AUGUST 1952

FLYING SAFETY

THE INSPECTOR GENERAL · U. S. AIR FORCE

THEY'RE GROWING UP . . .

A Member of the Team

THE PARACHUTE RIGGER — He is responsible for a very important part of your safety equipment—the parachute. Depend on him. He contributes to the safety of your flight.

THIS MONTH

The helicopter, a noble machine which has more than proved its mettle in Korea, has come to roost at San Marcos AFB, Texas. Beginning on page 2, "They're Growing Up," is a story of the modern Air Force helicopter school at the Texas base.

PILOT OF DISTINCTION

FLYING SAFETY brings you the first in a series of profiles of some of the outstanding pilots in the Air Force today. Beginning on page 14 is "Profile of a Pilot," a story of one of the leading USAF aces, Colonel John C. Meyer.

WELL DONE

This month we bring you an outstanding example of smart flying on the part of 1st Lt. Thomas C. Lafferty. Our thanks go to Colonel Ernest G. Ford, CO of the 18th Fighter Bomber Wing in Korea for sending in his account of a job "well done." The original art used in this feature is being mailed to Lieutenant Lafferty.

FLYING SAFETY SALUTES—

On pages 20 and 21 you'll find a number of examples of really outstanding flying technique. We're sorry that we couldn't give all these individuals the regular "Well Done" treatment, but the "Quick Thinking" salute will serve to recognize their ability.

WINTER ISSUE

Current plans call for a spread of appropriate winter articles with which to highlight the October issue of FLYING SAFETY. We invite you to send in any articles on Arctic survival, icing or winter flying which you would like to see in print. Send 'em in now!

THE COVER

The four types of helicopters flown at San Marcos AFB are pictured in echelon.

FLYING SAFETY

DEPARTMENT OF THE AIR FORCE
THE INSPECTOR GENERAL, USAF

Major General Victor E. Bertrandias, Deputy Inspector General

DIRECTORATE OF FLIGHT SAFETY RESEARCH
Norton Air Force Base, California

Brigadier General Richard J. O'Keefe, Director
Lt. Col. John R. Dahlstrom, Supervisor of Flight Safety Publications

VOL. 8 No. 8 AUGUST 1952

— contents —

Editor	Lt. Col. L. G. Taylor
Managing Editor	Maj. J. A. Jimenez
Art Editor	Roy M. Rogers
Associate Editors	Maj. Ben H. Newby 1st Lt. Edmund F. Hogan 1st Lt. John H. Moore 2nd Lt. Wm. A. Johnston
Circulation Manager	T/Sgt. S. G. Peerenboom

The printing of this publication has been approved by the Director of the Bureau of the Budget, June 4, 1951.

They're Growing Up

Eight Short Years Have Seen the Helicopter Take Its Place in the Air Force . . .

THE HELICOPTER is fairly commonplace in one respect, at least. Its name, in common with many other words in the English language was derived from the Greeks. Even if they didn't know about it at the time, the Greeks had a word, or rather, two words for it. The word helicopter comes from the Greek word *helix*, meaning spiral, and *pteron*, meaning wing. For the benefit of all "fixed wing" pilots, the word is pronounced hell-ee-cop-ter. The quickest way in the world to get a cold stare from a helicopter pilot is to pronounce it hee-li-cop-ter. The looks become positively ferocious if it is referred to by any of many nicknames such as a whirlibird, egg beater, infuriated palm tree or chopper. Helicopter pilots maintain that they have too much respect for their machines to apply any of these misnomers to it and feel free to correct all those who do, within their hearing.

San Marcos Air Force Base, Texas, is the home of the only training school for helicopter pilots in the Air Force. Here, in the helicopter school, Air Force pilots are trained in all phases of helicopter operations. Nominally they are trained in Air Rescue work but when they are graduated from the course they can also be utilized in tactical operations or as instructors.

In the organizational set up on the base, the 3585th Pilot Training Wing, Liaison and Helicopter is the parent organization. Under this falls the 3585th Pilot Training Group, Composite, and finally the actual training squadron, 3588th Training Squadron, Helicopters. Actually, there are two flying training programs in operation on the base as the 3585th Training Squadron. Liaison is responsible for turning out Army liaison pilots.

The helicopter squadron is divided into two parts: one for training Air Force personnel in helicopter techniques, the other for Army liaison pilots who are given a primary and basic course in helicopter flying. The course of instruction at San Marcos is such that all Air Force pilots graduated from the school can be utilized in any phase of helicopter flying. The Army people are taught to fly the aircraft transitionally so that they will be wholly proficient when they go to the Army operational school at Fort Sill, Oklahoma, to learn advanced techniques peculiar to Army needs. However, the Army pilots are rated helicopter pilots when they leave San Marcos.

In the Air Force course ten students comprise a class; there are two classes, upper and lower, at the school at all times. The course lasts ten weeks, with 70 hours flying time and 142 hours ground school instruction.

Army classes vary between ten and fifteen students per class and also have both an upper and lower class at the school. Army pilots receive 45 hours flying during the five weeks of their course and are given 93 hours of ground school.

All classes are divided into two flights so that half the students are in ground school while the other half are flying.

The flying course starts with eight to twelve hours

dual instruction, depending on the student, before solo. After solo, the ratio is two hours solo for every hour of dual. The students receive transition, instrument, night and operational training in the Air Force course. The training course covers such phases as low level navigation with no radio aids, approaches to small, strange fields, radius of action problems, night takeoffs, landings and hovering technique, hoist operation, maximum performance takeoffs and landings, all emergency procedures, auto-rotations and instrument training from basic, partial panel to range problems, letdowns and omnirange instruction.

A preflight briefing covering each period of instruction is held daily for an hour before flying starts and a critique on each student's work is made by the instructor after each flight.

The briefings are very comprehensive and cover a multitude of subjects other than those pertaining to flying techniques. Students are lectured on flying regulations, traffic patterns, crash procedures, weight and balance, cruise control and ground resonance in addition to all operational procedures. They are required to initial a sheet showing which lectures they have attended so there is no possibility of missing any important briefings.

The Squadron Commander and Director of Helicopter Training is Major Henry L. Parker, a veteran of five years and 600 hours in helicopters with a three-year tour in Air Rescue work in the Far East under his belt. Major William A. Ryan is Supervisor of Flying, with 1500 hours logged helicopter time, and Capt. Harold A. Palmer is Operations Officer, with 900 hours in these aircraft. This nucleus of experience is backed up by 22 instructors who average around 600 hours' time. Approximately one-fourth of the instructors are Korea veterans and have contributed in many ways to the training program by suggesting new techniques and methods now in use in Korea and which are now incorporated in the training syllabus.

It is much more difficult for the helicopter pilot to build up great amounts of flying time than it is for the average Air Force pilot, as most instruction periods run between 45 minutes and an hour. Each instructor is assigned a maximum of three students so that instruction both in the air and on the ground can be kept on a strictly individual basis.

Top pilot, from a standpoint of total logged time, is Capt. Joseph E. Barrett with 2000 hours. Captain Barrett and Capt. Willis R. Kusy, since transferred, took the instrument course of 60 hours at the helicopter instrument school of Los Angeles Airways recently and then set up the instrument course at San Marcos. This instrument course required much planning and effort as it had been assumed that helicopters were not well adapted to instrument flying. Now, all students in the school are given 10 hours of instruction in all phases of instrument flying.

In discussing actual flying technique the instructors brought out some interesting facts. They agreed that a pilot must fly a great deal by the seat of his pants and rely on feel. Control movements in a helicopter are extremely small and great care must be taken not to overcontrol. Considerable importance is attached to the sound of the transmission and the whine of the engine as aids to flying properly. Much can be determined from the many vibrations in the aircraft. Vibrations in the instrument panel or the stick are probably caused by the main rotor blades getting out of track while a vibration in the torque pedals may be attributable to a tail rotor drive shaft being out of line. Often it is possible for a pilot to come down from a flight and tell the crew chief what needs fixing merely from the sound or vibration.

When flying a helicopter, there are so many diversified things to be checked, both in and out of the cockpit, that a pilot must fly with his head on a swivel. Both hands and both feet must be used at all times for though the aircraft is equipped with trim devices to relieve stick forces, it is basically unstable and cannot be flown "hands off" for more than a minute. The instructors maintain that by learning to divide their attention tenfold in the helicopter, it makes "fixed wing" flying easier. They feel that helicopter flying is beneficial to conventional type flying. They should know because they also maintain 60-2 proficiency in conventional aircraft.

The most obvious difference noted by beginners is that whereas airspeed is so important in fixed wing aircraft, rotor RPM or wing speed is the important thing in helicopters. The RPM must be kept within the upper and lower limits between the green lines, though the actual RPM will differ in different types of aircraft. The tip speed of the rotor blade averages about 350 MPH regardless of type, while the blade RPM needed to attain this tip speed is determined by length of span or diameter of the rotor system.

The critical periods in flying helicopters are much the

Capt. H. F. Palmer and Col. William F. Stewart, Base C.O.

An instructor shoots some accuracy landings for practice.

same as for conventional aircraft. That is, after takeoff up to 400 feet and upon landing when below 400 feet. When above 400 feet there is time to set up an auto-rotation procedure for an emergency power-off landing but under that altitude it requires more and more proficiency to get the auto-rotation set up as the aircraft nears the ground.

It is possible to fly in any wind that the aircraft can buck. As wind increases, however, takeoffs and landings are far more difficult as the wind may blow a blade up and bend it before high RPM can be applied and stabilized. Heat and thin air make for poor operating conditions both in takeoff and hovering procedures and may cause a tendency to make hard landings.

The four controls used in flying the helicopter are the cyclic control, collective pitch stick, the throttle and the torque control pedals.

The cyclic control stick is located in front of the pilot as in conventional aircraft and is used to control direction of flight and airspeed. It controls all movements such as hovering, sideward and backward flight, turning and forward flight. The airspeed is controlled from zero to maximum by moving the stick back and forward.

The collective pitch stick controls the vertical flight by up and down movement on the stick which is located on the pilot's left. Raising the stick increases the pitch of the main rotor blades and gives greater lift; lowering the stick decreases pitch on the main blades and decreases the lift. This control keeps the blades turning at a constant RPM by coordination of the pitch and throttle, and is extremely important as the whole technique of flying helicopters rests on keeping a constant RPM for all maneuvers.

The throttle is operated by a synchronizing unit linking the pitch stick with the carburetor which increases the throttle setting as pitch is increased and a greater load is placed on the engine. If pitch is decreased, the throttle decreases proportionately. A motorcycle type throttle grip is built into the collective pitch stick which can override the automatic linkage and increase or decrease power if needed for an emergency or in the event of a malfunction of the linkage.

The torque controls correspond to rudder pedals on conventional aircraft and control the torque caused by the main rotor blade. This torque will induce the fuselage to rotate in the opposite direction of the main rotor and the torque pedals are used to control nose movement by increasing or decreasing the torque of the tail rotor blade. The more power used on the main rotor blades the more tail rotor thrust needed to neutralize the increased torque reaction.

By coordinating the controls and maintaining a constant rotor RPM, the pilot precludes the possibility of reducing centrifugal force to a point where the rotor blades will fold and allow the helicopter to enter free fall.

One of the most difficult and indispensable techniques that must be mastered is that of auto-rotation landings. Full auto-rotation is used if there is a partial loss of power or complete engine failure to bring the aircraft down safely without severe damage or injury. If handled properly, a helicopter in full auto-rotation can make a normal running landing with complete power failure. The nose is lowered to maintain forward speed and the collective stick set or lowered to a precept setting. This setting will hold the necessary blade RPM by changing the blades to an angle at which they will continue to turn up through aerodynamic forces. The rate of descent is fairly rapid, running between 1500 and 2000 RPM until about 50 to 75 feet above the ground. At this point, the nose is raised to kill the forward speed and a change in blade angle is made so that RPM is increased to slow the descent.

When very near the ground the collective pitch is raised which slows the aircraft up and enables it to settle slowly to the ground. Here is one of the most crucial moments in an auto-rotation landing. The collective pitch may be used only once. If the distance is misjudged and the pilot levels off too high, a pretty hard landing, to say the least, will result.

The ground school has two helicopter pilots as senior instructors, 12 airmen specialists who teach mechanics and engineering and Mr. Walter M. Morris, who teaches the history and theory of helicopter flight. Mr. Morris was originally assigned to the Sikorsky plant by the Army Air Corps in 1943 and collected material used in

establishing the first helicopter school at Freeman Field, Ind. in 1944, before coming to San Marcos to help set up the ground school now in operation.

Both Air Force and Army students are taught all theoretical and practical facts of helicopter flying and engineering as well as being thoroughly indoctrinated in the history and development of the aircraft. Air Force students also take a 21-hour course in first aid covering practical treatment of wounds and injuries under emergency and battle conditions. It emphasizes working with little or no equipment and is aimed more at emergency conditions which might be encountered on a battlefield pick-up than the usual first aid course. Students are taught to mix and administer blood plasma, actually practicing on each other, using glucose for the injection. They practice giving drug injections, substituting water, and are told when they may be safely used. They learn how to recognize and treat shock and coma cases, are taught pressure points and emergency bandaging and burn treatment, how to make and apply splints, how to recognize and handle various types of fractures and the correct way to move injured personnel. The latest methods of giving artificial respiration are demonstrated and practiced and the students learn some of the simpler medical terms necessary to understand the lectures fully.

The entire course covers all phases of emergency first aid and as Capt. Robert E. Hopkins, Base Flight Surgeon, puts it, "If we can make it possible for one of these pilots to save one life with his knowledge, the whole course is worthwhile."

One unique feature at San Marcos that requires special attention from a flying safety angle is the traffic pattern, or rather patterns. There are three separate patterns in operation at San Marcos at all times. One for base and transient conventional aircraft, one for the helicopters and one for the liaison training planes. If the liaison traffic gets too heavy there is a provision for a fourth landing area on the main base for them. The helicopters fly inside the conventional pattern and the liaison planes on the opposite side of the field. After takeoff the helicopters climb to 300 feet and turn on the crosswind leg; if they stay in the pattern they climb to 500 feet on the downwind and then descend to 300 feet again on the base. All landings must be made into the wind. In the pattern, ships are spaced at 100 yards and space themselves laterally when turning onto the final in much the same way as was used on the old grass field primary schools.

Instructors and students are thoroughly acquainted with their aircraft through practical experience and ground school but are still among the most checklist conscious pilots in the Air Force. This is due primarily to the easy accessibility to all parts of the plane and to the fact that there are so many moving parts that must be checked before each flight. Students use a comprehensive checklist before each flight and explain what they are doing to the instructor.

A unique system whereby the instructors can be checked to make sure they aren't overlooking anything in the preflight check was recently put into effect in the training squadron. A helicopter is put on the line with a number of deliberate discrepancies such as disconnected lines, bolts and nuts installed backwards and not safetied, fuel and oil caps left off or disconnected drive shafts. The instructors are then given a paper and pencil and individually sent out to note down all the discrepancies they can find. Anyone who misses one or more items receives a check to make sure he still knows his aircraft. The tests are run infrequently so that it doesn't get routine; the results might warrant its adoption by other Air Force units as a flying safety aid.

All new instructors when reporting in are put through a refresher course for standardization and proficiency that lasts from five to thirty hours, depending upon the present proficiency of the individual. After completing the course, which is usually given by the flight leaders, the new instructor is given a check ride by the operations officer or the supervisor of flying.

The base Flying Safety office has representatives from both the liaison and helicopter program as well as pilots of conventional aircraft so that they can plan a program

Both hands must be used constantly in the helicopter. The left hand is on the collective pitch stick and throttle.

Clam shell doors make the H-19 engine readily accessible.

Practicing an emergency airlift with the H-19.

that will be of value to all three types of flying done at San Marcos. Special methods and devices are necessary as much of the flying done there presents problems and special needs far different than other Air Force installations. San Marcos is probably the only Air Force base in the world, for example, that has two helicopters assigned for all off base accidents. One guides the convoy and the other carries the Flight Surgeon to the crash.

There are four types of helicopters in the instruction program: the H-19, which is the largest, and the H-5, H-23 and H-13 in descending order of size. All controls have been standardized to make for simplification in flying them and for ease in transition from one to another. The H-19, the newest aircraft in the program is capable of carrying six fully equipped troops or six litter patients and an attendant. It has a gross weight of 7500 pounds, 185 gallons of usable fuel and is powered with a PW 1340-57 (T-6) engine.

Maintenance is handled by a separate squadron, with each helicopter having an experienced crew chief and crew. Most crew chiefs are graduates of the Air Force or a factory maintenance school. The engineering section feels that it has problems unique in the maintenance field. Much of the work is directed toward preventive maintenance with the opinion expressed that a helicopter takes about three times as much work of this nature as the average conventional aircraft.

The engineering test pilots liken themselves to doctors in that they spend much of the flight time in diagnosis of malfunctions. This diagnosis takes the form of "beat" analysis or "beat" tempo. These "beats" and vibrations determine what part is malfunctioning. For example, this is the system used to determine if the main rotor blades are out of balance. If the beat is one to one, that is, one vibration for every revolution of the rotor head, it means that one blade is out of balance; if it is two to one, it means there are two beats per revolution of the rotor and two blades are out of balance. Blade balance must be within tolerance and is easily thrown off. After an adjustment to balance the blades, a change in weather or atmospheric pressure and humidity may require that the blades be re-balanced before the aircraft can even be flown. If one blade absorbs more water than the others it will become heavier and necessitate a re-balance job. Fortunately, helicopters have very little engine trouble but, as one engineering officer stated, "Everything on the helicopter turns, twists or rotates; each case is different and requires a new fix we never tried before."

All in all, it is evident to those who have visited San Marcos that the helicopter has arrived. The program undertaken there is turning out fully qualified, highly skilled pilots who are utilized in an amazing variety of operations.

Col. William F. Stewart, the base commander, summed up the future possibilities of the helicopter by stating, "The helicopter as we know it today is an infant from the standpoint of years, since it has been successfully operated by the Air Force for only the last eight years. Still, modern engineering has produced a new tool that has proven itself in the Korean operation alone.

"It is an aircraft without competition in rescue operations and for precision delivery of supplies in areas that previously have been inaccessible for any type of aerial delivery other than by parachute. The future versatility and eventual payload capability is exceedingly promising."

TEN COMMANDMENTS
for Helicopter Flying

He who inspecteth not his aircraft gives his angels cause to concern him.

•

Thou shalt not become airborne without first ascertaining the level of thy propellant.

•

Let infinite discretion govern thy movement near the ground for thy area of destruction is vast.

•

Thy rotor RPM is thy staff of life. Without it thou shall surely perish.

•

Thou shalt maintain thy speed between ten and four hundred feet lest the earth rise and smite thee.

•

Thou shalt not make a trial of thy center of gravity lest thou dash thy foot against a stone.

•

Thou shalt not let thy confidence exceed thy ability for broad is the way to destruction.

•

He that doeth his approach and alloweth the wind to turn behind him shall surely make restitution.

•

He who allows his tail rotor to catch in the thorns, curseth his children and his children's children.

•

Observe thou this parable lest on the morrow thy friends mourn thee:

Safety dwells with the safest man
who flys his bird as safe as he can.

Flying the Zero Reader

Keep the Cross Pointers Lined Up And Let the Zero Reader Do the Rest

THE F-94B is the first USAF production aircraft to come equipped with the new Zero Reader. Its great boon to the pilot is that the equipment greatly simplifies precision flying. While the Zero Reader is not intended to take the place of the high performance gyro-pilot, it does enable the pilot to navigate an aircraft manually with a degree of accuracy, precision, and ease that approaches the performance of automatic control.

The Zero Reader is a gyroscopic flight instrument for aircraft which takes the type of information usually supplied by the gyro horizon, directional gyro, magnetic compass, sensitive altimeter, and cross-pointer meter and presents this information to the pilot on a simple two-element indicator in a form which tells him directly how to move the controls.

Except for application of propulsion power, there are only two directions of flight in which an aircraft can be guided. It can be steered right or left, and it can go up or down. If these two things are done correctly, the pilot can engage in the most precise instrument flying, navigation, aerial traffic, radar interception, low ceiling approaches, landings, or do any other thing he wants to do with the aircraft, provided that he sets the power to give the desired speed and range.

Based upon this fundamental concept, the two pointers of the Zero Reader tell the pilot precisely how to move the controls to accomplish a pre-set maneuver.

The revolutionary fact is that under certain conditions, the Zero Reader allows the pilot to fly with almost the same precision as the gyro-pilot. The pilot, flying manually, has had to use readings of five disconnected basic flight instruments. He has had to take these five ever-changing values, piece them together and continually calculate mentally how he should move the controls. The Zero Reader automatically does all the mental calculating and interpolates the altitude, attitude and direction of flight into two simple indications of up or down and right or left.

The five instruments which are in use today and the type of signals which actuate the Zero Reader are the horizon, directional gyro, magnetic compass, sensitive altimeter, and the cross-pointer meter. Modern aircraft in which the Zero Reader comes as standard equipment incorporate the Gyrosyn Compass instead of the directional gyro and magnetic compass in the flight instrument group.

The signals from this group of flight instruments are applied to the two-element indicator of the Zero Reader as shown in Fig. 1. The vertical steering pointer is permanently actuated by the Gyrosyn Compass signal and the bank signal obtained from a vertical gyro. VAR and VOR signals may be switched onto the vertical steering pointer by tuning into a desired radio facility. The pilot can then home into the radio facility by reading the vertical pointer needle. If the vertical needle reads left, the correction is to the left until the needle begins to swing toward the center. The correction is always made in the direction of the side to which the needle is deflected.

The horizontal pointer on the Zero Reader is permanently actuated by a pitch signal from the vertical gyro. By switching, the pilot can select and add onto the horizontal pointer either a constant altitude signal or the glidepath signal of an Instrument Landing Approach System. For example: a pilot levels off at 20,000 feet. If he wants to home into a VAR station at 20,000 feet, he selects the proper frequency for that station, and

watches for the vertical pointer to deflect and indicate the direction of the beam track. If he intends to stay at 20,000 feet he sets the horizontal pointer manually on zero while flying level at 20,000. All deflections of the horizontal pointer will be corrections in pitch necessary to maintain level flight at 20,000. (Fig. 2). At will, the pilot may switch the horizontal pointer to the radio facility and receive indications of pitch correction necessary to fly into the glidepath.

In Figure 3 are shown the three conditions which will cause the vertical pointer to indicate "steer right." If the aircraft yaws left, it says *steer right;* or if the left wing goes down, it says *steer right.* If the radio track signal shows the aircraft is to the left of the beam it says *steer right.* Of course the same conditions in the opposite direction will indicate *steer left.*

The horizontal pointer shows the sensing of "up and down" as illustrated in Fig. 4. There are three conditions which will cause the pointer to indicate "nose up." If the aircraft noses down, the pointer says nose up. If the aircraft gets below its reference altitude or below the glidepath, it says *nose up.*

There is a relationship of the yaw, bank, and radio signal while the aircraft is flown to the radio track by keeping the Zero Reader on zero *(Figure 5).* For instance, the aircraft is to the left of the beam, which means it must be flown toward the right to get on course. The heading selector of the Zero Reader is set to the magnetic heading of the beam. As the aircraft is banked to the right toward the beam, the bank signal says *steer left.* This cancels the *fly right* radio signal and allows the Zero Reader to be zeroed. Holding it on zero in a bank, however, causes the aircraft to turn toward the beam. The yaw signal which results, as measured by the Gyrosyn Compass, says *steer left,* just like the bank signal. The radio signal decreases as you get nearer the beam. The sum of the bank-left signal and the yaw-left signal exceeds the fly right radio signal so the Zero Reader says *steer left.* The pilot removes bank to keep zeroed. These three factors decrease continuously as he keeps the Reader on zero, but he doesn't realize it. As long as it is kept zeroed, the sum of the bank signal and the yaw signal always equals the radio track signal. The result is a smooth, graceful curve onto the beam without hunting or overshooting.

In the Zero Reader, there is a pointer response never before built into any other flight instrument. When the pointer is off zero a little, the controls are moved to fly the aircraft in that direction. Immediately the pointer returns to zero. No anticipation is required on the part of the pilot. The pointer moves—he applies a little pressure; it moves back to zero—he releases the pressure. Literally, the pilot becomes a human servo in an otherwise automatic system.

The following are the instrument flight procedures as established by Wright Air Development Center and which are included in the Pilot Operating Instructions for the F-94B.

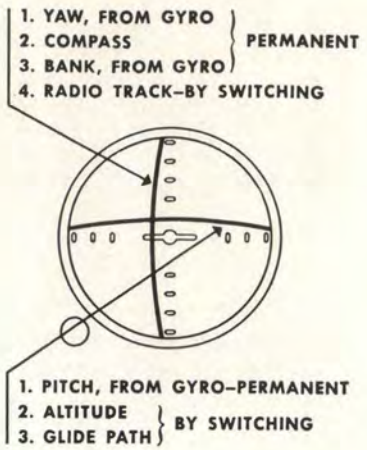
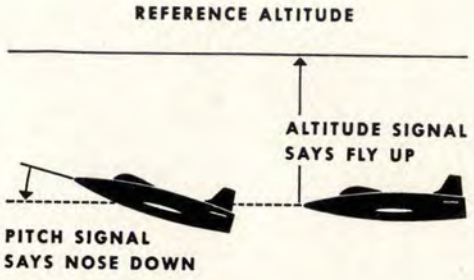


Fig. 1



ALTITUDE SIGNAL ALWAYS = PITCH SIGNAL WHEN YOU KEEP ZERO READER ON ZERO

Fig. 2

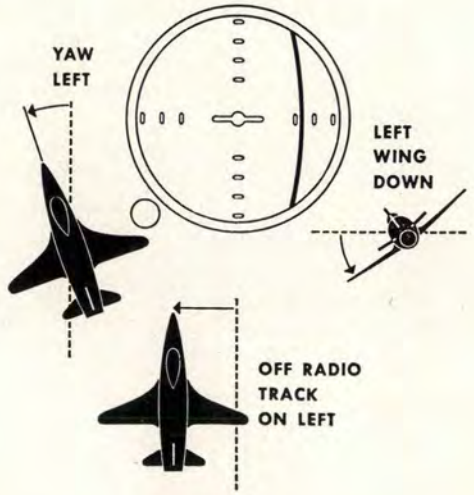


Fig. 3

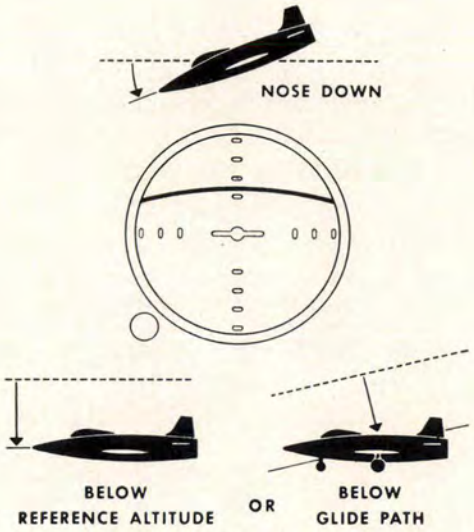


Fig. 4

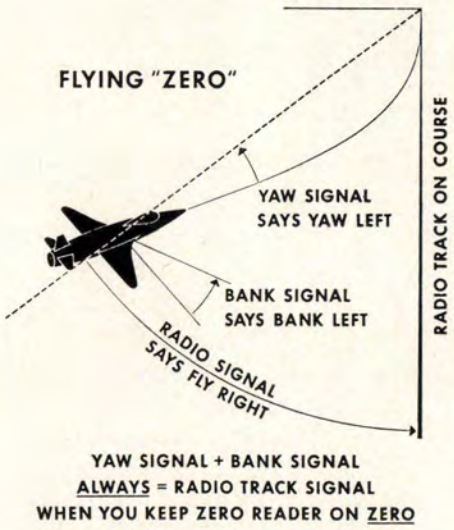


Fig. 5

Before launching into the procedures, remember this:

• Set the Zero Reader controls for the flight path you wish to follow.

• Keep the Zero Reader centered by moving the stick and rudder.

• Monitor the action of the aircraft with the basic flight instruments in order to be sure that the aircraft follows the flight path set up on the Zero Reader controls. Crosscheck!

INSTRUMENT TAKEOFF

• Set Zero Reader Selector switch to "Flight Inst."

• When taking off with the aid of a localizer, set the selector switch to (BLUE) "RIGHT" if taking off on the approach heading, or set it to (BLUE) "LEFT" if taking off on the reciprocal of the approach heading.

• When taking off on approach heading, expect vertical needle oscillation when passing over localizer transmitter.

• Set heading selector double pointer to coincide with heading needle.

• Set horizontal bar of Zero Reader indicator for two increment fly-up signal.

Taxi into position and start takeoff using normal procedure.

Maintain direction by holding vertical bar on zero.

CLIMB AND LEVEL-OFF

Lift the airplane off the runway in the normal manner and zero the horizontal bar. The two increment fly-up setting will automatically provide a safe and efficient climb. At approximately 2000 feet above terrain, lower nose slightly and accelerate to best climbing airspeed. Adjust the horizontal bar to center with trim knob. Keep the horizontal bar zeroed at best climbing airspeed. When the new altitude is reached, turn the altitude control switch "ON." Re-zero the horizontal bar with the airplane. Return the pitch attitude trim knob to its normal vertical position. Set the heading selector to the new heading. The vertical bar of the zero reader indicator will be deflected in the direction in which the turn is to be made. Zero the vertical bar, and keep it zeroed. The airplane is on the new course when the compass needle and heading selector coincide. The maximum amount of heading to right or left that can be selected at a time is approximately 150°. If more than 150° is selected, an opposite turn or roll indication will be presented.

MAKING THE DESCENT

Check the altitude control in the "OFF" position before start of descent. At the desired airspeed, zero the horizontal bar with pitch trim knob, then keep the horizontal bar centered at desired airspeed. When the new altitude is reached, turn the altitude control switch "ON," and re-zero the horizontal bar with the airplane, and, finally, return the pitch trim knob to its normal vertical position.

Only the instrument takeoff, cruise and descent procedures for the F-94B are shown here to aid in familiarization with the Zero Reader. For further use of the Zero Reader in this aircraft, consult the Pilot Operating Instructions for the procedures to be used for letdowns, interceptions, penetration procedures, and instrument approaches.

Remember,—the Zero Reader is a precision instrument, but do not allow yourself to concentrate exclusively on the Zero indicator. Always keep cross-checking your basic instruments.

The Western Air Defense Force is Responsible for the Protection of More Than

A Million Square Miles

ELEVEN western states . . . more than one million square miles . . . "home" to upwards of 23 million people.

That's the responsibility of the Western Air Defense Force, which is charged with the air defense of the area. WADF is the western "partner" of the three-team Air Defense Command, led by General Benjamin Chidlaw, with headquarters at Colorado Springs, Colorado.

The Central Air Defense Force and the Eastern Air Defense Force complete the far-flung air defense triumvirate.

WADF, with headquarters at Hamilton Air Force Base, Calif., is commanded by Major General Walter E. Todd. Units under WADF conduct a four-phase program to nullify or reduce the effectiveness of any possible enemy air action, either by aircraft or guided missiles.

First of all, WADF, through its many aircraft control and warning stations, must detect all aircraft entering or flying over the region. The Ground Observer Corps, made up of civilian volunteers, cooperates in this job by manning observation posts which augment the military radar stations.

Then, by identifying and intercepting the aircraft, determination is made as to whether the aircraft are "friendly" or otherwise. If, upon identification, the planes are determined to be hostile, fighter-interceptor and anti-aircraft units must attempt to destroy the "invaders."

A lesser known, but nonetheless vital function of WADF is assisting with Civil Air Defense, and its military and civil air raid warning setup. This, primarily, is a communications system established in cooperation with civil communications authorities to flash, in the event of an air attack, the initial warning to key air raid warning centers in each state within the WADF area.

In addition, WADF must coordinate its operations with the Western Army Anti-Aircraft Command; participating units of the Navy, including the Marine Corps and Coast Guard; Federal Civil Defense Administration; state civil defense organizations; the Civil Aeronautics Administration, and miscellaneous other military and civil organizations.

Because of the peculiar nature of the joint civilian-military endeavor which is the Ground Observer Corps (GOC), responsibility for it is divided two-fold. The state civil authorities are responsible for the adminstration of the program and the recruitment of necessary personnel. The Air Force is responsible for the tactical

operation of the GOC and must organize components and train personnel.

The GOC is made up of two components—observation posts composed of aircraft spotters, and the filter centers where reports from the observation posts are received, correlated and evaluated. Operational control of the filter centers is vested in an Air Force officer, who with his small military staff, directs the centers' activities.

In WADF, the five Air Divisions must seek out all aircraft approaching and entering a specific area, and identify them as either friendly or enemy.

All information of aircraft approaching the area or in the area is funneled from the radar stations, observation posts, and filter centers to the Air Defense Control Center. There, a record is kept of the actual position of each aircraft in the area. In case of an emergency, such as an unidentified aircraft, an alarm is sounded and the Center immediately notifies the interceptor squadrons.

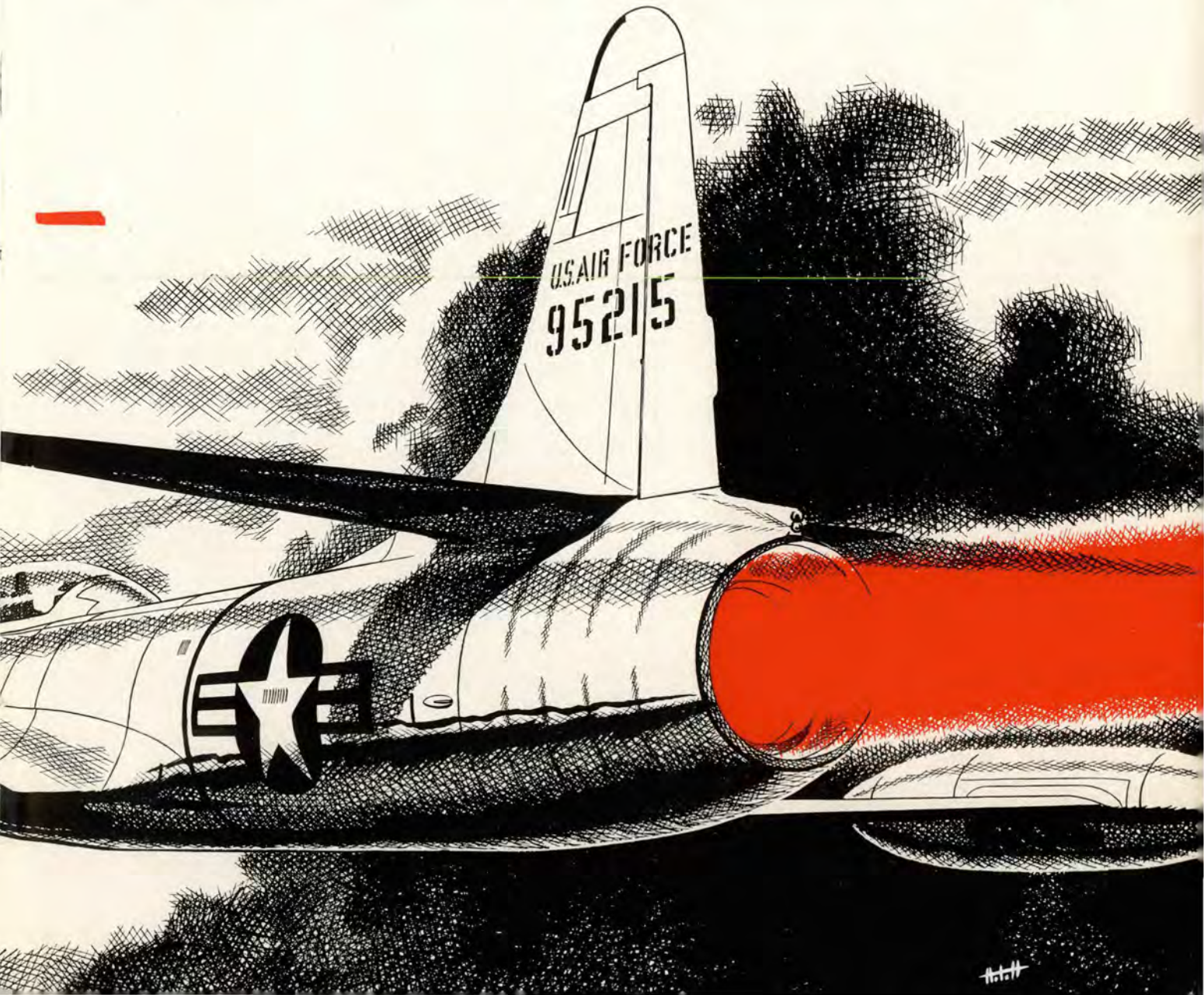
The squadrons, which are on a 24-hour alert, "scramble" and intercept the aircraft. During this time the Anti-Aircraft Command also has been notified and alerted. Anti-Aircraft serves as a local defense weapon, augmenting the fighter-interceptors, which are area defense weapons.

And while complete cooperation with these many defense agencies is a "must," WADF operational squadrons constantly are engaged in a stepped-up training program for all units and individuals assigned.

This many-faceted defense job calls for many types of aircraft, built and maintained to perform specific air defense missions. As a result, the WADF flying safety program must be directed at pilots who fly the F-89, F-94, F-86, F-84, and F-51 type tactical planes, as well as the T-33 and the "old standbys"—C-47's, T-6's, B-25's and T-11's.

Despite the divergence in types of aircraft flown in WADF flying safety is being furthered at an ever-increasing tempo. Accident statistics, constantly on the wane, prove that an intelligent flying safety and accident prevention program can be accomplished despite many obvious problems.

The classic example of a WADF unit which overcame more than its share of obstacles in chalking up a perfect



In Air Defense Control Centers such as this, each aircraft which enters a specific area is plotted on the plastic board. All intercept orders are issued from this point.

accident record is the 82nd Fighter-Interceptor Squadron, now stationed at Larson AFB, Washington.

More than nine months have gone by since the last accident was marked in the 82nd's books. During that period, the squadron has completed transition from one type of jet fighter to another, and has undergone a complete physical move.

The 82nd was originally stationed at Hamilton, and was equipped with F-84's. While there, the squadron had five accident-free months. Then, transfer orders came out on 1 February 1952 sending the unit to Larson and also ordering the switch to F-94's.

One T-33 was provided, and a few F-94's soon arrived. So, along with the problems of moving, the squadron also had to contend with the problems incumbent with the plane changeover.

As the changeover was being made, the squadron maintained a flying time average that was equal to other units in WADF, and remarkably ahead of many units which were fully equipped.

This enviable record did not go unnoticed. In April, at the completion of eight months of accident-free operations, Major General Todd wrote the following message, which has received command-wide distribution:

> "In studying the Western Air Defense Force accident rate through the months, I have noticed, with pleasure, that of all our tactical units the 82nd Fighter-Interceptor Squadron is conspicuously absent. I would like to take this opportunity . . . to extend my congratulations to Lieutenant Colonel Walter G. Benz, Jr., and his men for their accident-free record throughout the past eight months.
>
> "My appreciation for this outstanding record is well justified in that during this period the 82nd F-1 squadron was required to move to a new base at a time when they were to be re-equipped with a new type aircraft and supporting equipment. Both the pilots and the maintenance personnel are to be lauded for their ability to perform under adverse conditions without detriment to their efficiency and skill."

Such an outstanding accident record is testimony that the personnel of the 82nd have made flying safety a full-time job. But, the record hasn't been an intra-squadron deal. Helpful direction from command level has been much in evidence in the 82nd and other units of WADF.

Immediate supervision comes from the WADF Director of Flying Safety, Capt. Rexford W. Parfitt. Captain Parfitt edits the *WADF Accident Review*, a comprehensive booklet which lists the overall accident rate for the command, each unit, each type of aircraft, accident cause factors, and a resume of each accident occurring in the command during the preceding month.

In addition, Parfitt's office sends out tips to all unit Flying Safety Officers, original cartoons, notices of pertinent publications, and other flying safety information. Undoubtedly, the *Review* and the intelligent accident prevention program in use throughout WADF have had a marked bearing on the steadily-decreasing command rate, particularly in fighter type aircraft.

Such a record is indicative of a general command-wide "accident-consciousness." The feeling begins at the top, and is apparent down on the flight line, which is the only way a successful flying safety program can be conducted.

For example, Air Defense Command Headquarters has started a new accident potential reporting policy, which has been used at some bases.

The report, "Commander's Estimate of Accident Potential," establishes a monthly procedure which will reflect the commander's estimate of the aircraft accident potential, provides current information on factors affecting the potential, enables ADC to take timely corrective action, and informs ADC of action taken to reduce the potential.

Commanders must also include information regarding the adequacy and effectiveness of operations and training procedures, supervisory personnel, facilities, maintenance procedures, airfields, the accident prevention program, and specific accident hazards.

In addition, wing and squadron commanders include a narrative of aircraft accident prevention activities for the month, the percentage of eligible personnel attending aircraft accident prevention meetings, number of meetings held and subjects covered, and a comparison between the potential accident rate and the actual rate.

This new report, which will help in the never-ending

battle against accidents before they happen, is a good example of a top-level accident prevention program. But, in order to make it work, the commander must have the full cooperation of all his personnel.

Since WADF's mission must depend on the wholehearted cooperation of Air Force, Army, Navy, and civil agencies, it's appropriate that the steadily-decreasing WADF accident rate should be the result of cooperation within its own units.

Some of the Flying Safety Officers in WADF have a saying which just about wraps it up—

"A successful accident prevention program is no accident!"

ALL OUT FOR SAFETY

ORIGINALITY, ambition, patience and cooperation have marked an extensive flying safety campaign in the 146th Fighter-Bomber Wing, George Air Force Base, California.

Capt. Dave Johnson, Flying Safety Officer, has launched a program that has been unique, novel, and extremely thought provoking.

Captain Johnson enlisted the aid of the wives of most of the Wing's flying officers to get across his flying safety message.

When Col. Earl H. Dunham, Wing CO, sat down to breakfast one day, his plate was upside down. When he turned it over, he found a flying safety cartoon that urged all pilots to practice instrument flying.

Other members of the Wing found cartoons in their shoes, tacked up on the bathroom walls, stuck in flying equipment, wrapped around the steering wheels of their cars, and in other strange and unusual places. And, Captain Johnson reports that the program has really caught on.

Captain Johnson explains it this way:

"We found that nothing beats the picture, and a comical picture if possible, in conveying a message of flying safety. We could have two or three cartoons weekly, but decided on one per week so as not to overwork the idea. We have enough usable ideas to last for one full year.

"The beauty of this program is that we don't have to depend on outside mail for our posters or cartoons. We can devote the entire output to our basic airplane, the F-51, and we can use local situations. Almost every base undoubtedly has someone who is handy with a pen and can turn out cartoons. All you have to provide is the idea . . ."

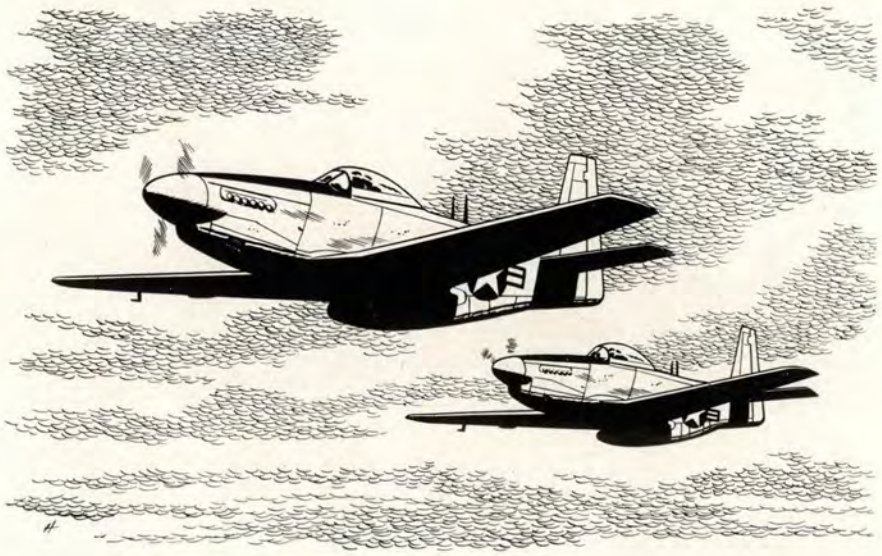
The flying safety cartoons at George AFB have been distributed just about everywhere on the base. They've been wrapped around the control stick, placed on the seats of the Unit's F-51's, and looped around clothing locker handles.

In addition to the cartoon bombardment, the flying safety office has utilized motion pictures of an actual preflight inspection (taken without the knowledge of the pilot), tape recordings, and a weekly flying safety newspaper called the *Dope Bucket*.

One of the most popular cartoons of the series was the one honoring crew chiefs, mechanics and other line personnel. The cartoon depicted a mechanic holding a pilot aloft in his hands. The message accompanying the picture stressed pilot dependence on the mechanic.

Captain Johnson concluded his letter to us by saying:

"We are trying to personalize the flying safety program here to make it enjoyable to pilots. We want pilots to look forward to the publication and distribution of material. We want pilots to expect—and receive—a good and an interesting flying safety meeting."



"Individual initiative of the pilots trained by our Air Force has been our most significant weapon — both in World War II and in Korea."

Profile of a Pilot

Meet Col. "J. C." Meyer, One of the USAF's Greatest Aces Who Has Recently Returned from a Second "Hitch" as a Combat Pilot.

AFTER two combat stints and a dozen years of flying, one of America's greatest living aces is convinced that panic in the cockpit is the chief enemy of flying safety.

"Panic," says Col. John C. Meyer, who scored 37½ victories in World War II to become the leading ace in Europe and shot down two MIG-15's in Korea for a current total of 39½, "turns emergencies into accidents, minors into majors and majors into fatals."

The 33-year-old Director of Operations and Training for Air Defense Command can recite chapters and verse to support his contention. One instance in Europe, in which panic cost him a wingman, stands out particularly: The colonel was leading a flight north of the Frisian Islands when the wingman lost his coolant and turned south for Antwerp, then in British hands. Soon after he left the formation, the engine quit. Using approved procedure, the pilot called RAF Air-Sea Rescue.

"But," says Meyer, "in his panic he forgot to switch from the tactical channel. We tried to break in and straighten him out but he was chattering constantly. At last he gave a final fix and said he was bailing out. Only then could I get through to tell him he was using the wrong channel. I'll never forget his comment. 'I would pick a time like this to foul up,' he said. We never heard from him again, although I'm certain he'd have been picked up if he hadn't become panic-stricken."

One of the few military figures who has won the Distinguished Service Cross three times, Meyer believes that circulation of unwarranted stories that some aircraft have built-in accidents contributes to cockpit panic. The ace, whose own experience with U. S. equipment ranges from the old BT's through the supersonic X-5 and, surprisingly for a fighter man, includes checking out in the B-36, likens the spread of such stories to character assassination.

Meyer believes that the airplane with a bad reputation, flown by a pilot who fears it, creates a situation tailor-made for an accident. Just such a situation, he feels, produced a fatal accident at Mitchel Field, Long Island, when he was first stationed there before the war.

The P-39 had acquired a vicious reputation for having a built-in runaway prop. "One of our pilots had his prop go out at 3000 feet right over the field," Meyer says. "He had time and room to get down. But instead, he panicked and went straight in."

Even the old P-47 had its detractors, the ace recalls. "One blew up in formation while we were at Mitchel and another took off and vanished completely. These two incidents were enough to place some of our pilots on the verge of refusing to fly the aircraft.

"Then, one of our boys caught fire on takeoff. He refused to panic, landed wheels up and got out without a scratch. We traced the fire to an exhaust clamp. Daily inspection eliminated the trouble but our greatest benefit from that flight was to morale. Our pilots saw that an

Now and then: At left below, Col. J. C. Meyer is flanked by associates in Air Defense Command's Directorate of Operations and Training. Right, as he appeared in his F-51 when his 37½ victories made him the leading ace of the European Theater.

emergency could be handled and they lost their fear of the airplane."

The loss in lives and the dollar loss represented in equipment require that flying safety be the constant concern of everyone in the Air Force, the ace asserts. But, he adds, the approach to flying safety must be positive.

"In recognizing flying safety as an extremely important element of Air Force responsibility," he says, "I believe we should avoid any approach that is based on the psychology of fear. We must be careful that in keeping the specter of burning and disintegrating aircraft before our pilots, we do not create fear neuroses. In my opinion, any method that results in a pilot's considering himself blessed by good fortune to complete a flight successfully is wrong."

The only certain way to arrive at the optimum of flying safety is to stop flying. But the suggestion is absurd. An Air Force exists fundamentally to fulfill a combat mission if the need arises and this mandates realistic training methods with their inherent risks. Colonel Meyer sees the key to meeting this obligation as the marriage of the ultimate combat requirement with flying safety. Like any marriage, to be successful, it requires compromises by the contracting parties.

Meyer thinks it significant that between 4 August 1950, when he took command of the Fourth Fighter Group, until it was alerted for movement overseas to the war in Korea some three months later, the Group had seven major accidents and three fatalities. But from the time the Fourth arrived in Japan to get ready for combat against the MIGs until Meyer left for the States in June, 1951—a period of approximately seven months—the Group did not have a single fatal accident.

"In all that time we paid little attention to flying safety in the ordinary sense of the word," the ace says. "Yet, conditions invited accidents. The weather was worse than any we would encounter in the States, and we operated from one base that would be considered hazardous by any Stateside yardstick. But our pilots were growing in skill and experience due to the combat requirement and they were equal to any emergency. They proved this to me one day when we were operating out of K-13 in Korea. We had seven flameouts in the landing pattern, returning from a mission, and everyone brought his F-86 in safely."

Planning a flight, Colonel Meyer is helped at home by family.

The colonel feels that the Fourth Group reached an effective compromise between the combat requirement and flying safety. "We made our training as realistic as we could and we stressed the fact that safety flowed naturally from skill," he says.

Once a week the Fourth required each pilot to get into an F-86 jacked up in a hangar and go through all emergency procedures. Particular emphasis was placed on airborne starts. The training paid off richly for one pilot who made three successful aerial starts one day, the last at an altitude of 2000 feet. The Fourth also placed heavy stress on blindfold cockpit checks. "They were habitual with us," says Meyer, "and I think the word, 'habitual,' cannot be emphasized too strongly. I believe cockpit checks should be habitual and not occasional."

Considerable benefit was derived from the Fourth's "potential accident" program, the much-decorated flier believes. In essence, the program required each pilot to report any unusual incident he encountered that might have led to an accident. These "unusual incident" reports, as they were known, were screened weekly at squadron level and passed on to Group Operations. There they were probed for similar and repetitive patterns. Faulty fuel regulators came to light through this procedure. "Since it is much easier to determine the cause of potential accidents," the colonel says, "we required each one to be investigated as if it were the real thing."

There is an old saw to the effect that not only are fighter pilots born but they are born with "the eyes of a hawk, the cunning of a fox, and the heart of a lion." This may be, but "J. C.," as Meyer is known wherever Air Force men gather, believes his own career stems from his aversion to New York's subway.

Although born in Brooklyn on 3 April 1919, Meyer's native habitat is Long Island, specifically Kew Gardens and Forest Hills. He received his primary education at the Kew-Forest School and his secondary education at Peekskill Military Academy, some 50 miles north of New York City, which he attended for two years, and at Mercersburg Academy in Pennsylvania which he attended for two years also, and which graduated him in 1937.

The fighter pilot in Meyer did not emerge at Peekskill or Mercersburg. His interests at both places lay in soccer, swimming and lacrosse, and he made teams in all three sports. At Mercersburg he developed a further interest in debating and earned a place on the Academy team.

Nor was the ace in Meyer evident during his first two years at Dartmouth College, in Hanover, New Hampshire. His future was determined by events of the summer of 1939 and particularly by the subway which he had to ride daily to and from his work as a bank runner in Manhattan.

The future ace took his first airplane ride in primary at Parks Air College, East St. Louis, Illinois. He absorbed basic at Randolph then moved on to Kelly Field where he won his wings in July, 1940. Next stop was Instructor School back at Randolph, and then he was sent to Montgomery, Alabama, where he taught basic at both Maxwell

and Gunter Field until May, 1941. From there, young Meyer shipped to Mitchel where he was assigned to the 33rd Squadron of the 8th Pursuit Group. His commanding officer was Maj. Frederic H. Smith, Jr., now a Major General and Vice Commander of Air Defense Command.

Within a month of his reporting at Mitchel, the outfit was moved to Iceland. Meyer spent the next 13 months there as a "flight commander most of the time and a controller part of the time." As the former, in August, 1942, he was leading six fighters which shot down the first German aircraft to fall to U. S. guns in aerial combat in World War II.

The pilot who later would establish a reputation for supreme coolness under fire was noticeably apprehensive on this first contact with the enemy. The queasiness was generated not by fear but rather by uncertainty. The target was a four-engine Folke-Wulf on a reconnaissance mission. Two of the flight spotted it and bored in, guns blazing.

"I took a quick look and it scared hell out of me," Meyer recalls. "I'd only seen one four-engine, cargo type airplane before and that was the C-54 which President Roosevelt and General Marshall used. I was sure this was the C-54 and that they were in it. I yelled, 'don't shoot!' a couple of times but I was too late. The boys caught the airplane on the first pass and it went down, burning like a torch. I guess I still wasn't convinced that it was German until I examined the wreckage where it hit in Reykjavik Bay."

A long time would elapse before Meyer would see another German aircraft. Upon his return to the States from Iceland, he activated the 487th Squadron in the 352nd Fighter Group at Westover Feld, Mass. The squadron was stationed variously at New Haven, where the young commanding officer was given his tracks, at La Guardia Field and at Mitchel.

In July, 1943, the group was shipped to England. It was based at Bodney in East Anglia, about 20 miles from Norwich. Except for approximately seven weeks at the time of the Battle of the Bulge when the 352nd was moved to Belgium, Meyer flew all of his missions from Bodney.

His first mission, in September 1943, a fighter sweep over the French coastline, coincided with his promotion to major. Two months and 26 missions later he shot down his first enemy plane. In April, 1944, now definitely an ace, he was elevated to lieutenant colonel. By 1 June when he returned to the States for a month of rest and recuperation, he had scored 19 victories.

Upon return to England, Meyer was made deputy group commander. The air war was then being pressed home to the German heartland and the Mustang-equipped 352nd was making deep penetrations. It also was stirring up concentrations of ME-109's and FW-190's. Meyer made the most of the combination and approximately six months later, when the first phase of his combat career ended, his victory total stood at 37½ and he was recognized as one of the all-time great aces.

Colonel Meyer flew 150 missions in World War II and not once in aerial combat was his aircraft damaged or

Aces Rickenbacker and Meyer attend "Capt. Eddie" premiere.

was he injured. He was wounded slightly, however, by ground fire while strafing a bridge in France. His battles are story classics in themselves. On one mission he knocked down four German fighters; on another, three, and two on a third, receiving the Distinguished Service Cross for each. The last mission was, he believes, the most memorable and indirectly resulted in eliminating him from further combat.

On 1 January 1945 the Luftwaffe made its last desperate bid to destroy Allied air power. Some 600 German fighters attacked Allied air bases in the northeast sector of the front. Approximately 50 hit the 352nd's base in Belgium just as Meyer was rolling down the runway to lead a 12-ship formation on a sweep. All 12 managed to get off the ground and destroyed 23 of the attacking aircraft, 16 within a mile and one-half of the field. Meyer's formation lost two ships but both pilots bailed out successfully.

"One of our boys," Meyer says, "got airborne and knocked down two as he was climbing out. A third jumped him and knocked out his oil line. But before the engine went dead he maneuvered successfully to the rear of the attacking aircraft and knocked it down. When his engine quit, he headed for the runway and on the way in shot down a fourth German who had crossed into his sights. He landed dead-stick in the middle of the runway. He had shot down four airplanes and had logged exactly five minutes of flying time!"

Eight days later a trolley car succeeded in putting the

leading ace of the European Theater out of action, a feat the Luftwaffe had found impossible.

When the impact of the American victory reached Ninth TAC Headquarters, Meyer was ordered to Paris to make a recording describing the battle. He wangled a 72-hour pass to accompany the directive and jumped at the chance for three days in the French capital.

He took off in weather that, he says, "would make the Flying Safety people turn scarlet." As soon as he was airborne he knew he had made a mistake. "I got scared," he reports, "and that is no exaggeration. I was more interested in getting down in one piece than I was in the 72-hour pass in Paris. I don't think I ever sweated so hard. But I was lucky. I spotted the air base at St. Trond through a hole in the stuff, so I peeled off and landed there."

The weather was so foul that there was no chance Meyer could get out that day. With time to kill, he accepted an invitation to ride to the officers' club. The club was located outside of the base and an interurban trolley crossing cut through the road leading to it.

Traffic was moving at a creeping pace over the icy road and Meyer's car was stopped more often than it was moving. It came to a stop finally with the rear wheels on the trolley tracks. At that moment the interurban, barreling along at considerable speed, crashed into the rear of the automobile.

Meyer saw the trolley in the instant before the crash and instinctively opened the door to jump. He didn't make it. Both legs were smashed almost beyond repair. He spent the next three months in hospitals in France, England and the United States.

On 4 April 1945 a day after the medics discharged the ace, he married WAVE Lt. Mary Moore of Ft. Lee, New Jersey, who had been stationed at Mitchel. They since have experienced so many moves that they would have no difficulty qualifying for life membership in any society of nomads. The moves are reflected in the birthplaces of their three children. Peter, 6, was born at Mitchel; Christine, 4, at Hanover; and John C. Jr., 2, entered the world at Bolling AFB Hospital in the Nation's capital.

During the first post-war months, Colonel Meyer was assigned successively at Suffolk, Long Island, Melville, New Jersey, Mitchel Field, Tampa, Fla., and Riverside, Calif. After a short tenure of three days at March AFB, he was ordered to Washington to help organize Air Force Association wings throughout the country. When this assignment ended, he was sent back to Dartmouth, seven years after he had left the campus. He received his degree in political geography in February 1948.

Between the time he received his degree and his assignment to the Fourth Fighter Group, Meyer was stationed in Washington as liaison officer to the House of Representatives. So he could answer intelligently Congressional questions about the B-36, he was sent to the West Coast to check out. Presumably, he is alone among the great aces of World War II who actually are qualified in the 10-engine giant.

Before the Korean episode, Meyer had won, in addition to his trio of Distinguished Service Crosses, two Silver Stars, nine Distinguished Flying Crosses, 15 Air Medals, Purple Heart and Belgian and French Croix de Guerres. He added the Legion of Merit for the Korea scrap.

Meyer arrived at Haneda AFB in Japan on 20 November 1950, eleven days after the Group had been alerted at New Castle County Airport in Delaware. He flew 31 missions and has received the lion's share of the credit for the tactics which have produced for the Sabre jets a 7-to-1 edge over the MIG's.

The tall, cigar-smoking colonel, however, insists on passing the Kudos to the individual pilots. "In my opinion," he says, "individual initiative of the pilots trained by our Air Force has been our most significant weapon—both in World War II and in Korea."

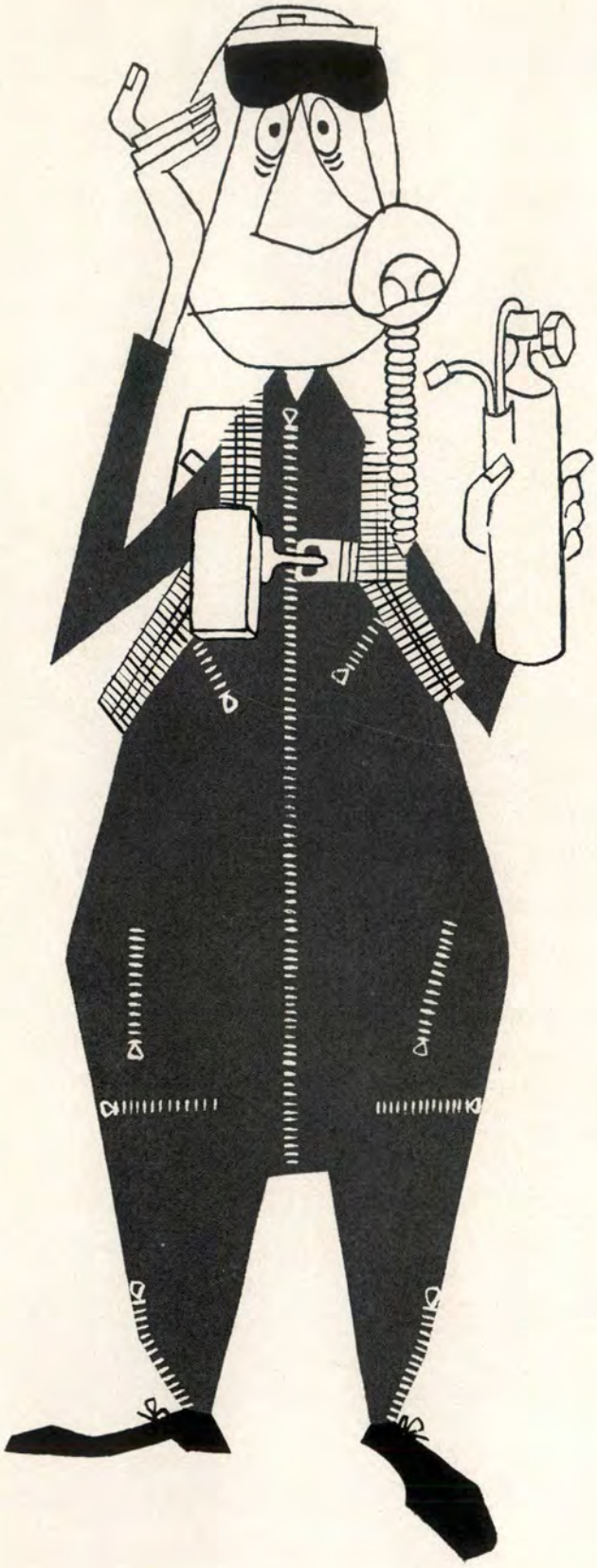
Since last December, Meyer has worked on a temporary duty basis with the Research and Development Command helping to evaluate the fighter program. His own jet experience has carried him through the T-33, F-80, the complete F-86 and F-94 series, F-84G and F-89. The nature of his duties, too, has made it possible for him to fly the Bell X-5, the jet which varies the sweep of its wings in flight, while investigating aerodynamic effects in the boundaries between transonic and supersonic speeds.

This experience, coupled with that gained in World War II in conventional fighters and in jet combat in Korea, has convinced him that jet pilots must be aware of two inseparable considerations if they would avoid accident hazards. One is fuel; the other navigation.

"Fuel," Meyer says, "is the framework into which all jet flying must be fitted. Because fuel is such a critical item, faulty navigation is the worst hazard to safety." Once, the ace recalls, navigation was a sequence involving getting lost then finding yourself. "It won't work in jets," he cautions. "A jet pilot must know where he is at all times. He doesn't have the fuel to hunt around trying to find himself when he gets lost."

One solution, the colonel believes, lies in requiring more thorough indoctrination into the importance of jet navigation. Another, he feels, is for flight leaders to call on each member of their flight arbitrarily for position reports. "If a man doesn't know when he will be called upon to report, he will navigate all the time," Meyer says. "And this way, too, each man in the flight is checking on the others. Each is being made to stand up and is being counted on his ability to navigate."

There is an old Persian proverb to the effect that luck is infatuated with the efficient. If practice can produce efficiency then Meyer subscribes to the theory. "An emergency in an aircraft is essentially an individual problem," says this flier who has met a myriad successfully. "When it arises, the pilot must make his own decision. Whether he does the right thing will depend to a large extent on whether he has practiced repeatedly." Colonel Meyer has paved the road from subway to the lofty pinnacle of ace among aces with practice.



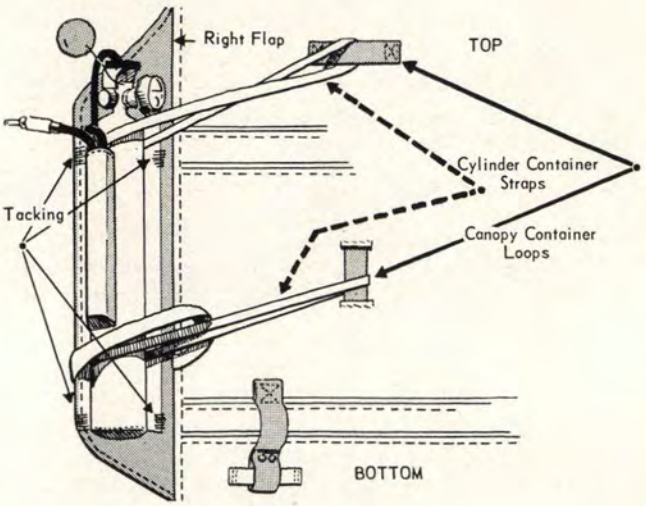
THE BAILOUT BOTTLE

At Alexandria AFB, 1st Lt. James E. Meyers, Personal Equipment Officer, and his Personal Equipment Technician, R. J. Griser, have solved the bailout bottle problem in a manner which is proving satisfactory in their F-84 squadron.

All bailout bottle containers are tacked on the right wing flap of the parachute pack (28-foot back type, Stock No. 2010-643070, 50C7024-8, Class 20B, Type B-11 with Type 3 harness and C-9 canopy) with five turns of No. sixteen cord, three strand. Tackings are made approximately two inches from the corner of the cylinder container, two tackings on inside of flap and two tackings on outer edge of flap as shown in the diagram below. The cylinder container's two straps are both used to help hold the cylinder firmly to the flap. The bottom strap after being passed through the canopy container loop is brought around the cylinder and tied. The top strap is passed through the canopy container loop, back to the cylinder, taken once around the cylinder neck and secured.

There have been no reports of any difficulty encountered in reaching the cable release nor have there been any complaints of the bottles rubbing the side of the body in flight.

Air Materiel Command has given its tentative approval of this method of attachment; however, they are working to provide a still better arrangement. This seems to be a good interim method.



Quick Thinking!

In Emergencies, Skill, Judgment and Ingenuity Can Save Airplanes

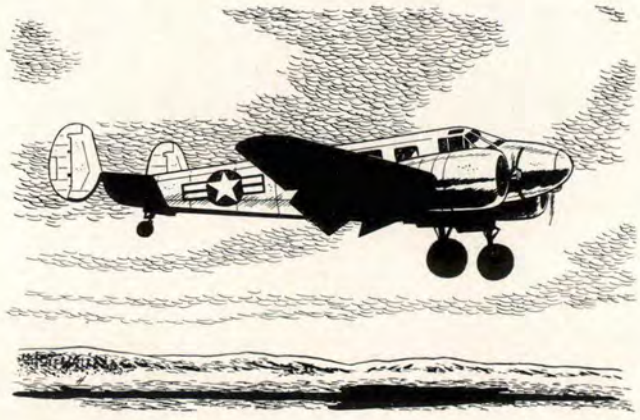
IN RECENT months FLYING SAFETY Magazine has received many suggestions for the "Well Done" feature in the magazine. As only one of the many recommendations can be used each month it was decided that recognition should be given to others who, by quick thinking and ingenuity, averted major accidents, thereby saving irreplaceable lives and equipment.

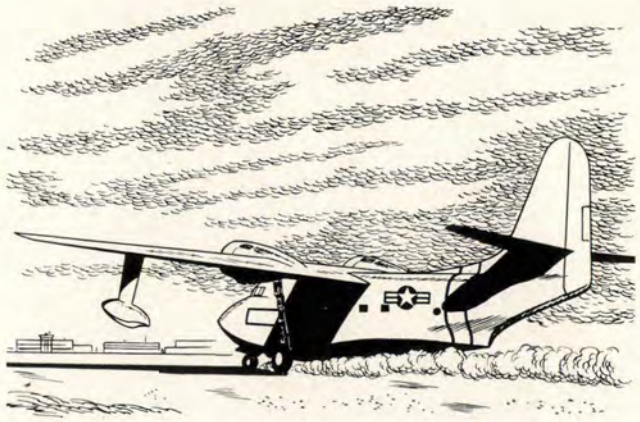
In two similar cases, a T-7 and a T-11 were saved from making gear up landings by a combination of resourcefulness and calm execution. In both cases a successful solution was suggested by a pilot not even in the affected aircraft and each time those flying the aircraft had the coolness and ability to accomplish the "fix."

A T-7, piloted by Capt. H. F. Vitale and Maj. D. B. Depmore, Keesler AFB, was sent to Brookley AFB for an emergency landing after the pilots were unable to extend the landing gear by the emergency procedure. The pilots reported that the gear motor had failed and the clutch would not engage to hold the gear down when the emergency procedure was used.

Capt. Delbert O. Like, a base maintenance officer and test pilot, went to the tower when informed of the impending emergency landing. He quickly suggested tying the crank handle into position. A length of tie-down rope was found and the gear was cranked to full down position and then tied to the copilot's seat and to the rear of the aircraft in such a way that pressure could be kept on the crank. Thanks to Captain Like's idea coupled with the crew's correct adaptation of the suggestion the aircraft was landed safely.

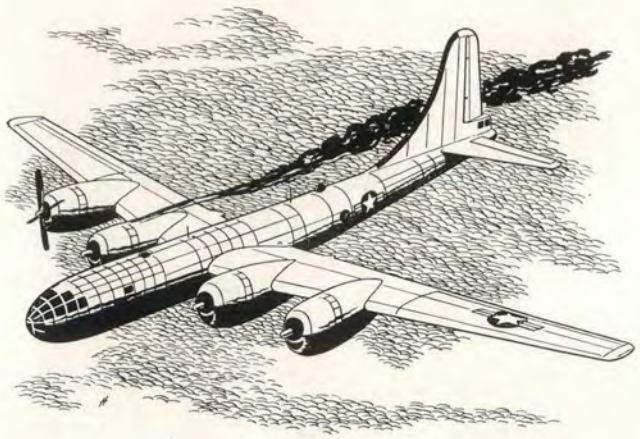
Capt. W. B. Baughman was in a similar situation when he was unable to extend the gear of his T-11 for a landing at Pope AFB. Emergency extension of the gear failed due to too much slack in the cable from the clutch pedal to the clutch of the emergency gear system. While flying locally, Capt. R. L. Meek, 933rd Signal Bn., TAC, Pope AFB, overheard Captain Baughman notify the tower that he would attempt a gear up landing. He called the pilot and suggested that he lift the floor board between the pilot and copilot seats and manually actuate the landing gear clutch release. Captain Baughman, following Captain Meek's directions, was then able to take enough slack out of the cable to actuate the clutch, extend the gear and hand crank it to full down position. Both pilots are to be commended for the quick thinking which prevented a major accident.





The teamwork and knowledge of a Seventh Air Rescue Squadron crew saved their SA-16 from major damage during a recent emergency. After the gear handle had been placed down for a landing at Wheelus Air Base, the gear warning light remained on and low hydraulic pressure was noted on the hydraulic pressure gage. The hydraulic selector valve was placed in emergency position to prevent the loss of additional fluid in the event a break in the line had occurred.

The pilot, Capt. George E. Maillot, then directed the copilot, Capt. Bill C. Musick, a qualified maintenance officer and T/Sgt. Jack L. Larkin, a flight maintenance technician, to determine the trouble. Sergeant Larkin found that a break had occurred two inches above the nose gear cylinder swivel. As the break was below the common junction of the normal and emergency down line, both systems were inoperative. The nose gear window was broken and the severed line removed but efforts to plug



the line by crimping failed. The entire line was then removed and it was determined that sufficient pressure could be built up by the hand pump to lower the gear if a plug could be secured inside the junction to block the emergency line where the break occurred.

A sheet metal screw was inserted into the junction and secured with chewing gum to prevent it from slipping. The line was replaced and pressure via the emergency system was sufficient to lower the main gear. The nose gear was lowered by applying pressure to the mechanical uplock, and a normal landing was made. The combined efforts of the crew paid off in an undamaged aircraft.

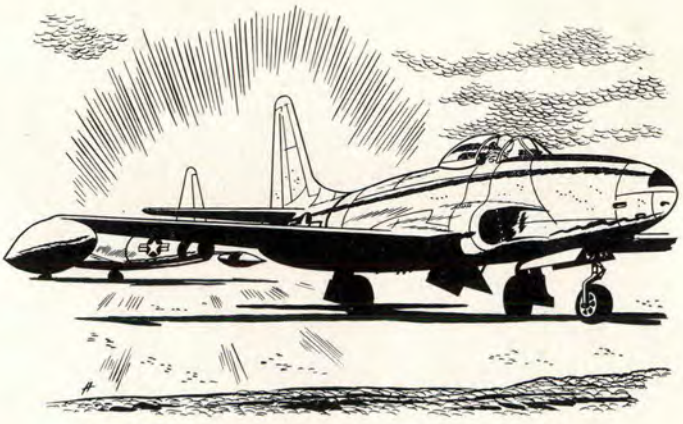
Superior judgment and skill enabled Maj. Robert H. Masonheimer, 53rd Strategic Reconnoissance Squadron, to bring his RB-29 back to Kindley AFB safely after losing two engines. While on a search mission the number three engine started to emit heavy smoke through the top cowl flaps. The engine was feathered and power settings were increased on the other three engines so that the aircraft could maintain altitude while returning to the base. Shortly thereafter the number four engine ran away, reaching 3500 RPM before it could be stopped by feathering. The minimum airspeed with which the pilot could maintain control was 160 MPH and this resulted in a 150-foot per minute descent.

It was apparent that the aircraft could not reach Kindley with this rate of letdown so Major Masonheimer restarted the number three engine, with a power setting of 1500 RPM and 20 inches of manifold pressure. By using the number three engine, directional control could be maintained at 3000 feet with no further loss in altitude. Though smoke kept pouring from the engine, the pilot was able to make the field, where the throttle was retarded and a two-engine landing was accomplished. Certain ditching was prevented by Major Masonheimer's good judgment and professional skill.

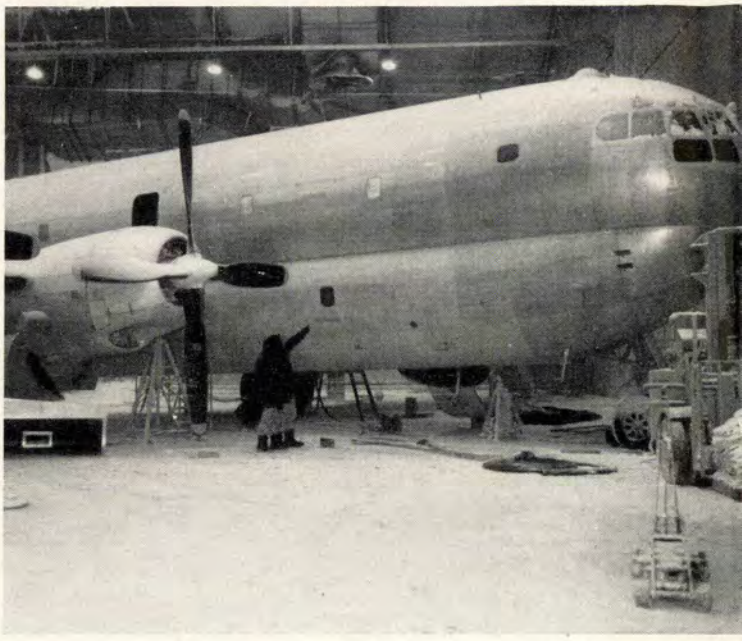
Decisive action by Capt. Wayne H. Driscoll, an instructor at Perrin AFB, prevented a major accident when the engine of his T-28 quit shortly after takeoff. The sudden engine stoppage twisted the propellor off the shaft at an altitude of 750 feet while on the crosswind leg at an auxiliary field. The prop, on leaving, damaged the cowl and tore a large hole in the leading edge of the right wing. However, Captain Driscoll was able to turn back to the field, lower his gear, using the emergency system and make a downwind, no flaps landing on another runway. Congratulations to Capt. Driscoll for his coolness and quick thinking in this emergency.

Another occasion where quick thinking paid dividends to the Air Force took place recently at Luke AFB. Lt. Joe J. Rhiley, an instructor in the 197th Training Squadron, had landed with his wingman when the third plane in the formation was notified to go around. Power was applied too quickly to the F-80 and a compressor stall resulted, with flames streaming out of the tail pipe. The aircraft was landed on the left side of the runway. It passed the other two planes and was stopped on the extreme end of the runway. Lieutenant Rhiley observed the flames shooting out and taxied his aircraft behind the other F-80. Turning the tail of his aircraft to the tail of the burning plane, he applied power and blew the flames out. The number three pilot evacuated safely and the aircraft was undamaged. Lieutenant Rhiley's quick action prevented damage to an aircraft and may have saved the pilot from serious injury.

In all of these incidents, the pilots and crewmembers have demonstrated the results that can be attained by calm, planned action, complete knowledge of the aircraft and a high degree of proficiency.



If it's proof that you



Left, a helicopter, L-20 and C-124, all flown by the Light Bombardment Squadron. Right, a C-97 in the climatic hangar.

FROM A START, in the mid-thirties, as a Maxwell Field auxiliary gunnery practice base, Eglin Air Force Base has mushroomed into the present gigantic installation housing the United States Air Force Air Proving Grounds.

APG Headquarters, located in Johnson Hall on the main base, operates a total of 45 different test ranges and nine auxiliary fields spread over more than a half million acres.

The ranges, used to simulate actual combat conditions and targets, provide test grounds for almost all the various types of ordnance used by the Air Force today. For example, at range 52 where the famous firepower and bombing exhibitions are held, there are approximately 25 different targets. Included are a steel and cement mock-up of a factory for precision bombing, a truck convoy and dispersed tanks for interdiction tests, old aircraft scattered over the range for strafing runs and bunkers and troop positions to furnish ground support targets. Other areas are set aside for GCI intercept work, air to air combat tactics, radar bombing and night penetration missions.

Test programs are not necessarily restricted to the Eglin area, however, but are carried on all over the world for closer approximation of actual conditions likely to be encountered in operational work. If necessary, equipment and pilots are sent to arctic, tropic and desert areas to validate the tests before the results are summarized in their final form.

In APG Headquarters the testing is divided into five branches: Strategic, Tactical, Air Defense, Electronics and Support Services. The Director of Requirements, USAF, sends down test requirements to APG where they are channeled through the Director of Operations to one of the five branches and a project officer is assigned.

Immediately under Headquarters, APG, in the actual test set up is the 3200d Proof Test Group, commanded by Col. Paul W. Tibbets, the pilot who dropped the first atom bomb on Hiroshima. In the 3200d Proof Test Group the majority of the testing falls into one of four categories: armament, electronics, aircraft or associate equipment (miscellaneous).

Four squadrons make up the group, three for flight tests and one, without aircraft, for electronics tests. The

want . . .

The Air Proving Ground Command Will Put It to the Test and Produce the Correct Answers

Left, some of the bomber test aircraft on the ramp. Right, the new electronically controlled "Tarzan" bomb being loaded.

Fighter Test Squadron, as its name signifies, handles all tests of fighter aircraft and associated equipment. The Medium and Heavy Bombardment Test Squadron actually handles all tests of bombers, regardless of class or weight and relative equipment. The Light Bombardment Test Squadron belying its name, is responsible for all the support type aircraft. This includes liaison planes such as the L-20, helicopters and trainers and transports like the T-29 and the C-124. The Electronics Test Squadron runs the tests on airborne and ground radar and gives support and maintenance to the other squadrons on their radar equipment.

Concisely, the mission of APG is to test new aircraft and equipment to determine their suitability for aerial combat, to develop the tactics to be used by the new planes and to test the suitability of ground and airborne equipment for operational support.

Lt. Col. R. L. Cox, Group Operations Officer, stressed the importance of getting test information quickly and exactly by stating, "We are striving to give the various using agencies in the Air Force valid and timely information on the equipment undergoing suitability testing." He pointed out that it is vital to get the information to the field as soon as possible so that when the actual equipment arrives the unit will be familiar with the SOP's and have a comprehensive guide for all operational, maintenance and logistic problems. Test validity accounts for the pains APG takes to test all equipment under as near to actual conditions as is possible.

Concerning the types of equipment tested, Cox said, "Everything from three-wheeled scooters and jet ground power units to new aircraft is tested here. The tests might run from three days to four or five years."

The F-86D test program serves to illustrate how APG operates from the time a request is received from the Director of Requirements, USAF.

Colonel A. R. DeBolt, Hq. APG, was assigned as project officer, and Major M. H. Good, of Fighter Test Squadron, as senior test officer. The major commands were then invited to participate in the project and sent representative pilots who were welded into a test team.

Four pilots, counting the project and senior test officers, were assigned from APG, four from ADC which is

the ultimate user of the F-86D, and two from the Training Command which will be charged with training pilots for the aircraft. Each pilot is responsible for one phase of the test program; for example, one handling tests of electronics equipment, one designated for armament, a third setting up operational procedures and another monitoring maintenance. All the pilots fly tests to determine complete operational suitability of the aircraft. Included will be reports on the fire control system, instrument evaluation, maintenance and logistic needs and a recommended TO & E.

A direct napalm hit is scored during tests at range 52. An actual building is used to lend validity to the test.

A typical test in this program might involve two bombers, one a drone aircraft, two F-86E's used as escort and safety ships and an F-86D for an intercept or fire evaluation run. The 86E's not only act as escort to the drone, but in case the drone control mechanism malfunctions and the aircraft gets out of control, they are charged with the responsibility of shooting it down. Tests of this kind are run on the overwater ranges in the Gulf for obvious reasons.

While the F-86D is a special, full scale project with a temporary operational, maintenance and supply set up actually separate from the Fighter Test Squadron, a smaller project would operate in much the same way on a more limited scale.

In a test program much time is spent on instrumentation of the aircraft. Theoretical equipment is installed and tested, then removed and the aircraft is tested again to determine its overall value to the plane and relative equipment. Planes may be sent to factories for installation by experts and minor changes are continually being made. The Eglin people know that the aircraft will work and that the special equipment will work; the bind lies in getting the two "married up" and functioning satisfactorily together.

During the actual testing, various types of reports are submitted to the concerned units. A flash report, usually a TWX, may be sent to an interested unit on the immediate results of a particular phase; perhaps to an outfit in Korea on the effectiveness of a new or improved type bomb. An intermediate report is submitted on each phase of the test completed while the special report, sent on a bi-monthly or monthly basis, is a straight progress report. Last is the final report, compiled from all the tests and their results. The final report, as well as giving the test results, might include a recommended transition program for the new aircraft, the hours needed to check out the average pilot, safety factors and a flying safety program. It will detail the kind and number of maintenance personnel needed for the aircraft, enumerate specialists such as electronics, ordnance and fuel men, give a comprehensive picture of supply and a detailed study of parts attrition and all information on aircraft tactics.

Before the actual flying tests start, much time must be spent in gathering all the supporting material to be used in the test. These components might include various kinds of ordnance, tiptanks, engine and aircraft parts, maintenance specialists and electronics equipment. In this connection APG can apply any piece of Air Force materiel against any Air Force task. Tests on new equipment are run against all phases of operations to see if the equipment can be utilized for other purposes besides its intended role. Thus, a new interceptor might be tested for night penetration, interdiction or ground support and if it measured up it could be used in other than its designed work.

Each of the three squadrons that perform the actual flying tests are assigned certain types of aircraft and associated equipment. All new aircraft to be tested fall into one of the three catagories and will be channeled into the appropriate squadron when received.

The Medium and Heavy Bombardment Test Squadron is now flying B-36's, B-47's, B-45's, B-29's, B-50's and B-50 tankers. It will be the task of this squadron to fly the tests on new bombers after their acceptance by the Air Force.

The squadron is divided into four flights: an electronics flight, a bombardment flight which handles all bombing and armament tests, a composite flight which handles all tests not involving electronics or bombardment, and a training flight which handles pilot transition and check-outs in new aircraft.

The transition flight has a dual purpose. It checks out pilots in as many different aircraft as possible and runs a training program for new pilots which lasts about six months and is aimed at proficiency in aircraft and at teaching them the special duties of a test pilot.

Experience among the 15 pilots in the squadron varies from 800 to 5000 hours. Maj. "Chris" Christensen, Squadron Operations officer, in discussing the pre-requi-

sites of a good test pilot said "There is no substitute for experience. A good test pilot must have inherent curiosity and an analytical mind; he is in reality, a small scale scientist."

Some tests involve equipment to be installed in an aircraft and if this is the case a specialist will be the test officer and will follow the program through to completion. If the aircraft itself is being tested, the test officer will be a pilot who, in turn, will follow the test through to the finish.

The different aircraft flown by the squadron cause heavy emphasis to be placed on check lists, as a pilot might find that he is scheduled for three different aircraft in as many days. Another safety angle is the premission briefing by the test officer to the entire crew before each flight. Every phase of that particular test flight is gone into, with a complete briefing of each crewmember's duties during the flight. The aircraft commander holds another briefing on emergency equipment and procedures at the aircraft in which a written checklist is used. All items on the checklist must be signed off before the crew enters the plane.

Most missions are under radar control. Eglin has a master radar control that monitors all its ranges at all times and all test flights must be cleared through this control to individual range radar control. This is necessary as occasionally strange aircraft wander off the Eglin entry corridor and get into the danger and "hot" test areas where bombing and gunnery tests are being made.

Any test of a hazardous nature with an accident potential is run in conjunction with the Flying Safety officer, who has devised special safety measures covering special test conditions, such as maximum gross weight landings on new type runway material or using new kinds of landing mats.

The Fighter Test Squadron, composed of 19 veteran combat pilots including 11 Korea returnees, relies heavily on this experience level in its testing. Pilots are more on their own in the fighter tests which must be run on an individual basis. Test results sometimes are compiled through comparisons, with several pilots assigned to the same project making the same tests and then evaluating results.

New pilots are checked out in T-33's and then check out in the F-80, F-84, F-86, F-89 and the F-94, as soon as possible. They spend about the same amount of time as the bomber pilots in an apprentice stage before becoming full-fledged test pilots.

A pilot's work call is held daily, at 0645, for critique of the previous day's work and to discuss new test methods and new equipment. Crew chiefs then hold a briefing for pilots on the status of the aircraft and all specially installed equipment. Finally, thorough briefings are held for the concerned personnel before each test, with particular pains being taken for multi-ship tests that involve several different aircraft.

At present, the Light Bombardment Test Squadron is concerned with equipment tests installed in "test bed" aircraft. Test pilots in this squadron must fly a variety of aircraft from heavy transports to liaison planes, while three are checked out in helicopters as well.

Some of the test support work involves aircraft from the other squadrons in which case the pilots attend briefings with the concerned units. They fly some of the tanker work and at present are running a program testing loud speaker systems on large aircraft.

An F-86D scrambles to intercept a drone aircraft as part of the fire-evaluation test program.

The Electronics Test Squadron works closely with the other squadrons as much of their equipment is installed in "test bed" aircraft. They also handle tests on ground radar and electronic counter measures and furnish support and maintenance to the other squadrons of all the electronic equipment installed in the aircraft.

All four squadrons run many tests in the huge climatic hangar which is capable of reproducing any extreme in weather from arctic cold to tropical and desert heat. Operational and maintenance problems encountered under temperature conditions ranging from minus 65°F., to plus 165°F., can be worked out in the hangar before taking the equipment to areas where such temperatures are encountered.

The Air Proving Ground, in its role as official "taster" for the Air Force, has met and conquered the tremendous challenge presented by the constant flow of new aircraft and equipment. Professional know-how plus pride in achievements insure that future work will conform to the same high standards.

CROSS FEED

DOES YOUR NOSE KNOW—Have you ever wished you had a bloodhound as a copilot or engineer?

Flying in the B-26, or any other pilot-riveted aircraft, it is very impractical to trace any liquid leaks. The presence of a strange odor in the cockpit is the first signal to reach for the panic button. However, knowing whether the strange odor is caused by de-icer fluid, hydraulic fluid, gasoline, compass fluid or engine oil could make the difference between a successful mission or an aborted mission. Quick identification can mean the difference between corrective action and lethal errors.

The 4400th Combat Crew Training Group at Langley AFB has developed a training aid for olfactory education. The pictured box is kept on the operations desk. It contains five bottles, numbered 1 through 5. The bottles are painted so that colors of the liquids can be seen. Identification of the contents of each of these bottles is given on the back of the box.

The educated noses at Langley can hold themselves a bit higher now; they know that they can help their owners to determine when an emergency exists, what type of difficulty it is and what to do about it.

—Capt. J. C. Lowe
Langley AFB, Va.

The "nose training program" at Langley could help prevent an accident.

BROKEN PIN—In the June, 1952, issue, Flying Safety published a picture of a parachute which was securely strapped to the wearer. There was only one thing wrong. The left chest strap passed through the D-ring.

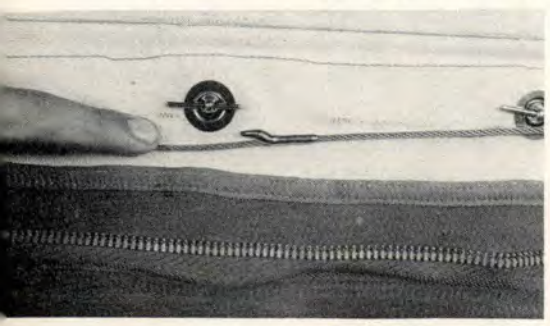
We've got one this time that is almost as scarey! A back-type parachute was returned from a repack, around the middle of the month. It was issued to three people during a seven-day period. Luckily, it never had to be used!

While completing the 10-day visual inspection, A/2C Charles Panisewicz, of the Norton AFB Personal Equipment Section, discovered that one of the lock pins was sheared. If used, this 'chute might have functioned if sufficient altitude was available, as the wind force possibly could open the pilot 'chute. But, if a low-level bailout was necessary, the odds are 10-to-one against.

Play it safe, check those pins!

—Capt. Glenn Stringer
Norton AFB, Calif.

Broken pin stacks the cards against the man who might have to bail out.



ASK FOR IT—It was with a great deal of pleasure that I read the article, "Ask For Flight Service" in the June issue of Flying Safety Magazine.

Ever since my assignment to Flight Service in 1950, it has been my observation that too few pilots realize the service that is available to them through this organization.

From the time a pilot plans his flight, while he is in the air, and when he finally reaches his destination, Flight Service is standing by to serve him with routine clearance, NOTAM, weather, and flight plan handling services.

Should he become lost, he has available the services of trained Flight Service clearance officers who can, through Plan 62 interphone, utilize D/F facilities, emergency field data, and a thorough knowledge of their areas, assist him in locating himself, and in finding a satisfactory field at which to land—if only he will ask for it, before he is about to run out of fuel.

You have the appreciation of all Flight Service personnel for the fine article you have published.

—Lt. Col. Elmer F. Estrumse
CO, Hqs., Flight Service

OVERRUNS—You have undoubtedly noticed, at air bases housing jet aircraft, how there always seems to be a deep erosion of the earth at the ends of runways, caused by the blasts from jets getting their engines up to speed before rolling on takoff.

Realizing that there is only a chance in a million that the Directorate of Flight Safety Research has not already studied this problem and made recommendations for its elimination, I am nevertheless bringing it again to your attention. I have recently observed a major accident that I personally feel might have been nothing more than a "hard landing" if it had not been for the runway's edge protruding up three or four inches above the sod overrun.

Some people do not see fit to recommend that corrective action be taken as they feel that black topping, for example, a portion of the overrun would not prove to be the solution since, first, there would soon be erosion at the edge of the blacktop area and you would still have a three-to four-inch protrusion, and, second, a pilot should not hit short anyway when he has 6000 to 8000 feet of runway to use. However, my contention is that, in the first place, if the blacktop or oiled area extended back — say 100 feet or so — far enough from the runway's edge, there

would probably be very little erosion from jet blast or prop wash (maybe none), and, secondly, pilots would still be aiming for the edge of the runway—not the edge of the blacktop or oiled area—so the few landings that hit slightly short would be well beyond the erosion line.

My answer to the second objection is that I agree: pilots should *not* hit short with 6000 to 8000 feet of runway in front of them. However, pilots should also *not* have preventable accidents, but the fact remains that they do! It is just a natural thing for pilots by virtue of their training and perhaps their normal state of distemper and/or orneriness, to try and set down on the end of the runway at times.

I realize that the cost of laying a heavy blacktop overrun on perhaps thousands of runways would be a staggering figure. But I have seen at various air bases a thin coat of tar or blacktop of some sort that is used over large areas for taxiing and parking, and which apparently is not too expensive. Perhaps even oiling the surface would suffice.

Of course, this erosion problem is prevalent only in areas where there are seasonal dry spells and the growth of grass is retarded when the top soil becomes dry and hard. I believe that you have this condition in late summer and fall at Norton. It might be that frequent watering to keep the sod in good shape during dry spells would be the most practical solution, but it seems that this would be quite expensive in the long run.

I am convinced that this is a problem that is serious today and which will continue to grow with the advent of more and more jet aircraft.

—Capt. George P. Arns
Flight Safety Officer
47th Bomb. Wg. (L)
APO 22, New York, N. Y.

(The Chief of Engineers has been requested to explore the possibility of providing pads at certain runway points to protect the soil and turf from jet blast.

A contemplated plan is to place blast pads, 250 feet long, at runway ends and at taxiway turns which exceed 45 degrees.

Not designed for traffic, the pads would be a protective covering only and be marked as non-traffic areas with large orange chevrons in accordance with present standards.—Ed.)

CONTRAILS

SAC RECEIVES AWARD — Through its commander, Gen. Curtis E. LeMay, the Strategic Air Command has received a special award from the Air Force for meritorious achievement in the field of flight safety.

General LeMay was presented a plaque and a scroll in behalf of his command during a recent ceremony at USAF Headquarters by General Nathan F. Twining, Acting Chief of Staff. Colonel Frank W. Ellis, Chief of SAC's Flying Safety Division, was also present at the ceremony.

Awarded "for the development of an outstanding flight safety consciousness and for the accomplishment of increased combat effectiveness of the USAF," the scroll was signed by Secretary of the Air Force Thomas K. Finletter and General Hoyt S. Vandenberg, Chief of Staff.

The citation accompanying the award states in part:

"An outstanding safety record is a team accomplishment. Each member of SAC, whose daily efforts made this flight safety award possible, is commended for meritorious achievement."

MOTHBALLS AND BOMBERS— How much money has been saved by the Air Force's "mothball" storage program? Part of the answer may be found by checking a few figures recently released at Hill Air Force Base, Utah.

There, hundreds of B-26 light bombers have been taken out of "mothballs" and sent to Korea, where they've been doing a standout job in "Operation Strangle," the name given the Air Force's interdiction bombing and strafing operation.

Hill's Commanding General, Brig. Gen. Adlai H. Gilkeson, and Col. Williams H. Monay, head of the Maintenance Engineering Directorate, announced that a six-year storage cost per plane was approximately $1500. Overhauling the "work-horse" aircraft for safety and converting them into modern night intruder planes cost about $36,000 more per plane.

Purchasing, preserving, protecting and patching up each of the B-26's cost John Q. Taxpayer about $207,500. And, Air Force production experts "guesstimate" the same aircraft would cost more than $500,000 to build today. That's a saving of approximately $300,000 per plane!

REAL SURVIVAL PRACTICE—

A stranded desert survival class consisting of 20 officers and airmen from March AFB were airlifted to safety by helicopter when they became marooned on a cliff in the California desert mountains.

First word of the stranded party was received from the Riverside Sheriff who notified Flight B, 4th Air Rescue Squadron, that a group of men 25 miles southwest of Indio in a rugged mountain area were requesting aid.

After a communications check revealed that there were no missing or overdue aircraft reported, an H-5 helicopter was dispatched to investigate.

The H-5 pilot, upon arriving at the scene was able to discern three separate parties. One of the three parties which appeared to be in a worse physical condition was picked up by the H-5 and taken to a nearby road where an ambulance was waiting.

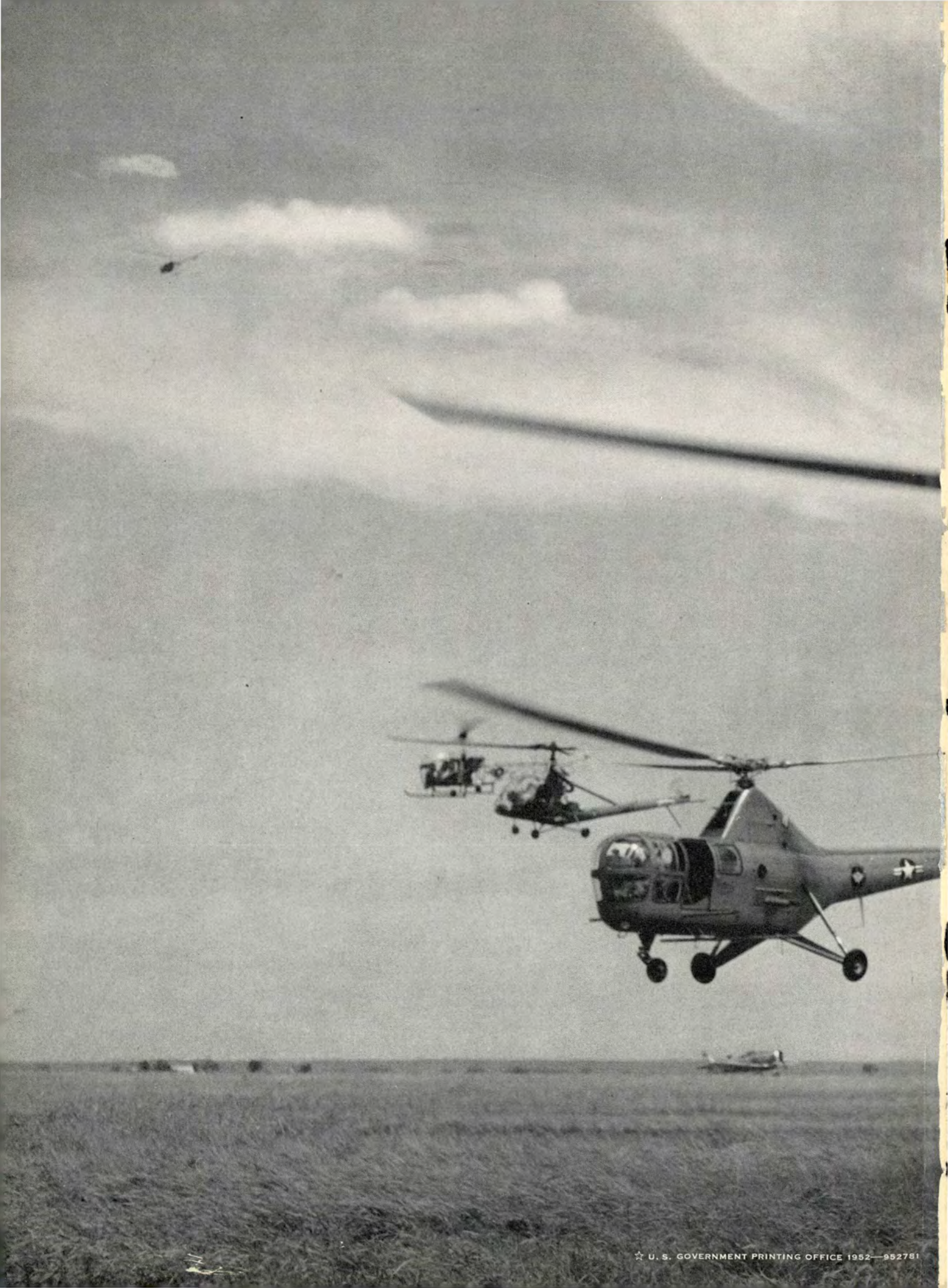
Attempts were made to rescue the other two parties by helicopter, but due to air currents and the adjacent canyon walls, rescue had to be abandoned for the time being to await more favorable air currents which were expected to prevail later in the day.

A later attempt still proved fruitless so a request was made to the U. S. Marine Corps at Camp Pendleton to send an H-19 helicopter, equipped with hoist, to pick up the stranded men. The mission commander, in the meantime, with a land rescue team, attempted to reach the party on foot by descending the canyon walls which required over three hours. Because of the rugged terrain the para-rescue team was not utilized to jump into the area.

The ledge on which four survivors were marooned was about 150 feet wide by 1,000 feet long. Later in the day, Flight B's helicopter made another attempt to pick up the survivors. By the time the wind had eased, a successful rescue of two survivors was made. The remaining two were picked up by the Marine Corps helicopter. A total of 11 men were rescued by the two planes. The remainder of the stranded class managed to walk out of the area.

LEARN and LIVE

Fishin's fun this time of the year —
It'll always be fun as long as Dad flies smart—
Learn and Live to enjoy the better things of life.



☆ U. S. GOVERNMENT PRINTING OFFICE 1952—952781