NAVAL AVIATION NEWS

RESTRICTED

Electronics Test

Napalm Fire Bombs

NavAer 00-75-R3

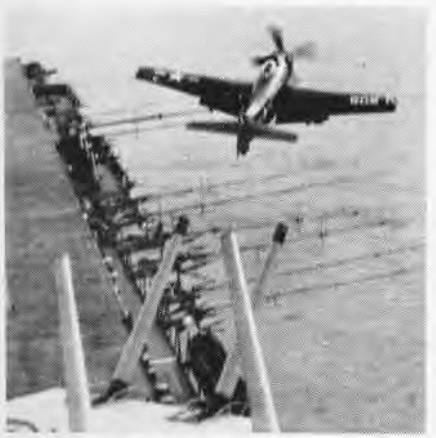
MAY 1951

RESTRICTED

The Skyraider loses a wingtip on the turret

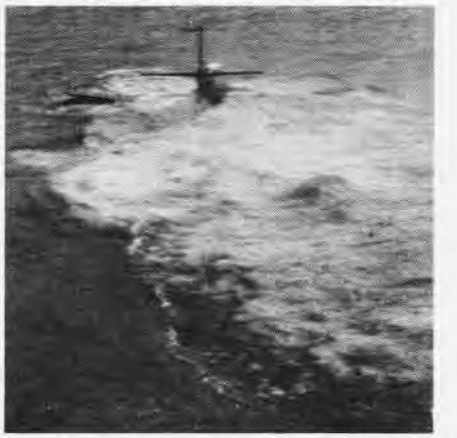
Ens. D. F. Kirkpatrick's engine sputters

IF YOU MUST DITCH A PLANE



Barely misses radio antennae

Wings still level as he falls



Engine drops off upon impact

Saved by shoulder straps, pilot climbs out of cockpit of his plane, floating high minus engine.

ELECTRONICS TEST

Magnitude Of Operation At NATC Patuxent River Staggers Imagination: 170 Projects Underway

IT'S BIG. It occupies a lot of space. Its field of endeavor covers a myriad of tasks. Moreover, most of the projects are way over the average man's head.

A "short" visit to the Electronics Test Division of the Naval Air Test Center at Patuxent River, Md., would take the better part of a day. At that, only the surface of the division would be scratched.

Some idea of the magnitude of the operation can be obtained by comparison. Electronics Test is authorized to employ more civilians, 448, than all the rest of the test divisions at Patuxent together. It averages over one-half the projects of the test center, with some 170 projects underway at present. Military population now is 37 officers and 264 enlisted men, with an expected increase coming later.

It is the job of the division to test and evaluate everything electrical and electronic that is designed to leave the ground in Navy aircraft. This includes radar, radio and communications, antenna systems, composite systems, navigational aids systems, primary and secondary equipment and the working of all of them together. It is the division's job to make recommendations as to engineering changes, circuitry, fabrication, and mechanical construction upon completion of test and evaluation.

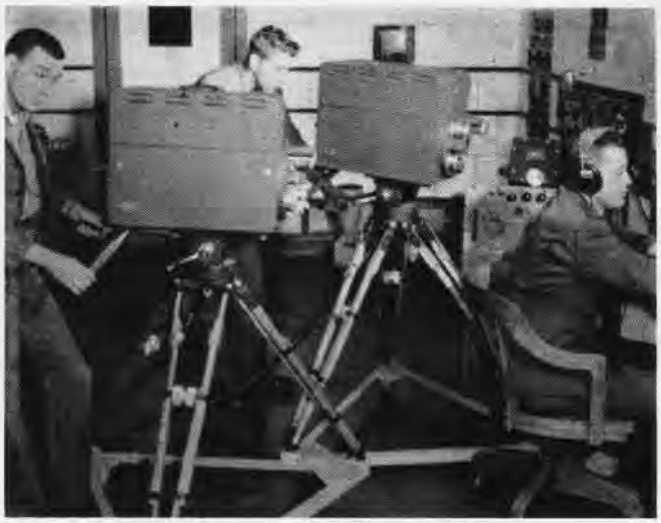
ELECTRONICS TEST'S mission does not include personnel training for the service, although there is an occasional exception when no other activity in the Navy can train the personnel. The division does no work with missile electronics equipment.

Located at the huge center at Patuxent, ET is housed in one large double hangar, another completely shielded hangar, a large administration building with a tower, a small building housing the antenna section, a barge on the Patuxent River at Solomons Island, and numerous towers and antennas scattered about the base. The shielded hangar covers a space bigger than a football field.

Postwar developments in electronics are just now flying. Production money is taking effect.

Most startling is the relative cost of electrical and electronics equipment to airframes. In 1943 it was 5%. For fiscal 1951 it was 17½%. For fiscal 1952 the figure will rise to one-third the cost of the plane.

RECORDING EQUIPMENT in tower at Electronics Test is operated by J. R. Carr, AL3, at panel, and E. Leonard, AL1, sitting at console



WHEN RADAR tube pictures are transmitted to another hangar, TV cameras do the job; Foley, RD2, Kunstman, AT3, shoot Lt. John Dick

PATUXENT is ideally located for radio and radar test work. It is on level land near a large body of water—the Chesapeake Bay, noted for its succulent oysters. Unlimited transmission over water is thus available. On the other hand, mountains rising three to four thousand feet above sea level are only 100 miles away, to the west in Virginia and to the north in Pennsylvania. Woods, and rough and smooth terrain are available for radio and radar propagation tests. Deep water nearby permits ships and submarines to work closely in testing some of the equipment.

In accomplishing its task, Electronics Test must depend in great measure on civilian electrical and electronics specialists. They range from civil service GS-5 ratings fresh out of college, to GS-13's who are heads of the various sections. Ray Gordon, chief engineer, is GS-15.

Most of the projects at ET are under the technical control of the Electronics Division of the Navy's Bureau of Aeronautics. A few come under the Airborne Equipment Division. Located at Patuxent but under the control of the Bureau of Ships is NANEP—Naval Air Navigation Electronics Project—which has cognizance over the ground equipment associated with electronics navigation aids.

Under the guidance of the director, Capt. John Bowen, Jr., the division expends more than half its effort on tests of equipment for BUAER. About one quarter of the work is testing installations in new aircraft for the Navy's Board of Inspection and Survey. Some work is associated with research and development, although it is not part of the division's mission.

To obtain a clear picture of the variety of projects underway at ET, a visit to each of the engineering sections would produce an intelligible answer.

Starting in the administration building itself is the radio and communications section. All flights made from Electronics Test are controlled from the special tower perched on the building. In that tower is a complete control console, special receivers and a soundproof studio which contains high fidelity recording equipment.

On a test flight, the communications equipment in the plane transmits a standard signal. This is recorded for signal strength against range, direction and altitude combined with intelligibility. These factors vary through an effect called lobe modulation, which results from the interaction of the direct path and earth or sea reflected radio waves; in the higher frequency ranges the lobes thus created are multitudinous.

A high speed plane travels through these lobes with such speed that a rapid variation of the strength of the radio signals occurs, thereby producing an undesirable modulating effect in the receiver output. The task is to chart that modu-

ENGINEER R. H. Powell shows specimens of fungi which are kept under refrigeration until introduced into equipment for tropical tests

ELECTRONICS engineers D. T. Latimer and H. V. Hermansen, of Naval Air Navigation Electronics Project, measure field strength intensity

lation for use in determining further design considerations.

In the next few years there will be a shift of aircraft communications from the Very High Frequency to the Ultra High Frequency range. Head of the Radio and Communications section is C. M. Russell, who holds the GS-14 grade.

THE RADIO and Communications section made an original investigation of UHF for the armed forces and the CAA. This resulted in a technical report which is essentially a textbook on UHF. They are compiling at present a new handbook on UHF for Naval Personnel. Improved equipment designed for the UHF range will make well over a thousand channels available for ground-to-ground, ground-to-air, ship-to-ship and air-to-air communications. This is the military and civil solution to relieve maddening congestion on the few VHF frequencies now in use by the Army, Navy, Air Force and commercial services.

Another project of the section is running tests on radio propagation effects above 100 mc. and attendant meteorological factors.

A new UHF transreceiver now under test is the AN/ARC 27, which has over 1,000 channels and is pressurized. This is the first equipment to be so pressurized. By maintaining air pressure inside electrical and electronic equipment at high altitudes arcing is prevented. The rarer the atmosphere, the greater is the tendency for arc-over between points of high potential differences.

The Systems Section is located in the shielded hangar. This building is completely covered on the inside with copper screening, shutting out all outside electromagnetic radiation. In addition to the main floor space in the hangar, there are a number of air-conditioned shielded rooms. All power generators are in rooms of this type, double-shielded with copper sheathing.

Before equipment is installed in a new plane, somebody must determine the most efficient manner for installing it. It is the job of the Systems Section to conduct these investigations prior to the actual mockup of a new plane. Noise level corrective measures are taken. Under the direction of J. F. Plunkert, these questions are asked: Is the system suitable for the airplane? Are the controls handy for crew members? How does it perform in flight? How well will antennas work? How much interference is there between equipment (i.e., can all the electronic equipment be operated simultaneously without malfunctioning)?

An example of the section's work was the electrical-electronics layout for the turboprop-powered XP5Y-1. Three

MONEY IS SAVED by antenna section by using models; Section Head R. L. Hensell, and J. E. Canetti at model mounted for radiation test

years before the plane was to fly, a mockup of the installation was made in the shielded hangar. That mockup resembled the two-by-four framework of a small house.

Also located in the shielded hangar is the section which makes inspections for the Board of Inspection and Survey. All new planes from the contractors are practically ripped apart to see whether they meet the specifications or not. In conjunction with the Systems Section, BIS checks operation of equipment. J. W. Whitam is head electronics inspector.

ONE OF THE most fascinating laboratories in ET is operated by the Environmental Test Group. Because much aircraft electrical equipment is exposed to humid heat, organisms, salt water and salt fogs, operations under such conditions must be simulated to see how the equipment will fare. If it breaks down, remedies are sought.

C. S. DODGE, test facilities engineer, who plays Santa Claus every Christmas at NATC PATUXENT, tries out HO4S helicopter for size

ROBERT H. HOWARD, radio mechanic, shows workings of new aircraft receiver to R. T. Harrington, ATAN, in radio-communication shop

WORK OF Electronics Test Division is guided by Capt. J. B. Bowen, director, Cdr. G. A. Whitside, assistant, Ray Gordon, chief engineer

SIMULATED AIR blasts at 50,000 feet are directed at generators and other equipment under the eye of John Fulton, laboratory mechanic

Kept under refrigeration in the laboratory are five groups of fungi. When needed for test purposes, they are brought out and sprayed or poured on the equipment, or the articles are dipped in the fungus culture. As fungi are used, more are grown. Engineer Robert R. Powell is supervisor.

In the tropical rooms of the subsection, equipment is operated. In one piece of equipment, for instance, hundreds of points are checked and recorded for operating temperatures. Coaxial cable, an essential in all radar equipment in aircraft, is given strenuous tests. Aircraft storage batteries are actually blown up. In normal operation they generate small quantities of hydrogen gas. In concentrations of approximately four and one-half percent or over with air, a spark can set off the mixture. A remedy for this problem is being sought.

Cdr. R. E. Laub heads the All Weather Aids Department.

Closest to the hearts of most pilots is the problem of navigation. Radio aids in use today are only the forerunners of what is to come. At ET, the Navigational Aids Section, under LCdr. E. B. Perce, is busy testing many new systems, including Navy applications of omnirange and distance measuring equipment. Operated by this section is the famous Navy *Delta* R5D plane. It is loaded with every known means of electronic navigation equipment. It tests those already accepted for use, and tries out new systems which will not be in use for years to come. A companion plane, an R4D, is being readied to extend the program.

The navigational aids section operates the omnirange, DME and glide slope installations located on the station. New projects are aimed at utilizing these principles for controlling traffic around aircraft carriers, for intercept flights and landing control. Closely associated with airborne navigational aids is NANEP, mentioned earlier, which has cognizance over ground air navigation installations. Unlike other activities of ET, a large part of the work of this section is development.

LCdr. J. O. Polk directs projects designed to control traffic over land and sea, and computers to make less arduous the job of traffic controllers who must keep track of a large number of aircraft at once.

The section has a continuing project to improve Ground Controlled Approach. In connection with GCA also is the problem of converting the equipment to the Ultra High Frequencies. For control towers to monitor planes coming in by GCA, a daylight tube has been developed. These radar tubes ordinarily are operated in darkened rooms. At present, an automatic GCA system is being evaluated. Shipboard direction finders which are operated with aircraft are constantly being improved. The subject of polar navigation is being studied in order to furnish a system which is not dependent on the earth's magnetic fields. Systems utilizing magnetic compasses are unreliable near the earth's magnetic poles.

NANEP has an originally designed piece of test equipment for measuring radar output. The radiations raise the temperature of a column of water. Those temperatures are translated into relative power output.

MANY OF THE tests on the airport slope line approach light system were performed at Arcata, Calif.; here is the Patuxent installation

IN MANY of the tests conducted at ET, it is necessary to transmit pictures from one hangar to another. The Special Devices Section makes use of television for it. Cameras are set up and the information sent to another location where it is observed and recorded. The section also determines the value of special devices such as special radar equipment, detecting systems and countermeasures equipment, from a military use standpoint.

Extremely important work, and about which we can say the least, is done by the radar subsection. For all airborne radar installations this group works out prototype layouts and designs it for best locations in aircraft. All radar is

IN COPPER shielded room which almost stops outside interference, W. Marable, AT3, B. D. Walker, lab technician, chart performance

AIRPORT LIGHTING subsection tests approach light systems, seadrome lights and signs such as these shown by James E. Davis, mechanic

evaluated by flying it in planes in the area; over land and sea. First production models are flight-tested also. M. E. Riegel is the subsection head.

In order to save money, R. L. Hensell's antenna section makes use of small wooden models of planes. Antennas are placed in and on these models which are then mounted and rotated to measure the radiation patterns. (See pictures.) By this means it is possible to incorporate the antenna design and location in aircraft before the structural design becomes frozen.

A stratosphere chamber is operated by the Electrical Section. Air pressure can be decreased to the equivalent of 70,000 feet; temperature varied from —60°C to 75°C; humidity from 20% to 100% within the 20°C-75°C temperature range. Generators can be run in it with simulated air blasts, temperature controlled from sea level to 50,000 feet. A series of dehumidifiers conditions air to simulate high altitude air.

IN SUPPORT of all this test and evaluation there must be a large housekeeping organization and technical support. The Standard Measurements Section provides standard frequencies for calibration of the test equipment, radio and radar, and furnishes procedures for making measurements. It is prepared to make any measurements requested which are beyond the capabilities of the section concerned, and to calibrate and repair instruments.

Many shops support the division. There are woodworking, sheet metal, electro-plating, machine and painting facilities.

With so many projects underway, a coordinator is necessary. Cdr. Guy Howard does this job. He assigns aircraft to cognizant sections for operation, and maintains a progress record.

Assisting the division director is Cdr. George Whiteside, who is concerned with administration and coordination of activities of the huge ET division.

All the work done by the division requires a tremendous volume of written reports. A project editor edits these for grammar and suitability of presentation.

To furnish aircraft for flight tests is the mission of the Flight department. Cdr. E. H. Bayers supervises the operations of a great variety of aircraft—in fact, every new airplane the Navy has.

An age of miracles, electronics-wise, is in the making. Electronics Test is helping usher it in. Now the military services must accept the challenge of their developmental and test agencies and provide the highly trained personnel needed to operate and maintain the equipment.

ELECTRONICS TEST AREA AT NATC PATUXENT RIVER, MD., IS SHOWN HERE: HANGAR IN FOREGROUND IS SHIELDED, COVERS AREA OF FOOTBALL FIELD

GRAMPAW PETTIBONE

Sweepers, Man Your Brooms

Years ago, in the wild and woolly towns of the west, when spring came and the snow melted it was not uncommon for a number of corpses to appear. They had been tossed into the snow during the winter.

When snow and ice melt off the runways, many missing parts of aircraft and tugs and snow plows and tools are likely to appear. If not removed they may create corpses.

Flight Safety Foundation reports that at a large civilian airport more than a bushel basketful of airplane parts were picked up in a single search. The housecleaning in this instance was prompted by the fact that a monkey wrench had been hurled from wheel to prop and into the cabin of an airplane. Fortunately no one was hurt.

Grampaw Pettibone Says:

The Navy has always taken pride in its good housekeeping at sea and ashore, but once in a while there is a slip-up that causes an accident or a near miss.

Not long ago a PB4Y came in for a landing at an airfield in the Pacific and struck a coke bottle left on the runway, causing a severe cut in the starboard tire. The tire went flat in approximately 6 minutes. A serious accident could have happened had the cut been a little deeper.

With jet aircraft operating from more and more fields it is vitally important to keep runways, ramps, and taxiways clear of debris. Engine run up, taxiing behind other planes or in high winds are critical times for sucking in debris.

Keep the runways clean. A rag blown out on the airfield may cause a crash.

Take That—and That.

Some time ago a crew was assigned to ferry a medium bomber south from the States. The entire trip had just been one headache after another for the pilot.

First there were layovers due to engine trouble, then delays due to bad weather. The pilot didn't seem able to make a smooth landing on the entire trip. Finally as they approached an airfield one stop away from the final destination, it happened again. The wheels wouldn't come down.

The pilot flew around and around trying to lower the gear by every known means—but no luck. Finally he gave up and came in for a belly landing. The

bomber slithered along the ground. Then the final straw—the plane caught fire.

Flames and smoke enveloped it. A crash truck streaking to the rescue found the crew members had cleared the ship without injury. They were huddled in a group watching the fire—all except the pilot. He stood apart from the rest, so they tell me, with a vengeful look on his face, and was busy throwing rocks at the burning ship.

Dear Grampaw Pettibone:

At long last I believe that you've been caught with your landing gear down in the wrong place, and at the wrong time. On page 6 of the March issue of N. A. NEWS discussing the ditching of an R5D you state: "Two distinct shocks were felt on impact with the water, a slight shock when the tail wheel first made contact, and then a second more severe shock".

I don't recall ever seeing an R5D with a tail wheel. The ones that I flew were all equipped with highly efficient steerable nose wheels.

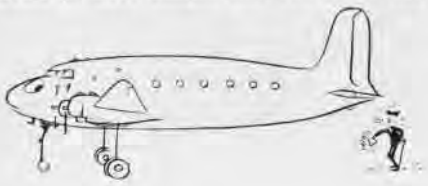
I wonder how many of my ex-squadron mates will get you for this one. I am personally sorry to do this, but I couldn't let it go by.

Yours for safe flying,

Cdr., USN.

Grampaw Pettibone Says:

Not only your squadron mates, but everyone from ship's cook to Admiral seems to have caught this boner. In fact a lot of the letters started out, "I've never flown an R5D, but . . .".



I'm still trying to figure out how the word "wheel" worked its way into that sentence.

Right after getting the stories for the March and April issues ready for the printer, I set out on a 10,000-mile aerial hitch-hiking expedition which took me to Newfoundland, the Azores, Africa, Europe, England, Iceland, and home again. I traveled minus beard and cane and under an assumed name, but I certainly was impressed with the efficiency of Navy Air Transport Operations along these routes.

At the very first stop I noticed that the R5D in which I was riding circled outside the landing pattern for a few minutes. The weather was fine and the field in sight. For a moment I thought maybe the pilots were having some mechanical difficulty. Then the flight orderly told me that we were just waiting our turn to make a practice Ground Controlled Approach. This procedure was repeated at every field equipped with GCA facilities, and probably explains why there are so few cancellations of VR flights or stops due to weather. The constant practice keeps pilots and ground crews ready for the real McCoy—when the ceiling is down to 300 or 400 feet.

When I got back to the office, somebody said, "Gee, your Hooper rating is really going up. Look at all the mail that came in while you were gone". I did and came to the conclusion that everybody, everywhere, knows that an R5D doesn't have a tail wheel.

Thanks for the letters, and to VR-1 and VR-24—thanks for the rides.

Dear Grampaw Pettibone:

Please settle something once and for all without any weasel-wording. Can the Commanding Officer of a Naval Air Station prevent a green card pilot of another command from taking off due to the weather conditions?

We all know that the Commanding Officer has the prerogative of closing a field under his command. Also by article 4-304, BUAER Manual, he can ground a transient aircraft which he considers unfit for flight. So don't quote these two regs. I contend that the Commanding Officer has no more authority to prevent a green card pilot from another command from taking off because of weather conditions than the Commanding Officer of a shipyard can prevent a ship from getting under way and proceding to sea.

Of course, he can always throw a

straight jacket around the pilot and say he is crazy to fly in such weather, but that is begging the question.

I have always been proud of my green card, but if the clearance authority that is supposed to go with it doesn't mean anything, the color might as well be changed to ochre.

Yours truly,
Cdr., USN

Grampaw Pettibone Says:

Finding a non-weasel-word answer to this question isn't so easy.

As you know, ACL No. 67-50 sets forth certain qualifications, clearance procedures, and requirements for naval aviators engaging in instrument flights which are subject to Civil Air Regulations. Paragraph 4 of this ACL states that commanding officers of naval air stations and other clearance authorities will be *guided* by the provisions of this letter. One of the provisions of the letter is that there are no weather minimums for green card pilots.

However, nothing in this letter authorizes a green card pilot to sign his own clearance.

Another directive which is still in effect as we go to press (ACL 97-47) states that, "The commanding officer of a naval air station or other shore station or base regularly operating aircraft shall not permit the taking off from the station under his command of naval aircraft when the state of the weather or the condition of the aircraft is such as, in his estimation, to jeopardize the proposed flight . . ."

As a result of these two directives, the following situation may easily arise:

A green card pilot from another command requests a flight clearance at a naval air station on a day when the weather enroute is not just stinko, but definitely unsuitable for the birds. Now Mr. "G" has authority from his own commanding officer to make the flight. He is also considerably braver than the pigeons and seagulls who have all sought shelter under the eaves of the hangar. His only problems are to get someone to sign his clearance, and then to get ATC approval of his flight plan.

The operations duty officer, acting under authority delegated to him by the commanding officer of the station, tells Mr. "G" that the weather is so bad that he won't sign the clearance. Mr. "G" whips out a copy of ACL 67-50 which he has tucked in his pocket for just such an occasion and reads the sentence that says, "No take-off or landing weather minimums apply. Clearance will depend on the judgment of the pilot."

The ODO, ready for any emergency, reaches under the counter and pulls out ACL 97-47. He reads aloud the paragraph quoted above and states that in his opinion the weather will definitely jeopardize the proposed flight.

By this time Mr. "G" is reaching the boiling point. He waves his green card and says, "Yours not to reason why. Look at the date on ACL 67-50, it's a later directive, SIGN MY CLEARANCE!"

By this time, the ODO senses that he is losing ground, so he picks up the phone and asks the skipper of the station for an interpretation of the apparently conflicting directives.

The skipper wants to know what's going on in Pundunk that makes it so important to fly over there in such lousy weather. Mr. "G's" private opinion is that this is none of the skipper's business; besides he doesn't want to tell him that his main reason for flying over there is to line up a date for next Saturday night.

He says, "Captain, I'm scheduled for an instrument training flight. I've got a green card. I know the weather is bad, but how can I get any real practice without flying in bad weather?"

The Captain says, "Why don't you fly down to Pea Ridge instead. You'll be on instruments all the way and get just as much practice, but you won't have to fly at an icing level for so long?"

Well, your guess is as good as anyone else's as to who wins the argument. The outcome will probably depend on the personalities and the signal numbers of the people involved.

However, I have one suggestion to make. In the event that the operations officer or the C.O. elects to sign the clearance under such conditions, I think he should require Mr. "G" to sign a form similar to the one below, and clip this form to the copy of the flight clearance retained at the operations desk:

Date _____
Time _____

From: _____
Name Rank Serial

To: Operations Officer.

_____
Activity

I have been briefed regarding the unfavorable weather conditions prevailing for the flight proposed in the clearance to which this statement is attached. I acknowledge that I have been advised not to undertake the flight at this time. I possess a valid "Special" instrument rating, and believe that I can complete the flight without undue hazard to myself or the aircraft. I therefore intend to disregard the advice referred to above and to proceed with the flight.

_____
Signature

P.S. In case of death or injury notify the following persons and/or activities:

_____
_____
_____

_____
Initials

P.P.S. I have/have/not made out my last will and testament. This document is located at:

_____

_____
Initials

FLASH! LATE NEWS!

Perhaps by the time this is in print directives regarding the clearance of "Green" Card Pilots will have been clarified. The following is quoted from a recent OPNAV letter dated 8 March 1951 on this subject:

"An OPNAV Instruction is under preparation, together with a change to U. S. Navy Regulations, which will clarify this apparent ambiguity. It is the intention of the Chief of Naval Operations that a "Special" designated pilot will be able to clear himself so far as terminal and enroute weather conditions are concerned, subject to his own judgment. Good judgment must include acceptance of GCA minimums, except under unusual circumstances.

"Similarly, availability of high intensity approach and runway lighting for landing under fog conditions is considered elemental without further stipulation. In view of the variable factors of weather and equipment available, both ground and airborne, it is not believed that rigid minimums should be specified.

"Those to whom a green card has been entrusted must be qualified best to judge all the circumstances for a particular flight. The Commanding Officer will retain his authority to clear aircraft for reasons other than weather (i.e. lack of a crash truck, foul runway, malfunctioning AirNavAids, etc.)

"Until such time as the proposed changes are promulgated, currently effective regulations give full authority to the Commanding Officer to establish such minimums as he deems advisable and which must be observed by all, including 'special' designated pilots."

Are You A Scooter Pilot?

Remember the good old days when your folks gave you your first scooter? Even after you got pretty good at handling it, you could always put one foot back on the ground for a push or to regain your balance.

Aircraft Accident Reports indicate that a few Navy pilots have never outgrown the urge to drag one foot. A "Scooter Pilot" flys marginal weather by getting down real close to the ground and dodging the hills right under the overcast. The results are often fatal.

Unless you are qualified to shift to an instrument flight plan and climb up to an altitude that gives you a margin of safety, you'd better do a 180° and wait for better weather.

The one foot on the ground technique that worked so well on your scooter, can get you into a lot of trouble in an airplane.

FIRE BOMB

LET'S TAKE a closer look at the most feared weapon used by the U. S. in the Korean war—the searing napalm fire bomb.

Pilot after pilot returning from the war zone has said he'd rather have a couple of droppable gasoline tanks full of napalm than any other weapon, bombs, rockets or guns. Reports of devastation caused by fire bombs say it is effective against almost any target—troops, tanks, buildings and even railroad tunnels. Enemy troops fear it more than anything thrown at them, according to prisoners of war.

Napalm isn't a new weapon—it was used with terrific success against the Japanese dug into caves on Peleliu, Iwo Jima and Okinawa. The Air Force dropped many thousands of napalm bombs on Japan to burn out its cities.

Flame throwers used by ground troops use a thinner version of the same jellied gasoline to destroy enemy gun emplacements, bunkers and cave hideouts. But in the Korean war it really reached its peak of popularity with the United Nations forces.

Napalm is well known as a weapon, but few know just what is in it besides gasoline. Early attempts in World War II to use flame as a weapon saw fuel oil mixtures used. Rubber was tried as a thickening agent, then the Japs cut off the rubber supply. It was found a mixture of aluminum naphthenate and aluminum soaps of coconut fatty acids was best as a jelling agent. Hence the name "nap" for the naphthenic acids and "palm" for the coconut acids contained in the "devil's brew."

It is an off-white granular powder. Newest formulas call for about 65% oleic acid, 30% coconut fatty acids and 5% naphthenic acid. Napalm gels are made by stirring gasoline while napalm powder is added slowly. But more on that later, let's look at the combat record over in Korea.

The night before a strike, crewmen aboard a carrier mix the napalm and give it time to thicken overnight. The sticky, syrupy liquid is pumped into belly tanks of planes. Contact detonation fuses are installed in the mouth of the tank. A full 165-gallon tank weighs 1500 pounds and *Corsairs* usually take them off in pairs, not a bad load for a fighter—in fact, it's really very good.

DROPPED SHORT OF TARGET, NAPALM FIRE 'FLOWS' 300 FEET AHEAD

CAPTURED KOREAN T-34 TANK IS TESTED WITH NAPALM: NOTE PLANE

SOUTH KOREAN LABORER FUNNELS NAPALM POWDER INTO GASOLINE TANK

NAVY ORDNANCEMAN JEROME OZDYCK, INSTALLS IGNITER ABOARD SICILY

Finding a target, the carrier pilot drops his napalm bomb. It explodes on contact and burns anything it touches. It burns oxygen from the air so fast that persons within 30 feet of the fire often suffocate. Forward air controllers with the Marines reported the enemy would stay "holed up" when rockets or bombs were fired at them, but they broke and ran when they saw napalm coming down from the much-feared "blue airplanes". It has a similar deadly effect on tanks, suffocating the crew inside even if it doesn't burn them.

LCdr. Elwin A. Parker, a *Princeton* pilot, decided to assess napalm damage. After some Skyraiders fire-bombed a village harboring Communist troops, he went in to look around. He found many Reds dead without a mark on them. The napalm burned so furiously it took all the oxygen out of the air and the Communists simply were suffocated.

RED TANKMEN weren't afraid of diving planes at first, their tough armor would repel 20 mm fire, it was hard to hit the maneuvering tank with rockets and bombs had to be right on to kill a tank. Napalm was another story. Pilots drop the fire bombs short from low altitude, let it skip to the target. Accuracy is not at premium. A napalm bomb will cover a pear-shaped area 275 feet long and 80 feet wide. A solid sheet of 1500-degree fire envelops everything, killing personnel, exploding ammunition. It is not a flash fire like gasoline alone would be, but clings and burns and burns.

Skyraiders and *Corsairs* caught a column of 280 trucks racing reinforcements to beleaguered Communists. So much napalm and high explosives were poured on them only 50 trucks escaped when darkness came. A flight of *Corsairs* led by LCol. N. J. Anderson sighted Red Koreans changing from uniforms to white civilian clothes in the Seoul rout. Napalm on the first pass cleaned out two large groups. As fast as the Reds moved in tanks to stop the retreat, napalm was dropped on them. They ran out of tanks and later phases of the war have seen far fewer Communist tanks in action.

Marines of the *Blacksheep* squadron saw enemy troops hiding in caves in a deep canyon. Maj. Kenneth Ruesser, the strike leader, got permission to give them the napalm treatment. He and Capt. Charles Graber flew into the canyon. Their planes were so low the napalm bomb fuse would not arm (it's supposed to take about 150 feet of air travel), so Ruesser dropped his bomb and Graber ignited it with tracer fire strafing.

Navy carrier pilots used napalm the same way as Marines or Air Force pilots. Particularly against ground troops on the march on mountain roads was napalm effective. Communists soon began moving their troops and convoys at night.

Although it was useful against anti-aircraft emplacements, bombs with VT fuses probably proved a better weapon. Ammunition dumps were "duck soup" for napalm, the huge flames sending almost everything up in a burst that made bombing planes keep a respectful distance.

Wooden warehouses and thatched-hut villages, common in Korea, were made to order for fire bombs, as were Japan's wooden cities. Orders often went out to burn down a town known to be full of Red troops hiding in huts.

ONE OF the standing rules of the fleet has been not to bring a napalm-filled belly tank back from a mission. Pilots either jettisoned them if they failed to find targets, landed at some shore airstrip and got rid of the bombs, or else were supposed to bail out and lose their plane. So far as could be learned, no pilots had to resort to the latter

CLINGING NAPALM STILL BURNS AS SMOKE MUSHROOMS OVER THE TANK

NOTE SEARED AREA AROUND TANK: CLOSE-UP OF TANK ON FACING PAGE

FIRE BOMB DROPPED IN REAR OF KOREAN BUILDING FLAMES UP: BLOWS OUT FRONT ENTRANCE

measure. Landing in the arresting gear and the resulting jolting might set off the impact fuses.

During snowy weather off Korea, carriers had some difficulty getting the powder to mix with the gasoline, but methods of warming the chemicals were worked out to solve that problem.

Although napalm bombers usually operate from 200 to 2,000 feet altitude, there are few reports of ground troops setting off the tanks. At least one Air Force F-51 was reported to have had that happen to it, but the pilot managed to drop his bomb and save the plane.

The pilot credited with dropping the first napalm bomb in Korea is Capt. Richard E. Smith of the 8th Fighter-Bomber Wing. He field-assembled some bombs soon after the 38th parallel had been crossed by the Reds last summer and fired them with a hand grenade for an igniter.

So popular did the napalm bomb become that the Navy soon was dropping one napalm tank for every four regular bombs, and the Air Force used up 2,000,000 pounds of napalm powder the first five months of the war.

Since a belly tank takes anywhere from 9 to 21 pounds of powder, depending on the consistency required, that figure could mean the Air Force could brew enough jellied gasoline for 100,000 fire bombs.

The largest fire bomb raid of the Korean was on 10 November when FEAF bomber command dropped 85,000 incendiary bombs on military targets of the key North Korean communications and supply hub of Sinuiju.

Pilots like to catch trains with napalm bombs. By catching one on a curve and dropping the bomb on the inside radius of the curve next to the train, more damage can be inflicted than with a dozen strafing runs.

A COUPLE of Marine pilots last fall played a cat-and-mouse game with a freight train near Wonsan. The engineer pulled his train into a tunnel before the planes could napalm it. Each time he would try to pull out they would strafe it. Finally they flew over a hill and the train pulled completely out of the tunnel. The harassing planes zipped back. One pilot hit three cars back of the engine with his napalm and the other hit the tail end of the train. The result was one less train.

Another war story involves Marine pilots who saw enemy troops rushing into a railroad tunnel to hide. The tunnel was a short one. Dropping the napalm in the mouth of the tunnel, one pilot saw the flames spurt out the other end of it, obviously taking care of the occupants.

Two Marine fighter-bomber pilots even shut down a Communist radio station with a well-placed napalm bomb.

In a small enemy-occupied village west of Hoengsong, 1st Lt. Elwin M. Jones and M/Sgt. Leo J. Ihli strafed and rocketed about 100 Chinese troops.

Then they saw a radio transmitter on a building. They scored a direct hit on it with a napalm bomb.

North Koreans often dig in behind a

BARRELS OF NAPALM SET ASIDE TO JELL AT AN AIRBASE IN KOREA AS WORKERS FILL REMAINDER

NAPALM IS USED IN FLAME THROWERS LIKE THIS

VAST EXPANSE COVERED BY NAPALM FLAMES IS DEMONSTRATED IN THIS WW II SHOT OF CORSAIR BURNING OUT JAPS HIDING IN PELELIU CAVES

hilltop but napalm with its widespread fire has proved one weapon the Marines, with their close air support technique, have found to be the answer. Heat generated in the wide area by such a bomb kills personnel exposed to it.

Demoralizing effects of fire bombing were demonstrated when four F-51's spotted several groups of 50 or more North Koreans along a ridge. A couple of napalm bombs chased them into nearby buildings. As they came in for another bombing run, the pilots saw white flags flying from the houses.

The planes radioed to ground troops and the Koreans were captured, while planes buzzed overhead to see everything went right. Another pilot reported he similarly captured 12 North Koreans by threatening them with napalm while flying at 250 mph, without firing a shot.

Moisture is the greatest problem in mixing napalm. High humidity of summer months makes storage difficult because the powder has an affinity for water. Another problem is deterioration of the soap on storage due to oxidation, and lack of uniformity of napalm made by different manufacturers.

TEMPERATURE affects the rate of jelling. The initial appearance is like applesauce but after 24 hours aging it gets sticky and stringy. Percentage of napalm varies from 6 to 13%. Water in the gasoline also affects the napalm mixture. To get a gel of lower viscosity and greater stringiness, cresole or xylenols are sometimes added, particularly for cold weather operations.

Flame throwers were little used in World War I, but the U. S. found them effective at Guadalcanal. Fire is both a casualty weapon and a psychological weapon. Men seem to have inherent fear of fire. Japs would abandon positions in which they fought to the death against other weapons.

Fire bombs got their start when pilots dropped partially-filled gasoline tanks and then ignited them with tracers. During World War II, the United States tried to develop an aircraft-mounted flame thrower. A 200-gallon tank was installed in the bomb bay of a light bomber which was to swoop down and spray ground troops. During the discharge, the rear end of the plane seemed to be in flames. Although most of the fuel got to the ground while still burning, the idea was abandoned for the fire bomb. The dropping plane was not so exposed to ground fire when using napalm in tanks.

Incendiary bombs of the last war included the famous six-pound M69 filled with napalm. Three quarters of a million clusters of these bombs, 36 to a cluster, were dropped on Jap cities. About 60% of every city given this fire bomb treatment was destroyed. Korean cities are of much the same construction.

So, the story of napalm is still being written in Korea. It is a cheap, effective weapon of multiple uses, popular with the Navy, Marines and Air Force alike. Our troops are glad the Communists are not using it against them.

SPEED IS ESSENCE AS MARINES PUMP NAPALM INTO TANK OF CORSAIR, LOADED WITH ROCKETS

Combs New BuAer Chief

RAdm. Thomas S. Combs is the new Chief of the Bureau of Aeronautics, replacing RAdm. A. M. Pride, who has held the post the past four years and has been assigned the new position of Commander, Carrier Division Two in the Atlantic fleet.

The past year prior to coming to BUAER, Adm. Combs has been Chief of Staff and Aide to Commander in Chief, Atlantic Fleet. He previously had been in the Bureau as Assistant Chief for Materials and Services from March 1946 to August 1, when he became Deputy Chief. He held that post until March 1948 when he took over command of Carrier Division One.

Adm. Combs connection with aviation dates back to his reporting to Pensacola for flight training in June 1922. On graduation he served with VF-2 attached to the tender *Aroostook* and later the *Langley*. While on duty at NAS COCA SOLO, he was commended by the Secretary of the Navy for making the highest individual bombing score in naval aviation in 1926.

After service on the *Saratoga*, he studied aeronautical engineering at the Naval Academy post graduate school and MIT, then served with flight test section at NAS ANACOSTIA. Following this he spent a year in the power plant section of BUAER, then was flight test officer at Anacostia until 1937.

RADM. COMBS HAS LONG RECORD IN AVIATION

During the war, Adm. Combs commanded the seaplane tender *Casco* in the Aleutians and was chief of staff to Commander, Aircraft, Southwest Pacific Fleet. In July 1943 he became Commodore, succeeding to that command, with additional duty as Commander Fleet Air Wing 10 and later of FairWing 17. In the summer of 1944 he commanded the *Yorktown* in operations off Okinawa, Philippines, and Tokyo. When the war ended he was Chief of Staff to Commander, Seventh Fleet.

Flight Nurse Wins Honors

Long Hours of Work in Orient Cited

A Navy flight nurse, Lt. (jg) Barbara L. Taurish, has been awarded a commendation ribbon for her work in air evacuation of patients from Japan to U. S. via MATS planes.

RAdm. William G. Tomlinson presented the award to Lt. Taurish during a visit to MATS Haneda Air Base, Tokyo, Japan. She has been a flight nurse since July 1941 during which she logged more than 1100 flying hours. Her commendation credited her with "remaining on duty for extremely long periods without rest . . . cheerfulness and efficiency heightened morale of patients and set a prime example for those who worked with her."

ALTHOUGH CARRIER *duty is not so rugged in the Korean war as it was when the Japanese were the enemy, men aboard the flattops are always glad to be going home. Take for instance the LSO aboard the Leyte who brought in his last carrier plane then threw away the paddles*

P2V-3W is Flying Classroom

Autopilot Adjusment Taught in Air

In-flight training for students being instructed in the maintenance of the P-1 autopilot has been started by the Fleet Airborne Electronics Training Unit, Pacific.

Flights are made in the P2V-3W aircraft. The in-flight operation and adjustment of the P-1 is part of the course.

This phase of the autopilot course cannot be conducted in classrooms or mockups or bench setups as the student is unable to visualize or see what is actually taking place. Making these adjustments in the laboratory produces no response, since there is no aircraft to respond to control surface movement.

Another important point omitted in ground instruction is that the student is unable to observe reactions on the aircraft primary flight instruments.

C. R. FRANZ, AEM1, ADJUSTS P-1 AUTOPILOT

It is naturally impossible to try to set up or establish a coordinated turn without being able to observe the reactions of the inclinometer, which will not respond because of the lack of necessary gravitational and centrifugal forces.

The P-1 autopilot is an all-electric, electronically controlled autopilot. Once the autopilot is set up properly, by men knowing the job, the equipment is very reliable and easy to operate. The P-1 eliminates many of the operations necessary in engaging previous models. When it is engaged, the pilot can make it perform a variety of maneuvers, including coordinated turns.

Student training includes classroom indoctrination of the plane-location of controls, P2V-3W ditching procedures, in-flight test procedures, conversation procedures between student and pilot, and safety precautions.

On a typical training flight, the instructor moves into the copilot's seat so he can observe the student closely as he completes the setting procedures. Upon returning an evaluation critique is held.

• MCAS CHERRY POINT—On a recent two-weeks carrier landing practice VMF-223 pilots made 1,953 approaches in F9F's without a single accident. Out of that number 1,416 were landings, at NAF MAYPORT, Florida.

CANADIAN NAVAL AVIATION

HMCS MAGNIFICENT, CANADIAN NAVY'S ONLY AIRCRAFT CARRIER, OPERATES SEA FURY, FIREFLY AND AVENGERS: UNIT HAS FOUR SQUADRONS

THE U. S. NAVY recently celebrated the 40th anniversary of the first plane landing and take-off from a ship—the Ely "visit" to the BB *Pennsylvania*—but to the north of us lies a country whose naval aviation dates back to late in 1945.

Canada, whose national defenses naturally are smaller than those of the United States, today has a single aircraft carrier in its navy and four squadrons of fighters and ASW planes.

Naval aviation was officially constituted a part of the Royal Canadian Navy in the latter part of 1945. The idea, however, was born in April, 1943, when Capt. (now Commodore) H. N. Lay, present Naval Member of the Canadian Joint Staff at Washington, was authorized by the Minister of National Defence for Naval Services, Hon. Angus L. Macdonald, to visit Royal Navy and United States Navy ships and air establishments. He was directed to report on the desirability of forming a Royal Canadian Naval Air Service and to make recommendations on how to do it.

The beginning of World War II found the RCN primarily involved in protection of the convoy routes across the North Atlantic. This called for an all-out effort in building, manning and operating small ships. Although carrier-borne aircraft were fast coming into their own in antisubmarine warfare, it was considered impractical for the Canadian Navy to readjust its training and building program to include aircraft carriers and aircraft.

The alternative was to arrange with the Royal Navy to have Canadian officers and men trained in RN aircraft carriers and air establishments on equipment and in techniques that Canada might use in the future.

The first concrete result of this scheme was the manning by Canadians of two Royal Navy escort carriers, the *Nabob* in 1943 and the *Puncher* in 1944. Commodore Lay commanded the *Nabob* and Capt. (now Commodore) R. E. S. Bidwell the former. Ships' companies were Canadian but the aircrews were almost entirely British. The two ships saw action in the Atlantic and provided valuable experience in carrier operations for their crews.

Late in 1943 officers with air experience began to arrive at naval headquarters in Ottawa where they began planning organization for Canadian naval aviation.

In training aircrews, the experience of the Royal Navy was called on again. A survey was made of Canadians who earlier had joined the Royal Navy's Fleet Air Arm. Many of them transferred to the RCN for flying duties.

Canadian officers were encouraged to transfer to the air branch and to serve with the British Navy on loan. This bolstered the ranks of Canadians with the RN by about 50 pilots and observers.

The Royal Navy, in the summer of 1944, needed more aircrews to meet the needs of the Pacific war and the usual sources of these recruits were almost exhausted. The Admiralty then announced that qualified aircrew from the RAF and RCAF would be welcomed in the Royal Navy. Because of a surplus of aircrew personnel in the Canadian Air Force, many applications poured in and the men soon were sent to England to begin their conversion to naval flying.

Thus, a supply of pilots and observers was assured to man Royal Navy squadrons and, presumably, Canadians among them would be available later when Canada got her own carrier.

DURING the time Canadian naval airmen were growing in numbers, attention also was given to other aspects of naval aviation. Air engineers and mechanics were being trained in the United Kingdom, as well as fighter direction officers, air radio mechanics, air electricians and others needed on carriers.

Early in 1945 arrangements were made for two new British light fleet carriers to be transferred on loan to the R. C. N. VE and VJ day, however, arrived before these ships were commissioned.

Four Royal Navy first-line air squadrons had been formed in 1945 to man the planes of the carriers. These men were almost entirely Canadians and they still comprise the nucleus of Canadian

AMERICAN-MADE GRUMMAN AVENGER ANTISUB PLANES FLY FOR CANADIAN NAVAL AIR SERVICE

naval aviation. The two senior squadrons were 803 Squadron, at the time equipped with *Seafire XV* fighters; and 825 Squadron, then flying Fairey *Barracuda II's*, a torpedo bomber reconnaissance plane.

In September 1945, the war over, the four squadrons officially became Canadian and early in 1946, HMCS *Warrior*, Canada's first aircraft carrier was commissioned. With the end of hostilities, work slowed down on the other carrier, the *Magnificent*, and the two air squadrons for her, the 883 and 826, were disbanded temporarily and men returned to Canada.

In March, 1946, the *Warrior* arrived in Halifax and her two squadrons were landed at the RCAF air station at Dartmouth, N. S. The Royal Canadian Navy then was ready to face the task of operating an entirely new arm of the service in Canada. That summer and fall the carrier trained her squadrons, then sailed to the West Coast. Her aircraft landed at Patricia Bay airport, near Victoria, for the winter.

In February, 1948, she was returned to England in exchange for the *Magnificent*. The latter is the same class as the *Warrior* but is completely modernized, having latest radio and radar and fitted for cold weather operations.

When the *Warrior* arrived in 1946, air strength of the RCN was two first-line squadrons. Two years later its strength had grown to two carrier air groups of two squadrons each, and a training air group.

At present, the 18th Carrier Air Group is made up of 826 and 883 Squadrons, and the 19th CAG consists of 803 and 825 squadrons.

Operational aircraft in the Canadian Navy are the *Sea Fury* single-seater fighter, one of the fastest propeller-driven planes in the world; the *Firefly*, two-seater ASW plane, and the three-man Grumman *Avenger*, also used as an ASW plane both by the USN and RCN. The latter are flown by the 18th CAG.

In December, 1948, the RCAF air station at Dartmouth was turned over to the Navy and commissioned HMCS *Shearwater*. It is the Canadian Navy's first official air base and home of the training air group, the fleet requirement unit and flying and ground schools for air personnel.

On two occasions, RCN squadrons have flown from Dartmouth to the Canadian Joint Air Training Center at Rivers, Manitoba, for periods of training in air-ground cooperation. A naval liaison team is stationed permanently at Rivers. There also is a naval party attached to the winter experimental establishment, based at Edmonton, Alberta, which carries out cold weather trials and tests of naval aircraft in the Arctic and sub-Arctic.

TODAY the air branch has about 15 percent of the Navy's total manpower, and its operation claims a similar portion of the RCN's budget.

At the head of the branch is one of the Royal Navy's early specialists in naval aviation, Commodore Charles N. Lentaigne, who is Assistant Chief of the Naval Staff (Air). Director of naval aviation in the RCN is another Royal Navy specialist, Capt. H. N. Rolfe.

Two United States naval officers hold other key posts in Canadian naval aviation. They are Capt. Herschel A. House, director of air logistics, and Commander J. J. Hilton, Jr., who is deputy director of naval aviation. During the war Capt. House was exec of the *Fanshaw Bay* (CVE-70) in the Leyte gulf action, in the Okinawa campaign and against Japan. After the war he was in CNO as Chief of Air Transport and later chief of tactics and combat training in the office of air warfare. Cdr. Hilton is with the Canadian Navy on a loan basis.

SEA FURIES, AMONG WORLD'S FASTEST PROPELLER-DRIVEN PLANES, ARE USED BY CANADIANS

SEA FURY AIRCRAFT OF THE 19TH CARRIER AIR GROUP LINE UP BEFORE ROYAL CANADIAN HANGAR AT SHEARWATER, SOME IN ASW PAINT

CANADIAN NAVY MECHANICS FIND PLANES TAKE GAS JUST AS IN U. S.

QUARTET OF SEA FURIES OF CANADIAN NAVY SHOW FORMATION FLYING

ENLISTED MEN MAN THE FIRE HOSE DURING A FIREFIGHTING PRACTICE

AN AIRCREW FROM CARRIER AIR GROUP 18 PLANS CROSS COUNTRY HOP

CDR. GALLERY PRESENTS $50 TO DYER FOR HIS PART IN SUB SINKING

VP-34 MEMBERS LAUNCH PBM-5 FROM RAMP 1, BREEZY POINT, NORFOLK

SUBMARINE HUNTERS

A NEW designation for every two years of its existence is the record of Patrol Squadron THIRTY FOUR. One of the oldest squadrons in continuous commission, it began its career on 1 September 1936 as VP-15. In 1939 at the beginning of the neutrality patrol, it was redesignated VP-53 and assigned to duty in the Caribbean.

The latter part of 1941, half the squadron was located in Argentia and half at Reykjavik, Iceland, the two divisions rotating men and planes between these bases. By that time, the squadron had become VP-73.

After the squadron's arrival in Reykjavik, the combined air strength of the British and U. S. forces in Iceland consisted of 48 British planes and 42 American planes.

LCdr. (now Capt.) J. E. Leeper, USN, commanded VP-73 at the time, and it was his job to provide aerial cover for all convoys that had U. S. surface escorts. The squadron worked closely with the RAF and the AAF, the latter providing fighter cover with its P-40's. The lumbering, long-ranged *Catalinas* and PBM's were quickly adapted for their mission, and the squadron buckled down to work.

Early in October 1941, the British *Catalina* squadron left Iceland because the British regarded patrol plane operations in that area in the winter impractical because of the high winds and the lack of protected anchorages.

The torpedoing of the USS *Kearny* while in a convoy off the Denmark Strait served to remind the squadron that the United States was fighting an undeclared war with a country that was playing for keeps. It was on that basis it went ahead, and the actual declaration of war did not change the routine. VP-34 was already on a battle footing.

★ THIS IS the thirty-fourth of a series of short sketches of squadrons in World War II. It is based on reports filed with Aviation History and Research in DCNO (Air)

That year *Winter* was the enemy's principal ally as storms cut operational flights to practically zero, a point likewise registered on the thermometer. On 15 January 1942, the worst storm of the year brought 133 mph gales. The squadron was helpless as three of its PBY's and two PBM's tore loose from their moorings in the harbor and sank when their hulls filled with water.

Lt. (jg) D. W. Hundley and his crew had a narrow escape during that hurricane. They had just moored their plane at a nearby fjord and were waiting for a launch to pick them up. Then the wind started to blow, the seas got heavy, and it was impossible to get a boat out to them. Lt. Hundley started up the engines of his *Catalina* and headed into the wind. For nine hours, the plane bucked the hurricane and twice it almost capsized when entire wing sections went under in heavy waves. But when the storm subsided, all were saved.

During the "Big Wind," there was a near runaway of the new PBY-5A's the squadron had secured on the runways. At the climax all hands manned the guy ropes when, for a critical instant, the huge 11-ton airplanes were actually flying with their wheels one foot off the runway.

On 20 January, Cdr. (now RAdm.) D. V. Gallery became Commanding Officer Fleet Air Base, Iceland. It was through his persistent efforts that supply ships from home brought everything needed, including the kitchen sink. Everyone pitched in, and soon Camp *Kwitcherbelliakin* was ready.

The pride and joy of the base was its completely modern galley and the food produced in it. It was not to be wondered that the AAF and RAF chow hounds always managed to drop in for a meal once in a while. But if the galley was the envy of VP-73's comrades-in-arms, it was the beer that aroused even greater enthusiasm. They wished that they too might have supply officers who included such generous amounts of beer in each shipment.

THE UNIQUE heating arrangement in the Quonset huts made it possible to keep beer cold on the deck while the temperature from knee level up was quite comfortable. This is how it happened. The coke heater provided had not kept the huts warm enough, so Chief E. H. Stanfield took a five-gallon can of used plane engine oil and ran a tube that had a regulated flow from a pet cock down to the burning coals in the heater. The invention, dubbed the "Quiet May," was so successful that it was shortly put to use in all the huts.

In the course of time, both an officers' and enlisted men's club were established. In season, softball became the favorite recreation of the squadron, and the games were played at night in the broad daylight of the "Midnight Sun." The officers' team won the island league championship against seven other teams.

With the coming of spring, the U-boats returned to the convoy lanes. From 20 May to 16 October 1942, VP-73 had 28 submarine encounters. True enough, the big PBY's and PBM's were not the best anti-submarine planes, but they were there and they did their job well.

THE WOLF PACK strategy was to follow the convoys all day and attack at night. But this meant they had to surface during the day to charge their batteries. The patrol planes would spot the surfaced submarines and go in for an attack. By the time the planes were overhead, the submarine would generally have crash-dived, and the depth bomb had to be launched on the basis of determining where the U-boat would be since it had been sighted.

Many hits were scored, and there were a few "probable sinkings." The effectiveness of the bomber attacks is indicated by the fact that where VP-73 provided patrol cover, not a single ship was lost in convoy.

On 13 August, LCdr. A. S. Heyward relieved LCdr. Leeper of command.

The credit for the first U-boat definitely sunk by a U. S. naval plane in World War II goes to Lt. (jg) R. B. Hopgood, USNR. Not only did he win the Navy Cross, but the everlasting gratitude of his shipmates for getting the officers' club reopened. Cdr. Gallery had closed the club because the pilots didn't seem to be getting enough sleep before going on patrol, and he believed that this was why U-boats were not being sunk. The club was therefore closed until the first submarine was reported definitely sunk.

On 20 August, Hopgood and his crew took off to cover a convoy. A 740-ton U-boat was sighted on the surface. It fired a white recognition flare to delay the plane's attack, but the ruse did not work. The plane straddled the sub and dropped five 325-lb. depth bombs across the beam. The explosion lifted the sub out of the water badly damaged. The plane then dived for a strafing attack on the U-boat, but was checked by heavy AA fire.

A squall came up, and the sub was lost for a while. Later Hoppy sighted it alongside an Icelandic fishing trawler. Moving up close, Hopgood saw that the bow of the submarine was secured to the trawler, obviously to keep it from sinking, and most of the crew were aboard the trawler or in the water. Hopgood flew his plane low to see how badly damaged the sub was and promptly met more ack-ack from the U-boat.

Hoppy turned his plane toward the convoy he was to escort, and upon reaching it, he requested a destroyer to capture the submarine and its crew. The HMS *Castleton* was dispatched and when it arrived at the scene of combat, the U-boat was no more. Fifty-two German prisoners were captured on the trawler, and the *Castleton* returned to the convoy.

ICELAND BASE WAS DECORATED WITH TIN PALM

All during the encounter, Hopgood had sent his messages in code, but at the end he sent a plain message to Cdr. Gallery; "Sank Sub Open Club." And it was done.

THE SQUADRON wanted a trophy for their kill, so Cdr. Gallery sent a pair of his pants with an official letter requesting that they be given to the Nazi skipper in exchange for his pants. It seemed for a while that Cdr. Gallery was out a pair of pants, but in due time, a pair of mildewed dark blue trousers tailored in Berlin arrived and were promptly hung on the bulkhead of the officers' mess.

In the next month, nine U-boats were damaged, but they could only be listed as probables, there being no evidence of a sinking.

The 25th of October saw men in VP-73 shaving off the beards accumulated during their 14-month tour in Iceland. Perhaps they were going home. But that was not the plan; their next duty was Port Lyautey, French Morocco.

SKIPPER ADDS VP-34'S FLIGHT TIME FOR MONTH

There they found the 120° heat and the red dust as unpleasant as the mud and cold of Iceland. Convoys were escorted by the southern route, and VP-73 members became *shellbacks* for flying over the Equator just as they had become *bluenoses* for flying over the Arctic circle.

On 12 July 1943, Lt. (jg) J. W. Drew and his crew engaged in aerial combat that brought them the DFC. While they were escorting a British convoy off the coast of Africa, a German FW-200 bomber appeared and made a bombing run on the convoy.

OUTMATCHED in both speed and maneuverability, Lt. Drew was not outmatched in wits. He set his plane on a collision course with the four-engined bomber and held it there as every available machine gun spat at the invader. It was not Lt. Drew's plane that swerved off the collision course, but the German's. Twice more a bombing run was made by the FW-200, each time to be broken by the daring of Lt. Drew. Finally, spurting with flame, the invader turned tail and limped for home.

It was not until 26 December 1943 that VP-73 was ordered home to operate from New York and Norfolk. Its designation became VPB-73.

From May 1945 to April 1946, the squadron was based at NAS, San Juan, Puerto Rico. But the name-changing routine was not complete; on its return to Norfolk it became Amphibious Squadron 4, a title that remained good until 1 September 1948 when it became VP-34.

Today VP-34 is composed of 44 officers and 244 men and has a complement of nine PBM-5S's. Stationed at Norfolk, the squadron is led by Cdr. Joseph A. Gage, Jr., under the administrative command of RAdm. R. F. Whitehead, Commander Fleet Air Wings Atlantic.

Although it possesses laurels enough —it had more flight time than any other American squadron in the Atlantic— VP-34 is not resting. VP-34's planes are equipped with the latest anti-submarine gear, and its officers and men form a powerful component of national defense.

• NAS GLENVIEW—Approximately 20 pilots, both station and organized reserve, have completed the jet ground school course.

• USS BAIROKO—This carrier encourages industry by awarding a "man of the week" award to the outstanding man in a selected division each week who does the best work. From these 52 winners, a "man of the year" will be selected. First weekly winner was Lester H. Shoemaker, ADE1 of V-2 division.

TIMBALIER PULLS IN CLOSE TO SINKING JADE AS CREWMEN GO OVER THE STERN INTO LIFE RAFT

TENDER RESCUES NINE MEN

A DRAMATIC rescue at sea of nine men fighting for their lives against mountainous seas aboard a 250-ton motorship *Jade* off Bermuda has been credited to the U. S. S. *Timbalier*, seaplane tender operating out of Norfolk.

The *Jade*, a former British Navy minesweeper, was en route to Windward Islands on 23 February. Heavy seas pounded her until repairs to a stove-in bow collapsed and she lost her fresh water supply.

The 45-foot waves made navigation difficult. Gradually the engine room was flooded and all hands manned pumps to keep the ship afloat. Lacking radio equipment and with only a flashlight for light after her generators failed, the motorship battled the gale for 39 hours before being sighted by the American transport *James E. Robinson*. Unable to take it in tow, the *Robinson* radioed for help.

The *Timbalier* was in Bermuda conducting operations with seaplanes. At 4 a.m. Capt. George B. Chafee, the commanding officer, roused his crew and prepared to go to the *Jade's* rescue. Aircraft engines on deck were hurriedly off-loaded and extra hausers rushed aboard. Seven hours later it had pushed through the storm to the *Jade's* side. Overhead PBM's circled, unable to aid in the high seas.

Twice the *Timbalier* fired lines aboard the little ship but both parted. The third time the exhausted crew was unable to haul a steel line aboard and the nine men prepared to abandon ship.

Capt. Chafee drifted his ship downwind from the sinking *Jade* and put a five-man life raft over the side. The life raft line fouled the *Jade's* rudder. Six men leaped into the water with suitcases and seabags and clambered onto the raft, now drifting perilously upside down.

A mountainous wave upset the raft, spilling the men and bags into the water. Capt. C. G. M. Smith, the *Jade's* master, threw life saving gear to his floundering men, to which they clung. The *Timbalier* put diesel oil on the seas to quiet them. All survivors were oil covered.

The exhaustion of their foodless struggle and intake of salt water made them too weak to climb aboard the tender's ladders so Chief Boatswain Charles F. Craig jumped into the water to secure lines about each of the six survivors, one of them unconscious. During this rescue, Chief Craig somehow lost his wedding ring. The other three men were taken off the ship.

The *Jade* was sinking and a menace to navigation, so Capt. Smith requested it be sunk by *Timbalier* gunfire. With its 40 mm cannon, the tender fired 144 rounds into the hull, starting a fire in the superstructure. Thirty minutes later it sank.

Fighting Carrier Digs Down

Valley Forge Collects Polio Jackpot

USS VALLEY FORGE—Cdr. Abner R. Cook, chaplain aboard this carrier in the Korean war zone, looked up with surprise as two men walked into his office and plunked down a sheaf of green currency. One man handed him five $20 bills and the other 10 $20 bills.

The men advised him the money was for the annual March of Dimes campaign. Led by this generous gift, the ship raised $8,131, for an average of $2.77 for every man aboard. The air department averaged $17.24 for a total of $1,609.

Three "old salts" got together and started a "cuss" fund. Another enlisted man bet his buddies the ship would start for home by Feb. 7. It didn't, and he paid his debts. The friends gave all their winnings to the infantile paralysis fund.

Still another group which had saved a considerable amount to throw a party when the ship returns, changed its mind when the campaign came along and gave the party money to Chaplain Cook. Needless to say, the skipper, Capt. J. M. Carson, was mighty pleased.

BUGLER WAGSTAFF BLOWS ANCIENT CORNET

Old Cornet Goes on Shelf

Once Roused Alameda Men from Sleep

NAS ALAMEDA—Under the attentive eye of Capt. John B. Moss, commanding officer of this station, George Wagstaff, chief buglemaster (Ret.), sounds recall on the gold cornet which recently was added to the station's archives.

It is the first horn used to rouse naval air station bluejackets for duty when Alameda was newly commissioned. The trumpet originally belonged to a young seaman named George Pannel who shipped out. He left it with a friend, Richard Wilson, PN1, attached to the enlisted personnel office.

Its custodian, after nine years of searching for the owner, sold it to the NAS Apprentice and Alumni Association on the guarantee that the horn would never leave its original duty station. Capt. Moss, who recently was promoted to Rear Admiral, now is in Bureau of Aeronautics.

Squadrons
LET NANEWS HEAR FROM YOU!

LOADED with 24 HVAR rockets, this swept-wing version of the USAF *Thunderjet*, the F-84F, claims high speeds and long range; wing span is 34' and maximum design gross weight 25,000 pounds at take-off; it is supposed to carry more than earlier F-84's

AIRCRAFT, FRIEND OR FOE?

RECOGNITION

ONE OF THE important things we entered World War II *without* was an effective program of aircraft recognition training.

This led to many cases of mistaken identity. Troop transport planes, torpedo bombers and fighters were shot down by our own antiaircraft or planes. The mistakes usually were fatal.

To correct this situation, a comprehensive training program was begun. Slides, ship and aircraft models, manuals, and other training aids and devices were developed. Specialists were trained as recognition instructors and sent to the fleet and to training activities.

Those memorable words of warnings, "Ready, now," began to be heard in the land as more and more projectors flashed their fleeting views. Recognition in the classroom at speeds up to 1/100th of a second was becoming commonplace.

But that was a long time ago.

By the time war broke out in Korea, we had allowed our recognition to become rusty again. Most veterans had forgotten their wartime training. New personnel were strictly green. The Korean campaign was only a month old when a B-29 shot down a *Seafire*, naval counterpart of the long-familiar *Spitfire* fighter.

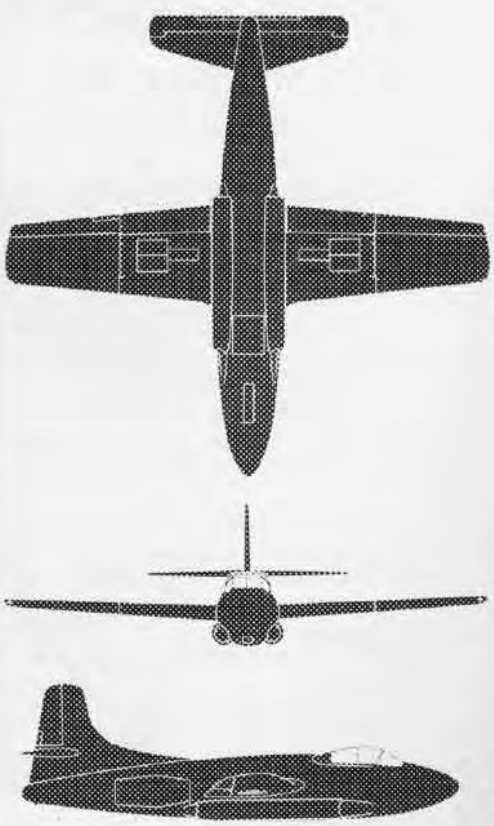
The great number of new aircraft appearing since the war further complicated the situation. These are not only less well known to service personnel, but their much greater speed leaves little time for desperate conjecture when it's a question of friend or foe. The problem would have been far worse had there been any sizeable air opposition to our *Panthers* and *Corsairs* over Korea.

Although rumors were heard of large numbers of planes being turned over to the Chinese, the only types seen in Korea thus far have been Ilyushin and Yakovlev propellered fighters and MIG-15 jets; about 50 have been bagged by Navy and Air Force interceptors.

To spread the word on recognition, a magazine called *Recognition Journal* was widely distributed during war years. This publication was discontinued after V-J day for economy reasons. A more modest publication, the *Recognition News Letter*, has been distributed since from time to time to aviation activities. Meanwhile, NAVAL AVIATION NEWS has tried to keep the fires of recognition burning by publishing monthly articles on friendly and foreign planes and numerous photographs of the new models.

BEGINNING with this issue, the News will revise its recognition coverage. Two center pages will carry pictures and silhouettes of such aircraft as are either already of operational importance or are considered likely to be. The center spread can be removed from the magazine and displayed as a poster. The other two pages will contain illustrated information on recognition subjects and brief notes on new developments in aircraft, ships and the various training aids.

F3D *SKYKNIGHT*



NAVAL AVIATION NEWS presents its first poster-spread on the F3D-1 Skyknight. Cut it out and paste it on the bulletin board for recognition training. The Skyknight is a two-seater, side-by-side, with pilot and radarman escaping via a downward chute in emergencies. Powered by two J-34 Westinghouse jets, it is rated around 500 mph. Gross weight is 27,000 pounds, wingspan 50 feet and length 45 feet. The jets are externally mounted.

RECOGNITION

ON THIS page, NAVAL AVIATION NEWS presents further recognition news in the form of short notes on various aviation subjects of current interest in United States and foreign countries.

French Air Force

In addition to their British-built *Vampire* Mk 5's, the French are increasing their jet strength by building the Mk-53 under license. This version will be called the *Mistral* and will be powered by a 5000-pound thrust French-built *Hispano Nene* turbojet engine (U.S. J-42-48).

The first test flight of the MD 452 *Mystere*, a swept-wing version of the MD 450 *Ouragon* took place on 24 February. Marcel Dassault's *Ouragon* proved to be one of the best post-war French jets.

Communist Aircraft in Korea

Operating aboard the British carrier, *Glory*, in Korean waters are *Sea Fury* Mk 11's, and *Firefly* Mk 5's. Earlier in the conflict, *Seafire* fighters performed the duties now being carried out by the *Sea Furies* which have radial engines.

Ashore, the RAF operates *Sunderland* flying boats while the Australians and South Africans are flying F-51 *Mustangs*. In addition, various transport types are in operation with UN forces in Korea.

Indochina

Among the many foreign types of aircraft being flown by the French in Indochina are P-63 *Kingcobras*, F6F *Hellcats*, F8F *Bearcats*, B-26 *Invaders*, *Spitfire* Mk 9's, PB4Y-2 *Privateers*, R4D *Skytrains*, JU-52 trimotor transports and Hiller helicopters. JU-52 is ex-German type.

Communist Aircraft in Korea

Since the outbreak of hostilities in Korea, UN pilots have engaged a variety of Soviet-type aircraft. These include MIG-15 jet fighters as well as YAK-3 and -9 prop fighters. Ground support IL-10 *Stormoviks* have been spotted frequently and a number were picked up at Kimpo. Training aircraft such as the PE-2, YAK-11 and YAK-18 also have been seen.

Communist aircraft in Korea carry a variety of markings with the characteristic red star serving at center.

F4U-5 Corsair

The first prototype *Corsair* was delivered to the U. S. Navy in 1940. Today the F4U-5 holds the distinction of being the only reciprocating engine fighter still in production. Both land and carrier-based, it has done all right in Korea.

B-29's in England

The British have officially named the U.S. B-29 *Superfortress* the *Washington*.

F-84E Thunderjet

Under MDAP *Thunderjet* fighters are being supplied to a number of countries in the North Atlantic Treaty organization. In addition to France, Belgium and the Netherlands will receive a number of these U. S. Republic jet fighters. A later model, the F-84F, with all swept surfaces (*see photo pg. 20*) is in the mill.

Super DC-3

The Super DC-3 has been designated the R4D-8 by the Navy and the C-47F by the Air Force. It features a swept wing.

Yugoslav Air Force

The Yugoslav Air Force is being equipped with a number of native-built fighters. These aircraft, designated S-49, are similar in appearance to Soviet *Yak* prop fighters. Both have in-line engines.

Canberra

On 21 February, a *Canberra* twin jet bomber took off from Aldergrove, Ireland and flew across the Atlantic to Gander, Newfoundland. The first direct Atlantic crossing by a jet-propelled aircraft was covered in an elapsed time of 4 hours and 37 minutes. Glenn L. Martin Aircraft Co. may build the *Canberra* for the USAF, under license with the English Electric Co., using U.S. *Turbojets*.

Supermarine 510 Swift

The British swept-wing jet fighter *Swift* (*see photo*) is the first such aircraft to fly off and land aboard an aircraft carrier. This new Royal Navy *Turbojet* fighter is a development of the straight wing *Attacker* and employs a similar tail wheel-type landing gear.

Belgian Meteor

Belgian-built *Meteor* Mk 8 jet fighters are to be turned out to augment Belgium's present supply of British-built *Meteors*. This aircraft is a standard operational turbojet fighter of the British, Belgian, Dutch and Danish air forces.

BRITISH Supermarine 510 *Swift*, a swept-wing version of the earlier *Attacker*, was the first swept-wing plane to land or take off from carrier; note small horizontal stabilizer

COMPARE the similarity of this Soviet-type MIG-15 jet fighter with the swept-wing F-80 of the USAF; MIG lacks hog-nose snout of *Saber*, carries its cannon sticking below fuselage

IT'S YOUR NECK, BROTHER!

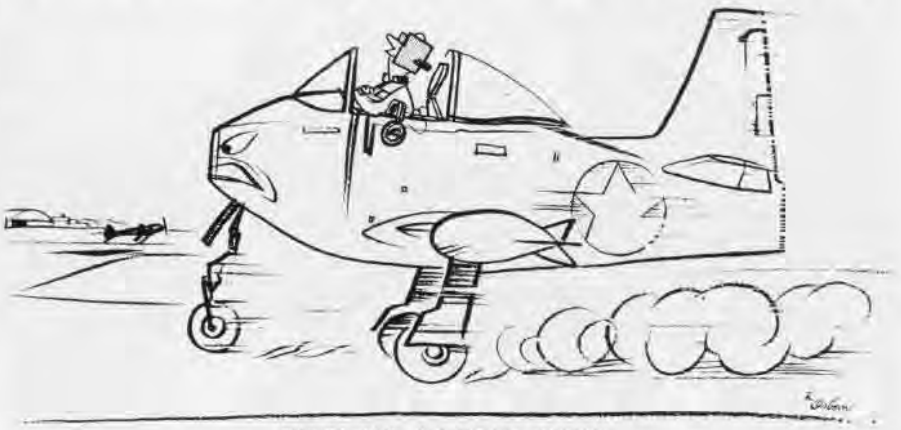
THE DICTIONARY defines a "wail", as "a loud lamentation, a prolonged moan, a plaintive cry, or any mournful sound, as of the wind." Had Mr. Webster been familiar with the problems of a Flight Safety Officer, he might well have added, "a sound commonly made by aviators involved in taxi-accidents."

Actually these pilot wails are of two varieties. The first type is heard immediately after the collision. It is often part wail and part profanity and usually loud enough to be heard by those in the immediate vicinity.

The secondary wail occurs when the pilot reads the description of the accident that has been prepared by the three-man AAR Board. This wail is much louder and far more plaintive. It can be identified by notes of outrage and self-pity, and by the fact that the profanity is directed at the accident board rather than at the object with which the pilot collided in the taxi crash.

So great is the carrying power of these secondary wails that they are sometimes heard very faintly in the Pentagon even though the pilot be stationed in the Aleutians or at an outlying field near Yokohama. Unfortunately these faint echoes are not very effective in changing the "pilot error" entry on the aviator's accident record. As the dictionary says the wail "is as of the wind". It may be heard but not much is done about it.

Why should the pilot always take the rap in a taxi accident? How about the fellow in the tower who didn't warn the pilot that he was overtaking the plane ahead, or the signalman who thought there was room enough for the wing to clear, or the lineman who left the fire bottle where it would be so easy to hit? Why not blame some taxi accidents on these people? Why always assign the primary error to the pilot?



DILBERT, TAKE OFF THOSE BLINDERS!

The answer lies in the fact that the pilot is the one person who can prevent nearly every taxi accident. Occasionally in flight deck operations, the pilot is totally dependent on the signals of a spotter, and in such cases an accident may be properly charged to the director who gave the wrong signal. However, even aboard ship most taxi accidents are charged to pilot error.

On shore the pilot who is involved in a taxi accident is virtually certain to find that the Accident Board has assigned "pilot error" as the primary cause. Errors of other personnel such as tower operators or signalmen are usually listed as contributing or secondary causes.

If you think a taxi director is trying to park you in a spot that is about two inches smaller than your plane, your best bet is to cut the engine and get out. So far there is no record of a pilot doing this and then finding himself charged with "pilot error" when the hole turns out to be too small.

If a tower operator tells you to taxi your jet behind a P2V that is getting a mag check, don't expect the accident board to blame the fellow in the tower when they find a handful of gravel in your engine.

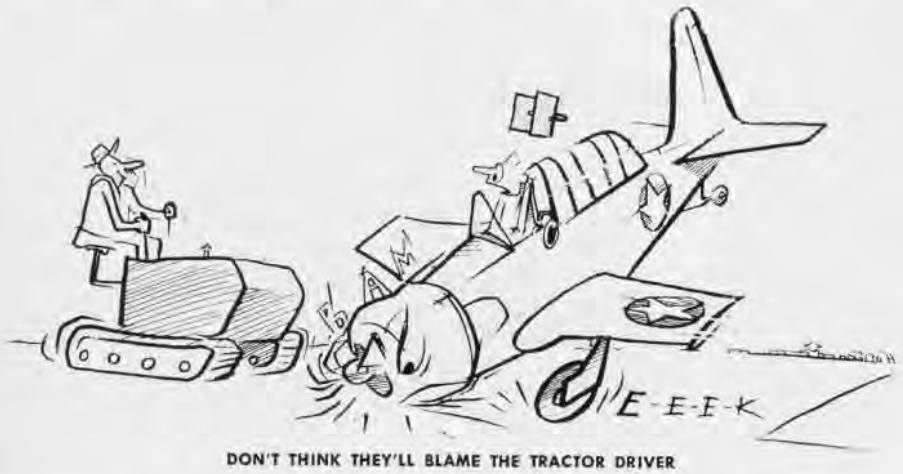
If the pilot ahead stops suddenly because he remembers that he left his gloves at the flight clearance deck, and you nose over trying to avoid a collision, the AAR won't list the other pilot as being responsible. The board report will read something like this: "Pilot error, failed to observe plane ahead, interval too close, taxiing too fast," and it will be *you* that they are talking about.

LAST YEAR about one accident in every 10 occurred during taxiing. There were 206 taxi accidents; a couple cost the Navy nearly a million dollars apiece!

As regards taxiing you can be pretty sure of two things. First, as long as you taxi cautiously, make the necessary "S" turns, use your neck as though it were a swivel, and never lose sight of the plane ahead, nobody will pay much attention to what a wonderful job you are doing. No one will describe you as a "darn safe taxi pilot".

Second, if you ignore these rules and have an accident, you might just as well put your head on the block and holler "CHOP", because the open season on A.I.I.T.A.* lasts 12 months out of the year.

P.S. The new Flight Safety Bulletin "Reduction of Taxi Accidents" (OPNAV INSTRUCTION 375.1) gives some worthwhile suggestions which should reduce the number of taxi accidents. A copy belongs on the bulletin board where it can be read, not just filed away.



DON'T THINK THEY'LL BLAME THE TRACTOR DRIVER

* Aviators Involved In Taxi Accidents.

• NAS CORPUS CHRISTI—During the last six months of 1951, 10,000 instrument approaches were flown by pilots in the All Weather Flight School. Students averaged 46 approaches apiece as their training stint.

60-DAY STREAMLINING PAYS OFF

VF-671 PILOTS Scherzer, Johnson, George (front) and Vaughan, Triplett, McKeithen and Duncan (rear) plan a cross-country flight during 60-day shakedown aboard NAS ATLANTA

WHEN A Reserve squadron enroute to the Fleet reports aboard its home station for a 30 to 60-day streamlining, it's "clear the decks for action." Take VF-671 of NAS ATLANTA, for example.

This squadron had plenty on the ball when it was called to active duty. It was one of the top Organized outfits in the Naval Air Reserve Training Command with a four year record of no accidents of any kind.

All but one of its pilots had been combat-tested and carrier-qualified during the last war. On its rolls were such men as Lt. (jg) George G. Triplett, holder of three DFC's with three Jap planes to his credit; Lt. Marion B. McKeithen, credited with an assist on a Jap freighter plus five planes on the ground; and Lt. Robert L. Blyth, a wartime ace with six planes on the books.

Its skipper, LCdr. H. Kendall Price, had shot down two *Zekes* over Formosa and one over Tokyo. And its exec, Lt. Herman J. Meyers had plenty of instructor know-how based on his work at Pensacola.

The squadron was also "fat" in the calibre of its enlisted men—39% of whom were college graduates. Here were men like leading chief R. L. Babb (formerly of FASRON-671), an industrial engineer with more than 12 years service in the Reserve; Robert E. Cribb ALC, a DFC holder and graduate geologist; and Erle M. Spencer AOU1, veteran of seven Pacific engagements and a lawyer. And here—to make a maintenance officer's dreams come true—were 12 expert mechanics and technicians from Macon, Georgia, who as civilians had been working on all types of aircraft.

Squadron readiness was high, but all hands were determined to make it higher.

Reporting aboard Atlanta on 1 February, VF-671 immediately embarked on an action-packed schedule, tailored to turn it out two months later able to match any Fleet outfit in self-sufficiency.

The station was ready. In fact, as soon as it heard that 671 was alerted, it made that squadron its A-1 priority.

From the start, the station gave the Reserves in VF-671 every chance to operate as an independent unit. It assigned them a building located up on the hill a good way from the main drag where they could set up their own offices. For a line maintenance shack, it dragged a small building down from the end of the field and set it up near the parking area for squadron planes. It allocated engineering space in the hangar for the exclusive use of squadron personnel.

In addition, the NAS turned over a number of its FG-1D's to the squadron and ComAirLant swelled the quota with several F4U-4's—the type of aircraft 671 would fly at that Command.

Station officers treated the squadron as a separate command. But they gave it 100% backing all along the line and spared no effort to help it achieve its goals. They were always ready for consultation and to assist in training.

THE SQUADRON'S first job was to realign its organization to match that of a Regular AirLant outfit and to make sure that each division could pull its full weight on reporting to the Fleet.

CO Price, therefore, instructed his division officers to get together with their counterparts on the station, learn all the ramifications of their duties, streamline their division organizations, make up operating and training schedules, and get the show on the road. This they did.

BEFORE AN instrument hop, CO Ken Price briefs pilots Butler and Blyth of VF-671

Flight operations started immediately. Offices were set up. Administrative procedures were outlined. Paper work was squared away and records brought up to date in short order. Under LCdr. Price's competent leadership the unit forged ahead on all fronts.

By the end of the first week, squadron maintenance personnel were performing all their own line operations, doing routine engine and aircraft checks, and taking care of their ordnance and electronics work.

Soon they were doing all their own maintenance work and making structural changes on their assigned aircraft, with station personnel only standing by for consultation in case it was needed.

VF-671 ORDNANCEMEN Spencer, Warfield (top), Goolsby and Wiley (bottom) are hard at work installing a machine gun in an FG

MAINTENANCE officer Loudermilk watches crewmen Luther, Tarmey, Moody, Williams and Hargrove check brakes on squadron plane

The first engine change was required during the fifth week, and squadron personnel made it without outside help. From then on, it was just a matter of smoothing their operations.

An intensive in-service training program for enlisted men accompanied all this activity—particularly in the early stages. Patterned after the successful Atlanta model, this program was conducted partly on the line, partly in the hangar and partly in the shops. Squadron officers, like Lt. (jg) James G. Loudermilk who had charge of maintenance, joined forces with stationkeeper instructors in conducting this training. To make this training as effective as possible, the squadron made full use of the detailed progress charts that station departments had kept on its personnel.

A good part of the training was directed to qualifying non-rated personnel as plane captains, since there were not enough rated men to take over these duties. Well before the end of the period, those under instruction were all qualified for plane captain duties on *Corsair*-type aircraft.

ON THE operations front, squadron aviators concentrated on instrument flying, keeping the station's SNB's constantly in the air. Every station instrument pilot was roped in to give instruction. Two three-hour flights were scheduled each day for each aircraft, with an instructor and two squadron pilots aboard. Each pilot would fly half of that period and observe the other half. Ground training, featuring lectures on instrument flying and Link work, was also on the daily agenda for all pilots.

Four squadron aviators, including LCdr. Price, were tapped to qualify as instrument instructors. Two station graduates of the All-Weather Flight School were assigned particularly for their training. All four were soon qualified and then took over most of the instrument instruction, leaving the final checking out, to members of the station instrument flight board.

Two weeks later, eight more squadron pilots had obtained instrument cards, five others were ready for checkout and the rest were well on their way to qualification by the end of the 60-day period. Most had completed one cross-country flight under actual instrument conditions before they were granted their cards.

Since pilots in this squadron had not had an opportunity to fly aboard a carrier since the war, they also managed to squeeze in a good bit of bounce drill at nearby Winder Field.

VMF-143 provides another example of how a top outfit with high espirit de corps makes a shakedown period at its home base pay off. This squadron reported aboard NAS NEW ORLEANS for active duty on 1 March with its members slated for transfer to various Regular Marine Corps Air units in from 30 to 60 days.

AT NAS NEW ORLEANS new members of VMF-143 get the word on just how to clean a .50 calibre machine gun from Cpl. Manzella

ON-THE-LINE CLASS—VMF-143's Schmidt and Schultz (on wings) watch T/Sgt. Johnson demonstrate how to remove FG wing guns

STREAMLINING at NAS NEW ORLEANS, Reserves in Marine Fighter Squadron-143 get the full works—here they start out on a long training hike, filled with vim and vigor

'OH MY ACHING FEET'—after the hike R. Fontana gets cooled off by N. Gentile

MARINE FIGHTER Squadron 143 was in a good position in regard to administration and organization. All department heads had been operating in their billets for at least three years.

In addition, it was packed with officers and men who had plenty of combat experience and civilian know-how. Maj. Frank C. Drury, its 29-year-old CO, a Navy Cross holder, had knocked down six Jap planes during the war. Exec. Capt. Alfonse B. Sutton saw action throughout the Pacific. On the civilian side, 1st Lt. Owen Wright was a Chicago Southern Airlines pilot; 1st Lt. Robert Varley, a wartime infantry officer, worked on an oil rig in the Gulf of Mexico; 1st Lt. Bernard A. Krobert, squadron materiel officer and a former pilot, acted as director of welfare and recreation at NAS NEW ORLEANS; and 1st Lt. Eugene H. Fleming, was an architectural student and free lance photographer whose work has appeared in such slick magazines as *Holiday*.

AT ATLANTA, Montgomery, Ward, Herrell (top), Hall and Cheshire pull engine check

The enlisted men had equally colorful backgrounds. Three were New Orleans city policemen—T/Sgt. Walter A. T. Kott (a Seabee in W. W. II), M/Sgt. Joseph F. Hurban (a former Army man) and M/Sgt. Fenner O. Sedgebeer. Typical veterans of action in the Pacific included: M/Sgt. Ignatius Milazzo, M/Sgt. Bruce Allen and M/Sgt. Raymond P. Agustin.

Carrying on the Marine tradition were several "brother combinations" such as Pfc. August D. and Cpl. Louis E. Cuevas; Sgt. John C. and Cpl. Michael R. Donner; Sgt. Michael J. and Pfc. Edwin L. Stolz; Sgt. Adrian W. and Pvt. Lloyd C. Schwing; Sgt. Warren J. and Cpl. Clifford A. Myers; and Warrant Officer Marion L. and Cpl. Ellsworth J. G. Pilie.

Like the Atlanta fighter squadron, VMF-143, immediately started operating as an independent unit, calling on the Marine Air Detachment only for advice and instructor assistance.

In typical Marine fashion, in fact, they had managed to beat the gun. Five squadron officers and five enlisted men came on active duty 10 days ahead of the main group, mapped out the schedules and squared away the paper work. And the major part of the physical exams had been completed on previous weekends.

Thus all matters of uniform issue, filling out of insurance and allotment forms and the like were over in two days.

Station FG-1D's, Links and SNJ instrument planes were assigned for the VMF's exclusive use during the week. Squadron personnel did all the servicing and maintenance of these planes during that period. MAD personnel took over on the weekend, when the planes were used by Navy Organized Reservists, and were not aboard on Mondays and Tuesdays at all.

The enlisted personnel spent a half day on operations and half day in "school." "School" really amounted to "Boot Camp" in capsule form.

All the Marines from the newest recruit to the oldest master sergeants got the full works—drilling, living in the field, reviewing skirmishing techniques, learning the care and use of weapons. As one ex-sailor said, "The Navy was never like this."

Training in their specialities was sandwiched in for VMF enlisted men while they were carrying on their operational duties. Classes would be set up right on the line or in the shops during lull periods. Here both squadron and station personnel instructed.

MARINE pilots were also divided into two wings—flying for a half a day and getting refresher ground school training for the other half.

Here again, the pilots concentrated hard on all-weather flying so that they all could report to the Fleet with instrument cards. Three squadron pilots, Lt. Dick R. Kinser, former instrument instructor at Cherry Point; Capt. Jay A. Solether, CAA instrument instructor, and Capt. James D. Rogers, another wartime instructor, conducted this training. Station instrument pilots gave the final checks.

Ground school included intensive refresher work in everything from navigation to intelligence, with gunnery practice on a nearby Army range as an extra added attraction.

And, in case, they still needed a little hardening, both pilots and men in VMF-143 polished off "their day" with an hour of organized athletics.

If you think making the most of their streamlining period was only typical of fighter squadrons, take a look at what FASRon-821 accomplished during its pre-Fleet conditioning at NAS NEW ORLEANS during February of this year.

FASRON-821 was only to be aboard for 30 days — the pattern for FASRons—so station officers started key squadron personnel off on their jobs immediately by giving them a pamphlet outlining their mission and functions, copies of all current reports, forms to be made out (with filled-in sample copies) and all technical publications required for each shop.

During the first eight days all squadron personnel got fully briefed by squadron and station officers on mobilization readiness, naval procedures and departmental duties. In this period, they were also given individual interviews by the squadron maintenance officer, to determine just what billets they could fill most effectively. This procedure was necessary because when the squadron was activated men from other Organized squadrons had been brought in to make its rating structure conform with that required for a Fleet FASRon. Also the maintenance officer, himself, was new to the squadron.

Basing assignments on each man's Navy background, civilian experience and hobbies, squadron organization was set up and on the ninth day the FASRon started operating as a unit. At that time they took over all the maintenance work on the station, scheduling operations on a seven-day week basis. Only one stationkeeper was assigned to each shop and his only duty was to act in an advisory capacity.

Squadron personnel ran the whole show, changing engines on *Corsairs* and TBM's, doing 120-hour checks, making required reports, and running their own in-service training program.

In addition, all FASRon shop supervisors made schematic drawings of shop lay-outs and special tools and fixtures used to expedite their work. These they were to take along with them for possible guides on future assignments.

'AND THERE I WAS in a rugged spot even for a Marine'—Exec. A. Sutton goes through the full routine for VMF-143's J. Boutte, N. Virgets, CO F. Drury and A. Arcenaux

And if all this were not enough, squadron personnel completely salvaged and processed an F6F-type aircraft (a job that needed to be done for a long time) and also took every aeronautical item from the supply department, bench-tested it, reconditioned it if necessary, tagged it and returned it to supply if usable or designated it for shipment to an overhaul center if it were unusable.

IN ACCOMPLISHING all these tasks, the squadron not only got experience in independent operations, but it developed a tremendous *esprit de corps*.

Here again, the high calibre of the Reserves in the squadron enabled them to make the most of the training aboard the home station. CO, Cdr. Frank W. Trapolin and exec, LCdr. Edward J. Harmeyer, Jr., were top administrators.

Then there were men like Chief Beckley, a former civilian worker at Pensacola's O&R; Chief Jorens, an electrician with the Otis Elevator Company; Chief Andrews, a former civilian instructor at the Air Force electronics school at Biloxi; and Chief Sardenga, part-owner of a television repair shop and holder of a commendation for developing a special device for the Navy.

When we get down to the officers and men who make up the Reserve squadrons, we're back where we started —for it's the Reservists themselves and their desire to do a real job with the Fleet that makes the streamlining aboard the home station pay off substantially.

NOW WITH THE FLEET at Jacksonville—FASRon-821's Brossette, Gillio, Pringle, and Musemache work over F2H-2 engine nacelle

AND IN ANOTHER part of the hangar, Chief McKinney points out the trouble in an engine to 821's Shepard, Mauer and Phillips

LEYTE'S WELL-*equipped survival kit contains much gear; with it are R. E. Crancher,* PR1, *LCdr. F. G. Hodge and F. C. Bronson,* AMC

ENS. WILLIAM B. *Warwick and Ens. Lewis H. Peterson, designer of* Valley Forge's *survival kit, show how to roll gear in bag*

CARRIERS' SURVIVAL KITS

NAVY PILOTS down behind enemy lines in Korea present a survival problem which two aircraft carriers operating offshore met by developing "mercy bombs" to be dropped to them by their mates.

These kits enable the men to survive in the Korean wilds if they are too far behind the lines for helicopters to rescue them or to keep them alive until a pinwheel can be summoned to rescue them.

The *Valley Forge* and *Leyte* both reported on independent operations to develop such "bombs." The former ship reported it constructed three of these survival kits and one always was taken out when a squadron went on a strike, just in case someone would need it.

Aboard this ship last fall, Lt. (jg) Arthur K. Bennett, Jr., began work on the project, turning it over to Ens. Lewis H. Petersen when he left the ship. With the help of pilots from other squadrons, he developed the first edition of the survival kit.

It included a complete change of clothing for the cold climate, food provisions for about 12 days, a .30 cal carbine with 130 rounds of ammunition, sleeping bag, first aid packet, candle, matches, canteen and axe. Rice was included as a means of barter, since people of Korea have little or no conception of money.

The equipment was rolled so that it could be disengaged easily from a container and packed on a pilot's back. Responsible for design of the pack harness

ENS. PETERSEN *shows how survival kit can be carried by pilot after being dropped to him*

traps, a major problem in itself, was Joseph Vash, PR1.

It was decided the best way to carry the kit was to rig some kind of container that could be carried on a bomb rack, fitted with a parachute. Willis C. Saxton, aviation chief metalsmith, and Thomas W. Butterly, aviation metalsmith first class, designed and made a 40-pound aluminum alloy container, four feet high and hexagonally shaped.

Since no cargo chute was available, a 24-foot pilot chute was modified and used. It was especially rigged by Vash and Power E. Branham, PR3. The chute had a 15' lanyard attached to the plane to open the chute when dropped.

With sleeping bag containing the remaining gear properly rolled and sealed into one end of the container by a light aluminum plate and the chute attached, the first survival drop kit was completed. It weighed about 100 pounds. It was first used in Korea in December and could be carried on any type Navy plane.

Recently the kit was modified by adding some articles from the Navy Arctic survival kit just received on the *Valley Forge*. From the Arctic kit, designed for peacetime rescue operations, they took some of the small but important articles, including mittens, wool scarf, watch cap,

CIRCULAR CAN *holds* Leyte *survival gear on plane; photo shows parachute and static line stowage in* MK51 *bomb rack of Corsair aircraft*

HEXAGONAL *aluminum alloy container for* Valley Forge's *kit was designed by Thomas W. Butterly and Willis C. Saxton, metalsmiths*

light wool socks. A "poncho" cloth was exchanged for life raft tarpaulin, good for signaling.

A heavier Arctic sleeping bag and five tins of canned heat were added, as were a flashlight, whistle, mirror, waterproof match carton, flares and survival booklet. An important addition was an emergency radio transceiver. The articles were repacked so the more immediate and necessary items would be easier to get at.

THE LEYTE'S survival kit was developed by LCdr. F. G. Hodge, a dentist and former Army paratrooper with 26 jumps to his credit. First, all necessary gear was assembled. This included sleeping bag, parka, wool-lined trousers, cap with ear tabs (red detached diamond-shaped patch on crown for visual identification in case of radio signal failure), red rubberized fluorescent identification panel.

Also included were a radio (AN CRO-7), wool underwear, woolen mittens, leather mittens, waterproof kit bag, musette bag, medical aid kit, two 2-ounce bottles of brandy, two packages of cigarets, heavy woolen sox, matches, 50 rounds of .38 cal ammo, water sterilizing tablets, six packs of toilet paper; rubber overshoes, C rations, nut meats, chocolate bars, raisins, can openers, plastic spoons, can lighter fluid, pocket compass. All this gear weighed 36 pounds. Carefully stowed with particular attention given to safety of the radio, the bundle measured 14" x 26".

Container for the kit was made from an empty napalm can by F. C. Bronson, AMC, of VA-35. The bottom was heated and beaten out to give a streamlined nose. Adapters were welded to the "mercy bomb" to permit carrying on bomb racks. Complete, the whole thing weighs 52 pounds.

An 8' 6" parachute, built by R. E. Grancher, PR1, was made of white airplane cloth complete with puckered vent and nylon shroud lines. It is designed like an Army G-1 cargo chute employing straight type gore construction, using eight gores and activated by a 15' static line on release. This small chute was designed for minimum lateral drift, yet affording a non-accelerated drop of about 30' a second.

This new unit is one-fifth the size of the bombshell formerly used and weighs 75% less, yet carries more gear and uses a much less conspicuous white parachute than the 28' red cargo canopy. The small chute can be used for camouflage in snow-covered areas. The can blends with any terrain or vegetation.

Three of the survival kits were made and kept ready at all times for an emergency. Capt. T. U. Sisson, commanding officer of the *Leyte*, commended Hodge for his work in developing the droppable kit.

• NAS SEATTLE—This air station celebrated its 25th birthday on 8 March. Prisoners from county jail helped clear the land for the muddy runway back in 1926. There were no buildings here until 1930, but Reserves flew from it anyway. It became a naval air station in 1937 with Cdr. A. W. Radford as commanding officer.

EVERYTHING FROM *carbine to radio transceiver is included in the* Valley Forge's *survival kit, shown here on sleeping bag in which it is rolled; cargo chute lowers it to the ground*

Naval Aviation Birthday is May 8

THIS IS THE NAVY'S FIRST AIRPLANE, THE CURTISS TRIAD WITH RETRACTABLE LANDING GEAR

NAVAL AVIATION is 40 years old on May 8, the anniversary of the day back in 1911 when it bought its first airplane.

The Navy bought from Glenn L. Curtiss an eight-cylinder biplane called the *Triad*, so called because it could land on water or on land. It had engine panels and chassis and four interchangeable wing panels, covered with rubberized linen on top and tight-woven special sail cloth on the bottom.

One main pontoon and a pair of balancing hydroplanes with pontoons and hydro-surfaces enabled it to float on water. Landing wheels had clincher tires, capable of being housed above or beneath the line of the main pontoon by the aviator during flight.

The Navy's first plane was capable of the tremendous speed of 45 mph, putting it in somewhat slower speed class than today's F7U. The Navy had gotten into the aviation picture fairly early since it was just 15 years and two days before the Curtiss plane was purchased that Professor Langley's "aerodrome" first flew. Actually, the Navy had a "naval aviator" before it did an airplane since Lt. Theodore G. Ellyson, a Naval Academy classmate of Fleet Admiral Nimitz, was taught to fly by Curtiss's partner, Eugene Ely, a few months before the *Triad* was purchased.

The Navy actually ordered three planes, which were to be paid for from the $25,000 appropriated and to be made available in July, 1911. Two were Wright brothers landplanes and the third the *Triad* amphibian.

About the same time the Navy acquired its first "airfield". At Greenbury Point, opposite Annapolis, trees were felled, a swamp was filled in, and, on more solid ground, tent hangars were erected. True, the cleared space was pretty small for landplanes, the water near shore too shallow for hydroplanes and the whole thing was too close to the Naval Academy rifle range. So the whole thing was moved to a site nearer the experimental station.

Boresighting Pays Dividends

Cabaniss Aviators Shoot High Scores

NAAS CABANISS FIELD—The ordnance crew of ATU-2 has proved again that boresighting and gun maintenance pay dividends. They conducted an extensive program of the two under direction of Lt. R. H. Cook, USMC. As a result, the whole unit, students and instructors alike, has been firing 10% hits for the past two months in their F8F's.

The last three banners turned in by one flight, instructed by Lt. C. Wall, were peppered for a total of 1,038 hits, or an average of 346 a banner. This flight's best banner just missed the 400 mark by 11 and the pilots individual hits ranged from a low of 17.8% to a high of 32.2%. One such banner could be luck, but three in a row can be attributed only to training and a good ordnance program.

In the accompanying picture, the marksmen, kneeling, are Ens. J. C. Barrow, N/C J. D. Turner and C. E. Kiser, Ens. J. M. Wolff, Lt. Wall, Ens. R. G. Sullivan, N/C F. J. Gulshen, Lt. (jg) E. R. Enquist.

The ordnance crew standing behind the target are: Magnuson, Skipple, Barry, Bryant, Carlton, Liddell, Timmons, Hadeland, Diaz, Shank, McCarter, Claypool and Beck.

Navy Orders More Marlins

New Seaplane Will Replace Mariners

A fourth production order for the Martin P5M-1 *Marlin* antisubmarine seaplane has been announced by the Navy, the higher-performance replacement for the PBM *Mariners*, some of which are still in use around Korea.

Delivery schedule on the new contract calls for doubling the previously planned rate of production. The order includes 20% spare parts and necessary new tooling.

The *Marlin* is well equipped with numerous electronic devices to help search out and attack submarines over long ranges. A unique feature of the plane is its long hull, which is under water from bow to stern post. To make it more maneuverable in the water, hydroflaps were installed on each side near the rudder, enabling it to turn in a third the turning circle it otherwise would have required.

ATU-2'S HOTSHOT GUNNERS AND ORDNANCEMEN LINE UP BEFORE THEIR WELL-RIDDLED BANNERS

It Finally Had to Happen

P2V Crashes Into Whidbey GCA Unit

After hundreds of thousands of ground controlled approach landings, it has finally happened. At NAS WHIDBEY ISLAND a P2V *Neptune* crashed into the GCA equipment along the runway.

Miraculously, there was no loss of life. There were seven men aboard the plane and six men were manning the GCA equipment. One man, ALC Dan S. DeVoto, of the plane crew, was seriously injured, but all the rest escaped with minor shock and bruises.

The plane, piloted by Lt. E. C. Leahy, was returning from a routine training flight when it developed propeller trouble on one engine. He notified the tower of the trouble. Ground emergency crews took stations, and the plane crew prepared for a crash landing.

After successfully landing on the runway, the plane traveled a short distance,

P2V CAME OFF SECOND-BEST IN RAMMING TRUCK

then swerved directly into the GCA unit.

Both plane and unit burst into flames. Six plane crew members left immediately, then discovered DeVoto missing. C. J. Worrell, AD2, plane captain, and others returned and found DeVoto pinned between a bulkhead and the radio seat. With the help of swinging axes, the "hot poppa" member of the crash crew was able to get Chief DeVoto clear of the wreckage.

At the unit L. L. Boas, AC3, D. Ball, AC2 and E. P. Ames were standing outside and saw the plane swerve. They let out a yell as they dived out of the way. H. L. Morgan, standing on the opposite side in the doorway heard the yell and didn't know what was wrong, but he knew a moment later as he was catapulted through the air. Three men inside were buffeted around.

The plane and unit were a total loss. Another GCA unit soon was operating.

P2V'S FLY IN SNOWSTORM

CHOPPING THE ICE AND SNOW OFF FLEET AIR WING FOUR'S NEPTUNES ONE OF THE DAILY CHORES

NAS WHIDBEY ISLAND—As the sun shone brightly and March whipped around the corner, pilots and crews of P2V squadrons of Fleet Air Wing Four, just in from warm Hawaii, figured they had missed their chance to show they could fly in snow. But this illusion was not long-lived.

On 3 March, the Puget Sound area received one of its worst March snowstorms in history. The snow continued all day Sunday and was still falling early Monday. The line crews of the *Neptune* squadrons were hard at work clearing the plane surfaces of snow *(see photo)* while the public works department plowed the runways.

At 0830 Monday morning the first *Neptune* was airborne. All day it snowed, but the all-weather fliers maintained a normal flying day. Instrument flights, touch and go landings and extended hops were continued through the snow and wind.

As the second week in March progressed, there appeared to be a respite in the storm, but the illusion was short-lived. When all the snow was finally cleared from the runways and planes, a second snow storm came up. It was a tiresome job de-snowing the planes every morning.

It is plenty bad flying weather when you have to take off under GCA conditions, but come tornado, cyclone, snow or blizzard, the all-weather fliers will wing their P2V *Neptunes* over Whidbey Island, readying for any type of flying.

Memphis Men Save Plane

Lost F8F Brought Safely into Airfield

Chalk up aviation electronics with another save!

Recently the NAS MEMPHIS DBF (direction-bearing finder) crew brought in an F8F aircraft, lost in clouds and darkness in the vicinity of Jackson, Tenn.

The F8F, which had taken off from Key West in the early afternoon on a direct instrument flight for NAS MEMPHIS, ran into difficulty when it was near its destination. The pilot intersected what he thought was the southwest leg of the Memphis radio range when actually it was the northeast leg.

After flying the range well past his ETA, the pilot realized he was lost. He could not, he said, detect a fade or build in signal strength on the radio range because of poor reception.

Fortunately, he was able to maintain good communications on an emergency voice frequency. He established contact with the Jackson, Tennessee radio station which called in NAS MEMPHIS for assistance.

Ens. V. L. Crow, duty officer, swung into action, alerted emergency crews and pilots, called nearby airports and threw the station's search facilities into high gear.

Just as the pilot was reporting his fuel almost gone, the station's crack DBF crew got a bearing on the F8F. He was about 40 miles northeast of the station. The pilot was given a heading to steer.

Within a few minutes, the F8F was picked up on the station's search radar and brought in for a happy landing. The pilot was grateful.

"Those airfield lights," he reported, "were the shiniest, glitteringest lights I ever saw!" He meant every word of it!

AVIATION STORES AFLOAT

THE AIRCRAFT carrier *Valley Forge* added another first to its history when it took on 15 tons of supplies from an aviation stores ship while underway at sea off Korea.

The event took place on 21 February off the east coast of Korea. The Navy's only ship of that type, the USS *Jupiter* (AVS-8), maneuvered alongside and transferred everything from complete aircraft wings to tiny plane parts.

It demonstrated the Navy's ability to provision fighting ships of all types right under the noses and within striking distance of the enemy. The *Jupiter* was built during World War II from an AK-type ship plan, but designed especially to carry everything a Navy plane would need in the way of spares.

Only one such ship was built and it was put in mothballs after the war, only to be recommissioned last October and rejoin the fleet in December.

Just to show what could be done, about 15 tons of aviation spare parts were swung from the deck of the *Jupiter*, across the choppy waters between the ships, to the deck of the *Valley Forge*, all in less than 20 minutes. Not one piece was dropped, none was damaged and none even got wet.

This brings home the fact that aircraft carries need not enter port or even leave the scene of conflict for any supplies they might need. A brief interruption of a few hours could see her restocked with men, planes, ammunition, food, spare parts, and even mail from home. It is a notice to anyone, anywhere, that the United States Navy can sustain itself in any waters in the world for an indefinite period.

WING PANEL BEING TRANSFERRED FROM JUPITER TO CARRIER VALLEY FORGE OFF KOREAN COAST

SINCE THIS is the first combat use of the aviation supply ship in the Korean war, it is interesting to take another look at this vessel and how its supply storage was planned. The *Jupiter* was in the San Diego Reserve Fleet until last October. After being "unzipped", it went to Naval Supply Center, Oakland, Calif., on 11 December for outfitting with aviation materials.

On arrival, a loading conference was held, attended by Cdr. Hugh R. McKibbin, LCdr. J. W. Weigand, supply officer; other interested ship's officers and representatives of the Freight Transhipment Branch, Aircraft Material Office and Aviation Supply Depot.

The *Jupiter* is a converted C-2 cargo ship designed specifically to handle aviation stores. She has ample bin space in addition to bulk storage space to enable speedy ready-issue service to aircraft carriers and tenders operating in the fleet. Close to 20,000 different items of all types of aeronautical supplies, including aviators' clothing, wings, propellers, engines, tires, accessories and aircraft electronic spares are in the holds.

A total of 67 outfitting allowance lists were received for the *Jupiter*. Of this total, 79.6% were furnished by ASC OAKLAND and most of the rest from other West Coast aviation activities, leaving only 7% to be located and transshipped within the aviation supply system.

Four storekeepers and a supervisor were assigned last fall to assemble aviation items destined for the *Jupiter*. All material from the various storehouses was forwarded by class in separate ring pallets and assembled by class in space assigned for assembly.

To process this material for final stor-

PILES OF AVIATION EQUIPMENT IN OAKLAND SUPPLY CENTER FOR SHIP

USS JUPITER, NAVY'S ONLY AVIATION SUPPLY SHIP, LOADS AT OAKLAND

20,000 SMALL ITEMS FILL THE SHIP'S STORES

ing aboard the *Jupiter*, to conserve space prior to shipment, and to effect an efficient handling of vouchers, the following procedures were established:

1. All material which was large and bulky was held in parent storehouse, properly marked, and covering papers only forwarded to the assembly area.

2. Items of a highly desirable nature (pilferable) were likewise kept in the parent warehouse.

3. Most material was destined to be loaded in bins aboard the *Jupiter* with no packing. However, certain items, such as glass, metal sheets and the like were sent to the packing branch for protective packing and then forwarded to the assembly area.

4. Items requiring preservation went through preservation branch for appropriate protection prior to assembly.

5. All completed vouchers were filed in the assembly area (by class) to coincide with the actual storage layout and papers for bulky and pilferable items were marked with ASD storehouse number to indicate location.

THE PROSPECTIVE loading plan was received from the ship, and assembly began. Storerooms were regularly marked with dual numbers to indicate particular hold and between deck. Each item issued was double-checked by ASC issue storekeepers and one storekeeper from the ship so material would not have to be recounted when placed aboard.

All small items went in bags and then into cardboard boxes, with invoice numbers clearly visible on the outside of containers. Boxes were placed in ring pallets and numbered. One copy of each invoice was left in the ring pallet. All materials of a single class were pre-segregated by hold and storeroom to permit rapid and easy hauling to shipside and loading.

GCA BOX SCORE

General bad weather over the nation boosted the total GCA "saves" during February to an all-time record high of 1,017, exceeding the previous record of 952 set last September. January set a new record for GCA approaches, actual and practice, with 14,232.

February Approaches	12,797
IFR Approaches	1,017
Grand Total Approaches	474,210
Total IFR Approaches	21,525

★ ★ ★ ★

BAIROKO MEN *were well entertained recently by a gentleman who was willing and able to swallow anything from marbles to snakes. Here he exhibits his strange ability. The entertainment took place when the aircraft carrier's crew visited a recreation camp while on a short leave in Japan.*

Contest Aids Photo Skills

ZP-1 Awards Honors to Best Pictures

ZP-1, WEEKSVILLE—Good combat photographs are valuable in assessing damage on enemy submarines or ships, so this squadron has adopted a "Picture of the Month" contest to encourage blimp crewmen to take better photos.

Three pictures are chosen each month by the training officer and the photo officer and awarded places. The pictures are posted and credited to the men who took them, as a part of the training program to teach aircrewmen and pilots how to take pictures that will be of value for intelligence purposes.

For public relations uses, pictures of civilian shipping are sent to owners and masters of vessels, when their address can be obtained, with a letter explaining ZP-1's mission and training program. The squadron limits each person to three pictures on a flight and not more than four pictures are permitted on a subject.

An example of the type of pictures shot by ZP-1 personnel is the helicopter photo on the back cover of this issue of the NAVAL AVIATION NEWS, taken by T. K. Emch, ADC, and submitted as the Squadron ZR-1's "Picture of the Month."

PEANUT CAN ASHTRAY HELPS KEEP PLANE CLEAN

Luxury Service for Corsair

Alert Plane Captain Provides Extras

Energetic plane captain, H. M. Hartley, ADAN, not only keeps his F4U-4 in such excellent condition that it is one of the cleanest *Corsairs* in the Korean theater but one of the most comfortable from the pilot's point of view.

On his own initiative, Hartley designed and constructed in his spare time an ashtray from a peanut can. A sliding cover keeps ashes from scattering in the cockpit regardless of the maneuver performed by the pilot. It is located forward on the port side of the cockpit.

When the pilot mans his *Corsair* for a strike on the Reds in Korea, Hartley helps him get comfortably seated and gives him all the pertinent information on the status of the aircraft, the fuel load and armament aboard.

Then comes the perfect touch—"If you would like to smoke, sir, you will find a pack of cigarets and a book of matches in the pilot's compartment."

Flies 1600 Hours for Mark

Instructor Believed to be Top of List

NAAS WHITING FIELD—When Lt. (jg) George V. Warren left his job here as a basic training flight instructor to join the fleet, he left what is believed to be an all-time record of 1600 accident-free hours of flying.

His record is the best one recorded in Basic Training Unit One for sure, and possibly an all-time high for this type of work. He joined the Navy as an enlisted man in 1940, won his wings in 1944, reverted to ADC(AP) in March, 1950, and was again commissioned in February, 1951.

I DON'T CARE HOW COLD IT IS! COME OUTTA THERE!

HOUSE OF DAVID CANDIDATES?

FUTURE SELECTION BOARDS *will be fascinated with pictures like these in the records of these officers. Back in January we ran a request to all naval aviation officers (Code 1300) to forward 2½" by 3½" photographs of themselves to the Chief of Naval Operations (Att: Op 54), Navy Department, Washington 25, D. C. Pictures will be attached to Officers' Data Cards. Returns from junior officers have been good, with a few exceptions like the above who evidently want to prove they're in the thick of it. Thick is right. Attention senior Officers!—You're not excepted! Visit your unit photographer soon and be mugged—but shave off your beard! You may be proud to sport it, but BuPers isn't interested.*

Planes Aid Tree-Planting

Ryukyu Chain Gets Pamphlet 'Shower'

VP-22, PACIFIC—Propagandizing the enemy by dropping leaflets or using loudspeakers on planes is not a new warfare wrinkle, but this squadron uses planes to drop beneficial "propaganda" on islands of the Ryukyu chain.

While Arbor Day was being observed in many American communities, VP-22 dropped 65,000 leaflets on Okinawa and other islands of the group urging planting of pine tree seedlings.

The U. S. Forestry Service, in conjunction with the Ryukyan Command Civil Administration, has made available 6,000,000 Australian pine trees to the Japanese people of this island chain.

Stretching 500 miles from Amami-O-Shima on the north to Yonaguni-Shima in the southwest, all inhabited islands had leaflets airdropped to them from low-flying P2V-4's from VP-22.

Attractively printed in native language, these leaflets encouraged all islanders to participate in a tree-planting project. In the accompanying picture of one of the "propaganda" crews, are: L. R. Klein, AL1; J. H. Stevens, AL3; W. A. Seare, ATAN. Rear row: Ens. James F. Jenistra, pilot; 1st Lt. F. T. Bailey, USA, civil administration liaison officer; Ens. David E. Story, co-pilot; J. S. Anderson, AT3; J. L. Morgan, AO1; R. O. Cameron, AD1, and Mr. Varney, U. S. Forestry Service.

VP-22'S PAMPHLETEERS AID FORESTRY PROGRAM

R4Q Packet Landed with Tab

Broken Gust Lock Freezes Elevators

MCAS CHERRY POINT—A possible tragedy was averted recently when an R4Q Fairchild *Packet* experienced an elevator failure.

First Lt. L. J. Hofmeister, of VMR-252, a unit of the Second Marine Air Wing, was assigned to a local flight with the plane.

The engines and controls checked out properly, but when the plane was airborne Lt. Hofmeister noticed lack of elevator control, first in a climb, then in a sudden dive, narrowly missing a line of trees at the end of the runway.

He reverted to the use of the elevator tab and managed to climb to 9,000 feet for further tests.

At this point, another aircraft flew alongside and reported less than normal movement of the *Packet's* elevator surfaces. Hofmeister had only the use of the hand tabs for jockeying and maneuvering the plane into the landing approach.

The landing was effected on a long, straight-in approach and the result was a perfect landing.

The trouble was found to be a broken gust lock.

ELEVEN OF *these new Super Constellations are being purchased by the Navy for cargo transports. They are 18' longer than the standard Connie but photographic perspective here heightens the apparent disparity in their length. Navy is getting 11 R6D's in addition to the 11 R7O Constellations.*

CLIMBING INTO *the front cockpit of a TO-2 jet trainer is John F. Floberg, Assistant Secretary of the Navy for Air. His pilot is LCdr. John F. Hutto of Tactical Test at Patuxent. While at the test center, the secretary also went for a flight in the Navy's swift F3D Douglas night fighter.*

THREE CHIEFS DEVELOPED THIS HANDY TOW CAN

Tow Can Aids Air Launches

VF-61, ATLANTIC—Development of a device for launching banner targets from jet tow planes in flight is reported by this squadron.

Although the tow can was perfected in mid-October, no takeoffs from the *F. D. R.* were attempted due to availability of VU-10 at Guantanamo Bay. A successful test launch was made aboard the same ship on 29 November in preparation for the squadron's Mediterranean tour.

Men who designed the tow can illustrated here included D. H. Jones, AOC; D. G. Keeling, AMC, and P. C. Austin, AEC.

The rig has been used successfully several times using a destroyer to retrieve the released tow. The following type flights have been flown using this installation:

1. Catapulted takeoff with full tip tanks, using water injection. A standard drag deck launch method was used.

2. Drag takeoff from the field with and without injection. These indicate field drag takeoffs without water injection are not good.

3. An Aero 1A tow can furnished by FASRon-3, Norfolk, has been used up to 25,000 feet. Launching is as slow as possible and a steep turn into the wing to which the tow can was attached.

4. Climb speeds between 200 and 220 knots are recommended when utilizing drag takeoffs either ship or shore-based. This is a compromise between banner wear and the best climb speed of the aircraft. However, banner wear is still excessive. It is recommended that all let-downs be made as slowly as possible and at a great rate of descent as is possible (i.e. maximum of 140 knots with gear, flaps and speed breaks extended) to avoid banner disintegration.

THE NAVY *has procured for the Air Force a new crash rescue boat, a 40-foot craft with a stern gate that can be lowered to facilitate pulling pilots out of the water. The gate is 18" under water so a litter can be placed under the survivor. Guards protect him from injury by the boat's spinning propellers.*

EMERGENCY JET STARTING

VMF-224, CHERRY POINT—Starting the J-34 jet engine in the F2H-2 in the event the plane has to set down in a field without JASU can be done by the following procedure:

1. The *Corsair* or similar type aircraft is tied down by the tail in a clear area where prop blast will do no damage, and if possible heading into the wind. The F2H-2 to be started is pushed into position behind the *Corsair*.

2. The nose of the *Banshee* should be pointed about 10-15° to the right of the wind line of the *Corsair* and as closely as safety permits for starting the left engine. The pilot in the F2H-2 should give a signal for turn up to a man standing abeam of the *Corsair* pilot. Upon signal, the F4U is turned up to about 40" of mercury with full RPM and the following procedure used:

3. Hold igniter on left.

4. After 45 seconds turn on fuel and move throttle forward opposite the idle position. After the light off, retard throttle to hold 960° for five seconds. Percentage at this time should be about 15-18.

5. Again retard throttle to hold about 700° for a few seconds for cooling. Then advance it to hold 850°. When 30% is reached, the pilot gives a cut signal to the man standing by the *Corsair*. The nose of the F2H-2 is turned and the same procedure for starting the other engine is used.

When using a jet to start a jet, the airplane to be started should be placed in a clear area and headed into the wind, if possible. The nose wheel should be tied down and wheels chocked. The starting jet, with engines running, should be taxied directly ahead and in line with the plane to be started, with about 35′ distance between nose and tail.

The pilot of the jet to be started should wear his oxygen mask to prevent breathing exhaust fumes. The turnup is to 90% and the following procedure is used:

1. Hold igniter on.

2. After 35-40 seconds of turnup at 90%, the fuel is turned on and the throttle moved up opposite the idle position.

3. After light-off retard throttle to hold 960° for five seconds. Retard throttle for momentary cooling and advance it to maintain temperature of 850°. At about 22-25%, cut the jet turning up as the turbulent air going through the compressor retards acceleration at this stage. Use the same procedure for starting the other engine.

BOMB BAYS *are going back on the Navy's planes again, as this aerial shot of the AF-2S indicates. During the war, the TBF's and SB2C had bomb bays, but postwar designers of attack planes like the AD-1 and AM-1 did away with bomb bays and carried torpedoes and bombs externally. Now comes the new AF Guardian with bays again. This photo shows the big antisubmarine attack plane carrying a dummy torpedo. Note searchlight and radome.*

ANTI–CORROSION VICTORY

SALT WATER was one of the constant enemies of naval aircraft in World War II. Insidiously it corroded whole aircraft engines, parts and accessories, costing money, time and labor to replace or recondition the affected parts.

To meet this problem, the Bureau of Aeronautics initiated a program to combat corrosion of every kind by preventing oxygen, moisture and other corrosive agents from direct contact with the surface of the metals.

There were two kinds of metals to be protected: ferrous or iron bearing alloys, and nonferrous metals and alloys such as magnesium, aluminum, zinc, copper, etc.

On the basis of research it was found that synthetic phenolic resin fulfills the requirements for protection against corrosion and can be applied to any type of metal. Full information on the uses, method of application and the equipment required is given in BUAER's General Engine Bulletin No. 66.

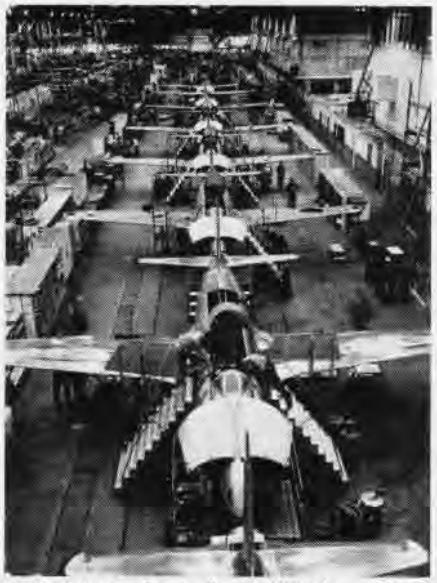
Parallel with the development of the phenolic resin process, a separate project for the development of a protective coating of metal for the ferrous alloys was undertaken. Laboratory tests and investigations indicated that a combined electro-plated coating of tin and cadmium would provide a permanent corrosion barrier which should last through the service life of an engine. This was proved by a series of field service tests conducted by NAS PENSACOLA.

One fully automatic plating machine is now in operation at Pensacola, and it is expected that additional units will also be installed at other stations as required.

Today most of the reciprocating engines and some test parts of turbojet engines have received an anti-corrosion coating. Although these processes were developed primarily for the protection of aircraft engine parts, their value is considerably increased in that they may also be used as an anti-corrosion barrier for other aircraft components such as electronic units, ordnance gear, and almost all parts where a minute increase in weight may be permitted.

For example, phenolic resin forms a superior prime or under coat for paint when used on exterior surfaces of engines and other parts which are exposed to the weather, making it doubly useful.

SPEED-UP *of production is apparent in this recent shot of the Douglas AD Skyraider production line in the big plant at El Segundo, Calif. Several versions are on line*



TWO SEATER *jet trainers, TO-2's, roll off the assembly line at Lockheed Aircraft's huge plant at Burbank, Calif. This is training version of Air Force F-80 Shooting Star*

Alameda Training Plan Works

NAS ALAMEDA—A better method of training "green" workers than the World War II "vestibule school" system is taking shape as a result of study by the industrial relations department training division and the O&R department.

Realizing that this nation already faces a shortage of reserve skilled and semi-skilled workers and that in the event of full-scale mobilization it could become critical, training supervisors began experimenting some months ago with a novel plan for training workers to fill key positions in production lines.

They took a group of unskilled women workers as their first experimental class. These women were assigned to the ground test shop, which tests engines prior to storage, after they have come from final assembly. Students were given the job of attaching engine test fittings (mockup) and after testing, the removal of these fittings.

Before going to work, they were given two days of indoctrination in use of tools, safety, nomenclature and a study of photos, diagrams and flow process charts so they would see where they fit into the picture of the total shop effort.

After three weeks, a group of three trainees were performing the operation in seven man-hours, just one and one-half hours more than the time required by two journeymen. Although these trainees were women, infrequent help to lift heavy objects or loosen extremely tight bolts was requested.

The second test class was assigned to the engine accessory shop, working on disassembly of carburetor fittings. They got one day of indoctrination. After two days of practice, the trainees equalled production rates of journeymen mechanics in that particular operation.

Results indicate that unskilled workers could assume some phases of many journeymen operations, thus leaving these skilled workers free to work on more technical phases of any production job.

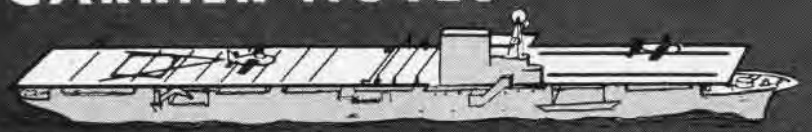
Flow process charts from the work simplification plan were utilized in training these people and from their use officials have seen an even more significant portent.

Combined with appropriate shop layout drawings, personnel requirements, training outlines and technical data, these charts form a "package" source of material which would be useful to subcontractors should it be necessary to farm out production work from military installations, or to move shops from coastal areas to less vulnerable inland communities.

Subcontractors could use them to set up an efficient shop producing or repairing products for current military needs.

WHEN THE *United States dedicated a monument atop Mt. Suribachi on Iwo Jima on 23 March honoring men killed on that island assault, the Navy was represented. Included were Victor L. Smith, AL3, of VU-5 who was flown down from Tachikawa AFB, Japan, to act as honor guard during the flag ceremony.*

CARRIER NOTES



BUREAU OF AERONAUTICS—SHIPS INSTALLATIONS DIVISION

Barrier Adapter Maintenance

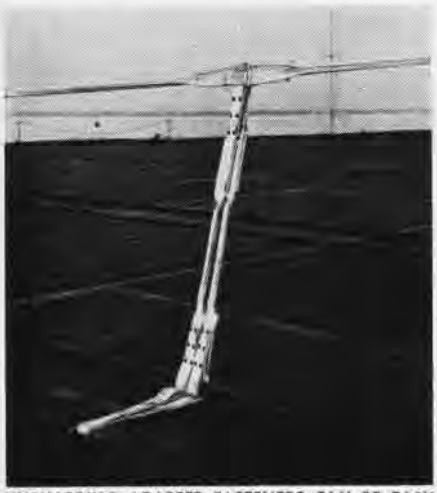
Recent reports from the fleet indicate that there has been trouble in unsnapping properly the fasteners that secure lifter straps around the barrier cables. These six fasteners (lower six fasteners shown on lifter strap in the photo) are called "Trilocs" and differ from other fasteners used on the lifter strap assembly in that they are properly released only from the direction marked on the head by a stamped arrow.

Reference to a lifter strap will show that the top row of "Trilocs" can be released by pulling the webbing apart with the fingers at a point between the top and middle row. The separation should occur easily at about 15 pounds pull.

Any attempt to separate the top set of "Trilocs" by pulling, as in a barrier actuation, will require about 125 pounds pull and will most likely damage the triloc or pull it free of the webbing, thus requiring lifter strap replacement.

It should be mentioned that proper installation of the replaceable anchor strap requires that both lifter straps at that anchor plate position be of the replaceable type.

One damaged lifter strap in the original webbing assembly will require that both it and its companion lifter be cut out and replaced. In the future, all lifter straps fabricated for new assemblies or as individual replacements will incorporate replaceable anchor straps.



UNSNAPPING ADAPTER FASTENERS CAN BE EASY

New Arresting Hook Points

New detachable arresting hook points of forged 4340 steel have recently been developed and service tested. The new design has a hard-surfacing material (Colmonoy) applied to the wire rope groove. During off-center landings, the Colmonoy serves to decrease both hook point and deck pendant wear due to the relatively low coefficient of friction between the two metals. The strength of these new hook points is considerably greater than that of the hook points machined from Hadfield steel castings.

The smallest size of these forged hook points, NAF 603410-1, is currently in production at the Naval Aircraft Factory. It will ultimately replace the cast Hadfield steel point, NAF 601121-1, production of which has been terminated. Limited production of two larger sizes of cast Hadfield steel points, NAF 601122-1 and 601123-1, is still in effect; however, replacement points of the forged type have been designed and production has recently been initiated at the Naval Aircraft Factory.

All current combat type carrier based airplanes, with the exception of TBM's and F4U's are equipped with arresting hooks incorporating standard detachable points. Since replacement of a standard hook point is a simple procedure, instructions for installation are not considered necessary.

OLD TYPE PLANE HOOK HAD CAST STEEL POINT

Mk 7 Carrier Arresting Gear

The Naval Aircraft Factory is now testing the prototype of a new arresting gear of considerably greater capacity than the Mk 5 arresting equipment now in use throughout the fleet. This arresting gear, which has been designated the Mk 7, is designed for installation aboard aircraft carriers of the *Midway* and *Oriskany* classes for operation with new types of carrier-based aircraft.

The new arresting engine is a hydraulic unit basically similar to the equipment now in use in the fleet. One novel design feature is the installation of the control valve directly on the end of the engine cylinder. This is a functional improvement that also achieves installation compactness.

Another novel feature is the use of a separator in the accumulator to eliminate a free liquid surface in contact with the compressed air charge. This separator has been introduced for the specific purpose of eliminating foaming and resulting walk-back.

Barrier Adapter Publications

The Bureau of Aeronautics has been provided with a completely new jet barrier adapter instruction manual prepared by the Naval Aircraft Factory. This document will be published by the Bureau as a NAVAER publication, and will be made available to aircraft carriers and all other activities concerned.

The manual is liberally illustrated with diagrams and photographs and will provide in a single publication complete instructions for the use of this barrier adapter equipment.

All arresting gear changes concerned with barrier adapters for nose wheel aircraft have been cancelled and superseded by Change No. 12, Revision 1, dated 5 March 1951. The new change gives up-to-date information on barrier adapter usage and part numbers.

Accumulator Nozzle Failures

Several Mk 5 arresting gear accumulator inlet nozzle failures have been reported by operating vessels during past months.

Such failures *(see cut)*, which are caused by the effects of high velocity fluid flow during the arrestation of jet aircraft, are readily detected by the resulting walk-back.

ARRESTING GEAR NOZZLE FAILURE SHOWN HERE

To correct this difficulty, NAMC is proceeding with the redesign and manufacture of improved Mk 5 accumulator nozzles that will withstand the effects of high velocity flow.

5,000 Launches by Catapult

USS BATAAN—Setting a near record for aircraft carrier launchings, the starboard catapult on the *Bataan*, CVL-29, fired its 5,000th "shot" during operations against the enemy in Korea in March.

The 3,000-pound pressure ram was installed in the *Bataan* when the vessel was commissioned in May, 1943. While it has been outmoded by newer models on other vessels, it still is functioning in a highly satisfactory manner.

The carrier has been in action against the Koreans since last December and since then had more than 5000 launchings with the catapult.

(Editor's note: Records of the BuAer Ship's Installations division show one catapult on the U.S.S. **Monterey** launched 5,218 planes before it was mothballed in 1946. This is believed to be the record, with the **Bataan's** mark second. By the time this is printed, the Bataan may have set a new mark.)

SUPPLY NEWS
FROM ASO AND SUPPLY DIVISION BUAER

IBM Cards for Usage Data

To determine the range and quantities of spare parts which must be procured and distributed, the Integrated Aeronautic Program needs to know the actual usage rates of parts in the maintenance and overhaul of aircraft and accessories. An important part of this information is obtained by the Aviation Supply Office from the Overhaul and Repair departments at Naval air stations.

Periodically O&R departments send ASO reports which show the quantity of each equipment overhauled and the number of parts used in a specific number of overhauls. These reports are combined at ASO, and a rate of replacement is computed for each part. This rate-of-replacement information guides ASO personnel in the procurement and distribution of materials necessary to support the overhaul program.

Most parts used in overhaul have fairly stable rates of replacement; others show considerable variation. Rapid changes in the rates of replacement demand frequent reporting, so that new rates can be made quickly available.

In an attempt to reduce the time required to assemble rates of overhaul usage, ASO is cooperating with the O&R departments at MCAS CHERRY POINT, NAS NORFOLK, and NAS QUONSET POINT in an experiment to determine the feasibility of replacing overhaul usage data reporting forms ("L" forms) with decks of IBM cards on which parts usage may be reported. This will permit almost 100% mechanical assembly and computation of usage rates.

The pre-punched "Mark-Sense" IBM cards forwarded at intervals to the overhaul activities are machine duplicated from ASO engineering data files. Consequently, the range of procurable parts represented is more complete and current than the information on the "L" forms.

At the top of each "Mark-Sense" IBM card supplied to the overhaul activities is printed the ASO stock number of the part, station reporting, and the model number of the equipment to which the part applies. In reporting usage of a part, the overhaul activity indicates the quantity used in a given number of overhauls by drawing a short pencil line in each of four designated columns on the card. The position of each mark in a column represents a particular digit.

The reporting activity indicates on the cover card for each equipment the number of overhauls and the period of time in which the overhauls were completed. The cards are then forwarded to the ASO where they are processed through an IBM Mark-Sensing Reproducer.

Then the cards for each equipment are placed in alphameric sequence, sorted with cards from other activities, and a printed tabulation of usage made. The printed tabulation shows the actual usage, possibility of usage, and the rate of replacement of each part at every activity at which overhaul usage was possible. On the basis of information contained in the tabulation, the average rate of replacement for all overhaul activities is computed for each part.

The new system may solve the problem of cutting the time between the generation of usage data and the placing of the information in the hands of those whose duty it is to procure and distribute overhaul parts. Complete development of the method depends upon the degree to which O&R activities find it more advantageous.

New Portable Status Board

VP-4 is very often in a deployed status, so it has made a portable aircraft status board which could also be deployed and used for ready reference immediately upon the squadron's arrival at the new base.

PORTABLE STATUS BOARD OF ½" PLY BOARD

The board was built so that it could be folded two ways and be small enough when folded to be carried in one of the squadron aircraft. When the board is unfolded, it is 4 x 8 feet; folded, it is half that size.

Red and green metal tags attached by piano hinges designate "up" and "down" aircraft. This eliminates protruding nails and loss of tags.

The board was designed and constructed by H. L. Van Hoose, ADC, and J. B. Rutledge, ADC.

AVIATION ORDNANCE

Failures of Stellite Barrels

The Bureau of Ordnance has received numerous RUDAOEs from NAAS CABANISS FIELD reporting gun stoppages owing to failures occurring to stellite lined barrels D7161580, caliber .50 aircraft gun AN-M2. These ruptures have occurred at the junction of the retainer (cartridge chamber) and stellite liner breech end of the barrel.

Precautions: BUORD letter Ma8a-WHW:-aer F41-1 (.50 Cal.A) dated 1 November 1950 contains instructions for proper inspection of the barrel D7161580 prior to assembly into the caliber .50 aircraft gun. It is recommended that the following precautions be taken:

1. An immediate visual inspection of all barrels D7161580 assembled to aircraft guns in service should be made daily upon completion of firing. Barrel reflector C64255, Stock No. J941-R-1098 may be used, and is contained in the caliber .50 tool set J941-T-1792-760, NAVORD List 21416, Revision B, dated 1 November 1950. Technical Manual 9-225 illustrates and describes the use of the reflector.

2. Prior to inspection, the barrel must be thoroughly clean. Use rifle bore cleaner or a hot water solution in the manner prescribed by Ordnance Pamphlet 1828 or Technical Manual 9-225.

3. Carefully inspect the barrel at the junction of the retainer (cartridge chamber) and the stellite liner. This area is located approximately 3.25 inches forward of the extreme aft end of the barrel. If there is any evidence of cracking or erosion, replace the barrel. THE RUPTURES OCCURRED IN THIS AREA.

4. Note the condition of the liner at its forward junction point with the barrel. This area is approximately 12.1 inches forward of the extreme aft end of the barrel. Replace the barrel if eroded or cracked in this area.

5. Check the retainer (cartridge chamber) for looseness. Discard the barrel if the retainer is loose. This part is retained by a pin assembled during manufacture. No attempt shall be made by field activities to loosen, tighten, or secure the retainer.

6. Paragraph 98, Technical Manual 9-225 pertains to barrel inspection and should be used to supplement the above inspections.

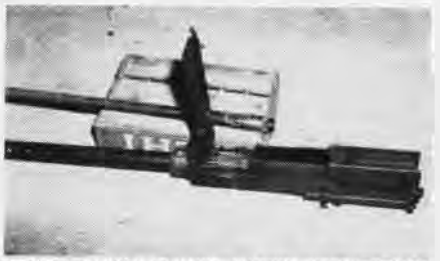
To prevent overheating of the stellite lined barrels, it is recommended that pilots and aircrewmen review and apply the firing schedules for caliber .50 barrels outlined in paragraph 30, Technical Manual 9-225.

Barrel Failures to be Reported: In order to greatly assist in correcting this type of barrel failure, the Bureau of Ordnance requests that all barrel failures of this type be immediately reportd. NAVORD *Form 147 (Rev. 1/45), Report of Unsatisfactory or Defective Aviation Ordnance Equipment,* or letter may be used. The following data, if available, should be included:

1. Firing schedule employed (Paragraph 30, TM 9-225).

2. Total number of rounds fired with the barrel.

3. Type of ammunition used when malfunction occurred.



STELLITE BARREL FAILURE SHOWN HERE TYPICAL

Use Latest Allowance Lists

BUORD has taken note of the fact that frequently in requisitioning Aviation Ordnance spares and spare parts that the latest allowance list has not been consulted. Every care should be exercised to insure that the latest revision of allowance lists, and any subsequent modifications thereto, are used.

The current NAVORD Allowance Lists of aviation ordnance equipment for operating activities are as follows:

* NAVORD *List 21416, Revision "B"* of 1 November 1949—Line maintenance and tool sets for aviation ordnance equipment.
* NAVORD *List 20870, Revision "G"* of 1 July 1950—Aviation ordnance allowances for Naval aircraft.
  NAVORD *List 21486, Revision "D"* of 15 November 1950—Aviation ordnance allowances for ships carrying or tending aircraft.

Recommendations for Revision: If it is considered by operating and tending activities that any Bureau of Ordnance Allowance List for aviation material is inadequate or unsuitable, a recommendation for revision is welcomed and should be forwarded promptly to this BUORD via the appropriate chain of command.

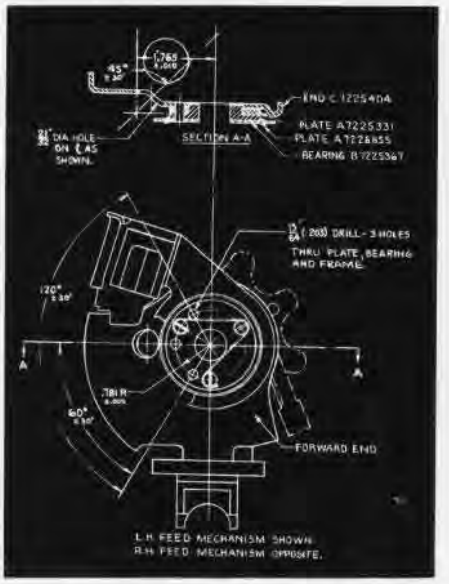
Naval Air Bases: Revised allowance lists for all Naval Air Bases will be distributed in the near future.

* Modified by Bureau of Ordnance letter Ma8b-TNC:gss F41-1(HG) of 9 Nov 1950 to Commander Air Force, Pacific Fleet, for only those carrier type aircraft assigned to the Pacific Fleet.

Feed Mechanism Correction

In an article published in the February 1951 edition of the NAVAL AVIATION NEWS, instructions were issued concerning the location and drilling details of several holes necessary for the proper installation of a new gun heater system for the 20mm Feed Mechanism AN-M2.

The sketch accompanying this article showed the location of the four holes necessary for this modification. On this drawing, the location of the 21/32 inch hole has been found to be dimensionally incorrect. The



proper location is 1.765 ± .010 inches from the center line shown in Section A-A. The previous incorrect dimension of 1.515 ± .010 inches would result in the hole breaking through the end plate. Refer to encircled dimension on drawing. All other details and dimensions are correctly shown.

This correction should be made immediately on all sketches, and all future drilling on Feed Mechanism AN-M2 be accomplished in accordance with this new dimension. Holes previously drilled on Feed Mechanisms AN-M2 shall be relocated to comply with this new dimension.

Gyro Mk 18 Mod O Inspection

Recent reports from fleet activities indicate that the servicing instructions contained in OP 1669 (Part 1), "Gyro Mk 18 Mod O, Theory and Functional Description, Physical Description and Maintenance," are not adequate.

The Gyro Mk 18 Mod O is installed in the aircraft for operational readiness, but it may not be operated for some period of time with the result that in such cases many weeks elapse between periodic 30 hour checks.

Inspection: Gyros Mk 18 Mod O not adequately protected in original containers or stored under controlled humidity conditions, must be inspected as indicated in paragraph 4-7 of OP 1669 (Part 1). This inspection must be made every *30* days or *25* hours of logged operational time, whichever occurs sooner. This applies only to the equipment *installed in aircraft or operational spares* not adequately packaged in compliance with method *II* of specification JAN-P-116. This does *not* apply to supply or stocking activities.

For more complete instructions, consult Ordnance Material Letter V1-51.

• NAS CORPUS CHRISTI — All Weather Flight School celebrated its second anniversary on 2 February. During that time it averaged 2,500 hours flight time a month and 1,500 instrument approaches, including radio range, DF and GCA, hooded and actual weather approaches. The school issued 1,040 instrument ratings to pilots on graduation.

LETTERS

SIRS:

As a member of the aviation unit aboard the U.S.S. *Santa Fe*, my duties consisted of "V" division officer, along with standing top deck watches under way. During the action alongside the U.S.S. *Franklin* (CV-13) on 19 March 1945, I was officer of the deck.

During this action, I had personal contact with Albert Bullock, Photographer's Mate, First Class, who was assigned to the "V" division. Bullock was primarily responsible for taking the action pictures of the disaster-stricken *Franklin*, and not William Bates, as you pointed out in your article in the March NAVAL AVIATION NEWS.

Bullock was recommended for the Bronze Star by the commanding officer of the *Santa Fe* for the photographs taken alongside the *Franklin*.

During the evening of 19 March, Bullock and I developed the photographs of the carrier *Franklin*. These photographs were delivered to Capt. Firz, commanding officer, who, with Cdr. Boyce, executive officer, and Cdr. Heinz, navigator, appropriately classified the photos "Top secret and/or secret."

Bates may have been assigned to the "V" division as a member of the photographic section. If so, I do not remember, but do remember Bullock as the man who actually took the photographs of the carrier *Franklin*.

Another item that may be of interest to NAVAL AVIATION NEWS is that a naval aviator was officer of the deck of the *Santa Fe* during general quarters, including the trip alongside the carrier *Franklin*.

B. C. ZAMUCEN, LT.

PERSONNEL OFFICE
NAS OAKLAND, CALIF.

P.S. Chief Aviation Photographer's Mate James L. Hourigan took the picture of the FJ-1 flying over Naval Supply Center, Oakland, on the back cover of the March issue. At that time Chief Hourigan was flying in a Naval Air Reserve TBM. No mention was made of Hourigan's outstanding photograph, but mention is made of the front cover photo.

¶ The News is interested to learn these further facts about the superlative photographs of the carrier **Franklin** burning at sea, taken aboard the Santa Fe. Photographer William Bates received a citation from the Navy for taking them, but it was five years before the Navy Photographic Institute determined Bates had taken them. Lt. Zamucen's information sheds new light on the photos, among the war's finest.

The reason Chief Hourigan was not credited with the aerial view of NSD Oakland was that the photograph, as received by the **News**, carried no data about the cameraman. The spotlight is herewith turned on Hourigan.

SIRS:

In your March issue, I read with interest the item "Marines Keep Wright Busy." The article then reads, "A new record for landings of service-type aircraft aboard a carrier was set on 18 December."

This record was accredited to the CVL *Wright*, apparently for 327 landings one day, and 318 on a later date.

I presume there are many arguments about this record, as this seems to present itself in the AVIATION NEWS occasionally. However, anyone who has participated in such a venture which will look twice at "new records" claimed.

I am forwarding an article for whatever proof it may be. It appeared in one of the San Diego dailies after MAG-6 had qualified aboard the *Matanikau* in May 1945. This group was composed of F6F's and TBM's. Group CO was Maj. Robert G. Owen; VMF-321 CO was Maj. William P. Bolin, and VMTB-454 CO was Maj. James H. Clark. This group was assigned the *Puget Sound* CVE-113 for regular duty. At the time I was executive officer of VMTB-454.

[The clipping states that MAG-6 had made 602 landings on board the escort carrier in one day—about twice the normal heavy day's activities on a carrier—and all done without accident.]

MAJ. LESLIE C. REED

VMF-236
NAS BUCKLEY FIELD, COLO.

Marines Get New Pinwheel

HRS-1 Will Carry 10; Has Single Rotor

MCAS CHERRY POINT—Flying the new 10-passenger Sikorsky helicopters, the first of three East Coast Marine helicopter squadrons was commissioned in April.

The squadron, HMR-261, uses the HRS-1 single-rotor troop carrier helicopter capable of 110 knot airspeed. Commanding officer of the new squadron is LCol. O. A. Chambers and Maj. M. S. Ober. The Marines are already using the HRP-1, HO3S-1 and HTL-4 helicopters, the latter two in combat over Korea.

AFTER 31½ *years continuous naval service, Chief Charles Liteky of* FASRon-6, *Jacksonville, was retired on disability. He served aboard the old Lexington, Yorktown, Hornet and Midway. He was chief in charge of the flight deck of the Hornet when Doolittle's Tokyo-raiding B-25 planes took off. When the Hornet was sunk at Santa Cruz he spent four hours in the water. Liteky got out on 1 March. On 2 March his eldest son, the next generation, took his Armed Services physical.*

NAVAL AVIATION NEWS

Published monthly by Chief of Naval Operations (OP-501) and Bureau of Aeronautics to disseminate safety, survival, maintenance and technical data. Air mail should be used if practicable, address to: Chief of Naval Operations, Naval Aviation News, Navy Department, Washington 25, D. C. Direct communication can be made to Naval Aviation News, Room 4D356, Pentagon Bldg., office phones 73685 or 73515.

CONTENTS

● THE COVER

A PBY-5A piloted by Lt. Richard A. Wilson of VP-891, Seattle, flies past the USS Caiman during a battle problem. Photo by Verne Meuser, AF1, of NARTU Seattle.

● RECOGNITION QUIZ

(Inside front cover)

The delta-wing British Avro 707B research aircraft which has completed more than 100 flights in some 25 flying hours. It carries an anti-spin parachute to use as an air brake on occasion in landing. The chute is housed in the cylindrical appendage between the rudder and tailpipe.

● BACK COVER

A helicopter piloted by W. P. Boegel, ADC (AP) of NAS Guantanamo hovers over a piece of wreckage from a TBM lost in the Caribbean. Photo by T. K. Emch, ADC, of ZP-1 from a blimp also searching for the wreckage. Water ripples caused by downdraft from helicoper rotors.

● THE STAFF

LCdr. Arthur L. Schoeni
Editor

Izetta Winter Robb
Associate Editor

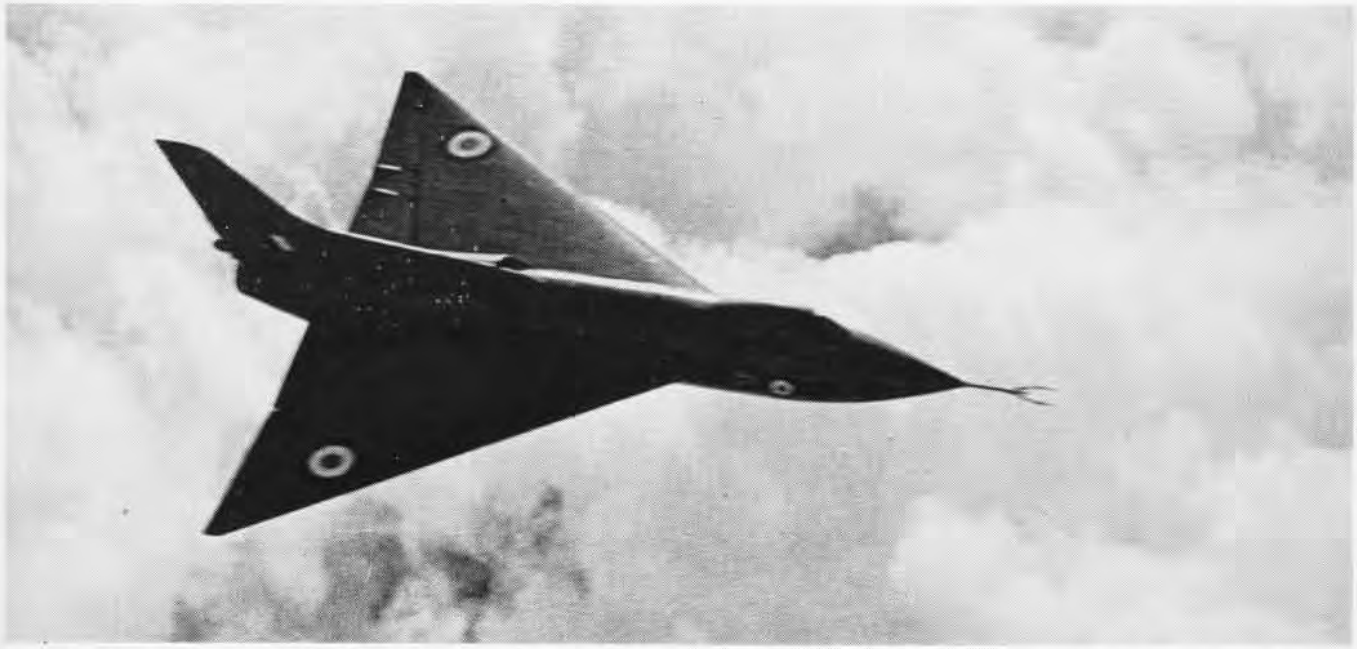
Cdr. Larry L. Booda
Associate Editor
Head, Aviation Periodicals Section

Lt. Rosalie W. Martin
Associate Editor

LCdr. Andrew W. Bright
Associate Editor

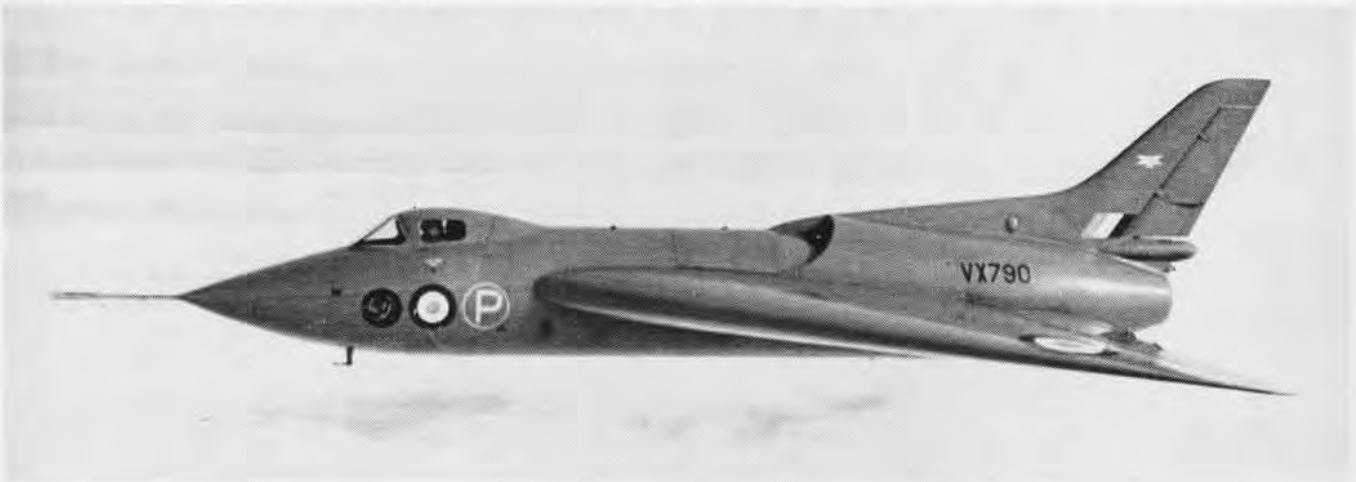
James M. Springer
Art Director

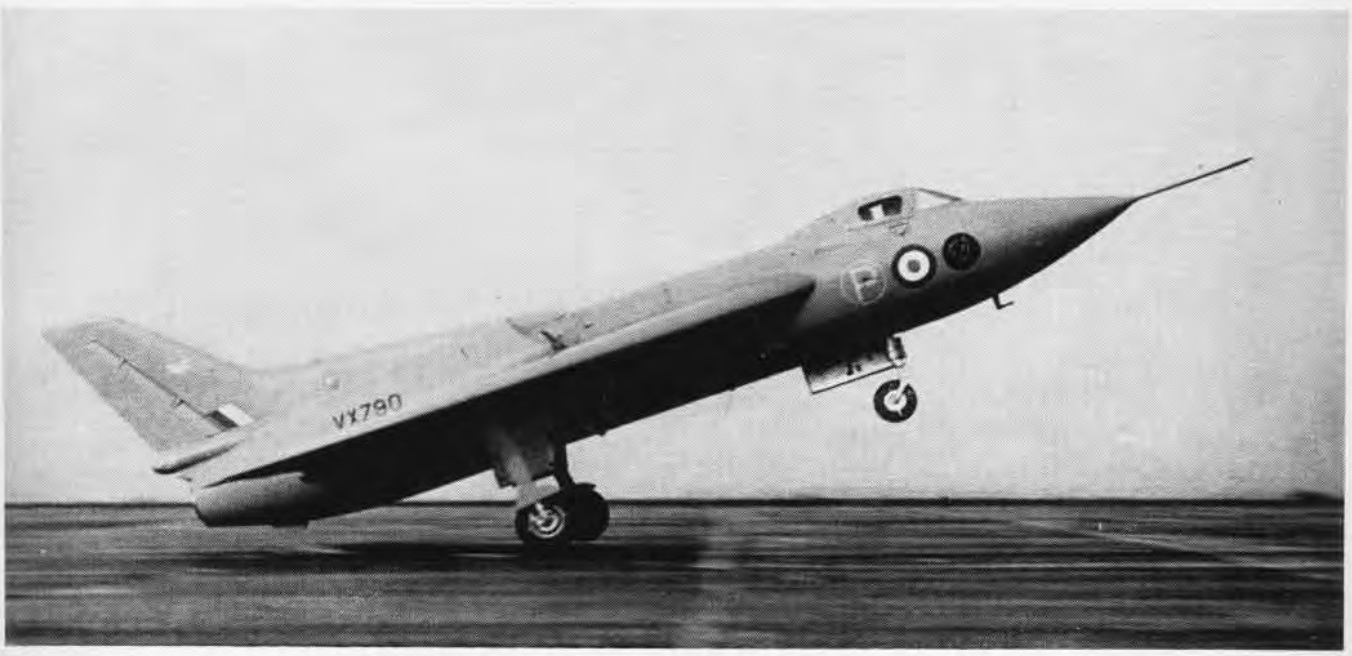
● The printing of this publication has been approved by the Director of the Bureau of the Budget, 10 June 1949



CAN YOU IDENTIFY?

One of the strange new shapes zipping through the air is this delta-wing jet research plane. Note sharp landing approach angle typical of swept wings. *Answers are on last page.*





NAVAL AVIATION

NEWS

your circle of influence

Can be enlarged through the *Naval Aviation News*. Technically speaking, you may have just the word on an ingenious method of repairing certain equipment. It may be better, faster, cheaper than the usual procedure. Describe your skillful solution. Tell us about it, so that its use can be extended. Then what you have accomplished increases in value. Don't delay! Send the word to the *Naval Aviation News* today!