NAVAL AVIATION NEWS

RESTRICTED

Soviet Naval Air Rocket Engines

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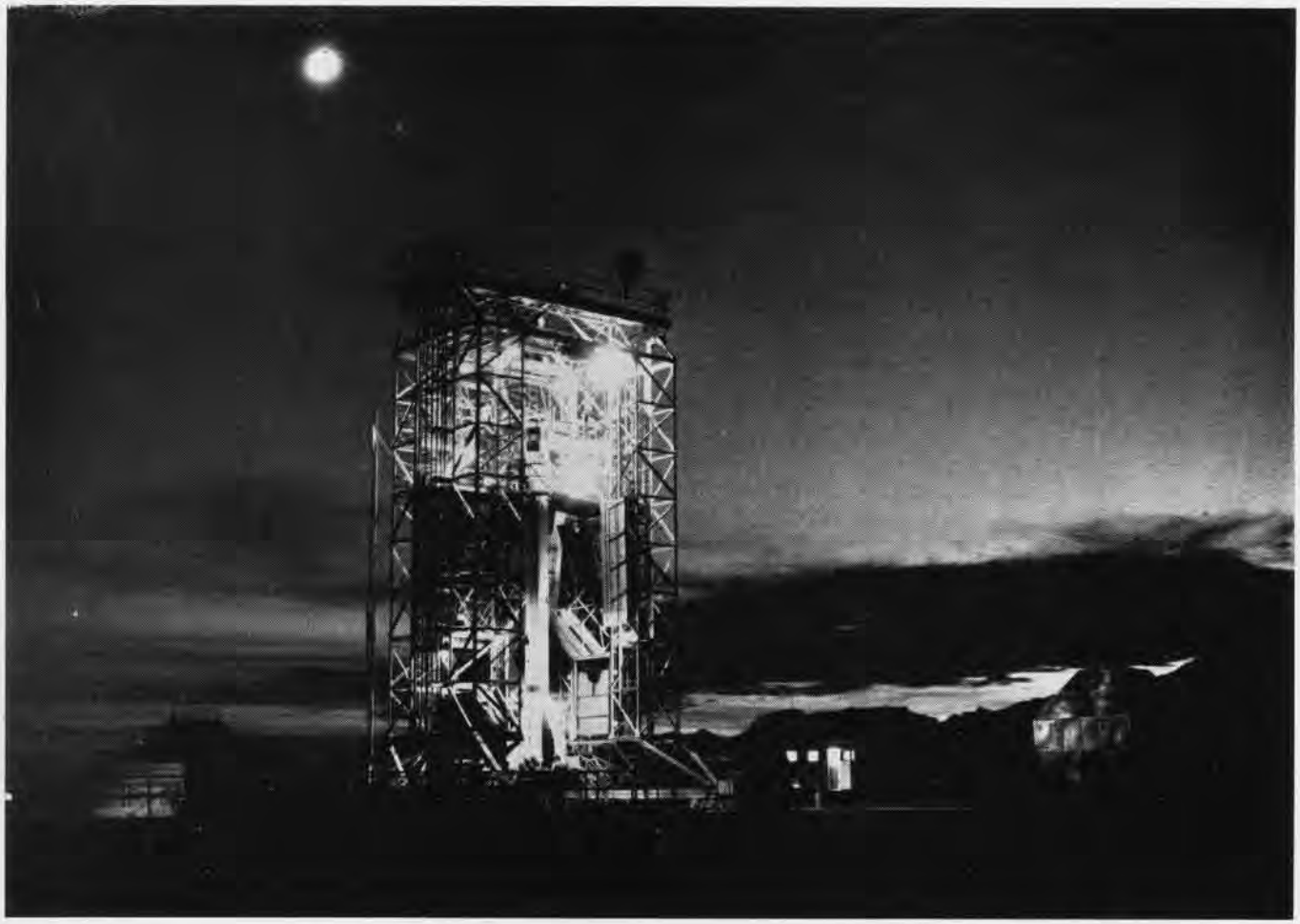
RESTRICTED

CAN YOU IDENTIFY?

Our top picture is a double recognition quiz—identify the planes and the city behind them. A clue to the lower one—it is a civic center out west. Answers on last page.



SONG OF THE THRUST

IN THE NEVER ceasing struggle to drive aircraft faster and faster through the air man has experimented with various means of propulsion.

This road has led through reciprocating engines, turboprops, jet engines and rockets.

In accomplishing its part of test and evaluation along these lines the Navy established an aeronautical engine laboratory at Philadelphia for reciprocating engines, and an aeronautical turbine laboratory at Trenton, N. J. for turbojet and turboprop engines. For test and evaluation of rocket power the Navy has now established a Naval Air Rocket Test Station at Lake Denmark, near Dover, N. J.

Although only 35 miles from New York City, Lake Denmark is located in a comparatively wild, hilly region where the noisy activity can proceed apace without complaints from nearby residents.

As with all experimental aeronautical material, the Navy must have some means of testing and evaluating rocket motors and related equipments and propellants. In the long run it will save money and will result in better performance.

While the rocket program was in its infancy, all testing was done by contractors with Navy representatives looking on. There was not enough business to justify a separate activity to provide instrumentation and test equipment. As a result, there was a lack of standardization and many tests were of dubious value in determining whether any one rocket engine or part was worthy of acceptance.

Now that the Navy's rocket interest has broadened and includes a wide variety of rockets, missiles and aircraft, the rocket engines employed in them will be thoroughly tested in the modern laboratory at Lake Denmark. This story is about the Naval Air Rocket Test Station and some of its background.

ONE TYPE of liquid oxygen storage at Lake Denmark is this spherical tank; fluid is transferred by hose from truck to tank

UNLOADING CHEMICALS are Reich, Lowry, Decker, Solomon and Lewis, supervised by R. W. Ester, ADC; note rubber protecting gloves

Rocket Power Is The Oldest Known Means Of Propulsion; Chinese Used It In 1232

ROCKET propulsion is the oldest form of power man has used for aerial flight. Ogdai, son of Genghis Khan, ran into a rocket defense when he laid siege to a Chinese city way back in 1232. Princes in India used rockets in the 18th and 19th centuries. The Royal Navy heckled enemy coastal cities with them in the 19th century.

By present day standards, however, the science is in its infancy. The early days were only seven or eight years ago when jet assisted takeoff was used operationally in World War II. Aircraft, whose jet engines took them only into the transonic speed region, needed rockets to push them into the supersonic realm.

On another front, the guided missile has demanded a propulsive force which could operate without oxygen in the upper reaches of the atmosphere. Ground-to-ground, ground-to-air, and air-to-air missiles have become a major preoccupation in military research. The aeronautical engineers have designed the fast flying bodies; to propel them, the power plant engineers have delved into a fascinating field of liquid and solid propellants.

Until World War II, rocketry was an enthusiasts' hobby. Funds were limited. The American Rocket Society, sparked by a few hardy souls, worked on small, light engines which could produce enormous thrust outputs compared to frontal area. Two projects at the Engineering Experiment Station at Annapolis got the Navy's program underway. From this beginning jet assisted takeoff (JATO) was developed. At the same time air-to-ground and ground-to-ground solid propellant rockets were successful in amphibious assaults. For supersonic planes and guided missiles, however, the liquid propellant power plant has assumed major importance.

One might ask the question why the Navy must have a rocket engine test activity when contractors have their own test stands. It is a matter of economics. Test and evaluation takes a whale of a lot of money. When the government finances construction of expensive test facilities on a contractor's property it commits itself to continuing contracts. With large and small test stands available, the Naval Air Rocket Test Station is able to furnish high quality test facilities to contractors and government activities with inadequate test facilities of their own. The station will be able also to test and evaluate engines and propellants to assure BuAer that contract specifications are being met.

Development of rocket engines is done by the Bureau of Aeronautics through contracts with private manufacturers. As with aircraft, the Bureau, through NARTS, tests and evaluates the engines to insure that they meet contract guarantees as to performance and weight.

The station also provides information from which standards will be set regarding specifications for rocket engines, what parts go into them and what propellants are to be used. The word "propellant" is used since the general term "fuel" is only one element of the heat producing combination in a rocket engine. The other is "oxidizer". In all other aircraft engines oxygen is supplied from the air through which the engine flies. Since rocket engines carry fuel and oxidizer they are independent of the surrounding atmosphere. Thus the rocket engine can operate in very thin atmosphere or in the space beyond.

Another phase of the station's mission is the training of military personnel in the operation and maintenance of rocket engines. Regular training of small groups of officers and enlisted men will insure competency when rocket power plants are used operationally in the fleet.

IT WAS THE INADEQUACY and lack of standardized instrumentation on tests that created the need for NARTS. Tests conducted by government personnel would serve as a basis of comparison between engines of various contractors, and would be conducted without preference or bias.

The Rocket Test Station is ideally located. During the postwar cutback period, the Bureau of Ordnance decided to inactivate the Navy ammunition depot at Lake Denmark. Already located there was one rocket engine contractor. The Bureau of Aeronautics timed the establishment of the Naval Aeronautical Rocket Laboratory there in July of 1948 to coincide with the gradual withdrawal by BUORD. By November of 1949 BUORD had almost inactivated its operation and gradually transferred all civilian and administrative personnel to NARL. With the growing importance of the activity it was commissioned as a full fledged Naval Air Test Station with a commanding officer in April of 1950.

Postwar U. S. research has followed the lead established by the Germans who developed big rockets like the V-2, *Enzian, Rheintochter* and HS-293, and a rocket interceptor fighter plane, the ME-163. In this country rockets such as the *Viking,* and others are being developed. One plane is exclusively rocket powered—the Bell X-1. One combines rocket power with turbojets—the Navy's *D-558-II Skyrocket.*

No story about the Navy rocket program could be narrated without mentioning several men whose intense in-

IN CONDUCTING tests a great variety of instrumentation must be provided; James, AE1, and Leach, AEC, repair instrument

terest in the system got research underway. When Capt. (Now RAdm.) C. M. Bolster was head of the Ship's Installation Division of BUAER, two men, Cdr. Robert Truax and Dr. Robert A. Goddard, convinced him that rockets could be a means for accelerating takeoff of large, heavily loaded aircraft. JATO was the result of this first development in the Navy.

Cdr. Truax, who was on duty at NARTS until last summer, began experimenting in his spare time while a Naval Academy midshipman. Utilizing the facilities of the Marine Engineering department, he built a liquid rocket. He wanted to set it up in the foundry for test, but the department head didn't quite agree. Truax' enthusiasm almost ended his Navy career. His persistence caused the department head to explode, "Truax, I have nothing against you personally, but get that ——— ——— thing out of here."

He finally was able to test his gasoline-compressed air engine across the Severn River at the Naval Engineering Experiment Station. His report was sent to BUAER and evaluated.

Upon graduation, he proposed a rocket assist for PBY takeoffs. That project had to wait two years, however, until his two years of sea duty were completed. He later helped guide the JATO program and design of rocket test stands for the Bureau of Aeronautics. He is a former member of the board of directors of the American Rocket Society.

Cdr. D. A. Seiler was Officer-In-Charge of the rocket laboratory when it was first established.

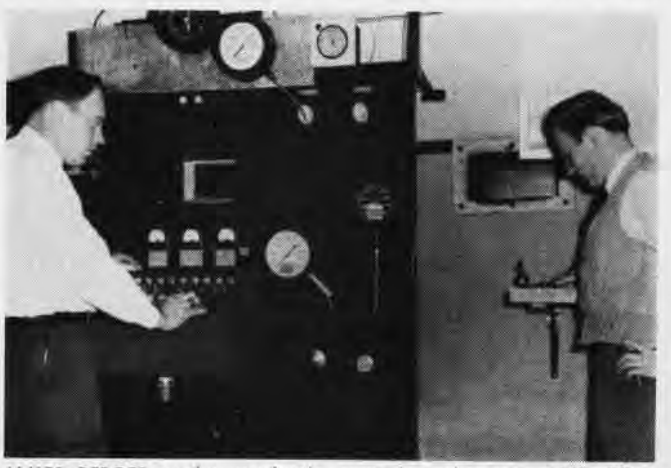
When the facility was upgraded, Capt. Roy Jackson became commanding officer. He was formerly O & R officer at NAS SEATTLE. His postgraduate studies include the Harvard business school. His engineering officer is LCdr. F. C. Durant. Durant was formerly connected with rocket development with Bell Aircraft Corp. in a civilian capacity. He is a director of the American Rocket Society. Present C. O. is Capt. Paul Harrington.

ALL THE civilian engineers and scientists at the Test Station have had experience in rockets and related fields. They are experts in heat transfer, thermodynamics, metallurgy and combustion.

Among them are: Thomas F. Reinhardt, senior civilian engineer; Bertram N. Abramson, head of Power Plants division; Raymond J. Albert, Evaluation Branch head; John D. Clark, Chemistry Branch head; Herman C. Menes, Instruments Branch head; David Brandwein, Test Facilities Branch head; Margaret L. Taylor, Librarian; Joseph V. Primerano, assistant Public Works Officer; Donald K. Holster, Industrial Relations Officer; Roger S. Barr, Quarterman Toolmaker.

NEW TEST stand for higher power rocket engines nears completion; Ex-C.O. Capt. Jackson and Cdr. Seiler, former Exec, study plans

LCDR. FRED DURANT, member of American Rocket Society, inspects control panel to be installed for use with new stand shown above



JAMES DEBOER, rocket mechanic, controls rocket test, while Warren Kaufman, aeronautical engineer, observes through window

ROGER S. BARR, leading man tool maker, and Cdr. Robert Truax, plan layout of test stands, laboratories and control buildings

BASIC RESEARCH plays a great part in the work done at the Naval Air Rocket Test Station; Dr. John D. Clark, physicist, takes text

Chemicals, Engines Tested; East Coast Contractors Make Use Of Navy Facilities

FUNCTIONS OF the station as assigned by the Chief of the Bureau of Aeronautics are:

(a) Undertake test and evaluation projects concerning rocket propellants.

(b) Develop test equipment necessary for instrumentation and test when such is not commercially available.

(c) Make investigations of ideas, devices and propellants in order to provide a basis for future program planning.

(d) Provide engineering services in connection with flight test projects concerned with rocket engines.

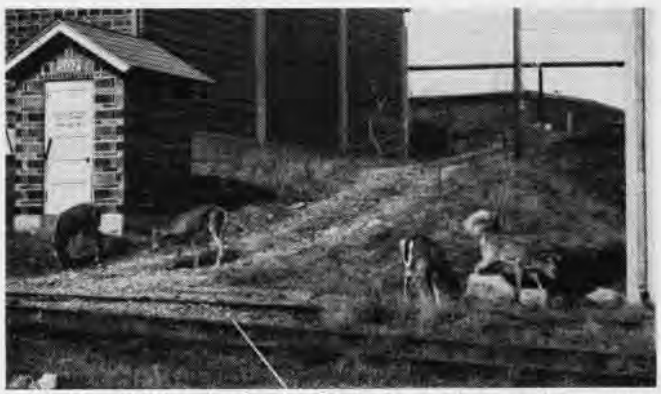
(e) Assist the Bureau of Aeronautics in preparation of programs, detailed requirements for rocket engines, their parts, propellants and associated equipment.

(f) Train service personnel in the handling, servicing and operation of rocket engines, their components and associated equipment.

Besides contract specifications tests NARTS evaluates the performance of component parts of rocket engines. Other answers sought concern altitude performance, temperature limitations, number of runs possible on one engine without maintenance, operation of ignition systems after long time storage, ignition delay at extremes of temperature.

By having central test facilities there has been a gain in efficiency. On the west coast the Air Force has a test activity at Edwards Air Force Base, Muroc Dry Lake.

Eastern contractors, such as Reaction Motors, Inc., Rockaway, N. J.; M. W. Kellogg Co., Jersey City; Curtiss-Wright Corp., Caldwell, N J.; General Electric Co., Schenectady, N. Y., and Bell Aircraft Corp., Buffalo, now may make use of facilities of the Naval Air Rocket Test Station at Lake Denmark for some of their testing and service contracts.



ISOLATED, HILLY country is ideal for rocket engine testing; this picture of deer was taken from administration building

NARTS is the central storage and issuing point for liquid rocket propellants on the east coast for all BuAer activities. Fuels and oxidizers are by their nature high energy compounds and generally need careful handling. The isolation of Lake Denmark makes it an excellent location.

All of the east coast contractors lie within 300 miles of Lake Denmark. White Sands and Muroc are 1700 and 2500 miles away respectively. Liaison with the Bureau of Aeronautics in Washington and the Air Materiel Command of the Air Force at Wright-Patterson AFB, Dayton, Ohio, is simplified.

Many unusual propellants are being studied for possible use in rocket propulsion. Much of the data and details are classified information. Some factors affecting utility of rocket propellants are: availability, ease of handling and storage, good ignition qualities over wide temperature ranges, and high density.

Rockets are notoriously high in their rate of propellant consumption. For this reason the more dense a propellant is the more energy can be obtained from a given space.

One oxidizer in common use is fuming nitric acid. If the fumes are inhaled in quantity they can cause pulmonary edema—fluid in the lungs which can result in asphyxiation. Another oxidizer is hydrogen peroxide, much more concentrated than the household item. In the presence of a catalyst it decomposes almost explosively, forming steam and oxygen. Both compounds can be safely handled if known rules are obeyed.

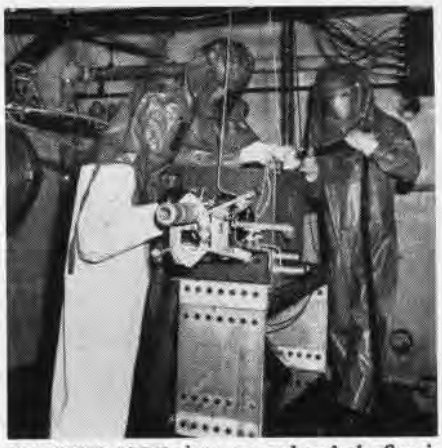
The medical department is ready for any emergency and recommends safeguards in handling. Special physical examinations are given. Blood testing equipment is on hand to detect and measure the danger if a hazardous substance has entered a person's bloodstream.

Compared with some other chemicals, storage of liquid oxygen is simple. In high school physics and chemistry laboratories the teacher brings in the pale blue liquid in a thermos bottle. It boils rapidly. At the test station it is shipped in by railroad tank car. Percentage losses are of a low order because of large bulk storage, since heat can enter only through the tank skin.

Test stands at Lake Denmark range over a wide area. They are pointed in different directions to provide safety barriers

POTENTIOMETERS PLAY important part in tests; Feldkotter, AE2, adjusts recorder

WITH A DEAFENING roar, flame rushes from jet nozzle at more than a mile per second



PROTECTED FROM dangerous chemicals, Suraj, Gardner, Westover, prepare engine for test

between stands. Testing casualties thus can be isolated.

When a rocket engine is set up for a test complete instrumentation is installed to see just what the engine and propellants are capable of doing.

Since the temperatures and flow rates of rocket gases are so high (over 5,000° F. and a mile per second) and the propellants frequently corrosive and hazardous, special instrumentation is often required. Often many days are spent setting up an engine for test and checking the calibrating instruments. Once set up, however, dozens of tests may be made in one day.

Electronic methods have taken the place of older pressure measurements in recording performances.

A test run is preceded by a warning horn. There is a momentary pause. Then a deafening roar begins as smoke and brilliant flames rush from the rocket nozzle. The ground in the path of the motor trembles and rocks and dirt are picked up and tossed by the blast. No person is considered effete if he uses ear plugs or cotton in his ears.

The silence at the end of the run is as positive as the noise was. During the run data has been automatically recorded which includes engine thrust, chamber pressure, propellant pressures, flow rates and temperatures.

Cooling of rocket engines may be accomplished by having either fuel or oxidizer flow through a jacket surrounding the engine. Sometimes propellants are forced into the combustion chamber by means of a turbine driven pump. Other systems employ high pressure gases, forcing propellant flow.

There are other projects underway at Lake Denmark which include the investigation of adding other chemicals to propellants to improve their temperature or corrosion characteristics, the design of special purpose rocket test stands, the evaluation of relative advantages of solid and liquid propellant engines for a specific missile, and evaluation of performance of rocket power plants under wide ranges of operating conditions.

SINCE THE Rocket Test Station is a new activity its growth and development will be affected by the extent of the national defense program. It is growing now.

New construction at NARTS includes larger test stands. The engine in the *Viking*, rated at 20,000 lbs. thrust, was tested there first. Now a new, larger stand is almost complete and even greater stands are planned.

Lake Denmark is located in wild terrain. Witness the picture of the deer accompanying this article. In such a remote location noise and fumes will not bother neighbors. The construction program there is only a beginning. Modern warfare requires a continuing research program and the Naval Air Rocket Test Station is the Navy contribution to unified effort in rocket development. Its work will be evidenced by increased reliability in future rocket engines and their eventual appearance in the fleet.

ISOLATED LOCATION OF NAVAL AIR TEST STATION AT LAKE DENMARK, N. J., ALLOWS NOISY TESTS WITHOUT DISTURBING NEIGHBORS

GRAMPAW PETTIBONE

No Hands or Nuthin'

Many an accident is caused by a pilot not getting the word, but here's one that is hard to tie. The plane—an F9F-2; the location—enroute to the combat zone; the pilot—a Lt. (jg) making his first catapult shot in any type of aircraft. Here's his description of what happened:

"On signal from the Catapult Officer, I performed full power turn-up and emergency system checks; checks were satisfactory. I put the throttle full-forward, and the fuel system selector switch in the take-off position. I gave the ready signal, put my head back against the rest, and took *my hands off stick and throttle as understood by prior briefing.*

"After the initial shock, I reached forward with my left hand against pressure to push throttle up as it had no friction lock, and I noticed a loss of power. I then realized that the plane was dropping and was pulling back on the stick as it hit the water in a nose down position. I saw the water hit the windshield. The next thing I knew the plane was on its back. I unbuckled my safety belt and pushed out easily, inflating my life jacket underwater. My helmet came off on impact. Parachute was attached and buckled on, not hampering exit or flotation. I swam away from the ship which left me to port as it made a gentle left turn, and was picked up in less than five minutes by a whaleboat."

This pilot's previous experience included normal flight training with carrier syllabus and carrier check-out in the F8F, but no catapult shots. He had also completed the regular TO-2 syllabus in the Jet Training Unit. During the three months just prior to the accident, he had accumulated close to 70 hours in the F9F including field carrier landing practice.

He had no previous accidents, and his progress through flight training and after joining the squadron had been satisfactory.

The briefing for the flight on which the accident occurred was given by the first two pilots in the air group to qualify aboard in jets and covered the usual catapulting instructions, technical orders, and catapult bulletins. The severity of the initial catapult "jolt" was discussed and may have been over-emphasized. In discussing the "jolt," it was mentioned that it was very difficult to hold the stick centered during the catapult run. This apparently led the pilot to believe that it would be wiser to leave his hand off the stick until airborne.

QUIT STALLING

You may not think that this old bike
And your fast jets are much alike,
But don't forget that we both need
To keep above our stalling speed.

Grampaw Pettibone Says:

This chap had a first-class guardian angel, but he loaded him down with a few too many duties in this "hands-off" catapult shot.

The "jolt" in the catapulting of a jet is more severe than in a conventional fighter, because the jet must be accelerated to a speed of about 105 knots. Nevertheless, the pilot technique is just about the same. The stick should be held lightly during the firing with the elbow tucked into the stomach. In an F9F, I am told, that after the initial jolt, a very slight back pressure should be exerted on the stick to keep the plane in a flying attitude.

This pilot exhibited a healthy attitude after the accident. He was concerned over the loss of an extremely valuable plane, and he recognized his mistake. The Flight Surgeon found him qualified to resume flying within 24 hours, and he did so without incident.

When you crash on your very first attempt at any new maneuver, it takes courage to overcome your natural fear of trying it again. This pilot has since made a number of successful jet catapult shots.

All carrier pilots in training now receive a qualification catapult launch as part of the regular Training Command syllabus.

FREE ADVICE DEPARTMENT

Watch out for over-confidence—it kills several good pilots every month. Remember, few pilots are as good as they think they are, and none are as good as they thought they were.

Twenty Feet Too Low

A pilot is told to make a right hand approach, but turns left. The SNB crashes through the tree tops at the crest of a hill near the airport. Three are killed—one survives. Here's the story of the flight:

After a weather briefing for a cross-country flight, the pilot of an SNB elected to clear VFR to a point short of his intended destination. He understood that he would have to obtain additional clearance enroute to proceed.

Two hours later, he obtained an in-flight instrument clearance to his desired destination and estimated another two hours enroute. Position reports indicate that the flight proceeded normally at the assigned altitude.

About an hour after dark and right on his ETA, the pilot called the CAA communications center at his destination to report that he was in the vicinity of the station at 10,000 feet in a heavy snowstorm. He asked for let-down instructions and the latest local weather.

The pilot was informed that the ceiling was 1300 feet overcast, lower broken clouds, visibility six miles with rain and fog. The latest altimeter setting and the field elevation of 2100 feet was given. He was also advised that there is no official instrument letdown procedure for this airport, which has a VHF range station and a low frequency homer with power of less than 50 watts.

The communications center warned him of mountains near the airport and suggested that he make his let-down on the NE leg of the VHF range station, between the station and a point 4 miles out. Since the SNB-5 was not equipped to receive the VHF range on 108.3 mcs., it is assumed that the pilot carried out his let-down using the low frequency homer and printed headings of the VHF range.

The pilot was unable to establish communications with the tower when cleared to shift to low frequency and asked that the CAA communications center relay landing instructions.

At 4500 feet, the pilot reported that he could see lights through breaks in the clouds. A little later the tower controller saw the SNB as it passed over the field. The pilot was given a green light and again warned by VHF radio to make a *right hand approach* to avoid a 900-foot hill northeast of the airport.

The pilot acknowledged these instructions which were relayed by the CAA communications center. However, shortly thereafter he reported that he was VFR and making a descending *left turn*. He was again advised of the 900-foot hill between his position and the field, but repeated efforts to communicate with the plane by radio were unsuccessful.

The SNB had crashed into the trees at the top of the hill. Pilot, co-pilot, and one passenger were killed. The surviving passenger was riding on the starboard side behind the co-pilot and was wearing a set of earphones. He verified the fact that the pilot had been warned twice concerning the hills to the northeast of the airfield. After the crash which, he said, reminded him of a scene from "Slattery's Hurricane," he was momentarily knocked out. He must have regained consciousness within a matter of seconds and fought to get his safety belt open. Both arms were broken. He crawled a few feet from the plane before losing consciousness again. Rescuers reached him about a half hour later. The SNB burned for six hours.

Grampaw Pettibone Says:

What questions came into your mind after reading the bare facts of this tragic accident? I found myself asking, "How urgent was this flight? What circumstances put this SNB over an unfamiliar airport at night in a heavy snow storm? Why didn't the pilot land at his first destination? Why didn't he go to an alternate field when he discovered that there was no official instrument let-down procedure for this airport and that his plane was not equipped to receive the local range station?"

I couldn't help thinking that this accident was certainly one that wouldn't have happened to a pilot of average ability. Since the flight was not urgent, it seems to me that a pilot with just average confidence and ability would have listened to the unfavorable weather sequences, noted the approach of darkness, and decided to complete the trip when conditions were more favorable.

Therein lies the answer. The pilot in this accident *wasn't just average*. But his Commanding Officer tells the story very well in these words:

"It is an established fact that Lt. _____ was not only an outstanding Naval Aviator but also an excellent instrument pilot. Besides possessing a valid 'Special' instrument rating in SNB type aircraft, he was at the time of this accident the senior member of this All-Weather Squadron's instrument board. It also seems that Lt. _____ conducted the final stages of his attempted landing at the Airport contrary to instructions issued by tower personnel. These facts appear inconsistent with each other; and this accident, therefore, must serve as a monumental reminder to all naval aviators that, special qualifications, in themselves, do not relieve a pilot of the continuing requirement to operate his airplane in such a prudent manner that at no time does he permit his familiarity to be tainted with contempt."

O.K. You Try One

This JRB-4 was being flown by a Reserve pilot who was making his first landing since his release to inactive duty in 1946. The accident board, however, charged the pilot error to the check pilot. He was riding in the left hand seat where he should have been able to correct any errors.

The landing was all right, and the plane rolled straight ahead for about 225 feet. When a swerve developed during the roll out, the check pilot waited too long to take over the controls. When he finally came to the rescue, he hit the brakes too hard. The JRB flipped over on its back and slid for 27 feet. Fortunately the pilots escaped with minor injuries.

Grampaw Pettibone Says:

This one boils down to—Who checks the check pilots?

A good check pilot is always ready to take-over at the first sign of trouble—not after things get out of control.

He'll Live, But

About ten minutes after take-off on a ferry flight, the pilot of an F6F-5 heard his engine surge, and noticed that his oil pressure was down to 50 lbs.

He was about 23 miles south of his point of departure and flying approximately 2500 feet above the terrain. The oil pressure dropped rapidly to zero and shortly afterwards the engine froze.

The pilot lowered the nose to maintain 100 knots, locked his shoulder harness, and informed the base from which he had departed that he was going to attempt an emergency landing at a small civilian airstrip about three miles away. He opened the canopy manually, and started a turn to approach the airport with about 1000 feet of altitude remaining.

It was apparent almost immediately that he would not have sufficient altitude to glide to the airstrip, so he selected a hay field and started for a wheels-up landing. Flaps were lowered, and all electrical switches and the fuel selector valve were turned off.

The pilot intended to make a fully stalled wheels-up landing, but when he commenced his flare-out, he found that he had not maintained enough airspeed to get the nose up. The F6F-5 hit the ground in a rather steep nose-down attitude at approximately 60 knots. The canopy slammed shut, and the plane slid for about 150 feet before stopping.

Witnesses arriving at the scene of the accident helped the semi-conscious pilot out of the plane and phoned for an ambulance as the pilot had severe facial injuries.

The F6F was right-s.de-up. Although the initial impact had been hard enough to buckle the fuselage, the plane was not badly broken up.

Investigators noted that the seat structure and cockpit area were undamaged, and found that the shoulder harness lock and reel functioned normally. They were unable to discover any discrepancies in this equipment which might have led to the pilot's injuries. They could only surmise that he either placed the control in the unlocked position or failed to sit back far enough in the seat when locking his harness.

Grampaw Pettibone Says:

I don't often do this but I'm going to ask you to read the last paragraph of the Medical Officer's Report prepared while this pilot was still in a civilian hospital near the scene of the accident:

"Prognosis: This officer will survive. . . . The right eye has now been removed. Scarring of the face will be minimal. It will be necessary at a later date to reconstruct the septum of the nose, as it was totally destroyed except for the mucous membrane. As all the bones in the upper portion of the face were pulverized with fractures through the sinuses and probably the cribriform plate, it can be assumed that considerable future reconstruction may be necessary. It will be desirable after a period of about three weeks from this date to admit this man to a Naval hospital where there is a plastic surgeon."

That's a terrific price to pay for the two mistakes that were made in this emergency. The first was not being *positive* that his shoulder straps were locked and tight, the second was not maintaining enough flying speed to flare out in a normal landing attitude.

A lot of research has gone into the development of cockpit structures that won't go to pieces in severe accidents. Most Navy planes now have pilot's seats that will stay where they belong even in 40 G crashes. But neither of these factors will help you, if your body is free to go slamming around the cockpit.

In a good many emergencies you don't have time to do everything. If you don't have time to do anything else, sit back in your seat, lock your harness, and *keep flying speed*.

P.S. If you haven't seen Flight Safety Movie MN-4353M — "Accident Injury Prevention," ask your squadron Safety Officer to arrange a showing. It is available at the nearest Navy Film Library.

WHEN MARINES CAPTURED KIMPO AIRFIELD THEY FOUND SOVIET TYPE PLANES LIKE THIS IL-10 FIGHTER WHICH WEREN'T FLYABLE ANY MORE

KOREAN AIR WAR

Keep This Dark

It was dark in the deep, narrow North Korean canyon. Marines in it needed medical supplies and, worst of all, ammunition.

Above circled a supply plane with those things aboard, but it did not know where to drop them. Also there was Capt. Donald J. Hallameyer, forward air controller, who could hear the plane overhead.

Picking up his radio, he called the pilot. Using a fire started earlier in the day by napalm as a "guide beacon", he gave the flier instructions a la ground controlled approach.

Using the plane's blinking lights as a guide, Hallameyer coached the transport down the narrow canyon, telling him when to drop the supplies. His radioed directions were all that kept the plane from smashing into a canyon wall. Only a flier familiar with GCA could have brought the para-plane over the drop area in total darkness.

Marine Air Versatile

Marines in Korea are flying 15 different kinds of airplanes, the latest addition to the "stable" being the little Bell helicopters rushed out by air from the factory.

Big R4D and R5D transports carry the supplies and troops in and out of the Orient. In the fighting stable are F9F *Panthers* and F4U *Corsairs*, plus the F7F *Tigercat*, built during the last war but seeing its first combat in Korea. Two models of the F7F are in use, one a radar-armed night fighter and the other a stripped down photo plane.

The other utility planes like the tiny Stinson OY *Grasshopper* observation plane, the TBM *Avenger* and the Beechcraft SNB round out the conventional members of the "stable." Two types of Bell helicopters are in use, bolstering the HO3S which has proved its worth from the start of the war as a rescue and utility plane of many uses.

'Close' Air Support

You want to know why Marine ground troops think their air support planes are wonderful?

Here's a good example. A machine gun platoon led by T/Sgt. Harold K. Beavers was facing hordes of Chinese Communist troops swarming over a ridge overlooking his unit's position.

The draw separating them from the Chinese was not more than about 75 feet across, so it seemed impossible for fighter planes to strafe without hitting the Marines.

One of the four Marine *Corsair* pilots overhead had a different idea, however.

Circling over the position, the pilot radioed his buddies to display identification panels. Then he dipped into the narrow draw, wing guns blasting the Chinese.

Again and again he dove his plane into the opening. Each time it looked as though his wings would brush the ridge on either side. "He came so close to the ground I could have rammed a rifle into the plane," Beavers said.

CARRIERS SICILY and *Leyte*, happy to be home in San Diego after tour in war zone

CREWMEN ON the *Badoeng Strait* use snowplow to clear flight deck off Korea coast

Finally no more firing came from the Reds, and not one slug had hit a Marine foxhole.

The calm voice of the pilot was heard over the radio again. "You want napalm?"

Each man of the platoon, smiling his thanks, waved him off.

20-Ton Plane Tractor

"The oddest sight I've seen in this war was that tank dragging my plane off the strip."

This comment was made by Marine Lt. Joe R. Bibby, whose *Corsair* was brought down by ground fire on his first run over the Chosin reservoir area while on a close support mission.

He made a wheels-up emergency landing on the small strip at Koto-Ri and ran for his life, expecting the escaping gasoline to blow the fighter sky high.

Nothing happened. Mercy planes to evacuate wounded Marines circled overhead, waiting for the explosion. Finally a Marine tank clanked up to the plane, hooked on and dragged it from the strip so the transports could land.

Since there was no choice, the fighter had to be destroyed. Demolition men had difficulty in setting it afire, but finally it broke into flames.

LSO on Korea Strip

Landing signal officers don't always save wounded men's lives, but hundreds of Marine and Army casualties are alive today because a carrier-trained LSO brought in Marine planes on a short, rough strip in Korea.

Waving his paddles as he did in bringing planes aboard his carrier, Capt. Malcolm G. Moncreif directed Marine pilots flying TBM torpedo bombers to landings.

He stuck to his flags for more than two days despite sniper fire and artillery and mortar shells that screamed over the strip. On the first day alone, the Turkeys brought out 99 wounded men from Koto-Ri. Finally, when all the casualties had been lifted to safety and Koto-Ri was being abandoned, Moncreif flew back to his carrier duty station.

Animals vs. Jets

Camels and horses are fair game for aerial sharpshooters in the Korean war since they are the "wheels" used by Chinese Communists to move supplies.

Lt. Weldon Mitchell, a Marine pilot, blinked when he saw an ammunition-laden camel in the gunsights of his F9F jet. He opened fire and the camel became mincemeat, the first jet-vs-camel strike in history.

Near Hungnam, Capt. Wilbur Wilcox saw about 75 horses hidden under trees. Many had fully-loaded packs on their backs. Wilcox opened up with 5″ rockets and 20 mm cannon and that Chinese pack train was scratched.

Back Seat Drivers

Supposing you are a rear-seat observer in a two-man Marine observation plane and your pilot gets killed by Communist ground fire. What then?

The Marines decided to do something about it so they began training ground officers how to fly the *Grasshoppers* in case of an emergency. A dozen artillery and tactical air observers attached to a First Marine Aircraft Wing observation squadron, who ride in the back seats to spot enemy troops, were given a quick checkout in what to do. During quiet periods, qualified pilots showed them a few things about take-offs, landings and flying the small planes.

New Japanese Game

Japanese children, who often coat their kite strings with ground glass and stage aerial battles, have invented a new game in the area surrounding the 1st Marine Air Wing's Japanese base.

They deliberately fly their flimsy kites in the landing pattern of nearby practice fields and laugh happily when a Marine *Corsair* pilot, flying in a rigidly controlled pattern, smashes the kite or shears off the string. Two Marine pilots, Capt. L. J. Bernal and 2nd Lt. Frank Daugherty, recently destroyed three kites during field carrier landing practice. Five kills will make them "kite aces".

ANY OLD SYSTEM will do when you're clearing carrier decks of snow: Korean war has given Navy plenty of cold weather work

MAN THE SHOVELS! Deck crewmen on *Badoeng Strait* (CVE-116) fall to with vigor to clear away night's snowfall while off Korea

CAPT. JOHN S. THACH of the carrier *Sicily* takes time out to try enlisted men's chow on his ship with Machinist's Mate Pietras

CAPT. JOHN D. ROSS watches 118th bomb painted on his *Corsair*, making missions in five months; Ridgeway, Sartin, Biddle watch

Three Came Home

Brass bands and baton-twirling girls turned out three times in one week of February to greet the carriers *Leyte*, *Sicily* and *Badoeng Strait* as they steamed into San Diego harbor after combat duty in the war zone.

Happy crew members lined the decks while families and sweethearts stood on the docks below waiting for the ships to dock. The carriers were luckier than the CV *Valley Forge* which came home around Christmas and then had to cancel leaves and speed right back out to Korea five days later when the Chinese Communists struck.

The *Leyte* came home with an impressive record of having cruised 86,000 miles during the last year. Her planes flew 2,406,000 miles during 4,536 sorties, providing ground support to UN forces to the Manchurian border and then to the Marines evacuating Chosin reservoir, following up with support of forces during the Hungnam evacuation.

Her planes fired more than a million rounds of .50 cal. ammunition and rockets up to the 11.75" *Tiny Tim*. Out of her last 18 months of duty, only two of them were spent in the states.

The *Sicily* and *Badoeng Strait* both left last July with flight decks loaded with planes. They have been operating with the First Marine Division almost continuously since that time. The *Sicily* is known as the *Black Sheep Jeep* since her fighters were all from VMF-214 which won world fame as Pappy Boyington's *Black Sheep* squadron.

The carrier, according to Capt. J. S. Thach, is extremely proud of her Marine airmen who flew 8,122 combat hours against Korean Reds, more than twice as many as the *Black Sheep* compiled during all of World War II. Between 4 July and 4 January, the *Sicily's* crew averaged only eight days liberty, showing how busy the little carrier has been. For 28 days straight she lay off the Korean coast and hammered North Korean forces.

Every GI in the 10th Army Corps and the First Marines knew the *Corsairs* from the *Badoeng Strait* and *Sicily*. Their air support was tied closely to ground troop operations. Besides knocking out an estimated 3,000 enemy troops, the *Sicily's* planes shot up 91 guns, 37 tanks, one ship, 10 sampans, 5 locomotives and hundreds of horse-drawn vehicles.

Cannibals in Korea

Marine airmen go to great lengths to keep their planes flying.

One *Corsair*, shot down by Chinese Communist small arms fire, was landed in friendly territory.

The pilot hitch-hiked home and reported to his squadron commander that, aside from a few holes, the fighter was in good condition. Maj. Harold Eisele made a check. It was impossible to repair the plane and fly it out of the area, so he did the next best thing.

He sent several small expeditions by jeep to the plane. Each returned with parts critically needed as spares for other aircraft. What was left of the *Corsair* finally resembled a defunct Thanksgiving turkey skeleton.

Marine Air Wins Praise

They're still talking about the evacuation of the Marines from the Chosin reservoir and Hungnam areas of Korea, one of the classic military maneuvers of history.

And the part aviation played to make it so successful is still being told. Squadrons of the First Marine Aircraft Wing flew around the clock to maintain an umbrella of *Corsair* and *Tigercat* fighter bombers over the First Marine Division during its frigid march from the interior to Hungnam.

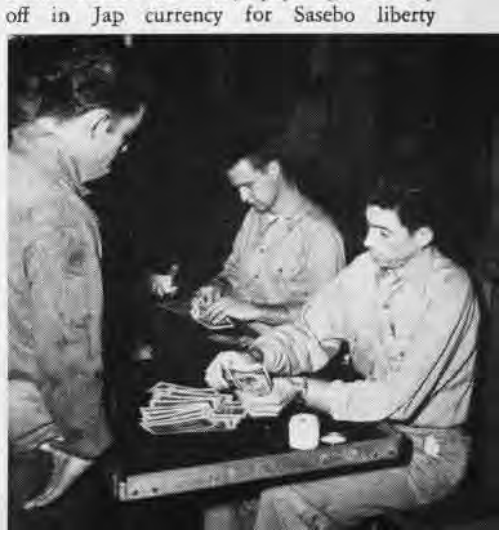
Marine transport planes, *Grasshoppers*, helicopters and borrowed Navy torpedo bombers evacuated thousands of wounded and frost-bitten infantrymen from emergency strips at Hagaru-Ri and Koto-Ri.

The first jet aircraft to be flown by Marines in combat also were flung into the battle. In all, 10 different types of aircraft were employed by the Wing in its greatest effort of its 10-year history.

MARINE crewmen stretch legs at Sasebo, Japan as *Badoeng Strait* put into port

MAJ. WM. LUNDIN, minus exposure suit, briefs Capt. John S. Thach on his mission

CHIEF HERBST on *Sicily* pays Sgt. Robney off in Jap currency for Sasebo liberty



IT'S EASY TO get smiling pictures when mail call is sounded on the carrier *Sicily;* the escort flattop recently returned to U. S.

EN ROUTE HOME to U. S., Marine crewmen of *Deathrattler* squadron pause at Sasebo, Japan; Sgts. Wood, Payne and Corp. Louis Adams

Inside Dope on Air War

The Korean air war is different from the Pacific phase of World War II and calls for different combat tactics and equipment.

Two air group commanders returned to Washington, D. C., after many months on carriers off Korea, to report on what was right and wrong about naval aviation's part in the combat. Random comments on various subjects, gleaned from their remarks at press conferences and department briefings follow. The men were Cdr. Walter F. Madden, CAG-3, and Cdr. Harvey P. Lanham, CAG-5. Also reporting were Cdr. A. D. Pollock, skipper of VF-51, Cdr. C. C. Simmons, Jr., of VF-31, LCdr. D. T. Neill of VF-32, LCdr. H. H. Epes of VF-33, and LCdr. J. G. Osborn of VA-35.

• Carrier Air Group Three spent 52 days straight off North Korea launching strikes to protect the Marine evacuation from Chosin reservoir.

• Toughest targets in the Korean war were the Yalu river bridges on the Manchuria border. Heavy AA from north of the border made attacks difficult and no return fire from planes was permitted by United Nations regulations.

• Koreans made booby traps for planes by stringing wires across canyons up which jets would fly low on strafing missions.

• Little AA fire was encountered at the fronts, mostly 3" and some 40 mm cannon, some of it radar-controlled.

• "Mosquitoes"—SNJ spotter planes—were a big help in coordinating air support for ground troops.

• Trucks are pretty small targets to pick up on night fighter radar—trains and railways give better radar returns.

• Pilots in *Corsairs* and *Skyraiders* would be "dead ducks" if a MIG-15 made a run on them unseen. If the prop plane pilot could see them ahead of time, he probably could turn inside the jets and elude them.

• CAG-5 flew 3,500 offensive sorties in five months, 50% of them "armed reconnaissance"—a term borrowed from ground troops. Two to four planes would go out "hunting" for targets of opportunity. Only 10% were organized strikes on specific targets, as in World War II raids.

• Carriers could use blast deflectors to protect planes behind jets turning up in catapult position. More display space in carrier ready rooms would aid in pilot briefing.

• Jets flying over Korean areas with inaccurate charts had trouble navigating, especially when they had to fly over low clouds. They frequently overshot their targets when tail winds fouled up their navigation plotting.

• When jet pilots first went into Korea they thought it "below our dignity" to shoot up trains. After those targets were all destroyed, they thought it below their dignity to turn their 20 mm cannons on trucks and jeeps. They thought it still further below their dignity to shoot up donkey carts, but when some of these blew up with tremendous explosions, pilots decided they were good targets for their $400,000 jets.

• The Douglas *Skyraider* is the best close air support plane in Korea because of the huge armament load it can carry. Interrogations of prisoners revealed at least one who said the North Koreans feared "those blue airplanes most."

• Helicopters are a tremendous asset to carrier operations. The destroyer which once had to stand plane guard now can be shifted out into the protective screen.

• The new anti-tank rockets developed in a few weeks at the start of the war have been highly successful against tanks, their shaped charges piercing the armor easily and "raising hell" inside.

• Air power alone would not be able to defeat the Chinese and North Koreans because:

1. They are not so dependent on supply lines. Each rifleman carries a five-pound sack of rice on his back, enough to last him a month. They rob homes to further their rations.

2. Communist troops usually are dispersed widely, making it difficult for swift-flying planes to kill many in one sweep. Their camouflage is good. In snow areas they carry white sheets and hide under these when plane engines are heard. Some have white uniforms. They travel at night, stopping in villages during the day. They drive their tanks and vehicles right into the thatched houses to hide them. Supplies are hidden by throwing straw or bushes over them. The only way to find these is to look for unusual shapes and shadows.

• Proximity-fused bombs are highly effective against targets like railroads, as well as against troops.

• Most Yalu river bridges were easy to destroy but the span at Sinuiju proved to be the Brooklyn bridge of the Orient. Hampered by the restrictions in going past the border, Navy pilots had to pound hard to finish the job.

• Map-reading type of navigation came into its own when planes had to fly low on armed reconnaissance flights up valleys.

• R.E.S.T. computers, designed to plan jet aircraft flights to make the most of fuel available, were found to be life savers (NANEWS Dec. 1949). Only changes suggested were that they should include external stores.

• Immersion suits now in the fleet are not popular. Also, they are not suited to emergency bailouts over land. Now in test with the fleet however, are 100 new-type suits.

• Close air support with the Marines meant matters of yards with guns and napalm bombs.

• Weather in the war theater was pleasant until the end of October. November was cool and then the Siberian cold air really took hold. Ceilings ranged from 5-8,000 feet. Small towns all looked the same and the rivers froze over, ruining them as landmarks.

• Squadrons are enthusiastic in having their own maintenance personnel to work on the planes as opposed to the CASU system. Skippers were unanimous in endorsing the unstreamlined squadron.

NEW TWO-FISTED MENACE TO SUBMARINES

'TOGETHER' might well be the theme song of the new Grumman plane. For the AF, hunter or killer type, must travel with its partner. There has always been a great deal of talk about teamwork, but never a team of airplanes that is an inseparable fighting unit.

Either one of the AF planes without its better half is ineffective as an ASW weapon. In this kind of warfare, two minus one equals zero. But together, one plus one, the planes make a powerful combination. The AF-2W stalks its prey; the AF-2S delivers the *coup de grace.*

The new plane is called the *Guardian.* According to reports from pilots, it's a good one. True, it doesn't have the glamor and speed of the jets, or the devastating bomb-load capacity of the attack planes. But without fear of contradiction, it can be said that this plane is the best and newest single engine, carrier-based solution to the anti-submarine problem.

Air Anti-Submarine Squadron 24 was the first outfit to receive the new planes. Of the 18 planes assigned, nine are the AF-2W or search type, and nine are the AF-2S attack type. The -2W carries a pilot and three crewmen; the -2S, a pilot and two crewmen.

The name of the search plane describes its mission; it is equipped to find subs, either surfaced or snorkelling, at great distance. The search pilot then vectors in the attack plane for the kill. If the killer is unable to sink the submarine, he maintains contact and holds the sub down until the arrival of surface units.

CANNON AND Hash get their last minute briefing by LCdr. Jake Frazier, squadron exec

Other operational functions can be performed by the *Guardian*—namely, AEW work, miscellaneous search missions, rocketing, bombing and others—but these are secondary. "Get those subs!" is the watchword, and that's where the all-out effort is concentrated.

PILOTS OF Air Anti-Submarine Squadron 24 fly these four Grumman *Guardians* in parade formation. The guppy-geared airplanes are the search members of these two teams

The development of the AF took so long and the testing by the NATC PATUXENT RIVER experts was so thorough that the AF is being delivered to the fleet with probably fewer "bugs" than any other airplane in recent years. Even though most observers look upon the AF as a new and bigger "beast," it is generally conceded that fleet readiness for carrier-based ASW operations will improve rapidly.

An airframe, designed during World War II, which was tossed about during the postwar years, is the basis of the AF-2S/AF-2W. In the attempt to create a better attack plane during the last years of the war, BuAer and Grumman came up with the XTB3F-1. This high performance carrier airplane was initially conceived as a torpedo bomber with the R-2800 engine in the nose and a jet engine in the aft section of the fuselage.

LTS. HUTCHISON and Owen confer with Grumman representatives, Schere and Compitello

When Japan collapsed in August 1945, the Grumman company voluntarily stopped production as the aircraft industry slowed to a walk. The unfinished frames were stored somewhere on Long Island until 1947 when the Navy was assigned the primary mission of ASW under the unification plan for the military services.

The Navy immediately started looking for ASW aircraft. The TBM's could be converted to the job, but as electronics and other requirements increased, a larger airframe was needed. Well, take out the jet engine, and the TB3F was it. This was the beginning of the AF.

After many design changes, trials, tests, crises and conferences, the final version of the AF took shape in 1950.

SINCE VS-24 was the first squadron in the Navy to get the AF's, it has the job of operating the new planes, working out tactics and airborne procedures and evaluating their worth. An anti-sub squadron since April, 1949, VS-24 is qualified for the job. Led by Cdr. Henry S. Jackson, an old hand at the game, the squadron has already reached a point where the ultimate goal —all-weather day or night operations by all pilots—is definitely in sight.

J. T. BOWMAN is busy putting the VS-24 squadron insignia on the new aircraft

Night operations comprise about one-third of the total flight time logged by VS-24 pilots. Bad weather, day or night, merely means that those on the flight schedule have to make a trip to Operations to file their instrument flight plans. "The field's on instruments" is no signal to break out the acey-deucey boards!

The outstanding feature of the AF seems to be its size: wing span, 60 feet; length 43 feet; and weight, about 20,000 pounds. It is the largest single-engine carrier plane operating.

Handling it aboard jeep carriers was a challenge, and it can be described as a minor miracle than it can be handled satisfactorily. Aside from the fact that fewer planes can be stowed on the hangar deck than would be the case if they were smaller aircraft, there is little difficulty now experienced by trained crew in handling the big fellows.

Powered by a P&W R-2800-48 engine, the AF has good take-off and landing characteristics. At low and high speeds, its flying characteristics have won the approval of carrier pilots who appreciate its stability and steadiness in carrier approaches and landings. Ease of handling in flight is further assured hydraulically by flaperons and a rudder boost system, an effective combination.

NATURALLY there are headaches in maintenance when one considers that certain test equipment must still be delivered, that every mech is "learning by doing," and that the parts problem is no easy solution. Still Lt. Jimmy Owen, VS-24 maintenance officer, maintains a cheery exterior and a stoic indifference to the jeers and catcalls of eager pilots and crews who want to get 'em in the air.

The training syllabus, up to a point, is much like that of other carrier-based fighter and attack types, involving familiarization, fundamental section and division tactics, type instrument work, navigation, field bounce, rockets and bombing. But there the similarity ends, and the most difficult part begins, that of training crewmen and pilots of both the hunter and killer planes to work as a team, to know the procedures and equipment involved, and to do the right thing automatically when there's a sub to be found and sunk.

Lt. Ted Dankworth, the ASW training officer, has been handed the ball at this point, and with good interference on the part of his staff of ASW experts and electronics hotshots, is well on his way to touchdown territory. Lt. Earle Hutchison assisted by Chief Radio Electrician Buell Beckham, and Chiefs Holbrook, Bost, Waszkiewicz and McAfee, has the responsibility of keeping the electronics equipment functioning properly.

Here is a typical anti-sub problem just to show how the AF-2W/AF-2S two-plane team does its job. Flying together, the crews of these two planes search electronically and visually in their coverage of an assigned area. A contact is made at 25 miles. The AF-2W changes his course in such a direction as to give him the best coverage of the area, including the contact and the attacking

HERE CDR. H. S. Jackson is being assisted into his *Guardian* plane by J. C. Nolan

aircraft. The first phase is now complete.

The killer is then vectored in until he makes contact with the sub, surfaced or snorkelling, and attacks on his own, or makes use of sonobuoys. If no contact is made, the search plane continues giving vector instructions, much like a fighter director, until the attack plane is in position to deliver his attack or is instructed to monitor the suspected area of submergence.

WHEN THE position of the submarine is discovered, the killer makes his bid to submerge the submarine forever, or, if there's a destroyer or destroyer escort handy, calls him in. It's just as simple as that, and the only difficulties which possibly could impede the wheels of progress are communication troubles, jamming, excessive sea return, filthy weather, darkness, failure of electronics gear, and several hundred other assorted demoniacal possibilities.

Though there are "bugs" to be eliminated, they are fortunately neither too serious nor too many. With a few relatively minor corrections, the *Guardian* team is ready with the latest equipment available to take its place in the carrier ASW field. This challenge to underwater demons will not be quickly or easily met.

R. E. ELSE, AL3; T. Durand, ADC; and J. W. Holbrook, ADC, are working out a serious problem with squadron shipper, Cdr. Jackson

ENS. SITER, Lt. Hongola, Ens. Toy, Lt. (jg) Neenen, Ens. Koehler are paying careful attention to a briefing by Lt. Fledderjohn

ADM. TOWERS GREETS HERO'S MOTHER, SISTER

MEN ON CARRIER MONTEREY HEAR HIM WARBLE

GODFREY CLIMBS ABOARD TO-2 SHOOTING STAR

Plaques Honor Naval Hero

Butch O'Hare Feted at Naval Academy

One of the Navy's outstanding air heroes of World War II was honored 18 February when memorial plaques in his memory were unveiled at the Naval Academy.

One of the plaques to LCdr. Edward H. "Butch" O'Hare was placed in Memorial Hall in dedication ceremonies led by Adm. John H. Towers (Ret.) under whom O'Hare was serving when he shot down five Jap bombers in one attack on his carrier.

A second plaque in his honor, presented by the Naval Airmen of America, is a replica of one presented to the city of Chicago at the dedication of O'Hare field in 1949. This is now in the Naval Academy museum. Witnessing the ceremonies were Mrs. Selma O'Hare, his mother, and his sister, Mrs. Marilyn Tourea, both of St. Louis, Mo.

The room in the midshipman barracks at Bancroft Hall which he occupied will hereafter be known as "The O'Hare Room."

• VR-5, MOFFETT FIELD—An R6O *Constitution* flew 156 passengers and 2400 pounds of squadron gear from San Diego to Pensacola. On the return trip, an engine failed. The plane landed at Biggs AFB, El Paso. A new engine was flown in aboard NACA's Fairchild *Packet*.

Godfrey Flies Navy Jets

Finishes JTU-1 Two-Weeks Training

NAS PENSACOLA—Cdr. Arthur Godfrey, who has some connections in radio and television, also can fly a jet airplane. He proved that, in his own words, "any mother's son can fly a jet" by finishing the two-week training course at JTU-1, Whiting field.

Godfrey owns three planes of his own and has better than 6,000 hours flight time. He recently went through Navy flight training and won his gold wings, returning in January to take jet training.

"I tell you," he said in his most convincing manner, "there's nothing finer, more simple, nor more satisfying than flying a jet!"

Cdr. Godfrey started his Navy career 30 years ago. After finishing his jet course, he went on a tour of Atlantic Pact nations of Europe as a member of General Eisenhower's staff.

"Upon my return to the radio and television networks, I'll have two very interesting subjects for my listeners," says Godfrey. "I want to explain to them what I've seen in Europe and further explain why we must continue our active support to the Atlantic Pact.

"Secondly, I want to clear up something in the minds of our parents about their sons who are eligible for military service. I've told them once, proved it once, and now I'm going to tell them again. Any mother's son can fly a jet. I know, because I just did it!"

CV Welcomes Bloodmobile

1,000 Men, Wives, Donate in 2 Days

Remembering their buddies and shipmates in Korea, officers and men of the *USS Boxer* (CV-21), recently donated over 900 pints of blood in a two-day campaign aboard the aircraft carrier.

The mobile unit of the Irwin Memorial Blood Bank of San Francisco received 501 pints of the life saving fluid the first day, the largest amount ever taken by the unit in a single day.

After being hoisted to the flight deck, the mobile unit, which is a refrigeration car, was lowered to the hangar deck by the ship's elevators. Hospitalmen were kept busy carrying pints to the unit.

BLOODMOBILE IS HOISTED ABOARD USS BOXER

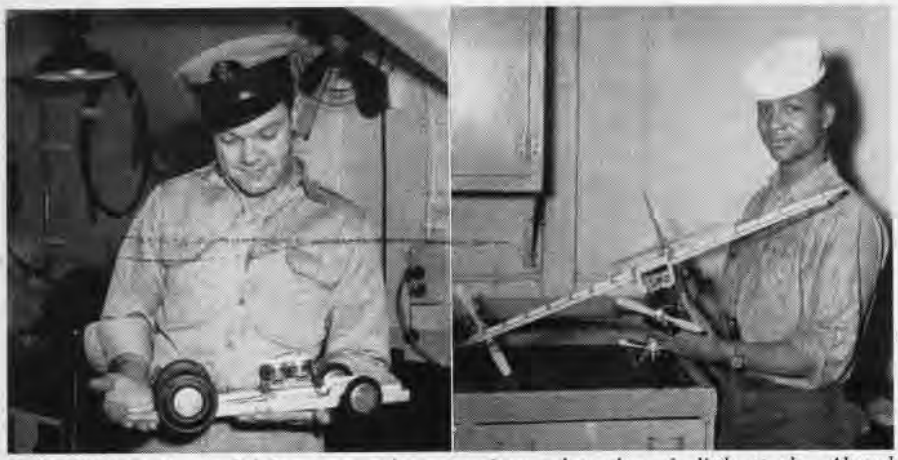
When the bloodmobile was filled to capacity, the remaining pints were temporarily stowed in the ship's reefers.

In the officers' wardroom 33 beds were placed for donors. Leading off were the Commanding Officer, Capt. Cameron Briggs and his wife, Doris.

When the campaign ended, about 50% of the crew and some of the wives had participated. Originally scheduled for one day, the operation was extended when over 1,000 pledge cards were submitted.

All donors received coffee and orange juice after the bloodletting.

One sailor made this remark in volunteering, "I remembered what was in the ship's memorandum. It went something like this, 'Remember, this could be a loan, not a donation'".



EVEN WHEN YOU *are fighting a war there are times when there is little to do. Aboard an aircraft carrier, hobby possibilities are small, but men still find time to do a little tinkering with tools. Dan H. Parker, AN, aboard the Sicily, built a gasoline-powered model plane while Chief Machinists' Mate Frederick J. Kendall turned out a tiny racing car.*

Navy Retakes Fla. Air Station

NAS JACKSONVILLE—What happens to a Navy base—or any other military installation—when it is turned back over to the public, such as the government did at the close of the last war?

Some of this was gleamed in a visit to the naval auxiliary air station at Sanford, Fla., which was decommissioned in August 1946 and will be reactivated by the Navy in May.

Since the Navy moved out at Sanford, leaving the runways intact, besides the many structures, the base has housed a full-fledged civilian hospital; it is the home of a large ladies' ready-to-wear mail order house; the air base boasts one of the most extensive baseball training camps, operated by the New York Giants; the area houses an old folks home; families live in the building which housed the operations tower, and the fellow who leased the airfield for commercial flying grew long staple "Sea Island" cotton and cattle feed between the runways.

BOARDED WINDOWS, CURTAINS IN EX-TOWER

All this, however, now must go. The picture will reverse itself as the Navy prepares to turn the air station back into the humming activity it was during the war. Capt. Douglas T. Day, commanding officer of the station and also commander naval air bases, Sixth ND, conferred with local officials and civic leaders, enlightening them further on the auxiliary station and the Navy's plans for it.

At present, the Snyder Memorial Hospital is located in the old dispensary. Sanford officials asserted that if the hospital were to close, patients would have to be moved elsewhere and the nearest civilian hospital is in Orlando, which itself is overcrowded.

In what formerly was the old O&R hangar and ship's service, is housed an extensive ladies' ready-to-wear mail order house, operated by Florida Fashion, Inc. The company at present has some 50,000 dozens of dresses stored there.

COTTON GROWS BETWEEN SANFORD RUNWAYS

The New York Giants who operate one of the most complete baseball training camps in the nation at Sanford, now will have to cut short their training period. The Giants have built seven baseball diamonds, plus using acres of land to keep baseball players in condition. The Giants housed their players in the old BOQ, and the overall training site was considered quite a layout by baseball men.

Also hard hit by the reactivation of the Sanford site will be some 350 old persons, from 60 to 97, who live at the Fellowship Foundation, occupying former barracks. These buildings were partitioned off into private suites and rooms for members, but now must be renovated for military use.

Although the site and its structures were used these past few years for various enterprises, the structures all have been kept in fine condition.

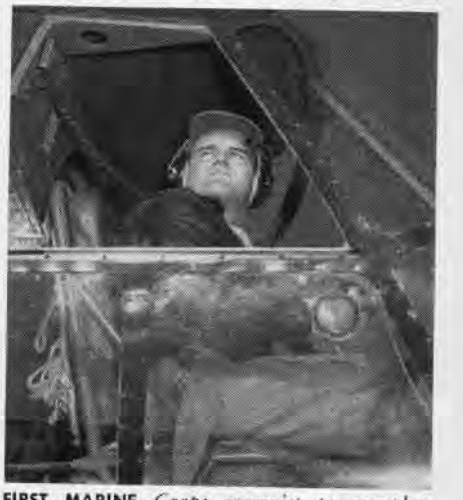
Three Brothers at Whiting

Field Sees Third of Lot Solo a Plane

NAAS WHITING FIELD — When Richard A. Siergiej, a NavCad, soloed recently, he became the third Siergiej to fly from Whiting field.

His oldest brother, John, is now a Coast Guard Reserve and metallurgical engineer for Pratt & Whitney Aircraft Co. He trained at Whiting in 1944.

Next to win his Navy wings was brother Edward. He is now with VP-26 at Patuxent, finishing at Whiting in 1948.



FIRST MARINE *Corps reservist to complete helicopter training at MCAS Quantico is 1st. Lt. John E. Smith. He reported for training on 19 October 1950 and was designated a helicopter pilot on 10 December. In World War II, he served with VMTB-134.*

APPARENTLY THE *bathing suit weather wasn't around when NARTU Seattle picked Lori Lanegger, University of Washington drama student, to be "Miss Flying Missile" in honor of the movie "Flying Missile" dealing with the Navy's latest developments in missile warfare. Here she is perched aboard a Navy Tiny Tim rocket to catch the spirit of the day.*

TWIN-JET SOVIET LIGHT BOMBER MAY WELL BE A MAINSTAY IN THE RUSSIANS' AIR ARM ALTHOUGH MOST OF ITS PLANES ARE OLDER TYPES

SOVIET NAVAL AVIATION

NAVAL aviation in the Soviet Union has not developed along the same lines as in the United States, nor has it received equivalent attention. Emphasis during the "Great Patriotic War" was placed on land power backed up by a strong tactical air force. As a result, naval air units during World War II were frequently drawn away from their maritime duties and assigned to the Air Force in operations supporting the army ground forces.

In this connection when post-war merits were passed out, naval aviation was lauded for successfully accomplishing its task in cooperation with the Navy and Army. It was stated that, "Stalin's naval 'falcons' added many glorious pages to the history of the heroic defense of Odessa, Sebastopol, Leningrad, and the Soviet Arctic."

Although its role in World War II was relatively minor, naval aviation has been modernized in conjunction with the over-all expansion of Soviet military aviation. In the future, naval aviation may be expected to play an increasingly important role consistent with the continued development of the Soviet Navy.

Soviet naval aviation is considered an attractive career and candidates for this branch must pass rigid entrance requirements. Once accepted for naval air service, the trainee begins a curriculum of study in his specialty which entails a more thorough training than that received by his counterpart in the Air Forces.

Organization of Naval Air

Naval aviation is an integral element of the Soviet Navy and is therefore administered independently from the other components of military aviation. Under the reorganization of the Soviet armed forces, announced in February 1950, the Soviet Air Force apparently has reverted to the same position of close alliance with the Soviet Army that it had during World War II.

While the significance of the separation of the Soviet Navy from the Ministry of Armed Forces remains obscure, it is considered that this development will result in increased emphasis towards the strengthening of Soviet naval aviation as well as other elements of the Soviet Navy.

Over-all technical policy, and administrative control of naval aviation is vested in the Commander-in-Chief of Naval Aviation with headquarters in Moscow. He is subordinate to the Commander-in-Chief of the Navy, who, in turn, is responsible to the Ministry of the Navy. Operational or combat control over the various fleet air forces is vested in their respective fleet commanders.

Principal subdivisions in the organization of naval aviation are: (*a*) fleet

LA-7 FIGHTER USED BY SOVIET AIR FORCE AND NAVAL AIR SQUADRONS

LAVOCHKIN LA-9 FIGHTER OBSOLETE IN JET AGE, BUT STILL IN USE

air forces, (*b*) air divisions, and (*c*) air regiments. The air regiment is the basic tactical unit of all Soviet Air Forces. The Soviet Navy is organized into fleets on a geographical basis such as the Pacific, Baltic, Northern and Black Sea fleets. Fleet air forces are assigned to these areas as a part of these fleets. Naval aviation maintains its own supply service and ground organization. All personnel, however, have Army rank and grade designations.

THE ORGANIZATION, composition, and numerical strength of a fleet air force vary in accordance with its assigned task, the scope of its operations, and the forces available. Soviet naval aviation is said to be composed of more than 2,500 aircraft of conventional design. However, in view of the appearance of jet aircraft in other Soviet units, it is likely that naval aviation is being included in any re-equipment program. It is landbased, having no aircraft carriers from which to operate. The Soviets, however, received some ex-German seaplane tenders under treaty agreements.

Aircraft Designations:

Between the years 1925 and 1940, Soviet aircraft were designated according to the duties for which designed. An example is the UT-2, Uchebny Trenirovochny, instructional and training, designed in 1939 by Yakovlev, series number 2. Although this method was superseded before the German invasion of the U.S.S.R., it has not entirely gone out of use, notable exceptions being the Soviet Navy's seaplanes and flying boats.

The following list shows the old designations by functional letters:

Type Symbol	Purpose
I	Fighter
DI	Two seat Fighter
BSH	Armored Dive Bomber
BB	Short range Bomber
SB	Medium Bomber
DB	Long range Bomber
TB	Heavy Bomber
MI	Navy Fighter
MT	Mining and Torpedo
PB	Dive Bomber
R	Reconnaissance
PS	Transport
MR	Reconnaissance Seaplane
MBR	Short range Reconnaissance Seaplane
MDR	Long range Reconnaissance Seaplane
KOR	Shipborne
U	Elementary Training
UT	Advanced Trainer
A	Autogiro

Examples of the change in designation:

BB-22	Became Yak-4
PB-100	Became Pe-2
TB-7	Became Pe-8
DB-3f	Became Il-4
U-2	Became Po-2
BSH	Became Il-2
PS-80	Became Li-2

The present system of aircraft designation is apparently directly copied from that which the Germans employed, whereby aircraft were associated with their designers (e.g., "He" for Heinkel), and not directly with their role. Thus, aircraft and engines are designated by the initials or an abbreviation of the designer or the design team names, followed by a hyphen and a number. (See NAVAL AVIATION NEWS, November 1950)

During World War II a large number (said to be more than 13,000) of American type aircraft were transferred to the U.S.S.R. under Lend-Lease. Their designations, it appears, have been retained—i.e., the P-63 *King Cobra*. Foreign aircraft made in Russia under license were, however, given a straight Soviet designation. An example is the *Skytrain* (DC-3/C-47/R4D) which was renamed the LI-2. Training versions of a few of the operational fighters carry the prefix "U"—thus the ULA-7, UYAK-3, etc. This practice may not become widespread, for specially designed operational trainers are being turned out, such as the YAK-11 fighter/trainer.

Operational Naval Aircraft

Fleet air forces of the Soviet Navy consist primarily of shorebased aircraft supplemented by seaplanes. These aircraft are chiefly of World War II vintage. Naval aircraft, unlike the practice in the United States Navy, have not, in the past, been designed for specific naval requirements.

The assignment of older equipment from the Soviet air forces was the rule, which naturally placed a definite restriction on the offensive capabilities of the fleet units in the past. This situation, however, is subject to change owing to the emphasis recently placed on the Soviet Navy and it would not be surprising to see future squadrons equipped

LANDING SIGNALMAN DIRECTS PE-2 LIGHT BOMBER ON DIRT RUNWAYS

SOVIET COPY OF WELL-KNOWN DOUGLAS R4D. NOW FLYING IN RUSSIA

COMPACT YAK-3 FIGHTER PROVED ITSELF IN GROUND SUPPORT USAGE

SOVIET LIKED P-63 KINGCOBRA, 2,300 OF WHICH IT GOT FROM US

with the latest type operational jet aircraft and long range reconnaisance planes.

Fighter types flown by Soviet naval pilots consist of a varied assortment of propeller driven aircraft many of which have been previously described in past issues. Briefly, naval fighter equipment is made up of YAK-3's, YAK-9's, LA-7's, LA-9's, and LA-11's. Considered to be obsolescent by U. S. standards, Yakovlev's 3's and 9's and their variations are still being flown in Soviet naval fighter regiments. The *Lavochkin* 9's and 11's are post-war variants of the earlier wartime series.

For his LA-7 version, Lt. Gen. Semyona Lavochkin was awarded the Stalin prize of 100,000 roubles (around $19,000). In 1946 a new model, the LA-9, appeared with a more powerful radial engine and greater fire power. This model, in turn, was improved and developed into the LA-11. Both of these all-metal, low-wing monoplanes, have been produced in large numbers and assigned to naval regiments. In general appearance they bear a resemblance to the World War II German FW-190 fighters.

American P-39 *Airacobras* and P-63 *Kingcobras* were supplied to the Soviet Union during World War II and proved extremely popular with their airmen. In all, more than 9,500 *Airacobras* were made before production stopped in July 1944. Of this number approximately 5,000 were delivered to the U.S.S.R. under Lend-Lease. On the other hand almost the entire *Kingcobra* (an improved *Airacobra*) production went to the U.S.S.R. The total number of these aircraft delivered to the Soviet Union amounted to more than 2,300.

LEND-LEASE, as defined by *Dictionary of Foreign Words*, issued in Moscow: "A law passed in 1941 by the U.S.A. Congress for the mutual transfer or lease of equipment, raw materials, food and planes to allied countries during the Second World War. Lend-Lease deliveries brought colossal profits to the large American monopolies."

Light bombers assigned to naval air regiments consist of similar types as employed by the military air armies. The variety of types is not great, and standardization on a few types has apparently been the rule of the Soviets. These light bombers in operational use with naval forces would include the twin-engined TU-2's, PE-2's, IL-4's and DB-3F's. Approximately 800 twin-engined B-25 *Mitchells* and 2,500 A-20 *Havocs* were supplied to the Soviets under Lend-Lease.

Winner of the "Stalin Prize" in 1943, Tupolev's TU-2, by wartime standards proved to be a very efficient weapon for its job. Although considered obsolescent by our standards, the aircraft continues as a first-line bomber in Soviet naval aviation. Several hundred TU-2's are said to be in operational service in the various branches of Soviet aviation.

Petlyakov's PE-2 which gave the Germans considerable trouble during World War II continues to play a part in the naval line-up along with the related DB-3F and IL-4. The basic DB-3, a long range aircraft, was developed in 1937 by Ilyushin. From this type was evolved the present naval operational versions DB-3F and IL-4, which are in naval service as bomber and torpedo carriers. The DB-3F was the only twin-engined Soviet bomber suitable for long range attacks during the so-called "Great Patriotic War".

The naval aerial attack force is supplemented by two ground support and attack types, the IL-2 and IL-10 *Stormovik* "Tank Busters". First appearing in 1944, the more powerful IL-10 has been the backbone of air ground support in the Soviet and satellite air forces.

In the past jet bomber and reconnaissance aircraft have not been operational in Soviet naval aviation. But, since 1947 various new prototype twin-jet aircraft have been reported by the Soviet press as flying in May Day air displays over Moscow. In view of the revitalization going on within the Soviet Navy, the possibility that these jet designs will eventually appear as an operational naval air weapon cannot be excluded.

Recently the Soviets announced to the world that they were the first to build a flying boat. This first, which is included with jet planes and bicycles, was

ROW OF DOUGLAS A-20'S ON ALASKAN AIRFIELD WENT TO RUSSIANS VIA LEND LEASE ROUTE

SINGLE-ENGINED MBR-2 FLYING BOAT DOES RECONNAISSANCE FOR NAVY

FAMILIAR NOSE OF PBY CATALINA WITH RED COWLINGS, BALL TURRET

reputedly constructed by Dmitri Grigorovich. Their proclaimed lead was short lived for the Soviet Navy today operates a number of older patrol and reconnaissance flying boat types. Foremost of these is the venerable PBY *Catalina*. It may be recalled that the U.S.S.R. during World War II sent naval aircrews to the air station at Elizabeth City, N. C., where they checked out and took delivery of Lend-Lease *Catalinas*.

In addition the Soviets have a version of the U. S. PBY-1 *Catalina* which was built under license in the U.S.S.R. It is identical to its U. S. counterpart but carries the Soviet designation "GST". The significance of the designation is unknown.

Designated under the old system, the MDR-6 was designed for long range reconnaissance duties. Although little information is available concerning this twin-engined gull-wing flying boat, it is believed to have been designed by Blochavindin and placed in operational service during World War II.

An older Soviet flying boat, the MBR-2, was also designated under the old system. This single-engined short-range reconnaissance aircraft first saw operational service prior to World War II. Its present duties are in connection with fishing patrol work, such as spotting schools of fish and calling up trawlers. Wartime duties probably would be limited to mine spotting and operations with minesweepers.

To be included in the naval air line up is the LI-2, which serves in numerous utilitarian roles. During the last war a large number of DC-3 (C-47/R4D) *Skytrains* were supplied to the Soviets by Lend-Lease. Under the direction of a minor designer, Lisitsin, an identical version of this ubiquitous work horse was constructed in the U.S.S.R. When Russian-built, it carried the original designation PS-80, which later gave way to the new system of designating aircraft after the designer. Thus, the DC-3 wound up with the designation LI-2 in honor of the Russian designer Lisitsin.

NORTH KOREANS USED A NUMBER OF THESE SOVIET-TYPE IL-10'S, BACKBONE OF GROUND SUPPORT

MDR-6 (TOP) DB3F AND IL-2 STORMOVIK ARE RED NAVAL AIRCRAFT WHICH MAY BE IN USE

GAS DRILLS PACK PUNCH

AT NAS ALAMEDA, gas defense training is real enough. Tears, nausea, dizziness—all afflict the eager students who must cover the gas defense syllabus during these spring days.

Alameda set the course up to familiarize personnel with the different gases, the gas mask, decontamination, self-aid, and protective clothing. Each group of 50 or more sailors, Waves, officers, and civilians, starts on Mondays and Wednesdays of each week. Training will continue until everyone aboard has completed the instruction.

After an introductory lecture, a movie, *Prepare for Gas*, is shown. It deals with the detection of mustard, phosgene, and Lewisite gases. Then weak samples of each gas are passed around. When everyone has had a whiff of all three gases, a fourth is passed. In a matter of minutes, people start heading for the nearest exit, but fast! The last one was vomiting gas!

Lectures are then given on protective clothing. A movie shows how a damage control unit dons and removes protective gear.

D. JOHNSON EMERGES WITH TEAR-FILLED EYES

Detection devices are next. Using an Army detection kit and the sample gas bottles, students are shown how to test for gas.

The self-aid lecture describes the different tubes of ointment in the kits and how to identify them by shape and size with eyes closed.

On the second day, personnel learn to fit the gas mask to their heads and faces to insure tightness. Several test runs are made so that each is familiar with the procedure.

Practical application is given in a little building which the instructor has filled with tear gas. Each pupil is told to put his mask on and enter the chamber. After 12 are inside, the instructor points to each one singly, saying, "Remove your mask. Look me in the eye, and walk out."

Then one at a time, the pupils are sent into the chamber *without* masks. Each enters, dons his mask with the speed that the presence of gas inspires.

Other instruction in the course is a lecture on the use and effects of blood and nerve gases and g-agents.

Light Spoils VR-8's Record

Good Maintenance Keeps Aircraft Up

VR-8—This squadron in "the good old days" set a record which still stands unbeaten—240 departures were executed without a single maintenance delay. The present squadron was well on the way to top the old record and set a new one but a faulty fire warning light spoiled it all.

The plane had to return to the line because of the light. Had it taken off, it would have been the 180th trip without maintenance delay. Lt. Allen G. Gilmore took the R5D back to the shops when the warning light was actuated. It meant the end of the record run but the squadron is not concerned with records when safety is involved. It has had 310 departures since 1 January with only eight delays, a good record for any maintenance outfit to shoot at.

SNOWMEN ARE *not unusual some places, but when it's MCAS Cherry Point, N. C., that sports a king-sized one with an MP band on his arm it is. The occasion was a record-breaking 8.3" snowfall at that southern air station. Polishing off the new MP recruit are Corp. J. P. Consoulin, Cpl. V. J. Tomasino and Corp. G. E. Culver.*

YOU BASEBALL *fans take a good look at these five gents getting off a Navy R5D at VR-6's home Westover base. They are Stan Musial, Dizzy Trout, Elmer Valo, Jim Konstanty and Jerry Coleman, just back from a hop to Europe where they held a two-week baseball clinic for occupation forces.*

FAWTUPAC—Students taking the instrument course at this command are given a complete tour of CAA facilities, including approach control, traffic control, their functions and problems in the Honolulu area.

Coco Solo Station Reopens

Seaplanes Will Operate From Panama

Reactivation is under way at the naval air station at Coco Solo, Canal Zone, which had been closed some months back for lack of operating funds.

During World War II, the station was used as a fleet air support and patrol plane base. It has been in a partial maintenance status. When reactivation is complete, a seaplane patrol squadron will be based there.

Coco Solo is the fifth station to be reopened in recent months. Others were Brunswick, Maine; Sanford, Fla.; Kingsville, Texas and Santa Ana, Calif. Trinidad, B.W.I. was reopened last fall.

One Chute Saves Two Pilots

Aircraft Factory Receives Note on Feat

NAMC, PHILADELPHIA—One parachute manufactured by the Naval Aircraft Factory has saved two night fighter pilots' lives, according to reports received here. It is believed to be the first time when one parachute saved two lives under identical circumstances.

Lt. (jg) Andrew P. Stirnweiss of VC-3 was forced to bail out of his burning F4U-5N over the town of Pescadero, Calif., using the chute. The parachute is the same one which LCdr. Pat Russell of the same squadron used to bail out on a night flight earlier in the year. Russell is now stationed at Pensacola.

NAVY HELICOPTER SAVES THAILAND MEN

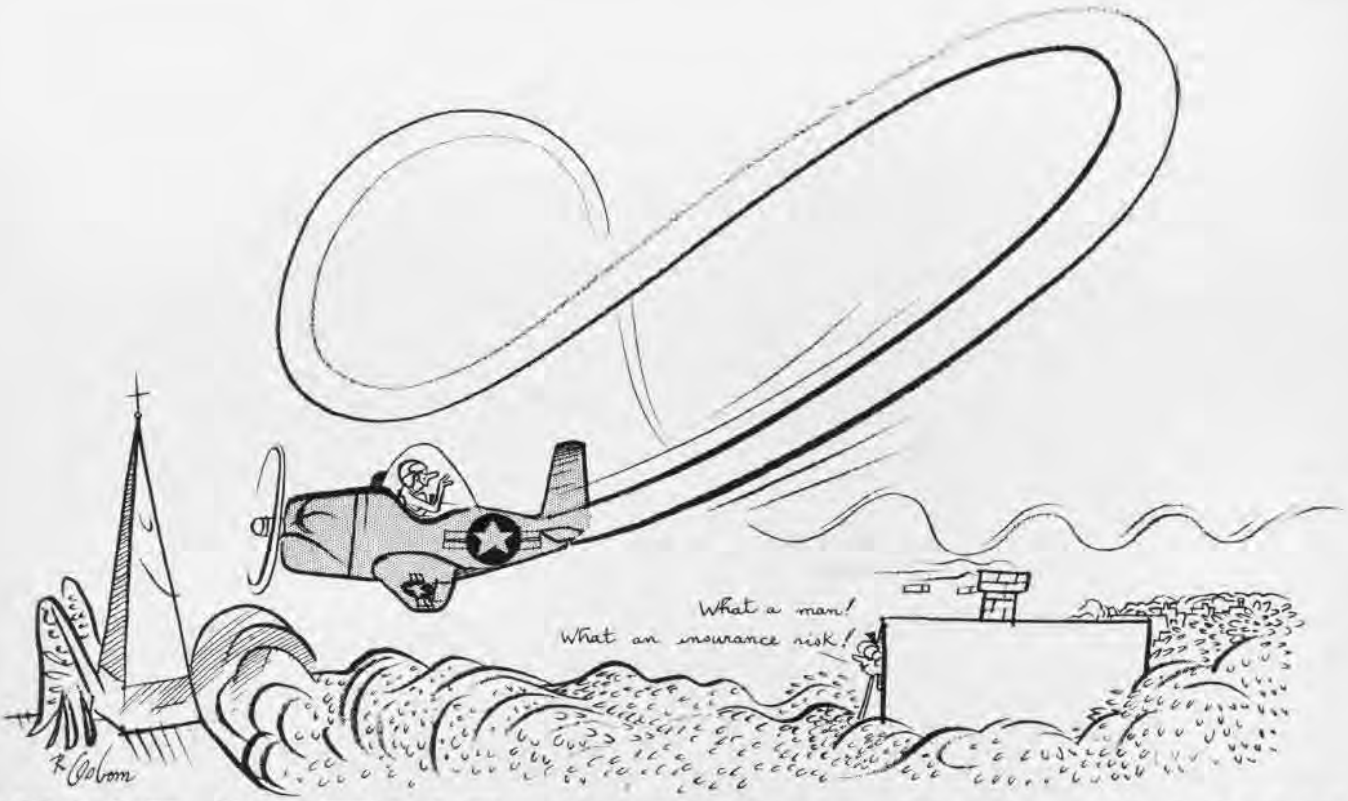
LOST IN A snowstorm off the east Korean coast, a Thailand Corvette HMTS *Prasae* went aground; USN doctor treats wounded

SMASHED AND burned helicopter piloted by Lt. (jg) J. W. Thornton, which got entangled in *Prasae* rigging, set fire to ammo

WHILE TWO men from USS *Manchester* hold Communist troops at bay with machine guns, Duane W. Thorin, AMC, helps load Thailand sailors aboard helicopter; first helicopter ran into ship and was destroyed by fire, second one piloted by Lt. Wm. F. Doucing

THAILAND SAILORS from beached ship crouch on sand while Navy helicopter flies them from Communist-held territory to cruiser

LAST SURVIVORS from the Corvette *Prasae* are brought aboard the *Manchester* where they were given warm food and a set of clothes



CURB THE URGE TO BUZZ

Is the flathatter nearing extinction?

Can it be that this arch villain of aviation is about to take his place along with the *Pithecanthropus erectus* and the buffalo on the nickel? Will we be forced in a few years to search from house to house to locate just one flathatter in order to point him out as a horrible example to the newest crop of Naval Aviators?

No, the picture isn't quite that good, though one might think so from the rapid decline in the number of flathatting accidents in the past four years. In 1947, for example there were 28 aircraft accidents which occurred while pilots succumbed to the urge to buzz the old homestead or to put on a low altitude demonstration of their acrobatic skills. From January through December of last year only six accidents are recorded with flathatting a contributing factor.

If an identical group of Naval Aviators had been employed during these periods, the explanation might be simple. We could reason that the buzz-boys simply killed themselves off, and the record improved through a process of elimination. However, the answer isn't that easy. Every month new classes of aviators graduate and take their places in the fleet. Human nature changes very slowly. It is a safe bet that these pilots feel the same urge to show off in front of friends and relatives as did the pilots of earlier vintage. Fortunately some combination of factors seems to be operating to cause them to curb that urge.

Perhaps it is the knowledge of the severe disciplinary action which awaits the flathatter who gets caught? It could stem from a realization of the fact that in past years nearly 50% of all flathatting accidents proved fatal. Half of the pilots didn't survive to face a GCM or an Aviators Disposition Board.

The main point of this article is that the six flathatting accidents last year were *six too many*. Here are some interesting facts concerning these crashes.

No pilot involved was above the rank of lieutenant. Five of the six pilots were attached to various Reserve Air activities. Three of the accidents were fatal. In each of the fatal accidents, it appears that the pilot was attempting to attract the attention of friends or relatives on the ground.

The most recent flathatting accident occurred within a stone's throw of the pilot's home. This officer had recently returned from duty overseas and was cleared on a local familiarization flight in an F6F. Fifty minutes later he was making low level passes over his home town more than 200 miles away.

Some witnesses say that he entered the spin while in a steep climbing turn. Others thought he was attempting a loop. In any case, he was too low to complete his recovery. The plane exploded on impact and parts were scattered over a wide area.

A local policeman checking the pilot's body for identification was the first to discover that he was a boy who used to live right around the corner.

CAMERA SOLVES ANTISUB PHOTO PROBLEM

SCHOLLE, AF2, SHOOTS SPLASH OF HEDGEHOG FROM BLIMP OPEN DOOR

THIS IS THE FINISHED CAMERA UNIT INSTALLED IN AIRSHIP CABIN

VX-1, KEY WEST—"If you can't ride a horse, ride a mule", the saying goes—improvise. Improvisation is the order of the day in Air Development Squadron One at Boca Chica field.

VX-1 is charged with one of the most vital roles in the United States defense efforts, the evaluation by operational test of both new and standard antisubmarine equipments and air antisubmarine warfare methods.

That evaluation is often not as glamorous as it might seem because it involves the most routine sort of flying and data collection. The experts then analyze that data, and give the answers.

Occasionally, though, the routine, unsung pilot has the answer that stumps the experts. It happened here. Test of new equipments presupposes accurate recording of results—photographic recording. The most stable aerial photographic platform is the airship and it is ideally suited. But to measure accurately distances on an aerial oblique photo, it must also show the natural horizon, a manifest impossibility in photographing a drop of underwater weapons.

VX-1 built its own horizon—in fact, its whole panel of instruments. This panel contains a gyro horizon, a clock, two camera indicating instruments, an altimeter and a flux-gate compass repeater. This is photographed by a camera synchronized with the camera recording the weapon splash. If the instruments are accurately calibrated, the process permits distance determination accurate to a few feet.

The device, now accepted by the Navy, is dignified by the title "Unit for recording data on low oblique photographs for post attack analysis." It soon will be in service use, thanks to the ingenuity of a half dozen VX-1 photographers. Commanding officer of VX-1 is Capt. E. W. Parish, Jr.

• NAS OAKLAND—The battle-scarred aircraft carrier *Independence*, an atom-bomb target at Bikini on two occasions, has been sunk 200 miles off the California coast by undisclosed Navy weapons. The twisted mass of metal was worthless as a warship and lightly radioactive, making it unusable as scrap metal.

CAMERA ON BLIMP RECORDS HEDGEHOG PATTERN OF DEPTH CHARGES THROWN AHEAD BY DESTROYER

ORGANIZED AIR RECRUITS GET FAST START

ORGANIZED Naval Air Reserves of VR-812, NAS Minneapolis, take time out for a picture during their action-packed two-weeks cruise with VR-5 at NAS San Diego

DURING March approximately 500 Organized Naval Reserve recruits took off on the first lap of a route which in 15 months could lead them to a rating of petty officer third class. Previously it would have taken them 30 months to reach that goal.

At the same time some 500 airmen and seamen started a similar jet-propelled course towards advancement.

This was all part of the new speed-up program set up by the Naval Air Reserve Training Command to train new petty officers for the Organized squadrons and air wings to replace those ordered into active military service since last July.

The course for recruits involves three months of extended training duty featuring recruit and airman rate indoctrination. The course for airmen also involves three months of extended duty with training slanted towards aviation machinist's mate, aviation electrician's mate, aviation electronicsman, aviation structural mechanic, aviation ordnanceman and aviation electronics technician ratings.

These courses are given at 16 stations and units within the Naval Air Reserve Training Command which have facilities for berthing and messing. Other Reserve stations will airlift their students to these stations for the course.

The three months courses for both airmen and recruits are scheduled to be convened again in June and September of 1951 and in March of 1952. Approximately 500 Organized Reserve recruits will be able to enroll in each course. Quotas are also set up to train 500 airmen or seamen, as well as such airmen or seamen apprentices who have completed all requirements for advancement to the next pay grade except time in rate, in each basic rate course. These quotas may be interchanged provided that the total personnel ceilings of 1,000 enlisted Reservists for each set of courses is not exceeded.

Candidates for both courses must achieve a minimum GCT and ARI test score of 100 to be eligible.

In addition, the Naval Air Reserve will give the regular summer boot training course, which involves two months of extended active duty, to 2100 airmen or seamen recruits. According to present plans, airmen or seamen recruits now in the Organized program, as well as those who will come in when the course is convened in June, will be eligible to take this training.

Recruits who satisfactorily complete the three months course or who satisfactorily complete the two-months summer course and then attend eight Organized Reserve drills will be eligible to advance to airman or seamen apprentices.

Once they have advanced to the apprentice rating, they will only have to attend 24 Organized Reserve drills (instead of 48 as previously) to be eligible to advance to airmen or seamen. Once they have advanced to the airman grade, they are eligible to take the basic rating course, getting another three months of extended training duty. Then after attending 24 drills with the Organized Reserve, they will be eligible to advance to petty officer third class. If they were able to squeeze in two weeks of active training duty while they were in the apprentice grade, they will only have to attend 12 drills, which would cut the minimum time they would have to put in as airmen to six months instead of nine months.

Under the accelerated program, an airman who satisfactorily completes three months' basic rate training course and has chalked up 24 Organized Reserve drills will be eligible to advance to petty officer third class.

Besides completing the courses and attending the necessary drills, all Reservists, of course, must satisfactorily complete the written examinations required for advancement. Since the courses are definitely slanted to preparing students for such advancement, these

VOLUNTEER Naval Air Reservists in VAU 12-6, Alameda, line up for physical exam at Oak Knoll Hospital before giving blood for use of casualties from the Korean front

hurdles are expected to be taken in stride by the Naval Air Reservists.

Teamwork Pays Off

Interservice cooperation has paid off again—this time for the benefit of the Organized Reserves at NAS DALLAS. As a result of a conference between representatives of Fort Sill, Dallas, the Tinker Air Force Base, and the National Guard Unit of Oklahoma City to coordinate the use of ranges at Fort Sill, NAS DALLAS, has been granted a new target site for rocket firing.

This site consists of two obsolete tanks, which have been painted yellow for easy identification. An observation post has been set up on a hill approximately one quarter mile from the tanks.

Firing will be conducted every weekend under the present arrangement. Ordnance personnel and aircraft handlers will be flown to the landing strip at Post Field (the airport attached to Fort Sill) to take care of refueling, ordnance and spotting of rocket hits.

Reservists from Dallas have previously utilized the Fort Sill ranges at periodic intervals. Setting up the new sites again emphasizes the way in which Army personnel at Fort Sill are cooperating with the Navy Reserves.

Dallas squadrons are also working closely with Air Force units at Randolph Air Force Base. Since the first of the year, Dallas fighters and Randolph Field B-29's have engaged in joint exercises.

Fighter interception and dummy gunnery runs are being supplied by Dallas during regular navigation and training flights conducted by the B-29 squadron from San Antonio.

Gun cameras are used to advantage by both services. Film used by the fighters is developed and used locally until evaluation has been completed. When the Air Force has completed evaluation of their films, they will "trade" with Dallas, thus giving all hands a chance to study the maneuvers from both offensive and defensive angles.

NAS OLATHE CO, Capt. J. H. Flatley swears his son James into the Naval Air Reserve

VR-812 Makes Mark

The Organized Reservists of VR-812, NAS MINNEAPOLIS, ran up a high utilization mark during their two weeks cruise with the VR-5 San Diego detachment. Employing two R4D's, they flew three scheduled round trips per day from San Diego to Moffett Field, chalking up 8.2 hours a day in each aircraft.

LCdr. Donald H. Ledin, CO of VR-812, gave the maintenance department of the squadron credit for this record. Organizing his men into two wings, Lt. C. H. Wall managed to keep maintenance going on an 18-hour basis.

The common delay caused by minor maintenance discrepancies at a turnaround was licked by radioing one hour before landing description of discrepancies and the probable parts needed. This

KONAG, NAS Minneapolis' 'Ham station' is on the air, Chief Black at the controls

enabled Chief D. L. Lary or Chief J. D. Stewart, who were in charge of the two crews, to line up parts and tools and have the technicians ready to board the aircraft the minute it arrived at the terminal.

Blood and Money Both Help

Organized and Volunteer Naval Air Reservists alike are still backing up community and service drives.

NAS ATLANTA staged a "supersmoker" in the main hangar for station personnel that netted more than $300.00 for the *March of Dimes* drive. Lt. Tom Frank, Lt. H. N. Wood and Lt. John Spilsbury were the chief behind-the-scene workers.

A broad yellow line, painted on the hangar deck led to the throne of honor occupied by two young polio victims, Beverly Benton and James D. Harris, Jr. Contributions were laid on the line and later were shoveled into a wheelbarrow piloted by the CO, Capt. Julian D. Greer.

Out on the West Coast, members of

GLENVIEW'S Atkins and Orr display plexiglas model of *Midway* at Chicago Auto Show

Volunteer Aviation Unit 12-6 went over to Oak Knoll Naval Hospital after a regular evening drill at NAS ALAMEDA and donated 23 pints of badly needed blood for the Korean wounded. What's more the speaker for the meeting, Cdr. James A. Niforopulos, assistant medical officer of the air station, also became one of the donors.

Speaking for the Reserve group, LCdr. E. A. Quarterman, the administrative officer said, "The idea to meet this need for blood took root spontaneously with us and this monthly meeting seemed like the ideal time."

Marines Can Do Anything

According to a story now going the rounds, Lt. M. M. Black, a Marine fighter pilot formerly with VMF-351 at NAS ATLANTA and now stationed on the West Coast, got indoctrinated but good in Hollywood's attitude towards Marines during the filming of the "Flying Leathernecks."

It seems that Black was flying in a low altitude step-down formation of planes which were participating in a sequence for the movie. Suddenly his plane was inverted by the slip stream of one of the others. Fortunately he was able to correct his attitude and in due course rolled in for a 4.0 landing.

He was greeted by an enthusiastic director who slapped him on the back and said, "Lieutenant, that was fine. Now how about doing it again—only this time a little more below the tree tops."

• NAS ATLANTA—Low ceilings of 500 feet gave Organized Reserve Squadrons opportunity recently to complete "in-the-soup" practice GCA approaches. FASRon 671 completed five successful GCA approaches on a local instrument flight rule plan.

RECOGNITION *experts may have some difficulty spotting these two planes nose-on with their wings folded. Both are Navy fighters, the top one the high-speed F7U1 Cutlass, a near-delta wing with no tail. The lower plane is the two-man F3D night-fighter, also powered by two jet engines.*

CDR. ARTHUR GODFREY, *USNR, popular radio and television star, swears in his son Richard as a seaman recruit in the Naval Air Reserve. Capt. Ben Scott Custer, USN, Commanding Officer, NAS Brooklyn, quietly looks on.*

F4U BOUNCES OFF KOREA

MANY a tall tale has been told of the *Corsair* and its prowess, but the *Freelancers* of VF-64 can always tell one a little taller. This time they have some actual facts which are rather astounding and should make U-bird pilots appreciate their grand old flying machine.

While on a road sweep near Wonsan, Korea, Ens. Ed Hofstra spotted two uniformed Commies on a road close to the sea coast. A little overzealous in pressing home his attack, Hofstra found himself in a steep dive quite close to the ground, with insufficient altitude to pull out.

His *Corsair* hit the ground in a level attitude, scraping off his full load of armament consisting of a deadly napalm tank and eight 100-lb GP bombs, not to mention the 150-gallon belly tank of high octane fuel.

The engine suffered sudden stoppage with propeller blades neatly folded back over the cowling. Ens. Hofstra ricocheted back into the air, to fly like a glider for some 500 yards out over the ocean and make a perfect water landing away from the hostile land.

But that wasn't the end of Ens. Hofstra's luck. With his eyebrows slightly singed and his mustache a crisp residue on his upper lip from a cockpit fire which the water landing extinguished, he found himself in his raft having to row like mad to keep the currents from drifting him back to the Korean beach, where hiding Commies were waiting for him.

After three hours of furiously paddling his raft against the current, during which time his flying mates overhead were relieved as RESCAP by night fighters due to darkness, the UN came to the rescue in the form of a British Sunderland piloted by Flt. Lt. Hunt Houthuesen, who skillfully made a night landing close to the rock-strewn shore and plucked the shivering but thankful and somewhat deflated Hofstra from the icy Sea of Japan.

But that isn't all. The three remaining flying mates of Ens. Hofstra returned to the task force. Ens. Ray W. Murphy and Ens. Richard G. Jones made their first night landings aboard a carrier with no prior FCLP, while their leader and squadron skipper, LCdr. Bruce M. Barackman, made his first night landing after a six-year layoff. Perhaps that's why they're known as the *Freelancers!*

PRACTICALLY SITTING *in each other's laps are the pilots of these four AF's flying about as tight a formation as possible over Norfolk. The four planes are from VS-24, first operational squadron to receive the new Guardians. The planes are AF-2S and AF-2W types, which fly in pairs for antisubmarine defense, one plane carrying plenty of radar to search the subs out and the other packing the armament necessary to attack the submarine when found.*

New Jet World's Strongest

Westinghouse J-40 To Power New Job

The Navy has announced the new J-40 jet engine, believed to be the most powerful in the world. The engine, built by Westinghouse Electric Corp., has completed ground qualification tests and is being put into production.

Thrust developed by the J-40, equivalent to 14,000 horsepower at modern flight speeds, is for the bare engine without afterburner or water injection.

The engine weighs less than 3,000 pounds and is completely electronically controlled. It uses less fuel per pound of thrust than its predecessor, the J-34 turbojet which powers some of the nation's fastest planes. A group of high performance planes now in the design stage will use the engine.

From starting to full power, and under any condition of flight or altitude, operation of the engine is accomplished with a single cockpit control, equivalent to a throttle. All engine conditions are, in turn, automatically tied to this control.

The J-40 is an axial-flow engine. Instead of one circular airscoop in the nose, it has two tubes in the shape of a Y which will bring in the air from either side of the fuselage, like the TO-1 *Shooting Star.* To maintain a minimum diameter for the engine as a whole, major engine and aircraft accessories are mounted between the arms of the Y while minor ones are strung along the side of the engine to save space.

Diameter of the J-40 is only 50% greater than the J-34. Owing to the heat expansion of its various parts while operating, the engine "grows" an inch.

DOMESTIC TRAINING—NAVY STYLE

BURPING BABIES and administering aspirin is all in the day's work for Seaman Kenneth W. Cates of Transport Squadron Six.

Cates is a flight orderly on the trans-Atlantic run of that squadron which flies with the Military Air Transport Service.

His Navy duty is "salty" since his run takes him over the ocean. Three years ago, at the age of 17, Cates left his home town of Palmyra, Missouri, and joined the Navy.

From boot school in San Diego he went to aviation fundamentals school NATTC MEMPHIS. Since then his travels have taken him as far west as Japan and as far east as Tripoli. He recently completed his 30th Atlantic round trip.

When he was a kid hunting squirrels along the Missis-

SINCE HE is contact man with the passengers, flight orderly must know ditching procedure in detail; Lt. (jg) Case instructs Cates

sippi, Cates never thought that eventually he would be more domesticated than most husbands. Now he can hold his own on washing dishes, changing diapers, warming formulas, quieting jittery passengers and preparing food.

On an average crossing, he serves 300 cups of hot soup to the 34 passengers. In the same period they consume 20 gallons of hot coffee. His duties include taking both young

WHAT MORE could a soldier's wife want? Cates hands Mrs. Robert Montague a bottle of warm milk for Germany-bound Robert V. III

and old to the "front office" to see how the plane is operated. At the Azores he tells passengers, "This is the only place where the bull in a bullfight emerges unscathed. At one time in the past, bulls were used to repel invaders."

Cates has found it fun being a world traveling companion. Consequently, he recently signed on for an additional six years with the Navy, far from Missouri.

ON AN average crossing, Cates serves 300 cups of soup and 20 gallons of hot coffee

ON A chilly day, Cates awaits load of passengers who are traveling to overseas bases

HIS MOTHER couldn't have made Cates do this; with MATS he really enjoys such duties

NEW HELMET GUARDS PILOTS

AFTER MUCH experimentation, Bureau of Aeronautics, in cooperation with Naval Air Test Center, and Aeronautical Medical Equipment Laboratory, has developed a new protective helmet assembly known as the Type H-3 helmet, consisting of an inner cloth helmet and a rigid outer fiberglas shell. Ten thousand of these helmets are now being procured.

The use of protective helmets by aviators dates back to the early biplane days when football helmets and auto goggles did the trick. Although these helmets gave adequate protection for low-speed aircraft operations, the advent of the jet airplane flying at subsonic speeds through turbulent air requires a helmet more substantial than the ordinary football helmet.

The problems encountered in the development of the H-3 helmet were varied and many. The helmet had to be strong, light in weight, resistant to weather and rough usage, capable of absorbing heavy blows, and above all—comfortable.

These desirable properties had to be correlated with, and were limited by, the strength characteristics of the human head. Consequently exhaustive studies were undertaken to determine how great a load the skull can withstand at various points before fracturing. Although this factor can be determined

JET AND F8F pilots alike will wear the new H-3 protective helmet assembly, consisting of outer fiberglas shell and the inner summer-type helmet with mask and headphones

PILOTS PROTECTIVE helmet, inner helmet and A13A oxygen mask in place; mask has built-in lip mike so helmet boom is removed

SIDE VIEW of inner helmet shows thin leather strip below ear which permits outside shell to blow off in strong slipstream

UNDERNEATH THIS pile of junk, once an F8F, is still pinned a pilot; small *Bearcat* cockpit makes wearing of helmet valuable

THIS HELMET saved the pilot's life in the plane opposite; gash in helmet might have been in his skull if he lacked the helmet

with a fair degree of accuracy by the use of cadavers for test purposes, what goes on inside the skull is still somewhat of a mystery insofar as concussion is concerned.

In addition to its strength and weight requirements, the helmet had to be adjustable since hardly any two aviators have the same size and shape head. Stock-piling of tailor-made helmets was considered impractical from a supply point of view.

These problems were finally solved in the development of a two-piece helmet consisting of an inner cloth helmet available in five sizes, and a rigid outer fiberglas shell available in four sizes. The rigid shell contains adjustable inner straps for providing a close fit to the various size heads.

The cloth underhelmet is essentially a revised version of the standard summer flying helmet. It holds the oxygen mask tightly against the face by means of a new-type male "pull-the-dot" fasteners located along the edge of the helmet in the area of the cheek-bones. These new fasteners provide a strong connection of the mask to the helmet, preventing the mask from being blown off during ejection at high speeds and altitudes. The inner helmet is built to cover far forward on the cheeks to insure a good oxygen mask fit. A nylon strap and buckle are located in the back of the helmet to allow some adjustment of size. The underhelmet sizes include; small, medium, intermediate, large and extra-large.

A rubber donut-type headset receiver housing has been incorporated in the cloth helmet to take new receivers of wafer-thin leather chin straps which will break under 30 pounds stress, so that the shell can blow off in the slipstream, when that stress is produced, without injuring the pilot's neck. BuAer is providing kits to replace suspension straps and fasteners currently in use on some helmets so that they can be adapted to the new "pull-the-dot" fasteners.

INSIDE VIEW of protective helmet shows suspension web and adjustable headband

The A13A pressure breathing oxygen mask shown on the opposite page is standard issue for the Navy and Air Force. With the new fasteners, it has been tested in slipstreams up to 540 mph without blowing off. Before the pilot pulls his ejection seat curtain, he pulls a chain to activate the oxygen bottle which goes out with him in his seat. The bottle contains a 10-minute supply of oxygen. If the pilot deploys his parachute at 40,000 feet, it will take him about 20 minutes to reach safe altitudes at which he may breathe without the aid of oxygen equipment. At such a slow rate of descent there is a possibility of his freezing. A free-fall part of the way down will avoid this difficulty.

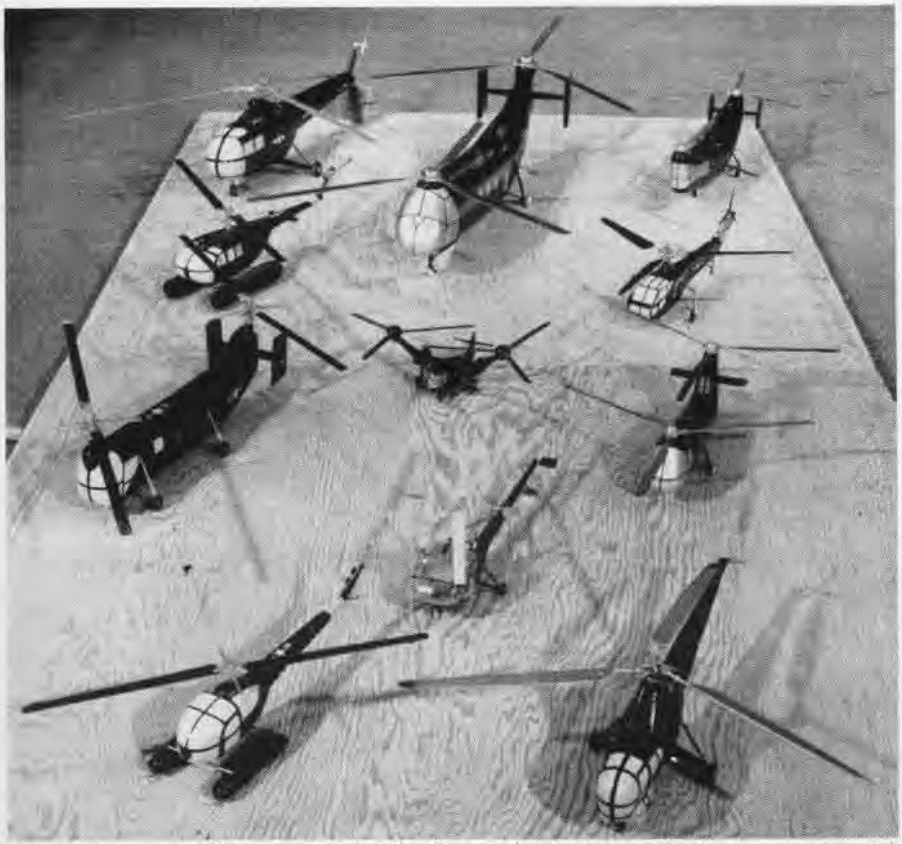
The rigid outer shell is made of laminated and mat fiberglas. A black rubber beading around its border protects the wearer from injury due to sharp edges. Inside it has an adjustable sling suspension type padding made of nylon straps. The straps forming the adjustable headband are leather-covered; the others cross from diametrically opposed locations where they are attached to the shell by riveted metal parts. Buckles on the outside of the shell above each ear permit adjustment of the headband to size. Goggles attach to snaps on the outside of the shell. The shell sizes include: small, medium, large and extra-large.

Additional padding within the helmet consists of pieces of leather-covered foam rubber and four pieces of Royalite cemented directly to the shell interior. The foam rubber portions are cemented to the shell beneath the headband; these prevent the shell from contacting the headband directly in most places. Royalite is a rigid cellular rubber and plastic combination which deforms permanently when struck with sufficient force. Deformation of all parts of the padding absorbs energy and therefore decreases the injury potential of a blow delivered to the helmet shell.

The gold color of the outside surface of the shell provides efficient thermal protection from solar radiation. Other colors will have a tendency to make the helmet warm and therefore uncomfortable to the pilot. For this reason it is recommended that no markings which cover large areas of this surface be applied.

Addition of metal parts to the shell, especially those placed above the ear level, can be extremely dangerous under crash conditions. As a secondary projectile, such metal parts could be driven into the skull with sufficient force.

• NAS San Diego—All pilots of VF-781, the NAS Los Alamitos squadron which volunteered for active duty as a unit, have now qualified for jets and are ready to try them aboard ship.



JUST ABOUT *every helicopter flying for the Navy and Air Forces today is represented in this showing of pinwheel models in the Bureau of Aeronautics. In the left hand row, from top to bottom, they are: XHJS-1 Sikorsky; YH-12 Bell; XHSL-1 Bell; YH-15 Bell. Middle row, HRP-2 Piasecki; XHJD-1 McDonnell; HTE-1 Hiller. Right row: HRP-1 Piasecki; HNS-1 Sikorsky; XHJP-1 Piasecki; HO3S-1 Sikorsky. Not present in the display were models of newer helicopter types like HO4S-1 and HO5S-1 and the HOK and HTK in which the Navy is interested. The HO3S-1 is the helicopter which has been so busy in Korean rescue work.*

DRAWING OF BELL XHSL-1 ABOVE, MODEL BELOW

Details Of Bell XHSL-1 Shown

Tandem Rotors Mark ASW Helicopter

Through first officially released photographs details are now revealed of the first helicopter specifically designed for anti-submarine warfare, the Bell XHSL-1. An initial contract for three of the helicopters has been awarded.

The tandem rotored craft marks Bell Aircraft's first departure from its familiar single rotor configurations. However, basic Bell rotor systems are incorporated in the XHSL-1, particularly the rigid two bladed rotors and the automatic stabilizing device, as can be seen in the photographs.

The fore and aft rotors are interconnected. Power is supplied by a Pratt & Whitney R-2800 buried engine.

Rotors can be folded for lowering on elevators of carriers, battleships and cruisers. The aircraft has quadricycle landing gear and employs horizontal stabilizers and fins similar to fixed wing aircraft.

Chaplain Flies via Pinwheel

Ellyson Helicopters 'Borrow' Dominy

NAAS WHITING FIELD—Now that Ellyson field's helicopter training unit has been established, the lack of a chaplain is no stumbling block in conducting divine services on Sunday.

Whenever the weather is good for flying, a helicopter is sent from Ellyson to pick up Chaplain A. L. Dominy at Whiting field. If the weather is bad, Chaplain Dominy drives his car to Ellyson. While this is an old practice overseas, it is new for this area.

HANDY ELLYSON HELICOPTER CARRIES DOMINY

• USS BAIROKO—When the *Bairoko* made a Japanese port recently, 156 members of its crew donated a pint of blood for battle-wounded Marines and soldiers.

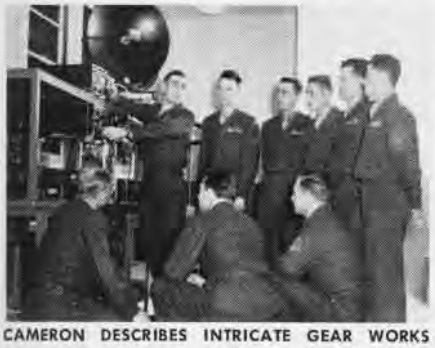
• MCAS EL TORO—So cold was the North Korean winter on one occasion that Marine Corsairs had to be warmed up every 15 minutes so they could be started in the morning, according to Maj. Frank H. Smyth, former station PIO, just back from Korea.

THE NAVY'S *newest operational helicopter is the HUP-1, shown here making its first service flight with pilots of HU-2 at NAS Lakehurst. This shipboard helicopter has folding twin rotor blades. A number of them are being built for the Navy by Piasecki Helicopter Co.*

Airborne Operators Trained

MARINE All-Weather Fighter Squadrons are making excellent combat records in Korea. The key to their success in fighting any time, day or night, in any kind of weather, is teamwork.

Each flight team is composed of a pilot and an airborne intercept operator. These operators are graduates of the Airborne Intercept Operator School at MCAS CHERRY POINT, N. C., headed by Capt. Charles J. O'Malley.



CAMERON DESCRIBES INTRICATE GEAR WORKS

Only a highly trained operator can use the complex electronic equipment necessary to locate and destroy enemy targets at night or in foul weather. The pilots depend on the operators to assist them in navigation problems, maintain radio communications with the base of operations, and make initial contact with enemy aircraft.

Graduates of the Cherry Point School, some of them enlisted rates, joined pilots of the First Marine Air Wing to build an enviable record. Some of the students now in school are here shown in class: left to right, Instructor Cameron, SSgt. Edward Epstein, SSgt. John Quinn, TSgt. William Bush, MSgt. Gordon Barnett, and MSgt. Joseph Brotherly. Kneeling: MSgt. Julius Harrington, TSgt. Leo Easel, and SSgt. Alfred Sears.

The school was founded in April 1950. Capt. O'Malley's assistant is Lt. H. C. Grow. The course extends over a period of four months, and each class is composed of 15 students. The seven instructors are all top men in their field with many years of experience in night fighter work. Three of them have studied night fighter technique with the Royal Air Force in England. A picture of a staff meeting shows the entire faculty assembled: left to right, MSgt. Edward Sell, TSgt. Edgar Cameron, TSgt. Eli Lloyd, MSgt. Robert Ward, Capt. O'Malley, Lt. Grow, TSgt. Austin Gandy, TSgt. Noel Hales, and MSgt. Lawrence Fortin.

During the training period, students receive instruction in navigation, including maps, charts, Mk III plotting board, Mk VIII computer and E6B computer. Communications covers a thorough check-out at 10 words per minute in code and blinker signals, as well as night fighter commentary and aircraft voice procedure.

FACULTY CONFERS AT THE INTERCEPTOR SCHOOL

A study is also made of oxygen usage, the proper use of survival equipment, and aircraft and ship recognition.

The main subject, however, is that of night interception tactics. This requires a complete course in electronics so that the students can operate efficiently all the equipment aboard the aircraft. The students also receive a short course in aerology.

Basic airborne instruction takes place in SNB-3N aircraft equipped with APS-6 radar. In the advanced training phase, the F7F-3N *Tigercat* equipped with SCR-720 radar is used.

Upon graduation, the men are designated Airborne Intercept Operators and authorized to wear the Naval Observer's wings.

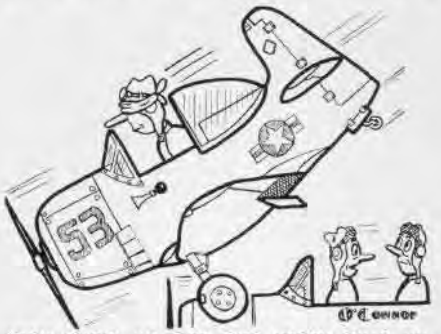
• NAS ATLANTA—Pilots should note that this activity secures flight operations at sunset each day. Pilots who anticipate arrival there at night should make certain that a request for night landing facilities has reached the station at least two hours before sunset.

Talks Down Brother By GCA

Sgt. Kennedy Saves Lt. Kennedy in F4U

Inter-service cooperation reached a high level recently when Sgt. Paul E. Kennedy, USAF, talked his brother, Lt. (jg) Edward L. Kennedy, through a GCA landing.

Scene of the event was Harmon Air Force Base, Newfoundland, during a snow storm. Lt. (jg) Kennedy, attached to Composite Squadron Four, a night fighter outfit, was on a cross country training hop from NAS ARGENTIA in F4U-5N.



"YOU KNOW I'M NOT SURE HENRY FULLY UNDERSTANDS GCA APPROACHES."

Sgt. Kennedy, a GCA final controller, is stationed at Harmon.

• NAS ALAMEDA—VR-2 has reduced trans-Pacific flights from seven to four trips a week to allow more JRM training for new pilots.

• MCAS CHERRY POINT—When his F2H *Banshee* quit flying in FCLP, Lt. Robert W. Cooney of VMF-122 crashed into the ground. When the crash crew arrived, he was standing waiting for them beside his plane.

HINDU ROPE *trick? When ZP-1 was operating off the CVE Mindoro off the Virginia capes, refueling the airships while in flight was practiced. In this picture, the fueling hose is in the process of being hoisted up to the blimp so that fuel can be pumped to its tanks.*

CAPT. OLNEY AFTER FLYING THE F7U CUTLASS

Flies All Vought Aircraft

Capt. Olney's Record Includes Corsair

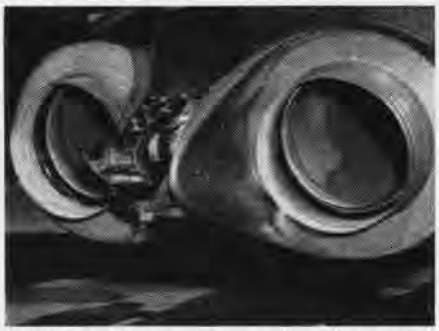
NAS DALLAS—When an F7U-1 *Cutlass* jet fighter rolled up to a landing at Hensley field the other day, Capt. A. C. Olney had rounded out a record of having flown every type of Navy aircraft built by Chance Vought Aircraft Co.

Capt. Olney is Bureau of Aeronautics Representative at the Dallas plant. The first Chance Vought plane he flew was a VE-7 in 1926, when 100 miles an hour was "hot flying".

This was followed by the UO-1 in 1927, the O2U (the original *Corsair*) in 1929, the O3U in 1930, the SU-1 in 1931, the SBU-1 in 1933, the SB2U in 1938, the OS2U in 1941, the F4U *Corsair* in 1942, the F6U and the *Cutlass* in 1951.

After flying the tailless F7U, he remarked, "If you don't look behind you and become concerned because the airplane lacks a tail, the *Cutlass* is a gentleman's airplane. It is pleasant to fly.

"Two things especially impressed me during the flight. One is that I wasn't aware of the fact that the airplane assumes an unusual attitude during the landing. It was the same as landing any conventional airplane. The other point was that the speed brakes on the *Cutlass* were good. They give the pilot as much control as if he were driving an automobile. He steps on the brakes and he really slows down."



COULD BE *the eyes of some bug, but actually it's the exhaust pipe end of the F7U-1 Cutlass. Unusual arrangement of the carrier hook between the two tailpipes is shown in picture, taken by Chance Vought Aircraft Co.*

New Mexico Can Be Shivery

PBM in Forced Landing On Reservoir

Life on a reservoir 4200 feet above sea level can be mighty cold and boring. So attest the members of a PBM-5 crew which was ferrying the plane from VR-32 at Corpus Christi to San Diego.

As pilot LCdr. M. E. Darchuk was proceeding west of Columbus radio, the starboard engine developed a serious oil leak. Closest landing spot was the Caballo reservoir in New Mexico.

Excellent cooperation between CAA communications facilities, Biggs Air Force Base and the state game warden at the reservoir produced needed parts, tools, oil and gas the next morning. The plane was soon on its way.

Sequel to the story was written two weeks later when all three planes were successfully delivered to NAS SEATTLE where they will be stricken because of over-age and salvaged for parts.

NOW THAT *the Marines have received F3D Skyknight night fighters they have to learn how to maintain them. To bridge this gap the Douglas plant at El Segundo is conducting classes in hydraulics, electronics, powerplant and structures for the leathernecks from the nearby base at El Toro. Head instructor is N. A. Allen, Douglas service engineer*

BILLY PARKER TAKES OFF IN CURTISS PLANE FROM NAS NORTH ISLAND

FEATURE OF EARLY BIRD GATHERING WAS PARKER'S 1912 MODEL PUSHER

★ EARLY BIRDS VISIT 'DIEGO

OCCASION WAS the commemoration of the fortieth anniversary of the first seaplane flight by Glenn Curtiss.

The place was San Diego. Old timers in aviation, members of the *Early Birds of America,* gathered to pay homage to one of the industry's pioneers.

Feature of the celebration was the appearance of Billy Parker with the Curtiss-type pusher biplane which he built in 1912. Parker is manager of Phillips Petroleum Co.'s aviation sales division. He has flown the plane over 3,000 hrs. Power plant is an 80-hp Gnome rotary engine.

Early Birds visited the Curtiss Memorial Plaque and placed wreaths there.

CONTRAST BETWEEN PUSHER AND B-36 IS EVIDENT AS THEY SIT TOGETHER AT LINDBERGH FIELD

LT. PARKER, EARLY BIRDS B. PARKER, MRS. SMITH

GEN. LAHM, FIRST ARMY PILOT, LAYS WREATH

VADM. MURRAY VIEWS WATERMAN'S SCRAPBOOK

NAPALM IN COLD WEATHER

USS PRINCETON, KOREA—This carrier's ordnance department has modified the Mk 1 napalm mixer to achieve 100% effective mixing during cold weather in this theater of operations.

Lt. C. Christie, aircraft ordnance officer, reported cold gasoline and napalm were not jelling properly when xyenol, the catalytic agent, was poured into the tanks during the filling process.

Chief Aviation Ordnanceman R. F. Schwarz and crew poured some xyenol into the napalm powder hopper and found that an effective jelling occurred when the catalyst hit the gushing gasoline simultaneously with the napalm powder. The result was perfect agitation of all three components before they entered the bomb.

Since they could not control the amounts of xyenol and napalm in one hopper, the answer was to add a xyenol feeder tank to the mixer. A measuring stick and valve to regulate the xyenol flow to BUORD specifications was included.

With the modified mixer, the crew can fill 35 Japanese-type napalm bombs in two and a half hours, including time involved in moving about the flight deck. The xyenol feeder tank also eliminates need for a fourth man whose job had been to stand by and pour the xyenol directly into the tank at intervals, with the constant hazard of burns whenever the caustic liquid splashed on him. The feeder tank greatly reduces the danger of burns to personnel.

The modification has answered the question of how to fill the firebombs with the least amount of strain, at least until a sufficiently compact portable heater becomes available and adapted to use on a crowded flight deck.

The only alternative at present to

MILLER, VINYARD, BOYD FILL NAPALM HOPPERS

TWO HOPPERS FEED XYENOL, NAPALM WITH GAS

xyenol and the modified Mk 1 process, which operates directly from the flight deck gasoline hoses, seems to be that of heating the gasoline at one location, filling the tanks at the warm gasoline supply and moving the filled bombs to the planes for loading. This involves heavy cost in labor, time, increased danger to personnel and possible damage to the fragile tank.

DOUGLAS DEVELOPMENT WILL SPEED UP LOADING

Hoist Aids Rocket Loading

The problem of how to get rockets loaded aboard pylons when the wings of an AD *Skyraider* are folded on the carrier deck has brought about much study by squadrons and the Douglas Aircraft Co.

NANEWS showed how FASRON-7 solved the program in the December issue, pg 35. Douglas has been attacking the problem from a different angle, as shown in the accompanying picture of the rocket and bomb loading hoist developed at El Segundo plant.

The vertical mast is supported from the tow bolt fitting on the landing gear and the inboard brace attaches to the work platform fitting. The outboard brace attaches to the outer wing panel hoisting point.

With this arrangement, it is possible to install the hoist on the plane and load the first rocket within three minutes. Succeeding rockets are loaded at 30-second intervals and two minutes are required for hoist removal.

Douglas built six refined versions of the illustrated hoist, for use by west coast operating squadrons. FASRON-7 developed a ladder which hooked on to the wing alongside the pylons.

Hook Test Facility Slated

An airplane arresting hook test facility, to be used both by the Navy and private airplane contractors, will be constructed at the Naval Air Material Center, Philadelphia.

The facility will permit testing of arresting hook systems of experimental and production type carrier planes to determine hook bounce. By finding out the weaknesses, if any, of the system, in the development stage of a new plane they could be corrected before delivery of the plane to Patuxent for carrier suitability tests.

The facility also could test arresting hook shock absorbers. It will use an XC3 catapult and associated equipment which were developed by NAMC and Chance Vought Aircraft Co., for instrumented hook systems investigations which were conducted by CVA. (NANEWS, July, 1950) The NAMC installation will be completed by May, it is expected.

Work Stand Used with F9F

During the Climatic Hangar Cold Weather Test, the Navy Detachment at Elgin Air Force Base had a special stand built for maintenance and servicing of the F9F-2. It was built by O&R, NAS PENSACOLA.

The stand was of great value in terms of maintenance and safety. It was easy to get at the accessories section, and the danger of slipping from the wing when there was rain, snow, or ice was greatly lessened.

The stand could easily be built for any activity that has metalsmith facilities. It would prove a benefit to any acitivity charged with maintaining the F9F.

► ***BuAer Comment*—The Bureau of Aeronautics provides wing mat, stock #R82-6R-6T-487L/R for this purpose. However, some activities may prefer this stand which can be manufactured locally.**

STAND GIVES WORKER A GOOD VANTAGE POINT

TECH DATA ON "MAIL ORDER" BASIS

HERE ARE A FEW OF THE FILES THAT HOUSE MORE THAN 2,000,000 TECHNICAL DATA ITEMS

DO YOU need the instrument specifications for an SNJ trainer? Or perhaps you want the specifications for the jet engine of an F2H *Banshee?* Where would you like it sent? Korea, Alaska, or a carrier in the Mediterranean? Aircraft Technical Data distributes its "show-how" all over the world.

Often referred to as the "Mail Order House for Naval Aviation," Technical Records Division (TRD), Naval Air Development Center, Johnsville, Pa., as the representative of the Bureau of Aeronautics, is a tremendous repository of information. It has reproducible drawings furnished the Navy for aircraft, engines, aircraft components and accessories as well as copies of all aeronautical material and process specifications.

TRD supplies the U. S. Naval aeronautical organization throughout the world with copies of data that may be required for overhaul, maintenance and manufacture of naval aircraft.

BUAER has steadily increased the scope of TRD's job, requiring it to perform all functions related to the dissemination of aeronautical drawings, specifications, engineering reports, and military standards. These services include the preparation and distribution of aircraft microfilm, custody of original BUAER armament drawings, and distribution of military standards.

All the material is available to BUAER, its field installations, all ships, stations and units concerned with naval aircraft; manufacturers engaged in the research, design and manufacture of naval aircraft and aircraft parts; universities, air lines, consulting engineers, business firms and individuals interested in the progress of naval aviation; and foreign governments and industries which are working with the United States. In short, TRD's customer is the world; its business, naval aviation.

THE DIVISION collects and maintains a vast stockpile of essential technical data on more than 2,000,000 items. This includes complete sets of drawings and engineering data for all types and classes of naval aircraft, jet propelled or conventionally powered. Thirty days after delivery of each major aircraft manufactured in the United States, aircraft drawings are received; revisions are made every sixty days for the duration of the contract.

Technical data is submitted to TRD in the form of original tracings or "second-originals" such as vandykes, autopositives, photographic prints, and printed copies.

To perform the services for which TRD was established, qualified personnel absorb the flow of work promptly, despite fluctuating and increasing work loads. During an average month, TRD handles approximately 3,500 pieces of incoming correspondence, of which over 1200 are requests for reproductions of aircraft data and copies of specifications.

More than 80% of TRD's work load is in a Class A priority. URGENT is a byword in TRD. TRD has contact with thousands of "customers" through correspondence, dispatches, telephone calls or personal visits. It's big business.

Technically trained employees analyze and process more than 2,000 pieces of outgoing correspondence in a given month. To keep abreast of "hot" dispatches and speedletters received daily, TRD not only engages its own reproduction facilities, but also the services of commercial printers.

THE DEMAND for technical data is steadily increasing. Requests for specifications alone, for instance, doubled during the month of January as compared with similar requests received six months earlier. Every method of transportation—mail, fast freight, railway express, and truck—is used by TRD to get out approximately five tons of technical data per month.

The TRD offices typists, when working at full speed, simulate a squadron of airplanes getting ready for takeoff on a flight operation. But there's a difference; the operation of Technical Records Data is "OPERATION REPRODUCTION"—and it's all on paper!

DATA IS INSPECTED FOR LEGIBILITY AT TRD

VANDYKES RUN THROUGH BLUEPRINT MACHINE

JUBER, WYMAN DEMONSTRATE WATER FILL HOSE

Reel Makes Watering Easy

VR-8, PACIFIC—A recent modification of a standard nose dock hose reel, used in replenishment of aircraft water tanks has saved much time and labor for this squadron.

Using available equipment, C. W. Juber, AMC, developed a swivel-type permanent fitting to enable a constant flow of water through the reel, thus eliminating the previous task of attaching a lead hose each time the unit was in use.

Conveniently bolted to the overhead, the reel does not require moving and stowing. A safety factor involved is the fact that engineering and structure crews no longer will stumble over the reel while working in the nose dock area.

Filings Removed by Magnet

TSgt. Ralph Hendrix, USMCR, at NAS AKRON has suggested a way to remove filings from cylinder heads after broken spark plugs have been drilled out.

The filings can be easily removed with an electromagnet. Such a magnet can be made from a piece of soft iron welding rod with a few thousand turns of shielded wire wound round the rod and connected to a battery. A momentary switch is placed in the circuit for operation of the magnet.

The magnet should be inserted into both plug holes in order to remove all particles. When removed from the cylinder head, the voltage should be turned off so that the filings will drop off. The operation is repeated until all filings are removed.

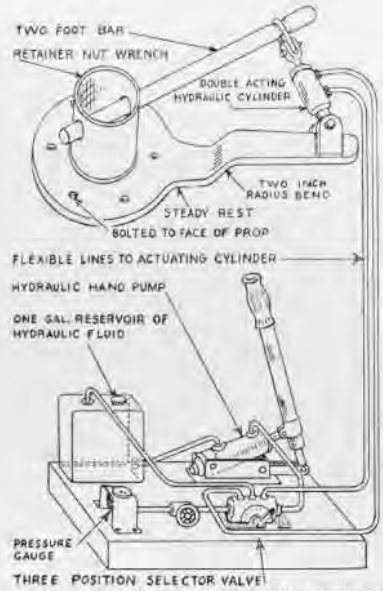
Wrench Ends Prop Squawks

VR-2, ALAMEDA—Two engineering chiefs, F. A. Akers and J. M. Gladden, have developed a hydraulic propeller torque wrench which really pays off in handling propeller vibration troubles.

The wrench was made of scrap parts. The propeller retainer nut must be tightened to 2,000 foot-pounds. This previously was done by a 6' wrench with three husky men furnishing the power.

This tightening process resulted in a series of jerks causing uneven seating and wear on the propeller cone, with resultant vibration. The frequent discrepancies of this nature have made the prop problem a critical one.

The hydraulic propeller wrench consists of a steady-rest bolted to the face of the propeller using power section hold-down bolts. An actuating cylinder on the end of the steady-rest applies 1,000 foot-pounds hydraulic pressure to the two foot retainer nut wrench. Two flexible hydraulic hoses connect the actuating cylinder to a portable handoperated hydraulic pump complete



VR-2 HYDRAULIC WRENCH TIGHTENS PROP NUTS

with three-way valve, reservoir and gauge converted to inch-pounds torque.

Since the time of operation of this wrench, propeller vibration squawks have decreased 80%.

► *BuAer Comment*—**BuAer is testing two types of propeller torque wrenches to determine the type most suitable for issue to the service. The above idea will enable activities not scheduled to receive torque wrenches for evaluation to improvise equipment for use pending outcome of the tests.**

BuAer Leaders Are Selected

Twenty-eight Navy and civilian employes of Bureau of Aeronautics have been named members of technical subcommittees of the National Advisory Committee for Aeronautics.

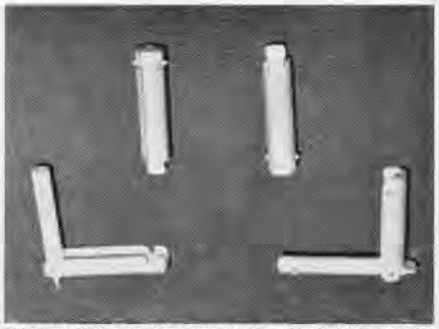
In making the announcement, Dr. J. C. Hunsaker, NACA chairman, said the 1951 appointments were especially important, inasmuch as they called for added service to the country, in a time of national emergency.

New appointments were Cdr. K. C. Childers, subcommittee on rocket engines; R. W. Pinnes, compressors and turbines; C. C. Sorgen, engine performance and operations; Arthur V. Stamm, aircraft fire prevention, and N. W. Tilley, combustion.

Reappointments were: Capt. Walter S. Diehl, stability and control and other committees; Capt. E. M. Condra, Jr., powerplants; Capt. M. R. Kelley, aerodynamics; Cdr. Raymond E. Doll, aircraft construction; Cdr. Donald J. Hardy, aircraft loads; Cdr. A. L. MacCubbin, operating problems; Cdr. James F. Parker, aircraft structures; Cdr. S. S. Sherby, high speed aerodynamics; Cdr. R. F. Wadsworth, aircraft fuels; Parker M. Bartlett, icing problems and internal flow; Ralph L. Creel, aircraft structures.

Charles J. Daniels, seaplanes; Ivan H. Driggs, propellers; Douglas T. Egbert, vibration; Gerald G. Kayten, stability; F. W. S. Locke, Jr., seaplanes; F. A. Louden, aerodynamics; Nathan E. Promisel, heat-resisting materials; C. C. Singleterry, lubrication and wear; Harcourt C. Sontag, icing; James E. Sullivan, aircraft structural materials; John P. Wamser, aircraft loads; and Raymond A. Young, helicopters.

Cdr. Ira W. Brown, Jr., of NATC Patuxent, was named to the subcommittee on seaplanes and Cdr. C. W. Stirling of David Taylor Model Basin, seaplanes.



HANDY KEY OPENS OBSTINATE BAGGAGE DOORS

Key Opens Baggage Section

VR-8, PACIFIC—Two men attached to this transport squadron developed a key which makes it easier to unload the R5D lower baggage compartment.

The key is made from chrome-molybdenum steel and is cadmium plated. It folds up like a pocket knife and has a screwdriver shaft on one end for dzus fasteners. It also comes in handy for lifting those obstinate fuel tank cap latches when dip sticking the tanks. It weighs about four ounces and can easily be carried in one's pocket.

R. Canaris, AD2, engineering logs and records man, designed the key and H. Stepler, AEC, the squadron machinist, made it in the machine shop.

Memphis DBF Gear Kept Busy

NAS MEMPHIS—Training in DBF (Direction Bearing Finder) runs has paid off here. In recent months, lost aircraft have been located and vectored to safe landings.

Proficiency flights, usually F6F's have taught pilots and tower operators alike the ins and outs of DBF operations in all weather conditions.

On one occasion, an Air Force T-6 was reported lost by Pine Bluff radio. NAS MEMPHIS tower was contacted by Memphis Air Traffic Control and asked to assist with the DBF gear. The aircraft was located about 120 miles Southwest of the station and headings were relayed to the pilot through ATC until he came within range of the tower.

The track to NAS MEMPHIS took him over municipal airport which he spotted through a break in the clouds. He had reported 20 minutes of fuel left at 1920 and landed at 1957, which shows that some power plants can operate nicely on gasoline fumes—or that gas gauges aren't always right.

Another incident involved a Navy F8F *Bearcat*. He became lost about 1830 while enroute to Birmingham. He had communication with Nashville and Muscle Shoals radios. ATC requested aid, and the DBF swung into action. The plane was located about 90 miles out and vectored to Memphis. A happy but still tense pilot landed at 1904.

In January, an Air Force C-46 was vectored to the station then landed by GCA under a 300 foot ceiling with visibility 1½ miles.

Under similar weather conditions an SNB from Jacksonville was only 10 minutes from landing when the field lights went out. A mad dash by the crash crew got flare pots out in time for a landing on the first GCA approach. A later check showed only 12 gallons of gas remained in the airplane tanks.

SUPPLY NEWS
FROM ASO AND SUPPLY DIVISION BUAER

Packaging Electronic Gear

The Aviation Supply Office is receiving an increasing number of damage reports involving major electronic components and spare parts. Much of the reported damage is the result of improper packaging for shipment.

Possibly much of the recently reported damage is the result of the increased number of priority shipments being prepared today. However, no purpose is served in expediting a shipment and then having the material arrive at its destination in a damaged condition.

All electronic equipment should be afforded the highest level of protection, because it is highly vulnerable to shock and corrosion. When it is definitely known that the equipment will be used within 180 days, it is not necessary to prepare a desiccated unit package. When the date of issue is unknown or is sure to be more than 180 days, electronic assemblies which are not hermetically sealed should always be unit-packaged in accordance with the most applicable variation of Method II.

In every instance, electronic equipment should be adequately cushioned within its unit package and within the shipping container so that no damage will occur during shipment, handling and storage. The possibility of internal movement of the packaged equipment must be eliminated. The unit container and the shipping containers must be of a size which will permit adequate cushioning and preclude the possibility of damage to any projecting parts of any electronic component.

In addition to the general precautions outlined above, each unit and shipping container should be marked "Delicate—Handle with Care," and where applicable, "This Side Up."

Upon request of an activity, ASO will furnish specific information as to the exact methods of properly preserving and packaging of any given item of electronic equipment.

Labels and Tags Are Musts

All too frequently packaged equipment is being received from certain O&R departments without markings indicating that the equipment has been modified in accordance with published instructions. This has resulted in the destruction of preservation and packaging to determine whether or not changes have been accomplished.

Sometimes, as in a recent case with Glenn L. Martin, it has resulted in the return of Government furnished material by a prime contractor to the Navy stock point.

Aviation Circular Letter 104-49 contains instructions relative to the tagging and labeling of aircraft equipment and packages. The instructions in this Circular Letter require O&R departments to affix labels and tags of the NAVAER 2650 series to containers of overhauled equipment prior to the release of such equipment to supply departments. These tags and labels must be filled out completely.

New Supply Branch in Japan

A new Aviation Supply Branch at Yokosuka, Japan, has been opened recently. LCdr. R. A. Sherer is in charge of the new facility.

The branch is an integral part of the Supply Department, Fleet Activities, and will handle all aviation materials necessary to assemble a complete aircraft.

It will support all Naval and Marine land-based aviation in Japan and Korea and will furnish support for Fleet aviation in emergencies. It is estimated that 100,000 different items will be handled.

Speedy Repairs for Neptune

NAS MEMPHIS—This station claims some kind of record for taking care of transient aircraft that run into trouble.

A P2V-3C of VC-6 developed engine trouble while en route to Albuquerque, N. M., from NAS PATUXENT RIVER and had to land at Memphis. The plane landed at 0531. The trouble was found to be malfunctioning manifold pressure regulator but no replacement or repairs could be made locally.

A dispatch was sent to VC-6 at Patuxent, requesting parts. At 0910 a reply was received saying they were on their way.

At 1400 another P2V from VC-6 touched down at Memphis with the needed parts. At 1613, 10 hours and 42 minutes after landing, the first P2V was airborne on an IFR flight to complete its original mission. Considering the distance involved to secure the parts, the entire operation was one of speed.

THESE ARE MEN WHO HELPED KEEP PLANES UP

What Combat Squadron Does

What's it like to be in a carrier-based fighter squadron in combat?

A sample of what goes on can be gleaned from a report compiled by VF-32, aboard the *Leyte* for 52 days, ending 26 December.

During that period, they flew 463 sorties totalling 1524 hours in their F4U-4 *Corsairs*, against the Chinese from Wonsan to Chosin reservoir. The mechanics kept the fighters 89.9% available, enabling the squadron to meet 97% of scheduled sorties.

Defying the northern Asiatic winter, they made 27 30-hour checks, 10 60-hour and 17 120-hour checks, while performing battle damage repairs and routine maintenance. More than a quarter million rounds of .50 caliber ammunition were loaded into planes, close to 2,000 HVAR rockets, about 150 500 and 1,000-pound bombs and more than 200 napalm tanks. Sometimes the loading was at night and on slippery, pitching decks.

Squadron chiefs who helped make that record possible are shown in the picture, left to right, C. D. Baldwin, E. F. Farmer, T. B. Ballou, A. Santos, C. I. Sandler, W. W. Locher, R. L. Anderson, R. J. Kirsch and W. F. Hays, AT2.

Bad Fix Luckily Not Fatal

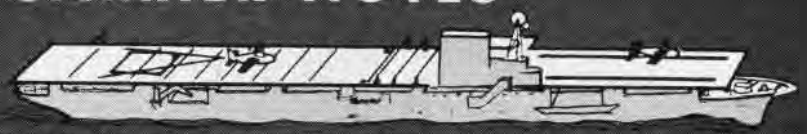
Recently, an alert—and lucky!—P2V ferry crew discovered a fuel leak in an engine installation during a post-flight inspection after the first leg of a transcontinental ferry flight. There was a leak in a fuel line at a severely chafed area which had finally ruptured.

To their amazement, the crew discovered that the chafed area had evidently been recently wrapped with friction tape, for there were no signs of chafing on the tape.

This means that one or more individuals in Navy's aeronautical maintenance organization consider that a proper "fix" for a severely chafed or leaking fuel line is the application of friction tape. The only "fix" for such a condition is, of course, replacement of the chafed line plus elimination of the source of chafing.

Future revisions of technical orders and notes dealing with tubing will specifically restrict the use of friction tape on lines carrying combustible fluids in any aircraft.

CARRIER NOTES



BUREAU OF AERONAUTICS—SHIPS INSTALLATIONS DIVISION

AD-3W Fix for Catapulting

Catapulting of the AD series aircraft had presented few if any problems until the advent of the -3W and -4W versions. To provide bridle clearance for the radome, it was necessary to relocate the catapult hooks from the underside of the wing to the main landing gear struts.

This change in hook location complicated the bridle shedding problem because of the complicated geometry of the hook and landing gear relationship. Numerous hook shapes were designed and tested and finally one hook design was determined by the Naval Air Test Center, Patuxent River, Maryland, to be satisfactory.

Subsequent fleet operations of the AD-3W/4W aircraft disclosed that while the bridle shedding characteristics were satisfactory under normal conditions, certain conditions would cause the bridle to be shed prematurely. Because of the seriousness of this situation an intensive series of tests were undertaken at Patuxent to determine under what conditions premature shedding would occur.

As a result of these tests, Patuxent determined that it was possible to locate the bridle eye on the hook toe so that it would not seat itself properly in the hook throat during tensioning. The possibility of this condition occurring during night operations was recognized and the contractor was asked to redesign the hooks to obviate this situation.

New hooks, which are now satisfactory in all respects, have been designed, manufactured and tested and are presently being supplied for all AD-3W/4W aircraft. AD Aircraft Service Change No. 231 applies.

Use Right Barrier Adapters

A needless and unfortunate accident involving strike or near strike damage to three airplanes occurred recently on one aircraft carrier as the result of using barrier adapters of the incorrect type. In this case adapters for the F7F, which have 66" long lifter straps, were used by mistake to stop F9F aircraft, which require adapters with 40" long lifter straps.

The result was that an F9F, which failed to catch an arresting wire, passed through three of the Davis-type barriers without properly actuating any of them, and continued on up the deck to crash into two parked airplanes.

All hands should understand that a very critical relationship exists between lifter strap length and the geometry of the airplane with which it can be used successfully to throw a barrier cable so as to catch the airplane's landing gear. Improper or careless rigging of these barriers can therefore endanger life and cause the destruction of millions of dollars worth of aircraft, as well as reduce seriously the fighting efficiency of the ship.

The important factors necessary to the understanding of and proper installation and use of barrier adapters have been included in an arresting gear change, designated Arresting Gear Change No. 12, Revision 1, dated 5 March 1951.

Launching Bridles for F4U

Three-quarter inch diameter wire rope bridles used to launch F4U-type aircraft have a limited service life when catapulting at the higher pressures required during operations with mixed grouping of propellers and jet aircraft.

New F4U bridles, using seven-eighth inch diameter wire rope, are now scheduled for manufacture and will be issued to fleet operating units in the near future. A modification to the existing F4U catapult launching bulletins will be issued authorizing the use of seven-eighth inch diameter wire rope constructed bridles.

XHE2 Catapult at NAF Mustin

The Naval Air Material Center has completed installation of the type XHE Mk 2 catapult and two Mk 5 arresting gears at Mustin Field. Tests and brief evaluation of the catapult are under way.

The XHE2 catapult is a higher-capacity version of the HE-1 expeditionary catapult which was used principally for training purposes during World War II and is similar in many respects to that earlier model. The catapult was completed at the close of the recent war and was placed in preservation due to curtailment of the expeditionary catapult program.

Upon completion of tests, the new facility will be used primarily for launching and arresting dead loads and airplane mock-ups in connection with development of improved arresting and barrier gear.

Mechanical System for LSO

The General Electric Company is developing, under a contract from the Bureau of Ships, a remotely-controlled signalling system or panel for landing aircraft aboard ship at night. The object is to provide brilliantly lighted signals which can be easily seen by the pilots in the landing circle.

In the past, attempts to illuminate the landing signal officer sufficiently to make his signals easily readable have also reduced unacceptably his ability to see the attitude of approaching aircraft.

Tests of the panel, which is approximately eight feet square and which is brilliantly lighted, are being conducted at NAS ATLANTIC CITY, and aboard ship. During these preliminary tests, pilots and landing signal officers have become quite enthusiastic over the capabilities of the landing signal panel.

Most of the observers believe that pilots will have little difficulty in adapting themselves to the new system, since the signals are very similar to those observed during present night operations.

Although the signals are more easily observed, it is admitted that a certain amount of the LSO's personality is lost. He can no longer, for example, give a combination of signals such as leaning the body or nodding the head while holding a "Fast" or a "High" signal. Some exponents of the panel believe that it may eventually be found to be superior for day flying as well as night flying.

Better Arresting Hook Points

Production of Colmonoy-coated forged steel replaceable arresting hook points (NAF #603410-1) is well under way at the Naval Aircraft Factory, with more than 1000 hook points delivered to service units. This improved hook point minimizes loads applied to the airplane during off-center landings and reduces wear on deck pendants.

To date, only the F2H-2 type aircraft have been equipped with the new hook point. Manufacture of Hadfield steel hook points (NAF #601121-1) has been discontinued, and when the present stock of Hadfield points is depleted, all service aircraft will be fitted with Colmonoy coated hook points. Since replacement is a simple procedure, instructions for installation of these hook points will not be issued.

Link Letdown Practice Held

Flight instructors of the Navy All Weather Flight School are making practice radio range letdowns in the Link on ranges serving their fuel stops and destinations prior to going on cross country flights.

As a result of this practice, each instructor has before departing his home base a knowledge of holding patterns and fixes as well as approach control rules at scheduled stops.

More and more IFR traffic is being conducted into U. S. airports than ever before, and the All Weather Flight School is making sure that its pilots are completely familiar with CAA control areas they will enter.

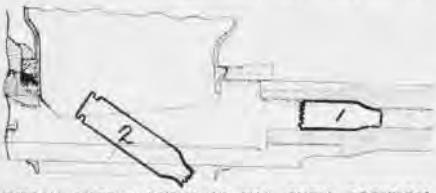
• U. S. NAVAL ACADEMY, ANNAPOLIS—Certain areas of Chesapeake Bay, long in use as seaplane landing areas, have now been officially designated as such by the Secretary of the Army. The move was designed to provide more protection to small boat operators on the bay by having charts marked.

AVIATION ORDNANCE

Accidental 20MM Explosion

A *RUDAOE* has been received at the Bureau of Ordnance from Marine Fighter Squadron 214 describing an accidental explosion of an *HEI* round in the feed mechanism of a 20mm automatic M3 *gun* during a strafing run in Korea.

A close investigation of the weapon revealed that the forward three inches of brass from a 20mm round remained in the chamber. The case of an expended round was found in the mouth of the feed mechanism in a position two inches forward of normal feeding position and canted downward at an angle of 35° from the horizontal axis of the feed mechanism. This is illustrated in the sketch.



SKETCH SHOWS BURST 20 MM. SHELL POSITION

The forward end of this cartridge was opened raggedly, thus indicating an explosion of the projectile. An inspection of the drive spring of the feed mechanism revealed that it had not lost its tension. Examination of the extractor showed it to be worn. The gun had fired approximately 3500 rounds prior to the explosion but because of existing conditions, proper preventative maintenance was not possible.

BuOrd Comments: **The cause of this accident was probably due to the fact the first round was not extracted from the chamber and that the head of the second round exploded upon being jammed against round one. The possible causes of failure could have been due to dirt in the chamber, rough chamber boring, improper lubrication of ammunition, an imperfect round being loaded into the chamber, or a combination of any of the above mentioned reasons.**

BuOrd Recommendations: **It is strongly recommended that the breechblock assembly be disassembled, cleaned, and inspected daily or at the end of 600 rounds of firing if the gun is to be fired again the same day. The entire weapon should be disassembled and thoroughly inspected daily or as often as practicable.**

Another Close Shave on CV

A recent article in this magazine reported the accidental firing of F4U machine guns on the hangar deck of a carrier in the forward area. "Accidental" if you consider deliberately squeezing the gun trigger in a fighter known to have loaded guns!

Nine days later, *on the same CV*, a faulty gun in an F4U was being checked on the flight deck by a supposedly qualified man. Ammunition was loaded in all guns except the one being worked upon and reliance was placed in the switches and circuit breakers to keep them safe. However, when the trigger was pulled, one gun fired a few rounds over the deck (worn parts allowed release of bolt).

Fortunately, no damage was done. But the elements of a heavy casualty were there.

Again let us realize that when any one gun of a battery is being checked, ALL guns in the battery must be unloaded to prevent a chance firing with possibly fatal results.

Timer Test Unit Mk 37 Mod 0

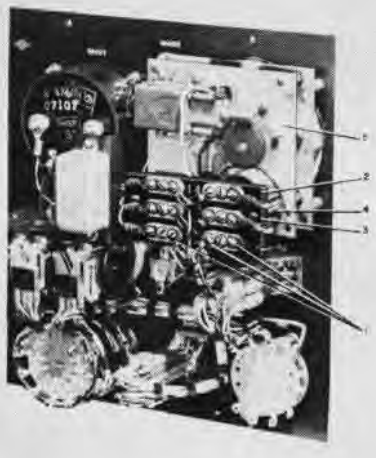
An Ordnance Material Letter is being issued by the Bureau of Ordnance to provide instructions for the addition of a filter network to the timer motor equipment of *Test Unit Mk 37 Mod 0* to reduce objectionable electrical transient noise.

Modification is applicable to a number of early production *Test Units Mk 37 Mod 0*. This modification should be accomplished by maintenance activities possessing units not previously modified. Units that have previously been modified will bear a yellow dot on the case near the nameplate.

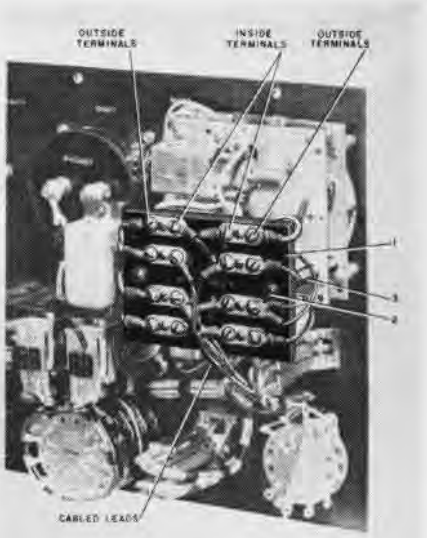
Source of Material: The material required to accomplish this modification will be furnished as a Field Change Kit, Stock Number J942-K-314-110. The kit will be composed of the items listed below:

Index No.	*Description*	*Qty*	*BUORD Dwg. No.*
1	Terminal Board Assy.	1	874521
2	Wire Assy. (white with blue tracer)	1	848512-1
3	Wire Assy. (blue)	1	848512-2
4	Wire Assy. (red)	1	848512-3

Do not order the items separately. The kits listed are available under Stock Number J942-K-314-110, but will not be generally distributed. Requests should be submitted direct to this Bureau on S&A Form 220.



REAR VIEW OF TEST PANEL BEFORE MODIFYING



REAR VIEW OF TEST PANEL AFTER MODIFICATION

A Problem of Switching

This was the case of the crossed switches. An F4U-5 plane made a water landing. After being overhauled, the Aircraft Fire Control System Mk 6 Mod O gave consistent undershooting of targets on the *HVAR—35° and Over switch* setting. The trouble was found, after much work, to be a result of cross-wiring the connections to Switch Box Mk 3 Mod 1.

Operational checks described in paragraph 5-3-2 of Ordnance Pamphlet 1688, Part 1, should reveal discrepancies caused by the improper wiring of switches described above. However, in some aircraft, the rocket offset required for the *35° and over* setting may be so close to zero that it is difficult to distinguish from the *guns* setting. In such cases, a simple flight check may be made.

Flight Check Required: A pilot check of the Aircraft Fire Control System Mk 6 Mod O in flight is required to turn up this and other deviations of the same nature. Bench testing by means of a turntable test would disclose such an error. However, owing to improper connection, such a check could be nullified by installation.

The flight test would consist of: (1) Flying in a constant turn with the fire control system and gyro turned on set switches to *guns—35° and over*. Note the position of the gyro pip after uncaging of the gyro. (2) Throw the fire control switch to *HVAR —35° and over*. This should result in a greater horizontal deflection. (3) the downward pip deflection at *HVAR—35° and over* should be less than when the switches are set to *HVAR—35° and under*.

Wiring Errors Can Be Reduced: The error in wiring would only show up on a turntable test or in actual operations, and might accidentally be rectified in a charge from the plane to the test bench and back. Owing to the vertical offsets involved in the Aircraft Fire Control System Mk 6 Mod O for the particular type of plane, ground tests which do not swing the gyro will not give an indication as to whether these possible mis-connections have been made. Only eternal vigilance can reduce the frequency of errors.

LETTERS

SIRS:

Having read in the January NEWS about twin-engined planes on carriers, I was surprised to learn there was no information on the earlier operations of such aircraft.

The XJO-3 was flown from Philadelphia Aircraft Factory to San Diego in August or first of September 1940. It was flown on and off the old Lexington by LCdr. Neale and Chief Aviation Pilot George McDonald for at least 10 landings.

LCdr. Neale and myself flew it from San Diego to Philadelphia the latter part of October 1940, where it was converted back to conventional type landing gear. The carrier tests were with tricycle fixed gear.

The XJO-3 was used by *Project Fox* in tests that are now known as television. The plane carrying the pickup camera and the receiving unit was in top of the supply building at the NAF. I flew the plane other than carrier landings.

The XF3F-1 also was there, but don't recall or find any record of it landing on a CV. It did make numerous landings on the platform at the aircraft factory.

LCDR. DAVID E. BUNGER
NRTC JACKSON, MISS.

SIRS:

We would like to remind Navy helicopter pilots and persons who have been rescued by pilots that they are eligible to write for and receive the silver Winged S lapel pin which Sikorsky Aircraft Co., awards to rescue pilots and the persons they saved.

It is difficult to contact the increasing ranks of helicopter pilots who have been rescuing men from the water or on land in Korea, but they can receive the award by requesting the pin.

EDWARD M. BENHAM
PUBLIC RELATIONS MANAGER
SIKORSKY AIRCRAFT CO.
BRIDGEPORT 1, CONN.

SIRS:

On page 32 of your February issue an error was made in describing an addition to the Navy Commendation Ribbon.

The Secretary of the Navy on 11 January 1944 authorized a ribbon to be known as the Commendation Ribbon (no medal involved) to be worn by authorized personnel in the same manner as prescribed for other decorations or service ribbons.

On 22 March 1950 the Secretary of the Navy approved the issuance of a "metal pendant" to all personnel entitled to wear the Commendation Ribbon.

The metal pendant is definitely not a decoration. It is not a medal but is, as the name implies, a *pendant* to signify that the recipient has been awarded a Letter of Commendation with Ribbon.

The "metal pendant" is issued to all personnel authorized to wear the Commendation Ribbon, and is not confined to only men in naval aviation, as your article implies.

R. L. RAMEY
NAVY DEPT. BOARD OF DECORATIONS AND MEDALS

SIRS:

VP-7 has published a book, *The Neptuners*, during off hours. It contains 155 pages with 600 pictures. The book traces the squadron's travels from Newfoundland and Baffin Island to Puerto Rico and Cuba.

The Neptuners' makeup is similar to a school yearbook. Special effort was made to secure personal scrapbook pictures and official shots. Individual portraits were taken by a local photographer.

Four hundred copies were printed, so some are left on hand which will be sold to ex-VP-7 men at $4 a copy. Interested personnel should write to Lt. (jg) John J. Kent at VP-7, FPO New York.

E. A. RODGERS, CDR.

SIRS:

I think your magazine is 4.0 wonderful. The format, pictures, cartoons, feature articles, news items, human interest—all excellent.

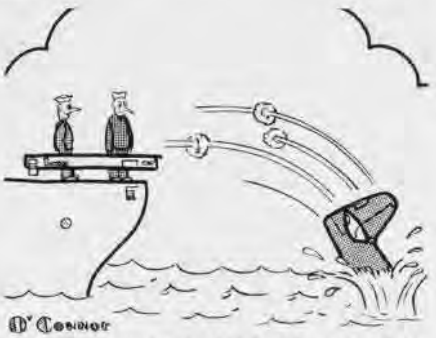
The new series, "Navy Air Power in Korea," is better than a newsreel or a letter from a buddy on the scene.

You know how reading habits differ. Some start at the back—some at the front, etc. For years I have turned to "Grampaw Pettibone" first. If you were ever to leave his column out, I would be admitted to the mental ward clutching my copy and thumbing the pages like mad. Wish you could spare the old man a little more space. . . .

Best wishes to you and your staff for the continued success of your magazine.

H. C. RAND, LCDR.
NAS PENSACOLA

[Grampaw takes a bow and with him all the staff.



"BETTER GET A NEW SPRING FOR THAT CATAPULT, GEORGE!"

SIRS:

The officers and crew of the USS *San Jacinto* (CVL-30) will convene for reunion at the Hotel Pierre in New York City on San Jacinto Day, April 21.

All letters of inquiry and reservations should be sent to Chaplain D. B. Cordes, St. Paul's Episcopal Church, Norwalk, Ohio.

DEITRICH B. CORDES, LCdr.

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● THE COVER

Ground crewmen at NAS Guantanamo Bay maneuver blimp from ZP-1 for a landing at McCalla field. The blimps were in Cuba for ASW maneuvers with the fleet from their base at NAF Weeksville, N. C.

● CITY QUIZ

Top—AM-1's from NAS Glenview's VA-727 flying over Miami Beach during two weeks active duty cruise. Photo by Tom Conlin, AF1, of NAS Miami. Lower—San Francisco, Calif.

● RECOGNITION QUIZ

Top—De Havilland 113 night fighter with belly tanks. Middle—DH 112 Venom with wingtip tanks, sweptback wing, solid canopy. Lower—DH 115 two-seater trainer. Note different rudder shapes on all three.

● BACK COVER

This month's back cover drawing is by Herbert C. Hahn, AF1, aboard the "Boxer".

● THE STAFF

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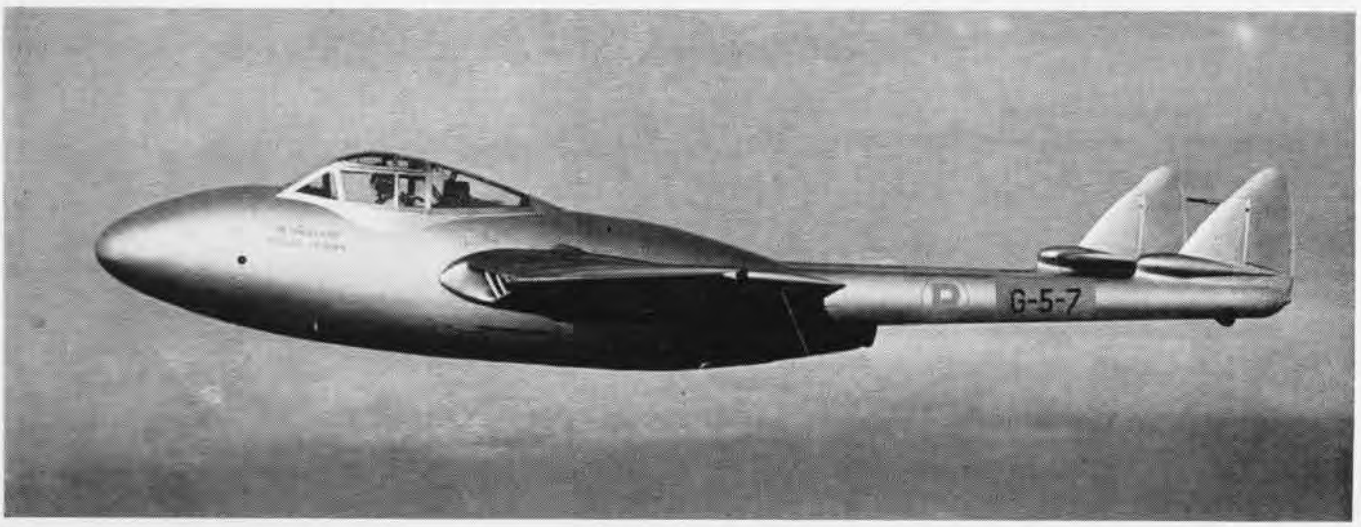
A TRIO OF VAMPIRES

Many different versions of the British *Vampire* jet fighter have been developed. Can you recognize these three? *Answers are on last page.*



what do you know?

You're in the thick of it! There's a story to tell. We're not clairvoyant, and the only way we can know what you know is to have you give us the word. Share your experience with Naval Aviation News, so that other pilots and crewmen may profit by your life-saving, plane-mending, dollar-saving techniques. Whether you're at an air station, on a carrier, or in a squadron, what you're doing is news, and news is our business. Just give us the facts, and we'll tell your story. It's history in the making. We want it before it's ancient. What do you know? Plenty. Share it TODAY!

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