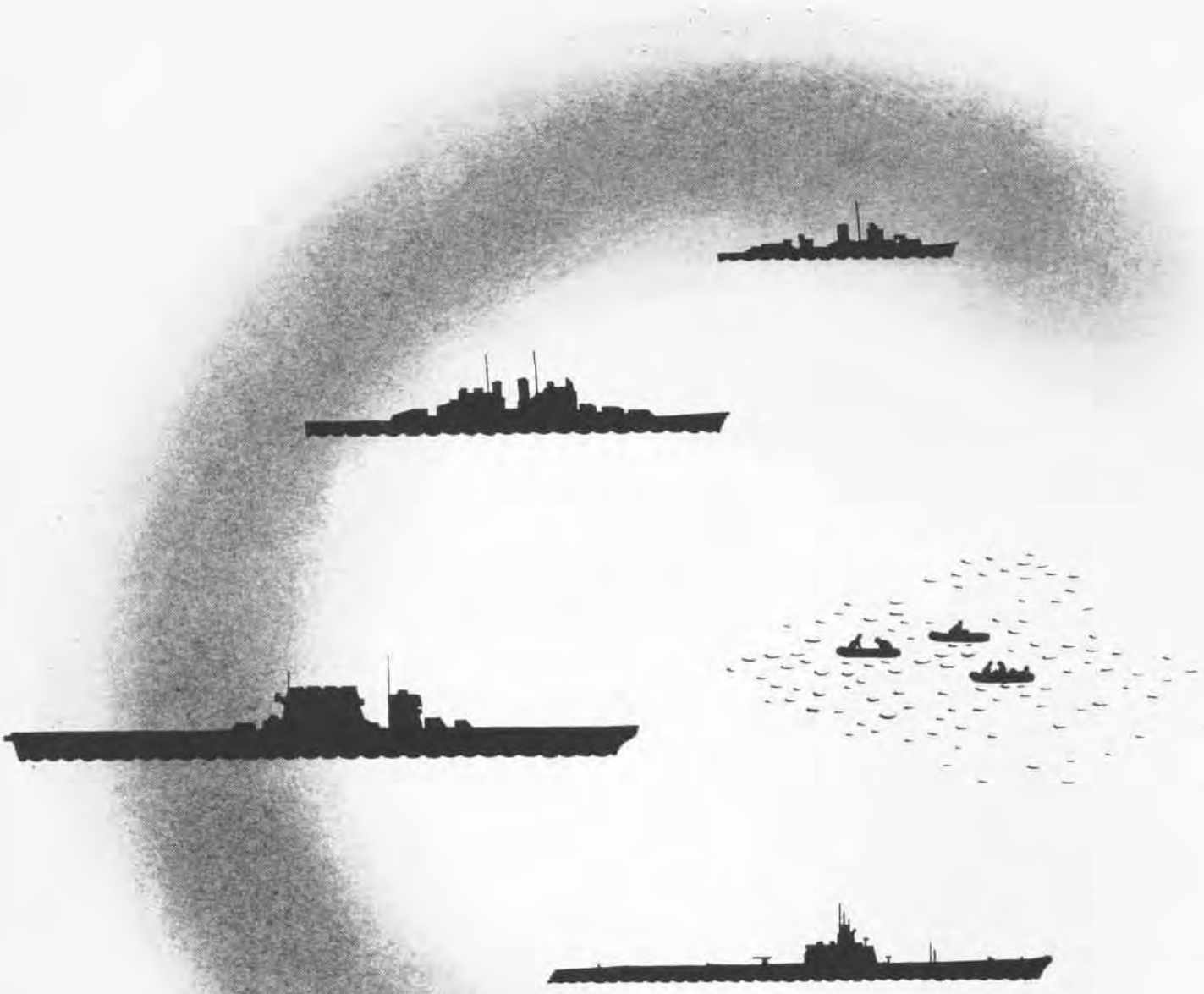
NAVAL AVIATION NEWS

Navy Plane Guards
Post-War Training
Joining Magnesium

December 1945



SHIPS THAT

SINCE THE perilous days of 1942 the Navy has been guarding the air lanes. Across two oceans, a network of air and surface craft is on the alert constantly for distress signals. In the year from June 1944 to June 1945, there were 1010 reported ocean crashes or ditchings. Out of these catastrophes, 2150 pilots and crewmen were rescued. Only about 20 percent were lost. Some of those are in the "missing" category and still may be found.

The work of *Dumbo* planes, blimps and small boats in these rescues is familiar. Because of the interesting nature of the craft and their unique mode of operation, they have received considerable attention. Less conspicuous, perhaps, but more important in actual volume of lives saved, was the work of the Navy's plane guard vessels—the DD's, DE's, Cruisers, Life Guard Submarines and other surface ships. Of the 2150 personnel mentioned above, a good two-thirds were brought back to the fight by the floating Navy, of which the subs formed a small but highly effective part.

Air sea rescue work began in earnest for the Navy's surface forces during the hazardous days of 1942, on the 2000-mile Alameda-to-Honolulu run, when anything with wings was pressed into service. Ordinarily many of these planes would never have been used for the long flight. But this was an emergency, so they sputtered back and forth to Oahu. Some got tired and hit the ocean. To meet this problem, the Navy set up its first plane guard network. DD's, DE's and frigates

GUARD THE AIRWAYS

were picketed along the run to guide planes by radio, to provide weather information and to stand by for immediate call on ditchings.

TODAY, four Coast Guard plane guard vessels, fully equipped for all emergencies, are all that are needed to guard this route. Many more ships are scattered across other Pacific routes. During the past year, special plane guards were picketed along the routes of individual carrier strikes against the enemy;and along Army and Navy bombing routes. Many networks were devised individually for each strike.

In the Atlantic, 22 ships of Task Force 24 stand at regular stations to guard planes laden with returning veterans from the ETO. Every 20 minutes since early June, the 8th Air Force has flown a huge transport across the Atlantic, loaded with returning vets. The record of successful flights is better than 99.0 percent. The Navy ships helped establish that record by providing radio directional aid and WX reports. In the few instances that a plane has ditched, ships have saved the majority of personnel.

But it was during the last big pushes in Pacific forward areas that the DD's, DE's and submarines were most appreciated.

"There is nothing in the world," said one rescued airman, "as comforting as the sight of a destroyer's prow heading your way, when you're bouncing on the ocean in a rubber boat."

LIKE A GUARDIAN ANGEL, PLANE GUARD HAUNTS CARRIER

THE RESCUING DD SWOOPS AROUND SURVIVORS IN WIDE APPROACH . .

DD's AND DE's

"PICKED up by DD"

With such brief comment, A/S rescue reports summarize the type of ditching occurring during landing and take-off operations on a carrier. These are now so routine that pilots fully expect survival in most cases. The volume of rescues by destroyer and cruiser today are effected when these ships are escorting a carrier. But this is by no means the entire plane guard duty performed by Navy DD's, DE's and cruisers The warships figured heavily in the plane guard networks established in both oceans. Task Force 24, operating out of

A CL CREW RETRIEVES A DITCHED KINGFISHER AND CREW

DD'S AND DE'S SAVED MANY B-29 CREWS LIKE THIS ONE ON THE TOKYO RU

MAKES A TURN AND COMES ALONGSIDE LIFEBOAT SLOWLY FOR THE PICK-UP. IN A ROUGH SEA IT'S NOT ACCOMPLISHED AS EASILY AS THAT

Greenland, still uses them to provide WX reports and protection for troop transport planes. They guarded the North Atlantic run during the hazardous bomber ferry days. They saw duty between Hawaii and the West Coast. Beyond the Philippines and Ryukus, and to the shores and bays of Japan, these ships covered missions of the fast carrier task forces and B-29 bombing runs from Okinawa and the Marianas.

Every fast carrier task force sent out its own destroyer, cruiser and submarine pickets for dual purpose of beating off attacking bogies, and guarding distress frequencies for pilots who couldn't make it home. Before each strike, the A/S rescue officer consulted Intelligence for the purpose of picking out suitable hidden island bays along the route. Here the ships, subs, boats and *Dumbo* planes were spotted to await distress calls when D-day came.

Established networks do not preclude the authority of a ship to operate individually on rescue missions. DD's and DE's, answering distress calls on their own hook, did a yeoman job of saving hundreds of lives.

The largest mass ditching in history occurred on the night of 20 June, last year, during long range carrier strikes in the Marianas operation. More than 100 aircraft were in the water over a huge area. Yet, more than 75 percent of all crews were saved. Most rescues were accomplished by DD's and DE's, operating individually with no preconceived over-all plan.

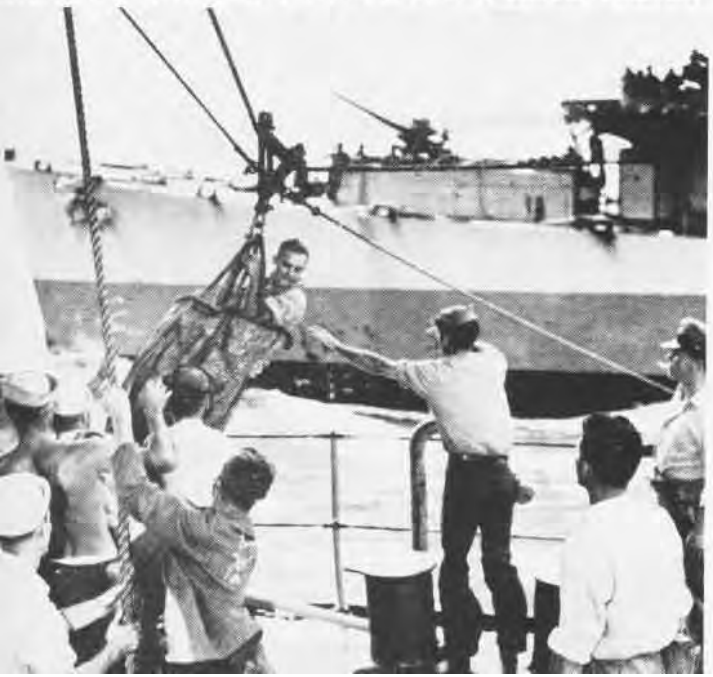
Freedom to operate at the skipper's discretion has saved lives that might otherwise have been lost. A fighter pilot, shot down during pre-landing strikes on Saipan, was rescued by the DD picket of another carrier group that happened to see him after he'd been adrift 11 days. Another pilot was rescued similarly after four days at sea.

Great lengths to which some rugged skippers will go to save lives is typified by the DD that steamed right into Tokyo Bay this year to pick up a ditched fighter pilot.

Reason for surface ships' high score over airborne rescue craft is obvious. There's nothing like a sound ship in rough weather. Work of *Dumbo* planes is limited in heavy seas. One DD sailed out of Eniwetok simultaneously with a *Cat* in search of survivors from a downed B-24. The *Cat* located the survivors, tried to land, but crashed on impact. The DD steamed along and rescued the rescuers and B-24 crew.

DD rescue duty ends with return of pilot to carrier. The carrier returns the bos'n's chair with 20 gallons of ice cream.

RETURNING A RESCUED PILOT TO HIS CARRIER IS SERIOUS CEREMONY



TRADITION CALLS FOR ICE CREAM AFTER DELIVERY OF A PILOT

1. SEARCH PLANE SPOTS SURVIVORS, RADIOS DESTROYER

PLANE GUARD SHIPS DOT THE OCEAN, GUIDE AND RESCUE PILOTS

OPERATIONS

"MAYDAY on Target X!" crackles out over the airwaves, as the crippled plane heads for the sea. The effect is electric!

▸ In the CIC rooms of a nearby carrier and her escorts the message is picked up on the constantly guarded distress frequencies. The carrier's skipper is notified and dispatches immediately one or more of his escorts to conduct search. Perhaps the carrier will search, too.

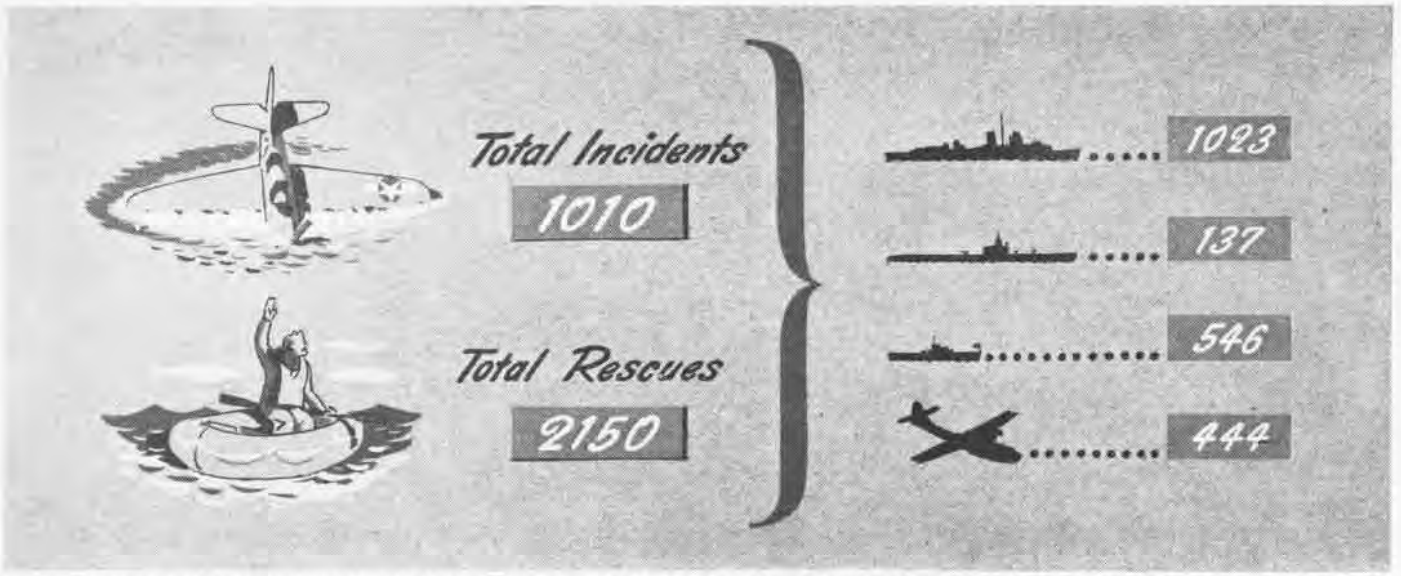
▸ A sea frontier A/S rescue station picks up the call and dispatches a ship, crash boat or *Dumbo* plane from its network of plane guards to the designated fix.

▸ A nearby ship or patrol plane picks up the signal and the skipper proceeds immediately to start hunting, relaying the distress call if help is needed.

Any one or all of these actions may result from one distress call. The Navy leaves no stone unturned as long as any hope remains. Hence, the wise pilot who has even a little time before ditching, will go out over his emergency IFF

2. IN CIC ROOM OF SHIP, BELOW, FIX IS FOUND ON MAP

3. DD PROCEEDS TO FIX AND SENDS OUT ITS LAUNCH TO TOW RAFT BA



COMPARISON OF RESCUES BY VARIOUS CRAFT SHOWS SHIPS IN LEAD FOR ACTUAL VOLUME OF MEN PULLED FROM WATER IN BOTH OCEANS

with plane type, position, and intentions. This not only cuts time lost in search by Type B or Increasing Square methods, but brings in help with dispatch from all A/S rescue facilities in striking distance.

The low silhouette of new DD's and DE's is advantageous in operations against the enemy. But it doesn't provide the best opportunity for sighting life rafts. Cooperation of aircraft on the scene increases efficiency by established visual procedure. From its vantage point in the air, the plane: *1.* spots the raft, *2.* orbits raft, *3.* zooms across rescue ship's bow, opening and closing throttle, *4.* flies in direction of raft rocking wings.

Planes also can aid rescue surface craft by dropping visual markers such as smoke bombs and flares. Last June a TBM flying at night over water lost a crewman when a flare ignited accidentally in the plane. The crewman thought the plane was afire, and jumped out. The pilot dropped three flares immediately, and went out over his emergency IFF with approximate fix. A cruiser with four DE's, about 20 miles away, picked up the signal and proceeded to the rescue. The fix was off, but close enough so the flares were sighted. The crewman was aboard within a few hours after hitting.

TECHNIQUES

NO SPECIFIC rescue technique is established for DD's, DE's, and other large surface ships. Methods vary with maneuverability of each ship under conditions of weather and sea.

One DE skipper has found it best to continue at high speed toward the survivor, throwing a life ring or raft and equipment overboard, then proceeding around in a slow approach for the pick up. Another skipper reports it better to coast down on the survivor after swinging out of the wind, keeping the man forward of amidships, in the lee.

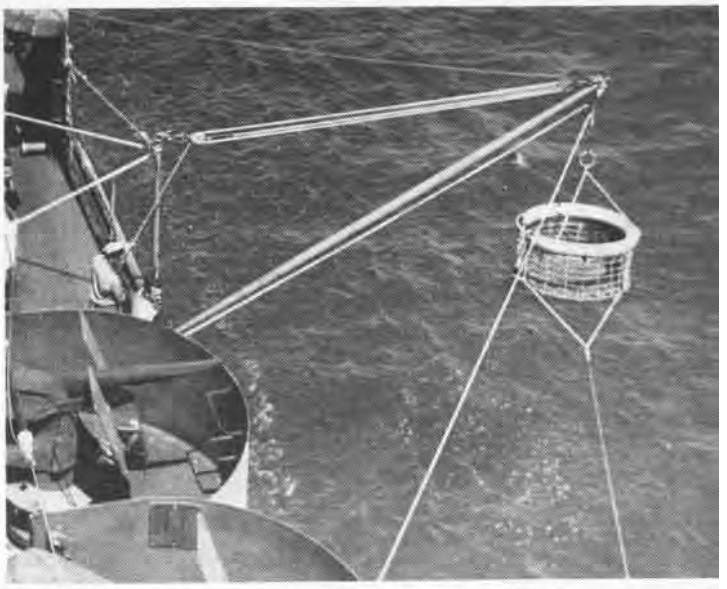
Greatest problem of surface rescue ships is boarding a man—especially a helpless man—in rough sea. The ship's roll and high sides can cause a survivor to be dashed beneath the hull when he comes alongside; or rebounding waves may throw him back many yards.

Recommended technique aids in this operation: A cargo net is thrown overside. The survivor clutches the *top* of the net when the ship reaches the top of its roll toward him.

4. SURVIVORS COME ABOARD. THIS TBM CREW DITCHED OFF OKINAWA

5. RESCUED MEN GO BACK TO THE CARRIER VIA BOS'N'S CHAIR

EXPERIMENTAL RESCUE BASKET PROVIDES EASY ACCESS FOR HURT



BASKET SWINGS CLEAR, MINIMIZES DANGER BOARDING IN HIGH SEAS

TECHNIQUES . . . Cont'd.

Thus, the survivor is pulled right out of the water by the roll to the opposite side and is easily hauled aboard.

Even this technique has limitations in cold water. Navy doctors concur that 10 or 15 minutes in water much below 60° F will render a man helpless. Half an hour may prove fatal.

One pilot came in out of the groove in a carrier landing, and hit the drink in the North Atlantic last winter. The sea was high. Despite efforts of two DE's that kept him in sight the whole time the pilot was unable to board either. Within 10 minutes he had been rendered helpless by numbing water. An officer from one DE plunged in after him, but after 10 minutes of futile effort had to be hauled out himself. The pilot eventually disappeared beneath the rolling hull.

Helpless survivors are the constant worry of rescue ships. Suggestions are plentiful. A U.S.S. *Bennington* officer recommends that the DD or DE fire an empty ashcan, with line attached, from the Y-gun. The ashcan would sail over and beyond the survivor. By swinging the ship around, the line would be drawn to the survivor, the floating ashcan serving as pivot.

One ditched pilot, in weakened condition, was so exasperated trying to climb aboard a destroyer's net in rough sea, that he suggested all life guard destroyers devise a cowcatcher for lifting weakened personnel from heavy seas.

Lacking a sufficient supply of cow-catchers, Aviation Safety Division of ComAirLant, in Norfolk, devised a "rescue basket." Experiments have been highly successful. The basket consists of a circular steel frame, bottom and side covered with rope net. A small opening for boarding is cut in the side. A ring of canvas-covered kapok circles the top, so the contrivance floats partly submerged. Three steel bars pyramid above the basket, with a ring on top to accommodate grappling hook or line. The unit is collapsible for convenient stowage.

The basket is lowered over the side with tow line attached and is dragged slowly past the survivor. If the man is helpless, a rescuer can be lowered in the basket to assist him. The survivor boards the basket effortlessly through the side opening, is towed back to the ship and hauled up by crane—basket and all. The operation requires only a few minutes.

SHIPS DEVISED OWN GEAR. DD 793 USED A LIFE RING ON LINE

DD 534 TIED LINE TO RESCUER, HAULED HIM UP IN BOS'N'S CHAI

THE LIFEGUARD SUBMARINE, IN CONNECTION WITH BUDDY PLANE OR DUMBO, MADE A PERFECT RESCUE TEAM DURING LAST WAR DAYS IN PACIFIC

SUBMARINES

AS THE WAR in the Pacific drew to a close, Fleet type submarines saw more and more duty in A/S rescue operations. In the bomber strikes from Okinawa and the Marianas, Lifeguard Subs were picketed, along with DD's and DE's, all the way up the routes of flight. At Truk, two or three subs were maintained constantly for A/S rescue work. Because of their vulnerability to enemy action, Lifeguard Subs are limited in freedom of movement. Of all personnel successfully rescued from June 1944 to June 1945, the subs were responsible for 135. But many of these men would have been lost had it not been for the subs.

One fighter pilot, downed within range of Guam shore fire during the Marianas battle of 20 June, was towed out of danger by a Lifeguard Sub submerged to periscope level. He then boarded safely when towed far enough offshore. It was the first successful attempt at this ingenious type rescue—which eliminates danger from shore batteries.

Advantage of subs in rescue work is clear. Their ability to creep in close to target areas submerged and undetected, and await distress calls, can't be beaten. Arrangements for their use in carrier strikes and long range bombing missions were well planned, not only to avoid enemy detection, but also to prevent our own pilots from mistaking them for enemy.

Long in advance of Pacific strikes, the A/S rescue officer consulted Intelligence on the matter of spotting rescue craft along route of flight. Intelligence made a routine request of ComSubsPac for one or two Lifeguard Subs to be picketed near the target area. Pilots were carefully briefed on where the subs would be, and headed for that bay if ditching.

All airmen are briefed on what to look for. Only U.S. Fleet type submarines are used as Lifeguard Subs. They are easy to recognize by their clean decks, unique shape and position of conning tower—well forward of amidships.

Lifeguard Subs on strike duty guard two distress frequencies: 4475 KCS and VHF (Voice); or 140.58 MCS when in rescue operations. On carrier strikes, these frequencies are guarded from three hours before dawn until completion of lifeguard duty. The two Gibson Girl frequencies also are guarded when planes in the strike are known to carry it.

Naturally, specially coded distress calls are used in sig-

THE U.S.S. SEALION MADE THIS RESCUE ON HER SECOND WAR PATROL

SUBS, LIKE U.S.S. GAR, SLIPPED INTO BAYS TO MAKE RESCUES

SUBMARINES . . . Cont'd

nalling Lifeguard Subs, to avoid giving away sub's presence. Nor can the sub be used as a reference point. After sending his distress call, the pilot must ditch, and sit tight until the sub comes to his rescue. Buddy planes may help the sub locate survivors by orbiting or dropping smoke flares.

Searching for a raft without help is rough duty for a sub, especially in swells or waves. Luck, however, has sometimes helped. One sub, alerted and vectored to a downed pilot near Amomi O'Shima, started toward the fix—20 miles away. But a Jap *Betty* spotted the sub and forced it to crash dive. The skipper had to stay submerged until morning, and visualized a long, painful search due to the raft's drift. At dawn he surfaced—*almost upsetting the raft!* They drifted together.

Boarding survivors is not as hazardous an operation with subs as with DD's and DE's. Best results are obtained, however, if the survivor ditches to leeward of enemy positions, so he drifts away from them. Sub comes in to leeward so the raft drifts toward it, enabling speedy boarding.

One Lifeguard Sub crew suggests a life ring, Jacob's ladder and a strong swimmer with a three-man party as a capable sub rescue organization. The sub uses a high speed approach, the ring is thrown to survivor who catches line while rescuers pull him to the ladder. The swimmer assists survivor aboard, knifes and sinks rubber boat.

When pilots are properly briefed, the operation is swift. A TBM pilot over Ishigaki Jima was forced to ditch. He called the nearby Lifeguard Sub. The sub surfaced immediately—10 miles away. The pilot saw it, ditched alongside and the three occupants of the plane crawled out, boarded the sub and were under way in three and a half minutes.

It isn't always that easy. Five crewmen of a PB4Y-2 escaped in a raft when their plane crashed only half a mile from enemy shore batteries. Despite this dangerous position, a Lifeguard Sub, the U.S.S. *Jallao* came in, directed by a PB4Y-1. The Japs sighted the sub and opened up on it, but the survivors were taken aboard anyway. Two shells landed within 25 feet before the sub crash dived and got away.

Some Lifeguard Sub skippers showed their own teeth. In one instance, the sub was searching for the crew of a TBM, shot down a few hundred yards off the coast of Honshu, in full view of a Jap lighthouse and shore battery. The sub skipper ordered flares shot off, sighted the rubber boat, came alongside, took the survivors aboard—then deliberately shelled the daylights out of Jap installations before departing.

Lookout watch on conning tower keeps an eye peeled for survivors

From: Commander Air Force, Pacific Fleet
To: Commander Submarine Force, Pacific Fleet
Subj.: Submarine Life Guard Exercise, Appreciation for

. . . The performance of submarines in providing Lifeguard service has been one of the noteworthy developments between naval air and surface units during this war, and has been responsible for saving many lives of pilots and aircrewmen. . . .

A. E. Montgomery

From: Commander Submarine Force, Pacific Fleet
To: Commander Air Force, Pacific Fleet
Subj.: Submarine Life Guard Services

. . . The submarine force is proud to have been able to be of service to the gallant officers and men of the Naval Air Service who wrote such a glorious record of achievement on the pages of history in bringing the enemy to his knees. . . .

C. A. Lockwood, Jr.

U.S.S. ARCHERFISH 1, U.S.S. ARGONAUT 1
U.S.S. ASPRO 6, U.S.S. BALAO 7
U.S.S. BANG 1, U.S.S. BATFISH 3
U.S.S. BERGALL 4, U.S.S. BLACKFISH 6
U.S.S. BLUEBACK 4, U.S.S. BLUEFISH 9
U.S.S. BONEFISH 2, U.S.S. BOWFIN 3
U.S.S. BREAM 5, U.S.S. BULLHEAD 3
U.S.S. CABRILLA 6, U.S.S. CERO 3
U.S.S. CHARR 2, U.S.S. CHUB 3
U.S.S. COBIA 7, U.S.S. DRAGONET 5
U.S.S. FINBACK 5, U.S.S. GABILAN 17
U.S.S. GAR 8, U.S.S. GATO 13
U.S.S. GROUPER 7, U.S.S. GUARDFISH 2
U.S.S. GUAVINA 17, U.S.S. HACKLEBACK 1
U.S.S. HADDOCK 1, U.S.S. HAMMERHEAD 1
U.S.S. HARDER 1, U.S.S. HARDHEAD 2
U.S.S. ICEFISH 6, U.S.S. JACK 1
U.S.S. JALLAO 5, U.S.S. KINGFISH 4
U.S.S. KRAKEN 1, U.S.S. PERCH 2
U.S.S. PETO 12, U.S.S. PINTADO 12
U.S.S. PIPEFISH 9, U.S.S. PLAICE 5
U.S.S. PLUNGER 1, U.S.S. POGY 10

Included in the now-it-can-be-told category is the story of the Submarine Lifeguard League made up of undersea craft engaged in air/sea rescue work. These lifeguard subs rescued 504 United States and Allied airmen from enemy waters during the course of the entire war. Rescue data given on the preceding pages are for specified periods only, for instance the figure 137 that appears on the chart on page 5 represents total submarine rescues for one year. Submarines claiming membership in the Lifeguard League and the total number of airmen each rescued in World War II are listed in this column.

U.S.S. POMFRET 7, U.S.S. QUEENFISH 13
U.S.S. QUILLBACK 1, U.S.S. RAY 21
U.S.S. RAZORBACK 5, U.S.S. ROCK 1
U.S.S. RONQUIL 10, U.S.S. SAILFISH 12
U.S.S. SAUBY 1, U.S.S. SAWFISH 2
U.S.S. SCABBARDFISH 12, U.S.S. SEADEVIL 15
U.S.S. SEADOG 1, U.S.S. SEAFOX 11
U.S.S. SEALION 1, U.S.S. SEAOWL 6
U.S.S. SEARAVEN 3, U.S.S. SEAROBIN 2
U.S.S. SEAWOLF 2, U.S.S. SHARK 2
U.S.S. SILVERSIDES 2, U.S.S. SKATE 6
U.S.S. SNOOK 1, U.S.S. SPEARFISH 7
U.S.S. SPIKEFISH 1, U.S.S. SPRINGER 9
U.S.S. STEELHEAD 1, U.S.S. STERLET 8
U.S.S. STINGRAY 5, U.S.S. STURGEON 3
U.S.S. TANG 22, U.S.S. TENCH 2
U.S.S. THREADFIN 4, U.S.S. TIGRONE 31
U.S.S. TILEFISH 1, U.S.S. TINOSA 10
U.S.S. TORO 9, U.S.S. TREPANG 10
U.S.S. TRIGGER 1, U.S.S. TRUTTA 1
U.S.S. TUNNY 3, U.S.S. WHALE 15

NAVAL AIR RESERVE PROGRAM

Peace-Time Plan Gives Inactive Reserves Opportunity to Retain War-Won Flight Training Skills

FLYING days can go on for thousands of the Navy's combat aviators, under plans now being drafted by the Naval Air Reserve Command for post-war years. Instead of being reduced to flying little one-lungers off a neighborhood grass lot, these pilots can continue to fly the latest kind of Navy planes at Naval Reserve Air Stations scattered over the nation.

The reserve will be made up of two groups—"ready" reserve, under which Navy and Marine pilots will fly about 100 hours a year and be paid for their services, and the "standby" reserve. These men would fly on a voluntary basis up to 50 hours a year.

Scope of the program will depend on appropriations made available by Congress to pay for gasoline and oil for such flying. Regular Navy personnel would keep the 20 or more air stations assigned to reserve work in operation.

Stations contemplated at present for reserve use are Atlanta, Memphis, Olathe, Dallas, Glenview, Grosse Ile, Jacksonville, Miami, Los Alamitos, Minneapolis, New Orleans, New York, Norfolk, Livermore, Philadelphia, San Diego, Seattle, St. Louis, Squantum and Anacostia. At some of these stations reserve flying would be in addition to other aviation activities there.

The Navy also plans to have a reserve program for ground officers, aircrewmen and ground personnel, to keep them refreshed in aviation matters and progress. Surplus aircraft and training necessities on hand at the war's end will be used to provide reserve air stations with equipment necessary to implement the program. Stations were selected in areas so that reserves could reach them without too much travel. Others may be added.

The ultimate objective of the inactive reserve program is to keep enough inactive pilots in a trained status to permit rapid use of combatant vessels that are being laid up under the Navy's post-war plan. Individual pilot qualifications must be high.

For this reason the younger pilots with the most recent Fleet experience will be desired. Standby reservists will include personnel in the older age brackets; those who, due to civilian pursuits, cannot regularly attend drills, and those who will be needed in technical and administrative billets.

The outlined plan calls for the ready reserve to be organized into air groups, squadrons and units corresponding to complements of the laid up inactive vessels. The standby reserve would be organized into units for instruction that would fit them into the mobilization plan. Aircraft carriers will be available to assist in the program.

GRAMPAW PETTIBONE

Slipstream Warning

Following a series of six landing accidents that were caused by slipstream within a period of one month, ComFAir Quonset issued a safety bulletin containing the following:

1. Maintain adequate air speed throughout landing procedure.
2. Maintain sufficient interval between planes in the landing circle, to allow for slipstream.
3. Take own wave-off should interval become too close during landing.
4. Alternate sides of runway in landing, reducing possibilities of encountering slipstream.
5. Remember! At slow speed slipstream quickly induces stall.

Orchids to VJ-10

While taxiing back to the line, the port landing gear of a TBM-1C collapsed, causing stoppage of the engine and considerable propeller and wing damage. The pilot reported he had not touched flap or landing gear levers after landing.

There was no apparent cause for this accident. It might easily, therefore, have been listed as indeterminate and forgotten. But VJ-10 Aircraft Accident Board was made of sterner stuff. Knowing of two similar accidents, they determined to try and find what was causing them. The investigation took one week.

They drop tested the plane and found there was no malfunction in the extension, retraction or locking of the gear. Time interval checks then were made and it was found that both main gears unlocked simultaneously, but the tail wheel retracted two seconds earlier. The mechanical interconnector safety lock was found to be inoperative even with proper inflation of the oleo. The gear flap control unit was bench tested and internal leakage was discovered. Upon disassembly, seals on the poppet valve were found to be deteriorated. This condition was considered the cause of the accident, since that deterioration caused raising of port gear.

The board then prepared an RUDM making recommendations to correct this control valve trouble. They also recommended that a more satisfactory mechanical control lock be designed for this type aircraft and that all units examine the lock during drop tests on every 120-hour check.

▸ *Comment*—This is not the only AAR ever received. It is, however, the best of recent ones and is covered in some detail to show what Aircraft Accident Boards can and should do. Their investigations and reports are a source of information that results in saving lives.

The average of AAR's has shown improvement the past year. A new NAVAER Form 339 soon will be out which should help units prepare more effective reports. Fleet units are reminded that they are no longer exempt from submitting this report.

Leave Them Down

An F6F pilot experienced difficulty in raising his wheels following takeoff. He finally managed to retract them by means of the hydraulic hand pump. Later, when coming in to land, he was unable to fully extend the gear. The proper emergency procedure, plus a series of sharp pull-outs, was tried, but to no avail. The pilot was forced to make a one-wheel landing.

▸ *Comment* — You can be fairly certain that when your landing gear is difficult to raise, it will be just as difficult, if not more so, to extend and lock. If circumstances permit, you should not attempt to force the gear up, but should concentrate on re-lowering and locking it for an immediate landing, in order to enable experts to determine the trouble.

Don't Change Your Mind

The division leader's engine failed at 5000 feet. By radio he informed the remainder of the flight, and continued to restart the engine. Altitude was lost rapidly until, at about 500 feet, the pilot was seen to bail out. His pilot chute streamed, but the main canopy did not have time to open fully before the pilot struck.

In his report of the accident the CO made a statement which is considered good advice to pass along:

"Why the pilot decided to jump at such low altitude I don't know, for it has been repeated over and over, as squadron policy, to make up your mind to jump when high, or ride the plane down. This case proves how fatal it is to change mind at low altitude. How better to impress this on the pilots I don't know. It has been repeated at least once a week to the entire squadron, sometimes more frequently."

IN THE GROOVE AND WAITING FOR THE CUT →

EVERY CARRIER *landing requires the utmost in split-second timing and coordination between pilot and landing signal officer. An F6F pilot demonstrates smooth approach technique as he comes in for a landing on the* U.S.S. Ranger. *In the groove and watching for signals from the LSO, the pilot is putting into practice all the good flying habits he formed during months of intensive training received both before and after he earned his Navy wings. In the post-war period Naval Aviators in the active reserve will be provided ample opportunity to fly operational planes at naval air stations located throughout the United States.*

During Low Visibility??

When a pilot "walks away" after flying into the terrain at night, his story is almost certain to throw light on many similar accidents where life is lost. The following are two such cases:

Case 1. A TBM pilot, attempting a practice night attack on a target force at sea, had successfully evaded defending night fighters for one hour and the fighters retired. He had been flying at 1500 feet and decided to make another approach at 250 feet to get in close without being detected. The pilot again was picked up by night fighters, however, and had to resume evasive tactics. When his center tank indicated 20 gallons, the pilot shifted to a full tank. While the pilot reported his action to the accompanying plane, the engine popped twice. The pilot then turned on the emergency fuel pump and at the same instant hit the water.

Case 2. While flying above the overcast on a night navigation hop, the pilot of an F7F-2N drifted somewhat off course. "So I dropped down through the overcast to look around," the pilot recited later. "Broke out at 4000 feet and elevation of our estimated position was 2100 feet (actual elevation was 3100 feet, a mistake on my part). I had turned my radio altimeter off because bright lights destroyed my night vision. I was making a circle with my right wing down when I ran out of gas. I reached down to change tanks and as I raised up I crashed going 210 knots."

A third case concerns a flight of six F6F-5's having mixed results with respect to fatalities.

Case 3. Returning from rocket firing practice under a 900-foot ceiling, the formation, flying at 500 feet, entered a fog bank which extended to the ground. The flight continued straight and level for about a minute, then commenced a right turn using a 30-degree bank. Two pilots broke off and left the formation when they noticed that the division was at 300 feet in a steep nose-down turn. The remaining four aircraft crashed into the ground in formation a few moments later.

▶ *Comment:* **In Cases *1* and *2* the pilots made their first major errors when they let down without first shifting to a full main fuel tank. The failure of the pilot in Case *2* to utilize his radio altimeter was a major cause in his getting into a position where an accident could happen to him; impairment of night vision should be avoided, but not to the exclusion of employing the best instruments available to fix one's position and altitude. Altimeters, gyro horizons, compasses and fuel gages are instruments that are vital to flight safety especially at night or during low visibility.**

The pilots in Case *3* who survived, in spite of their leader's apparent confusion, owe their lives to their own alertness in detecting a dangerous attitude of the formation and immediately breaking away to fly on instruments. As has often been stated, formations breaking up during periods of low visibility multiply the chances of collision, but every pilot, like every ship captain, must be decisive in applying the GENERAL PRUDENTIAL RULE. Never forget that the pilot is solely responsible for the ultimate safety of his plane.

Tow Planes and Lightning

A report concerning lightning discharges affecting tow lines and sleeves has been received from the Philippine area.

While no damage was sustained by the JM-1 and TBM-3 planes involved, probably due to the fact that the structural units of these aircraft were sufficiently bonded to eliminate internal arcing, it is essential that pilots be made aware of the inherent danger of flying into the areas beneath cumulo-nimbus clouds (thunderheads).

The 5000 to 7000 feet of metal cable used in towing a sleeve astern of an aircraft provides an excellent conductor for the electrical charges built up within cumulo-nimbus clouds. In dragging this conductor through the highly stressed electrical field, the pilot provides the electrical charge with a more effective method of discharge. In other words, the tendency is for the discharge to take place along the metallic conductor rather than by the normal method—through the air. An electric discharge — or lightning stroke — then occurs.

The tremendous potential developed within the electrical field is sufficient to produce a current on the order of 30,000 to 100,000 amperes. The excessive heating which then results will frequently cause the tow cable to "smoke" because of the vaporization of the coating of moisture that clings to it after passing through a precipitation area. Although the one-eighth inch cable is classified as "unoiled," a very thin film is left as protective covering against normal corrosion. The oil, too, may ignite or "smoke."

As stated above, reports of this phenomena have not, to date, disclosed serious damage to the aircraft used in towing the target sleeves. It is, however, mandatory that pilots avoid towing the sleeves into cumulo-nimbus areas whenever possible. Failure to obey this rule may well have fatal results.

GRAMPAW'S SAFETY QUIZ

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

1. **In case of a forced landing resulting in minor or no damage but causing a delay of over two hours, to whom must the pilot report and by what means?**
2. **A formation has the right-of-way over a single airplane except when?**
3. **If cleared on routine contact flight plan and flight is completed without incident, it is unnecessary to file a notification of arrival. True or False?**
4. **During simulated instrument flight in solo aircraft, what is the minimum altitude below which the hooded pilot should immediately remove his goggles and proceed contact?**
5. **It is dangerous to attempt take-off with ice or frost on the wings but loose snow on wings will blow off and not cause any trouble. True or False?**

(Answers on page 40)

Within Gliding Distance

Case 1. A pilot took off in an F4U-1 on an engine "run-in" and did not return on schedule at 1600. Nothing further was heard from the pilot, and all rescue and search facilities were put into operation with negative results.

Case 2. The pilot of an F6F-5 performed a full-power check while flying at only 1500 feet over the water. Upon retarding manifold pressure to 30 inches, RPM dropped off necessitating a forced water landing.

Case 3. An F6F pilot (500 hours) experienced engine failure at 1000 feet while 15 miles from base during engine test. By the time he checked the controls in an attempt to locate the difficulty, it was too late to jump. The ensuing forced landing was made with flaps up, hood closed and shoulder harness not locked. Also, the right wing was low on contact with the ground, causing the plane to cartwheel. The pilot was seriously injured.

Grampaw Pettibone says:

I can tell you an easy way to prevent washouts during test flights of this nature. Simply *stay within gliding distance of the field.*

Granted it isn't very interesting to drone around for a long time over the same airport, but if the alternative means additional and unnecessary accidents, then the answer is clear. And the record does show this, to the tune of two strikes a month.

If you are not interested in saving planes, what about your own neck? Think about your poor orphaned grandchildren!

DID YOU KNOW?

Radar Observers Are Created

Operational School Grads Eligible

The Navy has created a designation of naval aviation observer (radar) and named 415 officers who are entitled to use the designation, according to BuPers CL 280-45.

To be eligible for the designation, officers must have completed a course in operational radar at recognized airborne radar schools at San Diego, Cape May, Jacksonville, San Clemente Island or Vero Beach. Officers so designated for duty involving flying are entitled to flight pay. The designation does not automatically entitle an officer to flight orders, however.

Ground Officer Billets Are Out

Naval Aviators To Take Over New Duty

Billets filled by aviation ground officers during the war will be filled in the post-war period by naval aviators and other line officers, according to BuPers CL 271-45.

Tentatively it is intended that such duties as have been performed by administrative, education, personnel, navigation, electronics, air intercept, engineering, equipment and survival, air plot, flight deck, hangar deck, catapult, arresting gear, recognition, gunnery, communications and air combat information officers will be assigned to naval aviators.

Photography, aerology and duties performed by gasoline officers will be assigned to other line officers and to warrant officers. An exception to the elimination of aviation ground officer billets may be provided later in the technical fields of airborne electronics and aeronautical engineering.

Rotation for Typhoon Searchers

Collecting Storm Data Is Rugged Duty

The danger of typhoon activity to various task units, groups and forces in the Pacific has been fully appreciated by all commands since the beginning of large-scale operations in that area.

Damage sustained in the widely-publicized typhoons of 18 December 1944, 5 June, 16 to 18 September and 8 October 1945 has proved that these hazards to navigation must not be underestimated and that every possible precaution must be taken to avoid them.

Since surface ships obviously could not be headed into a typhoon solely for the purpose of obtaining data on its intensity and path, it was essential that some other means be devised for obtaining this vital information. The airplane seemed to be the logical solution—if it could weather the fury of the storm. By trial and error, it was found that the most favorable conditions for flight were encountered at elevations of 8000 to 10,000 feet and that at such heights it was entirely practicable to fly into the very center of the typhoon. From then on typhoon reconnaissance flights became an integral part of the aerological observation system.

In view of the extremely large numbers of typhoons and the many additional threats of typhoons that have occurred in the Pacific area during 1945, a great many weather reconnaissance flights have been necessary. This has meant that aerological officers have had to fly hundreds of hours under typhoon conditions. As a result of the strain imposed on both the health and morale of the officers assigned to this duty, it has been found necessary to rotate assignments of such aerologists on a quarterly basis to avoid unnecessary hardships to the individuals concerned. Frequent rotation of personnel assigned to this duty is of the highest importance and will result in more effective reconnaissance of the storm area.

SHOW ME THE WAY TO GO HOME

Radar Navigation

1. **Airborne radar, operating under flight conditions, measures—**

☐ *a*—horizontal range to distant objects

☐ *b*—slant range to distant objects

☐ *c*—altitude and horizontal range so slant range can be calculated

2. **Radar can be used to determine surface wind—**

☐ *a*—by reading it directly on the scope

☐ *b*—by interpreting cloud echoes

☐ *c*—by using the scope as a drift sight

3. **For a given pinpoint target, the image on a circular radar scope will spread out more in—**

☐ *a*—azimuth

☐ *b*—range (distance)

4. **By picking up a single radar beacon, the following three important items can be learned—**

☐ *a*—range, bearing and identity of beacon

☐ *b*—identity, range and elevation of beacon

☐ *c*—bearing and range of beacon, altitude of plane

(Answers on page 40)

Warnings Issued for Air Traffic

Pilots Should Avoid Lower Manhattan

Pilots of all aircraft operating over the metropolitan area of New York City have been cautioned to avoid the section of lower Manhattan Island.

The warning was issued by the Interdepartmental Air Traffic Control Board, coordinating agency between the Civil Aeronautics Board and the War, Navy and Commerce Departments.

Pilots are advised to avoid that area of lower Manhattan bounded on the north by Central Park, the east by the East River, the south by Governor's Island and the Statue of Liberty and the west by the Hudson River, unless a minimum altitude of 2500 ft. can be maintained. Routes to the north, south, east and west of the area described are advised.

An additional caution was advised for all agencies concerned with operations from LaGuardia Field in that right turns should not be made on a southwest take-off from LaGuardia unless congested areas can be avoided.

BEST ANSWERS

National Service Life Insurance

PICK THE BEST *choice to complete the statements below, then check your answers on page 40.*

1. **Your National Service Life Insurance policy may be converted to any of the following types with the *exception* of—**
   - ☐ *a*–ordinary life
   - ☐ *b*–30-payment life
   - ☐ *c*–20-payment life
   - ☐ *d*–endowment

2. **Under any of the three plans for conversion, after you leave the armed forces, it is possible for you to—**
   - ☐ *a*–increase your policy to more than $10,000
   - ☐ *b*–arrange for a lump payment of the entire policy to your beneficiary
   - ☐ *c*–arrange for payment of premiums on a monthly, quarterly or yearly basis
   - ☐ *d*–have the policy transferred to a private company

3. **You wish to have a 20-payment life policy with the smallest yearly premium possible. The cost can be reduced by—**
   - ☐ *a*–paying premiums on a monthly basis
   - ☐ *b*–beginning the converted policy as of the date of the original term policy
   - ☐ *c*–having the disability clause nullified
   - ☐ *d*–carrying the term policy as long as possible and then converting to 20-payment life

4. **A policy is taken out at the age of 20 years. Among the following, the major difference in a 20-payment life policy as compared to an ordinary life policy is—**
   - ☐ *a*–additional benefits
   - ☐ *b*–increased payments in case of an early death
   - ☐ *c*–a larger cash or loan value
   - ☐ *d*–less money paid for the policy for normal life expectancy

5. **An unmarried enlisted man is carrying $5000 of National Service Insurance. After release from the service he marries. He will find he is now unable to—**
   - ☐ *a*–increase the amount of his policy
   - ☐ *b*–change his beneficiary
   - ☐ *c*–change his insurance from one type of policy to another
   - ☐ *d*–pay his premium by the year instead of by the month

New Victory Medal Is Approved

Eligible Personnel May Wear Ribbon

While the World War II Victory Medal recently approved by the President still is not available, personnel eligible for the medal are authorized to wear the ribbon.

A1Nav 352 in specifying personnel eligible for the medal states: "All persons who are now serving, have, or shall have served, and whose service shall have been honorable, in the Navy, Marine Corps or Coast Guard, at any time during the period beginning 7 Dec. 1941, and ending with a future date to be announced later, are hereby declared eligible for the World War II Victory Medal."

A RED STRIPE CENTERS RAINBOW RIBBON

The medal may be awarded posthumously and when so awarded shall be presented to the next surviving kin. The medal was originally approved by Congress on 6 July 1945. The President has since approved the designation, to take precedence next after the area campaign medals of this war.

Personnel who have served on active duty for an accumulated period of one year within the continental limits of the United States are now eligible for the American Campaign medal, and are authorized to wear the ribbon. To be eligible for the medal, personnel of the armed forces must have served their year or more of active duty between 7 December 1941 and a future date to be announced later.

Ribbons, with authorization to wear them, will be forwarded to eligible enlisted personnel. Commanding officers will cause suitable entry to be made in enlisted personnel jackets and will authorize eligible officers by letter with copy to BuPers.

The World War II victory ribbon has the World War I color arrangement on each end and is centered by a broad red stripe fringed with narrow white lines.

Taxi Trainer Solves Problems

Accident Rates Decreased Immediately

What can be accomplished by Aviation Safety Board recommendations based on analyses of various types of aircraft accidents is well illustrated by the experience of the Board at Naval Air Training Bases, Corpus Christi.

In July 1944 it became apparent that there must be some degree of inadequacy in the method of teaching the ground characteristics of the SNJ. The accident rates for taxi collisions with aircraft, taxi nose-ups, and taxi collisions with objects was very high.

The NATB Aviation Safety Board recommended the use of a taxi trainer to assist the student in learning the idiosyncrasies of the SNJ. Results were satisfactory and compelled attention.

NAVY, ARMY PROVIDE NEW TAXI TRAINER

The Army Air Forces Instructors School at Waco, Texas sent a representative to Corpus Christi to inspect and experiment with the one trainer then in use. The Army was furnished plans and specifications by these bases and now reports its trainer in operation.

Moving pictures of the taxi-trainer in use have been used for studies of the SNJ in nose-ups, dragged wings, and ground loops. The information obtained from these movies has been helpful in the work of accident prevention.

Galapagos Islands Is Now An NAF

SecNav Ltr. Redesignates NAAF Corinto

The Naval Auxiliary Air Facility, Galapagos Islands, Ecuador, was redesignated NAF GALAPAGOS ISLANDS by SecNav letter dated 13 September. The same SecNav letter redesignated the Naval Auxiliary Air Facility, Corinto, Nicaragua as a Naval Air Facility.

Both activities are under the Commander Naval Air Bases Fifteenth Naval District.

National Air Races Plans Made

Big Event Was Last Held During 1939

Plans for resumption of the National Air Races in Cleveland in 1946 have been announced by the Chamber of Commerce of that city. The races, last held in 1939, will be a three-day exhibition scheduled during the Sesquicentennial anniversary of Cleveland.

Officials of the National Air Races Committee announce that they have discussed plans for the cooperation of the Navy and of the Army Air Forces. Jet aircraft will be featured in one event of the big three-day air races.

Fleet Admiral Chester W. Nimitz is saluted by Admiral R. S. Edwards and an honor guard of enlisted men as he deplanes from a Navy R5D at NAS ANACOSTIA. During ceremonies in the national capital honoring Admiral Nimitz 1000 planes flew overhead

Crew members of the *Bunker Hill* look forward to homecoming as their CV moves through the first of Gatun locks at Panama

A carrier-based *Avenger* flies over recently freed Shanghai on VJ Day. The Astor hotel can be seen on right bank of creek

MK 2 NEW LIFE VEST

VEST PERMITS WEARER TO FLOAT IN UPRIGHT POSITION, GIVES 50% GREATER BUOYANCY

BuAer has procured a new life vest for flying personnel, called the Mk 2, which has almost double the buoyancy of the present Mae West and has many new features not found in the AN-V-18 vest now generally issued.

It is designed for a minimum buoyancy of 30 pounds as compared to 17 pounds for the older model. The design of the neck portion of the vest is patterned to eliminate chafing when worn deflated. When inflated, the wearer's chin and back of the head are supported by neck portion of the vest.

In addition, the inflated vest suspends the wearer in the water in the more comfortable vertical position. The Mk 2 is made of neoprene-coated nylon, the same as the new continuous wear exposure suit (NANews, November 1945, page 34). It is provided with nylon harness webbing and is equipped with a CO_2 inflation system, an oral inflation system and pockets and tabs.

Carbon Dioxide or Air May Be Used to Inflate Vest; Loops Hold Much Survival Aid Gear

The vest is made with three separate inflatable compartments, not interconnected. Inside and outside compartments are inflated by carbon dioxide and the inner one orally through the oral inflation valve connector. Deflation of the two outer compartments can be made only by removing caps from the CO_2 inflation holders. The air compartment can be deflated through the inflation valve.

Test vest has a buoyancy of 30 pounds with both the CO_2 compartments filled or the same with only the air compartment blown up. One CO_2 section will give 20 pounds.

The life vest has a hoist strap incorporated, strong enough to support the weight of the wearer out of the water. Two tabs for dye markers are attached on front of each side of the vest for marker or shark chaser. A loop on the upper right holds the one-cell life preserver light prior to its use. The upper left lobe has a loop for the light after inflation. It holds the light upright for maximum visibility.

The oral inflation connector is held by a loop on the left side. To operate, the mouthpiece is unscrewed fully, then pressed down to open the valve so air can be blown in. Release of pressure closes the valve and holds the air in and the mouthpiece can be screwed down for positive blocking.

Two pockets on each lobe hold the Mk 13, Mod 0 distress day and night signals, star flares, smoke signals, whistle, other survival gear. [See to 90-45]

Strength of hoist strap, made of nylon, permits lifting man without tearing the life vest, which is made of neoprene-coated nylon

Hoist strap permits towing and lifting of survivors out of water. Note light attached to left lobe of vest where it is most visible

Mk 2 life vest without equipment attached shows tube for oral inflation on left and hoist strap and CO_2 inflation holder cover on right. Center pockets hold gear

Opening the two lobes reveals the waist harness attachment which strengthens the vest so wearer can be lifted from water. New vest does not chafe a person's neck

From the rear, the Mk 2 has adjustment slides on harness for a better fit. Periodic checks of fabric, webbing and metal parts should be made every three months

Deflation of CO_2 compartments can be made only by removing caps from the inflation holders as above. Covers over compartment protect them from catching on projections

Fully equipped with dye marker, shark chaser, signal light, whistle. Light is moved to left side of vest when in use, its pin blunted to prevent puncturing air pocket

Mk 2 vest showing location and stowage of Mk 13 day and night signals in equipment pockets. New vest gives 50% more buoyancy, has separate CO_2 & air compartments

PUBLICATIONS

The following Flight Safety Bulletins, Aviation Circular Letters, Technical Notes and Technical Orders have been issued in recent weeks. Copies are available on request to Publications Branch, Bureau of Aeronautics.

FLIGHT SAFETY BULLETINS

16-45 *Taxiing Collisions.*

AVIATION CIRCULAR LETTERS

107-45 *Declassification of Instrument Approach and Let Down Charts of Navy Facilities Within the Continental U. S.*
108-45 *Airborne Coordinating Group Technicians Reports of Service—Instructions Concerning Transmittal of.*
109-45 *Aviation Gasoline, Use of*
110-45 *Excess DCNO (Air)—BuAer Publications—Manuals and Letters: Disposition of.*
111-45 *Microfilm Equipment—Aircraft Engineering Drawings and Technical Data Reproduced on 35mm Microfilm—Disposition of.*
112-45 *Minimum Operating Qualifications for Airplanes to be Ferried.*
113-45 *Handbooks, Manuals, and Catalogs: revised classification of.*
114-45 *Procedure following Aircraft Accident or Forced Landing.*
115-45 *Aircraft Engines Awaiting Overhaul—Disposition of.*
116-45 *Disposition of Non-flyable, Non-saleable Aircraft Reported Excess.*
117-45 *Ground Control Approach (GCA) Units.*
118-45 *Modernization of Service Aircraft and Engines, and Incorporation of Changes Therein—Policy Regarding.*
120-45 *Scintilla Cast Fillet Ignition Harness of the "Waterproof" Type for Pratt and Whitney R-1830, R-2000, R-2800 Engines—Designation of Repair Activities for.*
121-45 *Class Designation of Pilotless Aircraft.*
122-45 *Handbooks, Manuals, and Catalogs: revised classification of.*
123-45 *Integrated Naval Aeronautic Maintenance, Material and Supply Program.*

TECHNICAL NOTES

88-45 *Ice and Frost on Wings and Exterior of Aircraft—Removal of Prior to Flight.*
89-45 *Magnetic Particle Inspection of Aircraft Engine Generator Parts.*
90-45 *Hydraulic Equipment—Winterized Marking and Identification of.*
91-45 *Model SP-1 Pilot Seat Pan and Model BP-1 Pilot Back Pan—Description, Installation and Availability of.*
92-45 *Jet Propulsion Nomenclature.*
93-45 *Starter and Primer Toggle Switches, Replacement of Certain Cutler-Hammer Types.*

TECHNICAL ORDERS

87-45 *Model PBM-3, -5 Airplanes Restrictions to be Observed in Operation.*
88-45 *Model BTD-1 Airplanes Restrictions on Operation.*
89-45 *De-Icing Fluids—Use of.*
90-45 *Mark 2 Life Vest—Description, Inspection and Maintenance of.*
91-45 *Pararaft Kit, Model P K-1—Hand Paddles, Replacement of.*
92-45 *Model SB2C Type Airplanes Trim and Control Characteristics Under Asymmetric Loading Conditions.*
93-45 *Fuel Pressures, Engine Driven and Auxiliary Fuel Pumps.*
94-45 *Life Raft Binder for TBF/TBM Life Raft Installation.*

FUNCTIONAL COCKPITS

WHAT CAUSED IT? MECHANICAL FAILURE? COCKPIT CONFUSION? . . . TROUBLE BOARDS ARE OFTEN STUMPED ON CRASHES LIKE THIS ONE

INVESTIGATIONS by BUAER and the Joint Aircraft Committee indicate that crashes are due to one or a combination of three distinct causes: *1.* Physical defects, *2.* disobedience of orders, or *3.* confusion (complex controls, a tendency to forget training, and a variety of combat conditions combined with fatigue).

Simplification of the complex arrangements of controls in the cockpit is strongly believed to be one method of increasing the pilot's efficiency by decreasing fatigue.

Grampaw Pettibone readers know how many times that venerable sage has used in his columns such quotes as "The pilot inadvertently unlocked the landing gear, either while intending to adjust his flaps or lock his tail wheel," or "The student, in his confusion, placed the landing gear switch in the up position."

Because of the necessary over-all increase in airplane manufacture to meet stepped-up war needs, production naturally got ahead of design. With the addition of new equipment, controls in cockpits became more complex as each new item was added. A fighter or dive-bomber pilot was taxed to the maximum when faced with the problem of getting his plane to and from combat.

Under normal conditions, the average pilot can handle such situations, but if he is tired from just flying the airplane his ability to operate under stress is greatly affected.

Looking toward simplification of cockpits, BUAER requested the Special Devices Division, Office of Research and Inventions, to construct model or "functional" cockpits that would have a "cleaned up" and less confusing appearance than those in real craft.

In the models built, each instrument and control has been placed in accordance with its functional and operational requirements. For example, elevator and rudder trim controls are mounted parallel to the axis of the airplane which they affect. Instinctively, the pilot rotates the wheel forward for nose down, backward for nose up. The aileron trim tab control is mounted parallel to the lateral axis, rotates to the right to bring the right wing down, to the left to lower the left wing. The wing flap lever is up when flaps are up, down when they are down, the position of the control itself being identical to that of the position of the flaps on plane.

To minimize crash hazards, all edges and corners in the cockpit have been rounded. The center pedestal has been eliminated, allowing more leg freedom.

Controls and switches have been arranged according to the importance and frequency of their use.

FOR INSTANCE, the fuel tank selector valve control is a closed handle with a raised arrow on top. The arrow is sufficiently pointed so the indication may be felt even with gloves on. The OFF position is aft and, when the thumb is on the arrow, requires such an unnatural hand position that any inadvertent switching off of the fuel should be impossible.

These cockpit models are being brought to the attention of aircraft manufacturers and are being used as guides in the design of experimental fighter and dive-bomber cockpits.

There is vast opportunity for improvement in comfort, elimination of injury hazards, and arrangement of instruments and controls for ease of operation. The work that already has been done represents only the first phase, but it is considered a basic pattern for future cockpit simplification.

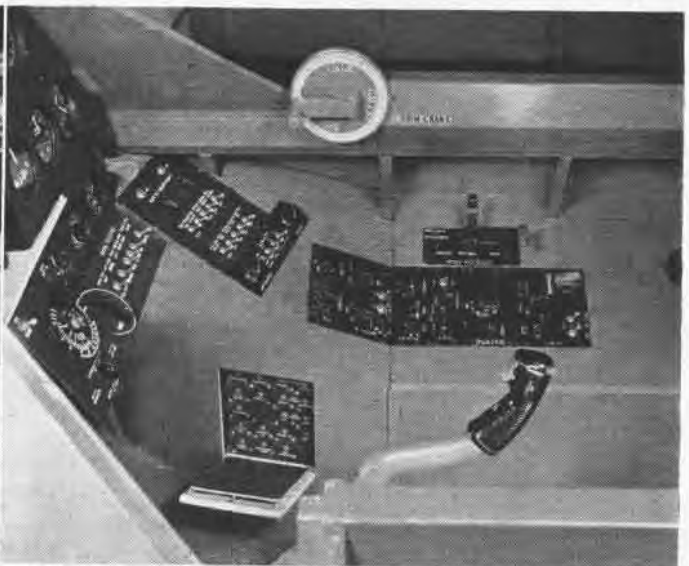
Irregularity of console in operational craft *(above)* differs sharply from that of mockup *(right)*, showing rearrangement of controls

Shape of bomb bay, flap, supercharger and wheel controls makes possible easy identification in cockpit made by Special Devices

Dive-bomber pilots know this instrument panel, but its complexity does not enhance its popularity with the men who have to use it

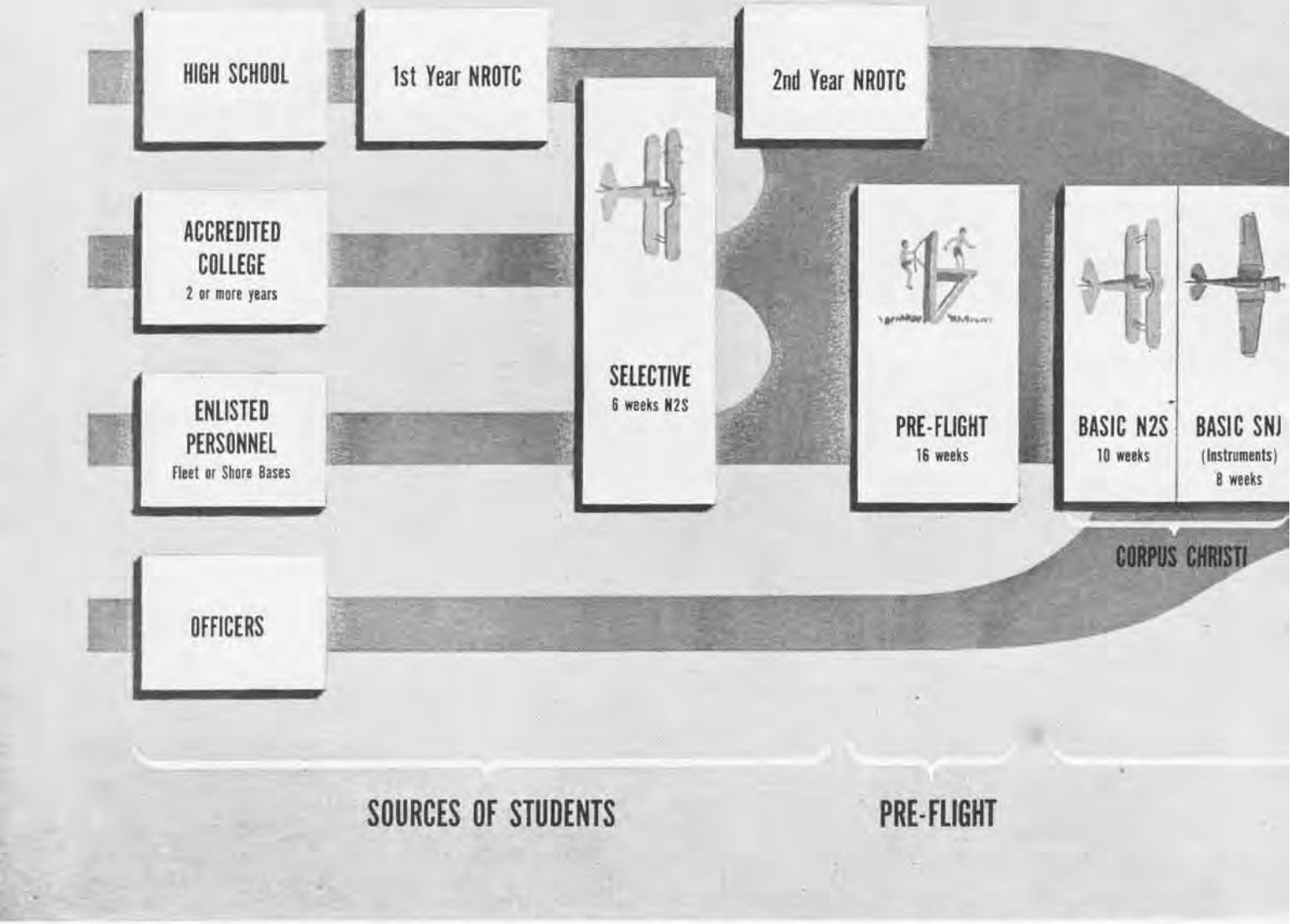
Arrangement in instrument panel mockup is more restful to pilot's eyes, is easier to work and contains fewer hazards than real plane

Cockpit in plane *(above)* presents confusing array of instruments when compared with mockup *(right)* designed for easy operation



Work with cockpit mockups represents only first phase, but it is recognized as a basic pattern for future progress along these lines

POST-WAR AVIATION TRAIN



Pilot Training to Be Given in Basic, Advanced Courses In 67-week Period; To Get Wings on Finishing Advanced

REORGANIZATION of Naval Air Training program to put aviation on a peacetime basis and provide training for reserves is taking shape. Size and scope of the program is contingent on approval by Congress and availability of funds.

Chief change in pilot training will be conversion of the Primary-Intermediate-Operational three-part program of 74 weeks into a 67-week training program divided into Basic and Advanced. In addition it is planned to introduce six weeks of selective training prior to the entry of students into pre-flight stage. Ultimately, when the new syllabus is fully effective, it is proposed that pilots get their wings at the completion of Advanced training. Pilot training eventually will be reduced to 57 weeks.

In addition to the commands in charge of those two phases a new command to handle Naval Air Reserve Training will be set up, with headquarters at NAS GLENVIEW. It will have charge of the program being laid out to afford part of the Navy's 45,000 wartime pilots refresher training.

This is the tentative post-war plan: Chief of Naval Air Training will be at Pensacola, as will Naval Air Technical Training. Basic Training Command will be at NAS CORPUS CHRISTI and Advanced Training Command at Naval Air Station, Jacksonville, Florida.

Source of future pilots will be colleges, the Fleet and shore bases including Annapolis, about 40 percent of whose graduates will take flight training. Following selective training, cadets would get approximately 16 weeks of pre-flight training at Ottumwa, compared to the 26-week course now given.

Corpus Gives Basic Flying

Following completion of this they would go to Corpus Christi for Basic Training. It is planned that this would include about 10 weeks in N2S aircraft and 8 weeks of basic instrument flying in SNJ's. Corpus, Cabaniss, Cuddihy and Rodd fields are being considered for this training. Following completion of Basic the cadet would go to Pensacola where he would get 4 weeks in

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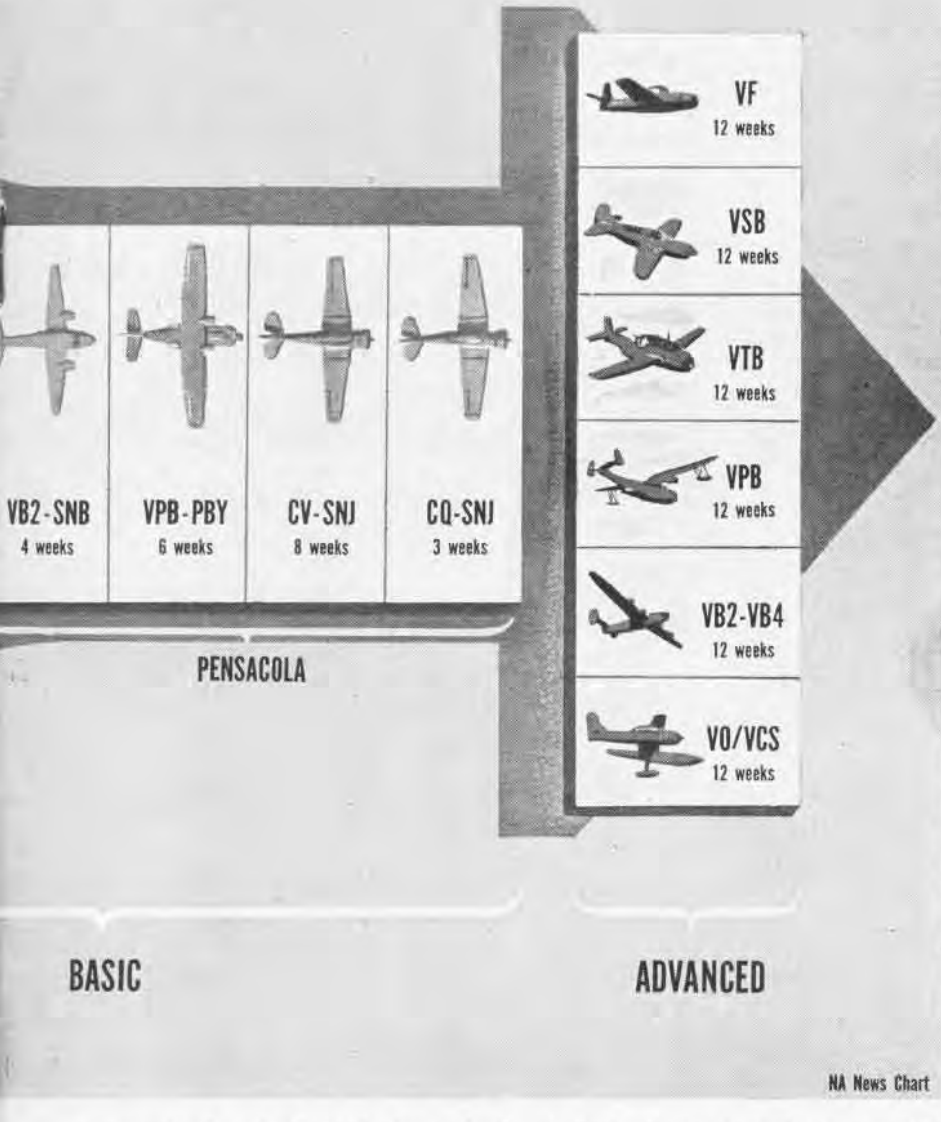
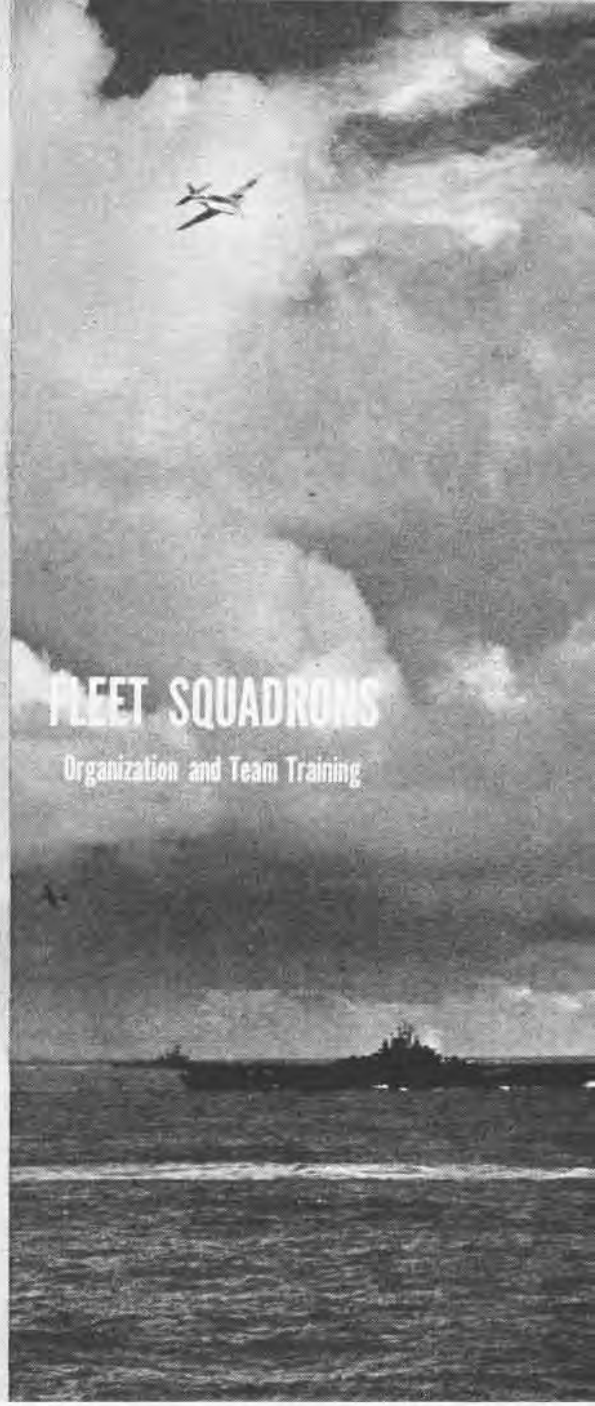


NA News Chart



two-engined SNB's, 6 weeks in PBY's, 8 weeks in CV-type training in SNJ's and finish off with 3 weeks of SNJ's for carrier qualification work. Chevalier, Saufley, Barin and Bronson fields are presently being scheduled for this work.

Advanced training would take the cadet to Eastern Florida for work in VF, VSB or VTB aircraft at Jacksonville, Miami or Ft. Lauderdale. It is expected that VPB-type training would be given in a 12-week course at Banana River. Twin-engine or four-engine landplane pilots may get their training at Whiting field while Jacksonville, according to present plans, would handle VO/VCS pilots. After 12 weeks of advanced training the cadet would be ready to join the Fleet and his squadron and get further team work training.

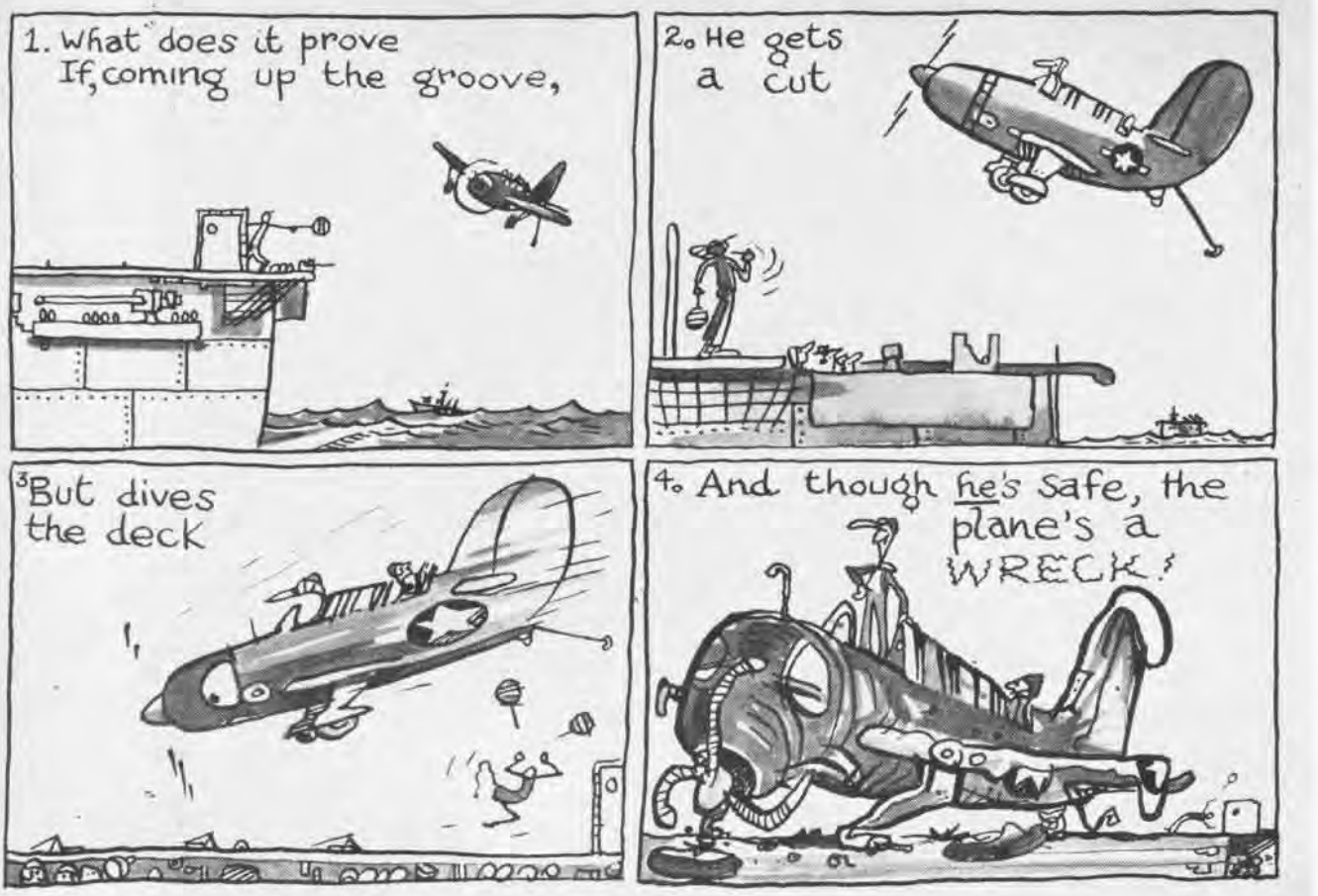
Corpus Christi would handle foreign students, instructors, instrument flight instructors, Link instrument training instructors. Pensacola would have flight surgeons, photography, photo interpretation, photo reconnaissance and LSO's. Jacksonville, Boca Chica and Banana River would have instructors, ground controlled approach, air bombers, control tower operators, CIC, fighter director officers and advanced night training.

Technicians Start at Jax

Post-war aviation technical training planned now would start with a general aviation indoctrination course of three months at Jacksonville. Most graduates of this would go to Class A schools. Mechanical, structural and electronics training may be at Corpus, armament and electrical at Jacksonville, aerology and survival equipment at Lakehurst, photography at Pensacola, and ships' installations at Philadelphia. Graduates then would join the Fleet and shore establishments for a tour of duty. Later some would return to Class B schools.

Class C schools will be camera repair at Pensacola, storekeepers and instruments at Jacksonville, electronics and line maintenance at Corpus Christi, printers at Anacostia, ground controlled approach training at Banana River, target aircraft at Santa Ana and naval air gunners at Jacksonville.

Technical officers, it is planned, would get engineering, electronics maintenance and aviation communications at Corpus Christi; ordnance, supply and operations at Jacksonville; photography at Pensacola; photo interpretation at Anacostia, and air combat intelligence training at Quonset Point.



ENSIGN I. DOVER

MORAL: Don't Dive Bomb the Flight Deck—just land the plane after the cut.

FLIGHT SAFETY

One of the most common causes of carrier landing accidents is diving for the deck after the cut. A survey of more than 2000 recent accidents incident to carrier landing operations showed that more than 650 or approximately 32 percent were caused by hard bounce landings. This diving for the deck after the landing signal officer's cut signal is responsible for the greatest percentage of all carrier strike accidents. Nearly all these strike accidents are due to pilot error and are avoidable. Admittedly, a carrier landing takes some pretty fancy piloting coupled with keen depth perception which enables the pilot to fly the plane down to the deck without diving or letting the nose drop and make a perfect landing, but the task is made much easier when the pilot uses a good approach.

By using a standard approach, the pilot can pick up the landing signal officer during the period when the plane is turning toward the ramp, and by following the landing signal officer's signals the plane is correctly placed in the approach set-up. While in the groove, and up to the cut, the pilot can stay out of trouble by replying promptly and correctly to the landing signal officer's signals relative to altitude, speed and attitude.

After the cut, the pilot is on his own and the responsibility for landing the aircraft rests entirely on him. He must not be in too much of a hurry to get down by diving for the deck, nor must he allow the nose to drop appreciably, for there will be neither enough altitude nor control to get the tail down. Net result of diving is that the plane will hit hard, wheels first, and bounce into the barrier or crash in the landing area. Should the pilot be fortunate enough to catch a wire, when he hits wheels first, the plane is usually severely damaged by the "Tarpon-like" reaction of the plane trying to free itself from the arresting wire as it bounces on the deck.

To overcome this diving tendency, the pilot must hold the nose of plane in the position it is in at time of the cut. When the nose commences to settle, ease the stick back to cushion the landing, but at same time keep flying the plane down to the deck. Always remember—*that the carrier landing is not completed just because the landing signal officer has given the cut signal.* This signal simply denotes that the plane is in proper position, has correct speed, and proper attitude for landing. Don't spoil this good approach by diving for the deck after the cut—continue to land the plane.

Nearly all case histories of this type accident are similarly written. *The pilot made a normal carrier landing approach, received a cut signal from the landing signal officer, then dove for the deck.* This caused the plane to hit wheels first and bounce into the barrier. Recommend striking plane and engine.

Don't be a case history—*LAND PLANE AFTER CUT.*

Maintenance

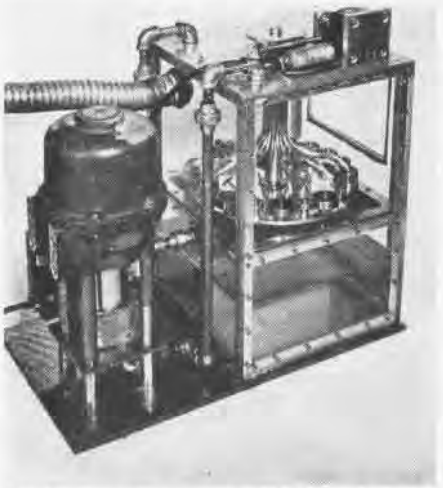
MAINTENANCE MEN WORK LONG HOURS ON BIG SEAPLANES LIKE THE MARINER BEFORE TURNING THEM OVER TO FLIGHT CREWS

Machine Saves $27,750 Yearly

MARE ISLAND NAVY YARD—A machine for cleaning ball bearings has been developed by an employee of this activity under the Navy Employees' Suggestion Program. An estimated annual saving of $27,750 has resulted from use of the new device.

The machine consists of a vapor-tight tank containing a disc that revolves on a horizontal plane. The bearings to be cleaned are placed on posts arranged in a circle near the periphery of the disc. As the disc revolves, bearings pass under alternate jets of solvent and air. Solvent is supplied by a pump that feeds from a reservoir to the jets, and the solvent then passes through a chamois filter back into the reservoir. Tests on the first machine were so encouraging that construction of three was authorized.

[DESIGNED BY ALBERT P. CRAWFORD]



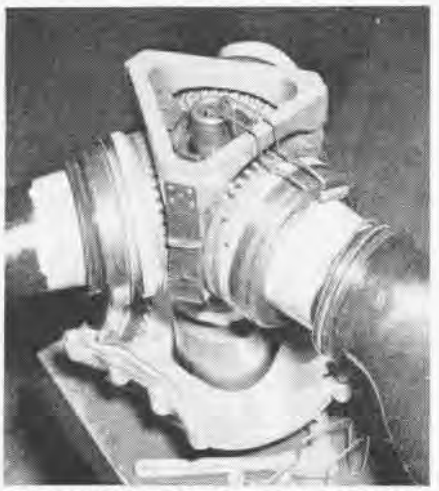
SOLVENT AND AIR JETS CLEAN BEARINGS

Jig for Hydromatic Propellers

NAS CORPUS CHRISTI—Assembly of hydromatic propellers has been expedited considerably through use of a handy fixture developed by an aircraft mechanic under the NAVY EMPLOYEES' SUGGESTION PROGRAM at the station.

Consisting of three spring clip holders and a triangular frame, the fixture is fitted over the propeller spider to hold the chafing rings, barrel supports, blade thrust bearings and races in place while the propeller is assembled.

The spring clips hold the various rings snugly in place, leaving the mechanic's hands free to assemble the barrel halves. The fixture has been of considerable help in the assembly of hydromatic propellers as it is often necessary to assemble and disassemble the barrel halves several times before the required concentricity is obtained. Additional fixtures are being manufactured for use in the Propeller Shop.



ONE MECHANIC CAN ASSEMBLE PROPELLER

This fixture is a man-hour saver in propeller. Savings are estimated at operations, making it possible for one mechanic to completely assemble the propeller. Savings are estimated at $3000 annually.

[DESIGNED BY JOE J. KUBALA]

Shark Chaser Fits on Life Vest

BUAER is procuring 160,000 packets of Shark Chaser to be attached to life jackets as a supplementary or secondary means of protection against sharks.

Its use is described in TN 87-45, which points out that "until further data have been accumulated from service areas to confirm the experimental results of the Shark Chaser, BUAER considers that the primary shark defense should continue to be the conventional technique outlined in *Shark Sense* and other publications."

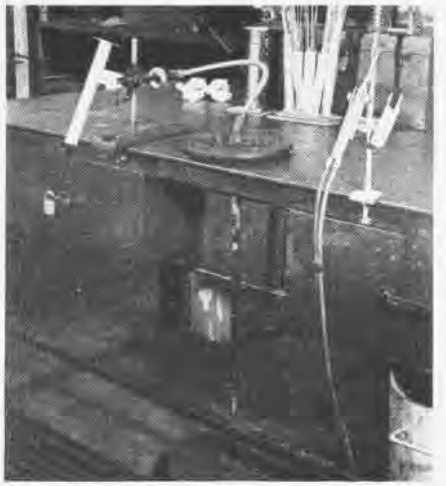
The packet is similar to the standard dye marker. Inside is a chemical cake composed of 76 percent black or dark blue soluble dyestuff, 19 percent copper acetate and 5 percent soluble wax binder. It has a tape for attaching to inflatable life vests and a cord with safety pin for use with kapok type. (See *Mk 2 Life Vest*, NANEWS, this issue, page 16).

Experimental tests were made by using the chaser in connection with meat bait thrown out in shark areas and by using it around shrimp boats which tossed out waste shrimp.

The Shark Chaser should not be used until it becomes necessary. If the sharks veer off, the cake can be replaced in the packet and used again. It should not be used simultaneously with dye marker as the chaser tends to nullify the dye.

Welding Turntable is Versatile

NAS ALAMEDA—A new welding turntable, successfully operated here for several months, is the result of much thought by the civilian welder who designed it.



VERSATILE TURNTABLE IMPROVES WELDING

The principal features of the device are *1.* a spindle to which may be clamped a drill chuck or any work-holding units, *2.* a flexible drive shaft connected to the spindle, and *3.* a rotatable disc under the table near the floor, operated by foot.

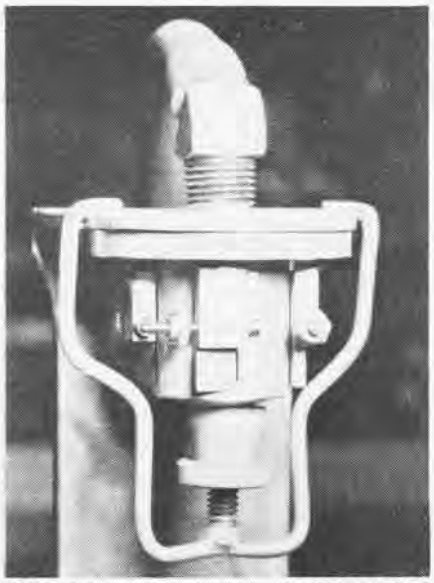
Attached to an adjustable post, the spindle may be moved to any position within three planes and the unit then rotated by the welder through operation of the foot disc.

Through use of this turntable set-up, which was devised under the Navy Employees' Suggestion Program, an improved uniformity and quality of weld has been obtained at a savings of nearly $1,000 a year.

[DESIGNED BY ANTON MATSON]

Testing Horizon Flippers Device

NATB PENSACOLA—Prior to introduction of a device for testing horizon flippers under the NAVY EMPLOYEES' SUGGESTION PROGRAM, standards of performance of flippers under actual operating conditions could be determined only after the unit was installed in the assembly for calibration. If



CONDITION OF FLIPPERS IS DETERMINED

the units did not perform satisfactorily they were removed and reworked, then replaced in the assembly.

The device consists of a simple bracket and a means for supporting and clamping the unit in the device. The bottom of the unit is plugged off while pressure is applied. After the condition of flipper has been determined, it either is installed in the assembly or rejected. Design of the device is such that mounting of the unit for testing and removal is accomplished in a minimum of time.

By pre-testing of flippers, reworking of the units has been reduced from seven units per day to two units per day, and installation of defective units has been eliminated. Savings approximating $800 per year have been effected.

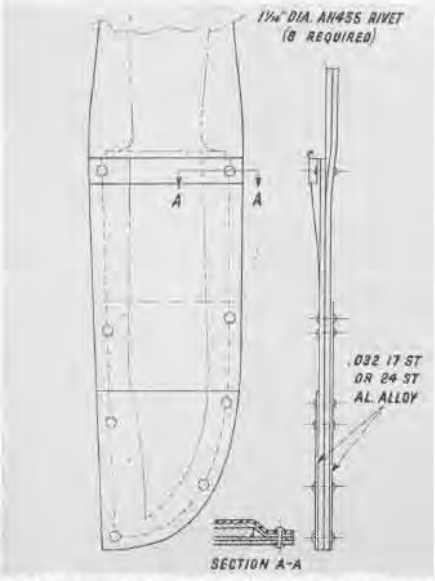
[DESIGNED BY WILLIAM HARTSFIELD]

New Type Sheath Proves Helpful

Reports to BUAER indicate that sharp edges and points of metal knife blades cut and wear through leather sheaths and present a dangerous threat to the wearers. A new type sheath has been developed and is furnished with all current issues of sheath knives.

Recommendations have been made to safeguard the leather sheaths now in service. A strip of some suitable sheet metal should be secured to the upper end of the sheath pocket, and flush with the edge of the pocket, in such a manner that the hand guard of the knife rests against this metal strip when the blade has been inserted into the sheath pocket.

A metal sheet should be formed and riveted to the flat pocket side of the sheath extending up from the point of sheath the distance necessary to include the lower, curved portion of



BUAER SUGGESTS SAFEGUARD FOR SHEATHS

the cutting edge of the knife blade.

A suitable metal sheet is formed and riveted to the back side of sheath extending up from the point of sheath a distance more than one-half the length of knife blade. A typical application of the recommended safeguarding method is shown in the illustration.

Trailer Rigged As Change Stand

FAW-2–A trailer developed for quick-change engine stands promises to eliminate troubles encountered in outdoor engine changes owing to soft ground and narrow casters.

A surveyed bomb hoist attached at one end of the trailer serves as a winch. The trailer has end plates that provide a ramp when lowered and act as a tail gate or stop in the raised position. Wheels are of scrap material.

[DESIGNED BY S. M. BELL, AMM2c]

▶ *BuAer Comment:* This trailer appears to provide an excellent method for handling quick-change engine units in areas where units must be moved over rough coral hard-pan. A small bomb truck or surveyed tail beaching gear might be the source for the pneumatic wheels needed.

NEW TRAILER FOR QUICK CHANGE STANDS

PHOTOGRAPHY

Sonne Camera Handbooks Are Available

Handbooks of instruction on the operation and servicing of the S-7S Sonne Continuous Strip Camera and the Automatic Speed Control Unit have been issued recently. The handbook covering the camera is AN 10-10A-12; for the speed control unit, AN 10-10AG-2. Distribution has been made to major photographic activities. Additional copies may be obtained from BUAER'sPublications Branch. When ordering, use form NavAer 140.

Gun Camera Items Appear on Stock List

All gun camera items including cameras, lens assemblies, magazines, mounts, overrun controls and film scoring viewers now appear on the photographic standard stock list. This will eliminate the necessity of filing supplemental quarterly report on gun camera equipment as has been the case since gun cameras come under the cognizance of BUAER.

Photo Labs Aboard Aircraft Carriers

A Photography Technical Bulletin has been distributed to all photographic activities showing the layout of photographic laboratories aboard aircraft carriers. All classes of carriers are included with latest information on approved and contemplated changes.

The publication is NAVAER 10-1R-83 and may be obtained from BUAER's Publications Branch.

Chemical Kits for Processing Machines

Packaged chemicals for use with Houston machines for processing 16 mm Universal motion picture film have been added to the Standard Photographic Stock List. These are supplied in three groups: *1.* Reexposure, reversal process for use with K-3A Houston machine (STANDARD STOCK NO. 51-K-60005); *2.* re-exposure, reversal process for use with K-1A Houston machine (STANDARD STOCK NO. 51-K-60090), and *3.* sulphide, reversal process for use with K-2A and K-3A Houston machine and Smith developing outfits (STANDARD STOCK NO. 51-K-61000).

Magazine Covers on Aircraft Cameras

Photographic activities are reminded that K-20 aircraft camera magazine covers should not be interchanged between cameras. If the covers are not returned to the cameras from which removed, the friction loading of the spool may be increased due to extra force being exerted on the spring flap of the feed spool by the back of the magazine cover. This will increase the film tension when the film winding handle is operated and may result in tearing the paper trailer from the film.

It is recommended that the camera serial number be stencilled on all magazine covers. To prevent interchange, the serial numbers should be checked carefully each time the cameras are loaded.

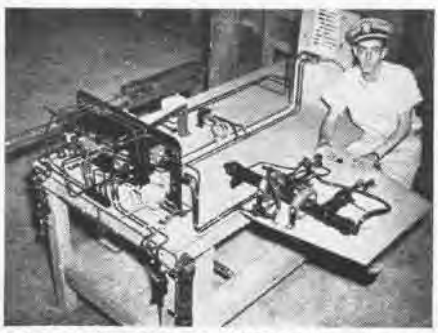
Hydraulic Mockup Helps Pilots

NAS Ft. Lauderdale—To facilitate training of torpedo pilots in use of TBF hydraulic system, a working mockup of the system has been developed by engineering instructors and built by special devices maintenance personnel.

Units are actual hydraulic parts from the TBF. Operation of the mockup is exactly as the student finds it in the plane. Principal advantage is that they can see operation of each unit, and can trace without difficulty the path of hydraulic fluid through the pump, selector valves and to the units, unhampered by all other parts and systems of the plane. All hydraulic lines were color coded to facilitate tracing.

All units are operative. Mockup wings fold and spread, flaps go down and up, hydraulic gun charger operates and all other actuating units for wheels, cowl flaps, bomb bay doors function normally. Only item missing from the mockup is the engine pump.

It is believed that a student supplying the motive power for the actuation will be more impressed by having used the hand pump at the rear of the table, which replaces in function the engine driven pump. The emergency hand pump of the plane is on the right side of the table and pilots are easily familiarized with functioning of the hand pump selector valve.



PILOT CAN OPERATE HYDRAULIC MOCKUP

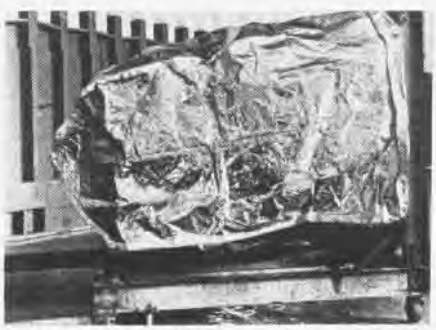
▶ ***BuAer Comment*—Recommend inclusion of motor-driven hydraulic pump to encourage and permit frequent operation and subsequent greater familiarity. Actual pump failure and emergency procedure could then be simulated.**

Engine Preservation Envelopes

Work has been completed at NAES Philadelphia on the preparation and testing of envelopes for preservation of engines installed in quick change stands. One standard size envelope will be used, applicable to all engines, and large enough to enclose both the engine and the engine mount. This method will provide more adequate protection against corrosion than the use of exhaust port seals.

Three types of sample envelopes made of scrim back laminated foil were given practical installation tests at NAS Quonset Point and Charleston, R. I. Those of the flat side and end seal types were found impracticable because of installation difficulties. Due to the metal foil fabrication, closing by means of ordinary heat sealing equipment limited the possibilities of re-use.

A two-piece envelope utilizing a zipper type closure together with pressure sensitive moisture impervious tape proved most practicable, since it can be opened and reclosed as necessary. One section is permanently attached to the quick-change stand, and the other is drawn over the mounted engine and zippered closed. Three types of closures may be made according to the length of storage anticipated. For short term storage the taped zipper would be adequate, while an additional tape may be placed over the folded foil flap for intermediate storage. For long term storage the foil flaps may be heat-sealed and taped into place. AN-D-6 dehydrating agent to absorb initial internal moisture and leakage should be used in conjunction with this type of preservation.



ZIPPER CLOSES ENGINE PRESERVATION BAG

Bearing Restorative Treatment

NAS Pearl Harbor—Inspection and Survey Department here reports these findings and treatment of apparently defective new bearings:

Inspection of a quantity of new ball and roller bearings in NASD Oahu supply storerooms disclosed many to be apparently defective. Further investigation revealed that:

1. Bearings were new and packed in original container.
2. Bearings contained a film of light oil and appeared to be well preserved, as no rust or discoloration was noted.
3. A number of the bearings were "frozen" and would not rotate with finger pressure.
4. Some bearings were "rough" and had the feel of "grit" between the balls and bearing race.

The following process treatment was applied to the defective bearings:

a. Bearings were suspended in a vapor degreasing machine (using trichlorethylene as a solvent) for five minutes.

b. Upon being removed and allowed to cool, then the defective bearings rotated satisfactorily.

c. Bearings then were soaked in hot lubricating oil and processed in a bearing machine, after which they functioned properly with no noticeable "freezing" or "grit spots."

The cause of roughness and freezing of the bearings is believed due to hardening of the preserving compound on the balls and rollers and in the bearing race.

It also is believed that many new bearings found to be apparently defective may be restored to their original condition by following instructions in TO 87-44, *Bearings, Aircraft Anti-Friction, Reconditioning and Re-Use of.*

▶ ***ASO COMMENT*—This idea is sound except for the preservation treatment, which should be in accordance with ANA specification AN-P-36a. This specification for preserving and packaging has been established with all contractors for new material being shipped and also should be followed when treating old stock.**

Quonset Makes Jungle Penthouse

When the CASU stationed on Roi Island in the Marshalls was increased in size, a housing problem arose which was neatly solved by the Seabee mobile unit. Sixteen Quonset huts in the area were made into double-deckers to accommodate twice as many men in the same amount of space.

CRANE LIFTS QUONSET ONTO FOUNDATIONS

In 14 days the 20x48 ft. steel arch rib huts were double-decked and ready to accommodate the additional personnel. Later six additional huts were constructed with the "penthouse" attachment. The only equipment used other than ordinary carpenter's tools was a Northwest (Model 6) Crane. This was used to hoist the assembled huts and place them on wooden structures which were built beside them.

Ten Marshallese natives proved to be good carpenters and helped on the project, as did CASU personnel. Building up of the camp area also included erection of wash table, scrub tables, showers and a brackish water system.

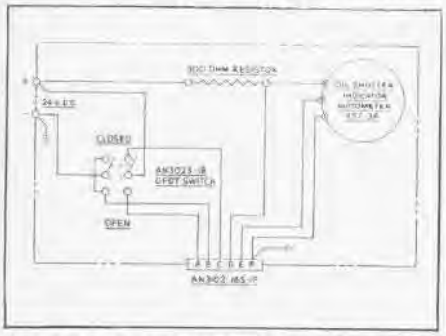
Shutter Tester Reveals Shorts

NAS Alameda — Utilizing salvage parts and materials, a civilian employee of this station has devised a tester for oil shutter motor on PV-1 and PV-2 planes that detects shorts accurately and has

effected a considerable saving in time. The tester was developed through the Navy Employees' Suggestion Program.

Parts used in assembling the tester include a small junction box, one double pole double throw center off switch, one Micarta block, one 300 ohm resister (AP2312), 1′ No. 20 wire, 4′ No. 16 wire, one plug AN3102-16S-1P and one dozen screws.

The instrument to be tested is secured in the text box by screws. Four leads are hooked up in the back of the instrument, and the oil shutter motor plug

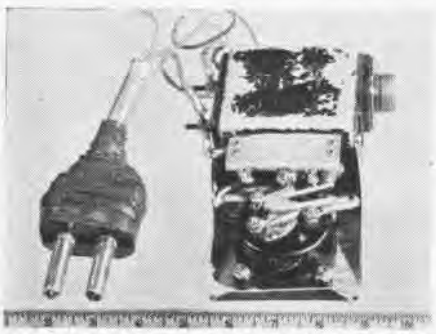


NAS TESTER DETECTS SHORTS ACCURATELY

is connected to the plug in tester. External power studs are hooked to 24-28 volt supply, and operation of the motor and instrument is checked with the test box switch. This box is wired with a grounded return so that any short in the motor or unit will show up in test.

Previously, motors were checked with an ungrounded return and shorts, usually in the limit switches, remained unnoticed until the engines were hung and motors were checked on plane.

In addition, the potentiometer of the motor previously checked with an ohm-



ALAMEDA TESTER PROVES REAL TIMESAVER

meter by running the motor through. This method was not accurate because a rough spot in the potentiometer would not show up in the ohmmeter test owing to dampening action of the pointer. Such rough spots stand out when checked with the oil shutter unit.

[Designed by Harry T. Mordecai, Jr.]

▶ ***BuAer Comment*—Money and time will be saved by those commands doing enough repetitive testing to warrant allocation of general purpose equipment to this type of special tester. For this reason it is considered that only local manufacture to suit specific shop needs is practical in this case.**

New Tow Bar for Carrier Planes

A new tow bar for all carrier aircraft types has successfully passed service tests and soon will become standard

NEW UNIVERSAL TOW BAR USED ON F4U-4

equipment. This "Universal" tow bar has been designed by BuAer to incorporate the features most requested by the Fleet. (ASO stock No. R89-B-104300)

Quickly and easily attached, the new tow bar, which weighs only 75 lbs., can be used for both forward and aft towing on all carrier-type planes. Its length is adjustable from 7′11″ to 12′3″. Tests show that better control is obtained by using the shorter length wherever possible, particularly in forward towing.

The tubing, spreader plate and tow hitch plate are aluminum. The hole in the tow hitch plate, to which the tractor hitch attaches, contains a steel bushing. The end hook, used in forward towing (bolted to the wheel well casting) and the pins to fit into the hollow axle of tail wheels and nose wheels are steel. The aluminum wheel well casting is bushed to take the pins that are held in place by set screws. These screws are loosened to reverse the pins when changing from nose wheel to tail wheel towing and vice versa. The wheels, 6″ in diameter, have a rubber tread.

Towing specifications for naval aircraft are being modified so that this tow bar can be used with future airplane types. The flexible design of the Universal will eliminate the necessity of developing a new towing unit to fit the peculiarities of each new airplane.

The next revision of the Section "G" Allowance List for aircraft carriers will

F6F GETS AFT TOW BY LIGHTWEIGHT BAR

provide for 15 Universal and 30 tail tow bars for CV's and proportional quantities for CVB's, CVE's and CVL's.

Easy Hand Carry Will Save Work

NAS Corpus Christi — Developed under the Navy Employees' Suggestion Program, a new carrying device will provide a uniform hand grip for all types of lifting on heavy raw stock such as sheetmetal, masonite, plywood, oil drums, desks, benches and many other heavy items.

Consisting of little more than two formed metal sheets cut to allow for insertion of a tubular hand grip, the device is provided with a varied set of

BACK STRAIN EASED BY NEW HAND CARRY

gripping jaws which reduce slippage and allow a freedom of body motion.

This development has eliminated much of the awkwardness and strain usually found in lifting heavy objects.

[Designed by John M. Dunnagan S1c]

Versatile New Jack Is Portable

NAS No. 128—Developed under the Navy Employees' Suggestion Program, a new portable hydraulic jack is being put to good use here. Designed primarily to aid in the installation of droppable fuel tanks (*see cut*), it also

PORTABLE JACK AIDS TANK INSTALLATION

is believed to be useful in the lifting of many other heavy objects that must be held in place while work is performed on them.

The hydraulic system itself is standard, including a series of valves for raising, lowering and tilting the platform. Actuating pressure is obtained via a typical hand hydraulic pump.

The jack has a load capacity of 1000 lbs. and a lifting range from the lowered position, which is 7″ off the deck, to a height of 5½ feet.

[Designed by C. D. Morris AMM2c]

A&R Conference Maps IAP Future

The first post-war conference of A&R and BAMR officers, held in Washington from 22 to 24 October, considered as a basic problem the status of the Integrated Aeronautic Program and how it would be altered because of decrease in the total number of aircraft in the Navy and the increase in service life of the airplane.

As a result of the surrender of Japan the number of naval aircraft will be reduced to about a quarter of the present figure, nearly half of which will be combat. Approximately one quarter of the total will be training airplanes. The annual quota of aircraft needed will be obtained as *1.* new airplanes, *2.* excess unused airplanes which are being placed in various pools, and *3.* overhauled airplanes.

The overhaul picture has undergone radical changes. Present plans indicate that the post-war load will be carried on at Alameda, El Toro, San Diego, Seattle, Corpus Christi, Jacksonville, Miami, Quonset Point, Pensacola, Cherry Point and Norfolk. The work at these A&R's will be of two types: emergency repair and overhaul. Overhaul will include all steps taken to put the aircraft in first class condition in accordance with process specifications to be drawn up for each type plane. These specifications will be sufficiently detailed to aid a new activity in setting up an assembly line for a particular type. In order to aid in standardization of overhaul, it is proposed to reduce the number of configurations of a given type airplane.

The service life of an airplane in peace time will be about three times that in wartime. Thus the drastic reduction of the wartime attrition rate and the contemplated increase in number of overhauls demand fundamental changes in the Integrated Aeronautic Program.

During the war the service life of an airplane was: in combat 8 months, reconditioned, operational training 12 months, stricken. Although a practical procedure in war time, this short service life is neither economical nor necessary in peace time. The program, therefore, is being revised for combat aircraft as follows: first tour of operational duty 14 months, first overhaul, second tour of duty 14 months, second overhaul, third tour of duty 14 months, stricken. Similar schedules were proposed for patrol bombers, heavy landplanes, seaplanes and utility models.

It is realized that the A&R's have been subjected to numerous changes because of reduced workload and loss of supervisory personnel, but every effort is being made to aid in the formation of compact, well-organized overhaul units. Reduction in the number of airplane types assigned to any one A&R, reduction in number of configurations, and the creation of the Industrial Management and Engineering billet are a few of the steps being taken to further efficient production.

New Industrial Status Reports

The new form for submitting the monthly status reports must be used for the month ending 30 November 1945. Read carefully the BuAer multiple-addressed letter Aer-Ma-211-sbd, Serial #289934, dated 12 October 1945, which gives detailed instructions for making both Industrial Status Reports and quarter-monthly progress reports.

LSO's To Get Special Glasses

BuAer has procured 2000 pairs of specially-designed glasses for use by landing signal officers to protect their eyes from ultra-violet light when using fluorescent lighting during night operations.

The glasses have special, almost colorless, Kalichrome lenses, which hold back the ultra-violet wave lengths

LEATHER SHIELDS KEEP OUT SIDE LIGHTING

and have been selected after tests conducted with the Bureau of Medicine and Surgery to determine the best shield or goggle to protect the eyes without cutting down visibility. The lenses are mounted in the regulation aviator's sun glasses frames and have leather side shields to keep out the light from the edge of the glass.

These new glasses are available at ASA Oakland and NASD Philadelphia, ASO Stock Number R37-G-960. BuAer also has ordered 4000 pairs of extra lenses for replacement purposes. (ASO Stock Number R37-L-400).

Corrects Lean Mixture Trouble

In order to eliminate the possibility of the mixture becoming too lean, the Stromberg PR-48A1, 2 and PR-58A1, 2 injection carburetors should incorporate No. 43 poppet valve balance channel bleeds. Detailed instructions will be published in *Wright Engine Bulletin No. 184.*

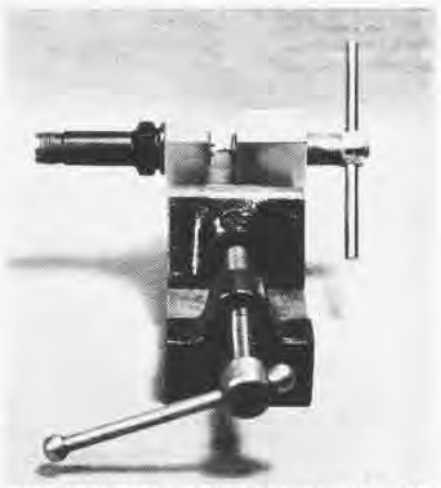
BAMR Offices To Be Permanent

The BAMR's have functioned so effectively as a liaison between the Bureau of Aeronautics and the individual A&R's in their areas that their offices will become a permanent part of the maintenance organization. In addition to their present duties, they will operate the aircraft pools.

Resets Gaps For Ceramic Plugs

NAS Norfolk—An extremely simple yet practical hand tool has made possible the reconditioning of almost all ceramic plugs at this station. Being nothing more or less than a slotted block threaded to receive the spark plug and the tool, the block holds both tool and plug in position relative to each other.

When in use the block is held in a vise with the plug screwed in one end and the tool in the other. This tool having spreader points then sets points



TOOL EASES THE GAP PROBLEM IN PLUG

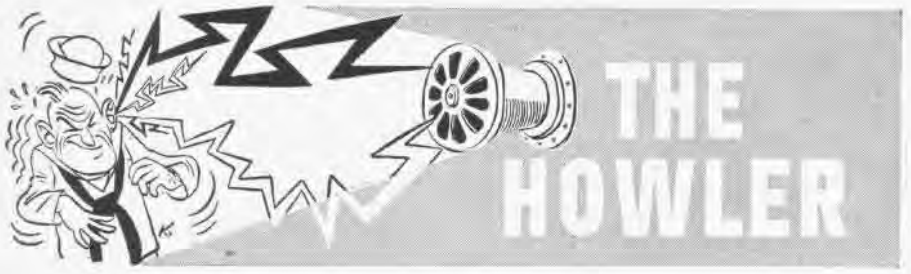
within the old gap and separates the points to a limit which is automatically set when the shoulder of the spreader points touches the end of the outer electrodes.

The tool functions in all cases except where the points have actually become closed.

[Designed by Lewis M. Oden]

Flex Lines Curb Heat Problems

Due to the possibility of failure of the stainless steel tubing that connects the water regulator and supercharger regulator to carburetor and engine, and because of high temperatures and vibration stress, flexible line assemblies are to be locally manufactured and installed on P & W R2800-8W, -10W, -18W engines. Details for manufacture will be issued in a *P & W Engine Bulletin.*



Log Those Maintenance Jobs. An F6F-5 was lost because of engine failure several months ago. The reason for the failure was undetermined, but investigation of the log book indicated gross negligence on the part of maintenance personnel. There were numerous omissions and discrepancies in logging the life history of this engine. The checks were logged, but there was no record of any of the repairs performed or parts replaced. For example, *R-2800 Engine Bulletin No. 133* requires that clearance on the impeller shaft be measured. Perhaps it was measured in this case, but it was not recorded, and personnel of the maintenance activity concerned certainly could not prove it.

It is highly essential for maintenance officers to see that log books are kept up to date and that the data recorded are accurate and complete. A pilot must have confidence in his plane, and it is the job of maintenance crews to see that an accurate log records reliable maintenance information concerning the aircraft.

Life Raft Storage. The increasing surplus of pneumatic life rafts accentuates the importance of proper storage. If possible, life rafts not in use should be unfolded and stored away from light in a cool, clean location. Do not store rafts in a damp place, as dampness causes mildew and deterioration. Unfolded rafts should not be stacked more than 15 deep. If storage facilities are limited, rafts may be stored in carrying case.

Rafts should not be stored around grease or oil, which are deleterious to rubber. Wet rafts should be unfolded and dried thoroughly before packing or storing. Those showing any grease, oil or mildew should be washed immediately with soapy water, rinsed and dried. TO 119-44 provides for semi-annual inspection of all life rafts in stores to check deterioration.

AR-8 Lifeboat Discrepancies. Parachute pack mounting rails in Model AR-8 airborne lifeboats have been installed incorrectly on all boats from Serial No. 2 up to and including Serial No. 28. The athwartship distance between centers of the studs on the rails is 16½", whereas distance between holes of the parachute cluster boards is 17". This discrepancy will be noted when field activities attempt to install the parachutes.

Since the rails are fastened by three wood screws, corrective action may be taken locally. The inboard mounting rails should be moved one half inch toward center line on all boats affected. It also will be necessary to place a thin wood liner under each such rail relocated in order that they will clear the flanges of deck fittings.

Activities receiving the above serialized boats should take action to modify them in accordance with the foregoing BuAer recommendation.

P & W R-2800-18W Breather Vent Line Leaks. Several reports have been received on P & W R-2800-18W engines of oil flowing from the breather vent line when the engine was running. This condition can be caused by several things, such as over-filling the oil system, insufficient scavenging, return restriction between the engine and oil tank, scavenger pump failure, and main oil pressure pump failure. The following is recommended by BuAer's Maintenance Division, as an easy check when the above condition is found:

1. Set diverter valve in position to eliminate both coolers, pulling out both control handles located on lower center instrument panel.

2. Drain engine rear case and check oil tank level.

3. Start engine and let idle. *Caution:* A careful watch must be taken not to overheat engine. If oil continues to drain from vent line, the trouble is either in tank, lines from engine to tank or in engine. However, if oil has stopped draining, the trouble is in coolers or lines.

4. Stop engine and re-set diverter valve. Drain oil from oil tank. Disconnect oil-in and oil-out lines at engine rear case. When oil has drained from lines, blow through lines with oil tank cap off to determine if lines are free. If this check is satisfactory, the trouble is in engine.

5. Remove both scavenger and pressure pump. A visual inspection usually will reveal the trouble. Several activities have reported stud P/N31429, which intersects outlet port, to be broken. Failure of this stud allows oil to pass through stud hole, into pump body, and into engine rear case. The two bleed valves in pressure pump should be checked for foreign material under the seat.

The manufacturer has designed a protective steel sleeve to prevent impingement of high pressure oil against stud P/N 31429 to eliminate this flow. An R-2800 Engine Bulletin will be written outlining method to be used to install this sleeve.

Install Brake Toe Pedal Blocks. A recent AAR records a brake application on a PV aircraft take-off as 100 percent maintenance error. The left brake actuated on take-off, causing the plane to swerve to the left and nose over. This resulted in sudden stoppage of both engines and damaged both propellers.

Investigation revealed that an adjustment had been made on the brake pedal to brake valve linkage rod after a previous accident in the same aircraft. The adjustment, made without checking for proper clearance, caused the brake pedal extension to make contact with the rudder arm before full rearward throw of the rudder was reached, thus actuating that brake valve. Shortening of the link rod on one brake pedal causes the brake to be applied when full opposite rudder is used.

Compliance with *PV Aircraft Bulletin No. 156*, 30 August 1945, will take care of this difficulty. Activities should not shorten the brake links but should install the brake toe pedal blocks as indicated in this bulletin.

Servicing Arresting Hook Recoil Strut. In the Service Test Interim Report Digest, November NANEWS, item 5, page 32, under F8F-1, "Servicing Tail Wheel Recoil Strut," should be titled "Servicing Arresting Hook Recoil Strut."

BuAer comment on this item (also see October *NavAer Maintenance Magazine*, page 10, item 17) states that the strut filling procedure described by Service Test has been known to cause failure of the arresting hook struts and/or connecting parts on this and similar installations. The trouble-shooters concur with ComFair West Coast in advising that struts should be serviced in accordance with current practice as outlined in TN 50-45. BuAer requests comments on this subject from service units handling *Bearcats*. Address Ship Installations Branch, Engineering Division, BuAer.

Fuel Pump Vent Line. A transport squadron operating PB2Y-5R aircraft equipped with 1830-92 engines was experiencing troubles such as cracks, breakage and erratic fuel pressure indications, resulting from vibration and accumulation of moisture in the fuel pump equalizer line.

To eliminate these troubles the squadron issued an engineering authorization providing for the omission of the fuel pressure equalizer line leading from rear of carburetor air scoop to the fuel pump and to the fuel pressure transmitter, and for installation of an overboard vent line replacing the fuel pump equalizer line.

According to BuAer's Maintenance Division, the action taken is satisfactory except that the overboard vent line was teed into the fuel pump drain line. This is not desirable since, in case of inadvertent plugging of the line, drainage would pile up and enter through the vent line and eventually would damage the fuel pump diaphragm as well as cause fuel pressure fluctuations. The drain line and the vent line should be separately routed overboard. In addition, it is recommended that a #60 restrictor be installed in the vent line to prevent excessive loss of fuel which would occur in a pump diaphragm failure.

BECAUSE of corrosion, thousands of engines now in for overhaul require costly replacements. To prevent needless waste, all operating activities should follow this progressive-step engine preservation chart initiated by ComAirLant. Failure to preserve an engine is, in most cases, a reflection against the maintenance officers.

CALLING ALL MAINTENANCE MEN

INSURE ENGINE PRESERVATION COMPLIANCE

Preservation Form ♯ _____

PROGRESSIVE ENGINE PRESERVATION

WATER CRASH	Initial
1. Wash exterior with hot, fresh water or steam	
2. Remove all cylinders, nose section and accessories to allow adequate washing	
3. Wash interior with hot, fresh water or steam	
4. Dry parts (200°F. in oven if available)	
5. Completely coat with preservative compound	
6. Reassemble cylinders, etc. after compound dries	
7. Completely preserve engine	
UNDETERMINED TROUBLE OR SUDDEN STOPPAGE	
1. Drain all sumps, strainers and crankcase. Replace plugs	
2. Remove one cylinder from each row. Spray interior	
3. Replace cylinders	
4. Remove spark plugs. Spray interior	
ALL ENGINES (note exceptions)	
1. 15 minute run: Oil outlet temp. 104 to 121°C. (Except above)	
(a) Cylinder temperatures normal	
(b) Harness and magneto temperature not over 160°F.	
2. At 1500-1600 R.P.M. shut off fuel. When firing ceases, inject preservative into impeller, ⅛ to ¼ pint per cylinder. (Except above)	
3. Drain oil from crankcase, sumps and strainers	
4. Remove rocker box covers, spray rocker box, replace covers	
5. Spray exhaust ports	
6. Remove thrust bearing cover plate, coat bearing, replacer cover	
7. Remove accessory drive covers, coat drives, replace covers	
8. Preserve carburetor (Gen. Eng. Bul. ♯6)	
9. Preserve accessories	
10. Cap oil intake and outlet openings	
11. Cap breather openings	
12. Coat propeller shaft and bright metal with AN-C-52	
13. Remove spark plugs, piston at bottom center, spray interior of cylinders	
14. Spray interior of cylinders. DO NOT ROTATE SHAFT	
15. Wipe clean spark plug terminal sleeves	
16. Attach spark plug lead protectors and supports (AN4060)	
17. All other openings closed with seals (Exhaust Ports)	
18. Install engine on anchor plate with pliofilm envelope on bottom (or rear)	
19. Secure engine in box	
20. Install spark plug Protex plugs	
21. Install individual dehydrating bags specified in Gen. Eng. Bul. ♯38	
22. Hang 2♯ bags of dehydrating agent per cylinder	
23. Hang humidity indicator chart on engine	
24. Seal pliofilm envelope	
25. Secure carburetor in engine box	
26. Secure set of spark plugs in engine box	
27. Secure any loose accessories in engine box	
28. Secure cover to engine box	
29. MARK OUTSIDE BOX (Gen. Eng. Bul. ♯38 Rev. ♯1)	
30. Bring log book up to date (Preservation entry) and secure in box	

Engine Model: _____ Engineering Chief _____

Engine BuNO: _____

Preservation Date: _____ Engineering Officer _____

INSTRUCTIONS 1. Check off Preservation Form while preserving engine in accordance with General Engine Bulletin No. 38 Rev. No. 1

2. Mark engine and outside of engine box in accordance with General Engine Bulletin No. 64

3. The Preservation Form ( ) shall be completed in triplicate (a) Signed original put in log book (b) Signed copy pasted to outside of engine box (c) Copy retained in Unit files

AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

Check Mk 20 Tow Target Bridle Lines

One utility squadron reports that when a Mk 20 Mod 1 tow target was recovered after a normal flight, the bridle lines were found to be twisted and the target had gyrated badly during flight. Examination of other Mk 20 targets in stock showed bridle lines to be spaced unevenly and uneven in length when delivered to this squadron.

BuOrd has instructed all inspectors to see that bridles are spaced evenly and that each target is ready for launching before approval is given for its release to service activities. Also, squadrons should check the Mk 20 type targets on hand for any malfunction. If the bridle lines appear to be spaced unevenly or uneven in length, an attempt should be made to equalize the lines before using target. As a further precaution, ordnancemen should be briefed in proper launching technique before take-off.

Closed-breech targets (Mks 19, 20, 22, 23) should be launched in bundles secured by four turns of light cord, two in each direction, so that they will not inflate until the shock of setting up at the cable-end breaks the cord. This method will eliminate tearing against the cable and reduce shock of setting up, and can be used for targets launched from containers as well as from tow-plane hatches. All closed-breech targets of recent production are shipped by manufacturers ready for launching by this method. No folding by towing personnel is necessary.

BRIDLE LINES SHOULD BE SPACED EVENLY

Stripping Tool for .50 Cal. BAM Guns

Training activities report that in classroom stripping of Cal. .50 BAM guns, it was found that the bolt group occasionally was inserted by students with tip of the cocking lever pointing aft instead of forward. This caused the cocking lever to be sprung downward by the top plate bracket as the bolt was forced forward. Once this cocking lever tip has passed the notch near the rear end of the top plate bracket, it is impossible to remove bolt until force is applied to spring the tip down and out of notch.

The practice of using a loop of wire, knife blade or similar expedient for springing the cocking lever downward in order to remove the bolt often causes damage to the gun parts and injuries to the operator.

A stripping tool designed and constructed by Westmeyer, AOM1c at NAS

TOOL RELEASES 50 CAL. COCKING LEVER

CORPUS CHRISTI, has proved a satisfactory method for removing the bolt under such conditions. The tool is made from a portion of a surveyed Cal. .50 BAM operating slide assembly.

To use the stripping tool, first pull the bolt group to the rear until tip of cocking lever engages in the notch at rear of top plate bracket. Then insert tool with hook engaging forward edge of cocking lever and with cam surface of tool down. With tool so installed a steady pull on the handle with the roller against rear edge of the receiver side plate will remove the bolt group easily with no damage to the gun or its component parts.

Another method for removal of a bolt under similar conditions was described in 1 April issue of NANEWS on *Aviation Ordnance* page. Refer to that story for details.

.30 Caliber Twin Mount Safety Block

The security of SB2C twin mount .30 cal. free guns on an arrested landing has always been a source of concern to bombing squadrons. Crash water landings have on several occasions caused these guns to fly out of the "locked" position, creating a serious hazard for the gunner.

Bombing Squadrons One and Six of the Pacific Fleet Air Force have adopted the practice of inserting a triangular block of wood between the mounting post and the scarf ring when the guns are in the stowed position. Used with the retaining cables and clamps, this forms a positive wedge lock preventing the guns from flying forward in arrested landings.

Bombing Squadron One states, "It is our belief that this has paid off in that one gunner's life may well have been saved due to the use of this safety block when one of our planes splashed on take-off from a carrier deck. We are sold on it and hope that this information may be of value to other bombing squadrons."

WOODEN BLOCK MAY SAVE GUNNER'S LIFE

Tool to Retract 20 mm, M3 Gas Cylinder

A threaded tool has been designed by ComAirPac training unit for retracting the gas cylinder piston of 20 mm, M3 cannon mounted in the wings of F6F aircraft. This tool can be attached easily to that portion of the gas cylinder group that protrudes through the leading edge of the wing.

Use of the tool is made possible by removing the gun fairing, removing gas cylinder vent plug and screwing the tool into the gas cylinder until piston is fully retracted. An added advantage is that it is not necessary to charge the gun or open any of hatches in wing to retract piston.

Construction of this tool is very simple, and it can be made from materials available at most activities. Its overall length is 4¾" with 1½" of 14 mm, 1.5 mm pitch international metric fine threads beginning 2 7/16" from the handle end of the ⅜" diameter steel shank. These threads correspond to those of the gas cylinder and gas cylinder plug.

This tool serves as a quick means of retracting the gas cylinder piston for lubrication and for a check to determine if piston is free from seizure due to corrosion. BuOrd does not plan to stock it as a supply item, but recommends it as a valuable tool for an operational activity since its use saves an appreciable amount of time in maintenance. Further details on its construction and use, if needed, may be obtained from the Bureau of Ordnance.

TOOL PROVES VALUABLE IN GUN REPAIRS

SERVICE Test
INTERIM REPORT DIGEST

F8F-1 (359 Hours' Test)

Cable Tensions. Rudder and elevator cables checked during acceptance tests were found to have only 60 to 70 lbs. tension instead of required 100 lbs. for rudder and 120 for elevator. Two aircraft previously tested showed these same low tensions on control cables. Evidence shows improper cable adjustment during installation by contractor. *Recommend* more care in setting cable tensions during production.

Carburetor Induction System. Failures of this system of carburetor induction, Grumman P/N 55306, continue and apparently will continue as long as present duct design is used in conjunction with combat engine powers. Limited facilities prevent conducting accelerated field service tests. *Recommend* that newly designed duct be expedited by contractor for service list at earliest possible date.

Engine Control Rod Seals. During the initial tests on this aircraft, seals, Grumman P/N 38912-3 were found damaged. A like failure was reported on another aircraft in last month's report. Clamps securing forward end of seals to the control rods were found to be too far forward, and full extension of controls stretched the seals, causing them to tear. *Recommend* that care be taken to allow for full control travel in this seal installation.

Identifying Hydraulic System. Missing identification markings on the hydraulic system were discovered around main landing gear wheel wells and in engine accessory compartments. Remaining markings on this aircraft upon its arrival at service test were found to be of paper strip, secured with cellulose tape. This type marking comes loose from oil leakage and other causes. Specifications covering design of the hydraulic system of this aircraft state: "All hydraulic lines shall be permanently marked with bands of light blue on each side of a band of yellow in accordance with Drawing AND 10375. In addition all rigid tubing shall be marked by a number. This number shall be marked at both ends in such a manner that it will be readily visible after installation and shall be of such a nature that it will not smear or rub off by contact incidental to normal handling. A schematic diagram incorporating this identification number shall be provided in each airplane. It is desired that this marking indicate the unit operated and direction of flow, such as 'landing gear up' →, 'Flaps down' ←." *Recommend* that since this plane fails to meet these specifications, contractor be directed to comply fully in future production.

Hydraulic System. Although Army-Navy Aeronautical Specification AN-H-2a requires that two self-sealing couplings, E-15a, be provided for each engine-driven pump, these planes have only one self-sealing coupling which is located in the pump suction line. *Recommend* that a self-sealing coupling be installed also in the pump delivery line to conform to specification and to prevent oil loss in disconnecting this line.

The same specification also states that an isometric drawing showing the relative position of all hydraulic units and lines with respect to the airplane structure, and a complete schematic drawing showing part numbers of all units, line sizes and numbers and all pertinent data necessary to operate and maintain the system shall be submitted, one copy of each drawing being included in the data case in the handbook of each airplane on the contract. The only isometric drawing in the E & M Manual is too small to trace many of the lines satisfactorily. The only schematic drawing in the book gives no part numbers for the units or lines and no line sizes. *Recommend* that E & M Manual be revised to conform with specification. If this information is to be covered in the standard hydraulics manual for the plane, the manual should be printed soon enough to be used with the early models.

Flap Gap Closure Door. Doors, Grumman P/N 53034, were found to be warped upon receipt of aircraft. Though not serious yet, it is feared that this might lead to trouble. *Recommend* metal doors.

Hydraulic Cylinders Scored. As previously reported, "O" ring seals failed in landing gear actuating cylinders, Grumman P/N 56210, and landing gear door cylinders, Grumman P/N 56218. All cylinder walls were found to be scored after only four hours of operation. "O" ring seals were torn and cut. No foreign material was apparent.

It seems evident that the thin aluminum cylinder walls are bending under pressure. *Recommend* that cylinders be replaced with stronger cylinders to eliminate excessive hydraulic maintenance. Any new design cylinders should be submitted for test before production installation.

Landing Gear Emergency Release. *Preliminary Handbook of Erection and Maintenance Instructions for F8F-1-ANO1-85FD–2-15 June 1945* [Landing Gear System, p. 220-223, under (1) general, para. (d)] states: "The alighting gear may be extended in an emergency by a cable release system actuated by pulling the emergency 'T' handle on lower left side of instrument panel."

Under (4) Emergency Operation, para. (a) it states: "In case of complete hydraulic failure, the main wheels may be lowered mechanically by pulling emergency release 'T' handle located on lower right side of instrument panel."

The second statement is correct, but the first is not. *Recommend* that error be corrected in manual.

Landing Gear Emergency Dump Valve Accessibility. In spite of a new installation of this valve it still is covered with hydraulic lines, and it still is necessary to loosen the A.D.I. tank and move it to right to get at some of fittings. *Recommend* that tubings and fittings in this area be entirely rearranged to provide reasonable accessibility in this section. Present layout fails to meet those specifications that state that "special consideration be given to the ease and facility with which field inspection and maintenance may be conducted."

Brakes. Oil seals on right brake were leaking after 350 hours. Leaks occurred around cylinder head seals, P/N-AN6230-6, onto the brake housing and also around piston seals, P/N6227-33, onto the rotating brake disc. None of the seals was torn, but all were flattened on outer circumference and hardened. *Recommend* that a more heat-resistant rubber be developed for seals in installations such as this.

One piece brake is still unsatisfactory for maintenance, as removal of wheel and wheel fairing and bleeding of the brakes are necessary to replace brake linings. *Recommend* installation of a split-type brake incorporating the piston and liner design of present brake.

Oil Cooler Air Exit Duct Assemblies. Doors, Grumman P/N55520, incorporating the temporary reinforcement to prevent local failure, were received from contractor to replace old-type doors. Both new doors cracked after 125 hours. Cracks were in forward part of vertical sides of doors close to the hinge points and extending down through reinforcing strip. *Recommend* that doors be made of heavier material and that larger and heavier reinforcement be placed around the forward hinge bolt holes.

Push Rod Cover Packing. Oil leakage around the push rod packing nuts occurs when packing hardens. Trouble has increased on later F8F-1 aircraft because of

higher temperatures due to installation of an additional exhaust deflector. *Recommend* that contractor investigate need for a more heat-resistant compound.

Ignition Switch Lead. Lead chafes top of hydraulic gun charger just forward of the lead quick disconnect at the firewall. Clamp for lead is placed too low. *Recommend* that clamp be raised two or three inches to give satisfactory clearance.

Exhaust System. First failure on new prototype exhaust system installations occurred after 123 hours at the collar of the cylinder mounting flange. Trouble is believed due to misalignment during manufacture, the cause of 24 previous exhaust manifold failures on the old type.

Generator Cooling System. Generator blast cooling system was changed to extend life of Type LHH brushes on the Model 1298-1A generator. Fitting in the charge air duct, P/N55501, was installed four inches ahead of the starboard oil diffusion cooler. Multiflex cable runs to the generator a distance of 15 inches as compared to about 8" on factory system.

PV-2 (1137 Hours' Test)

Oil Leak. A leak in the nose section oil return line occurred at the third connection from the nose section end. Previous leakage at same point had been corrected by tightening hose clamps. Replacement at this point, however, requires almost 10 man-hours because of inaccessibility of the section. *Recommend* that oil line be redesigned to eliminate this connection.

Port Engine Speed Ring. Another failure of the speed ring involved two cracks in the leading edge skin, one near the upper inboard joint and the other near the upper outboard joint. Removal of ring brought to light three cracks in the extruded angles at the joints. At the forward end of the extruded angles at the joints a one-inch section was found to be broken out. Another one-inch section was broken out at forward end of extruded angle at the top section, inboard joint. A speed ring incorporating welded clips at the leading edge of the upper joints was installed, with no further indications of failure.

Oil Leaks at Firewall Fittings. Two standard fittings vibrated loose at the firewall. One was in the prop feathering line, the other in the engine-to-tank return line. Failure of maintenance personnel to check tightness of these fittings during periodic checks may be cause of trouble. Crews should be reminded that serious failure may result from allowing these fittings to vibrate loose.

Inaccurate Fuel Gage Readings. Liquidometer transmitters out of adjustment caused inaccurate fuel gage readings. Port auxiliary tank gage fluctuated excessively at any reading except full. Starboard rear main tank gage showed 120 gallons when it actually was empty. The full and empty adjustment screws were reset and the transmitter recalibrated. No further trouble has been experienced.

In the auxiliary tank transmitter one of the contact shoes was found to be riding off the contact, causing fluctuation in the gage. *Recommend* that a more simple type fuel quantity gage be used in this airplane. Liquidometer is believed to be too complex.

Fuselage Skin Cracks. Two bad cracks appeared on the starboard side of the aircraft between stations 124½ and 134, between the second and third stringers above the battery access door. The first occurred after 1003 hours of operation and was about three inches in length. Second crack appeared after 1030 hours. It is believed that additional fuselage strength is needed to carry load transmitted at this point from wing to fuselage. *Recommend* that a study of stresses at this point be made and necessary strengthening be provided.

Ignition Distributor Blocks. Both distributor blocks on the starboard engine developed shorts after 357 engine hours and were replaced. At 371 hours starboard block of the same engine developed shorts between block and case. The high tension cable insulation on port distributor, starboard engine, cracked at 375 hours, necessitating replacement. Crack occurred where cable enters distributor.

Output Transformer. Primary winding of AIA interphone equipment developed an open after 979 hours' equipment time. As a result of the failure there was no D.C. voltage on the plate of the audio amplifier tube and equipment was inoperative.

Fixed Gun Camera Mount. Assembly failed twice during gunnery exercises. Failure was caused apparently by excessive vibration from gunfire. The .032 stainless steel mounting plate was installed and withstood eight gunnery missions without failure. *Recommend* that camera mount be relocated in more vibration-free and less-stressed area. One of the wing drop tank pylons is suggested as location.

Engine Cut-Outs. Momentary cut-outs in flight occurred five times on starboard engine and once on port engine. Trouble is believed due to sticking valve.

Oil Temperature Bulb. Bulb failed on starboard engine after 400 hours. Electrical lead broke at cannon plug terminal from vibration.

FR-1 (80 Hours' Test)

Brakes. Failure of brakes occurred after only 10 hours of operation. This is the second set of brakes on this airplane in 57 hours. *Recommend* that manufacturer make exhaustive study of this condition inasmuch as an average of 28 hours per set of brakes is operationally unsound.

Gun Firing Circuit and Gun Camera Circuit. Investigation of the malfunctioning of these units revealed the following troubles: *Gun Firing Circuit*—Master rocket switch cover and inboard gun switch cover were interchanged. *Gun Camera Circuit*—Blueprint NO. 28002551 shows the gun camera as being energized from gun heater circuit. The jumper installed as shown in this blueprint created a short from the battery to ground through the generator terminal of the reverse current relay. The jumper was therefore discarded. *Recommend* that blueprint drawing be corrected and that closer inspection be initiated on acceptance of airplanes to eliminate such an unsatisfactory condition.

Booster Coils. Coils on jet unit burned out after 10 hours. *Recommend* that Eclipse booster coils 886-EC-513-7A be installed whenever available.

Jet Under-Current Relay. Relay, not functioning properly, was removed for overhaul. No satisfactory adjustments could be made in the shop. Probable cause of trouble is believed to be internal short in relay coil.

Free Air Temperature Gage. Gage failed because of broken electrical lead in bow junction box. Lead broke at point just before it enters cannon plug terminal. *Recommend* investigation to determine if different type connection would eliminate failures due to vibration where flexible wire enters stiff terminal plug.

Pilot's Gyro Horizon. Gyro horizon, P/N 1350, failed, rear rotor bearing pivot being badly grooved and pitted. Bearing appeared rusty and without lubrication.

Turn and Bank Indicator. Electric turn and bank indicator, P/N 3221, failed after 659 hours. Both gimbal ring pivots were grooved and rusty. Bearings were dry.

Hydraulic Position Selector Valve. Valve P/N 62064, on landing gear developed internal leak. All seals were in excellent condition, and only possible cause of leak seemed to be the worn and pitted surfaces of poppet valve faces and seats. *Recommend* using harder metal for valve faces and seats.

F2G-1

Third production F2G-1 aircraft was received for service test on 2 October. Airframe is similar to F4U-4, but engine is P & W 4360-4.

Generator. Bendix generator, Type N75-2RA failed to operate. Pencil drive shaft was broken at commutator end where spline grooving begins. Armature assembly was out of line. Drive shaft was probably broken as result of high frequency vibration and uneven strain or a sudden heavy load on the generator.

Spark Plugs. On receipt of aircraft all 56 plugs had to be changed because of high RPM drop when magnetos were checked. When plugs were "bomb tested," 25 of them turned out to be unsatisfactory.

SUPPLY NEWS
FROM ASO AND SUPPLY DIVISION BUAER

Cat Landing Gear Replacements

Information at ASO indicates that the Atlantic Fleet for some time has had difficulty in obtaining *Catalina* nose landing gear replacement parts, thereby requiring unusually high issues on complete nose wheel and strut assemblies, P/N 28L5002. The following parts were listed as troublesome by ComAirLant: R82-CAC-28L5055, scissors upper; R82-CAC-28L5056, scissors lower; R82-CAC-28L5024, collar-damper attaching; R82-CAC-28L4042, bushing-damper collar; R82-CAC-Q600-B12020, bushing-damper collar; R-82-HD-A10689, shimmy damper (supersedes A-8099); R43-B-76500-2550, NAS-56-41 bolt (scissors attaching); R43-B-76500-2595, NAS56-52 bolt (scissors attaching). These parts are no longer critical, and ample quantities of all supporting components also are available.

Upper and lower scissors and damper collars have been constantly under procurement, but field requirements have absorbed the complete output as quickly as the parts have become available. Of the above three parts, 890 each upper scissors have been procured in the past year and a half, and 1300 each were on order of the PBY-6A's on Contract Noa(s) 259; 750 each lower scissors have been procured in the past year and a half and 1125 each were on order NOa(s)259; 525 each collars have been procured in the past year and a half and 400 each were on order NOa(s)-259. These quantities suggest that all possible repair has not been effected on these parts when damaged. Although all spares on NOa(s)-259 have been cancelled, certain quantities of scissors and damper collars may be reinstated or reordered as soon as the final peace time *Catalina* program has been established.

Upper and lower scissors bushings 28L5151 now are on hand in ample quantities for use in repairing scissors where bushings are worn. It is hoped that their use will greatly cut down the issue of new scissors from stock. On the basis of past requirements, sufficient Houde shimmy dampers A10589 also are on hand. No repair or overhaul parts are procured for shimmy dampers, as they are to be reported to ASO for return to the manufacturer for overhaul.

Corsairs Use Mk-5 Fuel Tanks

ComAirLant and ComAirPac have issued orders to discontinue the use of Mk-6 droppable fuel tanks (R81-T-715100) on *Corsair* airplanes. These tanks should be turned into the nearest supporting activity.

BuAer advises that Mk-5 tanks are to be installed henceforth on all operating *Corsair* airplanes in lieu of the Mk-6 tanks. However, the Mk-6 (165 gallon P-38) drop tank will be used on the PV and PBY aircraft until modification is completed to adapt the Mk-5 to these planes. Upon completion of this change and the modification required, there will be no further need for the Mk-6 on naval aircraft. At that time the Navy will attempt to transfer all available stock to the Army.

Termination Inventories Screened

Since the cancellations of V-J Day, ASO has carried on an extensive program of screening airframe contractors' termination inventories with a view to accepting delivery of material needed to round out existing stocks. In general, the policy is to avoid introducing into the supply system any parts or material for which there is no prospective need. The following action has been taken:

Avenger. Orders for all airplanes and spares were cancelled as of V-J Day. About 16 carloads of spares including both assemblies and components have been accepted for delivery to NASD NORFOLK and NASD PHILADELPHIA.

Bearcat. Grumman has advised that material is available, but no list of items has been prepared for acceptance. Since airplanes continue in production, termination inventory problem is not urgent.

Catalina. Orders for all airplanes and spares were cancelled as of V-J Day. A list of about 300 required items was compiled. Consolidated New Orleans had only 50 items available. Canadair, Ltd. termination inventory currently is being screened for the balance of the 250 items.

Corsair. Orders for FG planes and spares were cancelled. About 150 items, mainly wings and control surfaces, were selected from Goodyear termination inventory. About 400 items have been requested from Vought, but the amount available is not yet known.

Harpoon. Orders for airplanes and spares were cancelled. Termination inventory is being screened.

Hellcat. Orders for all airplanes and spares were cancelled. About 300 items were selected from termination inventory.

Helldiver. (Curtiss-Columbus) About 60 items have been selected from termination inventory, with additional items to be added as company completes screening. 100 items have been accepted from Can-Car-Ft. William.

Privateer. About 308 airframe items and 216 airframe accessories were accepted from the termination inventory. All spares were allocated to NAS CORPUS CHRISTI and NAS SAN DIEGO.

Sea Hawk. Termination inventory is being screened by Curtiss-Columbus.

More detailed information on V-J Day cut-backs and termination inventory action is carried in the current ASO *Technical Supply Bulletins* for each airplane. In general, the stock position for planes completely terminated is satisfactory. In a few cases critical items are expected to develop which will be obtained through cannibalization or local manufacture. Further information on these items will be published in the *Technical Supply Bulletins.*

Sizes on SB2C Solid Tail Wheels

The following information is presented to clear up confusion existing in the field concerning solid tail wheels on various SB2C's with two different axle sizes:

All SB2C's (except SB2C-1A), BuNos. 83128 through 83751, and 89120 through 89396, use Grizzly Tail Wheel ⌀896, ¾" axle size. SB2C-1A aircraft use Grizzly Solid Tail Wheel ⌀897, ¾" axle size. All SB2C-5 aircraft beginning with serial ⌀89397 use Grizzly (Universal) Solid Tail Wheel ⌀854, 1" axle. The two wheels are not interchangeable.

ASO, A&R Hold Joint Conference

The gearing of aviation maintenance and supply to peacetime operations was planned in the second joint conference of A&R and aviation supply officers at ASO, 25 and 26 October, under the co-direction of the Aviation Supply Officer, Rear Admiral E. D. Foster (SC) USN, and Captain E. W. Clexton USN, director of the Maintenance Division, BuAer.

The conference reviewed the spare parts situation for various plane types in the post-war period and outlined plans for continued collection and analysis of usage data developed through the close cooperation of BuAer, ASO, and A&R and supply officers in the field.

It was suggested that the present Shop Stores system be continued, but that recommendation be made for closer regulations to insure maintenance of stock at prescribed levels.

The basic Aviation Circular Letter 39-45 concerning repair of material salvaged, damaged or exchanged was discussed and a proposed revision prepared for review by the Bureau of Aeronautics. Recommendations also were made for expediting disposal of surplus aviation material.

SC-1 Wright Turbo Supercharger

Until a firm operating plane program is established, ASO will continue to consider the WAC turbo supercharger 800TSBA1 as being critical. Activities ashore and afloat are requested to expedite shipment of Class 265 turbos to the nearest designated overhaul point.

Continental activities should ship turbos, in accordance with BuAer ACL 125-44, to San Diego, Quonset or Pensacola. This material should be issued on an AOG basis, and Fleet commands have been requested to allow only one turbo for each four to six plane unit instead of two as listed in SC-1 Section B Allowance List.

JOINING MAGNESIUM

This is the second in a series of general discussions on the working of magnesium. Begun in the October issue of the NavAer Maintenance *magazine they now are being published in* Naval Aviation News *in the belief that maintenance personnel will find them of value. Magnesium alloys, used at present chiefly for non-structural aircraft parts, also are being employed experimentally for certain structural units. Subsequent articles in the series will give information on machining and finishing.*

Riveting

Riveting is the method most commonly used for joining magnesium alloys. Essentially the same procedures employed in riveting other metals are used on magnesium. For best results, however, it is necessary that special consideration be given to selection of rivets.

▸Rivet Alloys. The choice of rivets is important. Aluminum alloy rivets are used for practically all riveting on magnesium structures. The compositions and tempers of aluminum alloy rivets commonly used are: 2S, 3S, 53F-T61, 56S-0, 56S-½H, and A17S-T. The 56S composition is recommended in preference to the others because there is less possibility of galvanic corrosion when used with magnesium. Steel, copper, brass and other heavy metal rivets should not be used because of this same corrosive danger. Magnesium alloys are not used for rivets since they work-harden too rapidly when driven cold.

▸Types of Rivets. For dimpled sheet, countersunk head rivets with a 120° included head angle should be used. The 120° angle minimizes cracking of the sheet caused by the driving pressure used for 56S-0 rivets.

Gas Welding

Magnesium alloys can be gas welded using oxyacetylene, oxyhydrogen or oxycarbohydrogen gas. The latter gas is recommended in preference to the others. It provides a more easily seen, and therefore a more easily adjusted flame. This also is a cooler flame, a fact of much importance when welding thin sheet.

▸Weld Cleaning. Cleaning of the weld must be carried out as soon as the metal has cooled sufficiently for handling. The welded area should be thoroughly washed in hot running water and scrubbed with a stiff bristle brush until all traces of flux have been removed and the surface is clean. Next, the welded part should be given the Chrome-pickle treatment consisting of a one minute immersion at 70° F in the following solution:

Sodium Dichromate ($Na_2Cr_2O_7.2H_2$) 1.5 lbs. Concentrated Nitric Acid (Sp.Gr.—1.42)—1.5 pints. Water—to make one gallon. This treatment is followed by a rinse in cold running water and a dip in boiling water.

Arc Welding

Magnesium sand and permanent mold castings, extrusions, forgings and sheet can be arc welded. The process used resembles the carbon arc welding of steel with a tungsten electrode replacing the conventional carbon electrode. In addition, an inert gas such as helium is employed to shield the molten metal area during welding. The gas is confined to the welding area by means of a shielding cup around the tungsten electrode. No flux is required during arc welding and, as a result, the process has an advantage over gas welding in that all types of joints commonly used on steel can be used on magnesium.

MAGNESIUM ARC WELDING IS PROVING A PRACTICAL AND ECONOMICAL WORK AID

▸Stress Relieving. The residual stresses that are set up during arc welding should be relieved by heat treatment. To do this, the parts are placed in a jig or clamping plate and heated at the temperatures indicated for the specified times.

Recommended Stress Relieving Treatments for Arc-Welded Magnesium joints:

Dowmetal alloy	Temp.°F±10°	Time at Temp.
FS-1a	500	15 minutes
FS1f-1h	265	1 hour
Ma	500	15 minutes
Mh	400	1 hour
J-1a	500	15 minutes
J-1h	400	1 hour

▸Finishing. The fact that no flux is used when arc welding magnesium makes cleaning after welding a simple operation. The welds need only to be wire brushed. Parts then are ready for the usual chemical treatment applied prior to painting. Routing, grinding, filing and similar operations may be used when it is desired to remove excess bead.

Spot Welding

Wrought magnesium alloys can be readily joined by electric resistance after spot welding. Alternating current and direct current stored energy spot welding machines can be used for magnesium. Sheet that is to be spot welded should be obtained in the oiled rather than the Chrome-pickled condition to facilitate cleaning operations.

▸Protection of Spot Welds. Pickup leaves a deposit of copper on the magnesium surface which will accelerate corrosion. As a result, spot welded joints should be cleaned after welding with an aluminum oxide abrasive cloth or aluminum oxide polishing compounds on buffing wheels. After this the entire part should be given a suitable chemical treatment and painted according to accepted procedure.

It is sometimes desirable to use a sealing compound between the faying surfaces of spot welded joints. Joints of this nature may be inconsistent and should be inspected frequently to insure that good quality welds are being made. Materials pigmented with zinc chromate have been used for protecting faying surfaces. It is important that such a material should not be too viscous so that when pressure is applied to the spot weld location the protecting liquid will be squeezed out from between the sheet at the spot weld, thus giving bare metal contact and relatively low electrical resistance.

This permits a satisfactory slug to be formed. Welds should be made soon after the application of the protective material. Not more than one hour should elapse from the time of application to the time of spot welding.

Inspection of Spot Welds. Cracks and porosity in spot welds can be detected by microscopic examination of the weld or by radiography. Improperly cleaned surfaces are likely to be the cause of cracking.

TECHNICALLY SPEAKING

BuAer *technical notes and orders issued during September 1945 are summarized here in abbreviated form for busy maintenance and operational personnel. The information listed does not relieve pilots and other aviation personnel from the responsibility of reading and studying these TO's and TN's in their entirety.*

TO 80-45 *(To be read by all pilots)*
Instructions in this technical order will, when followed, eliminate premature drive and clutch failures caused by improper operation and care of two-speed internal geared superchargers in Wright R1820, R2600, and Pratt & Whitney R1830, R2000, and R2800 engines. Compliance with instructions by personnel operating land-, water- and carrier-based planes is mandatory except under duress of combat and except that the practice of desludging superchargers after flight shall not be mandatory in case of carrier-based planes.
Supersedes and cancels TO 11-45

TO 81-45 *(To be read by all pilots)*
Reports indicate that some life vest CO_2 cylinders fabricated under ANA specification AN-C-105 have been found to contain insufficient charge, caused by slow leakage of gas through cap sealing washer. To eliminate this condition BuAer has developed an electric welding method of sealing caps to cylinders, preventing leakage regardless of time they are kept in storage. A contract has been awarded for 1,145,000 life vest cylinders.

TO 82-45 *(To be read by all pilots)*
This technical order outlines weight and balance control procedure for naval aircraft for purposes of increasing safety of flight operations. The C.O. of each activity operating, maintaining or overhauling aircraft is responsible for application of the weight and balance control requirements outlined. A weight and balance officer is to be designated to assist in carrying out requirements in accordance with instructions contained in Enclosure (A).
Cancels and supersedes TO 97-44 and TN 47-44

TO 83-45 *(To be read by all pilots)*
This technical order assigns the weight and balance classifications for use in connection with TO 82-45 and applies to experimental and service aircraft in service or subject to delivery in the near future.
Supersedes and cancels TO 104-44

TO 84-45
Restrictions on life raft repairs and maximum age limits for all pneumatic life rafts are established in this technical order. The TO determines disposition of surveyed rafts.

TO 85-45 *(To be read by all pilots)*
This technical order provides for the discontinuance of the use of grade 91/96 fuel for ferry operations. Because of the improved availability of all grades of aviation fuels, all planes shall hereafter be operated exclusively on grade of fuel specified in the applicable pilot's handbook of operating instructions. All airplane notices and warning tags specifying grade of fuel shall be revised in accordance with this technical order.
Supersedes and cancels TO 108-44

TO 86-45
A standard fluid to be used for all carburetor flowbench testing is provided for in this order. The fluid is stocked by ASO in 55-gallon drums under stock number 51-F-527.

TO 87-45 *(To be read by all VPB pilots)*
Restrictions to be observed in the operation of PBM-3 and PBM-5 airplanes are dealt with in this technical order. Maximum recommended gross weights for landing and take-off for rough water and smooth water operation are listed.
Cancels and supersedes TO 28-45.

TO 88-45 *(To be read by all VSB pilots)*
This technical order states that operating restrictions for the model BTD-1 airplanes are described in the latest revisions of the *Pilot's Handbook of Flight Operating Instructions.*

TO 89-45
The use of de-icing fluids is the subject of this technical order, which lists materials available as de-icing and anti-freeze fluids.
Supersedes and cancels TO 64-44

TO 90-45 *(To be read by all pilots)*
Pertinent data relative to description, inspection and maintenance of the Mk 2 pneumatic life vest can be found in this order. The Mk 2 life vest, designed for a minimum buoyancy of 30 lbs. as compared to the 17 lb. buoyancy of the present specification AN-V-18 life vest, suspends the wearer in water in the more comfortable vertical position. For further information concerning the Mk 2 life vest see page 16 of this issue of NAVAL AVIATION NEWS.

TN 80-45
Information for guidance in the use of all NavAer repair and maintenance rubber cements is furnished in this technical note.

TN 81-45 *(To be read by all VPB pilots)*
Necessary information for pilots' use in the dropping of the AR-8 airborne lifeboat from PBY type aircraft is listed in this technical note. The AR-8 is an 18-foot rigid lifeboat designed to be attached, flown and dropped by parachute from certain patrol type planes to men adrift at sea. The boat weighs 1300 to 1400 lbs.

TN 82-45
This technical note lists the precautions to be taken to prevent softening and distortion of plastic canopies of parked aircraft exposed to hot sun.

TN 83-45 *(To be read by all pilots)*
Of special interest to tall pilots, this technical note outlines procedures to be used for reducing thickness of model Pk-1 aircraft kit, Stock No. 83-K-709965, to permit more effective use of unit in F7F,

T.O. & T.N. Quiz

ALL NAVAL *and Marine aviators should be able to turn in perfect scores on this quiz if they've completed their required reading in BuAer TO's and TN's for September.*

1. **What stamp appears on the new electric welded CO_2 life vest cylinders being issued to replace those now in use?**
2. **Where can latest weight and balance control classifications for all naval experimental and service aircraft now in service or subject to delivery be found?**
3. **What grade fuel shall be used for all R4D and R5D planes for routine movements within continental United States?**
4. **Does use of the AR-8 airborne lifeboat require modification or special rigging to the PBY wing?**
5. **Where can pilots and maintenance personnel find all late pertinent information concerning cold weather operation of aircraft?**

(Answers on page 40)

DON'T BE A DILBERT

Read all confidential TO's and TN's. If you haven't seen and studied Confidential Technical Orders D-45, E-45 and F-45, start today. Ask your Publications Officer

carrier-based model F4U and other carrier-based planes where cockpit height limitations are critical.

TN 84-45 *(Section III to be read by all pilots)*
All pertinent information concerning cold weather operation of naval aircraft is here summarized and referenced. Appendix I lists other cold weather publications. This technical note covers in general problems involved in both ship- and shore-based operations of naval aircraft with particular emphasis on carrier operations. Preflight and prestarting instructions, together with descriptions of associated ground equipment are given. Special clothing available for ground and deck personnel in cold weather operations, and special cold weather equipment with the recommended allowances are listed.

TN 85-45
This TN discusses internal corrosion prevention methods applicable to metal droppable fuel tanks made of non-terne coated steel. These tanks are the Mk 2, F6F 150-gallon centerline; Mk 3 F4U 160-gallon centerline; Mk 5 150-gallon universal; and the Mk 6 165-gallon Army P-38.

TN 86-45
Definite and specific operational and maintenance information is provided concerning mooring of planes in the open and equipment to be used.
Supersedes and cancels TN 43-43

TN 87-45 *(To be read by all pilots)*
Use and distribution of the Shark Chaser (life jacket) available to aviation activities under stock No. N37-S-75, are discussed in this technical note. The shark chaser was developed as a defense against sharks by chemical means. BuAer considers that the primary shark defense should continue to be technique outlined in *Shark Sense* and other publications.

TN 88-45
This technical note provides information concerning use of a fluid that removes coatings of ice, frost or wet snow from wings and exterior surfaces of aircraft. When sprayed on surfaces this fluid lowers the freezing point, providing protection from further deposits for approximately two hours if temperatures are not below 14° F.

TN 89-45
Where structural failures of steel parts of aircraft engine generators have been experienced, this technical note recommends that the mounting flanges, inner shafts, flange-to-yoke mounting bolts, and any other steel parts established by service experience as critical, be magnetic particle inspected upon overhaul. Inspection procedures and acceptance standards to be followed are stated in detail.

TN 90-45
This technical note concerns winterized marking and identification of hydraulic equipment. Certain products have been incorporated in aircraft that do not conform entirely to the extreme temperature requirements of −65° F and 158° F.
Supersedes and cancels TN 84-43.

SCREEN NEWS

Plasma Life-Guard. The fight is over, but the benefits linger on. Fortunately, war is not all waste and destruction. Certain skills and techniques, emergency-forged in the blazing crucible of conflict, survive for peace-time use. An outstanding example is the use of plasma to save lives and re-

HUMAN PLASMA SAVES A BATTLE CASUALTY

duce the seriousness of major ills and accidents that flesh is heir to. A motion picture in full color tells the story:

MN-3543 *Preparation and Use of Human Plasma*—Unclassified, 33 min.

Preparation of the fluid is followed step by step, showing: the separation of the red corpuscles in a centrifuge revolving at 1800 rpm's, pooling of the clear plasma, laboratory testing, freezing, removal of the moisture by the tricky method of drying in a vacuum without melting the ice, vacuum packing, capping and distillation of water for regeneration of the plasma in the field.

The second half of the film shows a medical corpsman administering plasma to a serious casualty. Sulfa comes first, then a battle dressing, morphine, marking of the morphine dosage on the forehead of the victim, making record of name and number, inspection of the wound and search for other wounds. Then come the steps of unpacking the plasma kit, setting up of the equipment, application of a tourniquet, injection of the fluid, and making up of the corpsman's report.

Mind's Eye View Many film attempts at instructing instructors have resulted only in giving audiences the screening meemies. All the more stand-outish, therefore, is a motion picture which fulfils its main mission of teaching yet at the same time rivets attention and holds interest:

MN-3731 *Film Tactics* Unclassified, 21½ min.

Subject matter is not new: the picture spotlights the efficient use of films as a training medium, dealing with the usual matters of integrated use of all teaching aids and guides, importance of preview of film, preparation of lesson plan, air circulation to help keep the audience awake, proper orientation of the film, reason for remaining in the room during screening, and use of summary, review and quizzing to be sure fact-burrs adhere to student.

What makes the film tower above others having the same purpose is the imaginative use of fantasy in showing the effect on the student's "mind's eye" of the teaching efforts of five instructors, all but one of whom leave out essentials of good film utilization. The mental reactions of the students are illustrated by an imaginary portrayal of a "brain" represented as a big room with a large window in the shape of an eye, cut out of one wall. Through this "eye" the student watches the instructor and film.

One student's think-box is shown cluttered with golf clubs, tennis rackets, skiing gear, gorgeous pin-ups with accompanying phone numbers, and a gigantic telephone. The point gotten over here is that before a film showing, a student's mind is on many other things, mostly irrelevant to the subject in hand, and it is the instructor's duty to switch the student's attention to the coming film by an appropriate introduction. Variations of this technique keep the film on a high plane of interest.

Post-war prospects for this film will be bright wherever instructors need instructing in the best way to squeeze the last ounce of teaching out of a training film.

Other Films Shipped:

SA-5761	*The Jet Propelled Airplane —Principles of Operation of the "Turbo-Thermal" Jet Engine*—Restricted, 29 frames
MA-6000e	*Radar Anti-Jamming for the Radar Operator—Part 3—Window* — Restricted, 32 min.
MN-5026	*Handling and Storage of Aircraft Ammunition at Advance Bases* — Restricted, 25 min.
SA-5523a	*Four Blade Curtiss Electric Propellers—Assembly and Adjustment of Motor Brake and Power Gear*—Restricted, 66 frames
SN-4394	*Series—SNA-SB2C-4 and 5 Airplane Maintenance* — Restricted
SN4394b	*Handling the SB2C-4 on the Ground*—48 frames
SN-4394f	*Removal and Installation of Wing Tanks*—39 frames
SN-4394m	*Removal and Installation of Vertical and Horizontal Stabilizers*—34 frames
SN-4394p	*Removal and Installation of the Engine in the Mount*—69 frames
SN-4394s	*Removal and Installation of the Guns*—40 frames

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

NAVAL

NAMTD, NAS Memphis
CASUs 2, 4, 23, 24, 31, 32
CasuComDet, Port Hueneme
ComAirPac
ComAirSubComFwd-Area
Hedron TWO
NAB Seattle
NAC Navy #3149
NAMC Philadelphia
NAOTC Jacksonville
NAS Atlanta
NAS Clinton
NAS Grosse-Ile
NAS Kodiak
NAS Moffett
NAS New York
NAS Patuxent
NAS Quonset
NAS San Diego
NAS Navy #115
NAS Navy #117
NAS Navy #720
NATB Pensacola
NATB Corpus Christi
NATEC Lakehurst
Navy #3233
TAL Navy #116
TAL, NOB, Norfolk

MARINE

MCAD Miramar
MCAS Cherry Point
MCAS El Centro
MAS El Toro
MCAS Navy #61
MCAS Parris Island
MCAS Quantico
MCAS Santa Barbara

LATEST BULLETINS ENGINE, AUXILIARY POWER PLANT, ACCESSORY, PROPELLER Dated 1 November 1945

ENGINE	BULLETIN	DATE	SUBJECT	EXPLANATION
PRATT & WHITNEY				
R-985	191	9-25-45	*Generator Outboard Bearing Support*	Informs activities of the new support and the installation procedure
R-1340	213	9-25-45	*Generator Outboard Bearing Support*	Informs activities of the new support and the installation procedure
R-1830	372 Supp. 1 to Rev. 1	9-15-45	*Housing—Auxiliary Drive and Auxiliary Adapter*	Changes the dimension of 1.888" given in Fig. 3 of Rev. 1 to read 1.188"
	390	9-12-45	*Spring, Fuel Feed Valve—Replacement of*	Provides information on the rework of the low ratio hydraulic coupling valves to prevent sticking
	393 Rev. 1	9-8-45	*Drive Shaft, Accessory Main—Starter Interference with*	Combines existing instructions and to include reference (c)
	432	9-12-45	*Crankshaft Center Bearing*	Informs activities of the procedure for replacing the previous roller main bearings with plain main bearings
	435	9-8-45	*Maximum Permissible Radial Looseness of Propeller Shaft*	Establishes a maximum limit for radial looseness of the propeller shaft of the applicable engines
	438	9-24-45	*Inserts, Fuel Inlet, Ceco 1900-CPB-3 Model Carburetor—Modification of*	Eliminates fuel leakage at the fuel inlet insert
	443	10-10-45	*Diaphragms, Air Used in Ceco 1900-CPB-3 Model Carburetors—Pre-Stretching of*	To pre-stretch subject diaphragms prior to flow bench calibration and prevent lean operation caused by stretching when subjected to pressure differentials caused by engine backfiring
R-2000	99 Rev. 1	9-8-45	*Drive Shaft, Accessory Main—Starter Interference With*	Combines existing instructions and includes reference (c)
	121	9-12-45	*Crankshaft Center Bearing*	Informs activities of the procedure for replacing the previous roller main bearings with plain main bearings
R-2800	83 Supp. 1 to Rev. 2	8-31-45	*Rocker Box Leakage—Prevention of*	Informs activities of kit assembly number for new reinforced covers required by Revision No. 2
	156	10-1-45	*Governor Drive Bushing—Pinning of*	Informs activities subject bushing may be pinned without replacing
	229	10-9-45	*Secondary Counterbalances—Installation of*	Informs activities of new front and rear heavier secondary counterbalances on applicable engines to reduce linear vibration
	233 Supp. 1	9-10-45	*Heli-Coil Spark Plug Inserts*	Provides activities with additional information of maintenance of the lock ring type inserts in applicable engines
	243	9-12-45	*Intake Pipes—Summary of Changes*	Consolidates and clarifies the information contained in references (h) through (i) pertaining to intake pipe changes
	247	9-5-45	*Clutch and Hydraulic Coupling Shafts—Cleaning of*	Provides an improved method of cleaning clutch and hydraulic coupling shafts
	250	9-12-45	*Clutch Assemblies—Information Concerning*	Describes the two different clutch assemblies that have been installed in R-2800-22 and -22W engines
	253	9-12-45	*Diffuser Rear Studs—Removal of Nuts and Washers*	Eliminates the possibility of stud breakage experienced with dual anchorage of the diffuser
	254	9-12-45	*Low Ratio Hydraulic Coupling Valve*	Provides information on the rework of the low ratio hydraulic coupling valve to prevent sticking
	255	9-10-45	*Rear Support Plate Breather Baffle—Rework of*	Informs activities of the necessary methods to prevent the possibility of interference between the baffle and the oil transfer pipes
	258	9-21-45	*Valve Rocker Clearance*	Provides information valve rocker clearance adjustment
R-4360	2	8-29-45	*Basic Engine Differences*	Disseminates information regarding the basic differences between the various engine models listed below
WRIGHT				
R-1820	349	9-15-45	*Push Rod Housing, Hose Clamps, WAC Part No. 4919D and 5047D—Replacement of*	Gives replacement on the use of an improved wire type hose clamp that has added clamping action to further minimize leakage
	388	10-17-45	*Intake Pipe Connections—Improvement of*	Provides an improved fitting for the spanner wrench on the intake pipe packing nuts and also provides a still washer between the packing nut and the neoprene packing
	390 Supp. 1	9-28-45	*Silver Master Rod Bearings—Service Limits of Acceptability for*	Provides instructions for the manufacture and use of a straightening tool for silver master rod bearings
R-2600	113 Rev. 2	9-15-45	*Push Rod Housing Hose Clamps, Wac Part No. 4919D and 5047D—Replacement of*	Gives information on the use of an improved wire type hose clamp that has added clamping action to further minimize leakage
	169	10-17-45	*Intake Pipe Connections—Improvement of*	Provides an improved fitting for the spanner wrench on the intake pipe packing nuts and also provides a steel washer between the packing nut and the neoprene packing
	174 Supp. 1	9-28-45	*Silver Master Rod Bearings—Service Limits of Acceptability of*	

GENERAL ENGINE BULLETINS

26 Supp. 1 to Rev. 1	9-10-45	*Strombery Injection Carburetors—Independent Vent Connection for Twin Vapor Vent Valves*	Clarifies bulletin in regard to PT 13D4 and PT 13D6 carburetors
33 Supp. 3	10-12-45	*Installation of Ball Bearings in Distribution Gear Shaft and Box Type Cam Lubricator in all Types (Exclusive of DF18 R U) American Bosch Magnetos*	Provides an alternate method for eliminating radial play of the cam during overhaul of subject magnetos
73 Supp. 1	10-8-45	*Overhaul of Engine Accessories—Designation of Overhaul Activity*	Identifies naval activities overhauling engine accessories
77 Rev. 1	9-26-45	*Supercharger Clutches—Failure of Due to Improper Operation*	Corrects the reference list and quotes TO 80-45 which supersedes TO 11-45
79	9-25-45	*Hydraulic Lock, Causes and Precautions to Reduce the Possibility of*	Applies information on hydraulic lock and methods for prevention
80	9-24-45	*Spring Used in Holley Aircraft Carburetors—Identification of*	Provides data for use in identifying springs in all Holley aircraft carburetors

POWER PLANT ACCESSORIES BULLETINS

52-45	8-17-45	*Lubricating System Accessories, g-6 Oil Cooler with Metal or Bearing Particles Lodged Inside—Identification of*	Safeguards against re-issuing back into service oil coolers containing metal or bearing particles before recording them in accordance with Power Plant Accessories Bulletin 37-45 and Aviation Circular Letter No. 72-45
53-45	9-14-45	*Lubricating System Accessories, g-7*	Precludes the possibility of overloading the engine with oil while in non-operating condition.
54-45	10-11-45	*Air System Accessories, e-10*	Prevents failure of the coupling assembly installed in Pesco Model 3P-194-F vacuum pumps
56-45	9-29-45	*Fuel Pumps, d-31*	Improves safety and reduces the possibility of corrosion; a double diaphragm is to be installed in subject pump assemblies, and a material change is to be made in the lower disc

(Continued on Page 39)

Bars Set Solves Tube Riveting

NAS RICHMOND—Small tube stock that requires rivets long has been the bane of the aircraft mechanic's existence. Such things as riv-nuts, explosive

NO TASK TO RIVET TUBING WITH NEW BAR

rivets and sheet metal screws have been used in the past with varying degrees of success, but now a new mechanical

SPRING LOADED BUCKING BAR FOR TUBING

bucking bar shows promise of superseding all three of these and allowing the mechanic a certain peace of mind when he approaches the task.

By taking a two-piece expanding bar about six inches long, fitted with spring tension, the bar can be placed within the tube and the spring action will force bars against wall of tube resulting in a solid buck for the rivets.

The Navy Employees' Suggestion Program credits this with facilitating a better quality of work along with an estimated annual savings of $500.

[DESIGNED BY EVERLAND T. WISE]

NAMC Turnbuckle Adjusting Key

NAMC PHILADELPHIA—A mechanic here has designed a turnbuckle adjusting key that greatly facilitates the adjustment of buckles in inaccessible locations inside the ASB-7 indicator.

Succeeds List of 1 October 1945 — *1 November 1945*

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

Airplane	Bulletin	Date	Change	Date
F6F	129	10-18-45	94	9-29-45
FM	56	10-12-45	62	9-7-45
F4U F3A FG	250	10-18-45	233	10-22-45
F7F	25	10-4-45	22	8-29-45
F8F	3	10-23-45	0	0
FR	9	9-22-45	2	9-25-45
GH NH	12	9-16-45	22	6-15-45
JM	41	9-16-45	46	8-1-45
JRB SNB	43	10-1-45	27	3-20-45
PV	171	10-17-45	179	10-4-45
PBJ	67	9-28-45	79	9-19-45
PBM	148	10-3-45	176	10-23-45
PBY	134	10-9-45	186	7-18-45
PB2Y	74	10-18-45	156	8-9-45
PB4Y	201	10-17-45	168	10-12-45
PB2B	10	10-24-45	4	8-14-45
R5C	65	10-17-45	154	10-8-45
R4D	51	9-13-45	48	10-3-45
R5D	81	10-17-45	138	10-15-45
RY	83	10-22-45	31	8-14-45
R5O	17	9-19-45	0	0
SB2C SBF SBW	227	9-24-45	153	9-19-45
SC	92	10-18-45	42	9-5-45
SNJ	38	9-19-45	0	0
TBF TBM	216	10-8-45	243	9-10-45
TBY	19	10-15-45	2	10-18-45

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

KEY SAVES FOUR HOURS PER PBN-1 PLANE

Previously, a wire turnbuckle key was used to loosen and tighten turnbuckle to obtain proper tension on aileron control chain on control column. Many times turnbuckles have to be disconnected and re-adjusted, which is very difficult under ordinary circumstances.

Since installing ASB-7 indicator on control columns, it was impossible to use a wire turnbuckle key to any advantage as only ⅜ of a turn at a time could be gotten when turnbuckle had to be disconnected and reconnected to obtain proper adjustment.

Use of suggested key results in saving of four hours per PBN-1 plane—a total savings of approximately 200 man-hours for this program. Key was designed under the NAVY EMPLOYEES' SUGGESTION PROGRAM.

[DESIGNED BY IACARUSO DIODATO]

(Continued from page 38)

ENGINE	BULLETIN	DATE	SUBJECT	EXPLANATION
			HAMILTON STANDARD PROPELLER	
	35	9-12-45	*Hamilton Standard Service Bulletin No. 100—Approval of*	Approves Hamilton Standard Service Bulletin No. 100
	36	9-19-45	*Hamilton Standard Service Bulletin No. 101—Approval of*	Approves Hamilton Standard Service Bulletin No. 101
			CURTISS ELECTRIC PROPELLER	
	28	6-15-45	*Support, Front Spinner, SB2C-4 Aircraft—C5428-A48—Rework of*	Facilitates greasing of the hub assembly
	29	7-3-45	*Improved Motor Retention and Seal Modification—PB2Y Aircraft, Model C5325D Curtiss Electric Propellers*	Presents instructions for incorporation of improved motor retention and seal modification on all installation and spare C5325D Curtiss Propellers used on PB2Y Aircraft.
	30	7-10-45	*Brake Attaching Bolt, Tightening and Installation of—Models C5428-A44 and C5428-A48 Propellers*	Insures correct installation of the power unit brake attaching bolts in order to prevent loosening of the brake cage and malfunctioning of
			AUXILIARY POWER PLANT	
	27	9-7-45	*Andover Auxiliary Power Plant with Eclipse 914-15-A Generator—Cooling of Generator*	Prevents overheating of generator

LETTERS

SIRS:

Vice Admiral Marc A. Mitscher, USN, DCNO(Air), and Lieut. Gen. Roy S. Geiger USMC, Commanding General, Fleet Marine Force, Pacific, were honored by the Naval Air Station, Pensacola, in ceremonies conducted on 13 October.

Rear Admiral C. A. Pownall, Chief of Naval Air Training, said: ". . . We are honored to have present with us two officers—one a Naval vice admiral, the other a Marine lieutenant general. It happens that they learned to fly together here at Pensacola about 30 years ago. They have each commanded vast forces in the Pacific campaign. They fought the enemy as they had learned to fly together as young men; that is, side by side. . . ."

Admiral Mitscher was Naval Aviator No. 33. General Geiger was Naval Aviator No. 45, as well as the fifth Marine aviator to win Navy wings.

A stainless steel model airplane of the type first used in flying at Pensacola was presented to Admiral Mitscher by Rear Admiral J. J. Clark USN, Chief of Naval Air Intermediate Training; a second model

airplane was presented to General Geiger by Major General Field Harris USMC, director, Division of Marine Corps Aviation.

NAS Pensacola — LIEUT. (JG) USNR

SIRS:

In your 1 October 1945 issue you gave an account of the Battle of Philippines. In that article you mentioned the CVE, the *Kitkun Bay*, as having sustained a hit. This error was made once before by the United News Service. May I correct it. The CVE, the *Kalinin Bay*, was the baby flattop that got the hits, not the *Kitkun Bay*. I'm afraid the boys aboard the *Kalinin Bay* are very much annoyed by your version, just as I was.

JOHN J. AGANS, AERM2C

¶ Official Navy releases show both the *Kalinin Bay* and the *Kitkun Bay* being damaged in the Battle for Leyte Gulf on 25 October. A suicide plane and bomb crashed into the *Kitkun Bay's* port catwalk and fell into the sea about 25 yards off the port bow. Damage was small. It was not hit by shellfire, as previously reported. The *Kalinin Bay* was hit by 12 shells forward on the flight deck and two exploded under the counter. Later a suicide plane hit the flight deck and a second Kamikaze hit the port after smoke pipe.

SIRS:

This incident might be titled "The Gravity of the Situation," for reasons which the reader will soon see.

A Grumman *Hellcat* pilot was returning early from a dogfight with a flight of Jap planes. His gas was low, his engine cutting out, and some of his controls were damaged. He radioed:

Carrier from pilot: "Request immediate emergency landing."

Unaware of the seriousness of the pilot's difficulties, the carrier hoped to have the plane circle the formation until the rest of the flight finished off the enemy aircraft and returned home. So they answered:

Pilot from carrier: "How long can you remain airborne?"

Carrier from pilot: "How long does it take to drop 200 feet?"

He was landed aboard immediately.

U.S.S. *Bataan* — LT. JAMES WARD, USNR

SIRS:

This is to advise that answer No. 3 of Recognition Quiz in the 15 October 1945 issue of NAVAL AVIATION NEWS is in error.

The airplane shown in picture No. 3 is the XPB2M-1 which was converted into a

cargo ship and is now designated as the XPB2M-1R. The JRM is the production version and is recognized by the single fin and rudder.

E. R. ZIEGLER, LT. (JG) USNR

Fairchild Aircraft Corp.

Hagerstown, Md.

¶ 4.0 to Mr. Ziegler in recognition.

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ANSWERS TO QUIZZES

● BEST ANSWERS (p. 14)

1.d 2.c 3.b 4.c 5.a

● NAVIGATION QUIZ (p. 13)

1.b 2.c 3.a 4.a

● T.O. & T.N. QUIZ (p. 36)

1. EW-USN 2. TO 83-45 3. 100/130 fuel 4. No 5. TN 84-45

● GRAMPAW'S QUIZ (p. 12)

1. To officer controlling the flight and by best available means whether it be telephone, telegraph or dispatch. Ref.: ACL 114-45.
2. When the single plane is approaching a field within a prescribed landing course. Ref.: *BuAer Manual*, Art. 6-210.
3. False. If a flight plan has been filed, always file an arrival notice with the nearest CAA station or control tower; otherwise you'll have people looking for a lost pilot. Ref.: CAR 60.109.
4. 3000 feet above the terrain. Ref.: FSB 15-45.
5. False. Never attempt take-off with snow, ice or frost on the wings. Even loose snow cannot be depended upon to blow off, and only a thin layer is necessary to cause loss of lift and very treacherous stalling characteristics. Ref.: page 5 of TN 84-45.

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BUTCH of the MONTH

UNIT CITATION

To A&R Department, NAS Navy #35,000

THE ORDER OF THE PICKLED PENGUIN

New Commendation Grants Award For Mech Carelessness

For conspicuous foolishness and lack of foresight far above and beyond the average in the pickling and preservation of aircraft engines. This honor is shared by all hands, including the mechanics doing the actual work of pickling, inspectors who check the work, etc. This is a rare order and only those men showing the greatest lack of judgment and the most hind-thought are admitted. Some of the more immediate results of this A&R's accomplishments as reported by RUDM's and AAR's follow:

a. Engines being allowed to stand several days before pickling
b. Corrosion of major components in all types of engines
c. Parts missing in packaging

Is your A&R responsible for any such Butches? The worst thing about carelessness in preservation processes is the needless expense in time and money that is a direct result of such carelessness. From here on in saving and preservation will be the order of the day. For an engine to arrive in a corroded condition after a ten thousand mile journey does not speak well for maintenance efficiency at the activity involved.

THE SARA BRINGS HOME A LOAD OF GI's

Flattops Run Magic Carpet Express

THOUSANDS of war weary GI's from every branch of the armed services are being transported home from Europe and the Pacific via the Navy's *Magic Carpet* carrier service. A total of 18 CV's and CVL's and approximately 45 CVE's have been assigned by the Navy to the job of transporting service men back to the United States. Freed from their war time duties, the Navy flattops assigned to *Magic Carpet* duty have been stripped of aircraft and flying personnel and are rigged with special bunks, some seven tiers high, on the hangar decks to accommodate a maximum number of returning veterans. Carriers assigned to transport duty in the Atlantic include the *Enterprise, Wasp, Randolph, Lake Champlain, Monterey, Bataan* and *Langley.* Among those assigned to the *Magic Carpet* run in the Pacific are the *Saratoga, Bon Homme Richard, Bunker Hill, Ticonderoga, Yorktown, Hancock,* and *Hornet,* all CV's, and the *San Jacinto, Belleau Wood, Cowpens* and *Independence.*

RESCUED PRISONER ABOARD BLOCK ISLAND READS NANEWS

HANGAR DECK OF U.S.S. ENTERPRISE PROVIDES SLEEPING QUARTERS FOR 1200 HOMEWARD BOUND SERVICEMEN FROM PACIFIC