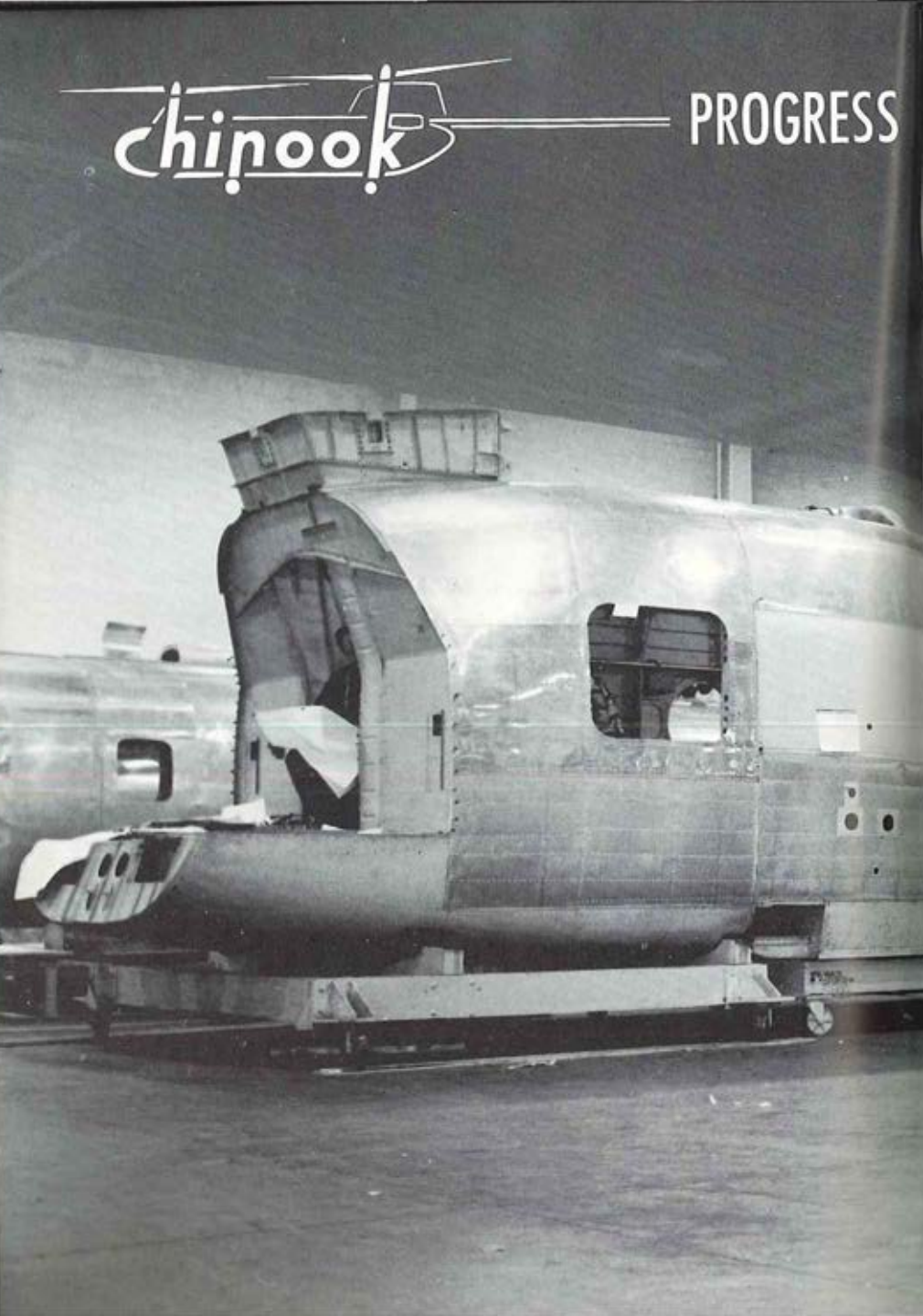
ARMY AVIATION

JANUARY ★ 1961

Chinook PROGRESS

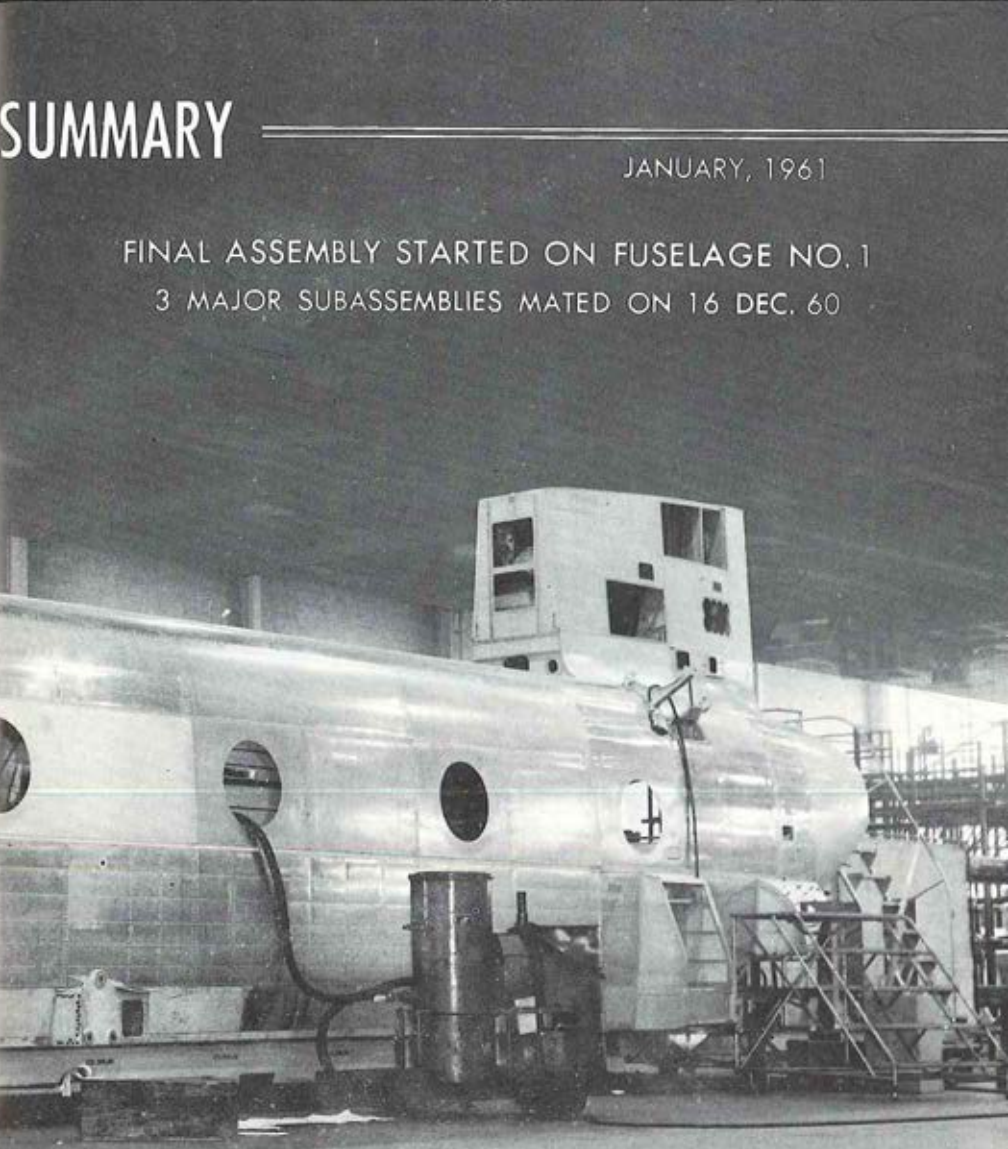


SUMMARY

JANUARY, 1961

FINAL ASSEMBLY STARTED ON FUSELAGE NO. 1

3 MAJOR SUBASSEMBLIES MATED ON 16 DEC. 60



VERTOL DIVISION
BOEING
MORTON PENNSYLVANIA

TRAINEE AIRLIFT

Fort Ord's 17th Aviation Company airlifts basic trainees to bivouac

Bivouac and maneuvers took on a new aspect for basic unit trainees of Fort Ord's 1st Brigade as motor vehicles and marching were recently replaced by air transportation.

Company A of the 1st Battle Group utilized 19 single-engine *Otter* aircraft in moving its entire unit to Camp Roberts, Calif., for a two-week accelerated training period on bivouac and maneuvers. The airlift, first of its kind here, is being conducted by the 17th Aviation Company as part of their Army flight training tests. Headquarters Company of the 4th Battle Group also completed their bivouac and were airlifted to and from Fort Ord via the same method.

Each aircraft carries eight fully-equipped soldiers with weapons and parachutes, and each passenger is given a briefing and demonstration on the proper procedure for wearing and utilizing the parachutes. In the photo above, a heavy weapons squad is briefed prior to boarding its *Otter*.

POSTMASTER

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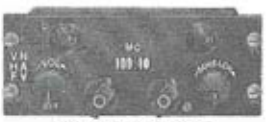
CERTIFIED TO TSO CATEGORY A

C-36 Localizer • C-38 Communication • C-40 VOR En Route Navigation • Military Nomenclature AN/ARN-30D

R-34A RECEIVER, powered by DV-10A Dynaverter, shown with B-13A-1 CONVERTER on E-14 RACK and M-10 MOUNTING



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**Based on Q-2C operations at Air Force Missile Development Center*

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Ryan Offers Challenging Opportunities to Engineers

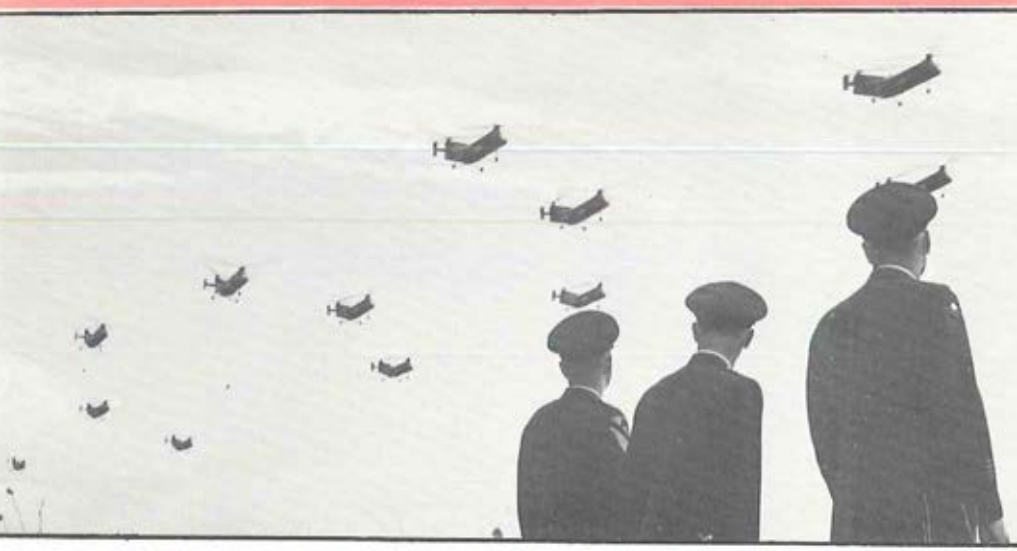
AT TIMES, I'm afraid that those of us in the Pentagon take for granted policy and doctrine on certain key issues. We tend, perhaps, to forget that the "field" receives at least as many queries on our program as the Department of the Army and that we should all give the same answers. This letter, then, is an attempt to describe our basic policy on a few key issues; to provide some facts on current programs; and equally important, point out some things we are not doing.

Most of the sensitive questions I receive are aimed at uncovering some hidden and mysterious long range intentions of Army aviation. Translated, they boil down to this, *"Aren't you really heading for another Air Corps?"*

I don't know what more the Army can do about this question except to include a special oath in the graduation ceremony of each Army aviator in which he swears that his individual aim is not the formation of a new aviation empire. In every public address and in every internal paper the Army has emphasized over and over that there will be no special aviation branch and that Army aviation will attempt even greater decentralization in its future program.

I would like to quote from some remarks by the Army Chief of Staff, General Decker, of 3 October 1960:

"Meanwhile, I would like to state that the Army has no intention of duplicating, with its aircraft, those functions—such as close support and deep reconnaissance—performed by the Air Force. Nor do we intend creating another 'Air Corps' within the Army. On the contrary, our Army aviators and aircraft are not organized in



POLICY AND DOCTRINE

By BRIGADIER GENERAL CLIFTON F. VON KANN
DIRECTOR OF ARMY AVIATION, ODCSOPS

When & how much

HILLER ANSWERS BOTH . . . WITH A LINE OF GROWTH-PLANNED HELICOPTERS

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Brains behind the economic Hiller growth plan are the shrewd military investors who put the Hiller H-23D Raven through its paces. They proved the basic drive system and chassis had growth built in . . . that power and more power could be added for new helicopters without new-helicopter development time and cost. That's why the Hiller line has been made to grow—made to keep on growing—increasing performance to pinpoint military needs—becoming the No. 1 buy in commercial fields, where business hinges on helicopter capabilities.

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HILLER AIRCRAFT

SUBSIDIARY OF THE ELECTRIC AUTOLITE COMPANY
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a separate Corps but are distributed throughout the entire structure of our Army organization."

You would think that would settle it, but I forecast that this same specter will haunt us again in the near future. Actually, anytime that we talk of Army aviation out of context with the Army's mission as a whole, the question is bound to come up again.

THE NEXT tack our interrogator will normally try is, *"Well, maybe you won't have another 'Air Corps,' but aren't you trying to take over the mission of the Tactical Air Command?"*

The Army has always held that the mission of TAC is one of the most important in the military establishment. From the Army's standpoint we would like to see even greater emphasis placed on TAC, especially its airlift capability. But instead of trying to take over any of the tactical air command missions, the Army is directing its efforts toward the areas where *no* aviation capability exists. What most people fail to realize is the fact that there is a wide area within the current roles and missions where unfilled requirements for aviation exist. For example, the Army's most pressing need is to match its target acquisition capability with its firepower. In this regard our *Mohawk* program, supplemented with the drone program, is only a first step toward filling the gap.

THEN COMES a natural question, *"What manned aircraft does the Army expect to develop in the future?"*

As you are aware, the Army recently completed a detailed forecast of its future aviation needs for this decade. Three important areas were studied and an immediate decision was made to proceed with development of a light four-place turbine helicopter to replace the Army's fast obsolescing fleet of observation aircraft. The specifications of this aircraft have recently gone to industry, and in the next few months the Army will choose two designs to be carried out to prototype stage. After an extensive test of the finished articles, one will be chosen for rather high density production. I forecast that the final item will put the light helicopter in a far higher utilization category than at present.

This same study identified two areas of possible future Army manned aircraft, a surveillance aircraft with greater capabilities than the *Mohawk* and a V/STOL transport aircraft to either replace the *Caribou-Chinook* team or to supplement it. Intensive studies are underway to further identify the exact requirements in these areas. I think we will be in a position to define our surveillance requirements as the results of these studies become apparent.

One important phase is directed at the low level, high speed flight envelope with a view to man-machine compatability and vulnerability. Our work in this area is subject to misunderstanding and rumor, so I would like to clarify this program. Back in 1957, the Army recognized its lack of experience in jet aircraft and, through the cooperation of the Navy, began a modest program to train 8 aviators of the U.S. Army Aviation Board as qualified jet pilots.

At approximately the same time the Army Aviation School began an 18 month test program utilizing 3 T-37's, loaned from the Air Force, to develop data for the *Mohawk*. With the impetus of the recent ad hoc committee review, the Board, again with the cooperation of the other services and industry, has been testing various high performance aircraft in the flight envelope of Army interest. These aircraft include the T-28, T-2V, F9F, A4D, N-156 and the Fiat G.91.

Let me make this point clear—we are *not* testing these aircraft as individual items for possible inclusion in the Army inventory. We are attempting to convert erstwhile *opinions* into *facts* and to develop a broad background of experience in aircraft that have a wide speed range, a variety of wing sweep angles and wing loading, and that have different landing and take-off requirements. The end result,

SHOWN LANDING AT A TEXAS TOWER RADAR STATION SOME 70 MILES OFF THE COAST OF MASSACHUSETTS, A BOEING VERTOL 107 PROTOTYPE DEMONSTRATES ITS CROSS WIND CAPABILITIES IN LANDING IN A 30 MPH CROSS WIND. NOTE FLAG AT RIGHT.

we hope, will be realistic characteristics for what we want (and do not want) in any future surveillance aircraft. By operating this aircraft in a projected Army mission profile, by Army aviators, we believe we will get answers not available by any other method.

This projected mission profile is not one of close support. We have our work cut out for Army aviation in recognized missions for years to come. We have a tremendous job to do to get our house in order without thinking of other missions. We have limited resources which must be wisely concentrated in the most vital priorities. The conclusions of the Board could easily come up with more negative qualities the Army should avoid than positive areas that bear further investigation.

I'd like to squelch, then, any rumors of "squadrons" of Army jet aircraft or similar conjectures. Our program is well known at Department of Defense level. We have been gratified by the generous cooperation of the other services and we are making extensive use of the data from their separate studies on related programs. We are not duplicating efforts made 10 or 15 years ago by someone else, nor are we working in a vacuum unaware of the state-of-the-art developments.

The next area of interest to our interrogator is usually concerned with the DoD limitation on the empty weight of Army aircraft. We are continually asked if the Army will attempt to have these restrictions removed. On the surface, the weight limitations on Army aircraft would not be a serious restriction as long as the Department of Defense continues to grant exceptions to these limitations as it has with the *Caribou* and *Mohawk*.

But their very existence has tended to hamper research and development and to restrict industry's efforts to meet the Army needs. The Army has stated its position to Department of Defense and appropriate Congressional committees to the effect that the mission should govern the equipment, rather than any arbitrary weight or size.

DOCTRINE/*Continued*

I fully believe that the original purpose of these restrictions has been outdated.

For example, there will be no fixed wing aircraft procured by the Army in the foreseeable future that will not weigh more than 5,000 lbs, and any aerial crane development may well exceed the 20,000 lb. limitation on helicopters. I think that these future possibilities are becoming well recognized throughout the military establishment.

YOU CAN see that all of these issues revolve around implications that our program is in a day-to-day struggle for a raison d'etre, vis-a-vis the Air Force. (Forgive me for throwing all my French vocabulary in one sentence). Much of this attitude stems from the various *Memoranda of Understanding* and a lack of appreciation of Army aviation's methods of employment. This is unfortunate and unproductive. It does an injustice to the programs of both services by focusing attention on minor issues and totally ignoring the many areas of complete understanding.

Army aviation has its only reason for existence in the mission of the Army itself. To the degree that it enhances the Army's capability for land combat, organic aviation is essential. It is not in competition with the aviation of any other service. And I might add that nowhere does this program receive more severe scrutiny than within the Army itself. Remember that any aircraft the Army buys is bought only after a detailed evaluation of the worth of this machine compared to the other vital Army needs—tanks, artillery, personnel carriers, etc. No senior Army commander is going to deprive himself of any combat potential in favor of an item which is less important to his mission. The best measure of the importance of Army aviation to the future land combat has been its emphasis by the senior Army commanders as an important part of every future tactical plan.

I therefore think that we should discard any apologies for our existence. Our program is well recognized throughout the military establishment. We have a positive program designed to meet a positive requirement. I think we have moved from the shadow of the stigma of "another Air Force" into the light of a "vital element of the combat arms team." The only justification of our program should be made in the light of our contribution to the effectiveness of that team.

I HOPE these comments will help you tell the "Army Aviation Story" in its real light. It is a worthwhile story and it should be told often. One of the best forums for getting our message across lies in the various civilian aviation organizations that have a natural kinship to Army aviation. I thoroughly recommend each Army aviator give his support to one or more of the many fine groups concerned with general aviation.

The American *Helicopter Society*, the *Institute of Aeronautical Sciences*, the *Soaring Society of America*, the *National Pilots Association*,—all have something positive to offer certain Army aviators. I would particularly like to suggest your consideration of the *National Aeronautic Association* with its broad overall aviation goals. (Of course I am pre-supposing that you already belong to the *Army Aviation Association* and *AUSA*).

LAST YEAR, about this time. I cited the AR's, SR's, Memos, and Directives which prohibited me from wishing you anything resembling a Merry Christmas and a Happy New Year. These same regulations are in effect. So once more I shall have to ask you to use your imagination and assume this letter is trimmed in red and green—surrounded by holly.

Sincerely,

CLIFTON F. VON KANN
Brigadier General, GS
Director of Army Aviation, ODCSOPS

ARMY CESSNA L-19

AIR FORCE CESSNA T-37

Can you see the similarity? The Army's first Cessna L-19 was built in 1950; USAF's first Cessna T-37 was built in 1954. The L-19 proved itself in Korea; the T-37 has proved itself in peace. The L-19 is designed for observation and reconnaissance, the T-37 to help our airmen step confidently into the age of space. Each is as different from the other as it could be—except for one thing: each has fulfilled its mission more effectively than it has ever been fulfilled before. *That* is the similarity. And that is the kind of experience that Cessna can bring to many another military need, today and tomorrow.

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LET'S UTILIZE

Our Existing

Throughout the history of military operations, necessity has been the mother of invention. But too often necessity, genius, and oversalesmanship have caused us to end up with inventions on which many dollars have been spent and on which we have realized little or no benefit.

Durng periods of conflict—when urgency precludes publication of military characteristics, invitations to bid, the usual growing pains, legal hassles, and production of the final product—better utilization of existing equipment, rather than new inventions, becomes the keynote to survival and success.

Surprisingly often, an existing gadget or even a major piece of equipment is found to be capable of many uses over and above that for which it was initially designed.

In World War I, World War II, and the Korean conflict, there are numerous case histories where troops were caught behind the lines with no means of logistic support or reinforcement. Little could be done in World War I. In World War II, to a limited extent, logistic support was accomplished by aircraft and in some cases artillery. In the Korean conflict a new piece of equipment was added for difficult sup-

By LT. COLONEL DAVID E. CONDON

Resources

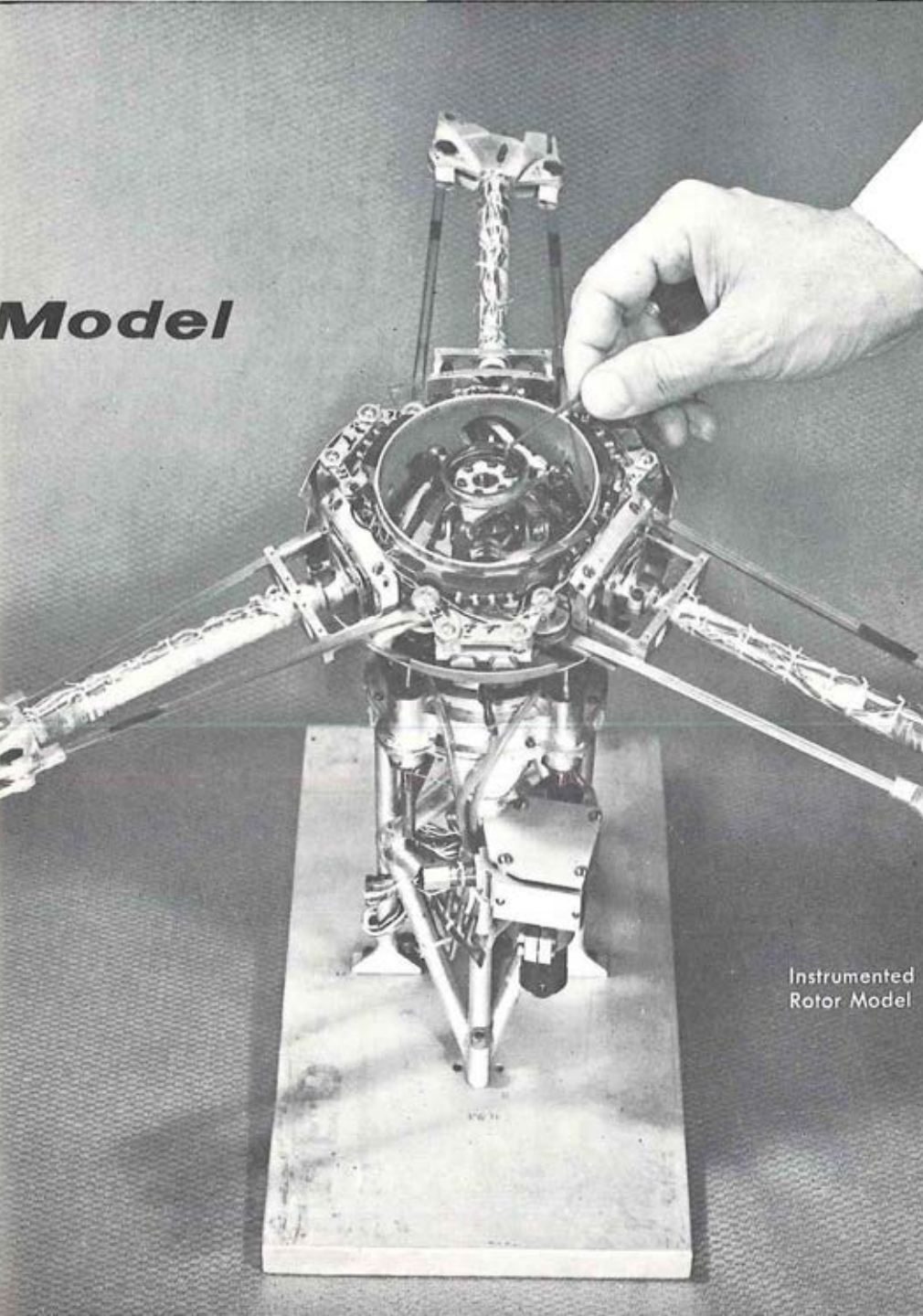
ply and evacuation, namely the helicopter. All of these systems were dependent on guidance and communication. While the mission could be accomplished with equipment available, methods of providing communication and guidance were often lacking.

We have had rather sophisticated radar for a number of years: in Transportation for use on vessels, and organic to the Artillery for counter-mortar.

As early as 1952, counter-mortar radar had proven that it could successfully guide aircraft to a predetermined area and bring it back to its base. This fact had been given considerable dissemination. It has, however, rarely been used for maneuvers or actual combat.

It is no secret that the ARC 44 radio, *properly employed,* can guide an aircraft over considerable distances, depending on the altitude of the aircraft and the positioning of the ground station. This particular piece of equipment, while installed on most operational aircraft, is no better than the operator. A survey of 100 Army pilots today probably would show that an

Model



Instrumented
Rotor Model

average of less than half have thorough knowledge of the operation of the ARC 44 as a navigational aid. Use of ship's radar for guidance of aircraft was heretofore unheard of in the Army.

The Transportation Training Command was recently confronted with a problem of guidance for a helicopter company (*the 65th Trans Co, Lt Hel*), over a considerable distance to a precision landing during a night demonstration without lights or the use of fixed navigational aids, military or civilian, other than those that could be made available from the equipment presently authorized to the units involved.

While it was known that the ARC 44 radio was an excellent piece of navigation equipment for aircraft, there was nothing compatible in the supported ground or sea elements that would net with this particular radio. There was, however, an excellent radio (VRC/9) in the company which could be placed on a vessel. This solved the problem of how to vector the aircraft fairly close to the ship.

When the aircraft were within a 20-mile radius, the AN/SPN-5 radar mounted on the ship picked up the aircraft, and by using essentially the same procedure as is used for GCA the helicopters were vectored to a point on the beach with extreme accuracy. Experiments under the hood and later under blackout conditions produced an accuracy of within 250 yards.

What does this mean? It merely indicates that the Army, and specifically the Transportation Corps, within its own resources, *has* the capability of bringing its aircraft from a considerable distance to a point along a hostile shore and making an actual night helicopter assault with extreme accuracy, using only equipment in the present inventory.

The October issue of *ARMY AVIATION* outlined an approach system utilizing the ARC 44 radio. Had this or similar systems been practiced by all Army aviators, a number of pilots who have clobbered aircraft or bailed out, all over the world, would have made successful landings.

The field is wide open to increase the utilization of our hardware, and initiative and imagination can go far to reduce the impact of budgetary cuts in new production. We are guilty of being remiss in the use of initiative and imagination. If helicopters can be vectored with pinpoint accuracy by ships' radar, if L-19's can successfully follow an ARC-44 low approach, and if VRC/9 radios can be used on TC vessels as "homers" it appears that a vast and challenging field is open, to people with imagination and initiative, to improve Army aviation capabilities—not only by the expenditure of additional funds, but with proper exploitation of existing potential.

The problem is not confined to a limited number of people—*it includes every one of us.*

ABOUT THE AUTHOR

A 17-year veteran of Army aviation, Lt. Colonel David E. Condon entered the Army in 1941, obtaining an Artillery OCS commission as second lieutenant in 1942. As AO of the 4th Infantry Division in WW II, he landed at Normandy and went on through Germany. In later assignments he served as CO of the Aviation Mechanics School at Bad Reichenhall, Germany, and as AO of the 1st Infantry Division. Detailed in 1954 in the Transportation Corps, he assumed TC duties in Germany prior to his present assignment as Aviation Officer, Hq, USATTC, Ft. Eustis, Va.

CONTRACTING FOR ARMY AVIATION SERVICES

By MAJOR GENERAL RICHARD D. MEYER
PRINCIPAL ASSISTANT FOR AVIATION, OCT

TODAY, I HAD PLANNED to talk to you about some principles of Army contracting. But I immediately ran into the trouble that often happens when we stick strictly to principles, because principles sometimes seem to go in opposite directions.

It is like quoting proverbs. One proverb warns, *"Look before you leap."* Another says, *"He who heitates is lost."* One widely quoted adage is *"Knowledge is power,"* but another states that *"Ignorance is bliss."* You have all heard that *"Too many cooks spoil the broth,"* but you also know that *"Two heads are better than one."* And on one hand you are told to "Be your brother's keeper," and on the other to "Mind your own business."

And so it is with contracting principles, particularly with government contracts. These principles seem to go in different directions. You can almost always find some principle to support the position you would like to take.

Undoubtedly, one of the most important

principles is that set down by the Bureau of the Budget on what services and products the government should provide for itself and what it should contract out to private industry. I agree heartily with the statement that the private enterprise system is basic to the American economy.

The general policy of the Federal Government favors procurement from commercial sources. This policy has the two-fold benefit of furthering the free enterprise system and permitting the military agencies to concentrate on their primary objectives. *The policy states clearly that the Federal Government should not carry on any commercial-industrial activity to provide a service or product for its own use if the product or service can be procured from private enterprise through ordinary business channels.*

More specifically, there are many practical advantages to private enterprise. I believe that in buying aircraft service and maintenance through contractors, we are buying a precious and scarce commodity at bargain basement prices—the ability to handle fluctuating workloads economically.

In addition, I recall that last year at this meeting, one of you made the point that, under most contracts, private profit it a great incentive for maximum efficiency. When a man must reach into his own pocket to pay the costs of a slovenly operation, he is more likely to operate efficiently both for his own protection and, by the same token, for the benefit of the government.

Still, the greatest advantage of private enterprise is in its greater flexibility. *Gen. Besson,* our Chief of Transportation, has made the point several times that when we in the Army run a big facility, we do not own the facility, the facility owns us. We become responsible for its supervision and maintaining its work flow. We cannot increase or reduce work forces with the fluidity of private contractors.

In the field of defense, the availability of contract services broadens our mobilization base and provides for added expansion in time of emergency.

Addresses of General Meyer and Mr. Kintisch to the National Aeronautical Services Association Symposium, Mayflower Hotel, Washington, D.C., Dec., 1960

Now that I have stated four square and unequivocally the powerful principles calling for private enterprise in the field of contract maintenance, I must also mention some of the principles that point in the opposite direction. The Bureau of the Budget document, which is the Bible for free enterprise in government activity, notes exceptions where special factors make it advisable for a government agency to provide services for its own use. The most compelling of these exceptions is national security. The document specifically mentions among these exceptions the training and developing of units for combat readiness.

Fundamentally, there are many phases of aircraft maintenance which are as much a part of the military operation of the Army as the ability to shoot. What we call first, second, and third echelon maintenance is pure and simple a combat function. Direct support maintenance units must move with the troops. No contractor could do this job for us.

Then there are maintenance operations in this country which, in case of limited war, would have to pick up on a moment's notice and move to Africa, Asia, or some other remote spot on the globe. The modern Army calls for a mobility of direct support maintenance which simply would not exist except where the military mechanics and facilities are under Army command.

The Army needs its own aircraft maintenance units for training and for a mobil-

For the first string

TURBINE TALENT TEAM


XH 13-F


XH-40

At Bell Helicopter, this "first-string" leadership has been earned by delivering consistently superior performance in the development of turbine-powered helicopters.

This is the Bell record: **(1954)** first in the world to fly a fixed turbine-powered helicopter test-bed . . the XH 13-F, equipped with an Artouste engine . . for the U. S. Air Force using an Army helicopter . .

(1956) again first in development with flight of the T-53 powered XH-40, prototype of the presently operational Army HU-1 series, holder of seven world records and the first turbine helicopter designed for specific mission capability . .

(1960) still the leader with the first turbine-powered 4-place helicopter test-bed, the U. S. Navy HUL-1-M . . and, the first operation of the new Allison T-63 engine in a helicopter.

This constant pioneering desire to test-out and deliver proven turbine-powered light helicopters is typical of Bell's *turbine talent team* . . experienced, practical minds which constantly anticipate new performance goals in Bell's dedicated policy of leadership in turbine helicopters.

BELL HELICOPTER COMPANY

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CONTRACTING/*Continued*

ization base. It needs a place to train soldiers on the job and an opportunity to develop and improve supervisory skills. It must have an experienced cadre which can be rapidly expanded in an emergency. The Army's military aircraft maintenance capability must exist in peacetime so that it will be available in case of war.

In addition, the Army faces a practical problem when it rotates troops. It must have in the United States maintenance men to ship overseas, and it must have a place in this country for its trained mechanics returning from abroad. Otherwise, this valuable core of experience would atrophy from disuse and die on the vine.

The needs of national defense demand an Army in-house aircraft maintenance capability.

Here, then, is the dilemma. On one hand, our free enterprise system, flexibility and economy, and even many aspects of wartime needs call for people like you in this room to participate in our aircraft maintenance. On the other hand, the nature of modern warfare demands a military capability in this field. And the answer, instead of being black or white, comes in shades of gray.

There is no doubt that the Army will continue to rely heavily on private industry for meeting its requirements. At the same time, some portion of this field must be reserved for sustaining the Army's own capability. The question—*"Where is the dividing line?"* Or, more crudely put, *"How do we divide the pie?"*

In working out the allocation of aircraft maintenance, common sense dictates certain ground rules. Contractors do a fine job when there is a large aircraft population with different kinds of aircraft and a fluctuating workload. Contractors also usually do well in difficult labor markets where the Army has no facilities for recruiting workers. I don't know how you fellows do it, but this is part of what we are buying—brains, flexibility, and management ability.

There are other areas, which are not so obvious, which might go either to private contractors or to a military in-house capability. The decision in each case as to whether a particular post commander increases or decreases his own maintenance responsibility by contract or by a return to a military in-house operation is a function of many variables, determined on a case-by-case basis.

In the overhaul and repair area, however, in the next three to five years, we expect to develop a 40-60% relationship in aircraft depot maintenance—40% to be done in-house by the government, 60% by private enterprise. This relationship is consistent with Department of Defense policy. But, more important, it is what we need to meet our military mission requirements and we believe it is fair to private enterprise.

Your President and several of your members have asked about a study to determine the line of balance between private contractor and military aircraft maintenance in support of operating aircraft at organization and field levels. Now these TO&E aircraft, which are assigned organically to our combat units, are tied directly to our military mission. Most of the maintenance below the depot level of overhaul and rebuild will probably remain with our soldiers.

But even here, we are interested in having at least a nucleus of contract experience to serve first, as an additional base from which to expand if the need arises, and second, as a yardstick to measure our own efficiency. Our discussion with your association has been useful and we are continuing to study this problem, with particular reference to those posts in CONUS having large numbers of aircraft. Facts come from 22 field shops which are not in our chain of command and the situation in these shops is fluid. We are reviewing these facts and have come up with some vital information. At present, there are no definite conclusions.

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In the particular area of overhaul and repair, the 40-60% relationship and your role in providing services to support our fighting mission are meaningless without analysis of the dollar value of the amount of work available. The important fact is that we are in a growing field and the dollar amount of work to be done will undoubtedly increase. We recently studied the trend and our "guesstimate" is that Army aircraft maintenance business on a dollar basis with private contractors will not be less than at present. If our inventory continues to expand, the dollar value of industry participation should increase substantially.

We are fortunate. The Army understands to a large degree the contractors' problems and wants to take advantage of the management capability offered. Most of the contractors also understand the requirements of the Army. You here today are imbued with a determination to serve the Army. Because of the genuine understanding and good working relationships, we have a fine Army-industry working team which gives us a long head start in meeting the problem of building a strong military posture supported by a system of free enterprise.

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Emanuel Kintisch, ODCSLOG, comments on:

The Current Procurement Problems On Contracts For Army Aviation Services

It is a distinct pleasure for me to take part in your Annual Symposium. The value of a symposium like this is that it permits an airing of mutual problems, with the view of understanding and, if possible, resolving them.

The continued increase in scope of the mission of Army aviation in support of the Army means to me that the need for dependable contract services inevitably must grow.

The problems which I will discuss with you today are not limited to Army aviation, nor to contract services. *They apply to all military procurement.* What I would like to do is to give you an insight into current policies and to solicit your assistance in an Army program of vital concern to the country as a whole.

Problems take on different appearances to people at different levels, just as terrain looks different to the flyer at high levels than it does when he is at the tree tops, doing "nap-of-the-earth" flying. I would ask that you do some relatively high-level flying with me today.

In order to keep the current situation in perspective, we need to remember some history. Prior to World War II, and dating back for well over 100 years, government contracts were awarded principally after formally advertising invitations for bids and making the award to the responsible bidder whose responsive bid offered the lowest price, all other factors being equal. The law authorized certain limited exceptions, like small purchases, purchases of certain foodstuffs, and purchases where the public exigency did not permit formal advertising procedures to be used.

During World War II, an emergency decree forbade formal advertising procedures in military contracting and directed that contracts be placed without advertising.

The successful use of the more flexible procedures of negotiated procurement led the Congress to enact the *Armed Services Procurement Act of 1947*, to permit the military departments to negotiate contracts in specified circumstances, while retaining formal advertising as the general rule. In practice, the services were then using and have since used the exceptional procedures more than the formal advertising procedures. You cannot buy an airplane, a tank, a ship, or a missile, by formal advertising for bids.

Even though this is recognized, some people seem to think that placing a contract without formal advertising also means without competition. Of course, in the vast majority of cases this is *not* true. Not only is there competition as to price, but also very keen competition among companies on the basis of design and technical proposals. It is our policy and our practice to get as much competition as we can in all our procurement.

Nevertheless, some people regard a ne-

NASA GATHERING HEARS CONTRACT SERVICE REPORT

gotiated contract as evil or at least potentially evil: a secret deal made with a special friend in a smoke-filled hotel room, where something is passed under the table to the contracting officer, who is not the brightest individual in the room at the time. As a result of such a misconception on the part of some Congressmen, military procurement has been subjected to undeserved criticism as an unhealthy phenomenon.

During the last Congress, several Committees in the Senate and the House held hearings on defense procurement. Bills were introduced to require greater use of advertising and more limited use of negotiation. The Defense Department made a presentation to *Senator Thurmond's* Subcommittee of the Senate Armed Services Committee in February 1960 which sets forth the complete story of military procurement. I recommend it to you for an appreciation of the broad aspects of the subject.

Nevertheless, in June one Senator said on the floor of the Senate *"that the trouble fundamentally with a negotiated contract is that it is something like kissing; it goes by favor and not as matter of right."* Another Senator commented that *"considering the great extent of it, it would appear that*

it went beyond kissing and probably involved hearty embraces on many occasions."

The current *Defense Appropriation Act* contains a proviso that *"so far as practicable, all contracts shall be awarded on a competitive basis to the lowest responsible bidder."*

This recital of climate and background is intended to emphasize to the Army people present the need for compliance with the Army's current procurement policies, and to the representatives from industry the need for your cooperation in this area.

Competition

The first of these procurement policies—and by far the most important—is to assure competition among qualified sources, whether the purchase is made by formal advertising or by negotiation. Competition sharpens manufacturers' pencils and usually assures better prices.

Competition is increased by stating the needs as accurately and completely as possible. Drawings and specifications should be current and should describe the actual minimum needs in such a manner that the largest number of sources may be able to compete.

In a further effort to increase competition and to broaden participation in defense procurement, the Army *breaks out* components and subsystems on its larger equipments and systems when they are sufficiently stable and reliable, and either buys them directly, or requires its system contractors to buy them separately on a competitive basis, or produces them in Government facilities.

Formal Advertising

In formal advertising, competition is axiomatic. It has always been the Army's policy to make purchases and contracts by formal advertising whenever practicable. The first question a contracting officer must ask himself in planning a procurement is: *"Can this material or service be bought by formal advertising?"*

The criticism is made that too frequently our contracting officers look first not for the feasibility of advertising, but rather for the existence of some circumstance which would permit the procurement to be made within one of the exceptions from advertising authorized by law. Such a practice is *not* in accordance with policy. Of course, there are many cases where formal advertising is obviously not practicable. For example, small purchaes and purchases overseas.

Even where negotiation has been used in the past almost as a matter of habit, Army policy requires that we seek out instances which will permit advertising, by so stating requirements that awards may be made on the basis of the best price. Stevedoring contracts were recently placed by formal advertising simply by so delineating the services to be rendered that a price could be placed on each.

Negotiation

Negotiated procurement is usually undertaken because the Government's requirements *cannot* be written out so that everybody knows in detail exactly what we want without further discussion, and also when the price offered by the suppliers cannot be accepted, without review of cost breakdowns and usually some further discussion. In other words, in these cases further communication with the prospective contractor is necessary before all the terms of the contract can be worked out.

In these situations, when discussions are necessary, it is the Army's policy to discuss terms and conditions with all persons whose offers are within a competitive range. This not only gives each competitor an equal opportunity to review and discuss his proposal with the contracting officer, but even more important from the Government's point of view enables us through this competitive device to insure that the most acceptable proposal, if not always the lowest price, will be the result.

Types of Contracts

The Army's policy is to use that type of contract which best suits the circumstances and to give first preference to the firm *fixed price contract* in every situation in which it fits. In this type of contract, the Government assumes the least risk and the contractor the most; if the supplies are not delivered or services are not performed as scheduled, if it costs more to produce or perform them than anticipated, the contractor stands to lose. This provides an incentive for him to keep his costs down and to perform successfully.

Where there are contingencies which may or may not occur; where the estimated cost of performance is not based altogether on experienced costs, where continued production experience is likely to result in lower costs but this is not certain, then it is appropriate for the Government to assume some of the risk and to agree to revise the contract price in whole or in part on costs experienced up to a fixed point in the performance of the contract. *Price redeterminable contracts* are appropriate in such cases, but care must be taken that they are not used merely to cover loose negotiation practices.

The *cost reimbursement type* of contract is the least desirable because it leaves very little incentive for the contractor to operate efficiently and economically. Nevertheless there are occasions for its appropriate use, as in research and development of new items or performance of some of the maintenance services connected with Army aviation. Close surveillance is required in administration of these contracts to prevent abuse.

Qualified Procurement Personnel

The application of all these policies and precepts requires that the personnel engaged in procurement be well qualified for their work. Their integrity must be unquestionable. Their training must be thorough and kept up-to-date. The 3 weeks spent in *Army Basic Procurement Course* and the 8 weeks spent in the *Procurement Management Course* are *not* intended to make the graduates into expert contracting officers. These furnish only the basic information which people in the procurement business need. The Army continues the training of its procurement personnel after these basic courses by on-the-job training, refresher courses, and periods of duty with selected industries.

The importance of assigning qualified personnel to the procurement mission is emphasized in the statement in the report of the House Appropriations Committee serving notice *"on all contracting officers in the military services that hereafter they personally can expect to be called upon to explain fully their own actions in administering certain suspect contracts."*

Cost Reduction Program

The Army has ever been mindful of the fact that while its mission is defense of the Nation, preparedness for this mission has to be accomplished within the ability of the public treasury to support it. This means to us in the Army that we must be sure that for every dollar of public funds we spend 100 cents worth of merchandise and services is received. This has been the attitude of Army contracting officials for a long time.

During the last several years, with the growing complexity of our weapon systems and other equipment, the Defense Department has had to rely on system prime contractors to design and produce materiel, incorporating the products and services of thousands of subcontractors and suppliers.

A few of these prime contractors have been found not to be as careful in their procurement practices as they might have been. The *General Accounting Office* found some evidence of these practices and in its reports to the Congress has highlighted them as examples of waste and laxity. Naturally, the Congress and the military departments have been disturbed by these reports. The military have tightened procedures so as to guard against continuation of such loose practices.

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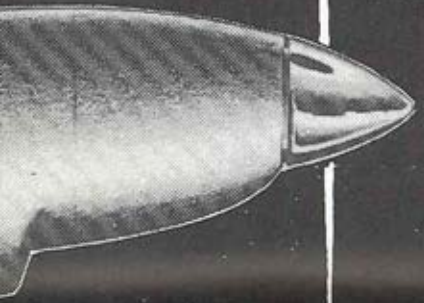

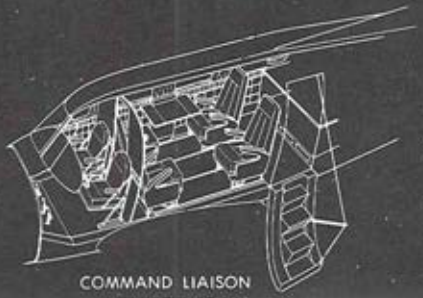

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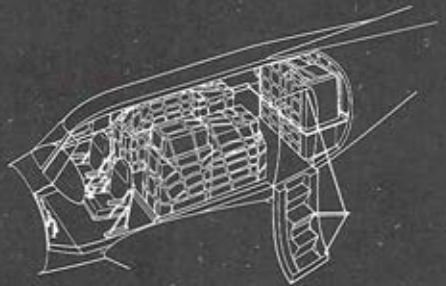

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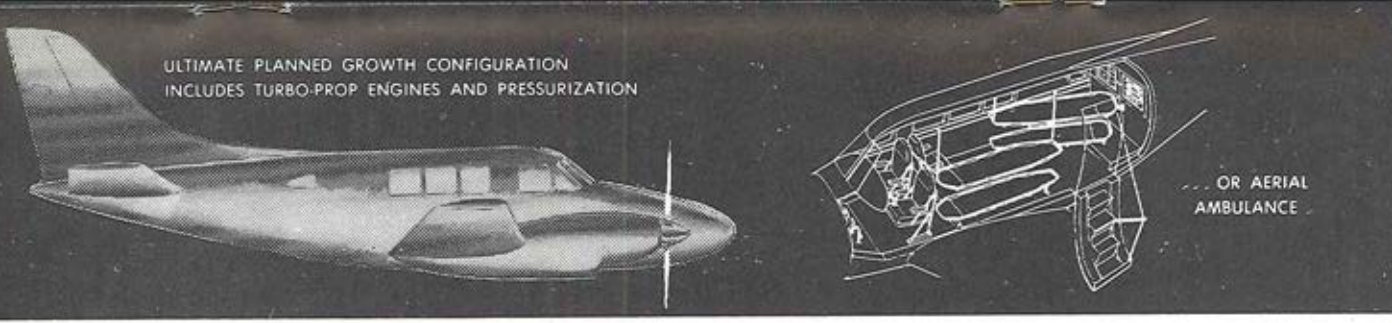

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PROCUREMENT/*Continued*

Close surveillance of prime contractors' purchasing systems and their subcontracting practices is exercised. Make or buy programs of major prime contractors are reviewed. The increased use of competition in placing subcontracts is required.

The Congress expressed its concern by reducing procurement funds for the current fiscal year by 3%, with the statement that the responsibility for reduction of the cost of military procurement is jointly that of the military and industry with whom we deal.

The Army Chief of Staff recently expressed his concern about this matter to the Army Staff. He said, in part:

"It is now more urgent than ever that we be acutely conscious of the need for careful consideration of cost in preparing statements of qualitative requirements and military characteristics of new materiel being designed and developed and in considering the need for modifications and engineering changes during development and production. While we are desirous of getting the best equipment we can for our troops, frills and unnecessary refinements must be avoided. Our goal should be effective and reliable equipment which, at the same time, is cheap and simple.

"The Army's modernization program will be enhanced if more money can be made available for this purpose by savings.

"All personnel engaged in the design, development, user requirements, quantitative requirements, maintenance, procurement and production, supply, issue, and disposal of Army equipment should be made aware of this need at once. The major manufacturers who do business with us should be impressed with their responsibility to provide reliable material at the lowest possible cost to the Government. Procurement officials must be vigilant in their surveillance of contracting to insure that industry is doing its part."

Although the amount spent by the Army in its contracts for Army aviation maintenance and instruction is not large, by comparison with the amounts spent for missiles and aircraft, each of us must be alert to save every dollar we can without adversely affecting safety and serviceability. You should exercise your ingenuity in seeking out better and cheaper ways of doing things and should report them to the contracting officer. You, in industry must keep in mind, as I am sure you do, that lives depend on the proper performance of your work, as well as the public treasure involved in the cost of the aircraft on which you perform service.

SPEAKERS TABLE, NASA SYMPOSIUM

A REPORT ON THE:

Iroquois Program

BY

MAJOR GENERAL RICHARD D. MEYER
PRINCIPAL ASSISTANT FOR AVIATION
OFFICE CHIEF OF TRANSPORTATION

OUR recent systems management meeting on the HU-1 *Iroquois Program* was one of the best we have had in months from the standpoint of the guidance and useful information exchanged by the conferees in attendance.

Some of the highlights of the meeting were the announcement that the first production HU-1B is due for acceptance in March 1961—right on schedule. The "B" with its up-rated T-53 L-9 engine is somewhat more powerful than its predecessor and features wider (21 inch) chord rotor blade for improved lift capability. The T-53 L-9 delivers over 1,000 SHP as compared to the 860 SHP L-1 used in the "A" models of the HU-1. We now have 192 HU-1B's on order and the last of the "A" models is due for delivery in June 1961.

By the end of FY 61 we anticipate that more than 500 maintenance personnel will be needed for the *Iroquois*. This is in line with our planning factor of 2.5 personnel per aircraft. Our maintenance training program is proceeding satisfactorily and we are confident that this goal will be met. We trained more than 300 maintenance personnel in FY 60.

During FY 1961, 50 students will be trained at the factory in advanced maintenance courses for the T-53 engine; 123 at the Transportation School, Ft. Eustis, Va. in field maintenance, and 284 students will receive organizational maintenance training at the Army Aviation School at Ft. Rucker. In addition, 44 students will be given the Instructor Pilot's Transition Course on the aircraft by the Army Aviation School.

U.S. Army, Pacific will be receiving HU-1A's in blocks of ten starting in late December 1960 or early January 1961 to replace its H-19's. Company technical rep-

A TEST MOHAWK TAKES OFF FROM THE DITCH OF A GRAVEL ROAD.

resentatives will depart for USARPAC concurrently with the first shipment. The command is slated to receive a total of 45 aircraft in all.

Incidentally, except for one "A" sent to Europe for familiarization purposes, these will be the first to get overseas duty. This, in itself, is a mark in the aircraft's favor—it being of sufficiently proven reliability that it is no longer considered necessary to have it remain in service near fixed overhaul and repair facilities. Also, time between overhauls on the T-53-L-1 engine has been raised from 150 to 300 hours. This was another important factor in the decision to send the aircraft overseas in quantity.

The enlarged version of the *Iroquois*, the HU-1D, is moving along. This will have the same engine, rotor blade, and transmission as the HU-1B but will have a slightly elongated fuselage which will give the aircraft a troop carrying capability of 11 troops or 6 litters in addition to the pilot and co-pilot. It will have room for sufficient additional fuel to boost maximum endurance to 3 hours. Seven YHU-1D's are on order to carry us through the test program with the first of these slated for delivery in July 1961.

Cockpit configuration, including instruments and controls, will be the same as in the HU-1B. The "D" will be air transportable in current Air Force transport aircraft after removal of tail rotor blade, stabilizer, mast and main rotor assembly, and can be unloaded and prepared for flight in as little as 1 hour and 15 minutes.

A Fort Eustis Symposium tackles the problem of . . .

Downwash Impingement

TO DISCUSS ONE of the Army's major aviation problems, a symposium was held at Fort Eustis, Virginia, on 15 December 1960 on the subject of the downwash resulting from the operation of VTOL aircraft and helicopters. Evidence of the significance of this problem was the widespread interest, enthusiastic response to the symposium, and the variety of presentations by other government agencies, educational and research institutes, and the aviation industry in general.

Culminating the symposium, a dinner was held in the Fort Eustis Officers' Club with *Brig. Gen. Clifton Von Kann,* Army's Director of Aviation, as the principal speaker. In his address, *General on Kann* stressed the importance of obtaining a practical solution to the downwash impingement problem.

Putting it mildly, the problem of downwash impingement is a hydraheaded one; and the problem is accentuated by increasing the size of the vehicle and improving the performance characteristics. Briefly, it can be divided into two basic areas; 1. Involving the effects on the aircraft, 2. Involving the effects on the ground installation.

With respect to the aircraft, downwash causes a critical reduction of visibility to the crew as a result of the blowing dirt, sand, snow, and other loose surface materials into the surrounding air. Recirculation of cases and debris may produce high inlet temperatures, resulting in loss of thrust or engine damage. Foreign objects could produce engine damage or failure. Damage to aircraft structures and components could result from the impingement of rocks, sand, or hot gases.

External to the aircraft there are the effects of surface erosion and foliage damage, as well as the possibility of injury to ground crews and equipment. Not the least of these, from the tactical standpoint, is the signature effect: the creation of dust clouds that can be easily detected by the enemy and which provide an invitation to enemy counteraction.

The problem of downwash impingement is a critical one and an especially vital problem from the standpoint of the Army's future aviation operations. We have only scratched the surface so far. As Mark Twain said about the weather, we have done a lot of talking about it. In the case of the Army's downwash problem, however, we are confident of doing something about it.

YOUR ROLE IN IROAN

WHAT DO *you know about IROAN? Is it just another alphabetical title to be filed in the back of your mind and soon forgotten?* Let's hope not since this new maintenance technique has implications which extend right down through the organizational maintenance level to the pilots. Within this article, you will find out not only what IROAN is, but also what part you can play to assure the success of this program.

When translated, IROAN reads *"Inspect and Repair Only as Necessary"* and literally means what it says. This represents quite a departure from the *"Standard Configuration and Modernization Program (SCAMP)"* which IROAN replaced.

Under SCAMP, aircraft were rebuilt to a "like new" condition every three years (except L-19's which were processed every four years). As might be expected, this proved to be both costly and time consuming. Since aircraft were being processed on a return-to-user basis, extended periods of non-availability were being charged to the owning commands and this was the cause of much customer dissatisfaction.

In addition, the high cost of SCAMP had become unsupportable within the limited funds being made available for depot maintenance of Army aircraft. Thus, a culmination of events and factors made it necessary to abandon SCAMP in favor of the IROAN technique.

IROAN was implemented 1 January 1960 by a USA TMC letter dated 19 November 1959. AR 725-14 spells out the maintenance requirements for transfer of aircraft accountability as effected in this program.

BY

CAPT. RICHARD D. KISLING
Transportation Section
Hq, USCONARC

Major points of the IROAN program are:

- Aircraft are scheduled into depot maintenance based on condition rather than calendar or cyclic flying time basis.
- Aircraft are returned to a standard of complete serviceability instead of "like new condition."
- Aircraft undergoing extensive depot maintenance are transferred to USA TMC accountability and these periods of extended downtime are no longer charged to operational units. Replacement aircraft are provided based upon availability of like aircraft and priority of losing unit.

THE OVERALL program will function as follows with minor variations due to individual commanders' implementations:

Aircraft are kept under constant observation during daily operations, scheduled maintenance inspections, CMI's and other procedures that the commander may initiate to detect deterioration or requirement for repair beyond the capability of the Army commanders' facilities to correct. When it has been determined by the supporting 3d echelon facility that the capability to return the aircraft to serviceability is impending or no longer exists at that echelon, the supporting 4th echelon facility is requested to assist in making a joint determination inspection of the aircraft.

In this inspection, it is decided whether the 4th echelon facility can repair the aircraft on a "return to user" basis or if the aircraft will require extensive maintenance at either 4th or 5th echelon shops. In the latter case (where aircraft requires extensive maintenance), the 4th echelon shop is responsible to prepare a work package which includes a DA Form 598 and all pertinent information pertaining to the condition of the aircraft.

This work package is then forwarded to the Transportation Materiel Command where it is evaluated. Based on the evaluation, disposition instructions are issued by TMC for the repair of the aircraft at either the 4th echelon facility or at a designated contractual facility for those air-

A Senior Army Aviator and Korean combat veteran, Captain Richard D. Kisling entered the Army in 1946, *receiving an Infantry commission. Integrated in* 1958 *as a Transportation Corps officer, the aviation assignments of the Shreveport, La., officer include combat duty with the 7th Infantry Division in Korea; staff duty with the Department of Tactics, USAAVNS; a* '57-'58 *tour with the T-37 Test Unit Evaluation Section; and duty as Staff Aviation Maintenance Officer, Hqs, USCONARC, his present assignment. A graduate of primary training at San Marcos, Tex.* ('52) *and the Transportation Corps Advanced Course* ('59), *the personable Army aviator received his civilian schooling at Texas A&M.*

craft requiring 5th echelon overhaul. Selection of civilian contractors is determined by bids received.

In those instances where the aircraft is to undergo extensive repair in excess of 60 days, accountability will be transferred to TMC. Exceptions to this transfer of accountability will be made for test and specially equipped or configured aircraft, or aircraft in short supply. These may be repaired on a "return to user" basis regardless of length of time required for overhaul. Aircraft completing this overhaul are allocated to major CONUS headquarters by bulk allocation for further disposition within their commands.

In the case of USCONARC, the aircraft are further allocated to the Army Commanders by bulk allocation for re-assignment within the Army areas as dictated by unit priorities and the Army Commander's desires. To preclude low priority units from losing their operational capability due to lack of aircraft, USCONARC has established a policy that no unit will have less than 50% of its authorized aircraft strength.

Advantages of the IROAN technique can be listed as:

- Incentive placed at organization level to maintain aircraft at high standard.
- Aircraft downtime resulting from extended periods of depot maintenance no longer charged to users.
- Overall program is less expensive.
- Higher rate of availability of assigned aircraft.

Disadvantages of the IROAN technique are:

- Low priority units may be subject to long periods of waiting for replacement aircraft.
- Less standardization between aircraft of the same type.

It is apparent that the advantages of IROAN outweigh the disadvantages, this being particularly true since this program is one which can be sustained within the present resources where SCAMP could not.

I have talked at great length about IROAN but have said very little about *YOU!* Your contribution to this program is in the accomplishment of that maintenance for which you are responsible. The key is that the aircraft are put into depot maintenance due to condition—a condition which may be generated by mediocre organizational maintenance and lack of thorough preventative maintenance inspections. This means that you as a commander, a pilot, an operations officer, a maintenance officer, a line chief, or a mechanic should take special care of your assigned aircraft.

Be sure that all discrepancies are properly entered on the Form 781-2 and promptly repaired. Keep deferred maintenance to an absolute minimum to assure that it doesn't aggravate and become a major defect. Perform all inspections in the manner in which they are intended. It is only through a conscientious effort on everyone's part that this program can succeed.

There is one other aspect that I bring to your attention, "safety of flight." Regardless of your best efforts, there will always be those aircraft that will eventually require depot overhaul by virtue of materiel failure or previously undetected deterioration. Once an aircraft is recognized to have reached this point, get it in the depot overhaul program as soon as possible. Don't ignore or hide deterioration for fear of losing an aircraft—you could end up losing a pilot in addition to the aircraft.

I would like to leave the thought that this new depot program is *your* program and its success depends on *you*. Take pride in your accomplishments when they have contributed to the overall achievement of the maintenance program to maintain the Army's aircraft in a safe and flyable condition.

MAINTENANCE TIPS...

...Mike Button

MIKE BUTTON, BOX 209, MAIN OFFICE, ST. LOUIS 66, MISSOURI

NEW BIRD DOG

Old Mike tries to get that little bit of added information to you whenever he encounters something that might cause you a little concern. This one turns out to be a *Supply Letter* we put out here at TMC. Its number is S/L 77-60, 30 November '60, with subject: *"H-13 Indicator, FSN* 6685-557-0367." At first glance, *Mike* thought we were stocking up on Indicators that would tell you if you had an H-13 or not; but it turns out that by checking the "book" this here H-13 Indicator turns out to be a *Temperature* Indicator which is used on the *Sioux*.

TIME'S UP

In the July 60 edition, *Mike* tried to tip everyone off to the facts that you had to get with the installation of the modified engine mounts for the *Beavers* (L-20), so that when complying with TM1-1005, you were all set for putting on the 100 ampere generators. Also, I quoted *TMC Supply Letter* 2-60, 13 January 1960 as your authority for expeditious handling of unmodified L-20 engine mounts to De Havilland, just as soon as you got them off the aircraft.

So now comes the day of reckoning! The contract with De Havilland to modify these L-20 engine mounts has expired. *No more unmodified Beaver engine mounts should be shipped to De Havilland* and you can consider *TMC Supply Letter* 2-60, 13 Jan. 1960 as being rescinded.

KEEPING UP

In October *Mike* promised you more dope on the Fire Extinguisher problem which was generated after the replacement type for the old A-20 hit the fan. So here's additional info which all *Shawneers* (H-21) are looking for, I hope!

The fix for mounting the new Fire Extinguisher (FSN 4210-555-8837) and bracket in the H-21 can be found in TM1-1H-21C-1030 (don't have the date as yet but it's due about the last of Dec. 60).

The *Bird Dog* (L-19) fix has just been finalized; however, *Mike* doesn't have space enough to explain in graphic form a fabrication which should be done at 4th. But, if you'll write to me or to the Directorate of Engineering, TMC, ATTN: TCMAC-EL-19, we'll be real happy to furnish you the plans, 'cause it will be about 4 months before the TCTM graphic for fabricating the mounting is in your hands.

Also if you follow these instructions you are all set except for the graphic.

2nd Echelon installation instructions:

1. *Parts needed*:
   a. 9, *FSN* 5306-182-2056 *bolts (AN3H3A)*
   b. 1, *FSN* 5306-183-2057 *bolt (AN3H4A)*
   c. 1, *FSN* 5305-150-9750 *screw (AN507-1032R16)*.
   d. 11, *FSN* 5310-281-9847, *nuts (AN365-1032A)*.
   e. 2, *FSN* 1560-626-7268, *Brackets* (0611257-1).
   f. *Mount, FSN* 9535-232-0398, *fabricated from* 2024-*T*-3, (.080) *by 4th (this is the one where the drawing comes in)*.

2. *Remove type A-20 extinguisher and bracket.*

3. *Remove mounting FSN* 1680-216-4673 *(P/N* 0611010) *and right extension bracket, P/N* 0611257-1.

4. *Reinstall right bracket (P/N* 0611257-1) *downward.*

5. *Install the mounting made at 4th in accordance with drawing (ask and we'll have it made up and sent to you pronto—drawing, that is.)*

6. *Install the Monobromotrifluoromethane (CF3 Br) extinguisher bracket on a* 24 *degree* 30 *minute slant in order that the extinguisher head is toward the left side of the seat with the pivot nozzle on top. Note: The future publication covering the above installation will supersede TCTM*1-1*L*-19*A*-1026. *However, the extension bracket installed during the TCTM* (1026) *compliance is needed for this installation.*

The *Mojave* (H-37) installation has been altered slightly from those instructions given to *Mike* a couple of months ago. The complete instructions are to be found in TM1-1H-37A-1076 which should be in your hands shortly. If you can't hold off, get in touch and I'll do my best to get the date for you.

CANCELLATION OF DUE-OUTS

TMC from now on will review all due-outs, at least quarterly, to find out which ones are 90 days past the date we made it available; or your required date. When we find such a case we'll send off an advice card *DA Form* 2156, *"Requisition & Advice Card"* (card Code 4) which tells the requisitioner a story. Here's the way it goes:

● If you get an advice card and you're in the CONUS, with Code 202 that means we're going to cancel your requisition unless Advice Code 016 is received within 15 days. Got it?

● If you're overseas the requisition goes on, pending what we get from the OSA (Overseas Supply Agency) after a waiting period of 40 days. For overseas your Advice Code is 204.

So, to all requisitioners, to keep your requisitions working and to stop us from cancelling them on you, when you are of the opinion that supply action should continue, just as soon as you get an advice card which has Advice Code 202 or 204 jump on it and take that prompt action which we have asked you to take or you're the guy who'll have to suffer.

★

Mike:

Question has come up on using tubes 850x10, FSN 2620-269-7270 in Army aircraft issued through supply systems, that are patched. It is permissible to use such and if so what authorization governs this?

SFC IVAN R. PAVLOVICH
69th Sig Br (A)
Ft. Meade, Md.

Dear Sergeant Pavlovich:

There's no indication in your letter as to just what type of aircraft you're operating at Meade, but regardless of whether you have Beavers, Mojaves, or Seminoles you can refer to paragraphs 5-15 through 5-25 of TM 1-4T-1-3, August 1957.

This is the only DA publication which spells out the proper procedure and just what applies when you're dealing with patched inner tubes which are to be used on DA aircraft.

As a bit of additional information, in case you run into a problem when trying to carry out the provisions of the TM 1-4T-1-3, let us know on a DD Form 1275 (UR) addressed to TCMAC-E and we'll take care of it.

MIKE BUTTON

★

Mike:

I have a problem with accurate records on A/C 780 equipment. I have read AR 700-1500-2. with changes. The AR I have is dated 1 May 1956 and I believe it is the latest one out.

I have read and reread paragraph 19 very carefully.

My problem is with L-20 aircraft after they return from electronic retrofit TM 1-1L-20A-1004 and 1005. Different contractors fill out the 780 forms differently. As an example, one contractor will list as separate items to the AN ARC 44 radio:

Receiver Trans	RT 294A...1
Panel Control	SB 327...1
Dynamotor	DY 107...1
Antenna	AT 454...1
Assy Switch	SA 474...1

The next contractor will take the same equipment and list the same as above and add a few extra components of components. Such as Coupler CU 361 ARC... 1. The antennas are sometimes listed with two different numbers. Example: Ant Mast type 13B on one 780 form may be Antenna AS 580A on another form. There are many other examples.

Do you have any suggestion on where I might get the correct publication to get the right answer? Is there any other publication that lists the equipment (all types) that are required by Army regulations to be listed on A/C 780 forms?

Sincerely,

CAPT. ROBERT A. HOLLOMAN III
A/C Maintenance Officer
2nd Avn Co—Inf Div
Fort Benning, Georgia

★

Dear Captain Holloman:

Well, now! All that has to be entered for property accountability is the major end items, e.g., AN ARC-44, (reference paragraph 6a, page 8) as listed in TM 11-1510-203-10, paragraph 5a, page 7. This indicates the presence of all component parts that make up the Signal Corps end item (paragraph 5b, TM 11-1510-203-10). Should complete end items not be on hand, they must be accounted for as indicated in AR-700-1500-2. If the items are listed, they are listed primarily as:

1. The major items of accountable equipment (Signal Corps Black Boxes, which have serial numbers) and;

2. As a convenience in conducting inventories instead of resorting to another paper listing the equipment.

It is quite possible, in your particular case, that the contractor has gone "overboard" in making the listings in the 780 when dropping the accountability for the items issued to him. Permanently installed items, not subject to pilferage, as well as expendable items, should not be listed on the 780. Antenna mast type 13-B is the Aircraft Radio Corporation part number and is the commercial equivalent of Antenna AS-580A ARM-30, but is not listed as a component of any of the items making up the electronic configuration of the Beaver (L-20) after compliance with TM 1-1L-20A-1005. This antenna may have been installed by the prime aircraft manufacturer as a contractor furnished item (GFE) instead of a standard Signal Corps stock item at the time of production.

AR 700-1500-2 is planned for revision in the near future and it is intended that the inventory check lists are to be removed from the AR and incorporated into the Five Part Manuals (TM 55 Series).

TM 11-1510-203-10, Operator's Manual, and TM 11-1510-203-20, Organizational Manual, "Signal Electronic Equipment Configuration in Army Model L-20A Aircraft", February 1960, provide sufficient information for identification and reference. The last, but by no means, the least important point is that the Technical Manuals TM 11-1510- and TM 11-1520 series as listed on page 251, DA pamphlet 310-4, covers the complete electronics installations for DA aircraft.

MIKE BUTTON

maintenance tips mike button

★

Dear Mike:

In the past few months we have been having trouble with blow-bys in the exhaust system

of the H-13H. The present solution is to machine both the collector Assembly and the cylinder head to obtain a close fit preventing blow-by. This solution requires extensive work by field maintenance facilities and requires grounding of aircraft for a long period.

It seems to me an easy solution to the problem would be to use copper coated asbestos gaskets which would be easy to install and require a very limited amount of ground time. Request your comments on this subject.

Yours truly,

1ST LT ROYCE M. SMITHSON
Aviation Maintenance Officer
32nd Artillery Brigade
APO 227, New York, New York

Dear Lt. Smithson:

Guess you thought *Mike* had dropped dead or something because of the long delay in answering your Blow-by-Blow question. No, I just got so flooded with correspondence that it takes considerable time to research each problem and come up with the correct answers.

First off, I'd like to say this: Whenever you get to the point where your only solution requires extensive work to be performed by field maintenance facilities and you got aircraft EDPed for long periods of time, we of TMC certainly would like to know the complete details.

Put your story on a UR, DD Form 1275 (AR 700-41) and shoot it to the attention of the Project Office; in this case it would have been to the attention of TCMAC-EH-13. This way you get it under the right people's eyes who are in a position to solve the problem officially, not only for the one case, but for everyone who might encounter a similar case.

Mike has reviewed the files of the *Sioux* and the *Raven* with the respective Project Officers and you know something, there are less than 6 URs which have been submitted like yours. Away back in June 1958 we put out instructions in TM 1-2R-0435-45 to remove these exhaust flange gaskets at depot level and since then only a few squawks. Also, I contacted Lycoming and they tell me they have had no trouble with any commercial helicopters since the exhaust gaskets were removed. With these facts maybe we're doing something wrong in the field, eh?

Well, we decided to take the gaskets off permanently because the gaskets caused the exhaust flange to warp. When the flange becomes warped there comes your blow-by. Machining the exhaust flange and cleaning the cylinder head will correct blow-by; but in most instances the cylinder head will not require machining. This should not require grounding of the bird for long periods of time; however, should the machine be in an immediate demand, a spare exhaust assembly could be installed, you know.

Mike suggests you follow these steps when you run into blow-by on the Sioux:

- Comply with TM 1-2R-0435-45 and TM 1-1H-13H-2.
- Machine the exhaust flange until a true, flat surface has been obtained.
- Inspect the machined flange surfaces before installation.
- Torque those nuts on the studs at the stack flange to 140-160 pound-inches.

One last point: Blow-by *is not* in all cases cause for hitting the "button;" light exhaust deposits on the cylinder, right next to the flange, are O.K., provided the blow-by is not burping on some critical engine or aircraft component, i.e., electrical wires, mounts, or structural tubes, etc.

If I can be of further service or you got any other problems you can't solve or get the answer to, *Mike's* here for your benefit and he'll do everything possible to get the answers to your problems. That's all for now, see you all next month.

Informationally yours,
MIKE BUTTON

WITH NOSE-WHEEL STEERING, THE MOHAWK TAXIES IN DEPTHS OF MUD UP TO 12 INCHES.

Maj. Elbert E. Drane, the U.S. Army Aviation Board project officer for the service test of the Army AO-1A *Mohawk*, reports that since the test was initiated 19 September 1960 approximately 400 hours of test flying have been accomplished.

During approximately the first one hundred hours of testing the project officer and assistant project officers, *Maj. June H. Stebbins, Captains Leonard R. Dennis, Alfred R. Smith, Cecil E. Wroten, Clifford E. Johnson,* and one civilian test pilot, *Joseph E. Givens,* continued to gain proficiency in the AO-1 to determine overall flight characteristics and performance. Then came pilot transition training to determine the number of flying hours necessary to transition pilots in the new airplane. As the project officers became more proficient in the airplane, the flight test advanced into tactical flying to include operation from uimproved areas.

The Mohawk is a mid-wing, three tail configuration and utilizes two Lycoming T-53-L-3 engines mounted in nacelles above the wing pproducing 1,005 ESHP each. Each engine is fitted with a three-bladed, full-feathering, reversible pitch Hamilton Standard Hydromatic propeller. Provisions are incorporated in the wings for carrying two 150-gallon drop tanks, resupply containers and photographic flares. These two 150-gallon drop tanks double the range of the aircraft to a range of approximately 1300 NM depending upon the altitude.

A camera compartment with provisions for mounting an all-purpose camera or other

SPLINTERS

A REPORT FROM THE U.S. ARMY AVIATION BOARD

SPLINTERS/*Continued*

surveillance gear is provided with the capability of taking 15° and 30° oblique and vertical pictures both day and night. Additionally, this is the only airplane in the Army inventory that provides emergency exit in flight by ejection seats.

The airplane is highly maneuverable and has been flown through its normal envelope up to 25,000 feet and at dive speeds of over 300 knots without difficulty. The effects of gust in the low-level flight regime have not been evaluated completely. However, the airplane is unusually rugged, and it appears it will take a considerable amount of punishment under field conditions.

The crew is protected by a 1" thick bullet proof windshield, ½" thick aluminum floor, ¼" thick aluminum cockpit side panels, plus removable flak curtains above the cockpit floor on the fore and aft cockpit bulkheads. A self-sealing main fuel cell is mounted above the wing structure in the fuselage.

Tests conducted by the project personnel show that the *Mohawk* will operate from tactical fields similar to those suitable for L-19 operation. During the initial phases of the test program, however, it was readily apparent that the standard nose-wheel on the aircraft would not operate satisfactorily in deep mud, soft sand, and plowed ground without nose-wheel steering, since the standard nose-wheel would bog down when brakes were used as a steering aid. The contractor furnished an aircraft equipped with a prototype steerable nose-wheel to test in the same soil conditions.

It was definitely proven during comparative testing that the nose-wheel steering enhanced the capability of the airplane to operate from plowed fields, crowned roads or sloped areas that normally could not be traversed with the the standard nose-wheel configuration.

MOHAWK PROJECT OFFICERS

Maj. Elbert E. Drane
Officer-In-Charge

Maj. June H. Stebbins
Maintenance

Capt. Alfred R. Smith
Coordinator Reports

Capt. Clifford E. Johnson
Training

Capt. Cecil E. Wroten
Avionics-Weapons Systems

Capt. Leonard R. Dennis
Special Training

Mr. Joseph E. Givens
O&T, Climatic Hangar

In conducting transition training of Board pilots, no unusual techniques were required in comparison with other twin-engine aircraft in the Army inventory. However, there are three different controls that are peculiar to the *Mohawk*: speed brakes, reversible pitch propellers, and inboard ailerons.

The reversible pitch propellers were incorporated to decrease the landing roll and to minimize use of wheel brakes. The speed brakes located in the aft section of the side of the fuselage afford control of speed and increase maneuverability. The inboard ailerons on each wing are used when flaps are in the extended position at low speeds and during single engine operation to provide additional control and maneuverability. Irreversible power systems are used to drive these surfaces, the power systems being linked to the basic control system only when flaps are extended. Flap motion is used to mechanically shift these power systems out of the basic control system when the flaps retract.

Preparation for flight in the *Mohawk* is somewhat different from other Army aircraft due to additional pilot equipment. Each aviator is required to have an indidual oxygen mask with proper fittings on the helmet. A low impedence microphone is required for installation within the oxygen mask. The Grumman B-5 Quickfit parachute harness is used to provide proper restraint in the installed Martin-Baker Ejection Seat. Flying gloves are a requirement for the individual aviator in addition to survival knives and boots that are normally used in tactical situations.

An AO-1A was flight delivered to the Aviation Board on 16 November 1960 and subsequently flown to Climatic Projects Laboratory at Eglin Air Force Base, Florida, on 28 November 1960 for instrumentation prior to starting controlled low temperature tests in January 1961.

Following the tests in the Climatic Projects Laboratory, the same airplane will undergo desert testing next summer at Yuma, Arizona, followed by Arctic testing in Alaska next winter. Climatic testing will then have been accomplished in temperatures ranging from $+140°F$ to $-65°F$.

CAPT. ALFRED R. SMITH, PROJECT OFFICER, IS SHOWN WEARING SOME OF THE EQUIPMENT THE MOHAWK PILOT WILL WEAR. SEE ARTICLE FOR DETAILS.

MAN-MACHINE PROJECT

■ The man-machine project personnel have recently returned from Yuma, Arizona, having completed flying the T-2V, F-9F, T-28 and M-156 aircraft in desert low-altitude high-speed operation. Jet type aircraft are presently stationed in Memphis and the T-28's at Cairns Army Airfield. A complete report on this program will be made in a later issue.

OTHER PROJECTS

■ Helicopter armament and all of its associated studies and ramifications continue on the upswing. The Emerson Fire Suppression Kit is due for service testing in March 1961. This kit, to be mounted on H-21, H-34, and HU-1 type helicopters, is a quad gun, fully flexible system and is a step forward in providing a fire suppression capability to field units.

IMPROVED L-23F

■ An L-23F, SN 60-3462, was received in early November for an expedited Confirmatory Test. Testing was progressing satisfactorily and an early "look-see" indicated that the production model airplane with a gross weight of 7,700 pounds was going to meet expectations. A few changes at a glance include: A rearranged instrument subpanel, larger oxygen supply, new crankcase breather, improved heater, improved brakes, larger baggage compartment, and lighweight de-icing system. As the picture of the "F" is brought into focus, more information will be forthcoming.

SWING HOOK

■ Testing of the Vertol *"Swing Hook"* mounted on an H-21 Helicopter was nearing completion in November. Except for some minor items, the project officers were all smiles and were looking forward to starting an evaluation of a like hook installation on an H-34 in December.

ARMAMENT KITS

■ The Board has recently been designated to assist Springfield Armory in the evaluation of the 8305th ACR Company's H-13 Helicopter *ground fire suppression kit*. It is interesting to note that the entire weapons kit was engineered, developed, and fabricated by ACR personnel. The weapons kit consists of a light-weight aluminum frame work and structure for supporting one of three machine guns, the M-37, AN-M2 aerial .30 cal. or the M-60 7.62 NATO. The kit is equipped with a recoil and electrical-pneumatic charging system and a compact, self-contained ammunition can.

Two independent kits make up the H-13 weapons system. They are interchangeable and have the capability of being rapidly attached or removed from the helicopter. The guns are flexible in elevation and depression and are controlled electrically by a two-way switch on the cyclic control stick. A master armament switch and a gun-charging switch is located on a box on the end of the collective pitch control stick, thus enabling the pilot to keep his hands on the controls at all times.

UNIVERSAL AUTOPILOT

■ An RL-23D, equipped with the Signal Corps-sponsored *Automatic Flight Control System, AN/ASW-12* (commonly called the *Universal Autopilot*) was scheduled for initiation of testing in early December. The *AN/ASW-12* is designed for both airplanes and helicopters. In the airplane, automatic control functions include steering control from navigational signals, attitude and heading stabilization, and altitude control. An RPM control is added in the helicopter installations. Current programming calls for testing the AN/ASW-12 in the *Shawnee, Mohawk,* and *Chinook*.

LOUDSPEAKER SYSTEMS

■ A comparative evaluation of three loudspeaker systems for incorporation in *Caribou* and *Chinook* aircraft was conducted in late October and the month of November. The systems were tested from the standpoint of their capability of providing a suitable means for in-flight instructions to troops aboard the aircraft. The test was conducted in *"Caribou,"* one of which was furnished by the 1st Aviation Company, Fort Benning, Georgia.

VISITORS

■ *Mr. Bud Chaney* and *Mr. Ken Flowers,* representatives of Hiller Aircraft Corporation visited the Aviation Board on 14 November to demonstrate the new Hiller 12-*E4*. This helicopter is basically an H-23D modified with a 320 hp engine and a body extension kit which increases the payload to four people; three across the back with the pilot in a center-forward seat.

Capt. Ralph W. Parkinson
USAAB Correspondent

A PREVIEW OF USAREUR IN 1961

THE "OLD YEAR" with all of its trials, tribulations, achievements and victories has passed, and now is past history. Let's look to the future and what it may bring.

The new year promises to be very interesting. First, new aircraft will make their appearance in USAREUR. The first group of *Iroquois* (HU-1B) are scheduled to arrive early in the year and will be seen in steadily increasing numbers. Priority of issue will be to senior command headquarters, medical units and then tactical units.

It will be a farewell to that old work horse, the *Chickasaw*, which is to be replaced by the *Iroquois*. Aviators and maintenance personnel will be obtained largely from personnel presently in the theater who are already qualified and trained in the *Iroquois*. Those aviators with previous instructor pilot training in the *Iroquois* will be in luck and can expect to be used for transition training of other aviators. If you are in this category, the personnel people have already put their finger on you. Initial transition training will probably be conducted at the Seventh Army Aviation Center.

The Mohawk will also arrive this year. With it will be an initial group of qualified aviators and surveillance and maintenance personnel from the ZI. Further aviator transition training will be conducted by the USAREUR Multi-Engine School conducted at the Seventh Army Aviation Training Center. The *Mohawk* will be a welcome addition to the USAREUR fleet.

The trustworthy *Choctaw* will multiply in number and those aviators in units recently authorized this helicopter and looking forward to its arrival will finally be rewarded. Last, but not least, it is expected that a number of additional instrument simulators, both fixed and rotary wing will be available.

(Continued on the next page)

USAREUR/*Continued*

In the communications field, the ARC 73 installation should be completed in all L-20 aircraft and H-34 helicopters. As for navigation aids, the ADF will largely be replaced or supplemented by OMNI. There will be an increasing number of OMNI stations at both civil and military locations and a wider use of Victor airways. Better brush up on OMNI approach procedures in case you are rusty. There will still be sufficient numbers of non-directional beacons for use of non-instrument aircraft such as the L-19.

Aviation maintenance should improve and with it, the parts problem. The successful continuation of the IROAN program and receipt of new and additional aircraft as well as emphasis on aircraft maintenance at all levels of command should bring good results.

The demand for transition training in the H-34, HU-1B, L-23, and AO-1 aircraft will be increased. The fixed wing instrument program will be reduced as the number of non-instrument rated fixed wing aviators is exhausted. This will be replaced by an expanding rotary wing instrument program at both unit level and the Seventh Army Aviation Center.

As a result, there will be more actual rotary wing instrument flying and increased combat capability. There will be increase in training for maintenance personnel and crew chiefs, particularly for those lucky ones assigned to the *Iroquois* and *Mohawk*.

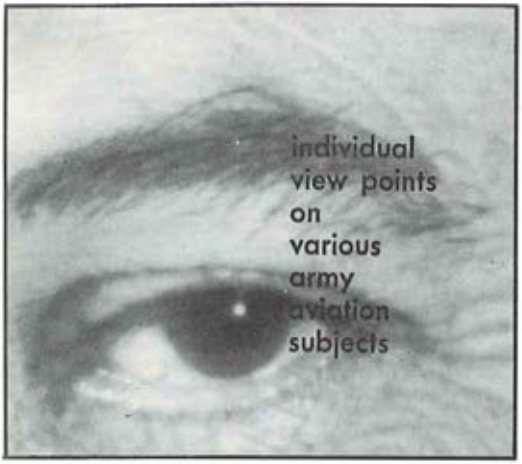
Tactical training will continue to receive emphasis. Armed helicopter tactics and the Aerial Reconnaissance and Security Troop type units will be used more frequently. The USAREUR program for mounting of 50-caliber machine guns on the *Choctaw* should be completed. It is expected that considerable progress will be made in the armed helicopter field during the coming year. Tactical exercises will include a greater use of Army aviation than ever before.

One of the more important goals for the new year is to decrease the accident and incident rate. This cannot be accomplished at the expense or reduction of tactical flying or a reduction of total flying hours. It will take serious training, a high degree of individual aviator proficiency, excellent maintenance, adequate command supervision as well as continued good judgment and common sense on the part of all personnel. The accident rate started down in late 1960 and to quote *Lt. Col. James H. Lee,* Seventh Army Aviation Officer, *"We are looking forward to enjoying a downward trend for the rest of FY* 61."

Lt. Col. Howard *I. Lukens,* P&A Division, is interested in starting a USAREUR Glider Club. He has been in this business for quite a while and has been "soaring" frequently with one of the German Glider Clubs at Manheim. If you are interested, give him a call at Heidelberg Military 8073.

Several changes in command and staff aviation assignments this month. *Maj. John E. Gilroy* recently assumed command of the 202d Light Helicopter Company in SETAF. *Lt. Col. William C. Boehm* has reported to USAREUR Headquarters and is assigned to Operations Division, Plans and Policy Branch, as a staff aviator. *Lt. Col. J. Elmore Swenson* recently departed a ground duty assignment to join USAREUR Headquarters. He is assigned to the Organization and Training Branch, Operations Division. *Col. Jack W. Hemingway* recently joined Seventh Army Aviation Section. Glad to have all aboard.

Major Kenneth D. Mertel
Operations Division,
Headquarters, USAREUR
APO 403, New York, N. Y.



OPEN LINE

DECISIVE VIOLENCE

IN WAR, the place of decision is on the battlefield, and the decision is taken by violence. Tomorrow's *decisive violence* must have tactical mobility—mobility for the broken roads and bridges, the fallen trees and forest fires, the smoking rubble of towns and villages, the twisted steel and contamination.

Mobility to avoid the suddent death of the rambling neutron. *Mobility* to bridge the void of communication. *Mobility* to live, to fight, and to win in Hell.

TODAY, WE FIND ourselves facing a potential enemy who has both mobility and fearsome firepower. To simply match him will not be decisive. Our firepower has increased fantastically, but the lessons of war through the ages stress that *fixed* strength does not decide the violence. Our firepower must move. Not *on* the battlefield this time, but *ABOVE* it.

The most important single tool of mobility that has been given the commander in recent years is the *Army Transport Aircraft*, but we have "flubbed" in our organization for its use. Instead of making it a prime mover, or better still, a fighting vehicle in the hands of the fighting troops, we have placed it in airborne trucking units, theoretically at the call of the combat commander, but actually well out of his reach. He must rely on communications, always questionable, to call it from its rear area positions. When it arrives, the time of decision may well have past.

Consider, if you will, the plight of the mongoose, if he had to delay in *his* dodging and was required to *wait* before striking. The cobra would declare open season, and poor brer' goose would rapidly proceed to extinction. The same destiny is in store for the combat unit that cannot move decisively in tomorrow's war.

The commander in contact with enemy forces *must* have at his fingertips the means to move and to kill in order to force his decision on the enemy. Aircraft, appropriately armed and equipped, *must* be a part of his command, certainly not the only fighting vehicles of the unit, but in sufficient quantity to provide the means of rapid movement and explosive force

VIOLENCE/*Continued*

when needed. He will have to use these vehicles for resupply and to transport replacements and reinforcements as often as he will actually "fight" them.

He will probably find, if he learns to operate them himself, that he has returned to the battle, so to speak; that he has returned to his rightful place at the head of his troops, personally influencing the foray with his own strength and courage. The vacuum caused by the passage of the horse and the war chariot will again be filled.

The means to affect this plan are actually present in part today, but in our efforts to build a mobile Army we have apparently forgotten the location of the place of decision, and have placed the only readily available atomic-age combat mobility well to the rear . . . *at Army level.* Not even in the Combat Arms, but in Transportation Corps units!

This assignment virtually defies the combat unit commander to achieve the mobility support he so badly needs. Without question, he does occasionally manage to obtain a few aircraft, but more often than not, hopelessly discouraged by the labrynth through which his simple request for support must be channelled, he decides to use more readily available *surface* means and be done with it.

Let's look at these channels in a training situation in Seventh Army in Europe:

An *Infantry Battle Group* reaches a phase at which company training in heli-borne river crossings is scheduled. The battle group S-3 places the support request with the division G-3, who places it with the Corps G-3, Aviation officer, or Transportation officer, depending on local SOP.

Corps places the requirement with Army Transportation Section.

The Army Transportation Officer matches up this request with others for the same time and date and decides, on consultation with the G-4, G-3, and Army Aviation Officer, on priority to be given.

The mission is now passed to the Aviation Group, who pass it to the Transport battalion, who pass it to a Transportation Helicopter Company. Or the mission is denied because of other commitments.

This process happens 45 days prior to the requested date of the operation, and, in the event the mission is not denied, the commander then goes ahead with his planning, even though there is a reasonable chance that scant hours before the operation, the mission will still be cancelled. *Is it any wonder that our commander is not too enthusiastic?*

Now let's look at the same unit in combat. Once again (*but certainly not with 45 days notice*) it becomes apparent that a heli-borne river crossing will have to be made by an infantry company. Chances are that Division, and perhaps even Corps, have foreseen this requirement, and some prior planning may have already been accomplished.

However, we are now dealing with the sporadic communications of a fast moving combat situation, and our ability to place our aircraft requests with the proper agencies is certainly open to question.

Does the commander get his helicopters for the crossing tonight? And what if, after the mission is scheduled, some important factor must change? Where is the flexibility so necessary to a science which allows only a MOMENT for decisive action?

To approach a solution of this problem, it is necessary to isolate our mobility requirements. To the author they fall in two logical groups:

- Tactical, fighting mobility
- Logistical mobility
- A third, and certainly a demanding

requirement, is strategic mobility, but that field is beyond the scope of this discussion.

Logistical mobility is surely a task for Army Aviation elements of the Transportation Corps, as the logistics support the Army in the field will depend increasingly on the Army aircraft. Large troop and cargo transport and aircraft of the "flying

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VIOLENCE/*Continued*

crane" type will be employed by the Army Commander.

However, these aircraft are not available to him now, and won't be available in appreciable numbers in the near future. During the interim, light and medium cargo helicopters have become available, but instead of assigning these to the combat units to fill the requirement for tactical, fighting mobility, they have been "Short-stopped" in Army Transportation units.

This procedure has produced some interesting results. First, the Army Commander still doesn't have a decisive airlift capability; and second, the forward units are not air-mobile. The support is *not* adequate for one, and *not* responsive to the other.

If tactical mobility is to be eventually provided for the division commander, why not give him the light helicopters now? They could be integrated into his organizations and, if nothing else, they would provide an excellent training vehicle for the development of tactics and techniques for the air-mobile forces of the future. Command post and communications configurations would surely be evolved, and new uses and applications would be produced daily. The design of future flying fighting vehicles would prosper and the Army as a whole would gain immeasurably.

The problems of maintaining and supplying these machines in the forward areas are considerable, but not insurmountable, and the answers will have to be found sooner or later. *Again, why not now?* To group these units in the rear because of their

LET'S HAVE SOME ORIGINAL THOUGHTS!

AFTER READING *Lt. Colonel Monroe's* article in the August issue of *ARMY AVIATION,* I have decided to answer him—in print—and hope that between us we can stimulate some thought and discussion on the subject of aviation—Army aviation, in particular.

I agree with *Colonel Monroe* that we are working away from our basic requirements. Our mission today is—in many ways—identical to our mission during World War II and Korea. Some of our requirements have changed, but our basic mission is still tied to the low and slow flying of yesteryear.

I believe that we have a requirement for speed and another requirement for troop and cargo transport, and these in addition to our "Grasshopper" requirements.

We are slowly—very slowly—developing new aircraft, but we are also developing requirements for better pilots, better communications, and better strips, with attendant logistical, maintenance, and engineering problems. In other words, we are lowering the efficiency of the individual and, in my belief, defeating the purpose of our existence.

I do not argue that we should return to

maintenance complexity is to take action akin to that of the ostrich in his futile attempt to escape danger by hiding his head in the sand. The only tangible result is an exposed rear end.

Army aviation's recent forays into the fields of *Aerial Combat and Reconnaissance Troops, long range patrols,* and in *helicopter armament* have met with unbridled enthusiasm in almost every quarter. Movement of missiles and their launching devices is an accomplished fact, and through such integration of Army aircraft, the commanders combat potential is manifoldly increased. There remains only to apply this support on an organized basis instead of on the presently accepted "loan" arrangement. Rather than lament the "piecemealing" of its units, the Transportation Corps should channel its exertions to the demanding of appropriate aerial logistic and troop transport support vehicles for its units, and to the quest for answers to the problems of supporting Army aircraft of the front line units.

Combat arms commanders should demand integration of the present cargo aircraft into their organizations so that the today's soldier will be trained to assume his role in the air-mobile Army of tomorrow.

God forbid the coming of a day when we will have to again turn to war for the solution of international problems, but if the day ever does come it will only be through flexible, responsive, tactical air mobility that our violence will be decisive, and thereby victorious.

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the *Cub* era. I also do not agree with the Colonel that the Army has a need for an aircraft with a high lift wing and ten foot wheels capable of hauling huge loads in, out, over, and through small fields and barbed wire fences. Certainly we have a requirement for operating out of small, unimproved fields, but not with the type of aircraft such as suggested by the Colonel.

Let's go back a few years—to the so-called *Cub* era. The L-4, L-5, and L-16 were good aircraft, even though they were modified "off-the-shelf" items. In them we evacuated wounded, adjusted fire, hauled supplies and passengers, flew recon, fired bazookas—and machine guns, carbines, rifles, and pistols, threw grenades, and in cold weather, froze.

We flew in all kinds of weather, often with frost and ice on the wings and quite often with no gas. We could slow fly for hours and land almost anywhere. We had accidents and often rebuilt our aircraft in the field, thanks mostly due to the simplicity of construction. We were shot at—and sometimes just plain shot—but again, the simplicity of the aircraft was such that we often repaired or patched it in a matter of minutes.

Then came the L-19, a good airplane indeed. We flew the same missions, although we could no longer evacuate wounded on litters as we did in the L-5G. We couldn't slow fly for hours and we required better strips, more gas (this time av-gas), and more maintenance.

We had more accidents, and more down time on the ground. But whatever we did we did in greater comfort (providing a relief tube was not required) and we did it with more and better radios and instrumentation. Our efficiency dropped because we needed additional engineer, maintenance, and logistical support, and we were unwilling and/or unable to fly some of the missions which we had accomplished in the past. This was attributed to the fact that we could not and would not fly a hotter, heavier, and more complicated airplane under the same conditions that we had prevviously flown. So what—then—did we actually accomplish?

(*Continued on the next page*)

If we are going to continue to design aircraft as we know them today, let's design a very simple one for low and slow work. Then, if we have a troop and cargo-carrying requirement, let's design another one for just that purpose and the same goes for speed requirements.

All designs must be kept simple—we *cannot* combine high lift, high speed, low speed, short field, big payload, high altitude, and long range capabilities in one airplane.

When Adam met Eve, his second thought —I am sure—was on flying, for even then there were birds. Eve, too, saw the birds, and ever since then man has been watching the birds and has tried to duplicate their flights. Someplace in the world today, someone—an intelligent human being—is trying to flap his homemade wings and fly, and so it has been through the centuries. But let's let the birds keep their wings, flapping or outstretched, and apply some original thought to our movement through air and space.

Every year millions of dollars are spent on aircraft design, but these designs are still of the same basic concept as those of Adam. We've beefed up the structures and the propelling mechanisms, but we still prefer to elaborate or improve upon something we already have, or know is possible.

I believe that if given a small fraction of the funds earmarked for aviation reserach in the next decade, we can develop a true aircraft through pure research. We must think only of movement through space and how we are to accomplish this efficiently. Of movement, we must consider our needs and our requirements. Of space, we must consider all that is not of a solid state above the earth. When we think of crossing a river by air, we might come up with something resembling a Bailey Bridge, a pancake, or the Washington Monument. A trip to New York might be in a pencil-like object, or in a salt shaker.

By pooling some original thoughts and devoting our minds to pure research, we should be able to accomplish the task. As a starter let's work on the relationship between magnetism and gravity. Then—if all else fails—I will furnish an answer to the first person who sends me 10 billion—*cash*.

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BASS PW, 2532 Columbia, Lawton, Okla.
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BELL, LA, 205 Godfrey, Mineral Wells, Tex.
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BLEWSTER, JC, 544th Trans Co, APO 34, NY, NY.
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LIEUTENANTS (Continued)

CLARK, RM, 35 Engr Bn-C, 2 EASC, Ft Lewis, Wash.
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HEBRANK, KE, 306 Parke-WV, Mineral Wells, Tex.
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SP-6S

ADDIS, JR, 54th Trans Co-MH, Ft Sill, Okla.

SP-5S

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TRUAX, RL, MR, Collins Radio, MBA-1 Cedar Rapids, Iowa.

AAAA

National Board Schedules Winter Quarterly Meeting

Meeting on January 27-28 at the Willard Hotel in Washington, D. C., the National Executive Board of AAAA will cover a broad business agenda at its winter quarterly meeting.

Preliimnary plans for the September, 1960 Annual Meeting, as presented by key representatives of the Annual Meeting Committee, will be reviewed by the Board along with year-end reviews of all sustaining AAAA programs.

Regional and Chapter presidents, or such proxy representatives as they may designate, have been invited to attend the late January meeting.

Garmisch Get-Together Planned by USAREUR Region Members

Members in the USAREUR Region anticipate another enjoyable "Winter Weekend" when they gather at the Garmisch Recreation Center for a three-day winter meeting, February 24th-26th.

Similar to the well attended '59 "Weekend," the Regional meeting will cater to AAAA members and their wives, offering three days of winter recreation well marked with periods of social and educational activities.

Joining in the Regional affair will be members of the two newest AAAA Chapters, the *Munich Chapter* and the *24th Aviation Company Chapter*, both having recently been activated within the Region.

The seven-Chapter Regional area—now representing the largest group of individual members—is headed by *Lt. Colonel Rowan P. Alexander*, Regional president.

Chapter Activities Elect New Officer Slates

MUNICH CHAPTER

Pres. ..... Maj Ernest B. Killett
Exec. VP ..... Capt. Obel H. Wells
VP, Army Aff. ..... To be elected
VP, Indus Aff. ..... Maj. Henry C. Sullivan
VP, Public Aff. ..... Capt. Willie E. Davis
Treas. ..... CWO George W. Cox, Jr.
Sec. ..... Capt. John W. McKinney

24TH AVIATION CO CHAPTER

Pres. ..... Maj. George C. Connor
Exec VP ..... Capt. James E. Moore
VP, Army Aff. ..... To be elected
VP, Indus Aff. ..... Capt. Laurence J. Lesch
VP, Public Aff. ..... Capt. Rodney V. Saunders
Treas. ..... Capt. Myles H. Mierswa
Sec. ..... Capt. Russell E. Baugh

JIMMIE L. HILTON CHAPTER
(Fort Sill, Oklahoma)

Pres. ..... Lt. Col. Raymond E. Johnson
Exec. VP ..... Capt. Eugene I. Smith
VP, Army Aff. ..... CWO Herbert H. Kraus
VP, Res Aff. ..... Capt. William R. Watson
VP, Indus Aff. ..... Mr. Edward L. Storie
VP, Public Aff. ..... Mr. Russell T. Blair
Treas. ..... CWO Isidro S. Valdez, Jr.
Sec. ..... Capt. Joseph P. Shalvey

LAWTON-FORT SILL CHAPTER

Pres. ..... Capt. Arnold Morris
Exec. VP ..... Capt. Newton C. Cox
VP, Army Aff. ..... Sgt. Ralph F. Keyport
VP, Res. Aff. ..... Lt. Joseph P. Gallagher
VP, Indus Aff. ..... Capt. Harold Dennis
VP, Public Aff. ..... Capt. Harold I. Small
Treas. ..... Lt. John C. Carlisle
Sec. ..... CWO Omar K. Kipe

USARCARIB CHAPTER

Pres. ..... Lt. Col. Jack W. Ruby
Exec. VP, ... Lt. Col. Gerald L. Hough
VP, Army Aff. ..... To be elected.
VP, Indus Aff. ..... Mr. James H. Crews
VP, Public Aff. ..... Capt. John A. Willis
Treas. ..... Capt. Joseph J. Stepp
Sec. ..... Capt. Howard L. Premo

NEW MEMBERS

LT COLONELS
Michael F. Hochella

MAJORS
Emmett G. Hendrix, Jr.
Edward G. Fischer
Marion G. Corneil

CAPTAINS
William R. McKenney
John E. Manthei
William F. Denman
John J. Collins
William H. Lewandowski
Robert R. Gosney
Frederick L. Silver
Robert D. Henderson
Charles W. Watkins
Manuel G. Guerrero
Thomas E. Dupree
Adalbert E. Toepel, Jr.
John T. Stanfield

LIEUTENANTS
Larry N. Osborn
John J. Top
Donald F. Bagozzi
David H. Edwards
William K. Marshall
Charles H. Mattison
Harold L. Johnson
Billy W. Taylor
Thomas W. Ray
Donald R. Olsen
Lee D. Stone
Ernest E. Ivy
Carl L. Burleson
Dick M. Jennison
Augustine T. Ledwidge
Theodore D. Benson
Derald H. Smith
Robert L. Rackley
Charles A. Robinson
William H. Chambers
Stanley D. Gomulka
Floyd K. Bennett
Melville V. Gibson
Robert D. Evans
Donald Bernstein
John R. Ghere
Barry A. Winkelman
Pierre V. Brunelle
George F. Jackson, Jr.
Phillip N. Cutting
Claude E. Kean
Sunny Tsai
John R. McConnell
Charles A. Jolley
Robert K. Jayne
Ernest L. Holmes
Charles W. Abbey
Robert S. Messer
Hugh D. Farmer
William C. Farner
James A. Easter
Harold C. Van Meter
Herbert J. Reuss
David N. Greenberg
Earl B. Burley
Douglas E. Haviland
John J. Vargo, Jr.
S. C. Mitchell
John J. Terpstra, Jr.
Simon L. Miller, Jr.
Clinton T. Hawk III
Joseph L. Braden
John A. Gandolfo, Jr.
Douglas Schneeman
David J. Chase
Kenneth E. Thayer
Gary R. Riggins
Curtis S. Crouch, Jr.
William S. Jones
David V. Leins, Jr.
Charles M. Houser
Clifton J. Browning
Jimmy N. Ziegler
Dwane C. Watson
Austin W. Hathcock
Cary E. Williams
Benjamin L. Abramowitz
Harry G. Christopher
Franklin L. Bohl
Tommy Blankenship, Jr.
Charles B. Knowlen
John P. Maguire
Helmer H. Behrens
Emilio B. Zamora

LIEUTENANTS
Richard M. Cannon
Raymond W. Fisher
Donnie G. Sewell
Emmett P. Hollowell, Jr.
Billy H. Taylor
Dale W. Pierce
Robert J. Trouville
Robert B. Holt
Richard L. Gafner, Sr.

CWOS
Quintin R. Dunbar, Jr.
Robert J. Burns
Andrew C. Hudson
Charles E. Larkin
Bill C. Walton
James I. McGehee
Richard H. Schweitzer
James L. Jones
Frank L. Roberson
William R. Day
Neil N. McLean
Barbee F. Upchurch

WOS
Perry T. Yowell
SFCS
George H. Griffin
SP-6s
Dwight L. Swanson
SP-4s
Carl D. Whitaker

MSGTS
Hans J. Beyer
Wilbur H. Dahn

SP-4S
Richard C. Garrido

SP-5S
George E. Motley

FRIENDS
Helen A. Shevlin
Julia M. Quinlan
Barbara Desina
E. Marjorie Phillips
Arloha J. Glore
Joan M. Mahon
Juanita L. Price
Ouida A. Hudson
Clara J. Wolff
Marge K. Huber

FRIENDS
Margaret N. Mulligan
Bernice C. Steffen
Lulu M. Hunt
Toby, Freedman, Dr.
Carl H. Speiser, Jr.
Sidney B. Chadwell
Harry Lounsbury
Wilbert H. Ammann
Charles A. Beckett
Edward L. Bleile
Robert W. Stoner
Howard K. Forbes
Bennie S. Cegelski
Theodore B. Sydleman
Carl G. Gewinner
Alton H. Reel
James W. Burtnett
William K. Kershner
Robert C. Hoffman, Jr.
Conrad L. Busse
Cletus C. Vogt
Albert F. Vogt
John Gramer
Raymond J. Cantu
John E. Turner
Donald H. Ward
Theodore T. Winder
Morris Halio
Richard M. Rowland
Erwin C. Fischer
John Hemlick
Henry S. Balawajder
William H. Barthel
John E. Asbury
Peter G. Gallas
Stanley J. Burkot
Louis W. Orlamander
Charles D. Brown
Norman Hughes
Clarence E. Holliday
Samuel A. Layne
W. W. Slate
Marcel A. Stowell
Sandra K. Hieger
Carol A. Longmeyer
Kathleen E. Schoemehl
Annette J. Larocca
Arnold V. Pilling
Victor L. Collier
William P. Morrissey
Joseph E. Peters
Raymond H. Hammes
John R. Meyers
Gordon E. Nelson
John Maddaleno, Jr.

FOUR MEMBERS OF THE ARMY SQUARE DANCE TEAM, CWO R. E. BEEB, LT. E. S. PEDRICK, CWO ROBERT LEE, AND CAPT. NICK VOLLMAN, ILLUSTRATE THEIR DOZEY-DOH MANEUVER TO AIR FORCE CHOPPER PILOT, LT. JOHN F. SLATTERY, DURING A 1960 AIR SHOW HELD AT BROOKLEY AFB, ALA.

JOHN SPERLA, JR. (CENTER), OF THE AUTOMATIC DATA PROCESSING DIRECTORATE, USATMC, OUTLINES COMPUTER OPERATIONS TO GEORGE E. HADDAWAY (LEFT), PUBLISHER OF FLIGHT MAGAZINE, AND A. PAUL VANCE, MARKETING EXECUTIVE OF THE GENERAL AVIATION SUPPLY CO., DURING THEIR RECENT VISIT TO THE ST. LOUIS FACILITY.

MAJ. LESTER C. FARWELL, CO, USAREUR AVIATION DETACHMENT, CONGRATULATES MAJ. DALE R. WEES, CAPT. ROBERT J. ST. AUBIN, AND CAPT. JOHN L. CECIL AT THE HEIDELBERG END OF THEIR TRANS-ATLANTIC L-23F FLIGHT.

ARMY AVIATION MAGAZINE
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