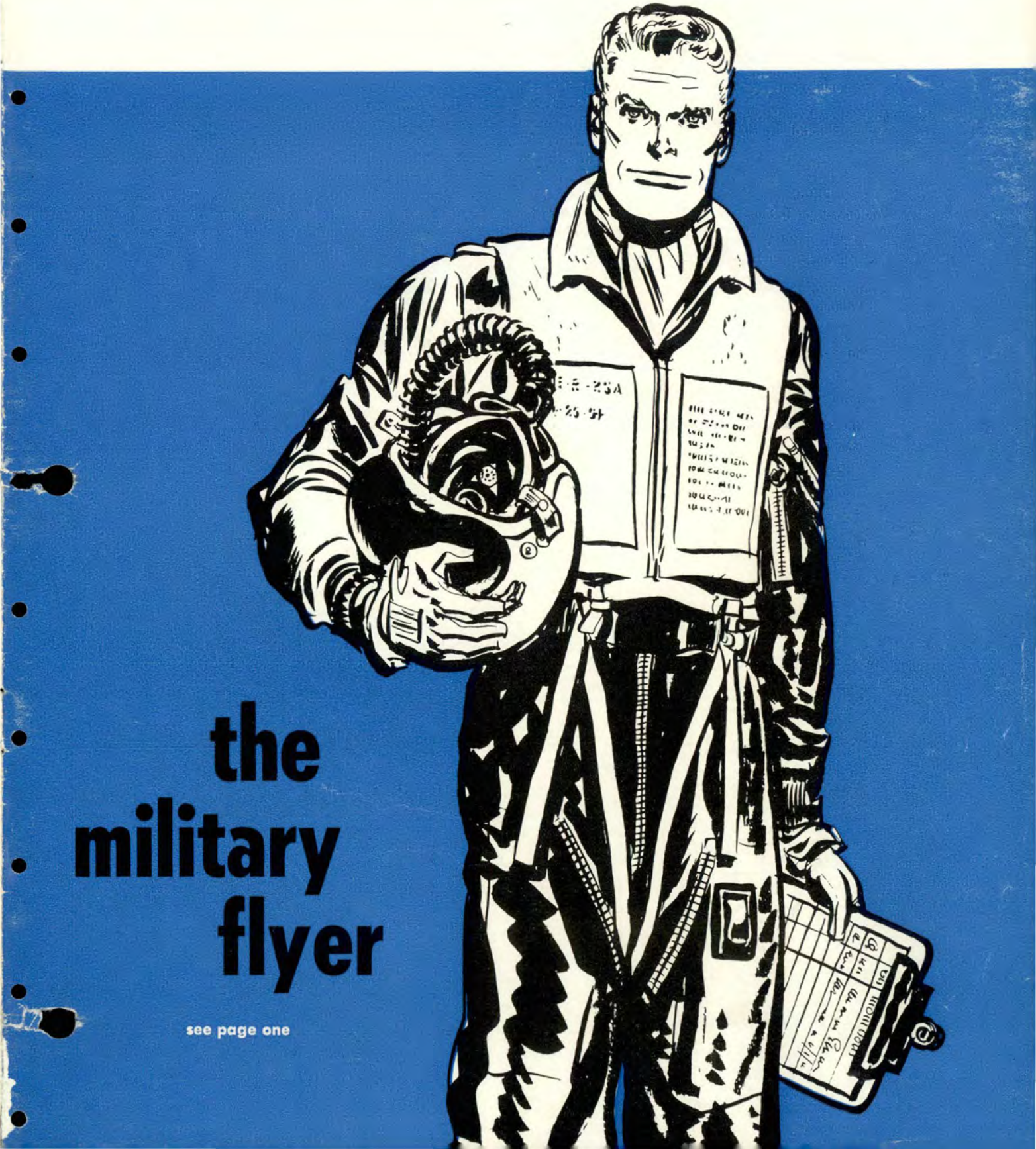
DECEMBER 1957

FLYING SAFETY

UNITED STATES AIR FORCE



the military flyer

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The Editor's View

This was the Year of the Anniversary—at least, for us. Along the way we celebrated the Fiftieth Year of Military Flight. To most of us, it was just another day. A day that was expected. One that had to be. Not that we weren't proud of the fact that we had reached the milestone. We were. Very proud to be a part of the organization that has come so far in so short a space of time. In that time, not only had we given the earth a new dimension—we had stretched man's natural habitat to its very limits.

But it was just another day. Another day in which the Military Flyer of the Air Force did his best to carry out his job in the professional manner befitting the anniversary which, for the most part, was being celebrated for him. Sure. There were spectaculars. There were exhibits of power and derring-do. But they were the symbols. The man behind the symbol was the real hero of the day—the Military Flyer.

Planes have come a long way in the first 50 years. They have grown from 40-mile-an-hour kites to planes that fly hundreds of miles per hour, miles above the face of the earth. In January of this year, three B-52s flew around the world in one hop. That is, the men did.

Planes can only do what men have been able to make them do. Men, themselves, haven't changed much since Adam. They haven't changed, that is, except in their ability to get things done. Over the years, flying has been the dream of many men. But it's a long way from a dream to a fact. It has taken a lot more than courage and good intentions to get man off the ground.

For 50 years the Military Flyer has given aviation a goal and a purpose. He has helped develop flight from a gleam in men's eyes to a practical reality. When we first thought of a theme for this issue, *Professional Pilot* was in everyone's mind. With a little thought, it was obvious that the function is more than that.

The Military Flyer is more than an airline pilot (also a professional pilot). He is more than a capable pilot with enough wealth to afford a Twin Beech. He is a person who is also an officer. Compared with other flyers, he is not well paid. He does not always accept the fabulous wages that industry sometimes offers.

He gets real satisfaction from flying with teammates. He is justifiably proud of his exploits in war. Though he may wince and squirm at the moves from assignment to assignment and the inevitable domestic upsets, he at the same time recognizes in himself a bit of the pioneer and has an appreciation of things and places and scenes and peoples in the world that few others enjoy. Most of all, he has a front row seat on the most dramatic travel show in history. Every new discovery in any of the sciences becomes real in the machine he flies. He is the ultimate instrument of survival for our way of life—the Military Flyer.

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USAF PERIODICAL 62-1.

File Thirteen

Time to wind up the old year and take stock. . . . How did you do on those New Year's resolutions that you made last January? The old zeal for improvement sometimes loses its shine during the passing months. . . . Been poring through the new AFR 60-16 (29 Oct 57). Was startled to find how many changes the Air Force pilot has to learn. No time like now to take a copy of the old and the new and run down the pages to see where you stand. Takes more than the yearly review that we get during instrument exam time anyway. We'll help you with this chore in the next issue. Meantime the reg is in effect and ignorance won't hack it. . . . Double Take Dept: Old Par 34a(3), AFR 60-16, specified that you couldn't get a special VFR clearance if flight visibility was four miles, but you could get one if it got to be less than three. Tricky, what? All cleared up now—see 35a(3). . . . For those who're flying and firing guns, rockets and cannon, it pays to check for cordite plugging static ports. Good item for your walk-around checklist. . . . Neat tip if you're face to face with an emergency landing situation and no smoke, dust or wind tee. Look for the nearest cow. When the wind is strong enough to be a factor, they graze downwind, with their backsides pointing into it. It's a fact! Noticed the same thing with moose and caribou during my romp in Alaska. . . . Merry Xmas to all and to all a good flight!

'til January,

Vernon R Stutte

KEEP CURRENT NEWS NOTES

The first supersonic pitot tube with a larger static chamber and knife edge opening is now ready for production. Its advantages include its ability to reduce "lag," resist vibration and withstand extreme temperature variations.

The first major change in altimeter display dials in 30 years is incorporated in the new "drum pointer" instrument selected for one of our new Century fighters. Only one pointer remains and will indicate "hundreds of feet." "Thousands" and "ten-thousands" will appear on a drum visible through a vertical slot in the dial face. Pilot reading error is thereby eliminated.

An airborne "homing beacon" now enables a fuel-hungry plane to rendezvous with its "cow" from hundreds of miles away. The new unit has been designated the AN/APN-69 and uses a coded interrogating-response feature to insure positive identification.

Designed primarily for navigation, an electronic altimeter, accurate to within 40 feet at sixty-thousand has now been developed by ARDC. It will be useful in aerial reconnaissance work and for other applications where exact altitude above the earth's surface is needed to accomplish a mission.

ARDC has developed a telemetry system by which the picture on a fighter pilot's radar is relayed back to base. By this means the pilot's instructor will be able, through voice communications, to instruct the student from the ground. Even at 40,000 feet you can't get rid of that guy who likes "to read over your shoulder."

Again calling your attention to the renaming of the Holloman Air Development Center—it will henceforth be called the Air Force Missile Development Center. Seems someone noted they really hadn't developed any air since the base was first activated.

The turbojet supersonic target drone developed by Radioplane Company is newest in the line-up of high speed targets against which the effectiveness of guided missiles and defense aircraft may be tested. It has both ground and air launch capabilities and is recoverable by parachute.

Fifteen C-130A Hercules aircraft have been assigned to the 1370th Photo Mapping Group at Palm Beach Air Force Base, Fla. The planes with a cargo section as large as a railroad freight car will be modified to contain the special electronic and photographic equipment needed to bring the world's geography up to date for jet age operations.

A one-month postponement—making December 1 the new effective date—for the control of all airspace above 24,000 feet for air traffic control purposes, was recently announced by CAA.

The P&W J-75 turbojet power plant with afterburner now under production, is designed for speeds of up to Mach 2 and develops well over 15,000 pounds of dry static thrust. Only slightly larger than the J-57, the J-75 is nearly 50 per cent more powerful.

THE COVER

Stevenson B. Canyon, Lieutenant Colonel, USAF, is a professional military pilot, pure and simple. His creator, Milt Caniff, is one of the best friends the Air Force has. Canyon, through the sharp mind and magic pen of Caniff, tells the Air Force story to millions of readers throughout the world. According to Caniff definition, the military pilot, first of all, is dedicated. Dedicated to his job, dedicated to his military teammates, dedicated to his Air Force and dedicated to his country. In addition, he's a pro—all the way. He does his job. He does it when he's supposed to—the way he's supposed to do it.

DFSR Sequence for

Lt. Col. Irvin M. Parsons, Research & Analysis Division, DFSR.

Our boss doesn't believe that a Flying Safety job can be accomplished by sitting at a desk here in sunny California. Sometimes it seems that we hardly get our B-4 bags unpacked long enough to get our dirty shirts laundered. If one of us hasn't visited your base on business in the last year, it is probably more by chance than intent. During this type of Cook's touring, we have tried to "spread the word" about Flying Safety and how to achieve it.

During this traveling, we've also kept our eyes and ears open so that we could bring back the "word." Often our ears got pretty badly bent by comments and remarks about Flying Safety, and a Flying Safety Program. In fact, we noticed that pilots of all ranks thought that our approach was somewhat less than perfect.

His tender feelings somewhat bruised by this attitude, our coach, Major General Caldara, sent in a new play. In September we pulled a neat, double reverse and handed you the ball. We couldn't hand it to all of you directly but we did give it to your representatives at the World Wide Flying Safety Officers Conference. They represented a pretty good cross section from the field. This action came as somewhat of a shock to some of the conferees who had had visions of spending a week lolling around the swimming pool at a lush California resort hotel. They were given the staggering assignment of developing a complete aircraft accident prevention program for the entire Air Force for the year 1958. And they had just five days to do it.

They would never have made it if some of the conferees had not already done a lot of work on the project. As early as April, 1957, representatives of the major commands had met to lay some ground work and to take a searching look at some of the factors affecting the accident prevention business. Their job was to pinpoint the problems and to decide on a plan of attack—a program.

Statistics show us that the frequency of various aircraft accident cause factors is pretty well established. The program—or "plan," if you like—must obviously aim at those causes which occur most often. For ease of production and organization, it was decided to set the program up around the twelve calendar months. The group therefore selected twelve major subject areas.

The pre-planners stated flatly that the program would not work if it were merely a top level directive, or if it were just something for pilots to do. The 1958 program was organized to be used at every command level in the Air Force structure.

The real work on the program started on 9 September, the opening day of the Flying Safety Officers Conference.

People imbued with sincere Flying Safety spirit sometimes go off the deep end for safety. To forestall this, a few basic concepts were emphasized:

Flying Safety is important but it is not to be gained at the expense of the mission. Most of our accidents in 1958 will happen to aircraft now in the inventory and to people who are already through flying school. A program which will produce a better rate in '58 has to deal with the personnel and equipment we now have. The program must accomplish these things at each command level.

• It must develop safety consciousness. You could call this selling safety. Good selling is making a person want something enough to pay for it. We have to pay for safety. You pay for it by wearing a hot, uncomfortable oxygen mask from the time you start to taxi until your mission is completed.

The mechanic pays for it by extra work and added checks to turn out a plane that is really right.

The operations officer pays by the extra time and effort he puts into a plan that can accomplish the mission safely.

It takes real selling to get everyone on the base to the point where he won't accept any product in his work that doesn't bear the trademark "Safety."

• It must develop actions which will spotlight areas of danger. We all know that there are a lot of near misses in the flying business. Unfortunately sometimes we don't miss and then we have accidents. By virtue of these near misses, we oftentimes recognize a hazard and take steps to prevent the accident that might have happened.

We must do things to find these accident potentials so they can be reduced or eliminated. This is the fact-finding function and everyone must get into the act. Statistical studies, accident investigations and operations safety surveys are examples of ways we can do this. But there are more. The Unsatisfactory Report, the Operations Hazard Report, the Near Accident Reports all are examples of how individuals can help.

Flying Safety is not just a magazine nor is it something that individual pilots do. It must be a way of life with each of us interdependent on and assisting the other. If the cycle of information going up or down is broken, the whole process stops. This is a most important point. It is very easy to damn the highly placed, long

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range planners and blame them for our troubles. Conversely, it is difficult to look for local, close-at-hand solutions.

The conferees at the World Wide meeting came up with twelve practical program segments to be developed. After a closer look perhaps you will agree that they made a good choice.

First, we have responsibilities in three separate areas—the Commander's, the Supervisor's and the Flying Safety Officer's. In practice, each of these individuals is responsible for every one of the other subjects listed.

In the next area, we have listed training, and as a result of proper training we get standardization; and as a result of training and standardization we achieve air discipline.

Subject matters in the third area are weapon systems support, maintenance and facilities — foundations for safe flying.

In the fourth area, education, human factors and the ever-present weather rounded out the list.

Each of these subjects listed involves every one of us every day that we are in the Air Force—either in our responsibility toward preventing accidents or in just plain flying or doing the other jobs we've been assigned to do. No one of them can be shelved to await its chosen month, be it June or December, but all are so important that each can well stand a selected time interval for special additional emphasis. This is the idea behind our program arrangement.

Item one in area one is **Commander's Responsibility.** The commander is the boss but in the Air Force he is more than this. He is involved every day, all day long, throughout the week, during the month and for the whole year in all major decisions

January
Commander's Responsibility – FSO in the Organization

February
Human Factors

March
Supervisor

April
Weather

May
Education

June
Air Discipline

July
Weapon Systems and Support

August
FSO Responsibilities

September
Training

October
Facilities

November
Maintenance

December
Standardization

that must be made and even down to the details about how things are done. Without him we can accomplish little. What must he do? He must plan, he must lead, he must control. He has many responsibilities, to higher headquarters, to lateral headquarters, to his own unit and to the people in it. In his responsibility toward flying safety, he must set his goal; he must organize his flying safety function to most effectively utilize the personnel, materiel and educational resources available to him in such a way that they do him and the organization the most good.

The **Supervisor** is the man who makes a lot of the decisions for the commander. He runs the day-to-day business of the organization and carries out the policies. The supervisor is a key man in all successful operations. He is the man who actually sets the pace; he is the example, and it is through him that we can reach the pilot, the maintenance man, the operations people and the others—including the cook—who affect the safety of flight.

Flying Safety Officer's responsibilities: FSOs are about 1200 strong in the Air Force. They have to radiate their influence, their zeal and their own dedication to everyone else. They are unique in the organization because, like the commander, they have to reach upward, laterally and down, to find and fix the faults that cause aircraft accidents.

Training: In times of peace, a military organization does little else but train for the mission that may be required in war. This training is planned, organized and conducted to turn out a combat-ready Air Force.

Standardization: There are about as many ways of doing any one thing as there are people doing it. This is okay, if we have no limit on time, lives and materiel. But, because of the size and complexity of our organization and the importance of the job we have to do, we in the Air Force must perform in the one best and most efficient way of doing each thing.

This is standardization. It is partly a product of training and it results from a system of checks to see that once people have been taught the best known way, they continue to use it.

Air Discipline: Today's pilot must be precise and disciplined if he is to manage the type of equipment we now have. Every phase of operation today requires more discipline at every level than ever before. This discipline must be part and parcel of command decisions, command supervision, command control and pilot control.

Discipline in flying is instilling the desire—or will—in a pilot, so that he follows the Standard Operating Procedures which have been developed to the absolute maximum of his ability. This is pre-accident discipline and prevents damage to aircraft or injuries to pilots.

Weapon Systems and Support: Weapon systems is a fairly new term intended to describe the end product which we have always wanted: An aircraft and its internal and supporting equipment combined to accomplish the desired mission. It is not something being dealt with only by planners and designers. The weapon systems which are our problems today are the aircraft which are assigned to our operating units.

Maintenance: Every pilot knows that his life constantly rests in the hands of the mechanics who work on his aircraft. Yet many pilots seem peculiarly unwilling to take any action to help improve maintenance. If we can consummate a closer union between the maintainers and the operators in Air Force units, we will have taken a big step toward accident prevention. It is strange that two such vital and dependent functions seem so frequently to be at odds. We should strive for an operations and safety oriented maintenance which will produce not only more, but safer flying hours.

Facilities: Cow pasture military operations were gone before Pearl Harbor. Today, the military aviator has long, wide strips of concrete, with lead-in lights at one end, GCA units alongside and crash barriers at the other end.

A further complex spreads over the rest of the base and along the hundreds of miles of airways between bases. These facilities are not perfect. In 1958 we will fly off much the same runways as we have this year, over the same beacons to the same traffic patterns and be controlled to landing by the same GCAs. Many things can, however, be done to make these facilities more effective.

Education: To many people, "education" and "training" are synonymous. This isn't so. Training is a process to make action almost automatic. Education is the job of getting people to think. In training we try to teach people habits but the flying game requires more than habit. It requires thought and decision. Hence, education, through all possible media.

Human Factors: We have some physiologists, doctors and other specialists at strategic locations in the Air Force who work on areas we usually think of as Human Factors problems. For this part of the program, we have tried to look closer to home.

On each base and all the various command levels we have Chaplains, Doctors, Red Cross workers, Provost Marshals, First Sergeants and others who deal with the inner man and the off duty man. We have tried to come up with a segment that will sell safety to these people who can also affect the on-duty performance of our workers and flyers.

Weather: We can't really do anything about the weather. We have yet to find the forecaster who can actually jack up a ceiling or increase the visibility when we need it. However, we can understand it and use what we know about it wisely. We can prepare ourselves and our equipment properly to meet the weather that we know must come. If it gets bad enough we can run away or around it. Each of these things we now do. We must do them better, more consistently, and with fewer lapses. For both weather personnel and the people who face the weather we need information that will be presented better, accepted more completely and used more wisely.

This is a program for 1958.

The whole program is full of recommended corrective action, which, if thoroughly applied, will reduce the number and severity of our aicraft accidents. Most of these are ideas for 1958; they deal with things in being. The suggestions are things that can be done. They are practical. They will help us to preserve more completely and effectively, the combat capability of the United States Air Force.

Only one job needs still to be done. The program must be sold. I would wager when it hits the "IN" baskets of many commanders, they will say in essence, "Here is a Flying Safety Program; give it to the Flying Safety Officer." This commander might better accomplish his mission if he would give a copy to each of his staff officers and make it required reading. Some will do this. Many a Flying Safety Officer will have to sell the separate ideas to the persons who get the job done. He needs a lot of help to do this. Especially yours. ▲

First Lieutenant

JAMES I. HARRIS

302d Tactical Reconnaissance Sq.

First Lieutenant

FREDERICK C. VOLKER

86th Fighter-Interceptor Sq.

KNOWLEDGE

WELL ★ DONE

TRAINING

LT. JAMES I. HARRIS recently disproved the old adage that lightning never strikes twice in the same place. He also proved that even if it does, a pilot who is well "grounded" need not fear the strike. Let's take a look at the proof.

He was on an ops photo mission in an RF-84F, eighty miles from home when he noticed his utility hydraulic system pressure fluctuate and then drop to zero. He immediately attempted to operate his speed brakes to check for gage malfunction but this proved futile, thus indicating actual system failure. This left him without speed brakes, wheel brakes and flaps—a very poor landing situation indeed.

Harris, remembering well his ground school lessons, lowered his landing gear with the emergency pneumatic system. Enough hydraulic fluid from the gear-up lines thus became available for a one time operation of the landing flaps and speed brakes. When these two systems were extended, he locked both in neutral and came in to land. The RF-84F touched down and Harris held the nosewheel off as long as possible before coming to a safe stop by using the emergency air brakes. Nineteen days later he did it again. Two strikes and two saves. Well Done, Lt. Harris!

LT. FREDERICK C. VOLKER was flying an F-86D near Youngstown, Ohio, when all of his pitot static instruments failed. He was then at 35,000 feet and the weather at Youngstown Airport was 1000 feet overcast, tops at 20,000, with visibility four miles in snow showers. No clear-weather alternate airports were available. Lt. Volker elected to penetrate and land although his altimeter, airspeed indicator and vertical speed indicator were inoperative.

An attempt to vector another aircraft to assist in the letdown failed because of GCI difficulties. By using his wing slats to determine airspeed and his attitude gyro to set up a rate of descent this young pilot began his penetration. At 2600 feet, GCA was able to paint his airplane and assisted in the letdown until visual contact with the ground was made. Lt. Volker then completed a successful landing on a 5000-foot runway with no damage to his airplane.

At the time of this incident, Lt. Volker had only 100 hours in the F-86D and a total of 780 hours in the air. His remarkable display of cool thinking and superb airmanship saved the Air Force and the Air Defense Command one of their first line defensive aircraft. Well Done, Lt. Volker!

FLIGHT SAFETY AWARDS

Shown here are the flying safety leaders of the USAF for the first half of 1957. Many more organizations had fine safety records and the task of making final decisions was not an easy one. The Selection Committee wishes to congratulate all those units who were placed in nomination for the award by their major commands and FLYING SAFETY salutes the winners!

29th Air Division (Def.) Malmstrom AFB, Mont. ADC

During this period, 8,892 accident-free hours were flown by this organization. This remarkable safety record was accomplished largely in jet aircraft under all-weather conditions and in spite of one unit undergoing conversion from one jet aircraft type to another.

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27th Air Division (Def.) Norton AFB, Calif. ADC

Within this organization is the first fighter interceptor squadron to convert to F-102 aircraft. Conducting all weather operations from a five-minute-alert status with a wide variety of equipment, this organization had only one major accident in almost 14,000 hours of flying time. The fact that this one accident was a result of materiel failure attests to the excellent training and supervision within this command.

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Hq Central Air Materiel Area, Europe, AMC

With this reporting period this command has completed three and one-half years of accident-free flying. This unusual record is the result of a persistent training program designed to combat the hazardous conditions of flight encountered in this area. Poor communications, inadequate weather forecasting and landings at airfields under construction are daily hazards for pilots of this command.

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WADC Wright-Patterson AFB, Ohio, ARDC

One destroyed aircraft in almost 12,000 hours of flying is the record of this command in which almost every flight consists of some phase of aircraft or aircraft equipment testing. The accident potential in this type of operation would seem to preclude such an enviable flying safety record. The personnel involved have certainly overcome conditions conducive to a high accident exposure rate.

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Instrument Pilot Instructor School Moody AFB, Ga. ATC

Considering the fact that student pilots were at the controls in 99 per cent of the flights conducted by this organization, the completely accident-free record attained is remarkable. During this period, 184 officers, including 16 foreign officers, were graduated as Instrument Instructor Pilots. (Anyone who has flown in the Southeast will attest to the unusually high frequency of low ceiling, poor visibility and thunderstorm activity in this area.) Ninety-nine hundred hours of flying without accident under the conditions, and with the exacting requirements of the mission, requires that there must have been an extremely flying safety conscious staff.

3560th Pilot Training Wing, Webb AFB, Texas, ATC

In spite of a complete turnover of supervisory personnel during this period and a heavy attrition among the more experienced instructor pilots this organization reduced its accident rate by more than half of that of the previous six months. Three hundred forty-six students were graduated with an average of 105 hours in T-33s.

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5700th AB Gp, Albrook AFB, C. Z. CAIRC

From July, 1955, to the end of the present award period, this organization has remained completely accident-free. During these past four award periods, this outfit furnished aerial logistic support throughout Latin America to Air Attaches, USAF Missions, Air Sections MAAGs and field headquarters of IAGS. All but five of the assigned and attached pilots have primary administrative duties.

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12th Strategic Ftr. Wg. Bergstrom AFB, Texas, TAC

The mission of the jet fighter organization is to conduct strategic fighter operations on a global scale. Despite almost constant deployment status of the units for training purposes these fighter type flew almost 6000 accident-free hours in the F-84Fs.

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802d Air Division, Schilling AFB, Kansas, SAC

"Over nine-million accident-free miles flown" is the proud boast of this command. The sharing of experiences through the operational hazard reporting program has been a major factor in attaining this fine record. Complete safety consciousness is obviously the key to success here.

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376th Bomb. Wg. Barksdale AFB, La. SAC

A strong Standardization Section, together with instructor-pilots who have insisted on strict adherence to all manuals, tech orders, regulations and standard operating procedures, resulted in over 11,000 flying hours without accident in this organization.

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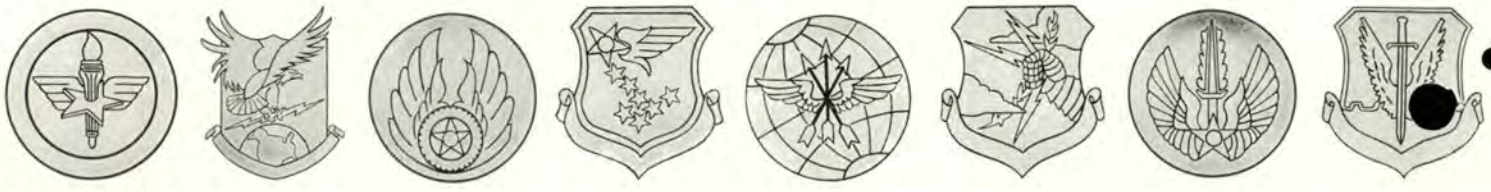
Mountain Home AFB, Idaho, SAC

This organization attributes its ability to fly over 15,000 accident-free hours during this period in large measure to the tenacious efforts of its maintenance personnel. In spite of the low maintenance experience level of personnel assigned, these ground crewmen never failed to provide the aircrews with top quality aircraft.



93d Bomb. Wg. Castle AFB, Calif. SAC

Using the sound approach that "flying safety is everyone's responsibility," this organization flew more than 10,000 hours without an accident during this reporting period. This was the same outfit that sent the B-52s around the world non-stop in 45 hours and 19 minutes, but perhaps even more important is their completely successful job of training combat crews in the B-52 for the whole Air Force.

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10th Air Division (Def.) Elmendorf AFB, Alaska, AAC

A repeat winner, this organization has flown a total of 12,154 accident-free hours during this period. Flying hazards peculiar to this area, together with the variety of aircraft flown and missions assigned, make this record particularly commendable.

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50th Ftr. Bomb. Wg. Toul-Rosiere AB, France, USAFE

Operating jet fighters and trainers over 10,600 hours without accident is an enviable six-months record, even under the best circumstances. This organization made it in spite of home base runway resurfacing and deployment to North Africa for gunnery exercises during the reporting period.

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86th Ftr. Intr. Wg. Landstuhl AB, Germany, USAFE

This all-weather jet organization flew 11,700 hours in the F-86D during this period, lowering its accident rate to less than one-third that of the preceding six months. Its success is attributed to increased emphasis on pilot knowledge of emergency procedures.

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416th Ftr. Bomb. Sq. Chambley AB, France, USAFE

From July, 1955, to June, 1957, or two years and 10,446 hours in the F-86F without an accident! To achieve such a record in Europe is a feat that speaks for itself. The attention to duty and outstanding spirit of teamwork displayed here by officers and airmen have set a mark which will not easily be equalled.

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452d TC Wg. Long Beach Mnpl. Arpt. Calif. AFR

This Wing flew 5,822 hours without either a minor or major air craft accident. During this period the primary operational task was conversion from bombardment to a troop carrier mission.

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166th Ftr. Intr. Sq. Lockbourne AFB, Ohio. ANG

This Air Guard Unit has not had an accident since October, 1955. Its record is indicative of the outstanding degree of planning and teamwork which this unit applies to all phases of its operations. During this period, 4551 flying hours were logged.

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186th Ftr. Intr. Sq. Great Falls Mnpl. Arpt. Mont. ANG

This air defense mission Air National Guard Squadron with "part-time" pilots was completely accident free during this period. Three months of this six-months time brought weather typical of the great Northern Plains: snow, ice and temperatures down to 30 below. A mark hard to equal or beat!

Clark AFB, Philippine Islands, PACAF

Units of this base have flown missions during adverse weather conditions over mountainous terrain and large open sea areas. Cargo and liaison type aircraft have operated from short, hazardous landing strips of coral, grass sod and packed earth throughout the Philippine Islands. Sixteen types of aircraft flew over 12,000 hours without accident during this period.

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18th Ftr. Bomb. Wg. Kadena AB, Okinawa. PACAF

Even through transition to new aircraft, this Wing maintained a spotless accident and incident record while flying over 7300 hours. All but 420 of these hours were in jet type aircraft and were conducted without a suitable alternate airport. Results reflect creditably on the supervision and training within this organization.

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1608th AT Wg. (Med.) Charleston AFB, So. Car. MATS

This Wing's normal operation includes flights to South America, Europe, North Africa, Saudi Arabia, and throughout the United States. Its crews and aircraft are subjected to practically every type of weather phenomena and operating condition. During this reporting period, sound planning and efficient aircraft operation resulted in a spotless accident record.

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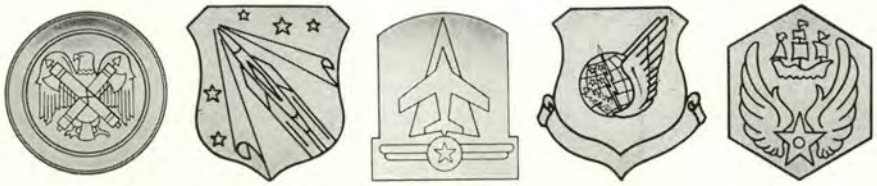
12th Air Rescue Gp, Ramstein AB, Germany, MATS

As in any rescue operation, crews must often be dispatched with a minimum of preflight planning. This, together with all weather operation and hazardous landings in rugged terrain or open sea, presents an ever-present high accident potential. Overcoming these drawbacks to safe operation, this Group has flown almost 15,000 hours without accident during the period from July, 1956, to the end of the present award period.

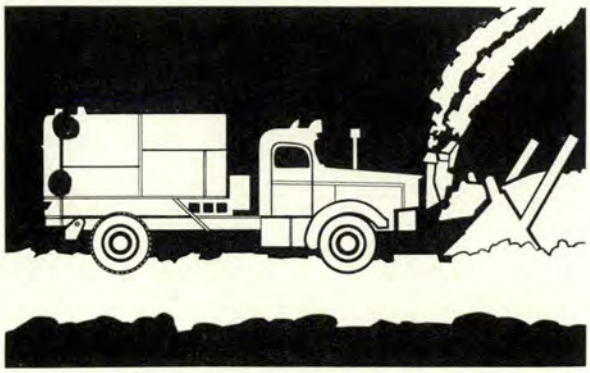


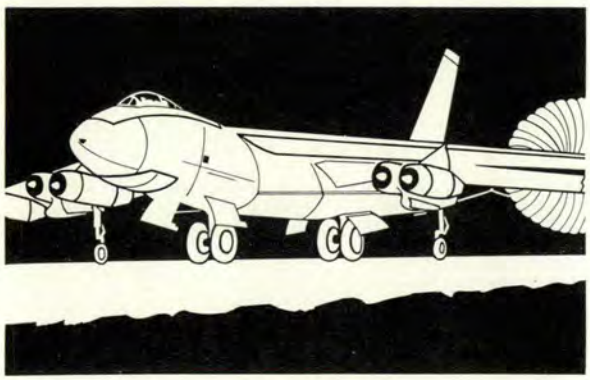
FLYING SAFETY

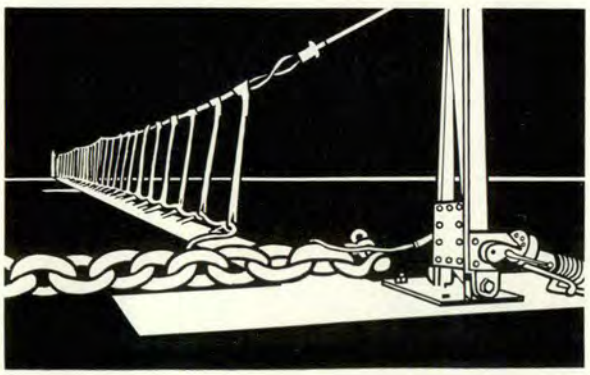
There's one thing you got to say about a B-47. It sure does slide good! Especially when it's being landed at Goose Bay, Labrador — it's February — the drag chute's been jettisoned — ice on the runway — and 5000 feet to go!

Major Jesse W. Mitchell, 26th Strategic Reconnaissance Wing, Lockbourne AFB, Ohio.

SLIDE, KELLY,







"**THIS IS KELLY LEADER**, starting to taxi."

"Roger, two."

"Roger, three."

"Roger, four."

It was February at Goose Bay, Labrador. The base was plowing itself out of one of its paralyzing winter snowstorms and was operational again.

It was 0230 and we were taxiing out with a flight of four B-47s to take off on the last leg of an overseas move. Everything was going along better than expected. The planes had been out in all of the storm but had collected very little ice. We had sprayed them with killfrost to remove a thin spotty layer that had formed. During the last hour a few snowflakes were noticed, but according to the weather briefing this shouldn't amount to much. In fact, it was already showing signs of letting up. The outside temperature read 25 below. We had pre-heated the cockpits and were fairly comfortable in our Arctic clothing.

"Hydraulic pressure normal." This came from Nick, my copilot, as I completed checking the nosewheel steering system and brakes.

The snowplows had done a good job of clearing the taxiway and for once there was not the strange-field problem of "Tower, which way do I go?" The taxiway ahead was the only one open and the snow on each side was piled up three to five feet high. The snowbanks showed up very well in the landing lights but looked uncomfortably close. There was enough room, however, and braking action was good as we taxied out to the active runway.

"Radar checks okay," said Perk, our radar operator. This was welcome news since we had been having trouble with the set.

As we taxied onto the runway the snowbanks on each side really showed up. They must have been at least six feet high and were just off the edges. Although the runway was 300 feet wide and there was plenty of room between banks, they looked mighty close—to us, fresh from the desert southwest.

The other three B-47s were already in position and we took off as scheduled. "Kelly two" and "Kelly three" followed us as scheduled, but "Kelly four" aborted after rolling about 1000 feet down the runway. He notified the

tower that he had reset an alternator and would try again. This time he was about 3000 feet down the runway when he aborted with the same malfunction. He deployed his brake chute this time and stopped without difficulty. After turning around, he jettisoned his chute and went back to the ramp. He asked the tower to send an electrician, a new brake chute and the de-icing equipment. When the tower operator asked why he needed killfrost, he replied in a you-won't-believe-it tone of voice, "The wings are covered with a layer of heavy frost. It formed as we were taxiing back to the ramp."

The rest of us were well on our way and it looked as if we would be in "Merry Ole England" in six hours or less. Just about the time we were to check out with Goose Traffic Control, we received a message to return to Goose. The weather at destination had taken an unanticipated turn for the worse and we were to return immediately. We did the 180, as requested. We were too heavy to land, however, so we got clearance from Goose control to descend since we could burn off the fuel faster at lower altitudes. We were stacked from 15,000 feet up.

After three hours we were down to normal landing weight and requested landing instructions. We were told to land on runway 35 which was 90 degrees from the direction we had taken off. The wind was reported at 15 knots from 15 degrees, temperature 27 below, ceiling 2500 feet and visibility eight miles.

Goose control gave us approach times and we were to land in reverse order from our takeoff sequence. The first airplane was picked up by GCA and landed. The runway we were landing on did not have any taxiways cleared to it, so after landing, "Kelly three" had to turn around and taxi back down the active to its intersection with the other runway. He then taxied up this runway to the one open taxiway and back to the ramp. This took more time than anticipated. In addition, the alert pickup truck had trouble locating the jettisoned chute. These two factors caused "Kelly two's" approach time to be 15 minutes later than expected.

"Kelly two" then made his GCA and landed. He reported that braking action was poor but did not have any trouble stopping. He jettisoned his brake chute and was turning around on the runway when he called the tower and stated that he had cut all engines. He had started sliding in the turn and the brakes wouldn't hold, so he cut the engines to keep from going off the runway.

"Tower, this is Kelly two, I'll have to have a power unit to start engines."

"Roger, stand by."

Twenty five minutes later, "Kelly two" was clear of the runway and we were told to begin our approach.

Just before reaching the high cone of Goose Radio Range, the approach controller advised us that the wind had shifted and was 45 degrees off either of the open runways. We had our choice for landing. I chose the one we had used for takeoff because it was 11,000 feet long.

We reported over the station and GCA picked us up in the penetration turn. We continued around the pattern and broke out of the overcast at 2000 feet approximately six miles out. Everything looked fine. Visibility was good and the runway lights were straight ahead.

Our touchdown was about 1000 feet down the runway which is a little shorter than usual.

I called, "Brake chute now!"

A couple of seconds later Nick said, "It's a good one." I felt the pull of the chute at the same time Nick called out and I answered by saying, "Cutting 1, 2, 5 and 6." This was SOP and I knew that Nick would be looking back to see if the chute blossomed correctly and also to see if it was staying with us.

This time he didn't have to tell me it was staying because just as I cut 1, 2, 5 and 6, I noticed that we were being pulled to the side of the runway by the crosswind acting on the chute. Nosewheel steering didn't help correct the drift and that six-foot wall of snow on the left looked big and close.

I called over interphone, "Jettison the brake chute!" I pulled my chute jettison handle and I suppose Nick pulled his, too. The sideways travel stopped and with the use of rudder I got back in the middle of the runway. Then I pushed on the brake pedals.

Nothing happened!

"How is our hydraulic pressure?"

"It's normal."

One thing I'll say about a B-47, it sure does slide good.

That is what we were doing at a speed of 100 knots. I sure wished for some reversible props.

"Turn off the anti-skid, maybe locking the brakes will help," was a suggestion from Nick. I did, but this didn't help. With anti-skid ON or OFF we charged straight as an arrow down the runway toward that wall of snow at the end.

"Crew, prepare for crash landing! We may run off the end of the runway."

"Tower, this is Kelly, we may slide off the end of the runway!"

All this happened and we still had 5000 feet to go. We were slowing down but still indicating 80 knots. The green lights at the end of the runway were showing up very plainly. I thought, "Wouldn't it be nice if we had a runway barrier." I said, "Nick, I'll cut the engines and switches just before we go off the end."

"We're down to 50 now. How much runway is left?" This came from Perk, sitting in the nose.

"Twenty Five hundred feet, I guess."

I wondered if the snowbank at the end was very hard. It probably was since it was so cold. They say this gear is well stressed. I remembered from Wichita the story about a student who made a hard landing and on the first bounce the outboard engines fell off and on the second, the inboards and the outriggers went. On the third he dragged one wing and groundlooped. The main gear held up throughout all this and afterwards, when checked, operated perfectly.

We now had about 1000 feet left and for the first time it looked like this sliding monster might stop before running off the end.

"Hey, Perk, if we do go off the end, it won't be very hard."

We started hitting rough places in the runway and for the first time I felt the brakes taking hold. We were barely moving. Now we had stopped. The green lights were actually behind us but we were still on the runup area off the end of the runway.

Just lucky, I guess.

If we had landed the normal distance down the runway, or if the brake chute had malfunctioned, this story would have ended differently—to say the least. After several sighs of relief that we hadn't bent this B-47 up, we began thinking of possible reasons why we had experienced the trouble we did. Was there some factor that we had failed to consider in the operation of our B-47 from snow-covered runways?

After considering the events leading up to our landing, these three questions came to mind:

- How did "Kelly Four" get frost at $-25°$?
- How can a runway get slick at $-27°$?
- What can be done to prevent B-47s from running off the ends of runways because of braking malfunction?

The answer to the first question is this: The B-47's exhaust gas strikes the ground about 15 to 25 feet behind the tailpipe. This melts the top of snow or ice behind the airplane. While taxiing down the runway with the tail into the wind, water vapor caused by jet blast melting the ice and snow, blew over the cold wing and immediately condensed and froze in the form of frost or rime ice. It looked like regular frost.

The answer to the second question goes like this: Remember "Kelly Four?" He taxied up and down the runway a total of four times. "Kelly Two" and "Kelly Three" taxied down this same runway just prior to our landing. The jet blast, directed toward the runway, had caused the top of the compacted layer of snow to melt and then freeze again in the form of clear, slick ice. Naturally, this makes good sliding. From where we jettisoned our brake chute to the point where we stopped measured 8450 feet.

Question number three doesn't have a satisfactory answer. New charts have been published for computing landing roll on wet and snow-covered runways. However, charts for landing on glaze ice do not exist!

The Air Force has recognized a need for additional safety factors in stopping high speed jets. For fighters, the MA-1 Runway Overrun Barrier, which is the familiar chain type, has prevented many potential losses. This barrier is not effective on any icy runway because of the absence of friction generated when the chains slide over the surface. During a 13-month period ending in October, 1956, ARDC estimated a 78 million dollar saving in aircraft through use of the chain type barrier. During this period the barrier was used 327 times. Numerous instances of jet bombers overrunning the runway while landing has pointed up the need for a bomber barrier. One suitable for bomber use is now being developed.

The maximum stopping force obtainable with the chain barrier is about 40,000 pounds. For a B-47, B-52 or even an F-102, this is not enough stopping force for practical use. A force of 110,000 to 115,000 pounds is needed. A contract has been let for design, manufacture and testing of a barrier adequate to provide this force. Probably a linear friction type brake will be used. This could be something like an oversized brake drum which has been straightened out and placed along the side of the runway. A sliding brake shoe would then be attached to the aircraft barrier engaging system. The unit will be designed to stop the aircraft in 1000 feet or less. Testing of this barrier will begin at Edwards Air Force Base soon and is scheduled for completion this month.

Reverse engine thrust has been considered as an answer to this problem. This system has proved as effective as reversing propellers on conventional engines. However, there are two drawbacks. One is weight. It takes 300 pounds of extra weight per engine to install thrust reversers. The second drawback is cost. For the B-47, this is in excess of $90,000.

Development of better materials for more efficient brakes and for better traction in tires is continuing. At this time there is little hope for substantially better materials than those we have.

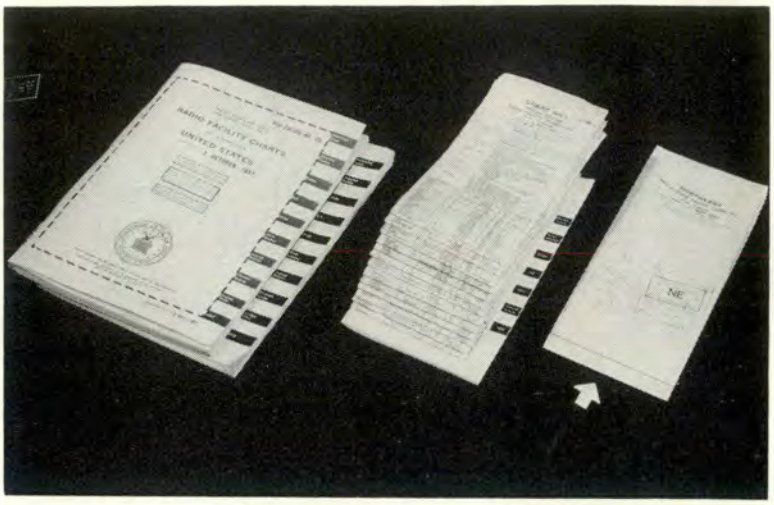
About the only remaining solution to this problem is to lengthen our runways. Without brakes, flaps or a brake chute, a runway approximately 23,000 feet in length is needed for a 115,000-pound, B-47 to roll to a stop. The enormous cost and time needed to complete a project of this size makes this solution impracticable. Even if it was practicable many runways could not be extended because of terrain features.

After consideration of all factors mentioned, it appears that the runway barrier is our best bet.

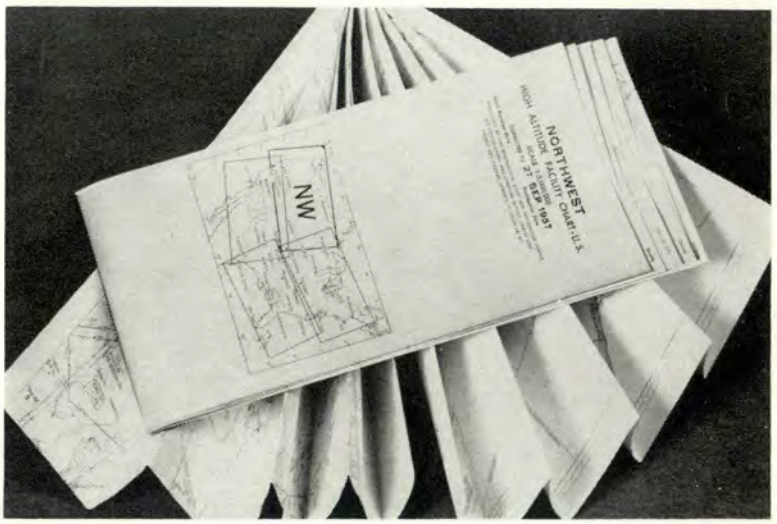
Let's hope that the near future will bring barriers for all Air Force runways. They will provide that extra margin of safety we need. Even with the safety and security of runway barriers, constant vigilance and alertness will continue to be our guide in our effort to reduce landing accidents. ▲

continental control

Charles J. Moebus, ACIC



The top photo shows the new High Altitude Facility Charts, two for the whole country. In the bottom pic you see how the Fac Chart boys have boiled 'em down in two steps to do the job.



Control of air traffic in the United States has undergone a drastic change in the past few weeks. Until recently, this control, geared to traffic of a pre-World War II vintage, has been inadequate to fulfill the requirements of the tremendous increase in both military and civil aviation activity. The powers that be have therefore developed a plan designed to relieve the congested air traffic situation.

This plan has not come about overnight. It took years in the making and still cannot be considered complete because of all the "unknowns" which will become apparent as a result of actual operations. It takes time to find out how you human missiles get about. In order to open the gates of this plan, it was decided first to improve control of high altitude traffic through new procedures, observe the fruits of this control, and apply the experience to lower altitudes at a later date.

The first step in improving control was to designate all airspace above 24,000 feet as a special area called the "Continental Control Area." The airway structure 27,000 feet and above was simplified and geared to high performance type aircraft operating at these altitudes. The control area is to be eventually subdivided into sectors and direct pilot-to-controller communications within each of these sectors effected. No more red tape!

It was also decided to put this plan into effect gradually as all the details could not be worked out on paper because of the variety of operations involved. Therefore, effective 1 December 1957, pilots flying 27,000 feet and above are no longer required to bother with the low altitude federal airways system. However, certain of the navigational facilities (LF/MF, VOR, TACAN and VORTAC) used in conjunction with this airways system are necessary and have been designated as high altitude facilities.

The high flying pilot is now required to file his route of flight via these designated high altitude facilities, all of which are now compulsory reporting points. For ease of flight planning, a "preferred" route structure greatly simplified in comparison with the low altitude airways system was established. This route structure was based upon studies of previous traffic flow conditions. To give you—the pilot—some leeway in choosing your route, it was decided that you could fly off these recommended routes provided the route of flight was filed via any high altitude facility not more than 300 nautical miles apart.

In order to accurately keep track of the location of the aircraft (in the air, of course), adequate air/ground communications channels are necessary.

Although we cannot discount the

use of radar in pinpointing locations, direct pilot-to-controller communications is considered the ideal method with which to accomplish this. All of this requires a tremendous amount of manpower and equipment which to date has not been made available. It is expected, however, that—in due time — complete pilot-to-controller communications facilities will be available and specific communications frequencies (discrete frequencies) established for each sector.

Details of the operating procedures? Sure, we've got these too! They can be found set out in legal jargon on the panel of the High Altitude Facility Chart and in the Special Notices section of the bound RFC.

Before the high altitude plan could be put into effect, some kind of chart containing the high altitude information had to be made available. It was decided that the present bound RFC publications of which most of you are familiar could not be modified to include the additional high altitude routes and allied information. Representatives of Headquarters USAF, the Civil Aeronautics Administration and Major Air Commands, therefore agreed that a sheet type high altitude facility chart would be best in giving you the Big Picture.

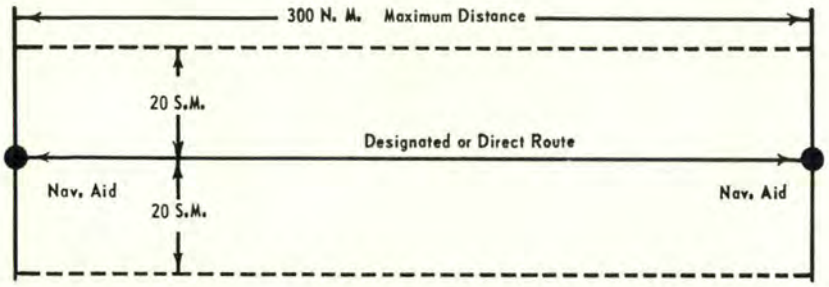
This newly developed High Altitude Facility Chart U.S. consists of four charts (printed back to back on two sheets of paper). These charts have been given a special fold adaptable for use in the close confines of the cockpit of high performance type aircraft. The design includes a "partial margin" type format, i.e., the border of the chart on two edges is eliminated so that the four charts may be readily joined together to form a wall planning chart. It was decided that initially these charts would contain a minimum amount of essential information — only designated high altitude navigation aids would be shown. However, there is a certain conglomeration of data that simply can not be eliminated. Mileages, magnetic bearings, reporting points, airfields, control areas, ADIZ boundaries and restricted areas basically complete the list of *minimum* information needed by the pilot.

Only airfields equipped for use by jet aircraft are shown. For the benefit of pilots able to draw a straight line, a compass rose is placed at each facility to assist in computing bearings for flights off preferred established routes.

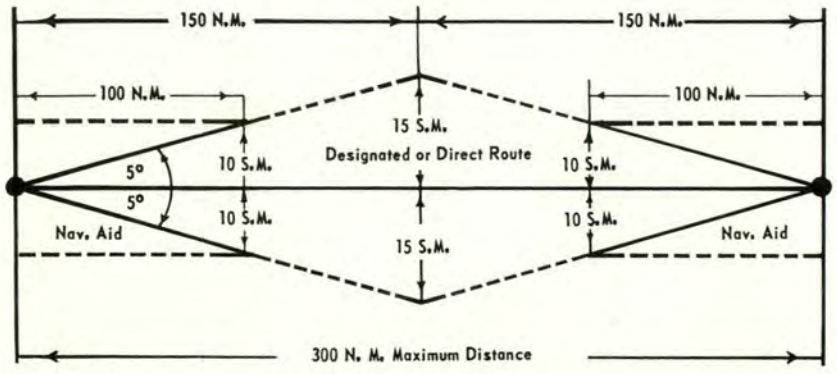
Charts were distributed about the middle of October in order to allow a period of time for pilots to become familiar with the high altitude chart. It is not intended that this high altitude chart will replace the present bound or sheet type RFC. Every effort, however, is being made to eliminate the need for the low altitude RFC in jet aircraft.

Perhaps someday the ultimate goal of complete NAVAID coverage in one little package may become a reality. ▲

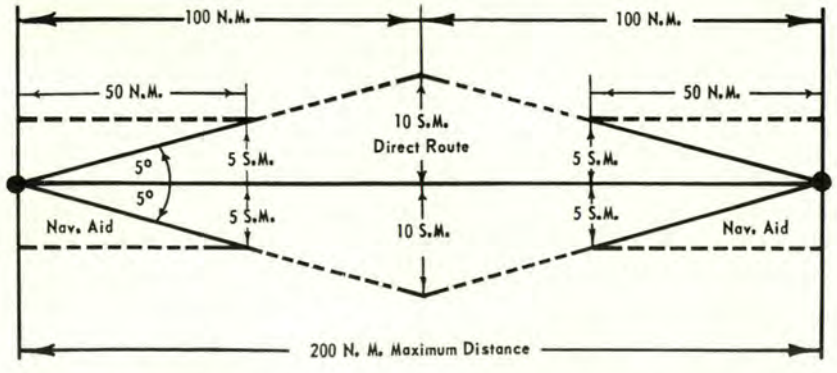
Route width to be protected by Air Traffic Control—Lateral separation between aircraft operating IFR within the continental control area will be provided by air traffic control on the basis that aircraft will remain within the following route widths:



For operation at and above 41,000 msl—The airspace to be protected along any route will be 20 statute miles on either side of the route.



For operation from 27,000 through 40,000 msl—The airspace to be protected along any route will be 10 statute miles on either side of the route beginning over the navigation aid to a distance of 100 nautical miles from the aid, then increasing in width on the basis of a five-degree angle from the route as measured at the navigational aid, to 15 statute miles on either side of the route at maximum distance of 150 nautical miles from the aid.



For direct (off-airway) operation 24,000 through 26,000 msl—The airspace to be protected along a direct route between navigational aids will be five statute miles on either side of the route beginning over the navigational aid to a distance of 50 nautical miles from the aid, then increasing in width on the basis of a five-degree angle from the route as measured at the navigational aid, to 10 statute miles on either side of the route, at the maximum distance of 100 nautical miles from the navigational aid.

checklist for the holidays

If you can answer all questions below correctly, we know that your holidays will be happier. Merry Christmas!

• • •

- Did you start too late this year to get the job done?
- Did you issue the proper orders in time to get results?
- Have you "fallen" for the slipshod way of doing your work?
- Are you insisting on good air and ground discipline?
- Has your boss delegated you enough authority?
- Are trivial matters "snowballing" on you; keeping you away from the prime mission?
- Have you got your mind on the proper goal?
- Have you any regrets about the way you've handled the job?

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