NAVAL AVIATION NEWS

Aerial Targets • FR-1
Navy's Best Photographs
Service Test • Howler

November 1945

RESTRICTED

RECOGNITION QUIZ AMERICAN, BRITISH AND RUSSIAN AIRCRAFT

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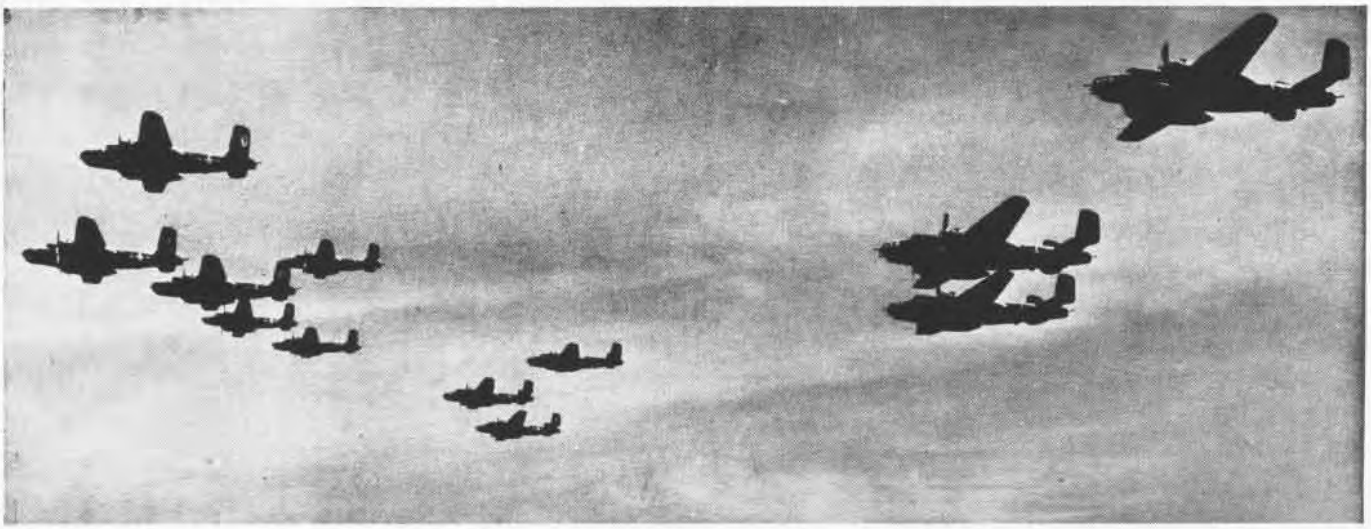

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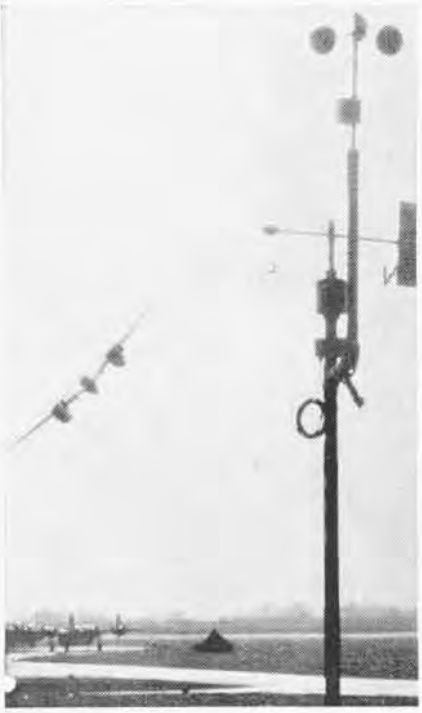

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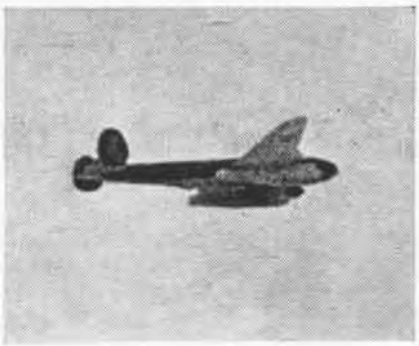

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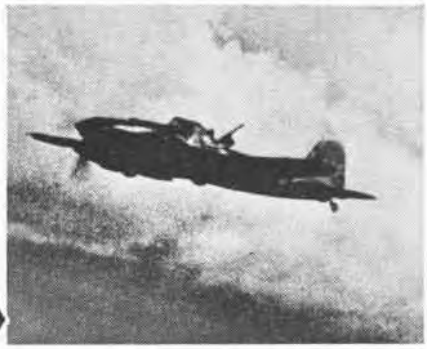

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Answers on page 40.

AERIAL TARGETS

NAVY'S OLD FAITHFUL UTILITY PLANE, THE JM-1, STREAMS A 30-FOOT TOW SLEEVE WHICH IT HAS JUST RELEASED FOR AA FIRING

Navy Employs Radio-Controlled Drones, Reso-jets, Tow Sleeves and Banners to Give Its Pilots, Aircrewmen and AA Gunners More Realistic Firing Practice

MUCH OF the credit for the 17,000 Japanese planes shot out of the air or destroyed aground in the war can be given to realistic training afforded pilots, aircrewmen and AA gunners firing at aerial targets—tow sleeves, banners and drones.

Figures as complete as can be compiled at this time show that 11,430 planes were downed in aerial combat, or by antiaircraft gunners as they made attacks on U. S. ships. Throughout the war the Navy strove to develop targets which would give gunners the nearest thing to actual attacks for firing practice.

Intensive work to develop an aerial target that would approximate more closely firing on an aircraft in flight began at Naval Aircraft Factory in 1923. Since then dozens of types of sleeves, of all shapes and sizes, have been tried in an effort to get a target that would stream smoothly at high speeds and would not disintegrate too quickly in flight or when hit.

Drones were developed about the same time. First experiments with radio-control were in 1922 and the first successful take-off and flight was made with a VE-7 plane in 1924. Drones were used first for actual firing practice off Guantanamo in 1939. In early days the Navy used obsolete types of planes such as the N2C-1, F4B4, O3U3, SBU, SU and BC-1. During the war smaller drones were used, but reconditioned F6F's now are being used as high speed target drones. One of the latest targets is the TD2D-1, a reso-jet which looks like a German buzz bomb. To be of any value as a gunnery aid, a target must be towed at a high speed. The more nearly they approximate a plane the better.

Aerial towed targets are divided into two general types—antiaircraft and aerial gunnery. Standard sleeves now for AA gunnery practice are the Mk 22 and 23, while plane-to-plane firing is done mostly against Mk 20 and Mk 7, Mod 5. Towed banners are used both for AA and aerial gunnery, as is the winged target. BuOrd handles sleeves and banner targets, while drones and the winged target are placed under cognizance of Bureau of Aeronautics.

SANGAMON'S ANTIAIRCRAFT GUNNERS SHARPEN UP SHOOTING EYES BY BLASTING AWAY AT SLEEVES IN BATTLE ACTION LULL

TOW SLEEVES

Thousands of Sleeves, Banners Shot up by Fleet; New JD-1 to be Navy's High Speed Tow Plane

THE IMMENSE popularity of tow sleeves and banners for gunnery training can be seen from the fact the Navy expended 72,000,000 feet of tow cable and 306,609 aerial targets in the year ended 1 July 1945. The latter figure included 178,851 targets used for air-to-air firing and 127,758 for antiaircraft firing.

When the war started, the main sleeves in use were the Mk 7, Mod 3, and Mk 14 which could be towed by PBY's, the J2F and other slow planes at speeds up to 120 mph. Best sleeves now available are capable of towing at speeds up to 300 mph, as is the winged target, which makes them valuable for realistic gunnery work. Many types of planes have been used for target towing in the past, but the trend is toward specialized planes like the JM's and the TBF/TBM (J) series. To be a replacement for the JM's, the Navy has converted the Army A-26 into its JD-1. This aircraft is a high-speed target towing plane with provisions for drone control and other specialized utility uses. It is the first utility towplane completely designed and equipped prior to delivery.

Sleeves can be equipped with radar-reflecting mesh cloth for use with five-inch AA guns or other weapons with fire control tieups. The two standard sleeves for antiaircraft firing are the Mk 22, a 30-foot model, and the Mk 23, a 21-footer. They come in red, black and white, the latter for night firing. The Mk 20 sleeve for high speed plane-to-plane firing is 21 feet long. The Mk 7, Mod 5, the only standard sleeve with a hole in the stern, is 20 feet long.

Banners are 30 feet long and six feet wide and can be rigged with weights so they fly horizontal or vertical. Hits are easier to assess on banners, and they are more rugged. Sleeves are lighter, easier to handle and tow at higher speeds, but will not absorb many hits at extreme speeds. Out of the 178,851 air-to-air targets expended in a year, mentioned above, 42,940 were banners.

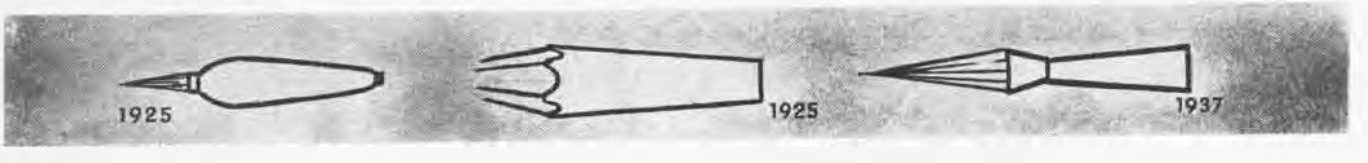
Sleeves usually are towed from 5000 to 7000 feet behind the tow plane for AA firing. The new Mk 8 reel in production will permit use of 12,000 feet of cable. The sleeve may droop as much as 3,000 feet below the plane. One pilot who lost his sleeve on take-off without knowing it flew over a town, the cable dragging below. Report has it that the cable tore a bag of bananas out of a man's hand in the street. Planes have landed on carriers successfully with cables still reeled out.

Most sleeves are made of rayon. A woman found two sleeves near Norfolk and wrote in to authorities to inquire: "Could it be nylon?" She divulged that she wanted to make lingerie out of them. She was advised the sleeves were "not suitable for the fabrication suggested."

GETTING a sleeve or banner in the air has been perfected by the Navy after much experimentation. Sleeves can be dragged off the ground or launched in midair from containers on the bomb racks. The banner usually is dragged off but can be launched in flight if carefully handled.

Planes taking off to tow a sleeve by drag take-off have to gain altitude quickly and beware a stall when the drag hits the aircraft. Cable is laid along the runway in two "U's" so that the plane leaves the ground opposite where the crewman tosses the sleeve into the air a second or so later.

After a sleeve has been shot away in practice, another can be launched in midair by sliding it down the cable with a snarl catcher. This ingenious replacement method permits launching a new sleeve in three minutes instead of requiring up to a half-hour time loss.



4 Precision Teamwork Needed in Sleeve Towing

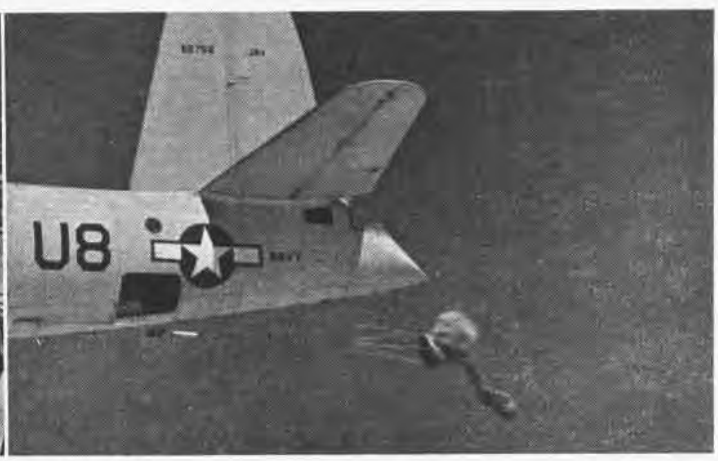
Ground crewmen of Utility Squadron Nine carefully wrap tow sleeve that will be used for training gunners aboard ships in antiaircraft firing. VJ squadron performs all types of duty in aviation from towing target sleeves to photography. Although squadron flew through fields of flak while towing targets, its planes were hit more by lightning than gunfire. VJ-9 plane spotted sub

Ordnancemen load black targets and lights in after hatch of JM preparatory to taking off on night flight for gunnery practice

VJ-15 ordnanceman attaches target to tow cable by slipping ring of target onto exchange device at the end of the wire cable

Tow sleeve attached to the cable, crewman prepares to release the target for towing from rear starboard hatch of the *Marauder*

Once the target is streamed, the ordnanceman controls speed of the cable rolling off reel. Navy provides electrical, hydraulic or wind-driven reels to take care of thousands of feet of cable



Secured by numerous cables, a tow target sleeve catches the wind after release from JM. Firing at targets such as this has helped train gunners who later shot down more than 17,000 Jap aircraft

MARAUDER WITH 16-FOOT WINGED TARGET IN TOW HEADS OFFSHORE FOR GUNNERY PRACTICE, FOLLOWED BY HELLCAT WHICH SOON WILL BE

AERIAL DRONE

Speedy Radio-Controlled Target Drones Give Gunners Practice By Simulating Fighter Attacks

USE OF drones for gunnery practice is a new idea, compared to towed sleeves, but BUAER has developed a number of successful models. Because of its simplicity of launching and adaptability to use by any ship with catapult space, the widest used during the war was the TDD, now in its third model.

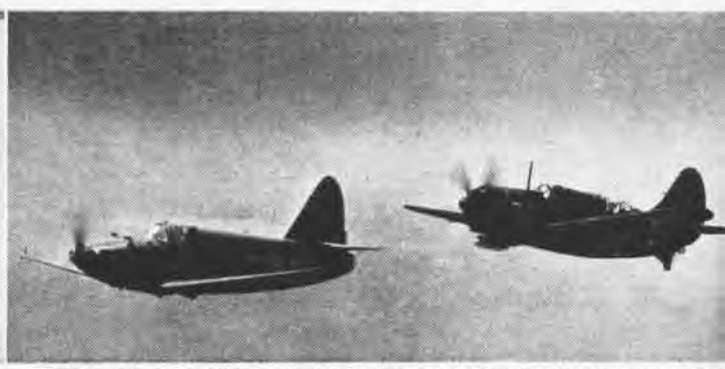
The early Target Drone Denny had wheels but the TDD-3, which resembles it in most respects, does not. The Fleet was shooting these down at the rate of 800 a month at the war's end. They will fly 130 mph for 1¼ hours, under close control of the radio operator ashore, on the ship, or in the "pilot" plane. The newest model has a 20 hp engine, instead of the six hp engine with counter-rotating props in early models.

Newest of the drones that can be discussed in restricted classification is the TD2D-1, a reso-jet target that looks and operates somewhat like a German buzz bomb. This radio-controlled drone will do 200 mph or better and give excellent practice in fighter training. It has ruddervators instead of the conventional rudder and elevators, has a 12-foot wingspan and weighs 320 lbs. It will fly 40 minutes, using kerosene for fuel. Launching can be by catapult or from a parent plane's bomb rack in flight. Landing is made by parachute, the same as the TDD.

The standard drone is the TD2C, a low wing Culver monoplane with 30-foot wingspan. It is a standard small plane adapted as a flying target and can fly three hours and another hour if provided with auxiliary fuel tank. Because of its size it can be seen by gunners at greater distance and also gives better radar return. Its ceiling also is higher than the small drones. On short fields, take-off can be assisted by JATO. This drone saw wide use from U.S. training fields to Leyte.

Smoke indicators can be installed on both the TDD-3 and TD2C so the control "pilot" and gunners can follow them at altitudes. All drones can be made to simulate any type of attack on ships, planes or shore antiaircraft gunners. Five special VJ squadrons handle the TD2C. Because of their high maneuverability, drones give more realistic gunnery practice than sleeves or banners, which can be flown in varied patterns but cannot simulate fighters' attacks.

RESO-JET DRONE READY FOR AERIAL LAUNCHING FROM PBY WING



TD2C-1 DRONE FLYING IN CLOSE FORMATION WITH PARENT PLANE

STRAFING HIGH SPEED TARGET; THIS TYPE CAN BE SNATCHED FROM CARRIER DECK OR LAND

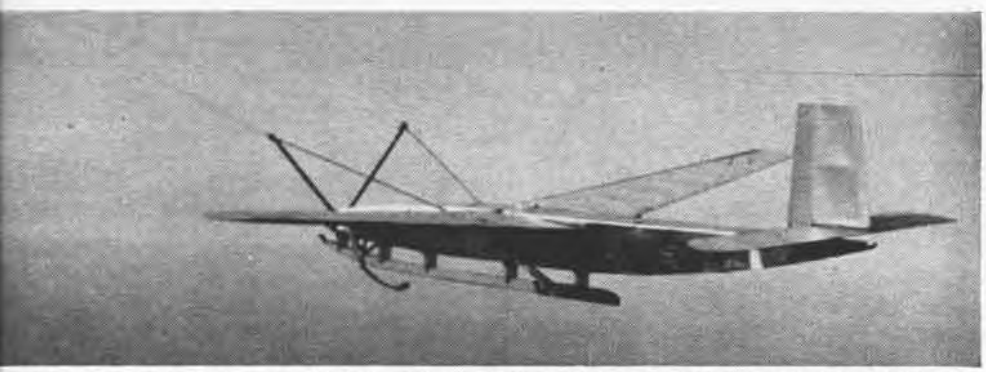
ANOTHER type of aircraft target produced by BUAER is the winged target. It has no engine or radio control features as do drones but it has many uses that make it valuable for training gunners.

The target is capable of being towed at speeds of more than 300 mph. It has a 16-foot wingspan and weighs only 168 lbs. Its low drag saves on fuel consumption by the tow plane. Other advantages include excellent maneuverability, good radar return and staunchness that will withstand hits without disintegrating. It is adaptable to use with computing sights.

Originally a British design, the winged target can simulate strafing runs on ships and shore guns to train automatic weapon gunners. In one Fleet unit, a winged target was used for 87 minutes for firing runs and was hit by small calibre ammunition and a 20 mm projectile which shot off half the stabilizer. It maintained adequate flight stability to complete the practice. The target is towed into the air. An automatic release, which drops the cable as soon as it hits the ground on its return, is being incorporated in latest procurements.

Snatch take-offs can be used on beaches and carriers for getting the winged target in the air. Special nylon cord which draws under stress to take up shock is used for this type take-off. The snatch pickup equipment will be procured by BUAER when requested by operating units.

An indication of the importance the Navy attaches to keeping its antiaircraft gunners sharp can be seen from the fact that it sent up targets for them to fire at while their ships were cruising only 90 miles off the Japanese coast. Lack of Jap air attacks deprived them of their customary brand of gunnery practice.



CLOSEUP OF WINGED TARGET, WHICH CAN BE TOWED AT MORE THAN 300 MPH, HAS LOW DRAG

Hundreds of TDD drones, launched from catapults on battleships or other large vessels, furnished gunnery training for their antiaircraft batteries during lulls between action in Pacific. TDD-3 has a 20 hp motor

GRAMPAW PETTIBONE

Get Ready

Comes autumn, it's a wise idea for pilots and aviation ground personnel to prepare for winter. Cold weather flight operations have a large quota of extra hazards—ice, fog, snow, rain, sleet, frost and obstructed runways. But the "ole devil" of them all is *ice*.

Let's close the barn door this year before the winter accidents begin. Here are a few locks to put on the door.

▸ *On the ground.*

1. Don't attempt to take off with any frost on wings or tail surfaces. Rubber scrapers or waste rags should be used to remove frost.

2. Don't attempt take off with any loose snow on the wing or tail surfaces. It may be covering a hard ice formation caused by melted snow which has refrozen. Loose snow also may pack between the ailerons and wings. Wing covers and engine covers should be used, if available, when the plane is kept in the open. Give your airplane a thorough exterior line check subsequent to any precipitation during cold weather.

3. Don't taxi fast over pools of water when temperatures are near freezing. Splashed water may form ice on the wings or stabilizer or may ice up brakes, retracting mechanism or landing gear.

4. Don't take off without first testing all controls to insure that hinges have not frozen.

5. Don't warm the engine in a fog when temperature is near freezing. Ice may form on propeller and on wings and stabilizer in back of the prop blast.

6. Don't try to take off with any ice on the airplane or propeller.

7. Don't attempt to remove ice by applying hot water. It will freeze again and may produce a worse condition than before application. Snow and frost may be removed by throwing a rope or strip of canvas over the wing with a man on each end to "saw" off the snow.

8. Don't taxi fast on ice-coated runways or taxi strips.

9. Don't apply brakes suddenly on a runway that may be coated with ice. Use the full effective runway. Check on runway conditions by radio before landing.

10. Don't take off during a wet snow condition.

11. Don't forget that in cold weather engines heat up less readily and are, therefore, more prone to foul. They should be thoroughly cleared immediately before take-off.

12. Don't take off into a known icing condition when the plane is not equipped with all modern de-icing and anti-icing fluids. Even though the craft is so equipped, flights should not be planned to go through continuous icing zones.

▸ *In the air.*

1. Don't continue to fly into a region of known icing conditions. Better to turn back than be sorry.

2. Don't fly through rain showers or wet snow when the temperature at flight level is near freezing.

3. Don't fly parallel to a front under icing conditions.

4. Don't fly into clouds at low altitude above crests of ridges or mountains. Four or five thousand feet above ridges should be maintained when flying on instruments through clouds at temperatures below freezing.

5. Don't fly into cumulus clouds at low temperatures. Heavy glaze ice may be encountered.

6. Don't forget to turn on the pitot tube heater when needed. These heaters can be checked only on the ground. Pitot tubes should be covered when planes are parked in the open.

7. Don't land with wing de-icers on. They act as spoilers if left on. Turn them off on base leg.

8. Don't make steep turns, practice stalls or spins, land with power off or try to climb too fast when ice has formed on the plane. Ice increases the stalling speed of an aircraft because of increased weight and drag as well as decreased lift.

9. Don't forget when flying under icing conditions that gasoline consumption is greater than normal due to increased drag and additional power required.

10. Don't forget that turning on carburetor preheat or using alternate air intake, the latter *before* entering any weather where there is possibility of icing, may mean the difference between flying through to destination or being hauled there in the crash truck. And you can ice up even though you cannot see the moisture in the air. A large percentage of accidents resulting from induction system icing occur because of the many pilots who are woefully lacking in both general and specific knowledge on this subject. Most of the references listed below deal with this problem and should be reviewed carefully by all pilots at this time.

11. Don't attempt flight in the late fall or winter without first consulting the forecast as to expected icing conditions.

References: TN 84-45, TN 79-45, TN 36-41, Flight Safety Bulletin 10-44 and the article "Beware of Icing!" in the 15 October issue of NAVAL AVIATION NEWS.

Helldiver Pilots!

Attention of all SB2C, SBW, SBF pilots is invited to the detailed analysis of accident hazards facing *Helldiver* pilots contained in the September issue of the *Naval Aviation Confidential Bulletin*, No. 9-45, CONAVAER-00-75-500.

Unfamiliarity Breeds Accidents

A pilot who was used to flying heavy, service-type aircraft made an administrative flight in a GH-3. His flight to destination was uneventful. In his landing, the main wheels hit slightly ahead of the tail wheel and the plane bounced and swerved left. In attempting to correct for this, the plane was nosed over.

The cause of this accident was listed as carelessness and poor technique on the part of the pilot. One of the underlying causes of the poor technique was believed to be the tendency of the experienced pilot (1000 hours) to overcontrol due to most of his recent experience having been in heavy, service-type aircraft.

All pilots again are warned, when going from heavy planes to light planes, of the relatively light control pressures found in the latter type of aircraft.

Catapult Launchings *require plenty of know-how and split-second timing. Here the U.S.S.* Randolph *has just launched a* Hellcat *off its starboard catapult. Crewmen rush to retrieve bridle gear while another team, extreme left, stands by awaiting launching of plane on port catapult (not visible in photograph). A third plane is moved forward to take its place on the catapult just emptied. Training pays off.*

Partial Anoxia

An outfit had several mid-air collisions under similar circumstances. All occurred during early morning gunnery runs at an altitude of approximately 10,000 feet. Fortunately, none was fatal.

After a careful consideration of all aspects of these cases, the local Safety Board issued the following bulletin to pilots:

Rather than adhere to the generalized description of "doping off after a rugged night," let's consider the physiological aspects of such an accident. Consider not the anoxia that causes unconsciousness, but that tricky, sneaking *partial anoxia* that destroys good vision, good judgment and split second reactions. At 10,000 feet, a tough "night before" is apt to affect you this way.

Grampaw Pettibone says:

I fully agree! The old rule used to be, "No drinks within 24 hours of a flight." It still holds good. Sure a lot of pilots have broken this rule and gotten away with it. But it's wiser to remember the many good ones—pilots better than either you or I—who aren't flying today because they thought the rule didn't apply to them.

There's an amusing sequel to this item. On another page of the bulletin quoted above there is a little "filler" which reads:

"If you drink, don't fly—
If you fly, don't drink—
If you don't drink, send us your chit book."

In the Fog

An R4D ran into unexpected fog immediately after take-off and shortly thereafter crashed into the top of a hill almost directly in line with the take-off runway. All 13 persons aboard were killed. The pilots (over 2000 hours each) were familiar with the airport and surrounding terrain and knew that they should make a left turn soon after becoming airborne in order to avoid high terrain on the right. The only logical explanation for the catastrophe seems to be that the sudden entry into the unexpected fog bank confused the pilots momentarily and in their concentrated effort to maintain control, they forgot to turn left to avoid the hill.

All night take-offs should be considered and planned as instrument take-offs in the sense that a pilot should depend primarily on instrument flying. If he does this consistently, he will not become panicky or confused should he suddenly fly into an unexpected cloud. (And this is not an isolated instance).

When there is a co-pilot, every take-off and landing in reduced visibility should be made with the pilot on instruments and the co-pilot on contact.

Grampaw Pettibone says:

Co-pilots aren't supposed to go along just for the ride. They are there to help the pilot fly the plane, remember that.

Not Tight

Control of this FM-2 was lost during landing due to slipstream from the plane ahead.

The pilot should not have been injured, but he was—seriously, when his head struck the gunsight.

His shoulder harness was *not tight.*

Survival Suicide

The following article is reprinted from the Ninth Marine Aircraft Wing, "Aviation Safety Digest:"

A Marine pilot, upon reaching his destination, was instructed to report to a field a short distance away due to a closed-in condition. He had approximately 7 hours' fuel at this time (1700) but immediately got himself lost. A search was sent out early the following morning, after it was determined that the pilot neither contacted nor landed at any other fields. No trace was found for 16 days.

On the seventeenth day, the plane was spotted some 150 miles south of the field where he was to have landed. Investigating parties discovered he had made a good landing. The chute was spread out near the plane and numerous signs indicated the pilot had survived in good condition.

In the cockpit of the plane was a letter written to his mother stating that he had been at the plane for two days, had consumed all but half a can of five cans of water and was suffering from thirst already and that he planned to leave the plane. The letter was coherent, giving no indication that he had suffered from shock or concussion, but he neglected to mention the direction he intended taking.

The radar gear had not been destroyed, no oil had been drained from the engine to build fires for warmth or signaling.

Expert trackers were hired and started from the scene of the crash in search for the lost pilot. The trail followed revealed no fires had been built, no shelters made, no effort to catch fish or game. At one point it was found that he had wandered off to one side and found water, but he had not remained long enough to soak up much. Although his course carried him along the beach he apparently ignored clams, crab and surf fish.

After six days of aimless wandering he died from exhaustion and lack of food . . . killed from ignorance and fear. Had he observed the simplest rules of survival, conserved water and searched short distances for food, prepared smoke signals and fires and remained at the plane, he would be here now.

It is usually best to remain with your plane if you are lost. A plane is much easier to find than a man wandering aimlessly.

▶ *Comment*—The Army's series of "Land and Live" films contain excellent information on this general subject. Navy numbers of these films are: MA-2627 (Arctic), MA-3854 (Desert), MA-4206 (Jungle).

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. **If grade 91/96 fuel is specified for your aircraft, 100/130 will provide more power. True or False?**
2. **At what RPM should supercharger shifts be made?**
3. **For landing, what signals does the pilot give to the co-pilot to lower wheels?**
4. **In landing approach, pilot should pump brake pedal several times to insure efficient operation. True or False?**
5. **If alternate air is used during take-off due to icing conditions, how will the take-off run be effected?**

(Answers on page 40)

Is It Worth It?

After finishing the prescribed runs on a gunnery training flight, the instructor led his group of seven students at an unauthorized low altitude over the water. Everybody was having a good time *until something happened.* The last cadet failed to pull up enough when he passed over the shore line and dragged his wing in a tree. The plane crashed, killing the pilot.

An investigation into the crash revealed that flight discipline for the entire flight had been poor. The instructor was tried by GCM and found guilty.

Grampaw Pettibone says:

When flight discipline breaks down, you can expect trouble sooner or later.

An increasing number of flat-hatting reports are being received. You may be able to get away with breaking the "regs" for awhile, but stop and think about what would happen should something unforeseen, such as an accident, cause you to be caught outside the law. The punishments are rigid and will be even more so from here on.——Think it over seriously and decide: IS IT REALLY WORTH IT?

RADIO PROXIMITY FUZE

The Navy's Secret Weapon Was a Major Factor in Winning of War

One of the war's outstanding secret weapons is the radio proximity fuze that explodes a projectile as soon as it comes close enough to a target to inflict damage. Developed by scientists of the Office of Scientific Research and Development at the request of BuOrd, this weapon played a major part in the Navy's winning fight against Kamikazes.

Only clue to the secret weapon's existence was what appeared to be unprecedented accuracy of antiaircraft fire. For two and a half years of war VT fuzed projectiles inflicted terrific damage on the enemy.

The VT fuze is an extremely rugged five tube radio sending and receiving station that fits into the nose of a projectile. Heart of this miniature radio station is a vacuum tube that sends out electro-magnetic waves at the speed of light. The impulses are reflected back to the tube by any target that gives a radio reflection.

If a VT-fuzed projectile in flight passes within 70 feet of an airplane, reflected impulses act on the fuze circuit to trigger a switch causing an electrical detonator to set off the projectile's main explosive charge.

The VT proximity fuze eliminates fuze setting, excludes errors inherent in time-fuze mechanism, and makes possible maximum results in the split-second speed demanded by modern AA fire. A VT-fuzed projectile explodes automatically when it reaches the point where its fragments can shower a target. If an AA gun is properly directed all the crew has to do is load and fire. Proximity fuzes do the rest.

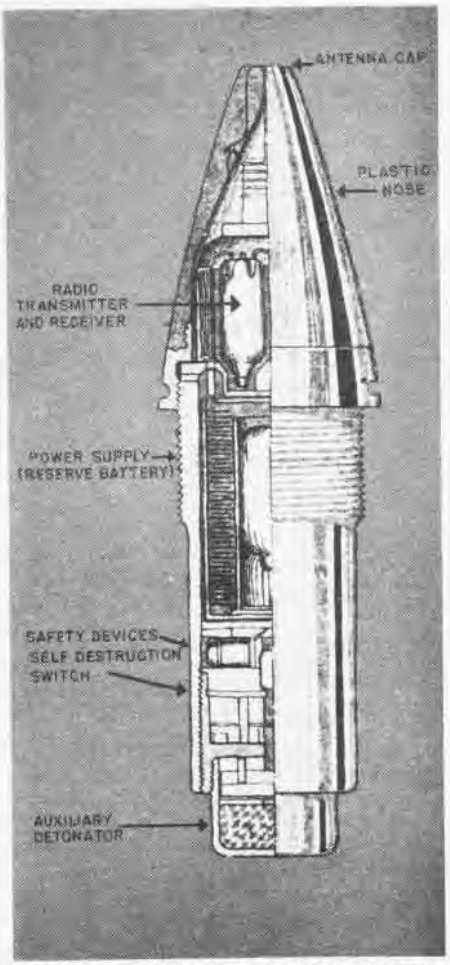
First Jap plane to be shot down by a VT-fuzed projectile is credited to the U.S.S. *Helena* on 5 January 1943. In the Okinawa campaign surface craft relied primarily on an AA defense of 5" guns firing a preponderance of VT-fuzed projectiles and 20 mm and 40 mm guns firing contact-fuzed shells.

Threat of the airplane to surface ships stimulated the Navy's search for a practical proximity fuze. Development work began in the summer of 1940. A major problem was development of vacuum tubes and other miniature electronic parts rugged enough to withstand the shock of being fired from a gun with a force of 20,000 times that of gravity and the centrifugal pressure created by projectile rotations as high as 475 a second. Components had to be so small that a complete radio transmitter-receiver, with amplifier and power supply, could be installed in the nose of a projectile. Photoelectric triggering devices were the first to be successful, but circuits based on radio reflection were later adopted.

Such great care was taken to keep duds from enemy hands that the Combined Chiefs of Staff refused to permit the fuze to be used on land until the summer of 1944. Prior to that date the Navy even avoided firing VT-fuzed projectiles near islands.

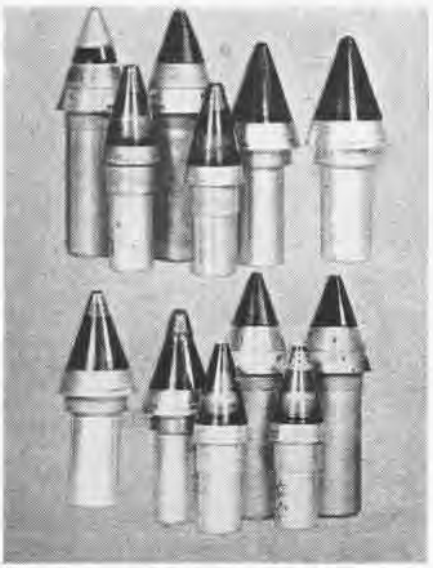
Besides playing a vital part in the Pacific war, the proximity fuze was a powerful weapon in neutralizing the buzz bomb attack on London in 1944.

VT fuzes for use in non-rotating missiles such as bombs and rockets were developed by the National Bureau of Standards under an Army ordnance contract. These were effectively used by both ship- and shore-based Naval planes in the final assault against Japan.



CUTAWAY VIEW SHOWS THE NAVY VT FUZE


SUSPENDED MODEL AIRPLANE WAS USED AS A TARGET AT NEW MEXICO PROVING GROUND


NAVY AA GUNNERS USED THESE VT FUZES

Jap torpedo plane crashes in flames as a result of carrier anti-aircraft fire in Saipan action. *By U.S.S.* Kitkun Bay *photographer*

Men aboard a combat vessel watching a Jap plane in the sky over their ship as they approach a Mindoro beach in the Philippines

NAVY'S BEST PHOTOGRAPHY

THE 100 best still pictures taken by Navy, Coast Guard and Marine Corps photographers during the war and the 100 best movie sequences have been selected by the Navy Photographic Institute. Award certificates will be given the men who took the pictures wherever identity is known.

Presentation of awards will be made in the name of the Secretary of the Navy in recognition of work done by Navy cameramen, who seldom win medals or citations. About 50 percent of the pictures and sequences picked by the judging committee are action shots, some of which are shown here.

In only about half of the cases was the Navy able to learn the names of

Firefighters on U.S.S. *Intrepid* battle flames caused by Jap bombs which hit it off Luzon. Sixty men died. *By Lt. Baird Gallagher*

Hospital corpsman aboard hospital ship U.S.S. *Solace* helps care for Army private hit in Okinawa battle. *By Lt. Victor Jorgenson*

Two Jap hits in 30 seconds set off huge fires on *Bunker Hill* as gas and ammunition goes up. *By photographer on U.S.S. Bataan*

Three British seamen, survivors of U-boat attack in Atlantic are picked up by a Coast Guard cutter. *By WO Jack January, USCG*

the photographers who took the winning pictures. Persons with information on pictures as yet unidentified as to taker have been asked to communicate with the Institute, headed by Captain Edward J. Steichen, Room 2442, Navy Department, Washington 25, D.C., so that award certificates can be given to the winning photographers.

The selection group viewed 5,000,000 feet of movie footage and examined several hundred thousand still pictures before picking the prize-winning photographs. As well as recognizing outstanding shots of the war, the Institute also made awards to photographers whose exceptional work throughout the war merited attention of the Navy Dept.

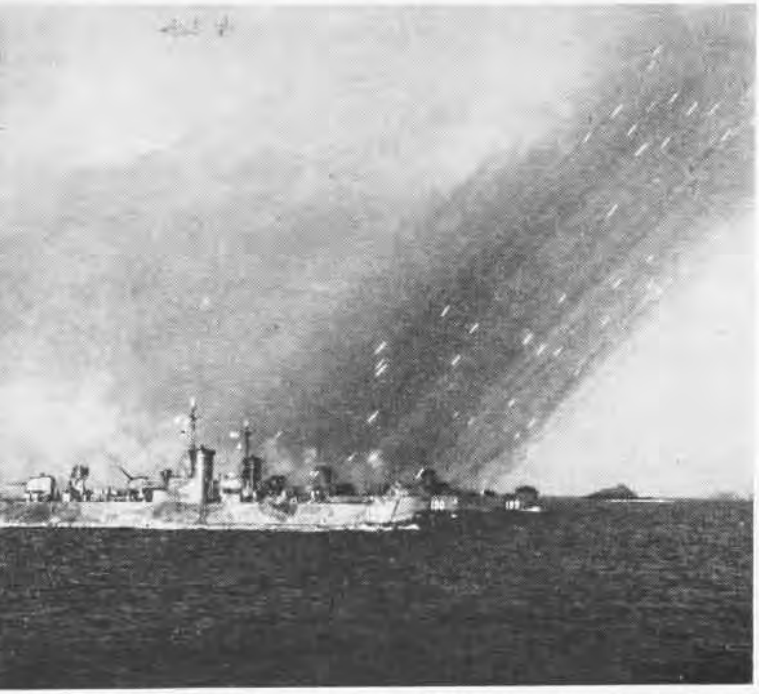
Prize-winning photographs ranged all the way from submarine and aerial action shots to pictures taken below decks in Navy ships or on invasion beachheads. The winning stills will be published in book form for public sale. Big enlargements will be made into an exhibit to be shown in Washington, New York, Chicago and San Francisco.

Her strangely-painted flight deck buckled by U.S. bombs and torpedoes, a Jap *Zuiho-class* carrier soon was sent to the bottom

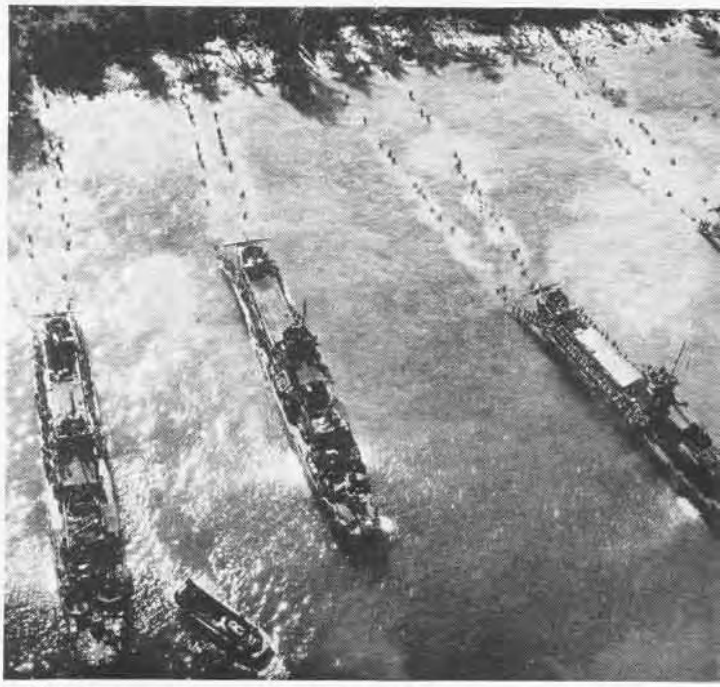
U. S. soldiers abandon the U.S.S. *President Coolidge* after it hit a mine in South Pacific. Only two men out of 4000 lost their lives

Marines swarm over a heavy reinforced Jap pillbox at Tarawa, shooting to kill inmates. *By Warrant Officer Obie Newcomb, Jr., USMCR*

One of war's most spectacular Kamikaze shots shows Jap *Judy* about to crash into U.S.S. *Essex*, its only damage of war. *By Lt. Cdr. E. Colgrove*

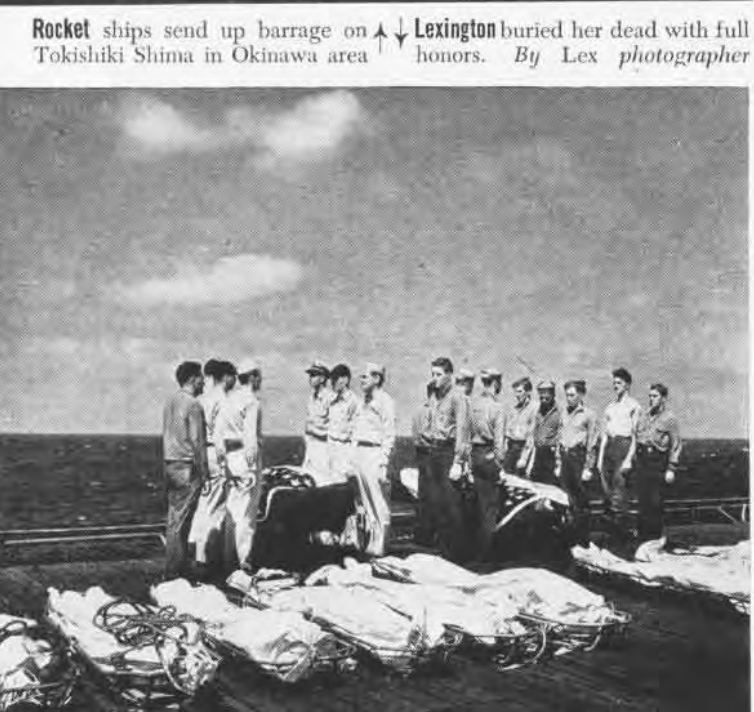


Rocket ships send up barrage on Tokishiki Shima in Okinawa area



Lexington buried her dead with full honors. *By* Lex *photographer*

Landing craft on Morotai beach *By U.S.S.* Santa Fe *photographer*



BB's 14″ guns hammer Guam prior to landings. *By CPU-2*

Coast Guardsmen and Marines wade in jungle-bound beach at Cape Gloucester to unload supplies. *By CPhoM Edward Schertzer, USCG*

Between shrapnel-riddled bulkheads and under a flight deck torn by explosions, *Franklin* survivors hold services. *By CPhoM R. Woodward*

Nazi sub crewmen duck as bombs shower. *By VB-107 photographer*

Marines crawl up soft ash of Iwo beach. *By Corp. Bob Campbell*

Corpsmen give plasma on Iwo as shells fall. *By WO O. Newcomb*

Photo catches six 16" shells in mid-air as an *Iowa*-class BB fires

FR-1 CARRIES FOUR 50-CALIBER MACHINE GUNS AND TWO 1000-POUND BOMBS; CAN BE RIGGED FOR DETACHABLE ROCKET RAILS

FR-1 Fireball

Navy's First Jet Fighter Was In Squadron's Hands When Japs Quit

CAPABLE of climbing a mile a minute, the *Fireball* is the first Navy fighter in production to use jet propulsion. Unique among modern fighters the FR-1 combines jet and reciprocating power.

Equally efficient at high or low levels, the FR-1 is rigged with a Wright *Cyclone* engine in the front and a General Electric model I-16 thermal jet engine in the rear. The 1350 hp model R-1820 radial engine at full throttle gives the *Fireball* a speed of 320 mph. Rigged with droppable fuel tanks the FR-1 has a cruising speed of 207 mph., on its Wright engine alone. It has a maximum range of 1500 miles.

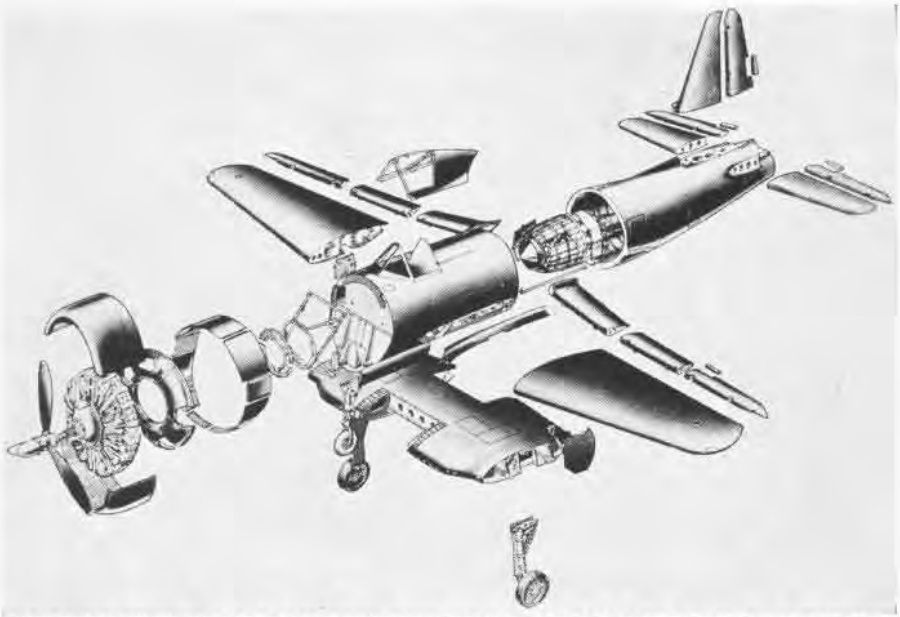
Far more powerful than a conventional engine of equal weight, the thermal jet, operating alone, gives the *Fireball* a top speed of 300 mph. Using both its power plants the fighter is in the 400 mph, plus, class.

Unlike planes that rely on jet power alone, the FR-1 is potent under all combat conditions. Its speed curve varies little from sea level to 25,000 feet. The *Fireball* pilot will not have to hunt a favorable altitude in which to tackle an enemy. Maximum performance is obtained when the two engines are used in combination, but the plane can be operated independently on either.

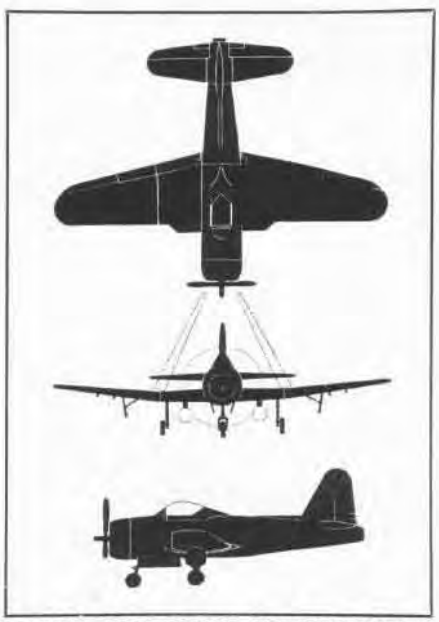
The FR-1 is completely flush riveted on all external surfaces and has all-metal control surfaces. These retain their smoothness better than fabric at high speeds.

With only the slightest control pressure it will do all acrobatics with speed to spare. The *Fireball* has the shortest turning radius at comparable speeds of any modern fighter.

Although the FR-1 saw no combat, it now is operational aboard jeep carriers. VF-66 was first FR-1 equipped squadron.



EXPLODING VIEW OF FIREBALL SHOWS POSITIONS OF RADIAL AND THERMAL JET ENGINES



LEADING EDGE SCOOPS AID RECOGNITION

DID YOU KNOW?

ATTENTION ALL HANDS

Pilot, aircrewmen and ground crewmen will be interested in the Naval Air Reserve Training Program now being worked out for postwar years. The Air Reserve program has been drafted and only a Congressional appropriation is needed to get started. See the December issue of NA-NEWS for further details of interest to all officers,enlisted men.

Joint Air Committee Dissolved

Group Was Established in Sept., 1940

The Secretary of War has dissolved the Joint Aircraft Committee with the approval of the Secretary of the Navy, the Chairman of the War Production Board and the concurrence of the British Air Committee.

This Anglo-American Committee was established 13 September 1940, and is believed to be the first combined committee formed for World War II purposes. The Joint Aircraft Committee, with the approval of the Aircraft Production Board, has been vested with the power to schedule the delivery of and allocate the capacity for aircraft and aircraft components in the official programs of all customers. Army-Navy-British, other foreign and commercial, and in addition thereto, has taken under consideration and approved all matters pertaining to the standardization of aircraft and aircraft components between the United States and foreign governments.

It consisted of two members each from the United States Army Air Corps, United States Navy, British Air Commission and Aircraft Production Board.

Great Lakes Task Force Passes

CQTU at Glenview Also Is Terminated

On 15 September the Carrier Qualification Training Unit at Glenview was disestablished and by separate order, decommissioning of both the U. S. S. *Wolverine* and the U.S.S. *Sable* was to be directed. Many of the Navy's top pilots have cause to remember either the *Wolverine* or *Sable* for it was on these training ships that thousands of them qualified as carrier-based aviators.

Both the *Wolverine* and *Sable* originally were passenger liners in the Great Lakes fleet. Opening of the war saw the Navy's pilot training program already well under way, but need existed for actual carrier landing experience before pilots went to the Fleet.

Use of protected inland waters where neither protective armament nor escort vessels would be necessary, appeared to be the logical answer to this training problem. All necessary facilities were available on the Great Lakes, and a survey showed one of the liners could

U.S.S. WOLVERINE QUALIFIED THOUSANDS

be stripped and refitted as a training carrier in approximately three months.

On 10 April 1942, the S. S *Seeandbee* became the property of the Navy and on 12 August that year, after conversion, she was christened the U. S. S. *Wolverine*. She boasted a flight deck 558½ feet in length. On 8 May 1943, another liner, the S. S. *Greater Buffalo* was acquired by the Navy, converted into a training carrier and christened the U. S. S. *Sable*. Her flight deck was 587½ feet.

Throughout the rest of the war-time training program, the two vessels proved invaluable not only in qualifying pilots for carrier landing, but also in training enlisted men for their duties aboard a combat carrier.

NATechTraCom Now in Pensacola

Headquarters Transfer Made in Sept.

Headquarters of the Chief of Naval Air Technical Training was transferred from Chicago to NAS PENSACOLA in compliance with SecNav letter 5 September. Logistic support for the Naval Air Technical Training Command will be furnished by NAS PENSACOLA.

The Naval Air Gunners School at Purcell, Okla. was disestablished effective 15 October by SecNav letter 10 September. On or about 3 November the Naval Air Gunners School, Miami will be disestablished.

The Naval Training School (Line Maintenance-PB4Y) NAS MINNEAPOLIS was disestablished 1 September 1945.

A GOODYEAR *development of the old* Corsair *design, the new F2G-1 employs for the first time by the Navy Pratt & Whitney's new* Wasp Major *R-4360, 28-cylinder engine with 3000 hp military rating. The F2G-1 is equipped with bubble canopy and other improvements on the basic* Corsair *design. It is being produced in limited quantities in both carrier- and land-based versions. Armament and operative characteristics are similar to the F4U-4, although its rate of climb, top speed and altitude are higher. Under present plans the new* Corsair *type airplane will be assigned to evaluation.*

Surplus Aeronautical Material

Regulations Given for Navy Personnel

An increasing number of inquiries are being received from men in the service and discharged veterans for information on the purchase of excess Navy aircraft and aeronautical equipment.

The Navy Department is not authorized to sell excess equipment except small lots, scrap and salvage, and these cannot be sold to Navy personnel. When aeronautical material is no longer needed by the Navy, it is declared surplus to the Reconstruction Finance Corporation which redistributes it to other Federal agencies or sells it in accordance with regulations issued by the Surplus Property Administration.

The Surplus Property Act, Section 16, specified that veterans shall have preference in the purchase of surplus material for use in business or professional enterprises. No special consideration is given to men still in the service, nor to a veteran who wants material for his own personal use.

Surplus Property Board Regulation 7 sets up the procedure by which a veteran may exercise his priority in the purchase of surplus material for business or professional use. Briefly, this regulation states:

Contact the local district office of the Smaller War Plants Corporation which will provide Form 66 to be filled out with a description of the material desired. That agency then will obtain the equipment, if available as surplus, exercising SWPC's A-1 priority as a Federal agency to procure it ahead of any non-veteran. The material may come from the Army, Navy or other Federal agency. It then will be turned over to the veteran at the price SWPC paid for it plus the actual cost of delivery, if any. SWPC may also in some cases help finance the purchase.

No veteran may purchase surplus property costing more than $2500 with a priority except that he is given a priority in the purchase of one airplane even though cost exceeds $2500.

Naval personnel and veterans have the same right as anyone else to purchase surplus property costing in excess of $2500 from disposal agencies for use or re-sale. Information on the purchase of surplus property can be secured from the following agencies:

General: Surplus Property Administration, Information Division, Room 2060, Municipal Center Bldg., 3rd & Indiana, N.W., Washington, D. C.

Producer Goods, Real Estate and Aircraft: Office of Surplus Property, Reconstruction Finance Corporation, Washington 25, D. C.

Consumer Goods: Office of Surplus Property, Department of Commerce, Washington 25, District of Columbia.

CARRIER BOX SCORE

ELEVEN United States aircraft carriers were sunk during the war and 30 damaged, some as many as six times. All but one were sunk or damaged in the Pacific, the lone exception being the *Block Island*, torpedoed by a German U-boat in the western Atlantic.

During the war 19 Japanese aircraft carriers were sunk. The number damaged is not known. Naval or Marine aircraft sank nine of the carriers and got assists on two others. Four CVE's and four CV's were sunk by U.S. submarines.

The U.S.S. *Enterprise* was damaged six times during the war and the *Franklin* and *Intrepid* four times each. The *Saratoga* took three hits and the *Lexington, Wasp, Bunker Hill, Hancock, Fanshaw Bay, Sangamon* and *Suwannee* two.

Carrier casualties of the United States during the war follow:

SUNK

Vessel	Date and Place
LEXINGTON	May 8, 1942, Battle of the Coral Sea
YORKTOWN	June 7, 1942, Battle of Midway
WASP	Sept. 15, 1942, off the Solomons
HORNET	Oct. 26, 1942, off Santa Cruz
PRINCETON	Oct. 24, 1944, east of Luzon
LISCOME BAY	Nov. 24, 1943, off the Gilberts
BLOCK ISLAND	May 29, 1944, western Atlantic
GAMBIER BAY	Oct. 25, 1944, east of Samar
SAINT LO	Oct. 25, 1944, east of Samar
OMMANEY BAY	Jan. 4, 1945, south of Mindoro
BISMARCK SEA	Feb. 21, 1945, off Iwo

DAMAGED

Vessel	Date and Place
SARATOGA	Jan. 11, 1942, 500 miles S.W. of Pearl Harbor; Aug. 31, 1942, off the Solomons; Feb. 21, 1945, off Iwo.
ENTERPRISE	Feb. 1, 1942, off the Marshalls; Aug. 24, 1942, off the Solomons; Oct. 26, 1942, off Santa Cruz; Mar. 18, 1945, off Shikoku; Apr. 11, 1945, off Okinawa; May 14, 1945, off Kyushu.
LEXINGTON (new)	Dec. 4, 1943, off the Marshalls; Nov. 5, 1944, off Luzon.
INTREPID	Feb. 17, 1944, east of Truk; Oct. 29, 1944, east of Luzon; Nov. 25, 1944, east of Luzon; Apr. 16, 1945, off Okinawa.
WASP (new)	June 19, 1944, southwest of Saipan; Mar. 19, 1945, off Shikoku.
BUNKER HILL	June 19, 1944, southwest of Saipan; May 11, 1945, south of Japan.
FRANKLIN	Oct. 13, 1944, off Formosa; Oct. 15, 1944, west of Luzon; Oct. 30, 1944, east of Samar; Mar. 19, 1945, in the Inland Sea.
HANCOCK	Oct. 14, 1944, off Formosa; Apr. 7, 1945, off Okinawa.
ESSEX	Nov. 25, 1944, off Luzon.
TICONDEROGA	Jan. 21, 1945, off Formosa.
RANDOLPH	Mar. 11, 1945, at Ulithi.
YORKTOWN (new)	Mar. 18, 1945, off Okinawa.
INDEPENDENCE	Nov. 20, 1943, in the attack on the Gilberts.
BELLEAU WOOD	Oct. 30, 1944, east of Samar.
CABOT	Nov. 25, 1944, east of Luzon.
LANGLEY	Jan. 21, 1945, in Lingayen Gulf.
SAN JACINTO	Apr. 7, 1945, off Okinawa.
FANSHAW BAY	June 17, 1944, off Saipan; Oct. 25, 1944, east of Samar.
KALININ BAY	Oct. 25, 1944, east of Samar.
KITKUN BAY	Oct. 25, 1944, east of Samar; Jan. 8, 1945, in Lingayen Gulf.
WHITE PLAINS	Oct. 25, 1944, east of Samar.
SANGAMON	Oct. 25, 1944, east of Surigao Straits; May 4, 1945, off Okinawa.
SANTEE	Oct. 25, 1944, southeast of Surigao Straits.
SUWANNEE	Oct. 25, 1944, southeast of Surigao Straits; Oct. 26, 1944, southeast of Surigao Straits.
MARCUS ISLAND	Dec. 15, 1944, off Mindoro.
SAVO ISLAND	Jan. 5, 1945, off Luzon.
KADASHAN BAY	Jan. 8, 1945, west of Luzon.
SALAMAUA	Jan. 13, 1945, in Lingayen Gulf.
LUNGA POINT	Feb. 21, 1945, off Iwo.
WAKE ISLAND	Apr. 3, 1945, off Okinawa.

UNDER THE CENTER'S SIGN PASS THE BEST INFORMED CADETS AT NATB CORPUS CHRISTI

CORPUS WAR ORIENTATION SHIFTS AIMS

CORPUS CHRISTI'S War Orientation Center has shifted gears into an agency to give cadets the latest word on mechanics of peacetime. Paintings, books, charts and other visual aids have switched from battles, invasions and logistics to such topics as Bretton Woods agreement, United Nations Conference, the Potsdam declarations and the atomic bomb. Short wave radio brings the world to the center and special programs feature peace problems.

'WAR IN ART' POSTER DISPLAY AT CENTER

BRITISH CADETS INSPECT NAZI UNIFORMS

CENTER ARTISTS PREPARE APPEALS TO EYE

MID-AIR DOGFIGHT SHOWN IN MINIATURE

BEST ANSWERS

Demobilization

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

1. An officer on terminal leave—

- ☐ *a*–must wear his uniform until his leave is up
- ☐ *b*–must discard his uniform as soon as he reaches his home
- ☐ *c*–may continue to wear his uniform, or go into mufti; his being the decision
- ☐ *d*–may discard his uniform only if it interferes with new job

2. Officers who have been given temporary promotions are released in

- ☐ *a*–their current rank
- ☐ *b*–their highest permanent rank
- ☐ *c*–the highest rank they held since September 1939
- ☐ *d*–the rank appropriate for age

3. In computing points for length of service, an officer—

- ☐ *a*–must show that it was continuous
- ☐ *b*–may count time spent in the National Guard, if after September 1939
- ☐ *c*–may not count time spent in the Army, if he is requesting discharge from the Navy
- ☐ *d*–may count time spent with the armed forces of any of the United Nations

4. The 10-point credit for dependency is allowed for—

- ☐ *a*–cases in which allotments have actually been made prior to 15 August 1945
- ☐ *b*–marriages taking place up to 2400 EWT, 15 August 1945, if allowances are subsequently approved
- ☐ *c*–dependency, whether or not allowances were made prior to 15 August 1945, provided it can be proved to have existed six months before that time
- ☐ *d*–dependency only if it is a Class A dependency

5. A reserve officer released to inactive duty wishes to resign his commission. He should—

- ☐ *a*–send a letter to the Chief of BuPers stating that he is resigning his commission as of a specified date
- ☐ *b*–wait until his terminal leave is completed, then write SecNav his request, giving his reasons
- ☐ *c*–not attempt to resign his commission until six months after the war has been declared officially over by the Congress
- ☐ *d*–write directly to the Office of the President of the U. S.

FROZEN GROUND, FOG, WILLIWAWS AND COLD COMPLICATED THE PROBLEM OF BUILDING AND OPERATING ATTU'S NAVY AIR BASE

Island Air Base

MARPI POINT NAVAL AIR BASE, SAIPAN, LIES AT THE FOOT OF HIGH CLIFFS FROM WHICH SUICIDE-MINDED JAPS WOULD HURL THEMSELVES

Acorns and CASU's Construct 400 Advanced Bases from Which Navy Rolled Back the Japs

THE NAVY built more than 400 "advanced bases" during the war, a large number of them air bases from which to operate anything from an observation plane to a PB4Y-2.

For the first time, aerial photographs of some of these advanced airfields have been released for publication, now that the Japs won't be coming over to bomb them. Although the Navy had a hundred big and little aircraft carriers to handle its fighters and bombers, it still built and used dozens of land fields as soon as ACORNS and CASU's could get them in operation after the Japs were chased out.

Manus, Eniwetok, Saipan, Tinian, Guam, Kwajalein, Biak, Green, Attu and Okinawa are a few of the Pacific islands where the Navy put in sizeable air bases to handle fighting aircraft and/or NATS planes. Some airfields had to be chopped out of heavy jungles, like those on Green and Bougainville; some were built up of swamps and lowlands filled in with coral, as in the Admiralties, Peleliu and Leyte.

Airstrips were put in almost before all the Jap bodies were buried on some islands. They served as bases for close support aircraft operations while fighting was in progress, then later as bases for harassing neighboring Jap-held islands or storage points for aircraft destined for combat use later.

Life was pretty rugged for the ACORNS and CASU's when they came ashore after the combat waves to set up Navy air fields. As often as not they had to fight while they built the base and maintained the planes. They took it in stride.

No two Navy airfields look alike from the air as each had to be built by the Seabees according to requirements of the particular island—the type of terrain, prevailing wind, mountains and kind of operations to be based on the field. Many will be retained as permanent airfields now that the war is over and the U. S. plans to keep hold of some Pacific islands.

DURING THE BATTLE FOR THE ISLAND; SCORES OF FIGHTERS LINE STRIPS

Construction work was still going on at this giant Tinian airfield when photo was taken; island later had 39 miles of runway

Torokina airfield on Bougainville, hewed out of heavy vegetation, was base from which land-based Navy planes hit Rabaul

Orote Field, Guam, is hemmed in by a vast array of buildings, aircraft with folded wings and ships in harbor awaiting unloading

OPERATOR ADJUSTS SIGHT BUBBLE TO ALTITUDE OF PLANE, DROPS GEAR FOR SURVIVORS

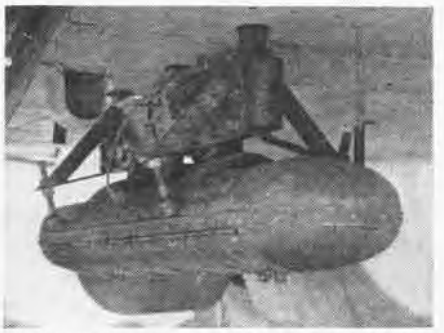
TBM CARRIES RESCUE GEAR

METHODS adopted at NAS KANEOHE to equip TBM-3 aircraft for air-sea rescue operations have proved successful and may interest others.

The TBM's do not go beyond 200 miles from the station and do not drop bulky sustenance equipment or raft propelling gear. Bomb racks, the tunnel and the bomb bay are used to carry equipment which may be dropped.

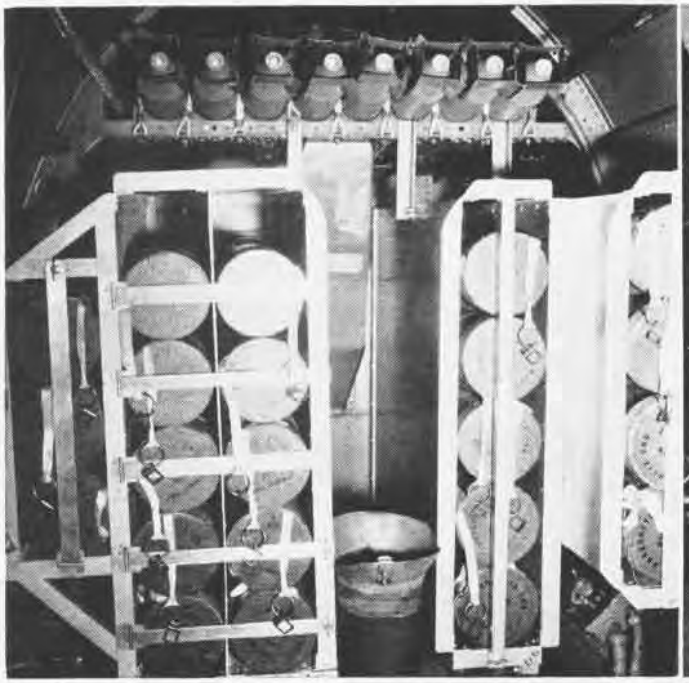
Bomb Bay: two two-man life rafts, two four-man rafts, two smoke signals, and an ADS-1 signaling kit. These can be released separately. An alternative arrangement permits dropping in train of a four-man raft, a small sustenance kit, and a signaling kit connected by lines 30 yards long. Two such combinations, plus smoke signals, can be carried. Equipment in the bomb bay can be dropped with precision by a locally-developed sight, illustrated with this article, developed by Lt. Raymond Todt, OIC of the ABTU. The last 750 TBM's delivered have no bombsight windows and cannot house this sight.

Tunnel: The tunnel is used to carry eight smoke signals, 22 parachute flares and four depth charge dye markers. BUAER states emphasis must be placed on correctly revising basic airplane weight and balance and that loadings be checked to see that the center of gravity is within limits. Some of the flares may be omitted to maintain CG.

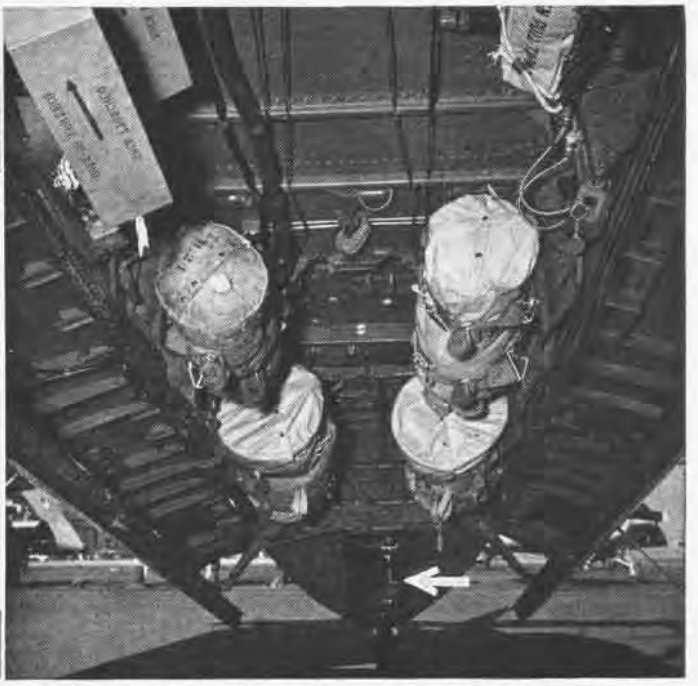


RACK HAS BOMBS FILLED WITH DYE MARKER

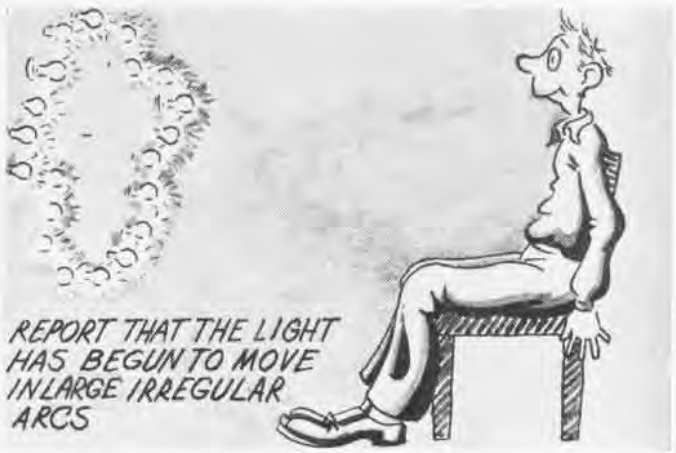
Bomb rack: A Mk 47 bomb rack under eight wing carries eight miniature bombs filled with standard dye marker.

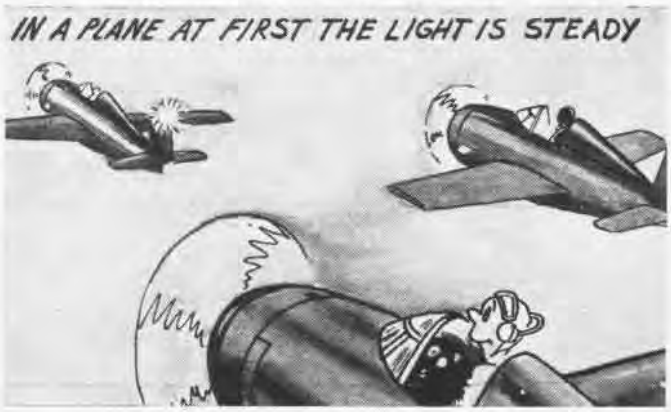


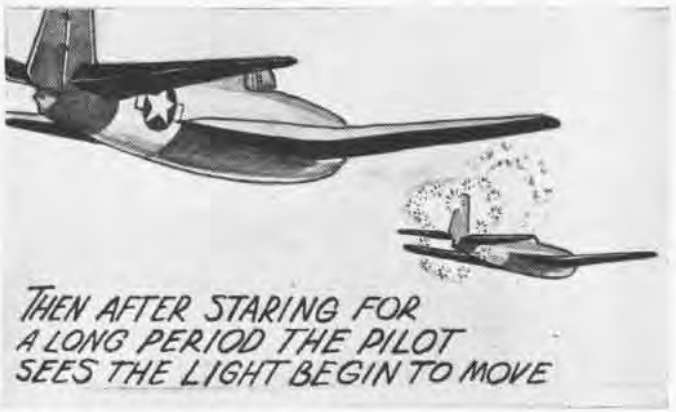
Carrying of flares in tunnel may throw off plane's center of gravity. Five hundred pound weight can be cut by leaving off flares



Bomb bay with life rafts, smoke signals and signaling kit. Sight for dropping can be seen in bombsight window at rear of aircraft







ENSIGN H. E. STARED

MORAL: Don't stare when flying night formation.

VERTIGO during night formation flying usually is caused by continuous staring at a light outside the cockpit. This steady visual fixation on a light long has been a method of inducing hypnosis. Wingmen may fall into a state of dreamlike fascination by continually staring at the lead plane's formation light. This, coupled with a certain amount of skidding and maneuvering necessary to maintain position in formation, causes the pilot of the wing plane suddenly to feel that there is something radically wrong with the flight leader and the rest of the flight. This wingman is certain that the formation is diving, approaching a stall or flying in some unusual position. His normal reaction is to recover from whatever attitude he feels he is in, and when the wingman corrects for this illusion, his airplane usually ends up in a vertical dive or spin, often resulting in a fatal accident.

To overcome these false impressions during night formation work, the pilot should scan the sky systematically, moving his eyes over small areas and breaking his stare frequently.

Should you, as a wingman, develop impressions of diving, stalling or being in an unusual position, you should beware of flying by "sense of feel." Don't make the fatal mistake of looking for the horizon; assure yourself of your attitude by quickly glancing at your instruments. A great deal of will power is needed to keep from pulling out of formation, but if your instruments show that you are in normal flight, deliberately force yourself to fly on the section leader.

In any case, in night formation work, *always break stare frequently.* Remember that sensations you experience often will deceive, but that instruments tell the complete truth.

SHORE STATIONS

▸MCAS EL TORO—A swarm of bees took up quarters near the entrance to the flight office, "buzzing" personnel who ventured through the entrance. To eliminate the nuisance, a modern hive with glass front was constructed nearby providing a vista of the immediate floral operating area. The bees moved in. A week later some 20 pounds of fine honey was extracted from the hive, an Aesopian lesson in enterprise.

▸NAS HONOLULU—A CSP (V) was giving passengers on a recent Midway trip the word ornithologically. One passenger seemed particularly interested in the Chief's knowledge of the Hawaiian relatives of the sparrow and the blackbird.

"Read an excellent book the other day, *Birds of Hawaii;* if you're interested in birds you should get one," the Chief recommended.

"Yes," smiled the passenger, "yes, I know. I wrote it."

▸NAS MIAMI—Double trouble in the form of twin brothers has arrived at this station. Ensigns William and Vernon Kneib have been having this trouble at each and every school they have attended. As alike as the proverbial "peas in a pod," the two men received their wings together and have been flying together ever since.

Medical officers aboard the station ran into trouble when they believed they had completed a check on Vernon Kneib only to find him standing ready for another physical at the beginning of the line. Only after the two brothers were standing together before the medics would they believe that Ensign Vernon was not trying to get two for the price of one.—*Skywriter*

▸MCAS EWA—Seating is no problem to many quick-thinking aviation Marines who worked on the captured Jap airfield at Orote, Guam—thanks to 76 smashed planes the enemy left littering the airstrip.

When Leatherneck aviation crews arrived on the scene, just 24 hours after capture of the airfield by Marine infantrymen, some of them started ripping the colorful aquamarine seats from wrecked Jap bombers strewn around the area.

One was put to good use as a dentist chair. Another blue-green seat, perched atop a Jap ammunition box, became a Marine barber's place of business. Now they can be seen all around the field in front of Marines' tiny tents and sheltered dugouts.

▸NAS HONOLULU—The ranking member of an all-service family is the mother, a lieutenant in the WACS, who is stationed here. A son is a seaman first class. The boy's father is a sergeant in the Army and his step-father a sergeant in the Marines. What, no Coast Guard members!)

"It ain't very difficult to see who wears the pants in our house," the seaman said. "It's mom b'grabs!"

▸NAS CROWS LANDING—Probably two of the most carefully nurtured ducks in the world are Ginger and Bonny, raised by the corpsmen here. Ginger and Bonny, it is understood, were named after two strip-tease artists who appeared in a Fresno carnival. Ginger was indisposed one day, diagnosis undetermined. But hourly doses of B1 administered with an eye-dropper, made her as spry as ever. Ginger and Bonny have developed from the egg to six pounds each in less than two months. There'll be a quick strip routine at the dispensary one of these days, followed by a full pot.

▸NAS ALAMEDA — What's the matter? Doesn't the Navy provide you with enough home life? Smoke a pipe? Like home atmosphere? This is the station that can give it to you. And—pretty women too!

We know that this does not sound like the Navy, but facts are facts. The WAVE personnel aboard this station now have facilities for entertaining at private dinner parties. They may have six to eight guests in a distinctly homelike atmosphere which includes kitchen and dining room. Decorated in a modern, dream home finish, the rooms are actually located in the recreation hall at WAVE quarters.

Everything is provided except the food. Enough room for dancing and a piano and electric radio-phonograph combination eliminate the necessity for rushing to a late movie. *The Carrier.*

"You and your 'look me up if you ever come to the States'!"

▸NAS HONOLULU — Wailing through the night like a banshee on the prowl for no good reason, every P.M. the "Wahoo" railway Special screeches out in clear-cut tones to announce its approach. One would think by the way it howls that the neighbors' cats were on the loose again, or that the Erie Limited was tearing across the country.

"She sounds eerie all right," said a seaman from Pennsylvania who stood listening to the mournful clatter. "But she ain't the Erie!"

▸NAS SAN DIEGO—Believed to be one of the few stations to promote and organize a flying club, San Diego is going ahead with a membership drive. Composed of Navy personnel and civilians, the club flies on week-ends and after work hours during the week.

The club owns four airplanes and hopes to purchase more as the membership increases. Enthusiasts at this station hope to build up peacetime flying aims of station personnel.—*North Islander.*

▸NAS MINNEAPOLIS—The separation center now operating on this station is increasing its daily number of discharges and during a recent period hit 120 per day. It is expected that this figure will be more than doubled in weeks to come. One of the highlights during this period was the arrival of more than 260 cadets from Iowa Pre-Flight to be separated from the service.

▸NAS PEARL HARBOR—Photo Lab's far travelling mascot Joe stayed home last week and dropped four progeny into the laps of the harried NAS lens lousers. The first multi-colored job came 24 hours before the rest of the litter, according to Veterinarian 1c Jerry Trudeau, PhoM2c. Before becoming a mother, Joe had a taste of sea duty, having been shanghaied aboard a carrier only to be rescued by a sharp-eyed destroyer escort sailor who brought her back here. Upon returning, Joe met the large, yellow Tom seen stomping around here and they immediately fell in love; practically at first sight. *The Ford Islander.*

▸NAAS ARLINGTON—Sporting a soft felt hat and gabardine slacks, one of the first NAAS men to be discharged under the point system came back for a visit and brought an encouraging report of his "reconversion" to civilian life.

He was S. G. Conn, formerly MoMM1c in Transportation. Conn reported he was returning to his pre-war job with the U. S. Fish and Wildlife service in Oregon —at a substantial increase in salary.

"I still feel a little out of place in these civilian clothes," remarked Conn. "But they say you'll get used to 'em."—*Skylines.*

Battered and out of action, the *Nagato*, last Japanese battleship afloat, belies the terrific pounding it took topside from Navy carrier planes that knocked it out. Only a skeleton crew was aboard the 35,000-ton ship when captured in Yokosuka harbor

A Jap Army transport officer, captured after long stretch in the Philippine jungles, guides Marine bombers to smash Jap HQ

When the *Hornet* bent her bow flight deck in a typhoon, planes took off from the stern while the carrier reversed her engines

1 **First** step in preparing plastic bath for preservation of guns is to get the solution at proper temperature for dipping

2 **Ordnancemen** preparing the guns for dipping. Cloth bags are slipped over them and sewn at rear end after cleaned gun is inserted

GUN PRESERVATION

Plastic Film Protects Guns from Corrosion for Year; Canvas Coat Covers Gun Before Being Dipped

A SYSTEM of preserving aircraft guns for short periods, useful especially for shipment overseas to areas where deterioration was a problem, was developed by BuOrd during the war. It involved placing a protective coat of plastic around guns to be transported.

The system proved a practical solution to the problem of how to protect them from corrosion and yet allow them to be placed in service speedily on arrival at their destination. Physical characteristics of the material indicate its usefulness for long-time preservation is doubtful. It was developed to meet a definite wartime need. Pictures were taken at NAS SAN DIEGO.

The plastic, commonly called "protective strippable compound," is a mixture of ethyl cellulose and mineral oil. Following enclosure of the gun in a cloth bag, preservation is accomplished by dipping the gun in a plastic-filled tank which maintains a constant temperature of 375° F.

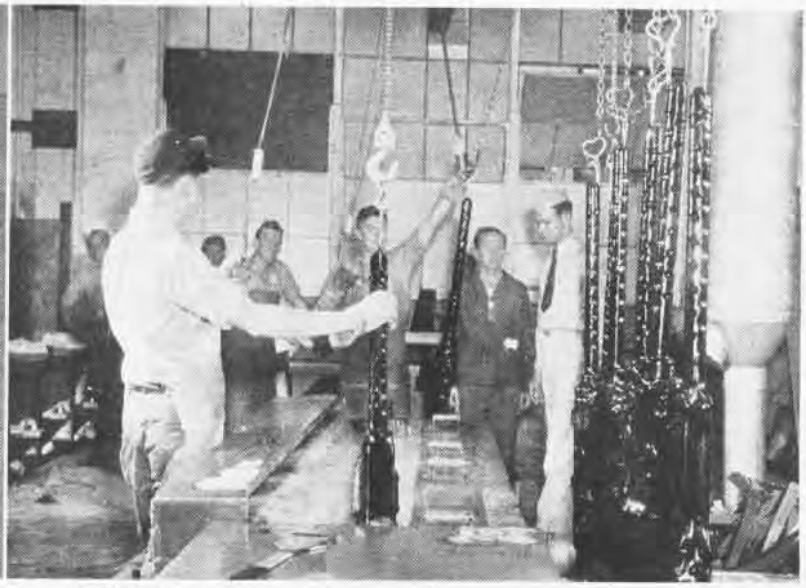
After removing the gun from the vat, a film of compound remains on the gun. When cool, this film provides a flexible waterproof coating which also affords some mechanical protection against careless handling. A single dip results in a coating about 1/16" thick. If a thicker coating is desired, the gun can be dipped a second time or the plastic can be at a lower temperature.

The plastic method of packaging can be employed only by trained personnel using special equipment, as any deviation from the approved method would have resulted in unsatisfactory packages. The first requirement for this method was sufficient volume of work

GUNS PROTECTED BY COATING TIE TO WING FOR TRANSPORTING

GUNS CAN BE SHIPPED LASHED TO MACHINE GUNS IN SB2C COCKPIT

3 After temperature of plastic solution is at 375° F, machine gun is suspended from hoist and given 1/16" protective coat



4 Dipping completed, the guns are hung up to dry. Protection will last as long as a year. Coating exudes oil which protects enclosed gun

to afford a rapid turnover of the plastic in the dipping tank.

THE GENERAL rule followed was that an amount of plastic equal to or greater than the capacity of the dipping tank should be used each day, since slow carbonization of the plastic occurred at 375° F, which results in deterioration of the protective quality of the material. A second requirement is specially designed melting equipment that will maintain the plastic at a uniform and constant temperature without local overheating inside of the tank.

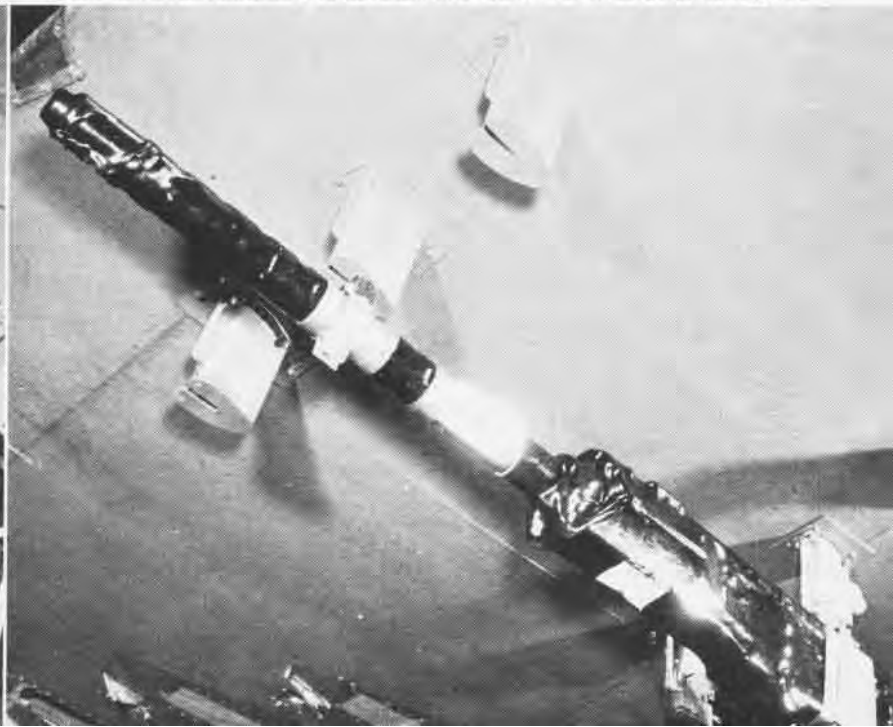
Guns are prepared for coating by cleaning and dipping in special preservative lubricating oil, OS-1361. This is the standard oil used for guns in service. A cotton bag cut and sewn to fit the gun snugly is pulled over the gun and tied at the after end.

Purpose of this bag is to prevent melted plastic compound from running into the gun. If a gun becomes filled with plastic it is difficult to disassemble to remove the plastic. The gun then is dipped twice into the vat of hot ethyl cellulose compound. This forms a coating about ⅛" thick.

During life of the coating the oil in the compound gradually exudes, maintaining a thin film of oil both on the outside of the plastic and on the gun. The plastic coating can be removed easily by slitting along one side with a sharp knife and stripping the cover off in one piece, leaving the gun ready for use without further cleaning. Tests indicate this method of packaging will offer adequate corrosion protection for the guns for a period of a year or more.

FOUR 50'S, SECURELY TIED, STOW EASILY IN F8F'S FUSELAGE

ZERO LENGTH ROCKET LAUNCHERS MAKE HANDY PLACE TO SECURE GUNS



POST-WAR AIR STATIONS

THE NAVY contemplates reduction of its air stations and major aviation facilities from the wartime high of 168 to a peacetime goal of 94. The roll-up and demobilization schedule calls for 74 stations or major facilities and 234 outlying or satellite fields to be surplus and subject to closure in the next few months.

The post-war program, as presently outlined, calls for 38 stations to be maintained in full operation, 30 in reduced operation, 8 on a maintenance basis and 18 under caretaker supervision, together with 92 outlying fields.

At the end of the war the government had a financial interest in 136 privately-operated industrial facilities sponsored by BUAER. Machinery has been set in motion to dispose of all but 21 of these, taking the navy out of this type of business activity.

Fields that the Navy contemplates operating after the war are dependent on Congressional action fixing the size of the post-war Navy and its aviation components. Retention of satellite stations was governed by such factors as the ownership of real estate, investment by the Navy, type of buildings, suitability for future needs, proximity to urban areas, weather and ease of logistic support.

The following listings show stations to be retained or released within the next few months:

Naval Air Stations to be permanent establishments under full operation:

Quonset Point, Jacksonville, Pensacola, Corpus Christi, Alameda, Anacostia, Patuxent River, Norfolk, Edenton, Miami, San Diego, Seattle, Whidby Island, Lakehurst, Moffett Field, Banana River, Brunswick, Astoria. ●Reduced operations: Squantum, Willow Grove, Atlanta, New Orleans, Dallas, Memphis, Livermore, New York, Minneapolis, Grosse Ile, Glenview, St. Louis, Olathe, Terminal Island, Richmond, Santa Ana, Ottumwa, Key West. ●Maintenance operation: Pasco. ●Caretaker operation: Houma, La; Tillamook, Ore. ●Reduced operation: Ft. Lauderdale.

Naval Auxiliary Air Stations to be permanent establishments under full operation:

Bronson, Corry, Saufley, Crow's Landing, Oceana, Cabaniss, Chase, Cuddihy, Camp Kearney, Charlestown, Mustin. ●Reduced operation: Chincoteague, Los Alamitos, Brown, San Clemente, Ream, Whiting, Rodd. ●Maintenance operation: Santa Rosa, Fallon, Casco Bay, Monogram. ●Caretaker: Arlington, Barin, Elizabeth City, Ellyson, Martha's Vineyard, Salton Sea, Mayport, Waldron, Fentress, San Nicholas.

Permanent Naval Air Facilities to be under full operation:

Newport, Annapolis and Inyokern. ●Reduced operation: Dahlgren Litchfield, Aria. ●Caretaker: South Weymouth, Glynco, Wecksville, Hitchcock.

Permanent Naval Air Gunnery School—reduced operation: Jacksonville. Permanent Naval Air Material Center—full operation: Philadelphia.

Permanent Marine Corps Air Stations—Full operation: Cherry Point, El Toro, Quantico. ●Reduced operation: El Centro, Santa Barbara. ●Maintenance operation: Mojave, Parris Island. Permanent Marine Corps Auxiliary Air Facilities—full operation: Kinston, Oak Grove. ●Maintenance operation: Bogue. ●Caretaker: Atlantic, Gillespie.

Outlying fields to be retained:

Patuxent—Webster field; Cherry Point—N. W. River; Parris Island—Hilton Head; Jacksonville—Fleming's Island, Herlong; Miami—Forman; Key West—Marathon; Ft. Lauderdale—West Prospect; Corpus Christi—Nos. 13 and 42; Cabaniss—10 numbered fields; Cuddihy—4 fields; Rodd—5 fields; Waldron—2 fields; Pensacola—Gonzales, King, Lyons, Olive, No. 7, Site 4A; Barin—Canal, Magnolia, Silver Hill; Bronson—Faircloth, Kaiser, Wolf; Corry Field—Summerdale; Ellyson—Pace, Spencer; Saufley—Helm, 4 numbered fields; Whiting—Chocktaw, Holly, Milton, Santa Rosa; Atlanta—Greenville, S. C., Munic., Rome, Ga., Munic; Dallas—Arlington, Grand Prairie, Mansfield; Memphis—3 numbered fields; Kingsville—one field; New Orleans—Alvin-Callender, Kenner; Grosse Ile—Newport; St. Louis—Neubeiser (Smart); Minneapolis—Fleming; Glenview—Libertyville; San Diego—Borego hotel, Clark's Dry Lake, Coyote Wells (2), Jacumba Hot Springs, Ocotillo Dry Lake, Ramona, Rosedale, Sweetwater Dam; Camp Kearney—Miramar; Holtville—Sand Hill; Los Alamitos—Mile Square; San Clemente—Castle; Inyokern—Armitage; El Toro—Pendleton, Ryan; Alameda—Clear Lake, Tulare Lake; Fallon—Lovelock; Santa Rosa—Cotati; Pasco—Vista; Whidby Island—Coupeville, Mt. Vernon; Vero Beach—Stuart.

Stations to be released in the last quarter of 1945:

NAAS Ayer, Mass.
NAAS Bar Harbor, Me.
NAF Columbus, Ohio
NAAS Corvallis, Ore.
NAF Dinner Key, Fla.
NAAS Franklin, Va.
NAAS Hollister, Calif.
NAAS Lewiston, Me.
NAS Klamath Falls, Ore.
NAF Middle River, Md.
NAAS Nantucket, Mass.
NAF New Cumberland, Pa.
NAGS Purcell, Okla.
NAAS Quillayute, Wash.
NAF Roosevelt Field, N. Y.
NAS Shawnee, Okla.
NAF Thermal, Calif.
NAF Trenton, N. J.
NAAS Ventura County, Calif.
MCAF Walnut Ridge, Ark.
NAAS Westerly, R. I.
NAS Bunker Hill, Ind.
NAS Clinton, Okla.
NAAF Conroe, Tex.
NAAS Creeds, Va.
NAAF Durant, Okla.
NAAS Harvey Point, N. C.
NAAS King City, Calif.
NAS Lakeview, Ore.
NAGS Miami, Fla.
NAAS Monterey, Calif.
NAAS New Bedford, Mass.
NAAS North Bend, Ore.
NAAS Pungo, Va.
NAAS Rockland, Me.
NAAS Sanford, Me.
NAAS Shelton, Wash.
NAS Traverse City, Mich. (transfer to USCG)
NAAS 29 Palms, Calif.
NAAS Vernalis, Calif.
NAAS (HTA) Watsonville, Calif.
NAS Wildwood, N. J.
NAAF Mills Field, Calif.

●

Stations to be released in the first quarter of 1946:

NAS Atlantic City, N. J.
NAAF (LTA) Del Mar, Calif.
NAAS Groton, Conn.
NAAS Manteo, N. C.
NAAS Otis Field, Mass.
NAS Beaufort, S. C.
NAAF (LTA) Eureka, Calif.
NAAS Jacksonville, Mun. #1, Fla.
NAAF (LTA) Lompoc, Calif.
NAAF (LTA) Watsonville, Calif.

Stations to be released in the second quarter of 1946:

NAS Cape May, N. J.
NAS Daytona Beach, Fla.
NAS Charleston, S. C.
NAAS Cecil Field, Fla.
NAS Deland, Fla.
MCAS Eagle Mt. Lake, Tex.
NAF Gainesville, Ga.
NAAS Green Cove Springs, Fla.
NAAS Holtville, Calif.
NAAS Kingsville, Tex.
NAS Lake City, Fla.
NAAF Meacham Field, Tex.
MCAAF Congaree, S. C.
NAS Melbourne, Fla.
MCAF Newport, Ark.
NAS Norman, Okla.
NAS Oakland, Calif.
NAS St. Simon Island, Ga.
NAS Sanford, Fla.
NAAF Treasure Island, Calif.
NAS Vero Beach, Fla.
NAS Hutchinson, Kan.

Maintenance

EFFICIENT, WELL TRAINED TECHNICIANS WORKING WITH ADEQUATE MAINTENANCE ASSURE SQUADRONS OF TOP PERFORMANCE

Plate Aligns Propeller Blades

NAS NORFOLK—A tooth alignment plate for Curtiss Electric propellers, which was designed by an inspector at this activity under the Navy Employees' Suggestion Program, has effected a saving estimated at $1000 annually. It eliminates danger of installing propellers with blades set at different angles, saving excessive vibration and loss of time that results in such instances. Former hit-and-miss methods have been discarded.

The alignment plate is used after the propeller assembly has been installed on the propeller shaft, but prior to mounting of the power unit. After the assembly has been installed, bushings of the alignment plate are matched and inserted in the tapped holes on the forward side of the propeller hub. In this position, pointed flanges of the plate are pointing toward the propeller blade gears.

One blade then is turned until its gear tooth, which is designated "low pitch," is directly below the point of the nearest pointed flange. This procedure is followed for each blade. After completion of the above point, the alignment plate is removed, leaving propeller blades in low pitch setting. The power unit, also set at low pitch, then is assembled on the propeller hub with assurance that the proper gear teeth are meshed and that all blades are in low pitch.

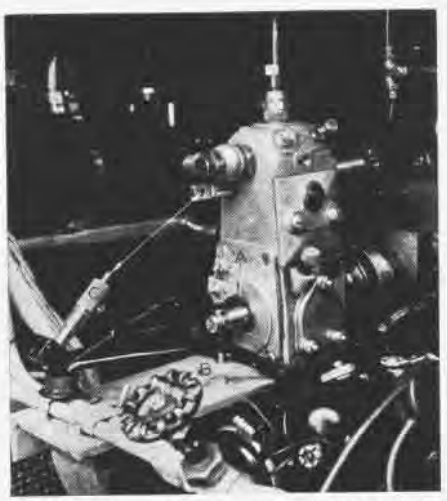
[DESIGNED BY HAROLD I. CARY]

GEAR TEETH ALIGN WITH FLANGE POINTS

Fuel Cut-Out Stops Pre-Ignition

NAMC PHILADELPHIA—An automatic fuel cut-out has been developed by three technicians at this activity under the Navy Employees' Suggestion Program and now is being used on two spark plug testing machines at the Aeronautical Engine Laboratory. The device won them a substantial award.

Back-firing of the engine is the first sign indicating pre-ignition. Under the old method, when this took place, the operator had to drop whatever he was doing and open the by-pass valve in the fuel injection system to stop pre-ignition. Backfiring results in extensive damage to the spark plug and decreased valve life. If the engine were allowed to run a few seconds after backfiring, the cylinder and valve head would be damaged far beyond repair.



MICRO-SWITCH STOPS THE FLOW OF FUEL

Under the new method, a micro-switch is attached to the combustion chamber temperature indicator. When pre-ignition occurs, the rapidly rising temperature causes the mechanical temperature indicator to trip the micro-switch which energizes the solenoid and cuts off fuel flow, stopping engine.

In addition to a substantial saving in material, the device will save an estimated 1000 man-hours annually.

[DESIGNED BY E. G. BUSSINGER, G. W. FRY, W. T. CLARK]

Logs Include Acceptance Tests

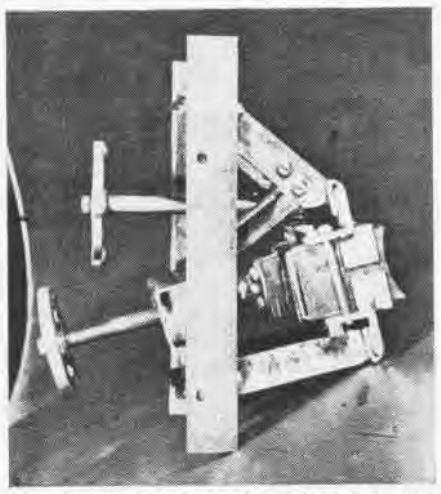
A copy of the engine acceptance test log sheet will hereafter be incorporated in all engine log books for engines accepted for Naval use. The acceptance test log sheet was originally omitted from the new simplified engine log books because it was felt that all necessary data were contained in operators' handbooks in BUAER publications.

Since this information has not always been available, however, it will prove more efficient to send a copy of the original sheet back with the log book. The contractors also will resume sending log books with engine, as required by contract.

Grinding Machine Reduces Costs

MINY—A civilian worker here has designed a grinding fixture to resurface commutators on welding machines, under the Navy Employees' Suggestion Program.

An abrasive stone is secured in a vise from which two projecting flanges fit and slide in grooves supported by the structural framework of the designed fixture. A rack and pinion arrangement is used to move the stone in an axial reciprocating motion across the surface of the commutator. The necessary pressure to hold the stone against the commutator is supplied by a feed-in screw to aid operation.



NEW FIXTURE RESURFACES COMMUTATORS

In addition to expediting the operation, this fixture eliminates the former practice of disassembling the generator for the purpose of resurfacing the commutator on a lathe. An estimate savings of $2400 yearly has resulted from this beneficial suggestion.

[DESIGNED BY ROLLIE A. CRUM]

Safety Belt Repair Is Stressed

Cognizant of the importance of good condition in safety belts and shoulder harnesses, NAS SAN DIEGO has issued Local Process Specification No. 142a. Two sections of this local specification are summarized for information of all aviation personnel.

▶ Check the webbing of the harness or belt for evidence of failure by shearing, breaking, abrasion, pulling apart or other damage. If present, remove and replace the webbing, since any repair in the form of a reinforcement is weaker than a new strap. Repairs also stiffen the belt or harness, making it less pliable and less comfortable to wear.

▶ Corroded, worn or deformed hardware should be replaced or cadmium plated, as conditions require. If the springs in snap hooks are weak or bent, the snap hooks should be replaced; repair is not satisfactory. Rusted fittings must not be allowed to remain in contact with webbing or the canopy, since the rust will cause rapid deterioration. When damaged connector links, adaptors, V-rings, or harness snaps are replaced, make certain that the webbing adjacent to metal parts is in good condition and free from signs of failure.

Rubber Pad Eliminates Slipping

VF-11—By installation of a rubber pad in cockpit seats this command has overcome the difficulty caused by seat type parachute packs slipping during certain combat maneuvers.

The rubber pad, 12″x12″x½″ is held in place by four bolts, AN24-10A (R43-B-3314) with washers AN970-4 (R43-W-210024) and is further secured with nut AN365-428 (R43-N-97420).

No chafing of the parachute pack has taken place since the rubber seat pad was installed. Prior to installation of the pad this command experienced considerable difficulty with the parachute pack slipping in the cockpit seat during certain maneuvers.

▶ *BuAer Comment*—**A good idea.**

Cleco's Aid Cylinder Sandblast

NAS SAN JUAN—For the past year this activity has been making use of Celeco's to secure the masking cup to the barrel flange of a cylinder during sandblast and metal spray operations. These fittings are put on with a 3H Cleco safety gun, modified (*see cut*).

CLECO'S HOLD MASKING CUP IN SANDBLAST

A considerable saving of time has been effected by use of this method. The old system of attaching bolts to the barrel studs is impractical alongside this new method, proof of which may be found in the fact that production has been increased from 30 to 80 cylinders per day per man at an estimated annual saving of $1500. The method was developed under the Navy Employees' Suggestion Program.

[DESIGNED BY R. C. SKINNER, WM, USN]

Removing Stains From Parachutes

Stain removal is a problem constantly before the parachute rigger. Chutes requiring extensive cleaning should be reported to ASO in Class 265 for transfer to a major repair station. Minor jobs, however, can be handled by any rigger who will follow the proper methods for removal of stains of all kinds from parachutes.

It is important to know the source of the stain. If it can be determined that the stain was produced by a non-oily substance, the following procedure is recommended by NAS LAKEHURST:

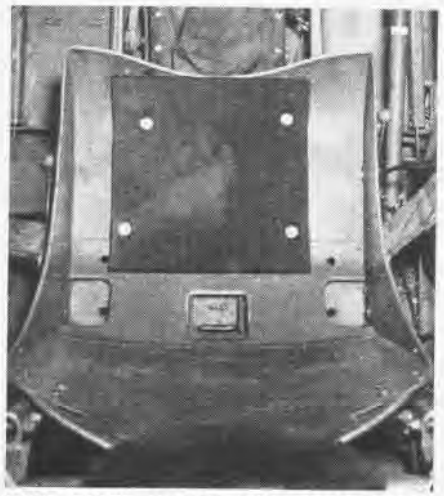
Test for acid or alkali content by moistening the stained area with distilled water and applying litmus paper. (Blue litmus paper turns red when acid is present; red litmus paper turns blue when touched to an alkaline substance.) If the presence of either is detected, replacement of the stained area of the parachute is mandatory.

If the test is negative, completely immerse the stained area in a bucket of pure water, agitating the water. If water alone does not remove the stain, prepare a wash by mixing four parts by volume of natural oleic acid base liquid soap, four parts by volume Federal Specification P-S-661 dry cleaning solution, and one part by volume of Group B Federal Specification O-A-451 ammonium hydroxide.

After washing the parachute in this mixture, rinse it thoroughly several times in fresh dry cleaning solution until all soap has been removed, as determined by the rinsing solution remaining clear. When rinsing, squeeze the fabric; do not wring or rub together. After the stained area is thoroughly dry, it is wise to repeat the litmus paper test. Should any broken threads be found, or any harshness, brittleness, or stiffness of the fabric noted, the area should be removed immediately and patched.

If the stain is oily or greasy, immerse the area in a cleaning mixture such as carbon tetrachloride, benzine, or VM and P naphtha. Agitate the liquid while holding the fabric submerged. (See TN 21-45 for possible effects of carbon tetrachloride on personnel.)

Do not dip the hardware in any solution. Hardware may be wrapped in heavy cotton flannel for protection, if necessary. If there is no evidence of fabric deterioration and recommended methods do not prove completely satisfactory in removing the stain, do not resort to bleaching solutions. The *Parachute Manual* (NAVAER 13-5-501) gives further information on the removal technique of particular type stains.



FOUR BOLTS SECURE PAD TO THE SEAT

LITMUS PAPER TESTS STAINS FOR ACIDITY

STAINED AREA IS RINSED IN CLEAR WATER

PHOTOGRAPHY

Installing K-20 Focusing Attachment

BuAer's Photographic Science Laboratory has made a number of installations of the N-2 Focusing Attachment on K-20

1

FILE SCREW DOWN ON SHUTTER SPEED KNOB

aircraft cameras. The experience gained by this unit may be helpful to other photographic activities making these modifications.

It was found that the screw holding the shutter speed knob to the shutter assembly was, in a number of instances, too long. This would not allow the threaded flange of the focusing attachment to fit level on the shutter assembly. As a result it was necessary to file down the head of the screws as shown in figure 1. The amount of filing necessary usually is very slight.

If this correction is not made, the focusing mount is difficult to operate. It will cause the shutter assembly to ride crooked on the guide studs, producing a binding action.

In order to allow the retaining rings to fit all the way down without being forced, it was necessary to file down the nose flange on some cameras as shown in figure 2. The filing should be sufficient to

2

FILE NOSE FLANGE TO GIVE PROPER SEAT

remove not only the lacquer, but also a thin layer of metal in order to give adequate clearance in seating the ring. If it is necessary to force the ring onto the nose flange, it will cause a pull to one side or the other which, in turn, will cause the focusing attachment to bind, thus preventing smooth operation.

A detailed description of how K-20 and K-25 cameras can be modified to focus appeared in NANEWS 15 October 1945.

BuAer Issues Cold Weather Note

All available information concerning both the operation and maintenance of naval aircraft in cold weather is summarized in TN 84-45, *Instructions for Cold Weather Operation of Naval Aircraft*, issued by BuAer 10 September 1945. It covers, in general, problems involved in the operation, handling and maintenance of both ship and shore-based naval aircraft, as well as the protection of personnel. In addition to the summarized information there is a complete reference list of all publications pertaining to cold weather operations.

Information on preflight and post flight activities will be found under aircraft operating instructions and should be of special interest to maintenance personnel.

The section on maintenance of aircraft and equipment contains a detailed discussion of the function and care of the various aircraft systems and airborne and ground equipment at low temperatures.

Data in the technical note were obtained from naval activities, Army Air Forces, the British and Russians. Information on carrier-based operations is not so extensive as that for shore-based activities. Further comments from Fleet activities are desired.

Since weather will impose a vital need for this information in the near future, commanding officers should see that the publication reaches all hands at the earliest opportunity and that the importance of the information is stressed.

A review of the films MA-2627 *Land and Live in the Arctic*, MN-119a *Ice Formation on Aircraft*, and SN-144 *Cold Weather Starting* also would be desirable. They may be borrowed from Aviation Film Libraries.

Metalsmith Develops Rivet Set

NAS NORFOLK—A handy and effective cherry rivet set developed by an aviation metalsmith under the NAVY EMPLOYEES' SUGGESTION PROGRAM utilizes the lever principle to set rivets quickly and easily.

This tool has been of value for use in restricted working areas where manipulation of the vertical type set or squeezer is difficult or impossible. Tool is shaped somewhat like a pair of bent-nosed tongs. The lower prong is drilled for fitting over the rivet having its outer face flat or to conform to the shape of the rivet head. The upper prong is slotted for fitting over the rivet shank under the head.

The two prongs are connected by two links, one on each side. The movement of the links is restricted by two stop blocks welded to the prongs. These stops are so placed as to align the openings in the prongs and insure equalized pressure when setting the rivet. In use, the upper prong is drawn back, the tool placed over the rivet, the handles opened and the upper prong is slipped forward under the head of the rivet shank. Hand

RIVET SETTER UTILIZES LEVER PRINCIPLES

pressure applied to the tool handles sets the rivet.

This tool was made for ⅜" cherry rivets but can be made for other sizes or a combination tool, using adapters, can be constructed easily.

[DESIGNED BY CARL T. PETERSEN, AM2C]

Plug Wrench Avoids Fuel Waste

NAS QUONSET POINT—A tool that removes the drain plug from aircraft wing tanks without spilling any fuel has been developed by a civilian employee of this activity under the Navy Employees' Suggestion Program. The device eliminates hazards from spilled gasoline, avoids damage to wing surfaces and prevents accumulation of fumes within the wing.

In effect this tool encloses the drain plug wrench in a metal tube having a diverging branch to which a flexible

GAS FLOWS THROUGH THE FLEXIBLE TUBE

hose is attached. The wrench handle extends through the plugged end of the tube through a suitable gasoline-tight gland.

When it is necessary to drain a wing tank, the plug first is loosened slightly with a regular wrench after which the leak-proof tool is applied. Gasoline flows out through the metal fuel hose.

[DESIGNED BY HERBERT D. DAIGLE]

Instrument Lighting Is Improved

Instrument lighting has been extensively studied at the Fels Planetarium in Philadelphia, according to the Aviation Supplement of the *BuMed News Letter*.

Two Link Trainers were installed. The instrument panel of one was equipped with standard ultraviolet lighting and that of the other with indirect red lighing. Pilots were required to fly trainers on designated courses, perform maneuvers, and sight targets under various simulated night conditions. Results showed that pilots whose instruments were lighted by indirect red illumination could sight a target two to four times more rapidly than pilots using ultraviolet lighting.

Ultraviolet light is known to fluoresce the cornea of the eye and to interfere with dark adaptation. The source of ultraviolet light is located in most cockpits so that some light is reflected into pilot's eyes. Most of this reflection can be avoided by carefully locating source of light, filtering visible light waves, and using non-reflecting surfaces. However, it is difficult to eliminate all reflections. Since indirect red light does not interfere with dark adaptation, reflection is no problem. From the pilot's viewpoint, these experiments proved conclusively that red instrument lighting is far superior to ultraviolet lighting.

Indirect red instrument lighting presents an engineering problem. A false panel is necessary which often prevents interchange of instruments of different sizes from being made in the field. Individual lighting would overcome this disadvantage, but cannot be installed at present due to production difficulties.

As a result of these experiments, red lighting now is being built into the instrument panel of all new naval aircraft. Instruments in new planes obtained from the Army are still illuminated by ultraviolet light.

Bomb Bay Made Safe For Worker

NAS QUONSET POINT—A worker in the bomb bay of an aircraft almost lost his leg when one of his colleagues inadvertently operated the hydraulic system and closed bomb bay doors. This brought about the necessity for some means of securing these doors during overhaul operations.

A civilian worker at this activity designed a simple yet practical tube arrangement to alleviate the danger. By forging clamps on either end of the tube, which itself is adjustable in length, the tube can be utilized on any set of bomb bay doors no matter how many degrees they have been opened.

Developed under the Navy Employees' Suggestion Program, this will make all parts of the bomb bay accessible to the worker and give maximum protection at all times.

[DESIGNED BY AUGUSTUS S. KEIDEL]

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

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

Airplane	Bulletin	Date	Change	Date
F6F	123	9-19-45	93	9-29-45
FM	55	8-1-45	62	9-7-45
F4U-F3A-FG	244	8-17-45	230	9-10-45
F7F	20	6-29-45	22	8-29-45
F8F	2	8-28-45	0	0
FR	9	9-22-45	1	7-4-45
GH-NH	12	9-16-45	22	6-15-45
JRB-SNB	41	9-22-45	27	3-20-45
PV	167	9-19-45	173	8-29-45
PBJ	64	9-11-45	79	9-19-45
PBM	143	9-19-45	170	8-10-45
PBY	129	9-12-45	186	7-18-45
PB2Y	73	8-9-45	156	8-9-45
PB4Y	185	9-20-45	165	8-7-45
R5C	60	8-29-45	146	9-6-45
R4D	51	9-13-45	42	8-7-45
R5D	79	9-19-45	129	9-20-45
RY	76	9-20-45	31	8-14-45
R5O	17	9-19-45	0	0
SB2C-SBF-SBW	227	9-24-45	153	9-19-45
SC	88	9-7-45	42	9-5-45
SNJ	38	9-19-45	0	0
TBF-TBM	214	9-20-45	243	9-10-45
TBY	18	9-20-45	1	7-25-45

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

SERVICE Test
INTERIM REPORT DIGEST

F8F-1 (305 Hours' Test)

Carburetor Induction System. Two additional failures of carburetor air duct assemblies, Grumman P/N 55306, and one failure of carburetor header duct, Grumman P/N 5575, have occurred, due to the causes previously reported. *Recommend* that parts be redesigned and service tested.

Exhaust System. New prototype exhaust assemblies installed have been satisfactory except for four failures of exhaust manifold mounting studs of number 13 cylinder.

Trouble may be because of misalignment, loose mounting nuts, or in the exhaust port studs. New prototype manifold has been installed with brass nuts and lock washers. Metal Flexlock nuts are giving unsatisfactory service, and must be checked after each flight.

Exhaust Trough Assembly. Exhaust troughs, Grumman P/N 55025 continue to crack. Spares for replacement are unsatisfactory. *Recommend* that contractor's jigging of these parts be investigated.

Catapult Take-Offs. Sixteen catapult take-offs and fourteen arrested landings have been conducted at gross weight of 9371 lbs. Tire pressures used were 125 lbs. for main wheels and 160 lbs. for tail wheel. The only discrepancies were the loss of one snap ring securing the left after roller to the carriage assembly, and one tail wheel tire failure after ten landings. This is considered normal for these tires.

Servicing Tail Wheel Recoil Strut. Good results were obtained in a series of arrested landings for which the recoil strut was serviced so that in the fully extended position the hook end could be raised just two feet above the deck. As previously reported, servicing described in the E & M Manual is incorrect.

Arresting Gear Snap Rings. Snap rings, P/N NAF-51-50, which secure the roller, Grumman P/N 58932, to the carriage assembly, Grumman P/N 57201, become loose and are lost. *Recommend* that these rollers be secured by permanent fasteners.

Battery Vent Plugs. Plugs made by Willard, P/N R17-C-4760, are defective. Caps become loose with resulting loss of electrolyte. *Recommend* that a screw type be used on highly maneuverable aircraft or that better adhesive be used on the Willard type of battery.

Wing Gun Solenoids. Repeated failures in the Mk 7-1 solenoids installed, together with rearrangement of the hydraulic chargers, in order to give improved access to the guns for servicing, made it necessary to go back to the original installation using the Mk 5 Mod 1 solenoid.

Fairing Assemblies. Cyclic rate controls, 50 Cal. Mk 3-0, were installed on the airplane at the same time the fairing assemblies, Grumman P/NS 56818 PC/56819, were replaced. The assemblies failed after 2830 rpg had been fired. With cyclic rate controls on the guns the replacement assemblies show no signs of failure after 3000 rpg have been fired. This is considered additional evidence of the unsuitable construction of the fairing assemblies in the Grumman airplane.

FR-1 (46 Hours' Test)

Bomb Rack Pylon Fairing. Port and starboard fairings had identical cracks on the top after edge through the air loc fastener hole, and from the top of the fairing to the center line five inches aft of the

leading edge. *Recommend* that the gage of the metal fairings be increased to .040 24 St. to reduce strain.

Oil Filler Door. A 5" x 6" door was installed in the starboard accessory cowling to facilitate checking the oil for the forward engine. This door with two R82-CVC-981-1 fasteners allow access to the oil filler cap without unfastening eight air loc fasteners that are difficult for a mechanic standing on the wing to reach.

Cowling Attachment Brackets. Acceptance check showed brakes to be loosely riveted. *Recommend* that manufacturer increase inspection standards.

Propeller Pitch Control. Swaged fitting on the forward end of the control became bent and control jammed.

Oil Leak. An oil leak at the gasket between the main engine and the hydraulic pump necessitated pulling the engine to replace the gasket. *Recommend* investigation to eliminate this trouble on future designs.

Cylinder Head Temperature. Temperature has been running above the maximum allowable limits. Instrument, wiring and thermocouple have been checked and found accurate. *Recommend* temperature survey.

Rudder Quadrant Cable Clamp. Cotter key on cable clamp (28-3314-241) was found to be striking the angle brace on the starboard fuselage and rudder fairing (28-3511-597), causing rudder to jam slightly. *Recommend* that increased clearance be given cotter key to prevent rubbing.

Nose Wheel Door Hinge. Forward six inches of the hinge broke off completely at 46 hours, causing severe vibration. *Recommend* heavier hinge.

Ignition Firewall Disconnect Plug. Coupling nut on Cannon plug NO. 2079-44 broke on being tightened with water pump pliers. Coupling nut is constructed of cast metal and is too brittle to be used on ignition systems, where all connections must be tight. *Recommend* that machined coupling nut be used in place of the cast metal and that a suitable strap wrench be used to tighten the plug.

Droppable Tank. Mk 10 self sealing 100-gallon droppable tank has been installed on one aircraft and will be tested for minimum of one hundred and twenty hours.

TBY-2 (312 Hours' Test)

Generator Terminal Box. Box on the NEA5 generator broke during flight. Box and cover were removed and replaced by a rubber cap, P/N B86-H-80000, in accordance with TBY-2 Bulletin 13.

Generator Failures. Positive terminal lead from the generator terminal broke at 293 hours. Negative terminal lead had failed at 296 hours. The Sta-Kon lugs broke at the bend in the lug. *Recommend* that a terminal lug of greater elastic strength be used on generator terminal strips to take care of high "G" factor of generators.

Generator NEA5 failed in flight. Investigation showing the following: Positive terminal lead was loose and screw on positive terminal stud had backed out 5/16" from vibration and absence of a lock washer on the stud screw. This con-

dition caused the lead to arc on the stud and coat the stud screw with brazed copper. The upper left negative brush was found to be chipped. The pigtail on the negative brush was found severed completely on one side, probably caused by hot particles of metal from the fusing positive lead and a normal amount of vibration. The D lead to the field in the AC plug was found broken. *Recommend* that more rigid inspection be made at the factory to be sure of lock washers on the terminal studs and that a follow-up be made at the receiving base.

Hydraulic Fluid Leakage. The C57/APX2 IFF control box, C45/ARC1 radio control box, and J22/ARC5 radio junction box were found soaked in hydraulic oil because of

normal leakage from emergency bomb bay door and automatic pilot controls located above the boxes. *Recommend* that console type boxes be used or that a drip trough be installed under the emergency bomb bay door and auomatic pilot controls with a hose to carry away the hydraulic fluid.

Cable Chafing. Rubber cable from the pilot's radio junction box to the throttle switch was badly chafed at plug J-120? entering the junction box, caused by a sharp bend in the rubber cable on the sleeve of the plug. *Recommend* that a right angle plug be used to eliminate this bend and that junction box be relocated so as to take up some of the bend.

PV-2 (988 Hours' Test)

Port Distributor Block. Distributor block, Scintilla P/N 10-28607, on the port engine developed a breakdown between #10 and #11 terminals. Age is believed to affect the material relative to the unsuitable properties inherent in it.

Speed Ring Failure. Speed ring of the port engine cracked on the leading edge near the upper inboard joint. Doubler on the lower side of the joint was broken in two behind the leading edge. Speed ring had a total of 290 hours with only 39 hours since factory rework when the doubler was installed. *Recommend* that speed ring be redesigned while awaiting results on new speed ring on starboard engine.

Propeller Governor Oil Leak. Oil leak in port propeller governor was traced to the gasket, AN 900-10, in the high pressure feathering line connection to the governor. One previous failure of the gasket has occurred on the airplane.

Exhaust Collector Ring Clamps. Starboard engine clamp broke immediately below the exhaust outlet. Second clamp from the top on the inboard side of the starboard engine had both bolts missing and was broken halfway through. Neither failure showed evidence of burning. Installing the clamps too tightly is believed to be cause of failures. Clamps should be tightened only to the point where they can be moved by hand and still are not loose enough to slip free of the collector ring segments. *Recommend* that maintenance personnel be so instructed in this installation procedure.

Fuselage Skin and Rivet Failure. Failure occurred on the starboard bow at the two stringers below the bow gun flash plate and runing aft from station 13¾. Nine rivets popped on the upper stringer, and skin pulled out around four rivets on the lower stringer. Blast from the upper starboard bow gun is probable cause of failure. The plane showed 850 hours without this trouble.

Rudder Clevis Pin. Faulty clevis pin installation was discovered on the port rudder quadrant after the plane was returned from factory where redesigned rudder push rods had been installed. Clevis pin holding the rudder lock guard on the quadrant was installed head down and the upper end had worn a groove in the push pull rod where the two strike when the plane is given hard right rudder. Temporary correction made by filing end of the clevis pin down to clear rudder rod. *Recommend* that other activities with PV-2 airplanes be advised to check for this condition.

Link Ejection Chutes. Expended chutes on the chin guns have caused five link jams and resultant gun stoppages. Trouble is due to the flexibility and distortion possible with the type "S" chute used in this installation. This type chute has no retaining

strips or clips to prevent elongation and distortion of the coiled segments; misalignment distorts the normal flow of ejected links and may cause a link jam. *Recommend* as replacement the type "4F" chutes using the "Plioband" method of securing the strips of cloth.

Expended link ejection chute assembly, P/N 120483R, for the starboard bow gun has been involved in nine gun stoppages during twenty-four gunnery missions. Gun link and case bag assembly, P/N 121696R, is suspended directly from the link ejection chute assembly. After several rounds of expended links and brass accumulate, the swaying motion of the bag due to maneuvers of the aircraft tends to pull the assembly out of position, causing misalignment of the chute adaptor and a resultant link jam. *Recommend* that a more rigid and secure type of link ejection chute assembly be incorporated at this position and that some method of restricting the free movement of the link and case bag during flight be developed.

Ammunition Boxes. Boxes, P/N 255471-1, for the chin guns are not rigid enough to maintain the proper position of the ammunition belt relative to the flexible chute assembly, P/N 255434, which is attached to the end of the ammunition box. Sides of the boxes flex and become misaligned with feed chute adaptor. Ammunition belt then tends to catch on the feed chute adaptor and cause stoppage. *Recommend* that these boxes be replaced with rigid units or some stiffener method be adopted.

PBY-6A (483 Hours' Test)

Sperry Auto Pilot. Bank and climb control units, Type F.S.S.C. 88-4-110, of the Sperry auto pilot failed twice during 220 hours of operating time. All connections to and from the units were checked each time and found normal. Both units failed internally. Further tests are now being conducted.

Carburetor Fuel Line. Line to the starboard carburetor chafed against the stainless steel line on the carburetor connecting the fuel control unit to the discharge nozzle. Check on port carburetor showed same chafing condition. Fuel lines were replaced with lines formed to give adequate clearance. Failure of fuel lines is attributed to this condition.

Generator Pin Test Jacks. Voltmeter pin test jack from the port generator became loose in the wiring main distribution panel because of vibration, resulting in grounding out the left generator output, through wires 20P1016 and 20P109, to the panel cover. Heat generated in these wires burned the insulation off all wires in the open wire cabling. *Recommend* that the generator pin test jacks be mounted on a micarta strip and secured with a lock-washer.

Starter Motor. Terminal post which secures the brush and solenoid assembly to the starter assembly of the JH5D starter was found broken off at the sixty-hour inspection. Post had been weakened by tightening the elastic stop nut too much. This is the fourth starter motor failure due to disassembly of the motor at inspection. The sixty-hour check is primarily an inspection of the brushes and commutator, and thus far no defects have developed. *Recommend* that the JH5D starter be inspected only at 240 hour checks to prevent further breakage of this post and eliminate work.

SUPPLY NEWS
FROM ASO AND SUPPLY DIVISION BUAER

Aeronautical Allowance Lists

BuAer's policy concerning aeronautical allowance lists, stated in ACL 83-45, 21 July 1945, places responsibility on the individual activity for keeping its stocks in agreement with the current allowance lists. Allowances are supplied automatically only once, at the commissioning or reforming of the activity. The initial assignment of a new plane model is accompanied by appropriate allowances of material (except for certain items on Section G), but the transfer of a standard type plane to an established activity is not accompanied by automatic distribution of allowances, even though that plane may be new to the activity.

When a revision of an allowance list adds new items, established activities are entitled to them but must themselves initiate action via regular supply channels to obtain them. Items which become in excess through changes in allowance lists may be retained but are not to be replenished without specific directives.

Supply and maintenance officers of every activity should therefore be thoroughly familiar with ACL 83-45. In addition, appropriate personnel should take care of the following: *1.* Maintain complete, current files of allowance lists. *2.* Compare revised allowances with those they replace so that all concerned can be immediately informed of additions, deletions and changes. *3.* Requisition promptly new items to which the activity has become entitled. *4.* Compare replenishment orders with latest allowance lists to insure ordering every item needed and allowed, and to avoid ordering items to which the activity is not entitled.

ASO Needs Stock Status Reports

Accurate stock status reports from aviation activities, listing all material on hand, are essential for ASO's estimates of requirements. ASO makes estimates from usage data, but cannot effect sound procurement unless existing stock levels, accurately reported, also are taken into account.

HEDRON's, CASU's, SOSU's, auxiliary air stations and facilities and all other activities that do not report stock status to ASO are urged to cull their stocks for parts no longer needed. Such parts should be turned in to the major supply point in accordance with BuAer letter Aer-S-WGM, serial 33589, 27 February 1945. If, for example, a type of aircraft is transferred away from an activity, a stock of parts peculiar to that plane should be returned to the supply point rather than held in storage. Such action will free valuable storage space, permit use of material, and reduce the amount of stock unaccounted for.

Section G List Propeller Tools

Section G Allowance List tools for propellers are not supplied automatically with issues of new type props. Advance lists of tools for new type props are carried in the *Tools Technical Supply Bulletin*, and these lists may considerably precede the revision of the Section G Allowance List.

Repeated reports of a lack of tools for the Aeroprop (F8F) have been a matter of concern to ASO because lists of the required tools were published in *Tools Technical Supply Bulletins* No. 3 and No. 6, and activities were urged to requisition the equipment needed.

APA Accounting to Be Resumed

AlNavSta 17, dated 8 September 1945, directs that accounting for Appropriation Purchases Account Material, on a pre-war basis, be resumed by 31 March 1946. Aviation Supply personnel should prepare for this task by indoctrination of personnel, by making available the necessary labor-saving devices and by setting up procedures in handling the paper work involved in the accounting for all the APA material.

"You'll find the ASO Catalog very useful"

New Light Weight Exposure Suit

BuAer has procured 6,000 continuous wear exposure suits for use by pilots and aircrewmen, especially of carrier-type aircraft, who would not have time when ditching to put on a quick-donning suit or who cannot wear this bulkier model during flight because it would hamper movement.

The new suit, made of nylon and neoprene, comes in sizes from 38 to 48 and has stock number 1137-S-5340. The Mk 2 is designed for VF, VS, VSB and VTB personnel. It covers the whole body except for the hands and has feet which can be worn inside flight boots or shoes.

Entry is through the neck, which has a drawstring for closure and a zippered bib built into it. The only other openings are a zippered fly and an opening on the left hip for the anti-G suit air line. The 'G suit can be worn under the Mk 2.

NYLON-NEOPRENE SUIT PROTECTS CREW

The suit is not designed for long flotation but to protect men from cold water upon bailing out or ditching. The amount of protection from cold will depend on clothing worn under it. Two pockets are attached to each leg and one pencil pocket fixed to the arm.

MAINTENANCE TRAINING PAYS DIVIDENDS

WELL TRAINED *plane handlers indoctrinated in correct ways of tying down airplanes on carrier flight decks paid off in naval aircraft saved during a severe typhoon. Increasing winds caused the carrier to roll heavily, threatening to break planes loose from their tiedowns and send them crashing across the deck endangering personnel and other aircraft. This photograph, taken by an alert Navy cameraman aboard the escort carrier,* U.S.S. Anzio, *indicates conditions that carrier crews must be prepared to face when storms strike at sea. Maintenance men assigned to plane handling duties must know what to do in typhoon weather in peacetime as well as in war. If oleos of the planes tied down on deck are deflated, the carrier can ride out the worst typhoon with the danger of planes breaking loose from their tiedowns reduced to a minimum. Training pays off.*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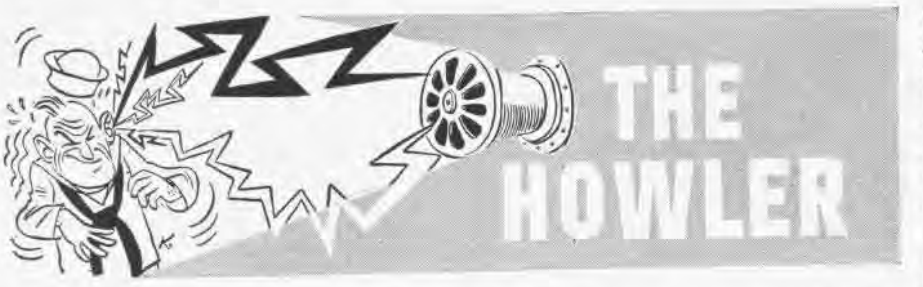


Take Rag Count. BuAer Maintenance has received several reports of large quantities of rags and other foreign material being found in various parts of the engines and their accessories. One engine was sent in for overhaul with a notation in the log stating, "engine removed because of failure to maintain oil pressure." Rags were found throughout the power section of the engine, and the main oil strainer was completely covered with fragments of cloth. It was further noted in the engine log book that several of the cylinders of this engine had been changed since the last overhaul. The rags were probably allowed to drop into the power section at the time the cylinders were changed.

Reports have also come in telling of rags found in oil lines. Carelessness such as this can easily cause engine failure and is an unnecessary hazard to flight personnel. To prevent recurrences of this trouble maintenance personnel are cautioned to use care in preventing foreign material from entering the engine or any part of the lubrication system. During carburetor changes be especially careful to cover carburetor case entrances properly.

Propellers. When an AAR lists equipment failure as a factor contributing to the accident, BuAer trouble-shooters want as much data as possible on the condition of the parts blamed for the crack-up. Failure of the electrical propeller governing mechanism, together with poor judgment on the part of the pilot, was listed recently as the cause of an FM-2 deferred forced landing resulting in sudden engine stoppage, major prop damage, washed out landing gear and wing damage. But the information was not complete enough to give any definite reason for the equipment failure.

The pilot reported loss of power at about ten thousand feet when the propeller would only turn over at 900 rpm. Trying to land, he missed the runway, was unable to force the plane down, and finally crashed—50 percent pilot error, 50 percent propeller failure.

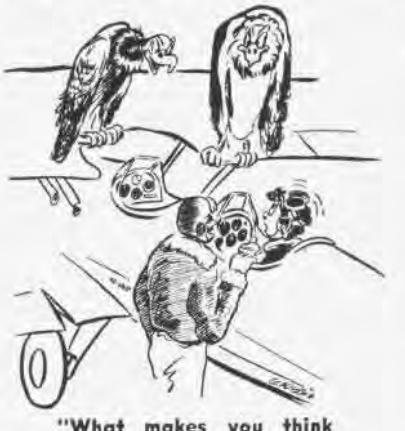
In such cases BuAer wants more dope on the propeller. Where possible, there should be a quick examination of the propeller on the spot, and a recording of the findings in an RUDM referencing the AAR. If immediate inspection is not feasible, complete RUDM data should be submitted by the overhaul or survey.

The following procedure is recommended in case of an accident involving prop failure:

Note the position of the propeller selector switch to see whether it is in "automatic" or "fixed pitch" position. Remove the power unit from the hub to determine, by the position of the cams, the blade angle at the time of the accident. If local personnel are not familiar with the procedure for checking the angle, one of the cams should be indexed to the housing by a stripe of paint so that angle can be computed when the complete unit is overhauled.

When power unit is removed, the condition of the electrical contact point assemblies between the power unit and hub should be examined for possible burning or for foreign matter which would cut out the electrical circuit. If the power unit is not extensively damaged and the brake assembly is intact, it is recommended that the power unit be reassembled on the hub and the propeller given an operational check in manual selective pitch. Inspect the brush block and slip rings, checking for possible shorting across brushes or rings due to excess dirt or breakdown of insulation.

Remove governor after checking for possible breaks in linkage between control lever and governor. Check governor on test stand if available. If stand is not available, tag governor requesting an RUDM from overhaul, referencing the accident. Check governor wiring by shorting the leads at the governor connector plug for safety or terminal.



"What makes you think you're not ready to solo?"

FG-1A Landing Gear Drag Pins. After a crack-up has occurred isn't the best possible time to incorporate the change that would have prevented it. But the warning can at least be passed on to others. A recent AAR on an FG-1A wheels-up landing, resulting in major damage to the plane, gives as the cause of the trouble the seizure and galling of the landing gear drag pin (part no. VS 10810). The condition was due to unsatisfactory qualities of the bearing material and improper lubrication. BuAer F4U, F3A, FG Aircraft Bulletin No. 134 had *not* been complied with in the aircraft. The landing gear would not go into full down and lock position although the hydraulic pressure was normal. Snap pull outs and use of the hand pump did no good, and the pilot finally had to come down minus the help of wheels.

The activity involved reports that it is *now* requiring periodic inspection and lubrication of landing gear drag pins in accordance with Bulletin No. 134. Better late than never, but why not lock the door *before* the horse disappears? Remember! Aviation allows only one mistake per pilot.

Goony AAR's. What does "cause undetermined" mean? When an aircraft accident report gives the cause of failure as "undetermined," and investigation shows that the cowling has not even been removed in any attempt to learn reasons for the trouble, it looks as if "undetermined" is synonymous with neglect of duty. The case in point was an F6F engine failure on take-off resulting in a belly landing and major damage. The report listed low fuel pressure, and the pilot stated low oil pressure; but the trouble board involved went no further in trying to discover the actual cause of the accident.

In another AAR the cause was given as "engine failure" when a fighter made a forced landing in the water with gas tank, carburetor and fuel lines completely empty of gasoline! The CO reviewing these reports submitted by units of his command considered the performance of duty by the trouble boards and squadron commanders concerned to be "highly unsatisfactory."

An accident demands thorough, on the spot investigation as a basis for future preventive measures that may help save lives and material. Passing the buck on to the overhaul activity isn't the solution.

In the past too many pilots have been credited with "Pilot Error" when a lazy investigating committee could not take time to determine "cause of crash" properly and settled the blame on an unerring pilot even when not positive.

SCREEN NEWS

Sailor, Save Those Choppers! One conflict that has no post-hostilities ending is the subtle but savage war of decay against neglected teeth. That's why a very excellent motion picture on the subject is being distributed instead of being tossed on the post-war scrap pile:

MA-5660 *Dental Health*—Unclassified, 20 min.

SYNOPSIS: A man will take great pride and trouble in polishing his car till it shines like sunlight on water. He acknowledges the wisdom of keeping his rifle clean and the benefits of physical exercise. In fact, he can be reasoned into taking care of almost everything—except his teeth. Yet the teeth are the only parts of the body that don't renew themselves when damaged.

If decay eats deeply enough into a tooth, the resulting poisons can be carried

THIS OFFICER (OW!) NEGLECTED HIS TEETH

in the blood stream to all parts of the body, infecting the sinuses, the eyes, kidneys, heart, etc.

After pointing up these very vital reasons for proper care of the teeth, the film suggests the type of brush to use; describes the most effective brushing technique; lists a few major "don'ts" (such as "don't open bottles or crack nuts with your teeth"); and finally outlines the care, operation and maintenance of dentures (false teeth, to you).

The film is enlivened and enlightened by such shots as an authentic close-up of George Washington's set of false teeth. One glance at these crude synthetic choppers will convince anyone equipped with dentures today that in at least one respect he has a considerable edge over the Father of his Country.

Don't Annoy the Moles. Normally, a mole is just a minor disfigurement on the skin—about 30 moles per average person, it says here in the medical journal. Potentially, however, a mole is a dangerous, even a lethal, growth. When subjected to continued irritation, the little brown spot can develop into a malignant cancerous growth, as explained in:

MN-2713 *Moles and Melanoma*—Unclassified, 8 min., color

The film illustrates in vivid color how the sleeping evil in moles may be aroused to fantastic activity by such routine irritations as shaving, scrubbing, minor burns, chafing of belts or straps.

The dread effects of secondary malignant melanoma (a form of cancer) can be prevented by proper treatment of moles which give signs of getting out of hand. Cauterization is shown, with the warning that if not complete it may not be effective. Safest treatment is modern surgery, properly performed. Close-up photography demonstrates the actual operation.

Other Films Shipped:

MN-4382d *Airborne Forward Firing Rockets — Tactical Principles* — Confidential, 17 min.

MN-5090 *Technique for Carrier Landings and Take-Offs*—Confidential, 21½ min.

MN-4378b *Aerial Torpedo Attack — High Speed, High Altitude* —Confidential, 28 min.

MA-6294 *VT Bomb and Rocket Fuses* —Confidential, 23 min.

MN-3736a *Glide Bombing Attachment Mark 2 Mod. 1—Operation*—Restricted, 12 min.

MN-3736b *Glide Bombing Attachment Mark 2 Mod. 1—Installation and Pre-Flight Check* — Restricted, 15 min.

MN-9051a *Ordnance Functional Components—The 17C Aircraft Rearming and Servicing Components Composite*—Restricted, 15 min.

SA-4932h *Disassembly of Hamilton Standard Counterweight Propeller Governor — Model 1M12-G*—Restricted, 40 frames

SA-4654h *Curtiss Electric Propeller Governor — Proportional Model 100008-8E—Disassembly* — Restricted, 56 frames

SA-6102b *Radar Equipment — AN/TPS-1B — Part 2* — Confidential, 85 frames

SA-6065 *Use of the Corner Reflector* —Restricted, 30 frames

SN-3388d *Mark 18 Gunsight—Trouble Shooting and Isolation of Defective Unit* — Restricted, 125 frames

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

NAVAL

ABATU, NAS Memphis
CASUs 2, 4, 23, 24, 31, 32, (F)42
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 Norfolk
NAS Navy #115
NAS Navy #117
NAS Navy #720
NATB Pensacola
NATB Corpus Christi
NATEC Lakehurst
Navy #3233
TAL Navy #116

MARINE

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

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

14-45 *Abandon Plane Procedure.*
15-45 *Simulated Instrument Flight Procedures.*

AVIATION CIRCULAR LETTERS

68-45 *Use of Naval Aviation facilities by Civil Aircraft.*
69-45 *Class 88 Aircraft Instruments—Designated Overhaul Bases for.*
70-45 (Joint Ltr) *Aircraft Service Change Kits —Allocation, Distribution and Disposition of*
71-45 *Contractors' technicians' Reports of Service Deficiencies—Instructions Concerning.*
72-45 *Lubricating System Accessories (Oil Cooler Assemblies)—Designation of Repair Activities for.*
73-45 *J2F Reconditioning Schedule—Cancellation of.*
99-45 *NavAer Publications and Forms: Distribution of.*
100-45 *Aircraft Engines, Records for Disposition of.*
101-45 *War History, Preparation and Submission of.*
102-45 *Used and Excess Aircraft Tires—Handling of.*
103-45 *Aviation Survival Program.*
104-45 *Weight and Balance Control—Flight Clearance.*
105-45 *Aircraft Pools and Storage—Responsibility for.*
106-45 *Airspace Reservations.*

TECHNICAL NOTES

52-45 *Switch Breakers Used as Primer Switches, Spencer Thermostat Co. "Klixon" No. C-6363-3-15, Replacement of.*
53-45 *Use of Short Lap Belts with Pilot's Seat Equipment.*
54-45 *Navy Standard Back Type Parachute—Packing of.*
55-45 *Painting of Insulated Jugs and Water Breakers.*
56-45 *Anti-Blackout Suit.*
57-45 *BHF Antennas—AN-104-AX—Corrosion of.*
58-45 *Cold Stripping Compound for Use in Removal of Deposits from Engine Parts.*
80-45 *Use of Rubber Cements in Repair and Maintenance.*
81-45 *AR-8 Airborne Lifeboat, Dropping from PBY Aircraft, Instructions for.*
82-45 *Cockpit Canopies on Parked Aircraft—Precautions to Prevent Thermal Distortion of.*
83-45 *Pararaft Kit, Model PK-1—Reduction in Thickness of.*
84-45 *Instructions for Cold Weather Operations of Naval Aircraft.*
85-45 *Droppable Metal Fuel Tanks—Internal Corrosion—Prevention of.*
86-45 *Operation and Maintenance Information on Mooring Airplanes for Normal and Extreme Wind Conditions.*
87-45 *Shark Chaser (Life Jacket); BuShips Spec. RS1848, Stk. No. R37-S-75, Issue of.*

TECHNICAL ORDERS

52-45 *Web Strap Type Litter Supports—Modification for Increased Safety of.*
53-45 *Model F4U-4 Airplanes Armament—Mk. 1 Rocket Selector Switch—Restrictions in use of.*
80-45 *Operation and Care of Two-Speed Interna Geared Superchargers in Wright R1820 R2600 and Pratt and Whitney R1830 R2000 and R2800 Engines.*
81-45 *CO_2 Life Vest Cylinders—Replacement of.*
82-45 *Weight and Balance Control.*
83-45 *Weight and Balance Control—Classifications for.*
84-45 *Multi-Place Pneumatic Life Rafts—Repair and Survey of.*
85-45 *Use of Grade 91/96 Fuel for Ferry Operations, Discontinuance of.*
86-45 *Fluid—Carburetor Flow Bench Testing.*

Seat and back pans are shown installed on quick attachable type parachute harness to increase pilot comfort on long hops

New pans fit next to body with the seat type parachute. Seat pan cuts discomfort from sitting long hours on chute, raft

When used with back-type parachute, no back pan is necessary, but the seat pan is installed as usual, tacked to raft

FORM-FITTING SEATS BOOST PILOT RANGE

More comfort for pilots and aircrewmen on long flights is assured by new seat and back pans being procured by BuAer for installation in certain types of aircraft.

Personnel strapped in their seats, on top of seat packs, harness straps and other equipment often find their posteriors chafed and sore from the ordeal. BuAer developed a combination form-fitting aluminum seat pan and air foam cushion that is a partial solution to the problem.

Under contract NOa(s) 6984, 35,000 Model SP-1 seat pans and 25,000 Model BP-1 back pans are being procured, and deliveries have been made in quantity. The units are to be issued in the order listed to pilots and aircrewmen in VF, VSB, VTB, VOS and VSO classes of aircraft as considered desirable.

Flight tests have proved that pilots using the new seat can fly several hours longer without discomfort than was possible under old-type seats. The new gear being procured consists of two parts as follows:

Seat Pan—This consists of an aluminum pan shaped to fit the contour of the buttocks of the wearer and is covered with a 1½" synthetic sponge rubber pad. The entire assembly is provided with a fabric cover. A slot in the unit permits passage of the parachute harness leg straps, and tabs on the underside of the pan permit attachment of this pan to the parachute harness sling.

Aluminum is shaped to fit wearer's body, then covered with air foam cushion and canvas to make new back, seat pans

Back Pan—This pan consists of a one-inch synthetic sponge rubber pad, a contoured aluminum pan and a fabric cover. The aluminum pan is cemented to the sponge rubber at a location where it will fit the small of the wearer's back, thereby providing adequate support for that portion of the body. Tabs, similar to those on the present parachute back cushion are provided for retaining the back pan to the parachute harness.

Both the seat pan and back pan have been live-jumped and found satisfactory in every respect. In limited service tests, both units have been found to improve comfort and materially reduce fatigue.

Photographs on this page show how the back pan or seat pan are attached to the various types of harness—the quick-attachable type parachute harness, the seat-type parachute harness and the back-type parachute harness.

In the case of the seat-type, when no raft is used with this type chute, the seat pan is tacked directly to the parachute container. When no raft is used with the back-type parachute harness, the seat pan is installed in the same manner as on the quick-attachable type harness. Double No. 9 or equivalent strength cord should be used in tacking the seat pan securely to the harness.

AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

RECENTLY DEVELOPED BOMB HOISTING SLINGS

Name, Identification	Type of Hoisting	Capacity	Design for Hoisting	Applicable Airplanes*
HOISTING SLING, MK 15 MOD 1 BuOrd Dwg. 422902 Sketch List, 109432 Navy Stock 3-S-3362-100	Double	2200#	Aircraft Torpedo G. P. Bombs—2000# AN-M34, AN-M66 AN-M66A1	F6F, F4U TBF, TBM PBJ, PV SB2C
HOISTING SLING, MK 19 MOD O BuOrd Dwg. 422903 Sketch List 10945 Navy Stock 3-S-3363-150	Single	500	Depth Bombs—325#-350# AN-MK 17-2, AN-MK 41 AN-MK 44, AN-MK 47 G. P. Bombs—500# AN-M43, AN-M64, 64A1	TBF, TBM
HOISTING SLING, MK 21 MOD O BuOrd Dwg. 375986 Sketch List, 109474 Navy Stock 3-S-3363-170	Single	1600#	Depth Bombs—325#-650# G. P. Bombs—500#-1000# S.A.P. Bombs—500#-1000# A.P. Bombs—1000#-1600# All 500# Incendiary Clusters	F6F, F4U, TBF TBM, PV-2 SBD SB2C
HOISTING SLING, MK 22 MOD O BuOrd Dwg. 375990 Sketch List 165062 Navy Stock 3-S-3363-180	Double	1600#	All Bombs—250#-1600# (GP, DB, AP, SAP) All 500# Incendiary Clusters	PV-1, F6F
HOISTING SLING SET, MK 25 MOD O BuOrd Dwg. 439755 Sketch List 165051 Navy Stock 3-S-1820			Consists of 5 sets of 3/4" cable slings (2 cables per set) of following lengths: 5', 6', 7', 8', 10') for use in unloading Bombs from Ships onto beaches with tractor cranes, etc.	Aircraft Carriers, Advance Bases

Note: *Additional plane models will undoubtedly be added to this list as tests now are underway to determine the adaptability of certain of the slings for hoisting to other aircraft, particularly VPB type.

USE CABLES FULL LENGTH WITH CARRIERS

MK 25 SLING CABLES LOOPED ON BOMBS

New Bomb Hoisting Slings Are Available

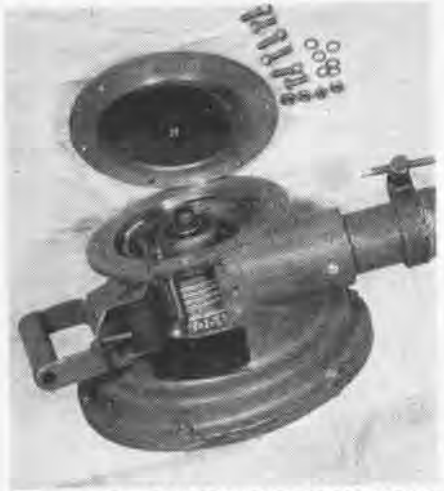
Experience has shown that bomb and torpedo hoisting bands furnished for aircraft loading operations have been too cumbersome and time-consuming for sufficient usage. As a result, many activities have replaced the bands with cable type hoisting slings of local design for individual hoisting requirements.

In an effort to standardize this equipment, BuOrd is developing a series of slings to meet all bomb and torpedo hoisting conditions, and several designs have become available recently for distribution. A summarized description of these slings is presented in the accompanying chart. More detailed information is included in O.P. 1343 *Hoisting, Suspension and Trunnion Bands.*

It is planned to provide each of the subject hoisting slings to activities tending the various types of aircraft shown in the table.

Mk 7 Mod 2 Bomb Hoist Now Available

Portable Bomb Hoists MK 7 MOD 1 in stock at certain continental supply annexes are being modified to MK 7 MOD 2 by incorporation of a roller and a guiding tube that eliminates much of the difficulty



ROLLER ASSEMBLY PREVENTS CABLE SLACK

heretofore encountered because of the cable kinking and overriding the cable drum.

Although tension still must be maintained on the hoist cable when it is being paid out or reeled in, the modification will prevent slacking of the cable within the hoist under normal handling conditions where the hoist crank may be inadvertently turned a small amount without tension being applied to the cable.

When the hoist is first received the roller assembly adjusting screw should be set to compress the rubber roller snugly against the cable drum. The proper adjustment is obtained when there is just sufficient compression to prevent slack from appearing on the drum as the crank is unwound two or three turns without tension on the cable.

Stock number of hoist, MK 7 MOD 2 is 3-H-1036. Availability of these hoists, while sufficient to meet normal requirements for new outfitting, will permit replacement of MOD 1 hoists only after they wear out.

Test Yourself on Water Survival

1 _____ 4 _____

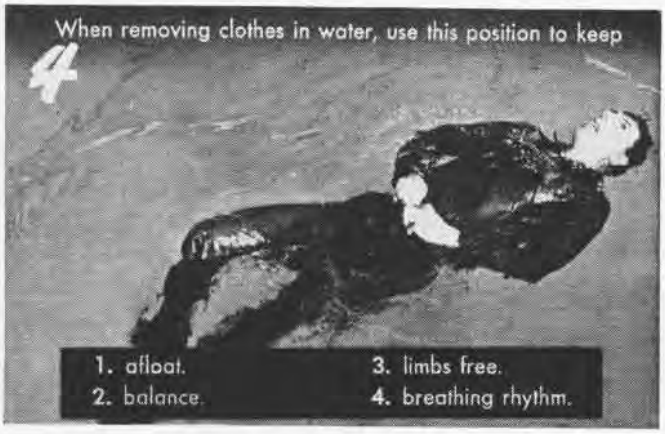
2 _____ 5 _____

3 _____ 6 _____

3 When descending this, NEVER

1. slide.
2. look down.
3. use gloves.
4. grip tightly.

4 When removing clothes in water, use this position to keep

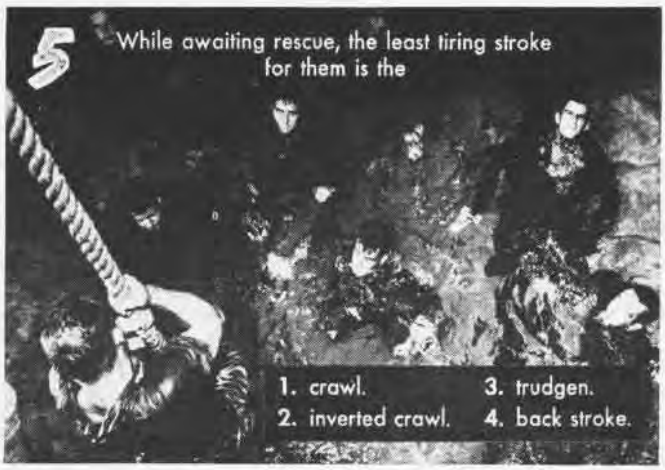


1. afloat.
2. balance.
3. limbs free.
4. breathing rhythm.

1 They won't have rafts until they open the

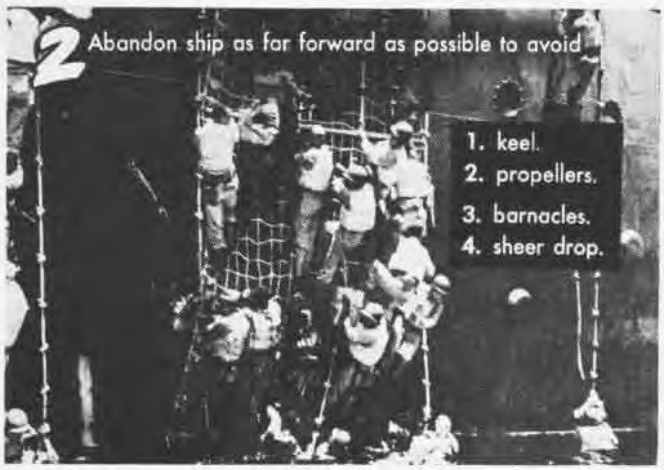
1. zippers.
2. hatches.
3. rip cords.
4. CO_2 bottles.

5 While awaiting rescue, the least tiring stroke for them is the



1. crawl.
2. inverted crawl.
3. trudgen.
4. back stroke.

2 Abandon ship as far forward as possible to avoid



1. keel.
2. propellers.
3. barnacles.
4. sheer drop.

6 To keep afloat, this man is using

1. a mattress cover.
2. an inflated shirt.
3. a sea bag.
4. his dungarees.

Answers on page 40.

PIX QUIZ [Questions from Automatic Film Rater F-5-NN-9, Water Skills, Special Devices Division of Office of Research and Inventions]

Big E Fights After Six Jap Attacks

THE JAPS hit the *Enterprise* six times during the war and claimed to have sunk her each time. But she still was fighting when war ended. Her planes and guns shot down more than 1000 Jap aircraft. She is the only large carrier with the Presidential Unit Citation and fought from Pearl Harbor to Okinawa. One of war's most spectacular pictures *(top)* shows her after a Kamikaze hit blew her elevator 400 feet in the air off Okinawa. The second picture shows her flight deck immediately afterward. Below, her decks flame from a hit by an AA shell from another U.S. ship off the Japanese coast in March 20 attack on Jap naval bases.