualification tests on the *Sicily*, technically qualified observers reported the plane had good landing characteristics, a low landing speed and was an easy, stable plane to fly.

The AM-1 airplane has been a much more difficult airplane into which to design fine flying qualities. While it was conceived to operate from CVB-class carriers and with shore-based Marines, it was necessary to compress greatly its dimensions so that it could be delivered to far-away combat zones via Kaiser-class CVE's.

In view of its high-powered single-rotation engine and propeller, it does not have as much wing span and tail length as it should have for ideal flying qualities. This is typical of the many sacrifices necessary to have carrier-based aviation.

While the Navy's attack planes are abandoning the internal bomb bay, larger patrol aircraft like the P2V and XP4M-1 still will have them. A bomb bay goes logically and naturally into a multi-engined, high-wing airplane.

Besides putting rockets on the wings and bombs in the fuselage bays of these large planes, the Navy also is experimenting with the idea of firing spin-stabilized rockets from tubes in the nose or buried in the wings. This would make it possible to fire large quantities of rockets from planes, a la machine gun, rather than limiting them to the number of external racks that could be stuck on a wing. As many as a dozen 5" HVAR's and a couple of *Tims* have been slung on the AD-1 to show its armament possibilities (see front cover NANews, November). With spin-stabilized rockets, the firepower load could be increased considerably.

THE PERSONAL angle should not be overlooked in considering the greater desirability of today's attack bombers over the two- and three-man torpedo or dive bombers. A pilot is a better fighting man if he does not have to worry about the lives of his crewmen, one of whom might be wounded in aerial battle. He can concentrate on fighting and flying his plane.

Carrier maintenance of an attack plane should prove considerably easier than of the planes with turrets and bomb bays. The intricate mechanism necessary to operate both of those items required specialists to repair them and keep them operating. External bomb racks and wing guns are far easier to keep in shape—and that is all the fixed armament an attack plane carries. Loading of bombs, torpedoes and rockets under crowded carrier conditions should be easier when they can be hung on the fuselage or wings externally.



XBTC-2 WITH COUNTER-ROTATING PROP WAS ATTACK PLANE ANCESTOR

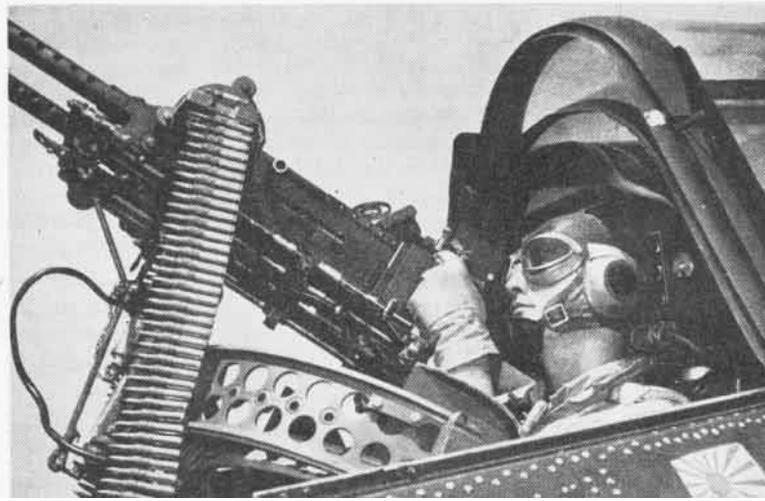


BOMB CONTOURS, AS THIS BLUNT-NOSED DEPTH CHARGE, MAY CHANGE

Another problem raised by the higher speeds of today's aircraft is in the design of external stores—bombs, drop tanks and torpedoes. New, more-streamlined armament is undoubtedly a "must" in the age of jets and high speed flying we are now entering.

Tests with P-80's have indicated some difficulty from tumbling may be experienced with bombs of present shape. Illustrated with this article is one idea which will be explored along this line—a casing into which a bomb, rocket or napalm tank could be fitted, streamlined sufficiently to permit high speeds. Progress is always on the march.

LATEST NAVY ATTACK PLANES HAVE ELIMINATED THE REAR SEAT MAN



GRAMP AW PETTIBONE

Strike Three:

Four SNJ's departed Barksdale Army Air Base on a routine ferry flight to Hensley Field near Dallas. The departure time was 1730 and according to the lead pilot's calculations this would allow the flight to arrive in Dallas about 13 minutes after sunset. As the group approached the Dallas area the pilots observed a thunderstorm moving in from the northwest.

The flight leader attempted to call Hensley Tower for landing instructions, but was unable to communicate because of static on his radio. Darkness had, by this time, greatly reduced the visibility, and the pilots were unable to locate Hensley Field. The lead pilot then turned back with his flight toward Terrell, Texas, 30 miles to the eastward, intending to land at the airport there. They had passed over Terrell airport about a half hour earlier, but when they returned, they were unable in the gathering dark to locate the unlighted field.

With about 30 gallons of gasoline remaining the flight leader again turned toward Dallas. At this time the group ran into heavy rain and severe turbulence. After about ten minutes the leader circled what he believed to be Clearview airport, a small grass field south of Dallas. On receiving a white flashing light he broke up his flight for a landing.

There were no runway lights, and in the heavy rain the leader lost sight of the field on his approach. His plane was buffeting badly in the heavy winds and he hesitated to take a wave-off for fear of spinning in. A sudden flash of lightning showed him that the ground ahead was level, so he landed, rolled across the field, and sheared one wing off on a telephone pole at the far end.

The other planes fared only slightly better. The number two man overshot Clearview, and saw that he was going to hit the trees at the end of his landing run. Fortunately he had just enough directional control left to aim his plane between a couple of sturdy trees. The SNJ was badly wrecked, but the pilot climbed out uninjured. The other two pilots decided to stay in the air a little longer hoping that the storm would ease up. However, they became sepa-



rated, and one finally made a wheels-up landing in an open field with "strike" damage to his aircraft. The fourth man succeeded in locating another airport south of Dallas and made a normal landing.



Grampaw Pettibone says:

When a fellow decides to disobey regulations, the least he should do is start figuring on alternatives in case things don't go so well. NATS Atlantic Wing Operating Instructions state: "with probable winds and weather considered, ferry flights will be completed 30 minutes before local sunset at point of destination."

The lead pilot disobeyed this directive, and, as a direct result of this violation, his flight became lost after dark with the result that three of the four planes failed to make safe landings. Seems to me that he should have been thinking all along the route from Shreveport to Dallas about what he would do if he ran into bad weather or darkness. Had he been doing this the chances are that he would have landed his flight at Terrell when they first passed that field while it was still light. The one thing that should have been on his mind was to get that group on the ground before it got dark. From the looks of the chart for that area, he passed up several opportunities to do this during the last few minutes of daylight.

ComNATS has convened a formal Board of Investigation to report on this extremely costly and most unnecessary accident.

Dear Grampa Pettibone:

On a training flight out of Mustin Field I landed my SNJ at Syracuse airport and discharged my passenger, a yeoman striker. Before the return flight I inspected the rear seat with what I

thought was reasonable precaution, and insured that the parachute was secured tightly in the seat by means of the safety belt and shoulder harness.

After take-off and climb I attempted to lean the mixture out at approximately two thousand feet, but found that the control could only be moved a very small distance. After landing I consulted with the line chief and plane captain concerning my inability to lean out the mixture. We discovered the difficulty in short order, and I'm not certain whether my face indicated relief or embarrassment. The passenger had removed his head phones and hung them on (of all places) the throttle quadrant in such a manner that it was impossible to operate the mixture control. Perhaps it was only luck that they hadn't been so placed as to prevent take-off power.

Which brings to mind the very true saying: "There is no greater safety afforded the pilot than that which he gives himself by careful inspection of engine and flight controls."

Sincerely,

Comdr. _____ USN.



Grampaw Pettibone says:

You can say that again, friend, because it's certainly true! My accident files are full of cases where the pilots didn't check their planes with sufficient care before take-off. Thanks for your letter; it may save some other pilot from a serious accident.

Practice What You Preach

A pilot with 836 hours, who was under instruction in Landing Signal Officer's School was practicing carrier landings and take-offs in an SNJ. On one approach he received a come-on in the groove, followed by a "cut." The pilot answered the "cut" and the plane hit the deck at about the No. 2 wire and bounced slightly. The hook then engaged the No. 4 wire, but just at this moment the pilot felt that he was going over the side and applied full power in an attempted wave-off. As a result the plane pulled out the wire and went into the port catwalk.



Grampaw Pettibone says:

Shame! Shame! It's bad enough when DILBERT pulls this stunt, but I'm really surprised at a future L.S.O. who forgets that the "cut" and the "wave-off" are mandatory signals in carrier flight operations.

Dilbert Was Here

Dilbert showed up last month disguised as a Lieutenant Commander who needed some flight time. He arranged for a local hop in an SNJ, but of course didn't bother to read the pilot's handbook, even though it had been quite a long time since he had flown one. After all, anybody can fly an SNJ!

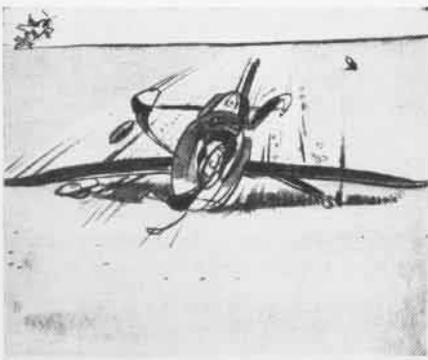
Shortly after take-off he called the tower reporting zero hydraulic pressure and inability to get his wheels up. The tower checked the wheels and verified the fact that they were still down, so Dilbert requested landing instructions, made a normal approach and landed. The wheels folded upon contact with the runway. When the crash crew arrived, the landing gear control lever was in the "UP" position and the warning horn was sounding. The crash crew hoisted the plane and extended the gear which locked down. The plane was then towed to the hangar for inspection. The hydraulic reservoir was found full and the landing gear and flap operation were normal in all respects.

The pilot had apparently forgotten to push the "Power Control" button before trying to get his wheels up. Naturally no pressure was indicated on the gauge. He then came around for his landing, forgetting to return the landing gear control lever to either the "DOWN" or "EMERGENCY DOWN" position, thereby preventing the engaging of the locking pins.

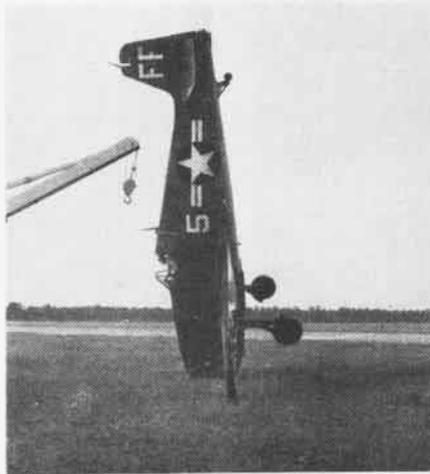
The plane requires a new propeller and a major engine overhaul, and replacement of both wings.

Grampaw Pettibone says:

You were batting .000 on this one, friend. I can understand how you could forget to push the "Power Control" lever. That was due to your lack of familiarity in the plane, and your negligence in failing to study the pilot's handbook. But how you could forget and leave the wheel lever in the "UP" position for the landing after you knew that you were having trouble of some sort, beats me. Of course, I guess it would really be expecting too much to think that you might know of the emergency down lock position.



Apparently Dilbert failed to CHECK that his landing gear was LOCKED down!



Neat Balancing Act

The pilot of the F6F above is waiting for the crane to hook on, before he can get out of his delicately-balanced plane. A few minutes earlier he made a fast landing on the last half of a 5000 foot runway that was still wet from a recent rain shower.

The wet surface reduced the effectiveness of his brakes and he ran off the runway and hit a shallow ditch, and nosed up.

Grampaw Pettibone says:

I'll bet you couldn't do this again if you tried. But don't bother—next time remember to land on the first third of the runway.

Dear Grampaw Pettibone:

HERE'S SUMPIN' WE'RE PURTY PROUD OF WAY DOWN HYAR IN TEXAS. Clipping from *Corpus Christi Caller* for October 2, 1947:

"Naval Air Training Bases Complete Year Without Fatal Aircraft Crash."

The Naval Air Training Bases here yesterday completed a full year without a fatal aircraft accident involving flight instructors or students in flight training.

Only three students were injured during this period. Each of these injuries was minor, and each was the result of a parachute jump. One student broke his leg in a parachute landing after he had been accidentally thrown from his plane, and another received minor abrasions from the chute harness while coming down.

A cactus patch caused the third injury, after the student's shoes came off in the snap caused by the opening of his parachute. His feet were cut when he landed, barefooted, in the cactus thorns.

Instructors and students at NATB have flown more than 169,000 hours during the past year, while other types of flights, including aircraft tests, proficiency hops, and transportation flights, brought the year's total to more than 200,000 hours."

Grampaw Pettibone says:

Congratulations on a fine safety record. I know that this splendid record could only be achieved through careful

planning and operation of the training syllabus, and excellent aircraft maintenance. I'm counting on you folks to keep up the good work and go right thru next year with flying colors.

Do Something!

The man on the flying trapeze didn't have much of an edge on the pilot in the F8F pictured here as he floats high above the carrier deck, clearing the barriers at a height of 20 feet.

The aircraft was slightly high and fast when given the cut signal. The pilot dived for the deck and hit wheels first at about the number five wire. The F8F bounced, and the pilot then held back on the stick and floated over the barriers.



Flying speed was lost abeam of the island and the plane fell off on the port wing and crashed among a group of three F8F's parked forward of the barriers. An aviation ordnanceman near the second plane in the line was fatally injured when hit by the falling aircraft.

Grampaw Pettibone says:

I've seen a lot of pictures of planes floating on carrier landings, but this chap looks like he's trying for an altitude record. After his initial mistake of diving for the deck, he doesn't appear to have made any effort to get down on the deck again. From the looks of his elevators in the enlarged pictures, he was really trying for the world's highest bounce.



Here lie the bones of Pilot Knight
Who said the straps were too darn tight
His harness loose—when the engine quit
He set her down, but his head was split.



'SMOKE' STREAAN RELATES HIGH HATTER EXPLOITS OVER SHIP BULLHORN



STEADINESS IN FACE OF DISASTER BROUGHT MORNER BACK TO SHIP

FIGHTING ONE

FIGHTING Squadron ONE first met the enemy at Tarawa in 1943. There the "High Hatters"—this was the nickname of their squadron—flew their *Hellcats* from carriers into the fray with the skill they had been taught.

Behind them were the training days, the commissioning at Alameda 1 May 1943, the final carrier qualification tests, and the long trip across the Pacific to meet their baptism by fire. This was it. And they did not muff their chance to get at the Japanese. Supporting the vital troop operations, they steadily attacked for four days enemy personnel, anti-aircraft emplacements and all ground installations. This was accomplished with no loss to the 44 planes of the squadron.

After the conquest of Tarawa, *VF-1* was charged with the defense of that strategic milestone on the road to Tokyo. For this purpose they were land-based at Betio which was ill-equipped for the purposes it must serve. The airstrip was in such bad condition that only the high operational caliber of the squadron can account for the fact that all 44 planes landed safely. Of the next six planes coming in from other squadrons, five had accidents.

Life was rugged. Revetments served as barracks for the first two nights, and subsistence for the first week was that unappetizing bill of fare known as K rations. At the end of two months 50 percent of the personnel were grounded with dengue or dysentery.

The commanding officer whose leadership and fighting spirit led his squadron victoriously during Tarawa and later

operations, often against greater numerical strength, was Cdr. B. M. Streaan, USN, known as *Smoke*. As island air defense commander, he directed the work of the squadron in making sorties in addition to daily dawn-to-dusk combat air patrols.

After the duty at Tarawa, *VF-1* had a second training period at Oahu from 5 February to 29 May 1944. The emphasis on nightfighting paid off tremendous dividends 19 June when the squadron landed all its planes aboard the *Yorktown* after dark after its strike against the Japanese Fleet.

Aboard the *Yorktown* from 29 May to 2 August, *VF-1* lived breath-taking, battle-marked days, forty of which it spent in contact with the enemy. They were part of the force that spelled out the coming doom of the Japanese in the Mariana, Bonin and Caroline Islands. The handwriting on the wall was as nothing to the handwriting in the skies. For the eleven men lost in combat in this period, *VF-1* made the enemy pay.

And this was the bill! 101 enemy planes and 19 probables, all airborne; 61 planes on the ground, eight ships damaged and 16 sunk, 26 AA batteries silenced, and 7 fuel or ammunition dumps blown up. In the *Turkey Shoot* alone, *VF-1* downed 37 Jap planes and six probables and, for good measure, scored two bomb hits on a *Hayataka* class carrier.

On three of *VF-1*, Vice Admiral Marc A. Mitscher pinned the Navy Cross: Cdr. Streaan, Lt. Richard T. Eastmond, USNR, and Lt. (jg) John

R. Meharg, USNR. Two others, Lt. Robert R. Baysinger, USNR, and Lt. (jg) George W. Staehli, USNR, received the Air Medal with two Gold Stars; four, the Air Medal with one Gold Star; and fourteen, the Air Medal.

Fearless and versatile, *VF-1* had, in the first 15 months after its commissioning, proved its mettle. Land-based or carrier-based (CV or CVE), it had done night fighting, day fighting, bombing and escort work for a total of 29,210 hours and made 3,898 sorties in combat zones.

WHAT OF the men and the deeds behind the statistics? Cdr. *Smoke* Streaan attracted AA like a magnet. He it was that delivered blistering criticism of pilots who flew too low. The pilots could only listen with respect and amazement, for after all, *Smoke* himself always flew the lowest. And it was none other than *Smoke* who claimed that anyone who jumped from a burning plane before his shirt tail was on fire was just an accident looking for a place to happen. Fate gave him the chance to test his doctrine when AA hit his wing root and the gas tank seemed to be on fire. *Smoke* stuck to his plane over the enemy island, and providence was kind, the blaze thereupon went out!

Special persistence was the mark of Lt. (jg) William P. Tukey, true to his native New England in his thoroughness. Once his flight was working over a Japanese convoy and everyone was eager to be in on the kill. On his run, Tuke's bomb failed to release, so

★ This is the first of a series of short sketches of squadrons in World War II, based on reports filed with Aviation History, Op. 50D1. Each month one squadron will be presented. ★

he climbed back into position and tried again. His second dive involved a miscalculation, and seeing that he would miss, he plowed through the AA without dropping. By the time he was ready for the third run, the others had finished bombing and exhausted their ammunition in strafing. It was time to go. But Tuke demanded they wait until he made his attack. They did. He made the attack. Three times and out for the Japs!

It was in the Bonins that Ens. Alden P. Morner, Silas for short, raced against death. After shooting down two and a probable third plane, he was badly shot up by three *Zekes* on his tail. With holes all over the plane and his left leg hit by shrapnel, with his plotting board riddled, his port wing damaged, and his oil line showering him with oil, the outlook was grim. Practically every instrument in the plane was knocked out, and the plane was only 100 feet above water.

Twenty miles to go! Back to base he went with the *Zekes* in pursuit. Two of them finally broke off the attack, but the third *Zeke* apparently out of ammunition held on and slow-rolled around Morner before breaking off. By strong stick and rudder control, Morner maintained level flight to base. There he got his tail hook down by violently rolling his wings. After taking one wave-off, he made a belly landing aboard in spite of his oil-covered windshield.

But perhaps the fighting spirit of *VF-1* is no more clearly symbolized than in the fighting end of Lt. Paul M. Pablo Henderson, Jr., a southern "rebel" from Florida. Disappointed that he had not even seen a Jap plane in the Solomons with another squadron, he was determined to make his kill in the Bonins. Eager and aggressive, he was shot down after his wingman had

confirmed four kills for him. He longed for another. His last words over the radio were, "I've already got four, and I've got thirty cornered."

After the *Yorktown* duty, *VF-1* headed home to be re-formed at Alameda 1 October 1944. On 15 December, Lt. Cdr. M. C. Hoffman, USN, assumed command. As a member of *VF-5*, he had taken part in the offensive against the Marcus, Wake, Gilbert and Marshall Islands. With three enemy aircraft downed and two Distinguished Flying Crosses for that tour, he was a worthy successor to *Smoke*. His previous experience included some special knowledge of the Japs, for on one tour of duty, he had flown a captured *Zero* in order to work out tactical maneuvers against the enemy.

At NAAS Fallon, Nev., the squadron concentrated on individual practice in primary weapons, dive, glide and masthead bombing, rocket target practice and tactics. Moving from there through a series of training periods from the West Coast to Pearl Harbor to Guam, the new *VF-1* finally headed for Leyte Gulf, P.I. where they boarded the *USS Bennington*. From that time until July 10, the date of their first engagement with the enemy, the squadron was briefed on air-sea rescue, anti-submarine procedure, and ditching, as well as that increasingly important subject, the geography of the entire Japanese homeland.

On 1 July the *Bennington* with the rest of the Third Fleet sailed out of Leyte headed for Japan.

Lt. Cdr. Hoffman led the first strike against the Hyakurigahara and Tsukuba airfields just north of Tokyo. Net loss to the Japanese was one airplane destroyed and 18 grounded planes damaged. From that date to



LT. 'PABLO' HENDERSON DEMONSTRATES MANEUVER AGAINST THE JAPS

the end of the war, *VF-1 Hellcats* struck again and again, destroyed 38 Japanese planes, damaged 123 planes, and sunk or damaged thousands of tons of enemy shipping.

Naval bases were sitting ducks, and the hunting *High Hatters* went after them. At the Yokosuka Naval Base on 18 July, one *VF-1* pilot scored a direct hit on the battleship *Nagato*, damaging it seriously. The attack on Kure Naval Base 24 and 28 July netted greater results, for there *VF-1* aided materially in sinking the battleship *Hyuga*, a destroyer and a destroyer escort. Furthermore, at the same time, the squadron seriously damaged the battleship *Ise*, two carriers *Amagi* and *Katsuragi*; two cruisers, and many small naval vessels.

And then came victory. The happy warriors now turned immediately to a new task, searching for prisoner of war camps in northern Honshu and escorting torpedo planes on their supply dropping missions. On 10 September the *Bennington* dropped anchor in Tokyo Bay, and most of the squadron visited the scenes of their attacks in the capital city and Yokosuka.

For outstanding performance of duty, 117 decorations were awarded members of *VF-1*. Lt. Cdr. Hoffman, Ens. C. G. Wickham, USNR and Ens. C. H. Barfield, USNR, received the Navy Cross.

On 25 October 1945, *VF-1* was decommissioned.

It had been a long way from Tarawa to Tokyo. Each pilot who had served on either of the two tours of duty had played his part. Brave, aggressive, debonaire, *High Hatters* all!



IN THE SHALLOWS OF KURE BAY, JAP CARRIER AMAGI MEETS ITS END

LAST JEEP CVE SOLD

THE LAST of the jeep carriers has been sold for use or scrap—the USS *Sangamon*, which started out life as a Standard Oil Co. tanker and wound up seeing action as a flattop in the North African invasion and in many Pacific engagements.

Last of 49 converted escort carriers to be sold, the *Sangamon* (CVE-26) was put up for bids by the Navy at Norfolk. The Maritime Commission sold 30 for use and 18 for scrap. Most of these baby flattops had been loaned to the British under lend-lease and returned after the war.

Sealed bids on the *Sangamon* ranged from \$35,000 by John K. Collins, Hoboken, N. J. to \$356,666 by Hillcone Steamship Co., San Francisco. It finally was sold to the latter company.

The *Sangamon* operated off Port Lyautey in the African invasion, then moved to Guadalcanal in March of 1943, took part in the Gilbert islands invasion, the Marshalls campaign, Hol-



SANGAMON WAR RECORD IN BOTH OCEANS

landia, Marianas, Halmahera, Leyte, and Okinawa. She took a *Kamikaze* off Leyte but her planes destroyed 19 Japs in the air and on the ground in retaliation.

The Navy also sold the old CV *Ranger* for scrap to Sun Shipbuilding Co., for \$249,000. Other big carriers were put in the Reserve fleet in "moth-balls."

Escort carriers sold on bids for use during the 18 months were:

To Wm. B. St. John, New York City—Attacker, Ravager, Slinger, Atheling, Ameer, Trouncer, Puncher. Price range \$110,100 to \$125,100.

To Waterman Steamship Corp., Atlanta, Ga.—Stalker, Chaser, Behum, Trumpeter, Khedive, Premier, Patroler, Rajah, Rancee, Queen, Reaper. Price range \$95,000 to \$160,000.

To National Bulk Carriers, New York City—Fencer, Charger, Atheling, Searcher. Price range \$126,356 to \$141,140.

To Newport News Shipbuilding & Drydock, New York—Tracker, Speaker, Shah, Arbitrator. Price range \$106,000 to \$190,000.

Single purchases—Joseph F. Luley, New York, HMS Archer, \$176,000; Boston Metals Co., Baltimore, Wake Island, \$15,000; Colonial Navigation Co., New York, Attu, \$60,000.

Escort carriers sold for scrap were: Patapsco Steel Scrap Co., Bethlehem, Pa.—Battler, Purser, Striker, Emperor, Empress, Ruler, Solomons, Kalinin Bay. Price \$43,000 each.

Zidell Machinery & Supply Co., Portland, Ore.—Kitkun Bay, Tulagi, Makin Island, Salamaus,

Admiralty Island, Roi, Long Island. Price \$11,100 to \$81,800.

N. V. Holland Shipbreaking Yd., United Kingdom—Nabob, Thane. \$14,000.

Sun Shipbuilding, Chester, Pa.—Casablanca. \$100,000.

FH-1 Gets Service Experts Navy Trains Men to Maintain Jet

To train men to service its first all-jet fighter, the FH-1, the Navy estab-



PHANTOM SERVICE SCHOOL GRADS TALK SHOP

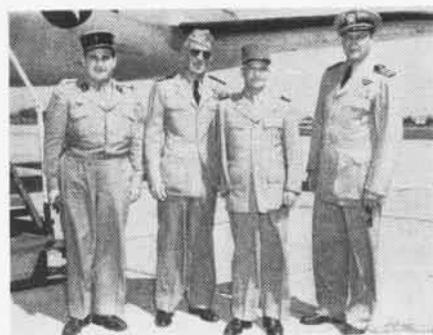
lished a short-term *Phantom* Service School at the McDonnell Aircraft Corporation in St. Louis. Three sessions of four weeks duration were scheduled with the first class convening on 21 July and the last one graduating on 10 October. A limited number of men from the fleet and from shore stations were selected to attend the school. Two instructors from NATTC MEMPHIS were graduated with the first class.

The course covered all service features of the FH-1 and included practical training in maintenance and upkeep.

The picture shows five Marine graduates of the first class, a McDonnell test pilot and the PIO of the Midwestern Recruiting Division, standing in front of a McDonnell *Banshee*. From left to right they are: MSgt. Louis Cvetko; MSgt. Charles Washburn; MSgt. Eddie Bennett; test pilot R. M. Edholm; MSgt. Charles Kilborn; Lt. L. D. Slattery; and MSgt. John Alling.

VMF-115, HAWAII—Who said peacetime? With a great increase in plane and pilot availability, this squadron flew 1120 hours in one month, the best monthly record since peacetime routine was established. It was almost 500 hours better than the best total for the squadron while it was in North China. It included 368 hours of tactics, 295 hours of gunnery, 142 hours of instruments and 188 hours night flying.

VR-6, GUAM—The NAS AGANA Officers Club is completely defunct, since opening of a new club in the completely remodelled officers' mess. The old building, long a haven for toil-worn, care-weary, has been abandoned to cobwebs, mice and ghosts. The new club is of varnished bamboo, rattan furniture and tropical plants and shows signs of being a financial success.



Lt. Gen. Zinovi Pechkoff, Head of the French Mission with SCAP (r. c.), and Capt. Roger Pignol, Diplomatic Secretary (l.), stop off at NAS San Diego enroute to Tokyo and are greeted by Capt. Gerres (r.) and by Capt. Heath (l. c.)

VMF-211 Is Now At Tsingtao Bumpy Field Presents Minor Hazards

VMF-211, Pacific—This squadron is now stationed at Tsingtao, China, having been transferred from Peiping early in the summer. The operating area, taxiways and parking space at this base are very rough. In many places, the concrete surface has given way and has sunk as much as one foot.

Due to the uneven going, some gyro instruments have been damaged and holes have been found in the fabric on wings and elevators, even though pilots have exercised the greatest caution in taxiing. Consequently it is now good squadron policy to leave the gyro instruments uncaged, except when undertaking acrobatics or maneuvers which would exceed the limits of the instruments.

Since many of the flights now take place over water some of the survival equipment used at Peiping was replaced. PK-1 paraflite kits, for example, were substituted for the one-man parachute-type raft. One of the features of the PK-1, desired by the squadron, was the desalting kit which contains a chemical to make salt water drinkable. Hand smoke signalling devices attached to *Mae West* life preservers have also been made available to pilots.

VR-1—Lt. Cdr. W. W. Lamar, Jr., NATS PPC, must have been a Boy Scout when he was young. He carried a pocket compass on a recent flight—and it was a good thing he did. His RSD magnetic compass was unreliable, the fluxgate compass failed, one radio compass was out and the second doubtful. Lamar used his pocket variety to fly through the soup.

MCAS MIRAMAR—With a large size air station and so few personnel, a better system of policing had to be devised to divide the work evenly. Each unit was assigned a definite area to keep clean, a large map being sectioned off and spaces allotted according to a unit's personnel strength.



NEW YORK RESERVE CORSAIR WARMS UP, WITH WILLOW GROVE FIGHTER MARKED 'WF' IN BACKGROUND; NOTE ORANGE RESERVE FUSELAGE BANDS

BY THE LETTERS . . .

IF YOU were to line up six members of the United States Navy and ask them what the three-foot letters on the rudders of Navy airplanes mean, chances are five of them would not know.

This despite the fact BUAER issued ACL 156-46 a year ago setting up a new system of painting letter symbols on planes for visual identification.

Carrier-based planes wear on their tails letters designating what ship they are attached to, like *M* for *Midway*, *SA* for *Saipan* and *SI* for *Siboney*. Marine carrier planes use the same system, but if they are land-based they have a line painted under the letters, as shown in the accompanying illustration of VMF-212 planes with *LD* on the tails.

Fleet Air Wings were assigned single letters and squadrons under them are listed as A, B, C or D squadrons. Thus

the first squadron in Fairwing 3 wears the C assigned to its Wing, plus A, or CA.

Other Fleet Air Wings designating letters are Fairwing 5—E; Fairwing 11—M; Fairwing 1—A; Fairwing 2—B; Fairwing 4—D; Fairwing 7—H;



LEX XMAS PARTY PRODUCED THIS NOVEL SHIP

Fairwing 10—L; Fairwing 14—S and Fairwing 18—W.

First Marine Aircraft Wing was assigned A, with squadrons under it adding letters, as with Fairwings. Second Wing wears B, Fleet Marine Pacific wears P, Marine Air West Coast W, Marine Air Atlantic L, Cherry Point E and Quantico EA.

Reserve aircraft wear a similar system of markings, with the addition of an orange-red belly-band on the fuselage forward of the stabilizers.



LAND-BASED MARINE ATLANTIC F4U MARKINGS

Each station was assigned a different letter. The second letter on the rudder is for the type of aircraft. For example: Anacostia's letter is A. Her fighters carry AF on the tail, her attack planes AA, her utility planes AU, her patrol planes AP and her transports AR.

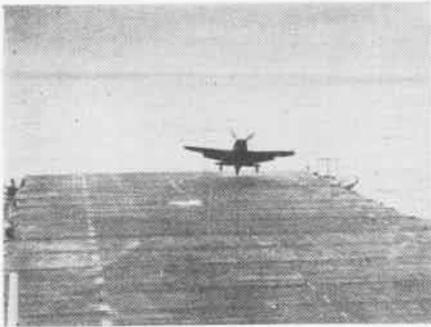
Other Reserve station letters assigned:

Atlanta—B	Columbus—C
Dallas—D	Denver—P
Glenview—V	Grosse Ile—I
Jacksonville—F	Los Alamitos—L
Memphis—M	Miami—H
Minneapolis—E	New Orleans—X
New York—R	Norfolk—S
Oakland—F	Olathe—K
Seattle—T	St. Louis—U
Squantum—Z	Willow Grove—W

From the above, it may be seen that planes from different fleet squadrons might have the same tail markings as Reserves—the CVL *Saipan's* planes would wear the SA, as might the attack planes of the Reserve unit at Norfolk. The difference would be in the wide orange belly-band on the Reserve plane.



CVE BAIROKO'S FIGHTERS WEAR 'BA' ON TAIL



1 Pilot starts a wave-off to the left after clearing the ramp of Tarawa



2 Bearcat's airspeed is too slow and plane abruptly stalls out to right



3 The F8F heads for the island as the pilot struggles to regain control

Too Close for Comfort



THE F8F in this startling series of pictures was piloted by an Ensign who was making his eighth landing in carrier qualification. On this approach he eased power in the groove and settled at the ramp, losing sight of the landing signal officer. He began a wave-off to the left; however, his speed was such that the right wing stalled

out and headed the plane for the island. The pilot managed to pull the plane over the after gun mounts, and at this time the left wing stalled out, flipping the plane over on its back and again heading for the island.

In the large pictures which accompanied the accident report, the position of the control surfaces can be seen clearly, and indicate that the pilot was really "flying" his aircraft at all times. From his position in Picture No. 6, the pilot managed to level his plane again just before it mushed into the water with wheels and flaps down. The plane flipped over on its back and sank within 20 seconds. Shoulder harness and safety belt were snug and prevented any injury to the pilot on impact with the water. Heads-up photography on board *Tarawa* produced this series.



4 AFTER PULLING OVER THE FIVE-INCH GUN MOUNTS WITH ONLY INCHES TO SPARE, THE PLANE STALLS AGAIN, THIS TIME SPINNING TO LEFT



5 The F8F approaches the inverted position and once more it appears that the aircraft will hit the island structure



6 Barely clearing the island, the pilot struggles to recover level flight, which he regains just before hitting water



7 The plane flips over on its back after mashing into the water with wheels and flaps down; pilot is still in cockpit



8 Down plunges the Bearcat as the lucky pilot comes to the surface unharmed; he was picked up minutes later by DD



BLACK WIDOW HAS SPECIAL PITOT FOR AIRSPEED RECORDER AND A TEMPERATURE GAUGE ON TOP

Fliers Lick Storms

NO SANE naval aviator, unless he is in a meteorological squadron and gets paid for it, would fly into a thunderstorm in his right mind. There is no quicker way to get to 30,000 feet flat on one's back.

But occasionally a pilot may get caught in weather and have to make out the best he can. In such a case, some words of wisdom, handed down from the thunderstorm research project run by the Army, Navy, Weather Bureau and NACA at Orlando, Fla. and Wilmington, Ohio, may be of value.

Pilots of that project deliberately flew P-61's and other planes into the hearts of thunderheads to find out what happens. According to ACL 85-47, pilots who have flown through thunderstorms report turbulence encountered is not extremely dangerous.

"It is their belief that the extreme

accelerations, reported by pilots inadvertently caught in storms, actually were pulled by the pilots in trying to maintain level flight and altitude.

"Experience to date has shown that pilot reaction is adequate to maintain

control of the aircraft. However, they also point out that it does take considerable instrument ability to fly through severe storms. Inadequately trained pilots should not attempt to fly through thunderstorm activity."

Drawing on two years' experience in bad weather flying, pilots of the research project have drafted the following flight doctrine, or "Advice to the Up-borne":

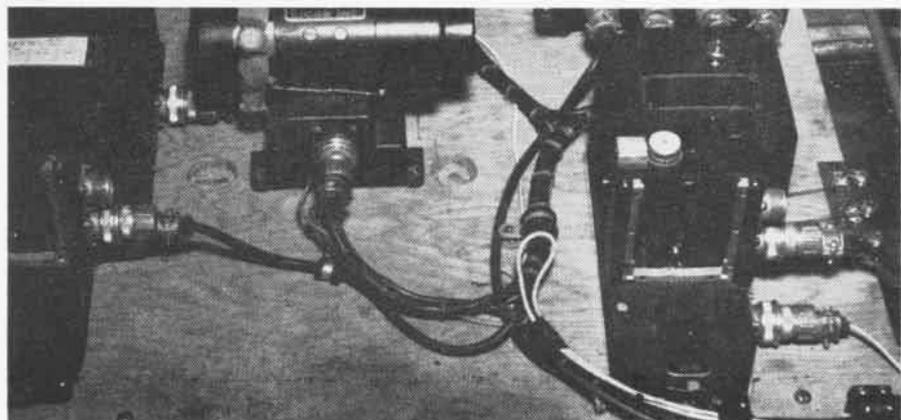
1. Unless very experienced in instrument flying stay out of thunderstorm areas.
2. Most military aircraft are sufficiently stressed for thunderstorm flights.
3. Turn pitot heat on prior to entering storm activity.
4. Increase RPM and adjust cruising speed to about one and one half times stall speed at gross weight.
5. Trim aircraft for level flight before entering the storm.
6. Check flight instruments for accuracy and correct operation.
7. Turn cockpit lights on before entering the storm.
8. Don't attempt to maintain altitude—fly attitude.
9. Don't over-control. Let the aircraft ride the storm, using only enough control to keep it from reaching a dangerous flight level or attitude.
10. Don't change power settings unless dangerous speeds are reached.
11. Wear colored goggles to aid in preventing temporary blindness when lightning strikes.

OTHER findings reported by project pilots included:

Icing—During the 1947 phase, no cases of engine failure due to icing or other phenomena have been reported.

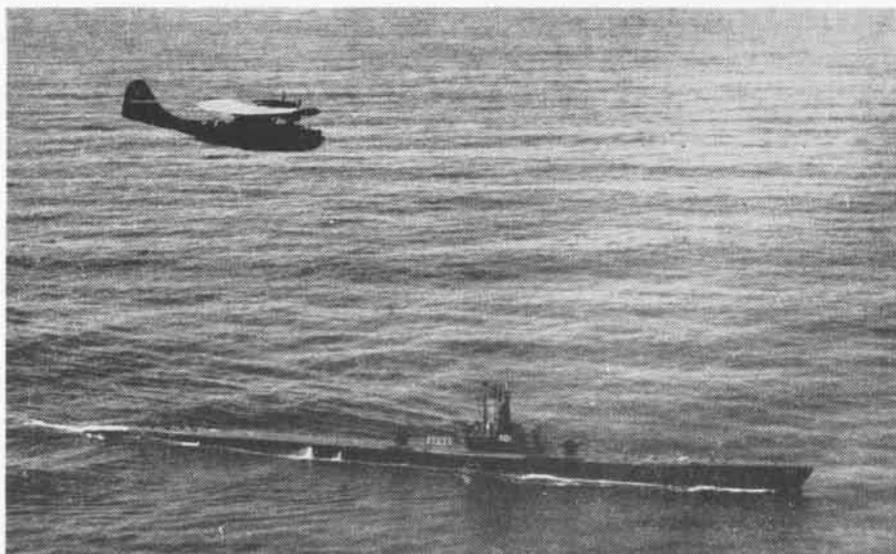
Radar—Pilots have complete confidence in the system of radar control. However, this control is not possible without beacon equipment in the plane.

Flight indicator—Most pilots use the flight indicator (gyro horizon) constantly. However, a number relied on the needle-ball-airspeed method for primary check on flight altitude. It was conceded that non-tumbling flight indicator would be a desired instrument.



STORM SEARCHERS CARRY NACA INSTRUMENTS TO RECORD DRAFT, TURBULENCE IN CLOUDS

MOBY DICK



SEATTLE NARTU CATALINA CIRCLES OVER THE SEA DOG AFTER SPOTTING IT IN ASW EXERCISES

NAVAL Air Reserve Training Unit at Seattle took part during August in what is believed to have been the first anti-submarine warfare drill held on the Pacific Coast since conclusion of World War II.

Designated *Operation Moby Dick*, purpose of the exercise was to determine the efficiency with which Reservist-manned aircraft and surface craft could locate, attack and destroy enemy submarines should some appear off the coast.

On the assumption that enemy submarines were in the vicinity of the entrance to Straits of Juan De Fuca, a NARTU-based PB4Y-2A was dispatched to run a shipping patrol over the general area of suspicion. During the six and one-half hour patrol, Intelligence officers from Thirteenth Naval District plotted all ships that were in the area of exercise, as well as those outward bound from Seattle. Courses and speeds, by type of vessel under consideration, were supplied by NARTU officers in a search covering the straits, the great-circle route shipping lanes to the Orient and coastwise lanes to California within a radius of 100 miles from the straits.

To assist the surface reserve, an R4-D from this activity transported 25 officers and men from Portland to Seattle the same day to form part of the crew of a destroyer escort scheduled to participate in the war games.

With orders to "search for and attack" the fleet submarine *Sea Dog*, the PB4Y left NAS SEATTLE at 0800, August 24. A radar search was conducted, and at 1000 a submarine was

discovered fully surfaced. It immediately crash-dived, but not before a simulated depth-charge attack was made, in which smoke bombs were dropped by the patrol aircraft.

When the submarine was sighted, a contact report was immediately radioed to the Communications control center at Thirteenth Naval District headquarters. Position, course and speed of the target was sent to the destroyer escort standing by about 16 miles away. After the attack, an amplifying report was sent to the Communication control center. This activity's aircraft remained in the attack area until retiring in favor of four PB4Y-2's from FAW-4, NAS WHIDBEY ISLAND at 1400.

The test provided a practical demonstration of the skill of Seattle NARTU in providing aerial protection for Puget Sound area. Officers and men manning the patrol plane were Organized Reservists participating in the fifth two-week training period at the NARTU.

VP-MS Aviators Aid Mechs Don Dungarees and Help on the Line

VP-MS-2, SAN DIEGO—Naval aviators in this squadron not only fly the planes but have an opportunity to see what makes them tick.

Every two weeks two junior officers are sent to the hangar to don dungarees and actively participate in the overhaul and engineering checks of squadron planes. They work with regular maintenance crews for the entire two-week period. The squadron has found this program beneficial for indoctrinating pilots in the amount of work required to maintain planes in commission, while

at the same time it helps alleviate the present shortage of maintenance personnel.

Once a week an officer is detailed to report to the flight line where he directs the supervision of the beach crew in moving planes, putting them over the side and hauling them up on the ramp. The officer remains on the job for a period of one week during which time he not only attempts to improve the efficiency of beaching operations but gains an actual insight into the problems confronting the beach crew.

Miamians Hear of Weather Hurricane Scouts Tell of Their Duty

VPM-3, MIAMI—This weather reconnaissance squadron is setting up a special project to acquaint the public about the work and value of its hurricane reconnaissance flights in the Florida area.

A publicity board was appointed to secure radio and newspaper publicity around Miami. An experienced PPC from the squadron made special talks on hurricane flights together with the officer-in-charge of Hurricane Weather Central before three local businessmen's clubs.

The talks were well received and several other clubs requested similar discussions. Plans also are made to broadcast an on-the-spot account of an actual hurricane flight by radio contact with station WIOD. A preliminary test showed satisfactory reception could be maintained at maximum operating range. In case it cannot, wire recordings will be transcribed for later broadcast.

Work of the weather reconnaissance fliers was publicized in a recent "Exploring the Unknown" broadcast over Mutual's 360-station nation-wide hook-up.

Former Air Stations Rented Will Help Solve Building Shortages

Inactivated naval air stations of insufficient strategic importance to be kept on active status, but of too much importance to be declared surplus, are being rented to individuals, colleges, municipalities and county governments. The program is designed to keep the stations ready for quick activation in the event of a future emergency. At the same time they serve a useful purpose in these times of peace.

Stations are serving in various capacities. Five colleges are using former naval barracks as student dormitories, laboratories, workshops and classrooms. One county has converted a former naval air station dispensary into a hospital; another air station warehouse is being used for storing bundles of dried sea moss—but all will be in shape to reconvert to the Navy in short order if need arises. The stations vary in size from NAS HUTCHINSON, which is four miles square to little auxiliary landing strips for training planes.



COLORED SECTION FORMS A CAP WHICH RAISES ON ELASTIC CORDS WHEN CHUTE FIRST OPENS

CHUTE OPERATES AT 430 KTS.

DEFINITE progress in solving the problem of jet pilot safety has been reported by BUAER's Airborne Equipment Division with development of a test parachute which has been operated successfully at speeds of 430 knots. Present personnel chutes are designed to work up to 217 knots.

The chute was designed and built by the Parachute Experimental Unit at NAS LAKEHURST. It is dropped in a dummy bomb from an F8F test plane. After falling a period, the chute is unfurled and the bomb becomes the "person" in the harness.

Two other parachute designs submitted by private contractors have been tested successfully at speeds better than 370 knots. One is a chute with mesh panels and the other a modification of the German ribbon chute design. The Unit's high speed canopy has a cap over the top which extends on elastic cords under heavy opening stresses, thus permitting air to spill out of the top. As it slows down the cap is drawn back to the chute and spillage is cut down.

The cap is six feet in diameter and the elastic cords, which are nothing more than the elastic bungee used on chute packs, allow 18" of stretch. Loops shown in the accompanying photo keep the cord from exceeding that length. The pressure relief canopy idea was developed by Chief Parachute Rigger John F. Geary, a veteran of 19 years

in the Navy.

The Unit is now in the process of being transferred from Lakehurst to NAS EL CENTRO, Calif. The move is being made to afford greater room for experiments with high speed parachutes and to be closer to the Navy's pilotless aircraft and rocket centers at Point Mugu and Inyokern, Calif. One of the major tasks of the Unit has been to develop parachutes which will aid in recovering pilotless aircraft, such as target drones.

The Unit is under command of Lt. Cdr. L. B. Nicholson and consists of eight officers and 58 men, plus four test aircraft.

Starting in January, the Unit will cooperate with Aero Med and the Air Forces in a research project on high altitude bailouts. Plans are laid to eject both dummies and people at altitudes up to 42,000 feet to study the effect on chutes and persons. Little data is at present available and since future work probably will be fought at extreme altitudes considerable work remains to be done to discover how a man and his safety equipment will function in an emergency that high above the earth's surface.

It is known that parachutes open with considerably more shock at high altitude. Jumps will be made at various altitudes to test shock and how much oxygen the man must carry on his person to bring him to safe altitude.

ANOTHER project planned at the El Centro chute base is research into recovery of rocket components from extreme altitudes. Somewhat similar work has been done in firing of V-2 rockets at White Sands where parachutes are being used in an attempt to rescue the Navy instruments carried in the rocket nose.

Future aircraft designs include detachable nose sections in which the pilot can ride to safety, or ejectable seats. In either case, drogue parachutes are used to slow down and stabilize the fall of the safety unit. Larger ones will bring it to earth or until the pilot bails out in his personal chute.

U. S. Fliers Given Medals Flood Work Wins Bolivia Decoration

Heroism in evacuating refugees from the flooded areas of Trinidad, Bolivia, won decorations for four members of the PBV-5A's crew, headed by Cdr. Porter F. Bedell.

He was awarded the Bolivian decoration *Orden del Condor de Los Andes* in the grade of *Comendador*. Captain Gildo S. Codispoti, USMC; Richard L. Middleton, ACMM, and George Soloff, ACRM, were awarded the medal in the grade of *Caballero*.

Presentation was made by the Bolivian Ambassador to Chile since the men were attached to the U. S. Naval Mission to Chile.

Alameda Solves Strike Job Hauls Its Workers in Station Busses

NAS ALAMEDA—The recent bus strike in the bay region thrust the task of hauling NAS employes to and from work onto the Navy, and the emergency transit service it set up did the job in fine style.

Transportation division of Public Works trained 80 coach operators, setting up strict tests. This paid off when they hauled 94,850 passengers 40,629 miles during the 19-day strike with only \$8 damage to one bus, through no fault of the Navy driver.

The 20 station busses not only saved travel time for the employes, but work attendance was reported normal, and even above normal, throughout the emergency. The system drew high praise from the Industrial Relations Officer because it prevented the station from being badly crippled and employes from losing work. Many expressed the wish that the service continue because it surpassed that furnished by private companies.

One employe mailed the command a check for \$2.80 to cover his "fare" during the strike because he thought it was both "safe and efficient service."

THIS MONTH NAVAL AVIATION NEWS CONTINUES ITS TOUR OF NAVAL AIR RESERVE STATIONS BY VISITING LOS ALAMITOS, LARGEST OF THE RESERVE BASES IN THE UNITED STATES. IT SERVES THE POPULOUS LOS ANGELES DISTRICT



Los Alamitos WORLD'S LARGEST RESERVE STATION

EVERYTHING in Southern California is "colossal" or "gigantic" or "world's greatest," if we believe the tourist ads. So it is only natural that Los Alamitos should be the "World's Largest Naval Air Reserve Station," as we have labeled it above.

Los Alamitos actually *is* the biggest Reserve base, with 26 squadrons, 168 aircraft and 1,901 officer and enlisted Reserves. It draws from the whole Los Angeles area, which numbers some 5,000,000 population.

If you talk to naval aviators who had duty there, they invariably say:

"Boy, that was swell duty. I'd like to be back there again."

During the war it started out as a haven for *Yellow Perils*. Later fleet squadrons formed there. In one corner of the tidy little station there still are a few dusty N2S's.

Los Alamitos might also be labeled one of the more "glamorous" of the

24 Reserve stations since it numbers several movie actors on its roster and as frequent visitors. For instance, Tyrone Power, former Marine transport pilot, flies his private Beechcraft out there for his week-end flying.

Wayne Morris, ex-fighter squadron skipper with seven Japs to his credit, "ferried" himself out in his *Seabee*, until his movie comeback cut short his flying hours. Charles "Buddy" Rogers is a third movie colonyite who is a Reserve flier at Los Alamitos.

The station numbers 625 officer Reserves and 1276 enlisted men, plus 569 enlisted stationkeepers and 42 officers. When the Reserve unit at NAS SAN DIEGO was closed down, many Reservists, including all of VF-87-E, joined Los Alamitos. They drive 110 miles to keep up their skills as "week-end warriors." More than 50 stationkeepers also moved north to join the staff of the Reserve station at Los Alamitos.

An AVU (A) at Phoenix, Ariz., flies through an arrangement whereby Los Alamitos ferries SNJ's 400 miles on Sundays and leaves them until the following Thursday for local men to use to get their flight time.

LOS ALAMITOS is one of the most versatile of Reserve bases, with two CV air groups, three CVE groups, two medium landplane patrol squadrons flying PV's, three transport squadrons, and four Fasrons to keep this array of talent in the air.

Commanding officer of the station is Capt. R. Sperry Clarke, former CO of the CVE *Petrof Bay* and exec of the CV *Hancock* during the war. He participated in the Battle for Leyte Gulf, Samar, Cape Engano, Lingayen invasion, Iwo Jima, Okinawa, Korea and China. His executive is Cdr. G. C. Briant and senior type training officer is Commander Frank Tammany.



Lt. Martz, cleaning plant operator, accepts Corsair from J. L. Kenney, AMM3C

LIKE OTHER Reserve stations, Los Alamitos' first year of operation was featured by its flight activities, but it found time to take part in such special events as *Operation Reunion* last February with 15,000 visitors and the Birthday celebration of June 28.

Los Alamitos draws its large number of pilots and men despite the fact it is located 40 miles from downtown Los Angeles and there is no public transportation to its gates. Men who come out often have to hitch-hike or join car pools. A few fly their own planes and park them off the station.

During the June "spree" of flying, Los Alamitos ran second in the U.S. for total hours flown by Reserve stations with 8,000 hours. During one two-



Pharmacist's Mate Milligan gives an eye check to pilot back for training duty

weeks period 170 men came aboard for their training cruise.

Besides taking care of its primary duties for Reserves, the station also is a scheduled stop on NATS runs and handles much gold braid air travel from NOB TERMINAL ISLAND. On the station also is an armory set aside for surface ship Reservists of the area.

Many USN aviators who are completing their college training at nearby Cal Tech or U.S.C., get their flight time by using station facilities.

Enlisted men of the station recently assisted in staging an aerial circus at Palm Springs for private planes. Fifteen volunteered to help park the planes. It was a good thing they did, because the 1,100 planes which showed up for the occasion swamped the airport. Only the efficient Navy taxi signalmen (see photo, this page) kept traffic moving.

A ham radio station, K6NAR, has been launched for amateurs among the men at the station, affording them training in radio and a chance to indulge in

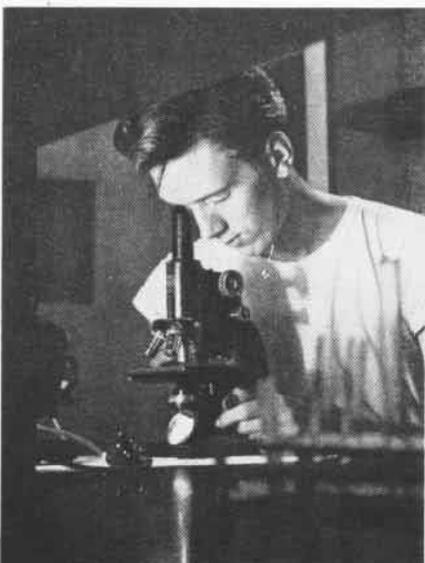


Capt. Clarke, CO of Los Alamitos, talks things over with Lt. Cdr. Wayne Morris

their hobby of riding the airwaves.

Following the trend at many other stations of taking an active part in local civic affairs, Los Alamitos was host to the Associated Chambers of Commerce of Orange county on one occasion. A station BOQ was used to stage a meeting and dinner at which 250 guests exceeded expectations and jammed the facilities. Several dozen even flew their own planes in for the occasion and landed at the field.

American Legionnaires from all over Southern California, 2,000 strong, visited the station on one occasion, complete with bands and marching units. They lunched, swam in what is probably the biggest swimming pool on any naval air station, and saw displays of what the Air Reserve is doing.



H. T. Pettyjohn, PHM3C, a station-keeper, examines a smear of blood

Los Alamitos Reserve Squadrons

- Fasron 59**— Cdr. J. W. Williams, Jr., CO; Lt. Cdr. B. L. Bingham, Exec.
- Fasron 159**— Cdr. L. W. Thurlow, Jr., CO; Lt. Cdr. H. C. Ranney, Exec.
- Fasron 68**— Lt. Cdr. P. H. Harkins, CO; Lt. H. C. Jenkins, Exec.
- Fasron 168**— Cdr. P. H. Williams, CO; Lt. Cdr. D. D. Nittinger, Exec.
- VF-87-E**— Lt. Cdr. N. V. Brown, CO; Lt. W. K. Blair, Exec.
- VF-79-E**— Lt. Cdr. S. C. Jackson, CO; Lt. H. F. Weidman, Exec.
- VF-78-E**— Lt. Cdr. G. O. Trapp, CO; Lt. R. B. Carlson, Exec.
- VF-72-A**— Lt. Cdr. W. E. Roberts, CO; Lt. D. Kirkpatrick, Jr., Exec.
- VF-71-A**— Lt. Cdr. W. W. Crabbe, CO; Lt. R. S. Sprigg, Exec.
- VF-64-A**— Lt. Cdr. R. H. T. Heil, CO; Lt. Cdr. R. E. Freidrich, Exec.
- VF-63-A**— Lt. Cdr. J. J. Farley, Acting CO; Lt. T. L. Letto, Exec.
- VR-54**— Lt. Cdr. D. P. Germeraad, CO; Lt. R. H. Lewis, Exec.
- VR-66**— Lt. Cdr. E. E. Grown, CO; Lt. W. Grago, Exec.
- VR-68**— Lt. Cdr. J. L. Westland, Jr., CO; Lt. K. C. Cooper, Exec.
- VP-ML-58**— Lt. Cdr. R. R. Jester, CO; Lt. Cdr. L. S. Sullivan, Exec.
- VP-ML-66**— Lt. Cdr. R. Gilman, CO; Lt. Cdr. G. A. Blackman, Exec.
- VA-63-A**— Lt. H. L. Manning, Acting CO; Lt. R. D. Reed, Exec.
- VA-64-A**— Lt. Cdr. R. K. Batten, CO; Lt. W. F. Pattison, Exec.
- VA-71-A**— Lt. Cdr. R. C. Bartlett, CO; Lt. D. A. Raymond, Exec.
- VA-72-A**— Lt. W. J. Layden, Acting CO; Lt. J. D. Cornwall, Exec.
- VA-78-E**— Lt. Cdr. P. A. Lavars, CO; Lt. C. C. Francom, Exec.
- VA-79-E**— Lt. C. M. Taylor, Acting CO; Lt. C. C. Hunt, Exec.
- VA-87-E**— Lt. Cdr. D. Byerley, CO; Lt. R. B. Walters, Exec.
- VMF-123**— Maj. William P. Boland, Jr., CO; Maj. Herbert Penfield, Exec.
- VMF-241**— Lt. Col. Edward J. Moore, CO; Maj. Blaine W. Baesler, Exec.
- MGCIS-18**— Maj. Samuel A. Gardner, CO; Lt. George F. Coelman, Exec.



Volunteer plane handlers from Los Alamitos parked 1100 at Palm Springs



Youngest and oldest — John Elmore, 1000th V-6 and ACMM W. L. Baudette



E. I. Anderson, PR2C and L. C. Griffiths, PR3C, pack Reserve chute in hangar loft



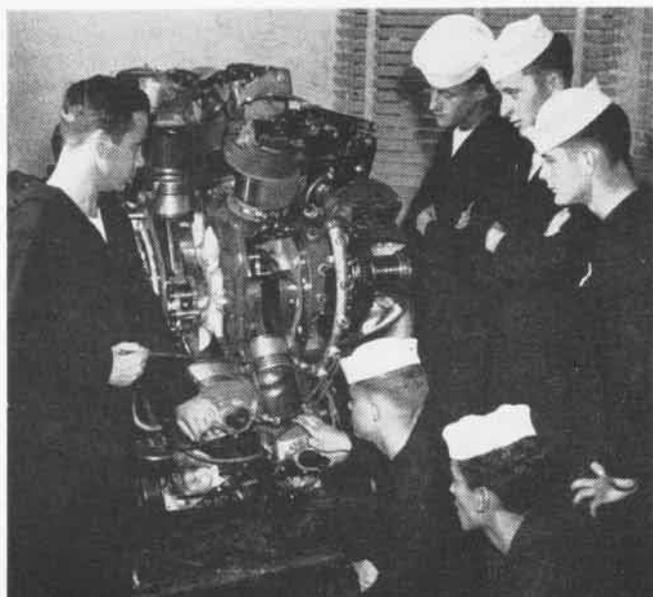
Sgt. Willoughby, model builder, shows CO₂-powered plane to Capt. Clarke, Lt. Cdr. Ingraham, Lt. Wallace, Cdr. McIsaac



Marine Lt. Fay E. Whitton of VMF-123 flew in Bendix race; his souped-up F4U was first plane in after several P-51's



Three week-end pilots—Schwartz on wing is excavator, Taylor in cockpit studies at USC, Hutson on ground sells cars



Apprentice Seamen Qualters, Simon, West, Arey and Hathaway and Martinez, get engine dope from Westbrook, AMM1C

Air Reserve Volunteer Program

WELL-RUN business and civic enterprises are planned not only for today's operations but for tomorrow's requirements. The success of any major undertaking, in fact, depends not only upon the first line organization but also upon its reserve strength.

So Naval Aviation in its mobilization plans must depend upon the strength of its Reserve. To this end the Organized Air Reserve, with an allowance of 7,426 officers and 25,698 men, has been set up, and the program is now in full swing at the 22 stations and units within the Naval Air Reserve Training Command.

But for every Organized Air Reservist, four Volunteer Air Reservists must be currently available to provide the necessary "depth," so that Naval Aviation may meet its personnel requirements on schedule in case of actual mobilization.

To meet this need, the stations and units already have underway a program for Associate Volunteers who participate in station activities whenever possible, as well as a set-up whereby Volunteer Units, authorized for flying, may operate at selected sites throughout the country. This, however, still leaves the majority of Volunteer Reservists untouched and without direct contact with the Navy. Yet these are the very Reservists upon whom the Navy must rely.

Therefore, a naval aviator has been assigned to each Naval District to advise the Commandant, who is charged with responsibility for this phase of the Reserve program, on all matters connected with the Aviation Volunteer Reserve. It is this officer's job to work with the Commandant's records of Reserve officers on inactive duty, V-6 men and V-10 Waves; to break down the names into appropriate lists; and to get up-to-date addresses for these person-



USN OFFICERS, RESERVISTS AND PROMINENT CIVILIANS REVIEW PARADE BEFORE NAVY-UC GAME

nel. An even more important aspect of his work will be to establish contacts with these Reservists and to foster their interest in the Navy in every way.

Ultimately it is hoped that certain key Volunteer Air Reservists in local communities will get in touch with Reserve officers on inactive duty and with V-6 and V-10 personnel in the locality in an effort to form Volunteer Training Units. These units may hold regular meetings or may only meet occasionally, depending on the desires of the members, but they will be able to "keep their hand in" on naval aviation developments and to continue their wartime friendships. Perhaps one of the greatest services they will be called upon to render will be to interest young non-veterans in the Naval Air Reserve.

It is also hoped that other key Volunteer Air Reservists will set up local "informal" organizations of Naval Air Reserve veterans similar to the Aviation Commandery of the Naval Order of the United States. The Commandery was formed shortly after World War I by a group of naval aviators in the vicinity of New York City and its membership was soon opened to other naval aviation veterans. Members have continued to hold meetings throughout the years, the last affair being a dinner, which was held on 23 October at the Harvard Club of New York City. Formed for the purpose of keeping their interest in naval aviation alive and to work with the Navy in all ways, Commandery members have lived up to their intention; during World War II they rendered invaluable service to the Navy, some coming back on active duty and others serving in a civilian advisory capacity.

The naval aviators, who have been

assigned to the Districts in connection with the Volunteer Air Reserve program, are as follows:

- 1 ND Captain Henry W. Wickes
- 3 ND Captain Phillip Stonemetz
- 4 ND Commander Jackson B. Hayden
- 5 ND Commander Herbert D. Lovewell
- 6 ND Lt. Cdr. Harold C. Jipson
- 7 ND Commander William W. Townsly
- 8 ND Commander Roger D. Hutchins
- 9 ND Captain Francis R. Schelly
- 11 ND Commander Cleo P. Kirschner
- 12 ND Commander Walter W. Paull
- 13 ND Commander Warren W. Jones

All Volunteer Air Reservists, who are not associated with the active Naval Air Reserve program and who are interested in maintaining their contact with Naval Aviation, are urged to get in touch with these Reserve representatives.

Fire Fighting Exploits—Navy fire fighting units at NAS NEW YORK and NAS NEW ORLEANS have scored again in their crash-fire-rescue work, the former in connection with the crash-landing of a commercial airline plane and the latter in training city firemen in the Navy technique of fire fighting.

On 20 September a four-engined Pan-American DC-4, en route from Bermuda to LaGuardia Field, developed engine trouble about 60 miles east of Atlantic City. About 1850 the pilot radioed NAS NEW YORK and stated that he would try to land at Floyd Bennett Field.

Station fire fighters immediately responded and all available crash apparatus was lined up along the runway.

At 1922 the DC-4 came in to the field on one engine, with fire smouldering between the No. 1 and No. 2 engines. It crash-landed on runway No. 1 and burst into flames. Barely had it skidded

to a stop, when the Navy fire fighters rushed in and extinguished the flames in a matter of seconds. The 36 passengers and 5 crew members escaped from the DC-4 without injury.

Commenting upon the efficiency of the operations, the Fire Marshal of the Third Naval District, Lt. Edward J. Kehoe, stated that: "The crash-fire-rescue work on the part of the Navy personnel was entirely satisfactory in all respects." And Deputy Fire Commissioner Nathan C. Horowitz commended the fire fighting crew on the manner in which they extinguished the flames.

Down in New Orleans, the Naval Air Station was busy about this same time training city smoke-eaters in the Navy technique of fighting aircraft fires. They had volunteered to give this training when the New Orleans City Fire Department was assigned the task of providing crash crews at the huge new Moisant International Airport. Climax of the course, that was given to the city fire chief and a platoon of his men, was a check-out on actual fires on wrecked planes.

Shown in the picture, which was taken during a recent inspection of the fire fighting equipment at Floyd Bennett Field, are local Fire officials, Navy officers and members of the NAS NEW YORK fire department. From left to right they are: (standing) Lt. E. J. Kehoe, 3ND Fire Marshal; T. P. Guinee, Deputy Chief; N. C. Horowitz, Deputy Fire Commissioner; I. Rappaport, S2; G. V. Sito, S1; Maureen Cannon, stage star; Lt. A. D. Stark; Lt. Cdr. L. J. Sweeney; H. Rosen, Fire Dept. Secretary; E. M. F. Conway, Deputy Chief; W. Martens, Floyd Bennett Fire Marshal; and (kneeling) F. J. Kane, S1; R. J. Neal, S1; W. J. Larkin, AS.

Hurricane Happenings—During nature's wallop, the September hurricane, Naval Air Reservists broke out their sou'westers and rubber boots and



FIRE OFFICIALS AND RESERVISTS LINE UP DURING INSPECTION OF NAS NEW YORK EQUIPMENT

plunged into operation on all fronts, doing their usual job of helping out in local disasters.

Pilots at NAS NEW ORLEANS flew scores of relief missions, carrying personnel and equipment to the stricken Gulf Coast, conducted a four-day search of the Louisiana bayous at Red Cross request, and made numerous aerial surveys of flooded areas for the city.

Other New Orleans Reservists kept busy, helping to feed, clothe, and house the 300 evacuees from flooded homes who were billeted in the station barracks for a week. Preparatory to this activity and under the supervision of the supply officer, enough dry provisions to last 500 people for 5 days had been transferred from bulk stores to a galley store room and 300-gallon set tubs in the galley and elsewhere on the station had been filled with water to insure a sufficient supply for drinking. All supplies were stowed several feet above the deck—a smart bit of foresight inasmuch as the water surged in to a depth of three feet. When the electricity failed after the storm and it was impossible to bake bread for the "guests," the bakers turned out hundreds of small buns via the gas oven.

Over at NAS MIAMI, communicators managed to keep their TDO in operation throughout the hurricane and for three days thereafter until teletype communication could be resumed. This was accomplished despite the fact that the water was several inches deep in radio central and probably because of the fact that every available piece of rain gear was tenderly wrapped around the precious equipment to keep it dry. Before the storm struck, these communicators had handled a heavy volume of dispatches, which reached a peak of 177 messages sent out via teletype in

one day.

NAS ATLANTA got into the hurricane line-up with its amateur radio station, W4MNV. This station, set up and operated by the electronics department, served as the Atlanta outlet on several amateur emergency nets handling traffic to and from the storm-bound areas. A total of 105 outgoing messages were filed, including those from the American Red Cross to its various relief headquarters.

Station Round-Up—NARTU LAKEHURST Reservists won the thanks of the New Jersey State Highway Department when they conducted an aerial survey of week-end traffic conditions on the new eight-lane highway leading to Newark in their ZPK-88.

NARTU JACKSONVILLE—High spot of recent training was the live rocket runs made by F6F's, FG's and PV's on target sleds towed by the USS McClelland, a DE operated by local surface Reservists.

NAS GLENVIEW—Many Reserve pilots have already qualified with the GCA unit which was commissioned in September.

NARTU NORFOLK—About 2/3 of the Reserve pilots have already completed their two weeks cruises for the year, with 3238.2 hrs. totalled up in September.

NARTU ANACOSTIA—September was "big cruise month" with 121 officers and 144 enlisted men reporting; ground officers handled all ground training for officers in their respective squadrons.

NAS SQUANTUM—During the September cruises VP squadron members spent one day making 8 dives aboard a submarine from the New London base as part of their anti-submarine training, while VA and VF members worked out their fighter director problems by using destroyers as the fighter director base.

NAS OAKLAND—In the parade which preceded the Navy-California football game this station was represented by a float on which an F6F was mounted. CPhoM J. L. Hourigan took the picture of the reviewing stand from the top of the float. (See opposite page.)



SANTA (LT. JACK) FLIES IN TO WILLOW GROVE

NAVY BUYS 29 MORE LOCKHEED P2V NEPTUNES



P2V-1 NEPTUNE—THE FIRST MODEL LOCKHEED WHICH SHATTERED ALL DISTANCE FLIGHT RECORDS



P2V-2—THE LATEST MODEL; ARROWS POINT TO CHANGES DESCRIBED IN ACCOMPANYING STORY

A NEW model of the 350-mile an hour twin-engine patrol bomber which holds the world's non-stop distance record—the Lockheed P2V *Neptune*—was announced with the signing of a Navy contract for 29 more of the aircraft.

The P2V-2 has more powerful engines, increased firepower, a longer fuselage, different propellers and more modern communication radio.

The new and fifth contract brings to 150 the number of P2V airplanes on order or delivered from Lockheed. Production under the latest contract will continue until June 30, 1949.

The P2V-2 incorporates a number of improvements first made on the plane which flew non-stop 11,236 statute miles from Perth, Australia, to Columbus, Ohio, last fall to set the new range record. The flight took 55 hours and 17 minutes.

Changes incorporated in the new *Neptune* model, as indicated on the accompanying photograph, are as follows:

1. A more pointed nose houses six fixed 20 mm. cannon fired by the pilot by remote control instead of the two .50 cal. flexible machine guns installed on the original P2V's.

2. Two flexible 20 mm. cannon instead of two .50 cal. machine guns have been placed in the tail turret of the P2V-2.

3. Changing the nose involved an increase of more than 2½' in the length of the airplane to the existing 75½' length. Wing span remains at 100 feet and height 28'.

4. New series of Wright Duplex *Cyclone* engines have increased take-off power of 600 hp in each engine, giving the airplane a substantially faster rate of climb.

5. Hamilton Standard propellers with full reversing pitch and three square paddle blades (NANEWS, October, pg. 23) instead of four contoured blades. These are more efficient at low altitudes. The props also have electric instead of alcohol de-icing.

6. Hot wing and empennage anti-icing is accomplished by combustion-type heaters. One is installed in the cabin, one in the empennage and one in each wing.

7. A rotating turret housing two flexible .50 cal. machine guns on top of the fuselage has been reduced in height.

8. An astro-hatch is interchangeable in

flight with an astrodome to reduce drag.

9. Search radar has been installed to check terrain for safety in flight and for use in automatic radar bombing.

THE P2V-2 can carry 16 five-inch THVAR rockets under its wings, two 2165-pound torpedoes for night attacks, eight 1000-pound mines or bombs, or a dozen 325-pound depth charges.

A crew of seven includes a pilot, co-pilot, radio operator, bomber-navigator, radar operator, turret gunner and tail gunner.

That the *Neptune* is quite a lot of airplane was shown recently when Stanley Beltz, Lockheed test pilot, wrung out a P2V-1 at Patuxent in a 10-day flight test. Beltz flew the plane at 385 miles an hour and pulled out at 2.9 G's, exceeding the Navy requirement of 344 mph. and 2.67 G's.

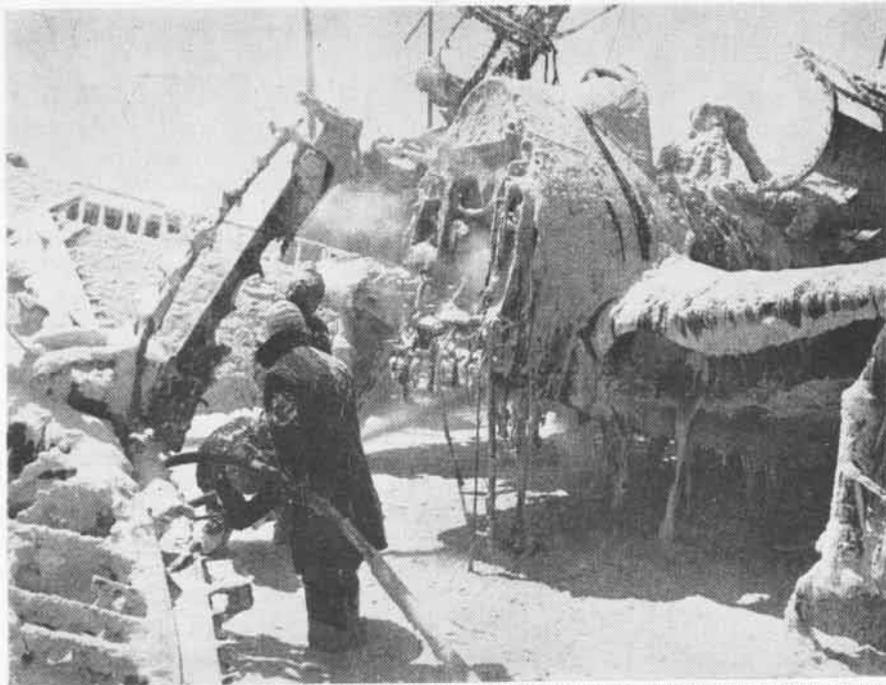
Loaded to its designed operating weight of 45,000 pounds, the test plane was put into a series of steep dives. With bomb bay doors open, it had to dive almost 45° before it would exceed its maximum allowable speed. Another dive was made at the top operating weight of 58,000 pounds and the P2V pulled out at 2.8 G's.

Beltz also flew it at 65 mph—so slow Navy observers had to use a small training plane to stay alongside. Extreme stalls with nearly full power on, violent yaw maneuvers and landings at 50,000 pounds gross weight, landings with center of gravity far forward and with both engines dead also were made successfully. Movie cameras photographed wing and tail surfaces during the experiments for wrinkling. Beltz is famous as the pilot who made a slow roll in a *Neptune* using only one engine, not a standard operating procedure.



TWIN 20 MM. GUNS GIVE TAIL HEAVY PUNCH

MCAS EL TORO—The GCA unit, with completion of the direct contact line with ATC Los Angeles, gives El Toro a 24-hour all-weather air station. It also facilitates a more thorough training in GCA letdowns.



ANTARCTIC ICE STORM? NO, JUST PRACTICE FIRE-FIGHTING USING THE NEW CARRIER SYSTEM

CRASH! FIRE!

NAVAL aviation has taken long strides to defeat one of its worst enemies—fire in planes and on aircraft carriers. During the war, a large segment of the Navy's casualties were the result of uncontrollable gasoline fires on bomb-hit flattops or in crashed planes which burned before fire fighters could get the flames out.

Now the Navy has developed new fire-fighting crash trucks for use at air stations and high capacity fog-foam fire-fighting systems for use on carriers.

Fire trucks developed during the war poured out high-pressure water fog for rapid cooling of fuselages and protection of pilots and crewmen trapped in planes. They also dispensed a chemical "foam," as a solid stream, to blanket the flames.

The newest truck, the FFN-5, devel-

oped by Public Works section of BUAER, can combine both the fog and the foam in one operation, as shown in the picture above. The "sweep" pours foam on the burning PBM engine while the "turret" below sprays fog on it to lower the heat to a point where fire cannot continue. Behind it is another newer truck, the FFN-4. This pours carbon dioxide on the engine to help smother the flames.

Simultaneously with the high pressure attack, CO₂ and low pressure foam in greater volume is used to attack the fire around its edges. A path is cleared to the cockpit so rescuers with special tools can free anyone trapped inside.

The FFN-5 truck carries 800 gallons of water and 80 gallons of mechanical foam compound. At full capacity it can discharge up to 4,000 gallons of

fire-extinguishing foam a minute. The FFN-4 carries three tons of refrigerated low-pressure carbon dioxide. It also is equipped to discharge 1,000 gallons of foam. A third vehicle, the FFN-3 pumps high pressure water fog to cool the fire, or can dispense foam in a solid stream or fog.

TO COMBAT shipboard gasoline fires, such as were so disastrous on the *Franklin* and other big carriers hit by a bomb, BUSHIPS and BUAER have developed a piping system to bring fog-foam to any place on the flight deck or hangar deck.

The installation consists of a series of independent stations with outlets scattered around the two decks. On the hangar deck, outlets are both 3½" monitors and 2½" hose valves, while only 2½" hose outlets are provided on the flight deck. A remote control hookup permits operation of the hangar deck monitors from the deck below if that deck should be made uninhabitable by a bad fire.

Each large monitor nozzle can deliver 3,300 gallons of fog-foam a minute and the smaller ones 1,200 gallons. This new system has far greater capacity than any previously used equipment. A similar system is being provided on some fire-fighting tugs to help them fight large oil fires.

When installed on carriers, the new equipment replaces the old overhead water sprinkle system on hangar decks and the flight deck water hose system which was augmented by small-capacity, manually-filled foam tanks. All proved inadequate to fight gasoline fires and many carriers suffered extreme damage beyond that caused by the enemy Kamikaze or bombs.

Other major Navy fire-fighting developments include special deluge sprinkler systems for high-ceiling dirigible hangars, and a floating monitor which is pushed below burning piers to spray water on them from the underside.



Mariner engine fire is extinguished by FFN-5 truck (front) squirting fog and foam and FFN-4 covering engine with CO₂



High capacity fire-fighting system installed on carriers gets a ground test; tugs also were given gear to combat oil fire

DID YOU KNOW?

Navy Gets Needle-Nose Jet

D-558 Phase II Is Called Skyrocket

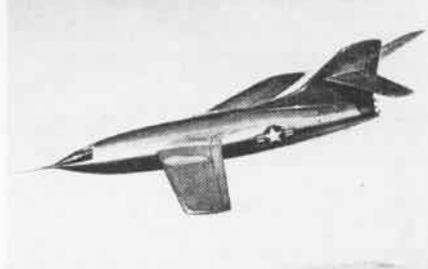
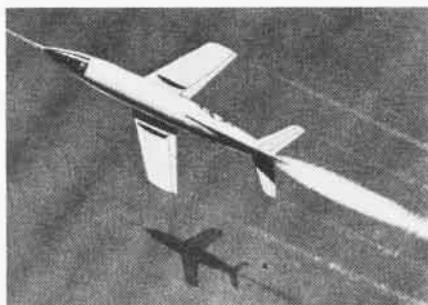
Details on a sister ship to the world-record holding D-558 *Skystreak*, the Phase II *Skyrocket*, have been released by the Navy and Douglas Aircraft Co. Major difference is incorporation of a rocket engine to boost the jet, swept-back wings and tail surfaces and a needle-nose.

The new plane, painted white for better visibility, is expected to come closer to the sonic barrier than the *Skystreak's* 680-mph. speed, set unofficially recently with a tail wind.

Power plant of the *Skyrocket* is a Westinghouse 24-C turbo jet and a liquid rocket system built by Reaction Motors Inc. Fuel and landing gear are in the fuselage instead of the wings, giving it a fatter fuselage than the *Skystreak*. The plane has a 25-foot wingspan and is 45 feet long.

The cockpit is fitted with refrigeration, heating and pressurization equipment. Aerodynamic brakes in the after portion of the fuselage furnish control of drag and speed. Automatic slots in the leading edges of the wings give low-speed lift.

Special instruments permit air pressure measurements at 400 points on the wings and tail surfaces. More than 900 strain gauges and oscillographs will record control forces and stresses and moving picture cameras will record instruments will in flight.



TWO ARTIST DRAWINGS OF NAVY NEEDLE NOSE

Racon Guides Lost Pilots Will Reveal Exact Plane Positions

A system of 50 radio beacon stations stretching across United States will be in operation soon, providing military aircraft with a method of determining their positions more exactly than can be done by following airway radio beams.

Radar impulses from the plane set off coded replies from the ground Racon stations which show on the plane radar scope. The signal will enable the pilot to find bearing and distance from the plane to the beacon. Range of the Racon depends on the plane's altitude

and terrain. By following its signals, the pilot can avoid crowded airways in bad weather.

Twenty-two of the Racon sets are located at naval air establishments—South Weymouth, Quonset Point, Atlantic City, Willow Grove, Chincoteague, Patuxent, Norfolk, Cherry Point, Atlanta, Glyco, Jacksonville, Miami, Key West, New Orleans, Corpus Christi, Dallas, El Centro, El Toro, Los Alamitos, Moffett, Whidby Island and Seattle. Coast Guard and Army will operate the rest of the 50.

VR-57 Pilots on Active Duty Squantum Reserves Fly Regular Hops

NAS PATUXENT—Reserve air transport squadron VR-57, home-based at NAS SQUANTUM reported to COMNATSLant at Patuxent on 18 August for a two-week period of training duty. The squadron consists of four officers and six men. All arrived together in their own R4D.

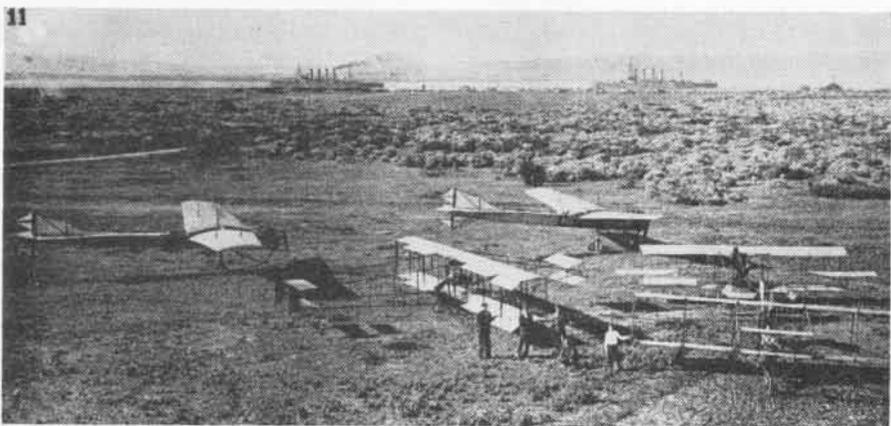
The unit was assigned to VR-3 where they flew a Baker section of Flight 0317 and 0318, known as the "cargo expediter", which stops at Willow Grove and Harrisburg. In addition to actual flight training, lectures and instruction on current NATS methods and practices occupied the squadron's time.

Workers See Carrier At Sea Tarawa Takes Alamedans on Cruise

NAS ALAMEDA—What goes on aboard a big CV operating at sea is no longer cause for wonderment among 43 station civilian supervisors and employes following a three-day cruise aboard the *Tarawa*.

They saw enough to convince them forever of the importance of their job in maintaining and repairing the planes that fly off the carriers. The three-day program began before the *Tarawa* had even cleared Golden Gate, with planes being catapulted for aerial maneuvers.

The operations included simulated strafing and bombing attacks on the carrier and anti-aircraft target practice. During the cruise the Navy's new attack planes, the AD-1, landed aboard. One of them missed the wires and flipped over on its back in the barriers. The "demonstration" while unplanned, was highly educational to men of A&R, supply, public works and inspection who were in the *Tarawa's* cruise party.



Pilots who fly around NAS SAN DIEGO these days won't recognize this spot, but it is the same North Island where Navy planes now operate. This 1911 shot shows Curtiss aviation field where the first naval aviator, T. G. Ellyson, was trained to fly by Glenn Curtiss. This picture shows the two Antoinette monoplanes and three Curtiss biplanes used by the "school." Note the old four-stacker ships in bay at top.

12 More PBM-5A's Ordered Navy Will Get Total of 36 Mariners

A second order for Martin *Mariner* amphibian airplanes, this time for 12, has been placed by the Navy with the Glenn L. Martin Company. This second order makes a total of 36 now in production at the Martin Company in Baltimore. Completion of the first lot of 24 is expected in 1948, while completion date for these just ordered is scheduled for the first half of 1949.

At the moment, the original experimental XPBY-5A is at the Middle River plant for installation of newly-developed improvements, among which is a steerable nose wheel, designed to make the huge amphibian even more maneuverable on land.

The PBM-5A's are expected to fill a "jack-of-all-trades" role in the Navy. Primarily, their greatest utility will come in patrol work, the landing gear making it possible for them to be used out of advanced bases not suitable for water landings. In winter, housed in a warmed hangar, they are ready for flight 24 hours a day, without delay for engine warm-ups.

Fighters Spot CL Gunfire Training Proves Valuable to Pilots

VMF-218, Pacific—Fighter pilots of this Marine outfit tried their hands at gunfire spotting with the cruisers *Atlanta* and *Duluth* at Pagan Island, north of Saipan.

Divisions of four *Corsairs* were over the target area each hour for eight hours daily, each plane acting as control spotter for 15 minutes then observing the rest of his on-station time. Pilots kept a record of what corrections they made as controller and what corrections they thought should be made while observing.

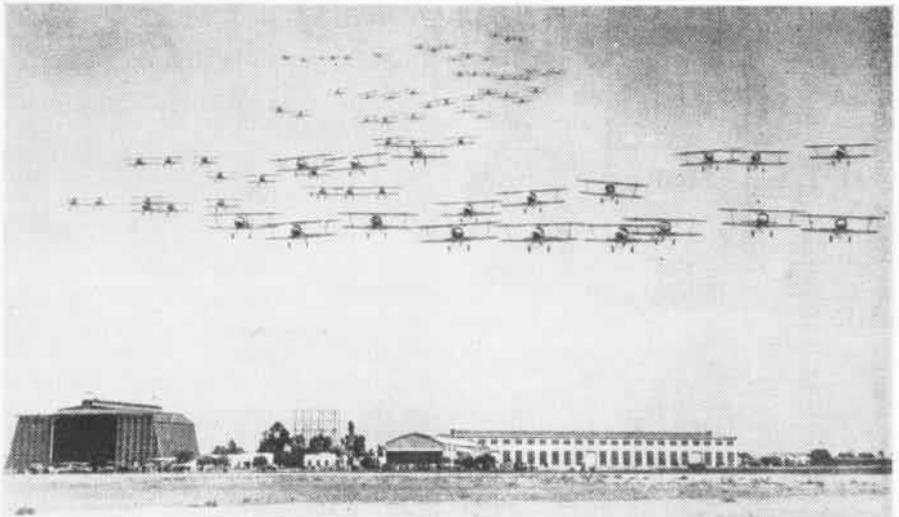
Although the training was completely new to most pilots, the thorough pre-flight briefing explained proper procedure. All pilots felt the exercises were informative and worthwhile. Altogether 24 squadron pilots and 9 MAG-24 pilots qualified firing a total of 700 rounds.

NATS Fliers Buck Headwind 110-mph. Breeze Slows Down Flight

So you think stateside flying gets rugged during winter months? Then listen to this news item from VR-5, flying the Aleutian run:

"Established records were threatened last week when westbound flights from Kodiak to Attu (1350 miles) required 10 hours, bucking headwinds in excess of 110 miles an hour. At the same time, flights in the opposite direction made good ground speeds of more than 300."

Flying along the Aleutian chain has switched from summer to winter conditions. Normal summer weather presents

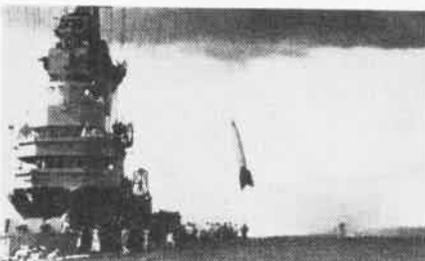


So you think you are 4.0 on recognition? Well, NANews found this picture in its files without any identification as to plane type or location. Maybe some of the "old timers" of naval aviation will recognize this swarm of biplanes. Although ragged in spots, the planes show that formation flying is not exactly a novelty.

only the hazard of low ceilings and visibility at landing terminals, with generally excellent en route conditions.

The Williwaws now have replaced the summer weather. Low pressure areas, which normally maintain an eastward track well south of the chain in the summertime, swing northeastward directly across the islands.

Winterization of all VR-5 squadron planes has been completed to prepare them for cold weather operations. New nylon cord ice-grip tires were installed on all main gear wheels to replace wartime rayon cord tires.



The Navy has released photographs showing the launching of the V-2 rocket off the after flight deck of the USS *Midway* on September 6, the first time such a large bombardment rocket had been fired from a ship or moving platform. Lower photo shows two V-2's and a dummy rocket on special skids on the *Midway's* flight deck for the test.

Mariners, Sub in War Games Joint Operation Gives Both Training

VP-MS-3, PACIFIC—This squadron conducted ASW exercises in cooperation with the SS *Tilfish*, giving our pilots their first chance to operate with a real submarine to practice spotting, tracking and methods of attack.

Best attack results were obtained when the planes took advantage of rain showers in the area to avoid being picked up by the submarine's radar. At these times it was a simple matter to complete an attack before the sub could dive to safe depth.

At a conference later with the sub CO, one of the pilots was presented with a miniature bomb that had lodged in the superstructure of the sub. The submarine skipper stated that he recorded several strikes against the hull as he was submerging.

OY Crashes in Soft Mudflat Soft Goo Brings Airplane Disaster

How "not" to land a light plane on a dry lake bed was discovered by a NATS ferry pilot when he had to make forced landing due to engine failure.

He landed in the center portion which it turned out had only a thin layer of dry surface soil over the mud. After rolling about 150 feet, the wheels broke through the surface layer and the plane nosed over on its back. The pilot was unhurt but the plane was a wreck.

There was no other possible landing place within gliding distance. Nevertheless, a landing near the edge rather than in the middle of the lake might have been better. NATS points out that multi-engine pilots should not forget to look for a suitable place to land if an emergency arises during flight.

Students Now Rate Teacher Marine Plan to Improve Training

Now it's the students' turn to mark the teacher. To point up its instruction, Marine Training Squadron Two, the Marine instrument training squadron on the West Coast, has inaugurated a "Student's Rating Sheet." Commonly known as a "gripe sheet," it gives each student an opportunity to comment officially, but if he prefers anonymously, on all phases of the training.

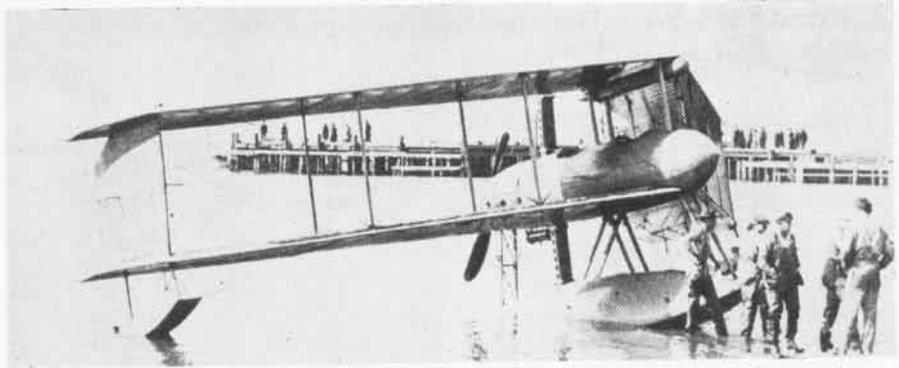
The rating sheet is divided into two sections, one pertaining to the instructor and the other to the syllabus. It provides flight and ground school instructors with constructive comments on both their presentation and their subject-matter. It also presents the flight officer with new ideas and points to be discussed during standardization meetings.

Questions are asked in regard to the best instructor, the worst instructor, the instructor's attitude, and proficiency, as well as in regard to the best course, the worst course, fairness of examinations, and so forth. In all cases students are asked to give the "why" of their answers.

Pilots Learn Homing Theory Jax Teacher Develops Teaching Plan

NAS JACKSONVILLE — A combined visual-aural idea is being used by VA-ATU #4 ground school to introduce YE-ZB to advanced training pilots.

By hooking up a wire recorder to a



What's new in Aviation? One of the oldest forms of steam power incorporated the jet principle. Back in 1916, flying under the auspices of the Navy, this Burgess-Dunne seaplane utilized a pusher propeller, swept-back wings and a tailless design. Now the question is, in this supersonic age, whether the aviation industry is becoming too radical or is becoming too conservative.

Link, and flying the trainer through an actual orientation problem and homing on the carrier, the track of the plane over the chart is recorded simultaneously with the recording of the aural signals. The various steps for the unknown station problem are numbered on the chart 1, 2, 3, etc., up to the interception point. The chart used is increased proportionately in size for classroom use.

As the aural signals are heard only every 30 seconds, an explanation of procedures and techniques employed is interspersed between signal transmissions and recorded along with the aural signals.

After a preliminary explanation of the theory and use of YE-ZB system of homing by the classroom instructor,

students then use the prepared chart synchronized with the aural signals and oral explanation by the instructor.

(Developed by Hugh A. Bruce, ground school instructor)

GCA Unit Chalks Up 'Save' Brings in DC-3 Safely at Columbus

The Ground Control Approach Unit at NAS COLUMBUS recently chalked up its first 'save' of the current bad weather season.

A Twentieth Century DC-3, enroute from Baltimore to Columbus, arrived over its destination at 0645 to find that fog had closed that point and all other fields within range. Critically low on gasoline, the pilot contacted the tower at the Reserve station and requested an emergency GCA approach. Although he had never before made a GCA landing, he was brought in safely a short time later despite a 200 foot ceiling and 1/16 mile visibility.

Lt. M. M. Hershey, officer-in-charge of the GCA unit, had it in full operation within 30 minutes of the time the pilot first called in. When it was found that the DC-3 could only receive on the low frequency band, from 200 to 1750 kc, a movable receiver was placed next to the transmitter in the tower and communication was instantly relayed from the controller to the pilot on tower frequency.

Before being assigned to NAS COLUMBUS, Lt. Hershey's unit had accompanied Task Force 68 to the Antarctic as part of Operation High-Jump.

NATS LANTS—When it ended its first year of operation this summer, the famous NATS *Hotshot* coast-to-coast flight pointed with pride to the fact only one flight was cancelled. That was caused by weather, the Washington national airport's runways being so ice covered landing was too dangerous to attempt. It is believed this record out-distances performance of any all-weather airline, military or civilian.



In response to an urgent request from the Egyptian government, the Navy sent 50 to 60 thousand pounds of medical supplies to Cairo. These supplies are to be used in the fight against cholera. An epidemic has been raging in Egypt for some time. In this NATS plane loading at NAS FLOYD BENNETT, enough cholera vaccine was shipped to save 4000 lives. Included in this 8000-pound shipment was a supply of Navy sulphur and 2000 bottles of blood plasma, donated by American Red Cross.

CHINA CRASHES PLUNGE MARINES INTO ADVENTURE

THREE Marine pilots of VMF-211, 1st Lt. Elmore Ravensberg, Ronald Bruce and R. A. Winters, unable to return to Marine Air Base Two at Tsingtao, China, due to a front of great turbulence and lack of fuel, successfully crash-landed their F4U-4 Corsairs. They also managed to get back to the base unhurt, though not without some difficulty, and thereby hang three tales.

Down to his last 10 gallons of gas and unable to contact the base, Lt. Ravensberg decided that his best bet would be to ditch his plane at sea. Accordingly he radioed Task Force 71, for which a VMF-211 flight under the leadership of Lt. Col. Lee C. Merrell, Jr., had been providing routine combat air patrol. He informed them that he would be forced to make a water landing.

"They brought me to the Task Force," he then reported, "And gave me wind direction and velocity. I jettisoned my canopy hood and my belly tank and commenced making my landing at about 1625. I hit the water doing approximately 100 knots, felt very little impact and was out floating in my life jacket in a very short space of time. The plane sank in roughly 50 seconds. I was picked up by the USS *Isbell* at 1634, and returned to Tsingtao the following night at 2100." So much for Ravensberg's adventures.

Lt. Bruce and Lt. Winters had been flying together trying to find a hole through the front. The latter saw a smooth stretch of beach which looked "too good to pass up." He had only five minutes of fuel left and was 75 miles from the base. After successfully landing his F4U-4, Winters radioed Bruce that he was O. K. Almost immediately, however, he called that he was being fired upon. Then there was silence.

Again Bruce tried to get through the front—this time more desperately. But at 1700 he was finally forced to ditch his *Corsair* in a lagoon 25 miles northeast of the base. Upon landing, he felt no great impact and was able to get into the water and inflate his life raft. Three hours later he was washed up on a lonely stretch of beach.

He called "hello" in Chinese but no one answered. Eventually he found a small Chinese temple into which he crawled and bedded for the night on his inflatable rubber parachute pad. He was wearing only a nylon flight suit which provided little protection from the cool ocean breeze.

"Next morning I started up the



COMMUNISTS LIKE THESE HELD LT. WINTERS
Photo from *Leatherneck Magazine*.

beach," he reported, "And met a Chinese boy who took me to a village near the beach. There I met the chief or number one Chinese. By using sign language and drawing pictures, I managed to make him understand that I had crashed at sea and that I wanted to get to Tsingtao. The number one showed me his card, which had the Nationalist insignia on it and indicated that he would get me back by car."

ACCOMPANIED by three Chinese Nationalist soldiers Bruce set out for Tsingtao by mule, his rubber parachute pad fortunately easing the jolts of the wooden Chinese saddle. Five hours later they arrived at a Chinese fort. There Bruce was transferred to a jeep and was driven to the base, arriving back after having been missing 30 hours.

Although search planes had passed overhead, Bruce had been unobserved. Large groups of Chinese such as those surrounding him are not uncommon in this area.

During his stay with the Chinese he had been fed several boiled eggs but had politely refused the noodles and rice which were offered him, because this food was filled with flies and other insects. Bruce suffered no ill effects from his journey—except a slight stiffness from his ride on the donkey. That finished Bruce's saga.

Meanwhile Lt. Winters, when he found he was being fired upon, had hastily gotten out of his plane waving his pilot chute. He was soon met by a band of some 50 armed Chinese, who immediately searched him. They took everything from him, except his wrist watch which was concealed by the sleeve of his flight jacket. The "loot" included his signalling mirror, fountain pen,

keys, knife and first aid packet.

These Chinese spoke no English, but from their hostile action Winters took them to be Communist troops, as indeed they were. Although they searched him thoroughly, they harmed him in no way.

Winters was then led to a small village several miles away and placed in a house under guard of some 12 soldiers. While the Chinese were examining his possessions, he managed to pick up 12 sulfa tablets and hide them in his jacket. These he decided to take every other night before going to bed. The bed provided that first night was the door of the house, which was placed on two saw horses for the occasion. He was given a blanket but no food.

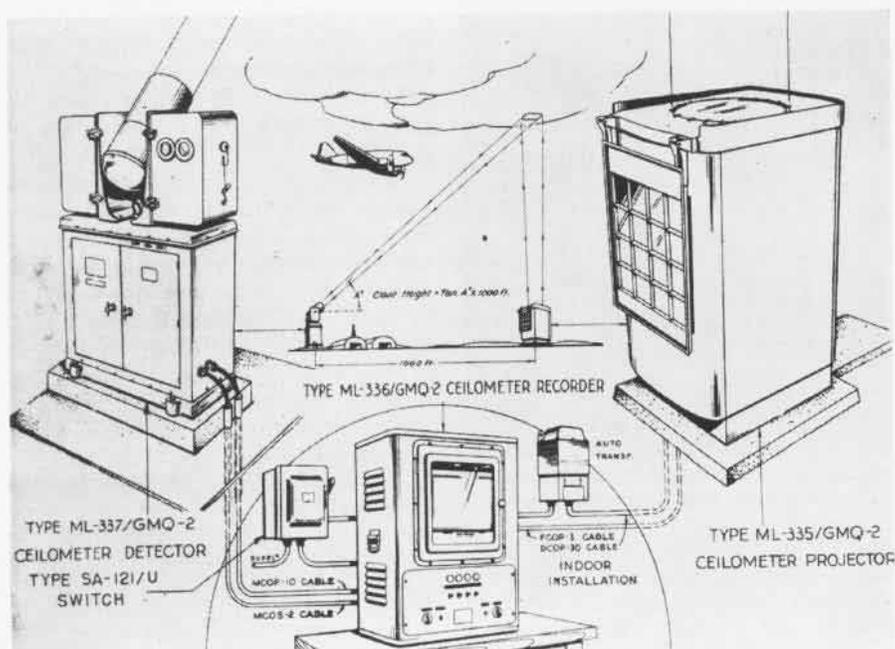
THE FOLLOWING three days Winters spent travelling on foot for about 12 hours each day, always guarded by a small band of armed Chinese. On the first day he had tried to wave a large coolie hat to attract the attention of planes which were circling overhead. But he had soon abandoned the idea when his captors started shouting and he heard the click of ammunition being fed into the rifle chambers.

During this march Winters either slept on the ground or on a door. His diet consisted of six hard boiled eggs and a few pears. This left him in a weakened condition, so on the third night he was given a good meal of fish, rice, stew, bread, tea and wine. The next two days he spent in a small village, where he was interrogated by an interpreter. Then he was moved south, journeying only a short time each day and generally staying two nights at each stop. This movement continued until he was turned over to the party, negotiating for his return, on 10 September, 14 days after he had left the base.

On several days he was given a pail of water to wash in, but was never able to take a bath during the whole time. When his hair became infested with lice, he requested a haircut. This was performed with a large pair of shears resembling pruning shears. Afterwards, however, he was able to shuck out many of the lice.

After his one good meal his diet consisted of black bread and rice, the latter infiltrated with flies and cockroaches, which he extracted with chopsticks. Despite the rigors of his journeying and possibly because of the sulfa tablets, Winters came through his experience without having suffered either diarrhea or any other stomach trouble.

NAVY INSTALLS 42 PHOTOELECTRIC CEILOMETERS



PHOTOELECTRIC CEILOMETER WILL REPLACE HELIUM BALLOONS FOR MEASUREMENT OF CEILINGS

WHEN GREEK meets Greek it's a Panhellenic ball, when Dutch meets Dutch it's a gosh-darned brawl. But when pilot meets aerologist—brother, anything can happen.

The pilot opens with, "There I was flying at 1000 feet right over the field, so I call the tower and ask the cloud level, well, the tower tells me that Aerology reports the ceiling over the field at 1500 feet. So, I tell him to please inform the clouds about that, because I'm still very much in the soup."

The poor aerologist then tiredly tries to explain why it is very difficult to get an accurate up-to-the-minute reading of the ceiling over the field. Maybe the wind blows the helium balloon ten miles away from the field before it is marked as entering the overcast, thereby measuring the ceiling not over the airport, where it matters, but over some farmer's cornfield, where only crows care.

Or perhaps, between the time the last reading was taken and the time said pilot arrived over the field, something new moved in. Then too, vertical air currents might have been bad, making predicted rate of balloon ascent inaccurate.

All of which, the pilot reminds the weather man, is of little value to the man in the airplane who is trying to get in. What he wants more than anything else is an accurate measurement of the ceiling.

The Navy in cooperation with the

General Electric Company has effectively removed this bone of contention from the list. The solution comes wrapped up in a package labeled *Photoelectric Ceilometer*, and it automatically measures and continuously records the height of cloud ceiling over an airport, with absolute accuracy.

THE MEASUREMENT is obtained by training a 25-million candlepower light vertically to the cloud base. The beam, in turn, is reflected from the cloud ceiling to a photoelectric detector, which is located at a known distance from the vertical beam. The angle at which the detector "spots" the concentration of light on the cloud is then transmitted to the aerological office on a chart recording machine. Ceiling is



DETECTOR UNIT SPOTS LIGHT CONCENTRATION

computed from this angle.

The photoelectric detector unit is trained horizontally on the vertical beam. A motor elevates the detector unit at a given rate of speed, from a 0° angle to 90° and back again. A complete cycle from 0° to 90° to 0° is made every 12 minutes. A new ceiling reading being recorded each six minutes, once on the way up, once on the way down. If the ceiling is ragged, an average of several measurements will give the mean ceiling over any given period of time.

SOMEWHAT the same system has been used in the past for night measurements, using a vertical beam and a hand sighting instrument. The Ceilometer extends the reading to daytime as well as night by modulating the beam of light to give it an identifying characteristic. In this manner the light can be distinguished by the photoelectric



CLOUD BASE RECORDED IN AEROLOGY SHACK

detector from the daylight through special detection properties, though the light can not be seen with the human eye. In addition, the element of human error is eliminated from the computation.

A boon to the weather man as well as the pilot, the new instrument accurately records up-to-the-minute ceiling measurements right in the weather shack, making it unnecessary for the aerologist to go out in the rain and cold to take his ceiling sight.

Photoelectric Ceilometers are being installed at 42 overseas and continental naval air stations.

MCAS EL TORO—All squadrons in MAG-33 have finished the combat swimming course. This is the first organization in Marine Air West Coast to finish the swim course.

INERT GAS PROTECTS GASOLINE

THE AIRBORNE Equipment division of BUAER has developed a method of inerting vapor spaces in and adjacent to fuel tanks to prevent fire and explosion due to enemy gunfire. The method involves use of waste engine gases.

BUAER has been working on this project with Curtiss-Wright Research Laboratory, now known as Cornell Aeronautical Laboratory, of Buffalo, N.Y. Studies started in 1943 on methods of inerting the spaces through use of gases such as carbon dioxide or nitrogen carried in bottles or produced by generators installed in the airplane.

However, the generators required complicated equipment and use of bottles indicated a prohibitive weight. In view of this situation, a system was devised for utilizing the large quantity of inert gas that is available in the engine exhaust.

Curtiss-Wright successfully made a temporary installation of such a system in an R5C-1 airplane and recommended that a permanent installation be made in a standard military aircraft for further study. Early in 1946, BUAER requested that this system be installed in a PB4Y-2 airplane which was assigned to Cornell Laboratory for this purpose.

In this present system, a quantity of exhaust gas is tapped off the exhaust pipe of the outboard port engine by a scoop welded on the pipe. It is cooled to about 70° F. in a heat exchanger which is located in the engine nacelle. The proper amount of the cooling air for the heat exchanger is controlled by an automatic valve in the duct near the exit of the cooling air to prevent freezing of moisture from the exhaust gas when the exchanger is operating below its rated capacity. At the bottom of the exchanger there is a drain for the condensate which collects during cooling.

The exhaust gas then goes through a 3" diameter flexible duct along the forward side of the front beam into the inboard port engine nacelle. There a check valve prevents back flow of the gas vapor due to climatic changes while the airplane is on the ground. Immediately above this check valve, fastened to the lower wing surface, is the manifold assembly which distributes the exhaust gas to the top of each fuel cell and also to compartments surrounding these cells.

Also connected to this manifold is a pressure relief valve and a vacuum breaker valve. These valves are to control the pressure in the fuel tanks when climbing and diving the aircraft. The pressure relief valve has been set to open at an 8" head of water and the vacuum breaker valve will open at a pressure differential of —2 inches of water.

This system is entirely automatic, requiring little maintenance, and is in operation whenever the engine is running.

To collect data on the percentage of oxygen which remains in the vapor above the remaining gasoline in the tanks and also in the compartments around the tanks, there are 12 small sampling lines leading into a control panel. Any one sample can be tested as desired this way. This test sample then goes through the control panel where its flow is regulated before entering the special instruments for indicating and recording the oxygen content.

The wing inerting system has been tested successfully at altitudes up to 20,000 feet. During all tests, an oxygen content of less than 6% was maintained and, in some instances, it was below 2%. A range of 14% to 17% oxygen is considered the dangerous amount for fuel tank vapors.

About 80% of the equipment now on the experimental installation is instrumentation used only to determine efficiency of the heat exchanger and gas pressures and temperatures at various points in the installation. The service installation would consist only of the heat exchanger, the duct from that to the valves, vacuum breaker, pressure relief valve, and small lines to the various fuel cells. It is estimated that a complete installation for an aircraft of this size would weigh between 40 and 55 pounds.

Development of this wing inerting system is regarded as an important forward step in the elimination of fire hazards from civil as well as military aircraft. By maintaining an inert atmosphere within fuel tanks and in adjacent spaces, the probability of fire or explosion from fuel leakage or other causes is greatly reduced. It is also probable that the inerting atmosphere around the fuel would delay or, in some cases, prevent destructive fires which occur frequently in present-day aircraft after a crash landing.

Avenger Wings Will Pull Off

Avenger aircraft can be used for glide bombing, within limits, but they distinctly are not dive-bombers. Forty-seven pilots since 1942 have pulled the wings off their torpedo bombers because they thought they were.

Going down in a glide bombing or high speed torpedo run it is easy to exceed speed and G limitations without noticing, if the pilot has his eyes glued on his gunsight or target. The TBF/TBM type plane is designed for horizontal and torpedo bombing but can be used for shallow glide bombing according to Flight Safety Bulletin No. 3-47.

T.O. 49-45 specified that an Avenger with 15,000 pounds gross weight, for instance, should not pull more than 3.8 positive G's or 2 negative G's, nor exceed 305 knots speed during a dive.

To keep from pulling the wings off these planes, the flight safety bulletin suggests landing gear be extended to hold down speed, a slow pull-out with a wide radius, chopping the speed in rough air and pulling out of a glide bombing run if the angle gets beyond 45° to keep on the target. A little headwork will help.



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TECHNICALLY SPEAKING



SPECIFIC JOBS ARE DONE ON SCHEDULE AT EACH SUCCESSIVE STAGE OF FUSELAGE REPAIR LINE

NORFOLK SPEEDS UP FUSELAGE REPAIR

A STAGE system for the repair of F6F, F8F, and TBM fuselages has been developed and used to advantage by the A&R Department, NAS NORFOLK.

Fuselage repairs, including the incorporation of applicable changes and bulletins, are accomplished in accordance with a predetermined sequence of operations, performed progressively in stages. The succession of stages for each type of aircraft constitutes a line which moves forward one stage at the beginning of each working day.

This method of fuselage repair was developed and adopted in 1946 to meet the scheduled requirements of the aircraft assembly line in a more efficient manner. The system originally was set up to include eight stages, but it has been modified, as a result of increased efficiency, so that at present each line consists of five stages.

Prior to the development of the stage system of fuselage repair, each fuselage was placed in a fixed location in the shop where assigned crews performed necessary work without moving the fuselage until completion. The output of fuselages was irregular, presenting many complex problems, and necessitating greater efforts and coordination by production and planning activities.

Adoption of the present system has resulted in greater specialization of work accomplished, better production control, and improved quality of work. It has allowed a reduction in the number of direct labor personnel and supervisors and has produced an even flow of work with a uniform output of fuselages.

The following summary indicates the work by stages for the TBM fuselage line:

- ### Stage 1
1. Attach work order to plane.
 2. List all applicable changes and bulletins to be complied with.
 3. Inspect plane and list all discrepancies.
 4. Requisition all necessary repair parts.
 5. Start all major repairs that are required. These repairs are to continue through all stages until completed.
 6. Examine wing hinge and wing lock fittings for loose bolts and excessive wear. Renew when necessary. Tighten all bolts in upper hinge fitting with torque wrench.
 7. Examine stabilizer and fin attachment fittings for excessive wear, replacing when necessary.
 8. Examine engine mount bolts for burred threads and renew when necessary. Tighten all loose engine mount bolts with torque wrench.
 9. Examine remote compass bracket Lord shock mounts. Replace when necessary.
 10. Examine elevator bellerank holes for excessive wear. Add reinforcement plates if over-size.
 11. Examine arresting hook roller tracks and cockpit enclosure hood tracks for smooth operation, and correct as required.
 12. Install BUAER changes #250 and #239.
 13. Fit and repair removable skins and gap strips on wing center section.
 14. Remove damaged flap bearings from wing center section.
 15. Correct wing center section, cockpit and lower firewall bulkhead assembly discrepancies.

- ### Stage 2
1. Correct fuselage bomb bay area discrepancies.
 2. Correct cockpit and bombardier compartment discrepancies.
 3. Install permanent floor board after repairs are made to formers and stringers in bottom of fuselage.
 4. Correct plexiglas discrepancies. Buff and polish acceptable plexiglas; remove damaged plexiglas panels.
 5. Examine outside skin of fuselage for buckles or non-standard patch repairs and re-

place as necessary. Apply chromic acid on chafed or abraded areas.

6. Correct inside fuselage discrepancies; repair or replace damaged formers, stringers, bulkheads, and steel fittings. Replace rusted bolts, nuts and screws. Prime all wire-brushed areas.

7. Examine bomb bay doors for cracked ribs, stringers and skins. Repair or replace when necessary.

8. Correct wing center section, cockpit and lower firewall bulkhead assembly discrepancies. (Continued from Stage 1.)

9. Comply with BUAER bulletins 187 and 214; incorporate BUAER changes 197 and 235 in cockpit. Replace damaged instrument panel Lord shock mounts.

10. Correct tail cone and tail wheel-well discrepancies.

Stage 3

1. Correct plexiglas discrepancies, by replacement of unacceptable plexiglas panels. (Continued from Stage 2.)

2. Correct wing center section discrepancies as follows:

(a) Remove, replace, or repair damaged skins, ribs, stiffeners and non-standard parts.

(b) Wire brush corroded areas and steel fittings. (Continued from Stage 2.)

3. Correct inside fuselage discrepancies as follows:

(a) Replace damaged dzus springs.

(b) Replace damaged anchor nuts.

(c) Reinforce dented or damaged skins and stringers by appropriate patching. (Continued from Stage 2.)

4. Correct lower firewall bulkhead assembly, wheel-well and firewall discrepancies as follows:

(a) Replace and prime rusted and corroded rivets, bolts and steel fittings.

(b) Replace damaged dzus buttons and springs as required.

(c) Replace abraded gussets in fuselage tail wheel cut-out. (Continued from Stage 2.)

5. Apply masking tape and Spraylat to acceptable and replaced plexiglas.

6. Test fuselage bomb bay door for proper hydraulic operation.

Stage 4

1. Correct final discrepancies on wing center section as follows:

(a) Smooth out dents and abraded areas on leading edge of wing center section. Prime or apply chromic acid as required.

(b) Straighten wing center section trailing edge.

2. Install change plates in wing center section.

3. Grease all engine mount bolts, bearings, and fittings to prevent rust.

4. Inspect plexiglas for any damage incurred while in process.

5. Complete check-off of discrepancy sheet by supervisor.

6. Vacuum clean fuselage.

7. Inspect and tighten all handling gear.

Stage 5

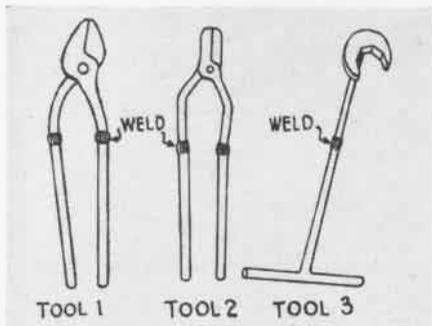
1. Final inspection of fuselage (NAS inspection).

2. Correct discrepancies listed on discrepancy sheets by inspectors.

3. Final cleaning of fuselage.

4. Final acceptance of fuselage by inspector and supervisor.

The division of work into stages for F6F and F8F fuselage repair is similar to that outlined above for TBM fuselages. Better utilization of skills and manpower under the stage system has resulted in a marked increase in the efficiency of repair work.



Tools for F8F-1 Maintenance

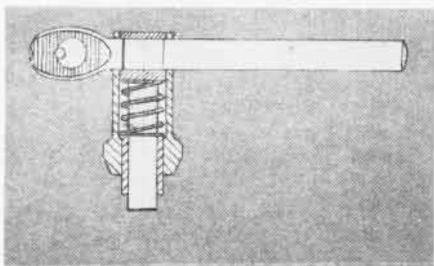
NATC, PATUXENT—Project TED No. BIS 2166.1, dated 8 August 1947, recommends use of the following tools for maintenance of F8F-1 aircraft:

Tool 1—Extended diagonal cutters. Hollow tube extensions approximately nine inches long were welded to the handles of the standard diagonal cutters. This tool greatly aids in cutting the AN-8-40A bolt cotter key.

Tool 2—Extended adjustable combination pliers. Hollow tube extensions approximately eleven inches long were welded to the handles of the standard adjustable combination pliers. This tool is used for removing the AN-8-40A retaining bolt which holds the two actuating cylinders at the retracted end fitting.

Tool 3—T handle wrench. A fourteen inch extension T handle was welded to one end of an 11/16" open end wrench. This tool is used for removing hydraulic line fittings from the hydraulic actuating cylinders.

These recommended tools can be made in the field by service personnel and will reduce by 50 percent the time required for removal and replacement of the actuating cylinders.



DRAWING SHOWS LOCATION OF THE SPRING

Drill Idea Cuts Accidents

NAS NORFOLK—An A&R employee designed a self-ejecting drill chuck key to eliminate injuries caused by failure to remove the chuck key prior to starting power-operated drills.

Shop tests proved the key safe, practicable and a contributing factor to fewer accidents. It is a relatively simple tool assembly and no difficulties have been encountered in modifying the conventional chuck keys.

The modifications require manufacture of a plunger or shaft, a coil spring, and drilling of a conventional chuck key. When assembled, the working parts are enclosed.

(Developed by W. C. McWilliams)

➤ **BuAer Comment**—Several injuries have been known to occur by leaving the chuck key in place. This idea is certainly a

workable and inexpensive solution. Mr. McWilliams should be commended.

Marines Develop Tank Idea

VMF-211—This squadron has a system for carrying 500 lb. GP bombs which it believes superior to the plan described by VF-13-A (NANEWS, July), which involved welding wrought steel or strap iron plates to the Mk 5 fuel tank's sway brace pads to prevent puncturing the Mk IV drop tanks.

To carry the bombs, however, the plates must be removed or the sway braces replaced. The sway braces could be dropped and the bomb hung on the pylon, but this would necessitate using the manual release unless the Mk 1 Mod 1 shackle electrical release was rewired.

This squadron had to carry bombs on its North China patrols at times, so a permanent installation was undesirable. This unit glues plates to a neoprene rubber pad which in turn was glued to the Mk IV tank using neoprene rubber cement as an adhesive.

This arrangement proved satisfactory. The only difficulty lies in the fact that over a period of months the plates come loose and have to be reglued.

➤ **BuAer Comment**—This modification is considered satisfactory for the Mk 4 tank installation if used with the sway braces furnished with that tank, in accordance with BuAer T.O. 21-46.

Engine Changes Decreased

VP-HL-12—To aid the maintenance department at NAS WHITING FIELD in its program to decrease engine changes on PB4Y-2 aircraft, the Aviation Training Unit has been experimenting with reduced power settings, consistent with safety, on familiarization phase flights.

The traffic pattern has been lowered by 500 feet, to decrease the time required to remain at climbing power. This also allows for the making of more landings during the scheduled period.

The unit doctrine in the past called for a power reduction from take-off power to 45" of manifold pressure and 2600 rpm at the time the landing gear is retracted and a further reduction to 36" and 2400 rpm (normal climbing power) at the time the flaps are raised. Studies are now being made to consolidate the two changes into a single power reduction to normal climbing power at the time the gear is retracted and thus cut down the period of high rpm.

A power reduction has also been made in the normal landing pattern. On turning base leg during the landing approach, instead of using 2600 rpm when the manifold pressure averages about 21", 2300 rpm is now being used. This power would be adequate in case of a wave-off. Full rpm is set in the final approach before flaring out.

To date all instructors have made favorable reports on these procedures. Inasmuch as considerable potential damage occurs when engines are operated at high rpm's for an extended period of time, even though power settings are within the authorized limits, the unit believes that reducing the power, as described above, will lengthen engine life.

Short Cord Cuts Mike Woes

The combined installation of the CX-922/AR coiled microphone-headset extension cord and the M-5A/UR boom microphone has been the cause of a number of RUDM's due to the breakage of the microphone cord at the after wire holding bracket.

Cause of these breakages is due to the fact that the entire weight of the jack box (U-56/AR), and part of the weight of the coiled extension cord are supported by the microphone cord. The microphone assembly and cord was not designed to support any weight nor is there any intention that it should do so. The unsatisfactory condition is due to the excessively long plug portion of the headset cord.

Therefore, the obvious solution is to shorten the cord to a length (seven inches from point of junction to shoulder of plug is suggested) where, in any position of the user, the weight of the CX-922/AR assembly is always supported by the headset cord and that there is always slack in the microphone cord. The following procedure is recommended to eliminate the microphone cord breakages:

1. If the coiled extension cord is used with the H-1/AR helmet-type headset, tie the plug portion of the headset cord up in a loop behind the cross connection portion of the headset cord, as illustrated. Secure the loop with strong waxed cord as indicated in the picture. This will shorten the plug portion of the headset cord.

2. If the H-4/AR headband type headset is used, form a coil with the excess length of the plug cord and tie it on the underside of the headband. This coil will not interfere with the normal use of this headset, but will shorten the cord enough to allow the headset plug to carry the weight of the jack box and part of the coiled cord relieving the microphone plug of the burden.



HEADBAND, HELMET-TYPES WITH SHORT CORD

LETTERS

SIRS:

On the rear cover of your October 1947 issue, VME(N)-533 "boasts of the only night fighting ace of any service." A creditable statement but not entirely accurate.

That honor can be equally bestowed on the late Lt. D. E. Umphres, USNR, who led VF(N)-83, attached to CVG-83 aboard the *Essex*.

On April 6, 1945, Lt. Umphres destroyed one *Betty*, one *Val* and two *Oscars* to bring VF-83's total planes destroyed on that single day to 70. On May 13, 1945, one *Jake* and one *Tony* felt the nocturnal sting of Lt. Umphres' guns. An ace and then one, Lt. Umphres was killed recently at NAS PATUXENT while actively engaged in experimental jet work.

LT. (JG) SAMUEL J. BROCATO, USN
NROTC UNIT
VILLANOVA COLLEGE

SIRS:

May I call your attention to an error made in the statement concerning squadron insignia on the back cover of the October issue of NAVAL AVIATION NEWS. According to the statement VME(N)-533 has the only night-fighting ace of any service.

That statement is very much in error. The below listed pilots are all Navy night fighters, and are officially credited with the shoot-downs as listed. In addition Ensign "Red" McDonald probably set the record for efficiency in shoot-downs by knocking down all five Jap planes in the space of 38 minutes and using only 1138 rounds of ammo. The planes were not in formation and required an individual chase for each.

The night-fighter aces and their records are:

Lt. Cdr. "Danny" O'Neill—VF(N) 75—Munda, New Georgia, B.S.I.—7 kills.

Lt. K. D. Smith—VF(N) 90—*Enterprise*—5 kills.

Lt. O. D. Young—VF(N) 90—*Enterprise*—5 kills.

Ens. R. "Red" McDonald—VF(N) 91—*Bon Homme Richard*—5 kills.

There are probably several other night aces but those are the pilots who come to mind. Perhaps others of your readers can add to the list. Never let it be said that the Marines got the best of the Navy—in anything.

F. METZNER, LT., USN,
NAS PATUXENT RIVER

¶ The Marine Corps says NANews should have said first Marine night fighter ace, Capt. Robert Baird of Los Angeles. He got his fifth Jap on 22 June 1945. At the time he shot his fifth plane down the Navy had no reports of any similar aces.



SIRS:

Everyone who has ever served at NAS LOS ALAMITOS will remember Chief MAA Bill Murphy, second oldest man in the Navy. He recently retired after 56 years of active duty. Better square that hat when he is around, he didn't get those eight hashmarks and that badge for nothing.

LT. CDR. E. C. INGRAHAM
PUBLIC INFORMATION OFFICER

SIRS:

A successful method for keeping young visitors comfortable and happy, while their mothers are touring the station, was worked out by NARTU NORFOLK during the Anniversary open house.

Necessary equipment includes one empty file drawer and one cold weather jacket (to be supplied by station) as well as one formula bottle (to be supplied by parent).

The proper technique is illustrated in the picture which shows the youthful sightseer contentedly bedded down in his file cabinet crib enjoying a little refreshment administered by Stationkeeper W. B. Naylor, ACOM.

E. G. MASON, CDR.
ACTING COMMANDING OFFICER



The Cover: *Sky-raid*ers, the new Navy attack plane, fly in right echelon above Norfolk, then peel off to dive-bomb a target. The AD-1 recently passed its carrier qualifications in good style and is liked by the fleet.

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ANSWERS TO QUIZZES

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(inside front cover)
Top—NAS Whidby Island, Wash. Bottom—NAS Olathe, Kansas.
- RECOGNITION QUIZ
(inside back cover)
Top—F8F and F7F. Bottom—XB-47, Martin six-jet bomber.



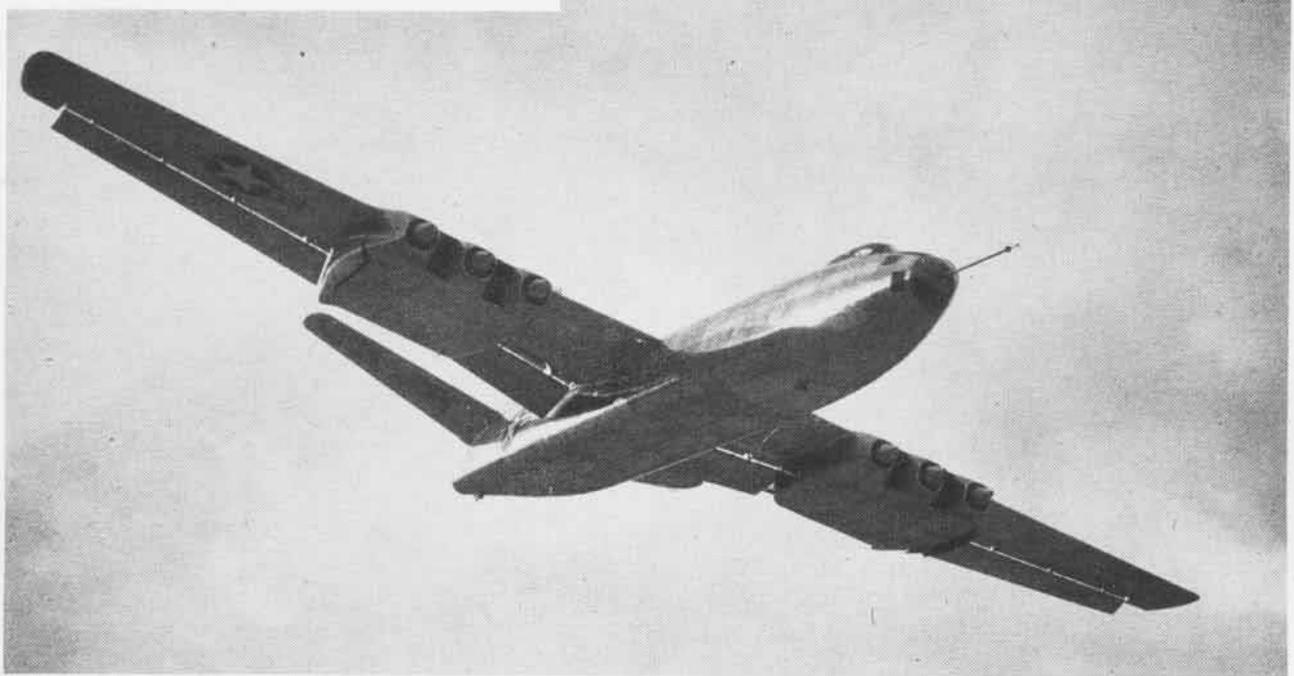
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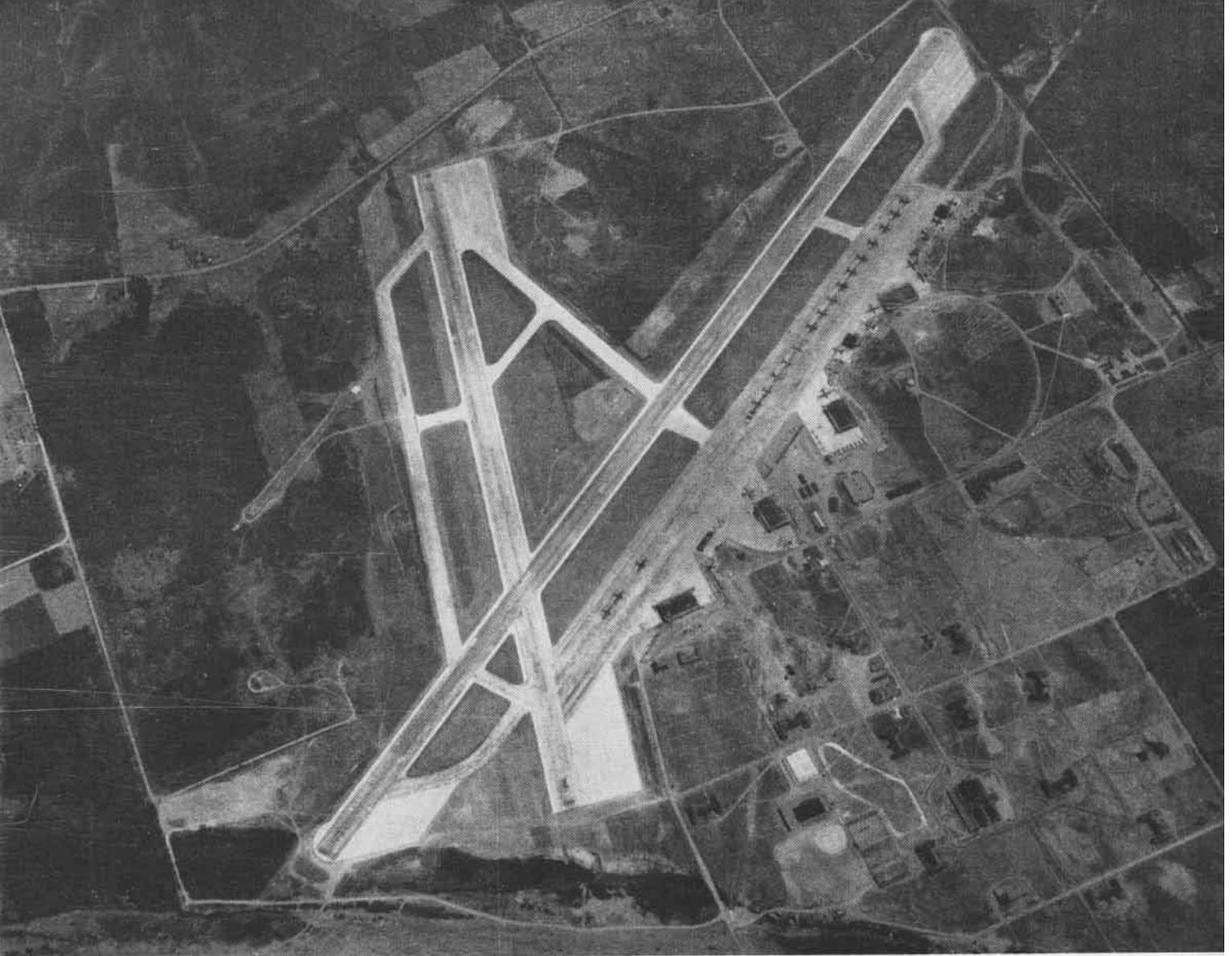


NAVAL AVIATION

NEWS

JETS MAY be the fighting aircraft of the future, but Navy still has a couple of tough reciprocating-engine types left (above). Identification of these planes is on the last page.





GO WEST, MATES

Should your airplane carry you west of the Mississippi sometime and you saw these stations, would you know where you were? If not, turn to the answers on last page.

