ARMY AVIATION

NOVEMBER 7 196





PREFLIGHT WHIRL TEST OF ROTOR BLADES

The first set of Chinook rotar blades with upper controls and hub adapter has been shipped to Wright-Paterson AFB for the required 110-hour pre-flight whirl test program on the WADD whirl tower. Testing is scheduled to start in November.

ENGINE STARTING AT -65°F

Testing of the hydraulic engine starter at temperatures down to -65°F have indicated that the Chinook can be started using its integral turbine-type auxiliary power unit even at this extremely low temperature.

COMPONENT TESTING

Qualification testing of dynamic components requires, in most instances, that the part be subjected to 10,000,000 cycles of calculated design loads without failure to ensure infinite life. After the part completes 10,000,000 cycles of application at 100% of design load, testing is repeated up to another 10,000,000 cycles (or until failure) at 125%, 150%,

SUMMARY =

175%, and 200% of design load. In this manner, the Fatigue Life of each component is determined. Some components (the horizontal hinge bearing, for example) are tested on a time basis while subjected to a loading spectrum which simulates flight. The horizontal pin completed 1200 hours of oscillatory operation under simulated flight loading utilizing EP-140 lubricating oil. The test was then repeated for another 1200 hours using MIL-L-7808 synthetic oil which is required for satisfactory operation down to —65°F. The test using synthetic oil was conducted at room temperature because this oil tends to provide best lubrication at sub-zero temperatures.

STATUS OF NO. 1 AIRCRAFT FABRICATION

All of the major fuselage subassemblies for the No. 1 aircraft have been started, and main structure assembly of these components will be underway by the time this summary appears. The No. 1 aircraft is scheduled to be "shop complete" by 19 March 1961, and will fly in its fully-instrumented configuration in May, 1961.



BRIEFS

NEWLY ASSIGNED

■ Col. Charles R. Murray (below), recently assumed the duties of assistant commandant of the U.S. Army Primary Helicopter School at Camp Wolters, Tex. Prior to his new assignment, Col. Murray had served as Chief of the Army Aviation Section, Headquarters, USCONARC, Ft. Monroe, Va.

INSTRUMENT TRAINERS

Fourteen Bell Iroquois have been selected for use at the USAAVNS helicopter instrument flight training course at USAAVNS. Col. Robert H. Schulz, director of instruction, headed a group of six instructor pilots that picked up the first HU-1As at Hurst, Tex. The training craft feature new blind-flying arrangements and additional all-weather navigation electronics.

MILITARY RELATIONS

William M. Morgan, (below) retired USAF major general, has been elected Vice President—Military Relations of the Beech Aircraft Corporation. Prior to his military



Murray



Morgan



Vertol 107

retirement, at his own request in October 1958, Gen. Morgan had a distinguished a military career of 31 years, beginning as a flying cadet in 1927. He earned a command pilot rating during his service, having flown over 9,000 hours.

FIRST FLIGHT

The Boeing-Vertol 107 (photo) completed its first flight on October 24th, marking the entrance of the first twinengine helicopter into the flight portion of an FAA commercial certification program. Powered by two General Electric CT58 shaft turbines, the 107 can carry 26-30 passengers and cruise in excess of 155 mph.

BEAVER PROCUREMENT

The Government of Ghana recently ordered fourteen DHC-2 Beavers from De Havilland Aircraft of Canada. The aircraft are to be operated by Ghanian Air Force personnel on administrative, aerial survey, and emergency air ambulance missions.

CORPORATE CHANGE

Aero Commander, Inc., is the new corporate name for the Bethany, Okla., manufacturer of twin-engine executive

Now, Fly Your Plane Anywhere . . . Face Any Navigating Problem with Confidence







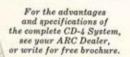


with the NEW

ARC CD-4

COURSE DIRECTOR

Steering Data
from Four Methods
of Navigation,
Presented on ONE Indicator



The ease with which ARC's CD-4 Course Director adapts itself to every area of operation adds a new dimension to your flying technique.

SELECT MODE, SET TRACK, CENTER NEEDLE

With the CD-4, you simply select the mode of operation...VOR, ILS, ADF, or Magnetic Heading...set in the desired track information, and steer the plane to center the vertical needle. Instantaneous steering information is then computed and continuously displayed on one indicator. All enroute flying, holding, and terminal approach procedures are identical.

NO MENTAL GYMNASTICS

Exacting mental calculations are no longer required. The CD-4 does it for you! It tells you how to intercept and maintain the desired course. Recalculation of headings to compensate for wind is not necessary. Your only requirement is to keep the needle on the cross pointer indicator centered.

And...the total added weight to the aircraft is only 8.5 pounds.

Engineered to the highest standards, ARC's CD-4 Course Director assures typical ARC reliability.

Aircraft Radio Corporation

BRIEFS

transports known as Aero Commanders. In announcing the new name, Tom Harris, vice president and general manager, explained that the change was prompted by a desire to simplify corporate identity and to more closely associate the company with the product which it manufactures under the Aero Commander name.

FOURTH ANNIVERSARY

The U.S. Army Primary Helicopter School at Camp Wolters, Tex., celebrated its fourth anniversary on October 11th. Impressive statistics: since November, 1956 some 2,846 students completed helicopter training at USAPHS, logging well over 300,000 cumulative flying hours.

WOLTERS FIRST

■ Lieutenant Commander Alfred C. Holmes, (above) Coast and Geodetic Survey, Department of Commerce, is currently undergoing helicopter training at USAPHS, the first C & GS officer to train at the Camp Wolters, Tex. facility.







Holmes

EXECUTIVE ADDITION

■ Walker G. Dollmyer, (above) has been named to the newly created position of vice president for operations for Lycoming Division's Stratford, Conn. plant. A graduate engineer of the University of Wisconsin, Dollmyer has had more than 35 years experience in industry, including more than 11 years in the aircraft and missile field.

FIRST FLY-IN

■ Featuring informative-type seminars, sports parachuting, sailplane demonstrations, and an Air Show showing the Army's operational equipment, Fort Rucker's recent "Fly-In" was attended by well over 2,000 persons, drawn from a six-state area.

ARMY AVIATION MAGAZINE

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Over 100 hours of flying time by eleven pilots (2 AFFTC, 5 NASA, 4 Bell), have recently substantiated Bell's fixed-wing/prop-rotor concept. They showed again the advantages of the XV-3's optimum combination of helicopter and airplane flight characteristics.

Pilot transition from helicopter to V/STOL was so simple that five government pilots were able to make full conversions solo after short hovering indoctrination flights . . two had less than 75 hours of helicopter time. Excellent availability and reliability of the XV-3 were also demonstrated with 38 scheduled tests actually conducted during 38 working days. Maintenance has presented no problem. During more than a year of NASA testing Bell representatives were called to assist on only one periodic inspection.

The XV-3 provides the military with a fast, long-range, easy to maintain aircraft that can touch-down vertically in rough, inaccessible terrain. With all test programs successfully completed, the XV-3 is ready for advanced military VTOL/STOL development.



For Operational Firsts in VTOL, Look to

BELL HELICOPTER COMPANY FORT WORTH, TEXAS

A DIVISION OF BELL AEROSPACE CORPORATION . A TEXTRON COMPANY

XV-3's Check Chart of Accomplishments...

- Over 90 full conversions . . climbs, turns, descents . . full, partial and zero power.
 Over 400 hours of test time, including.
- over 100 flight hours.
- · All normal airplane maneuvers . . slips, stalls, pull-ups, rolls. True helicopter flexibility in low-speed range.
- · Conversion dependent upon mission requirements . . not air speed.
- · No auxiliary engines, propellers, fans, jets, ducts or complex wing mechanisms required.
- Extremely safe . . reconversion successfully made from horizontal flight to full autorotation helicopter landing with power off.
- · Outstanding STOL performance permits up to 50% increase in gross weight
- (200% in payload).

 Higher hovering efficiency and lower downwash velocity than other VTOL designs due to XV-3's fixed-wing, low disc loading.
- · High cruise efficiency due to large diameter slow-turning prop-rotors. Functional design reduces non-productive equipment drag for more economical long-range flights.
- · Simple, straightforward mechanical design throughout.

MISSION BELL ACCOMPLISHED



By Brig. Gen. Clifton F. von Kann Director of Army Aviation, ODCSOPS

ear Army Aviator,
Although I have stated time and again that this is not a safety bulletin, I cannot stop myself from commenting to you all when I see some unusually vital lessons to be learned from aircraft accidents or important principles to be reestablished in the forefront of our minds. During the past month the accident reports offer some real food for thought of this type, and I hope you will all digest very carefully what I am about to say.

I want it to be clear that I am not trying to put praise or blame on anyone involved in any specific accident, for many
of the details leading up to various accidents
are not and will never be known; however,
some of the items which may well have
been involved are the types of thing which
occur constantly and in which the pilot's
judgment, and even more importantly his
moral fiber in making his decisions, far
transcend his skill in handling the aircraft.
I think that you should give some serious
thoughts to the following points:

It is well recognized that the decision to go IFR or VFR when the weather is marginal must be that of the pilot and there is no way in the world of devising a specific formula.

Sometimes it is better to go VFR, particularly where thunderstorms are known to be present and where one might run into an imbedded thunderstorm on an IFR flight plan.

The decision to go VFR, however, should never be made because one is in too much of a hurry to go IFR when IFR is safe and VFR is dangerous. We all know that IFR often causes delay, frustration, and many other unpredictable results. However, it is not likely to cause an accident; whereas



AIRCRAFT ACCIDENTS:

FOOD FOR THOUGHT

Advancing

helicopter

design: Dynamic Rotor

In rotor development, as in all engineering progress, success comes to those dissatisfied with the limits of common practice.

By utilizing dynamic rotor models, McDonnell has avoided the disadvantages of common industry techniques. We have eliminated the lengthy, full scale, trial and error methods. McDonnell rotors are built full scale and whirlstand *proven* only after the designs have been perfected in model scale.

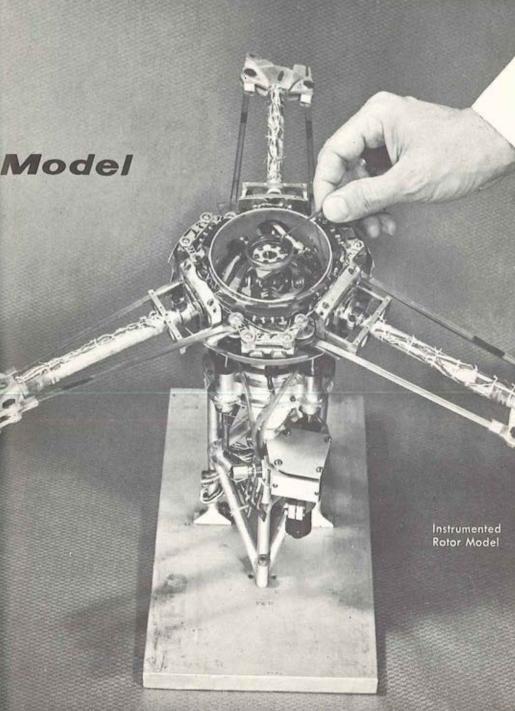
McDonnell rotor models simulate static and dynamic characteristics. They make possible dynamic wind-tunnel testing of complete helicopter models to the equivalent of 250 knots. This dynamic wind-tunnel testing allows rapid evaluation of design changes in conjunction with the use of analog computers and permits thorough correlation of theory and experiment.

Personnel experienced in production and production tooling enable a swift transition from design concepts to full scale production.

MCDONNELL

Designers and builders of F-101 Voodoos

Phantom II • Project Mercury Space Capsules • Talos Airframes and Propulsion Systems • Quali Decoy Missiles • Rotorcraft • Electronics Systems



trying to get there in a hurry very often will.

In making these decisions the pilot must avoid the compulsive urge to get the "Old Man" to a certain place at a certain time no matter what. One of the associated problems is forecasting weather a day or two ahead so that schedules and transportation arrangements, etc. can be laid on in advance. If we give a favorable long range forecast, we must not give the impression that this is an iron-clad guarantee that nothing can or will affect travel commitments. There are few places on this globe that have such predictable weather sequences that the best forecaster would want to give an unequivocal "yes" or "no" days in advance. Most people recognize this and appreciate the problem.

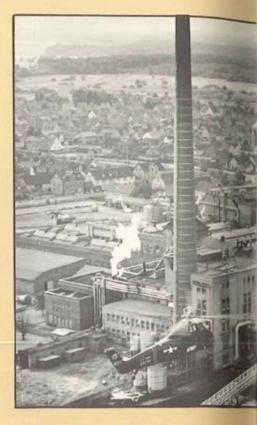
Once the "Old Man" steps aboard the aircraft (no matter how many stars are on his shoulder) he becomes subordinate to the pilot regardless of the pilot's rank. His safety and his life are in the hands of the pilot and this far outweighs all other con-

siderations.

At this point the pilot's ability to operate the aircraft is far less important than his ability to tell himself and his passenger which course of action is sound, regardless of how slow or unpopular it may be. We all know that we must risk our lives in combat and in some cases field traning is not without hazard. There is no point in submitting ourselves or our passengers to unnecessary danger on administrative flights without any combat significance.

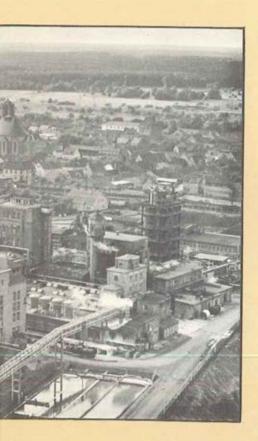
In short, we must remember that it sometimes takes more courage, and courage of a higher order, to turn back or to file IFR than to go ahead. I hope that Army aviators will not be found wanting in this important ingredient.

To point up my firm belief that we are not whistling in the dark about the Army's future in the air, and that air mobility hopes are not restricted to Army avia-



A U.S. ARMY H-34, IN CONTOUR FLYING BE-LOW CHIMNEY-TOP LEYEL ON A TROOP-CAR-RYING MISSION NEAR THE TOWN OF ASCH-AFFENBURG, GERMANY, PRESENTS AN ELUSIVE TARGET AND A DIFFICULT RADAR "FIND," (SIKORSKY PHOTO).

tors' dreams, I would like to have you note the address made by General George H. Decker, Chief of Staff, on 3 October before the annual convention of the National Defense Transportation Association. General Decker's address appears as the next article. As Army aviators we should be very



pleased at this high level of acceptance of the basic premise of air mobility. Our dayto-day problems and an occasional setback (such as the pilot ceiling) can be very discouraging if we do not consider the real progress that has been made.

Remember that Army aviation has grown from a germ of an idea 18 years ago into its present size through the efforts of dedicated officers fighting uphill all the way. The fight is still uphill, but further progress is inevitable as long as we keep the goals of Army aviation in exact consonance with the goals of the Army as a whole.

We Top Out at 6,438

Undoubtedly you have noted with concern the recent releases on the pilot ceiling which may be imposed upon the Army during the first six months of 1961. Although it is impossible at this time to see how this problem will finally be solved, or even what the extent of the problem will be in actual numbers, I can at least give you the facts that I do know in the hope that they will minimize the danger of unfounded and demoralizing fears.

The Defense Appropriations Act for FY 61 imposed an overall ceiling on the Department of Defense of 99,046 aeronautically rated officers. This ceiling must be met by midnight 31 December 1960; since the act applies to the year ending 30 June 1961, it therefore covers only a six month period.

It does not appear to be the intent of the Congress to restrict the growth of Army aviation. Our 10-year program resulting from the deliberations of the Rogers

S THIS ARMY 5927AR H-23D 250 hp First helicopter ever granted 1,000 flight hours between major overheuls. Distinguished safety record set by Army at world's largest operation won Army wide recognition. recognition. Lowest cost per flight-hour of any copter. Maintenance — 50% of Army wide average. 12 E 305 hp Number one buy of commercial operators for every tough job in Western Hemisphere. High slevation landing and takes ff record— 18,000 ft. Mt. McKinley. Powered the way for light helicopter use in 5 major industries E4 320 hp Lowest cost 4-place helicopter flying today. Only U. 5. 4-place copter with power for vertical climb at gross weight—and at 920 fpm. Same 12 E appetite and accessories for work—a double duty ship. Super E 340 hp New for 1961—another performance advance in Hiller line. Sas level power at 3,400 ft. A building block for Hiller growth throughout the statles.

HILLER-the line that keeps growing

1. TAKE AN ARMY-PROVED CHASSIS AND DRIVE SYSTEM 2. ADD POWER AND MORE POWER 3. GIVE THESE HELICOPTERS THE ACID TEST BY MEN WHO HAVE TO MAKE COPTERS PAY AND THE BIG SWITCH TO HILLER IS ON!

The men who gave the go-ahead for the first Army contract for D model Ravens were shrewd investors. Their Army-proved dynamic components made the H-23D the first helicopter ever approved for one thousand hours between major overhauls while racking up the lowest cost-per-flighthour of any helicopter.

And that was only the beginning! It was no accident that the 305 horsepower Hiller 12 E became number one buy of commercial operators. In this fiercely competitive field, performance and durability are the only things that count. The operator who can do the job fastest and safest



gets the business and makes the profits. Here its Army toughness paid off again by putting far more power to work with ease.

Economy, long range total economy, is an acknowledged part of the whole Hiller line. The Hiller E4 continues this and, because it's just the next more powerful, more versatile step in the growing Hiller line, the E4 is the lowest cost four-place copter in the air today—both in original and operating cost.

The Super E, fourth in Hiller's current line, is the 1961 entry in this one company horsepower race—and by no means the last entry. Even with the Super E's 340 horsepower to lift sea level performance to 3,400 feet, there's still more to come . . . in the helicopters that are ahead for the sixties!

Designs are one thing. Deliveries another, Both come from



Board has been warmly received at all echelons as a constructive and positive piece of planning and programming. By and large the hardware projections in that 10-year program are being incorporated into our various materiel programs. In short, this work has been well received.

We are further convinced by a study of the House Appropriations Committee Report that the main reason for the pilot ceiling was the large number of surplus pilots in certain of the military departments. By this I mean pilots in numbers which far exceeded all existing or future requirements. Obviously this is not the situation in the Army where the pilot "inventory" (if I may use the word) has been 8% to 10% short of the requirement for

the past several years.

Despite all this, the announced OSD decision was that the cut required to meet the ceiling would be spread throughout the services, 61% being borne by the Air Force and the remainder among the Army, Navy and Marines. The ceiling which was thus imposed upon the Army is 6.438 pilots. Now, whereas we are just about at that figure, the problem is that should we graduate all student pilots now in training we would find ourselves at a pilot strength of 6,800 by 30 June 1961. (This, by the way, indicates that the quantitative extent of the problem might be in the neighborhood of 362 pilots, rather than the larger figures which were published in some papers or the smaller ones which were published in others).

This problem has received the attention and concern of the highest authorities in the Army, and it is still our hope that something may be done to modify the OSD decision. If this should fail, we would then find ourselves faced with a difficult decision on how to implement the ceiling. Although many decisions still remain to be made in this eventuality, this much can

be said at present:

a. There will undoubtedly be a qualitative screening of all pilots in order to insure that substandard individuals are screened out first. Boards have been established to accomplish this screening.

b. Commanders will be asked to notify the Boards if they feel that any pilots under their jurisdiction are failing to meet the required standard or are unproductive or ineffectual as officers or aviators.

c. Since student pilots are not counted against the ceiling, some study is being given to the feasibility of requiring all Phase B fixed-wing students to complete Phase C (instrument) prior to receiving their aeronautical rating.

d. The effect of the above courses of action on the pilot inventory must be determined before it is clear to what extent, if any, fully qualified pilots must be re-

moved from flying status.

Those aviators now in Category IV assignments should recognize the current personnel problem and evaluate this factor in their request for future assignments. If an aviator wishes to withdraw from the program and re-orient his career to a full time branch assignment, regulations provide for this choice.

Please be assured that the Army recognizes its responsibilities to the individual aviator and will do everything possible to minimize the effect of this current ceiling on the aviator's career pattern. We hope that no matter what happens the number affected will be small, and even then may well be of a temporary nature. I further hope that we can take effective action to prevent any further legislation making the Army the unwitting victim of restrictions which were not intended to apply to Army aviation.

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

Greatest Promise

aradoxically, the greatest promise in achieving really significant improvement in ground mobility lies in air mobility. The battlefield of tomorrow is likely to present more obstacles to movement than anything previously experienced. We must be able to hurdle these obstacles without interrupting our movement.

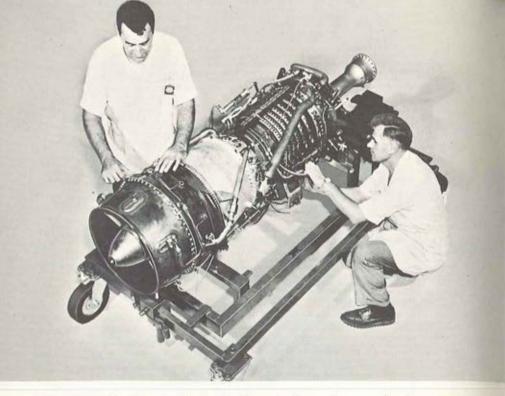
Specifically, we need air vehicles directly under the ground commander's control for a number of purposes. We need them to move combat soldiers, their weapons, supplies, and wounded more speedily and easily about the battlefield; we need them for reconnaissance and observation-to locate the enemy and direct the fire of Army weapons; we need them to provide essential communications and liaison between dispersed ground units, and to permit the commander to fly speedily to critical areas during combat and exercise on-the-spot leadership. They can also be used to place equipment and weapons in positions unattainable by ground transport. Rivers,

AN ADDRESS BY GENERAL GEORGE H. DECKER, CHIEF OF STAFF, U.S. ARMY, BEFORE THE AN-NUAL CONVENTION OF THE NATIONAL DE-FENSE TRANSPORTATION ASSOCIATION, OC-TOBER 3, 1960. mountains, swamps, forests, minefields, or areas contaminated by radiation or chemicals can be traversed in minutes instead of hours or days.

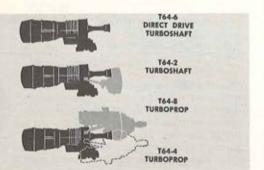
These air vehicles must be rugged, dependable, and capable of living in the battle-field environment in which the soldier operates. Such air vehicles would be an integral part of Army units—ready to fly when the units are ready to move, day or night, in any kind of weather.

Unlike Air Force and Navy planes which depend on speed and altitude for protection, the Army needs air vehicles which can fly low and slow. Many of these Army aircraft would hug the ground, using forests, hills, valleys, and other terrain features for cover and concealment—as the soldier has always done.

The helicopter possesses many of the qualities I have described. A helicopter can deposit a patrol on the top of a steep mountain; it can evacuate wounded from a jungle clearing; it can land an artillery piece in a ravine; and it can lay telephone lines. It can deliver critically needed supplies in a hurry. Helicopters can be used for so many different essential purposes



T64 RELIABILITY will go hand in hand with outstanding performance. A unique government contract which calls for 10,000 hours of engine running by the time all configurations of the engine are qualified will help assure both reliability and performance for the T64 engine.



BUILDING-BLOCK DESIGN is a principal feature of the T64 engine. Turboprop configurations are obtained by the simple addition of reduction gearing to the basic turboshaft engine. This means standardization of parts and simplification of logistic support for users.



LOW SFC AND HIGH POWER-TO-WEIGHT RATIO make the General Electric T64 turboshaft and turboprop engines ideal powerplants for many military and commercial aircraft including STOLs, helicopters, skycranes and other VTOLs. These are illustrated above in a com-

General Electric's T64 engines for tactical and support aircraft are flight qualified and available now

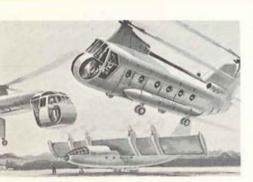
Airframe manufacturers and military and commercial aircraft users requiring economy of operation and high performance will find these features in General Electric's T64 gas turbine powerplants.

OUTSTANDING PERFORMANCE

Turboshaft T64: 2650 SHP—0.506 SFC—713 lbs.

Turboprop T64: 2700 ESHP-0.495 ESFC-1079 lbs.

... and the same basic power unit, including controls, is common to all T64 configurations. Superior missions includ-



posite artist's drawing. Both fuselage and wing-mounted installations are possible with the various configurations of General Electric's T64 engine. This flexibility plus T64 high performance can provide important benefits to aircraft manufacturers and users.

ing greater payload, speed, range and economy for support and tactical aircraft can be obtained by utilizing the low specific fuel consumption and attractive power-to-weight ratio of the T64.

INSTALLATION FLEXIBILITY—With designed-in ability to operate continuously at attitudes from 100° above horizontal to 45° below, the T64 engines are ideal powerplants for VTOL and STOL aircraft. Featuring compact engine size, split casings and grouped accessories, the T64 is designed for easy installation and maintenance.

AVAILABLE NOW—Both the T64 turboprop and turboshaft engines have completed their 50-hour PFRTs ahead of contract schedule. Power achieved was greater than guarantee, SFC was less than guaranteed. In addition, the first unofficial 150-hour qualification test has been completed. First of a series of 1000-hour reliability tests is now underway.

The turboprop T64 is scheduled to fly in the deHavilland Caribou in May, 1961.

For more information on the T64 engine, write Section 186-48, General Electric Co., Schenectady, N. Y.

SMALL AIRCRAFT ENGINE DEPARTMENT



LYNN, MASS.

that they have become indispensable to the Army. The utility of the helicopter is somewhat reduced by its inability to operate under certain weather conditions. An extremely important requirement is the development of an all-weather capability for these aircraft.

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 a separate Corps but are distributed throughout the entire structure of our Army organization.

I feel we are making substantial progress in developing the aircraft to meet our requirements. The CARIBOU, for instance, a short take-off and landing craft, can land on an unimproved strip 750 feet long. It can carry three tons of cargo or 32 fully-equipped soldiers. The IROQUOIS, a new gas-turbine utility helicopter recently established seven new performance records for helicopters, three of which were previously held by the Soviets. The MOHAWK is a highly maneuverable fixed-wing plane designed for short-range reconnaissance. It has a speed of 275 knots.

Looking to the future, our research and development effort includes two types of air vehicles of special interest to the Army. The first is an aircraft which can land or take off as a helicopter and thereafter fly as a fixed-wing plane. The other is a true "zero-ground pressure" vehicle which moves on a cushion of air just above the surface of the ground."

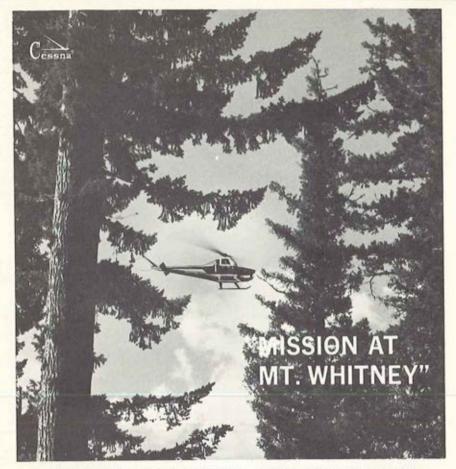
NASA SYMPOSIUM

Contract Army aircraft maintenance and training, including procurement matters affecting these service-type contracts, will be the principal discussion topics at the Third Annual Army Aviation Contract Services Symposium December 16, 1960, at the Mayflower Hotel, Washington, D.C. The symposium is sponsored by the National Aeronautical Services Association.

Among the military speakers will be Maj. Gen. Richard D. Meyer, Deputy Chief of Transportation for Aviation; Brig. Gen. Clifton F. von Kann, Director of Army Aviation; Army Transportation Materiel Command officials from St. Louis, Mo.; representatives from the U.S. Army Aviation Center, Ft. Rucker, Ala.;

procurement authorities from the Pentagon; and others.

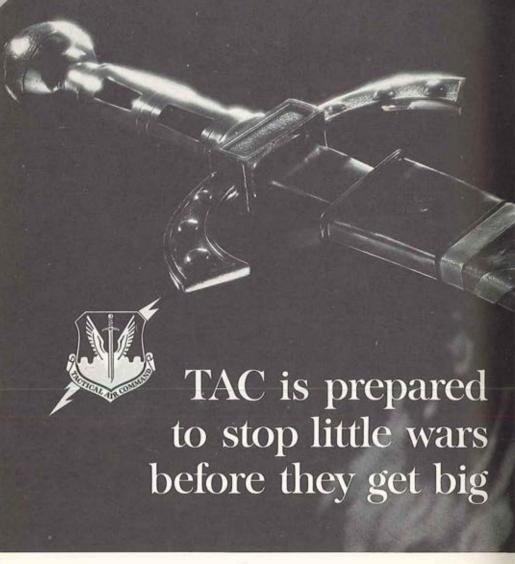
Industry speakers will be headed by Frank W. Hulse, President of the association and Chairman of the Board of Southern Airways Company. The one-day meeting will contain panel discussions and ample question-answer periods following each address to effect a military-industry exchange of information-primary purpose of the symposium. The National Aeronautical Services Association was formed in April by a merger of The Aircraft Service Association and Aeronautical Training Society (which sponsored the symposium in 1958 and 1959).



A MAN'S LIFE WAS AT STAKE. THEY SENT THE CESSNA

Into Edwards Air Force Base, Calif., came the call for help. A man, thrown from his horse, lay with multiple injuries on a heavily pined slope near Mt. Whitney. Issue: Could a helicopter get him out safely? It would have to be small enough to descend amid the towering pines—yet large enough to carry the man comfortably. It had to be stable and high-powered, its work to be at a challenging 8,500 feet. The requirements were an exacting challenge. They sent the supercharged Cessna. Mission successfully completed.

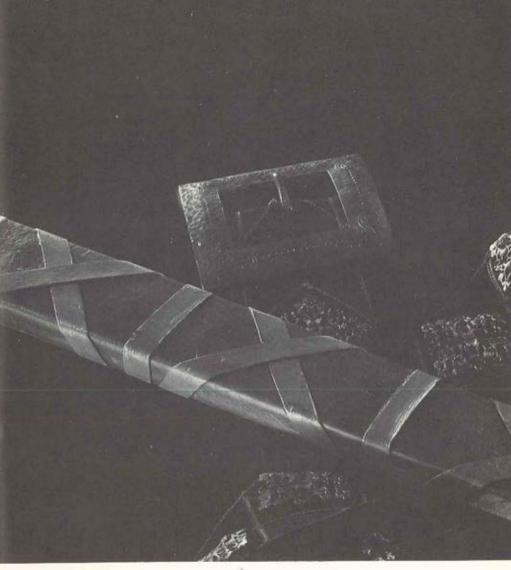




When trouble starts brewing, the Tactical Air Command can clamp the lid on localized aggression before it boils over and spreads to the rest of the world. TAC helps keep the peace in two main ways: (1) with its now famed CASF force which deploys quickly to any world trouble spot to work with local governments and provide air cover and attack strength as might be needed; (2) by establishing and maintaining a strong tactical airlift for Army strike forces, supplies, and support equipment.

The Lockheed/Georgia C-130 Hercules has served with TAC for more than 3 years—and has proved it meets all requirements for true airlift operation: straight-in end loading; truck-bed height cargo floor; air-conditioned pressurized cargo compartment; and ability to lift, land, or airdrop heavy, bulky pieces of freight. And the C-130 can get closer to the action—operating to and from strips much too rough and short for most cargo airplanes.

Lockheed Georgia Division, Marietta, Georgia.





LOCKHEED GEORGIA

WORLD HEADQUARTERS FOR AIRLIFTERS AND CARGOLOADERS

USAAC REPORT

By
Maj. Gen. Ernest F. Easterbrook
Commanding General
U.S. Army Aviation Center



OZARK MAYOR DOUGLAS BROWN, ALABAMA GOVERNOR JOHN PAT-TERSON, AND MAJ. GEN. EASTER-BROOK, PRINCIPAL SPEAKERS AT THE DEDICATION OF OZARK'S BLACKWELL AIRPORT.

outine operational helicopter instrument flights-something we in Army aviation have been advocating for some time-may become a reality in the near future.

A committee of seven FAA specialists spent a week with us at the Aviation Center studying the helicopter flight program and the problems involved in this field.

According to members of the committee, its mission here was to determine a course of "specific action relative to rules and procedures."

The FAA office in Washington said information and experience at the Center regarding operational characteristics of several types of helicopters will be of considerable value in developing these rules and procedures now under consideration.

At present there are three types of helicopters here equipped for instrument flight: the H-21 Shawnee, the H-34 Choclaw, and





BELOW, FAA SPECIALISTS R. A. FITZEK (FRONT) AND R. J. FRICK CHECK AN H-34 PANEL. LEFT; PART OF THE CROWD OF 2,000 ATTENDING THE RECENT FLY-IN WATCH THE LANDING OF A SKY-DIVER AFTER HE PINPOINTED A DROPFROM OVER 5,000 FEET.





CAPT. LEONARD R. DENNIS (LEFT), PROJECT OFFICER WITH THE TEST DIVISION, U.S. ARMY AVIATION BOARD, RECEIVES HIS MASTER ARMY AVIATOR WINGS FROM COL. JACK L. MARINELLI, BOARD PRESIDENT (ALL PHOTOS, U.S. ARMY).

the new turbine-powered HU-1A Iroquois.
It is our hope-and one expressed by the

It is our hope—and one expressed by the committee—that its visit will also bring about a mutual understanding of the particular problems encountered.

DEDICATION

We had the pleasure of attending the dedication of Ozark's Blackwell Airport along with Alabama's Governor John Patterson and other dignitaries from this state's capitol.

The new airport—located nine miles from the Army Aviation Center—is unique in that it maintains the only helicopter maintenance school for civilians in this nation the Alabama Aviation Technical School.

Asa Roundtree, Jr., director of the Alabama Dept. of Aeronautics, was among the visitors from Montgomery. Mr. Roundtree, who has done much in this area to promote aviation, said the airport and school are a "sound and wise investment."

PLANNING

Another step of Fort Rucker's current Master Planning Program was taken when all H-13 helicopters were moved from South Port to Hanchey Army Airfield last month.

The moving of the helicopters was in accordance with the master plan to move all aircraft *outside* the residential area of Fort Rucker to areas which have controlled airfields.

PURPOSE

"The Army is to do just one thing-win the ground battle."

This is what Brig. Gen. John F. Franklin, Jr., Deputy Chief of Staff for Personnel and Administration, Continental Army Command, said on his recent visit with us at the Center.

Gen. Franklin outlined the importance and need for not only officer aviators, but qualified enlisted aircraft mechanics. He stressed the importance of properly trained men in both National Guard and the Reserve programs in Army aviation's vital role and the "One Army" concept.

VISITORS

Maj. Gen. Louis T. Heath, Deputy Chief of Staff for Material Developments, Continental Army Command, spent two days at Fort Rucker recently. He inspected the Aviation Board hangar and the Aviation Board Enlisted Men's Barracks, and reviewed a display of selected Aviation Board Projects.

Gen. Heath also saw a demonstration of two of our latest fixed wing aircraft, the versatile Caribou and the high-performance Mohawk. On Gen. Heath's last day at the Center, he attended an Aerial Combat Reconnaissance Demonstration at Matteson Range.

Brigadier Richard A. Fyffe, Commandant, Army Air Corps Center of the United Kingdom, was with us recently at the Center and showed a keen interest in our operations. He was accompanied on part of his tour by Col. George R. Flood of the United Kingdom, who is an infantryman and air officer.

Among our recent guests from foreign countries were three officers of the Austrian Air Force who toured the Center and were briefed on aviation activities here.

They were Lt. Col. Walter Kremser, Commander, Anti-Aircraft School; Maj. Joseph Stangl, Commander, First Helicopter Squadron and Maj. Josef Haiboeck, Chief of Staff, Tactical Air Command.

The Austrian officers were accompanied by Capt. John S. Kark, Department of Tactics. Escort Officer.

Phillip K. Robinson, Deputy Assistant Secretary of the Army, paid a visit to the Center recently. Mr. Robinson witnessed an Aerial Combat Reconnaissance demonstration at Matteson Range and took a ride in an armed H-13 helicopter.

Maj. Gen. Dwight E. Beach, Commanding General of the 82nd Airborne Division at Fort Bragg, N. C., recently addressed an Officer's Rotary Wing graduation class and toured the Center.

Gen. Beach, who was once director of the Army's missile program, is noted for his forward thoughts in the "new Army" concept. He said the helicopter plays a most important role in STRAC (Strategic Army Command). STRAC stands ready to have elements of its three divisions ready for combat within an hour's notice.

ERNEST F. EASTERBROOK Commanding General Major General, GS U.S. Army Aviation Center



PICKUP AND DELIVERY for every kind of payload



Carrying men, materiel or missiles... Sikorsky's new "Skycrane" brings Pentomic era mobility to tactical operations

First of a family of "Flying Cranes," the Sikorsky S-60 (above) will soon be joined by the newest member: the twin-turbine S-64, with an eight-ton payload.

Carrying its loads externally, the "Skycrane" nimbly switches from troop-carrying pods to missiles, from supplies to construction equipment, and even to complete maintenance vans. It carries cargoes of any shape or size up to its lifting capacity. Termed a "prime mover," it brings the flexibility of the truck-tractor to air transport. And its simple skyhook pickup eliminates time-consuming loading and unloading, reduces turnaround time to a minimum.

The crane concept, tested and demonstrated for many months in the S-60, has opened the way for the current design and development of a family of Sikorsky turbocranes with payloads up to 40 tons.





USAREUR REPORT

BY MAJOR KENNETH D. MERTEL

few notes on the USAREUR staff aviation organization. A decentralized system is used here in USAREUR Headquarters, with staff aviators assigned to each General Staff Division. Lt Col. Howard I. Lukens, recently arrived from Fort Rucker is in P&A Division (Gl). His primary job is Army aviator officer assignments. In addition, he monitors flight evaluation boards, accident reports, requests for flight status, and requests for and termination of suspensions.

Maj. Charles V. Graft, a recent arrival to Intelligence Division (G1), monitors surveillance and other intelligence aspects of

Army aviation.

Maj. Robert M. Barendse and myself hold down the Aviation Section in the Operations Division (G3), Our main task is operations, training, equipment priorities, air traffic control and airspace, violations, regulations, policy, and anything else not handled by any other staff divisions.

Lt Col Carlyle W. Arey in Logistics Division (G4) is Chief of the Materiel and Maintenance Branch. On the side, he coor-

dinates logistical aviation matters.

TYPICAL OF THE ARMY AVIATORS WHO FLY IRON CURTAIN PATROLS AND WO KNOW THE AREA BETTER THAN THEY DO THE STREETS IN THEIR HOME TOWNS ARE LT DUDLEY J. CARVER, JR. (LEFT) AND CWO LLOYD W. HULSEY, OF THE AVN CO, 2D ACR. CONTINUAL FAMILIARIZATION PAYS OFF FOR THESE BORDER PILOTS (SIKORSKY PHOTO).



operational theatre: the world

The Iranian government, the Colombian airforce, the kingdom of Yemen, a police force in Indonesia are remotely situated on the global map. Yet these entities, as well as the governments of Vietnam, Argentina, Pakistan and many others, have at least one interest in common with the United States Army, the U.S.A.F. and the N.A.S.A. All depend on Aero Commander for safe, fast transportation.

Whatever, wherever its assignment, Aero Commander accomplishes each mission with maximum flight safety. Aero Commander provides versatile adaptability as V.I.P. transport or for high priority cargo. Or as a twin engine transition, instrument and navigational trainer. Aero Commander is equally adaptable to ambulance duty, search and patrol, supply drop, radar and photo reconnaissance and aerial survey. Its stability and performance are unparalleled by any twin in its class.

Pictured above is the all-new 8,000 lb. Aero Commander 680F with Lycoming IGSO-540 380 hp fuel injection engines, over-the-wing exhausts, and super-quiet interior. Write Military Relations Department for details on all models.

AERO COMMANDER, INC. BETHANY, OKLAHOMA

Additional staff aviators are assigned to the Signal Division in a small Special Staff Aviation Section. This section, headed by Maj. James H. Gooden, includes Maj. Albert M. Krakower and Capt. Edwin M. Aguanno. Their main tasks are communications and navigation equipment and allocation of frequencies.

Working with the Signal Division is Capt. Egon J. Arndt of the Army Flight Information Detachment Number 1. He is responsible for coordination of changes to the Jep Manual, publication of NOTAMS, and flight check of instrument facilities. Also monitored by Signal Division is the Army Flight Operational Facility (AFOF) commanded by Maj. Robert E. Brizee. AFOF, the only one of its kind in the Army, has the same task as Flight Service in the zone of the interior.

Aviation staff officers in Seventh Army Headquarters include Lt Col James H. Lee, Aviation Officer; assisted by Lt Col Lewis N. Shaffer; Maj. Neely R. Brown, airspace and air traffic control; Capt. Bernard H. Mattson and Capt. Colin D. Ciley, Jr., Operations; Capt. Robert P. Rush, Administration; and Capt. Archie W. Summers, Safety.

Aviation Officer in Seventh Corps is Lt Col Robert D. Dearth, assisted by Lt Col Langston Caldwell. Fifth Corps Aviation officer is Lt Col Morris G. Rawlings, assisted by Maj. Donald E. Duncan.

COMZ Aviation Officer is Maj. William G. Black. Also in COMZ in the Transportation Division is Col Ford E. Allcorn and Maj. Alfred J. Reese. SETAF Aviation officer is Capt. William W. Deloach. Last but not least is Lt James A. J. Quinlan, Berlin Command Aviation officer.

Exercise Flashback has passed, a large scale NATO Exercise participated in by many USAREUR units. Special commendation goes to the 110th Trans Co-LH; 8th Trans Bn-Hel; Seventh Army

commanded by Maj. Henry C. Sullivan; and the 2nd Avn Co, COMZ, commanded by Maj. John J. Clark. These units accomplished an outstanding job in connection with support of USAREUR and CENTAG Headquarters.

An overall study of USAREUR aircraft accidents for the past three quarters shows that 68% were due to pilot error. An analysis of ten specific aircraft accidents reveals that nine were due to pilot error and one because of materiel failure. One aviator managed to drop a gear into a manhole while taxiing from the parking ramp to the sod runway by way of an unlighted sod taxiway about dusk.

To quote the Seventh Army Aviation Officer, "There are two primary causes for these accidents—lack of training and violations of regulations. Both of these causes can be remedied in the aviation unit by more training and swift punishment for those pilots who violate regulations."

Keep your proficiency up, know your capabilities and limitations, obey the regulations, and you will live much longer. This will also leave us more useable aircraft to carry out our mission.

whe draft of a proposed USAREUR Circular outlining the next Annual Army Aviation Proficiency Competition is being circulated to key personnel in the field for ideas and comments. The proposed competition will be conducted at Heidelberg and Coleman Army Airfields, June 1961 in conjunction with the Annual Army Aviation Birthday Banquet. A unit trophy will be awarded this year as well as individual awards. Elimination contests should be held at unit level in order to determine the contestants that will represent their units in the USAREUR Competition. The circular will be published about 15 Nov. 60. Additional details will be forthcoming in this column.

In H.F. Radio Equipment. Anything Over 15 lbs. is **EXCESS BAGGAGE!**

> Certified to FAA TSO's C-31B and C-32R CATEGORY A and RTCA Standards FCC Type-Accepted Part 9 for Aviation, Part 8 for Marine.

- · Powered by exclusive SunAir solid-state transistorized unit
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Model T-22-RA High Frequency Transceiver by SunAir - for Air Carrier, Military, Executive long range communications.

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The new Beechcraft L-23F ...

Meeting the U.S. Army's requirement for a modern high-performance, low-cost transportation system

Already serving the U. S. Army, the versatile new Beechcraft L-23F is the latest in a long line of highperformance training and utility aircraft which Beech Aircraft Corporation has designed, developed and produced for the military services since 1932.

With supercharged fuel injection engines, the L-23F combines high altitude cruise power with exceptional

short field performance, rugged durability and low operating costs to meet a wide range of needs . . . as a command liaison or personnel transport, a carrier of high-priority cargo, an aerial ambulance, or a multiengine instrument trainer with a "big plane" feel. Designed and engineered for future pressurization and turbo-prop modification. Beech Aerospace Division projects include R&D on manned aircraft; missile target and reconnaissance systems; complete missile systems; electronic guidance systems; programs pertaining to liquid hydrogen propellants and cryogenic tankage systems; environmental testing of missile systems and components; and GSE. May we help you? Write, wire, or phone Contract Administrator, Beech Aircraft Corp., Wichita 1, Kansas—or nearest Area Office.

PERCH HOLOSpace Division

BEECH AIRCRAFT CORPORATION @ WICHITA 1, KANSAS.

LETTERS

Sirs:

I am not certain as to whether or not ARMY AVIATION receives obituary notices, other than those that are disseminated officially and are concerned directly with aviation accidents, but I felt that his many friends would be grieved to know that Major Marion F. Ward died at Fort Campbell, Kentucky on July 16, 1960, after an illness of four days. Major Ward had been an Army Aviator since May of 1943.

Chaplain DeVanney of Fort Campbell conducted the military services with pilots of the 101st Airborne Division serving as pallbearers. His wife, Kathryn, sons Scott and Danny, and his daughter, Candice, reside in Gilman City, Missouri, where Major

Ward is interred.

Sincerely, Maj. Jack N. Lockhart Assistant Aviation Officer 101st Airborne Division

Sirs:

In the October issue of ARMY AVIA-TION on page 568, the statement is made that USAREUR transported the first Otter aircraft in C-124 aircraft.

In April, 1959, the Aviation Section of the U.S. Army Transportation Environmental Group disassembled and shipped two U-1A Otters to Thule AFB, Greenland, in G-124 aircraft. Later in the year, two H-34C helicopters were shipped. During March and April, 1960, USATREOG shipped two U-1A Otters and four H-34C's to Thule in G-124's and shipped them back in G-133's later in the year.

CWO Michael V. Mayville Hq, USATREOG Ft. Eustis, Va. Sirs:

I would appreciate it very much if you would publish a short notice for me inviting any of my old friends who "touch down" at Miami International to give me a call at TUxedo 7-6803. I'll be more than glad to pick them up and might even grill them a nice steak!

Sincerely, Maj. Robert J. Ogden, Ret. 890 SE 4th Street Hialeah, Fla.

Sirs:

In the September Hardware Issue, page 523, you state the cruising speed of the AC-1 Caribou as 131 knots. We usually state the normal cruise at 50% of takeoff power (2 x 725 BHP) at 7500 ft. as 158 knots TAS.

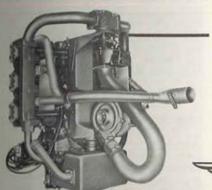
If you are going to use a figure of 131 knots, I think the conditions should be stated (altitude, power, etc.) as otherwise it might give the impression that the *Caribou* hasn't got much get up and git. Other than that, with best regards,

A. F. MacDonald Public Relations Manager De Havilland Aircraft

(Ed. The performance figures appearing in the Hardware Issue were those provided to the publisher by official sources, and were not altered. These sources requested the publication of the following on the masthead page of the issue: "The performance figures listed for the aircraft in this Hardware Issue are not intended for use in flight planning. These figures will vary with the mission, the gross weight, and/or weather conditions." Many, including the Editors, have seen the Caribou perform, and know that it can really "go, go, go.")



When you have to fly at altitudes like this, you need a Bell 47G-3 with Franklin turbo engine



Franklin 6VS-335 Turbasupercharged engine FAA Type Certificate No. 1E2 At 15,000 feet, the Franklin turbosupercharged engine in the Bell 47G-3 produces the same solid 225 h.p. as it does at sea level. With this helicopter and this engine, you can forget the old problem of how much you can lift at a given altitude. You can lift the rated payload of 1,111 lbs. right over the top of any ordinary mountain! Ask your Bell Helicopter or Franklin Engine representative for full details.



A PRODUCT OF Aircooled Motors SYRACUSE, N.Y.

esting has been completed on a Helicopter Pilot's CBR Protective Mask and Hood which is worn with the APH-5 helmet. (Photo). The mask and hood combination is designed to protect aviators performing flight duties of the types normally assigned during hostilities, disasters, and civil disturbances requiring protection from chemical, biological, and radiological contaminants. Pilots report that the additional protective equipment does not contribute to an individual's comfort on a hot day.

■ Service test of the AO-I Mohawk at Fort Rucker began 16 September 1960, with Maj. Elbert E. Drane as project officer. His assistants are Capts. Leonard R. Dennis, Alfred R. Smith, Cecil E. Wroten, June H. Stebbins (Maintenance Officer), and Mr. Joseph E. Givens, all of USAAB, and Capt. Clifford E. Johnson of the USAAS.

In addition to the "A" model, the service test program will include the AO-1B with side looking airborne radar (SLAR) and the AO-1C equipped with infrared (IR). (Photo).

■ Several items of communication and navigational equipment are currently undergoing service test or evaluation:

A CD-3 Course Director, installed in an H-34 helicopter, designed to simplify navigational problems.

Testing of the AIC-12, Aircraft Intercommunication Set, installed in an H-21 helicopter, is nearing completion. This set, which utilizes advancements in techniques and components such as modular construction and printed and transistorized circuitry, eliminates the need for a dynamotor since it operates directly from the aircraft electrical system.

A portable ground based UHF radio direction finder, the DFG-4C (modified), is

Splinters



BY CAPTAIN RALPH W. PARKINSON

currently in operation on a test basis at Hanchey Tower.

The Flight Operations Central, (AN/MSW-6), an improved version of the Flight Operations Center Van Set (AN/TSW-3) previously tested by this Board, was scheduled for its initial workout during Exercise "South Wind" with the 6th AOD from Fort Bragg. (Photo).

■ Though the L-19 airplane has been around for some time, it appears that there is still room for improvement. Two active projects are concerned with engine performance. A Bendix Modified Acceleration Pump is undergoing evaluation to determine its desirability for retrofit purposes. This particular project resulted from an analysis of L-19 accidents in which inadequate carburetor acceleration pump ac-

from the Board



tion at low engine r.p.m. was determined to be a primary or contributing factor. The modified acceleration pump incorporates a larger spring which results in a more positive action of the pump diaphragm and a more even flow of fuel to the engine.

The other L-19 project is concerned with evaluation of the Continental Fuel Injection System. This system, which has FAA certification and is in use commercially, eliminates carburetor icing and may offer the advantages of better engine response to throttle application, increased fuel economy, and reduced maintenance.

■ The Board has been involved for some time in the evaluation of range extension systems for Army aircraft. Evaluation of the "Long Tom," a configuration which incorporated two floating wing panels on an L-23, has been completed. Testing of a range extension system installed on an L-20 was scheduled to commence in October.

This particular system consists of an

LEFT TO RIGHT, ABOVE: AO-1C MOHAWK EQUIPPED WITH INFRARED; FLIGHT OPERA-TIONS CENTER VAN SET (AN/TSW-3); AIR-SUP-PORTED MAINTENANCE TENT.

externally carried pylon package assembly which includes the necessary bomb racks, supports, and sway braces and a self-contained air pump which supplies the pressure for transferring the fuel from tanks of 30, 60, 150, or 165 gallon capacity to the main fuselage tank of the airplane.

The pilot is provided with a control panel which contains the necessary selectors, fuel tank quantity indicators, and fuel flow controls. Additionally, an external fuel tank installation on an H-34 is programmed for the near future. Who knows but what "in-flight" rations will become a regular topic on the agenda for hangar flying?

Aircraft maintenance officers and mechanics take note. The Board has received



SPLINTERS/Continued

four types of maintenance tents for test and evaluation. The largest is an air-supported, 80-foot diameter, 37-foot high, circular type tent, designed to accommodate a variety of aircraft. The smaller tents vary from the nose-in type to those which are actually supported by the aircraft structure. These tents will be in continuous use at Fort Rucker during the next several months.

The air-supported tent has been erected adjacent to the maintenance area of the 21st Aviation Company at Cairns Army Airfield. Your inspection is invited; however, it is requested that you check your hairpins, darts, etc., with the Operations Officer, 21st Aviation Company, before approaching the air-supported tent. (Photo).

VISITORS TO THE BOARD

■ Our apologies—We neglected to mention in our last list of distinguished visitors to the Board that *Brigadier Richard A. Fyffe*, Commandant of the Army Air Corps Center, United Kingdom, was a-Board for a general briefing.

Distinguished military visitors to the Board since our last "Splinters" report included Maj. Gen. N. A. Costello, Assistant Chief of Staff, G3, US Army Pacific, on 21 September. Maj. Gen. A. F. Benny, Director of Marine Corps Aviation; Maj. Gen. J. P. Berkeley, Commanding General, 2d Marine Division, Camp LeJeune, N. C.; Brig. Gen. R. Collins, Director, Marine Corps Development Center, Quantico, Virginia, together with an entourage of six Colonels, nine Lt Colonels, six Majors, two

CAPTAIN TWILIGHT? NO, IT'S CAPTAIN JAMES F. VAUGHN, AVIATION BOARD PROJECT OF-FICER, MODELING THE PILOT'S CBR PROTEC-TIVE MASK AND HOOD WORN WITH THE APH-5 HELMET. Captains, two Lieutenants, and one Master Sergeant, visited on 27 September. Other military visitors were Wing Commander K. V. Robertson of the Australian Air Force, Lt. Col. H. C. Bush, Office, Chief of Research and Development, and Lt. Col. Albert Newton of the Army War College staff.

Civilian visitors include Mr. C. E. Myers, President of the Society of Experimental Test Pilots, who spent about 10 days with the Board; Mr. Lee Howard of Lycoming, and Messrs. R. H. Donnell and Mike Pelehach of Grumman who were here in connection with the Mohawk project.

PERSONNEL CHANGES

Personnel-wise, the Board remains the same with the exception that Capt. Merrill E. Jameson, who had been assigned to the Board since February 1956, has been transferred to Korea, and Maj. Lowell K. Solt has reported in for duty with the Board.



COL. JACK L. MARINELLI, BOARD PRESIDENT, HOSTS C. E. MYERS, PRESIDENT OF THE SOCIETY OF EX-PERIMENTAL TEST PILOTS, DURING THE LATTER'S VISIT TO THE TEST FACILITY.



MAJ. E. E. DRANE, MOHAWK PROJECT OFFICER, POINTS OUT SOME OF THE TECHNICAL ASPECTS OF THE AIRCRAFT TO MAJ. GEN. JOHN M. McNEILL, COMMANDER, BRITISH ARMY STAFF IN WASHINGTON, D.C.



MAJ. GEN. A. F. DENNY AND BRIG. GEN. R. COLLINS OF THE U.S. MARINE CORPS CHAT DURING A BREAK IN THEIR AVIATION BOARD VISIT.

MAJ. GEN. NORMANDO
A. COSTELLO, ACOFS,
G-3, U.S. ARMY, PACIFIC, DESCENDS FROM
A MOHAWK COCKPIT
AFTER AN ORIENTATION FLIGHT IN THE
SURVEILLANCE AIRCRAFT. (ALL PHOTOS,
U.S. ARMY)





Solar gas turbine APU starts and supports Army's new YHC-1B jet helicopter Solar's new Titan T-62T gas turbine APU enables the Army's YHC-1B Chinook to start anywhere without ground support equipment. It provides the power necessary to start the engines and to operate all hydraulic and electrical systems. The self-sufficient turbine develops up to 80 hp, is only 12% in. in diameter by 25 in. long, and weighs 61 lb. Solar APU's may be equipped with an alternator, generator, hydraulic pump, pneumatic compressor or combinations of these units. For additional information write to Dept. H-181, Solar Aircraft Company, San Diego 12, Calif.





A REPORT ON THE:

U.S.
ARMY
R & D
PROBLEMS
GUIDE



MAJOR GENERAL RICHARD D. MEYER

Principal
Assistant
for Aviation,
OCT

roblems ranging from the need for supersonic rotor systems for helicopters to a system that will enable an airplane to carry along its own landing strip have been documented for solution by scientists and private inventors in the recently issued Transportation Corps volume of the U.S. Army Research and Development Problems Guide.

The volume contains a total of thirty-four specifically documented aviation problem areas needing solution in the 1960-1970 time period. These deal with dynamics, propulsion, structures, materials, production engineering, human factors, accessory systems and components, and ground support equipment. It also carries a listing of urgent problems in the fields of surface transportation and applied and supporting research.

Turbine aircraft engine developments

PROBLEMS GUIDE/Continued

promise steadily increasing gains in thrustto-weight ratio. Yet, this added power cannot be utilized in significantly improving the forward flight capabilities of current helicopters until much higher rotor tip speeds are possible. Supersonic propellers have proven to be advantageous at high speeds on some long-range transports. Our researchers feel that supersonic rotor systems may be the answer for helicopters.

Severe downwash has been an associated problem with each of the V/STOL convertiplane-type aerial vehicles which we have developed to date and is one of their most serious drawbacks. In combat, the tremendous clouds of dust which are kicked up during vertical take-offs and landings would be a dead giveaway to the enemy. At the same time, the dust plays havoc with the engines and other components causing them to wear out far ahead of their forecast life expenctancy.

Landings in soft or rutted ground can also be extremely hazardous to the V/STOL for the obvious reasons. A possible answer might lie in a light-weight jettisonable landing mat which could be dropped from the aircraft to provide a firm, stabilized, dust-free surface for landing and take-off. The mat would have to be cheap enough to be considered expendable or else should be readily retrievable via some sort of automatic hook-up which would permit its recovery as the V/STOL vehicle becomes air-borne on take-off.

As a possible means of achieving a substantial reduction in drag at high speeds and an increase in lift at low speeds, we are seeking design data for combining in a single aircraft both suction and blowing Boundary Layer Control systems. Up to the present time, data supports design of either one type or the other rather than the two in combination.

Six of the remaining thirty-one aviation problems listed deal with flight safety. These include appeals for:

New methods for increasing flight safety of Vertical Take-off and Landing (VTOL) air vehicles in the three flight regimes of take-off, cruise, and landing;

A completely foolproof warning system to alert the pilot to the approach of an uncontrollable flight condition;

Systems which will permit safe emergency landings in any terrain;

Automatic combustion prevention methods for use with aircraft fuel systems during emergency;

Crash-resistant fuel systems which will not rupture under the higher "G-loadings"

BRIEFING



LT. GEN. ARTHUR G. TRUDEAU, CHIEF OF R & D, IS SHOWN DURING HIS TOUR OF THE BELL HELICOPTER PLANT AT FT. WORTH WITH, L-R, SALES ENGINEER CLIFF KALISTA, VICE PRESIDENT BARTRAM KELLEY, AND ROBERT LICHTEN, CHIEF EXPERIMENTAL PROJECT ENGINEER. (BELL PHOTO).

CANADIAN PRATT & WHITNEY AIRCRAFT'S

Turboprop/Turboshaft

A remarkably versatile engine, the lightweight 500 horsepower PT6 has been designed to meet many needs . . . single and multi-engine fixed wing aircraft . . . helicopters and high speed marine installations. It offers a new concept in engine design . . . an axial-centrifugal flow, moderate pressure ratio turbine engine with a free turbine drive for either turboprop or turboshaft installations. This rugged 250-pound engine offers dependable performance, combined with low fuel consumption and ease of maintenance.

Avallable In 1961 from: Canadian Pratt & Whitney aircraft

COMPANY, LIMITED, Longueuil, Montreal, P. Q. Applications from experienced and qualified engineers are invited.

PROBLEMS GUIDE/Continued

incident to mishaps involving modern highperformance aircraft; and

Improved means for de-icing and antiicing aircraft in the air and on the ground.

The Army's continuing interest in the employment of VTOL aircraft is reflected by the eight problem areas calling for state-of-the-art advancements in helicopter component design. In addition to the already mentioned appeal for flight safety improvements and the quest for rotor systems capable of significantly improving helicopter speeds, these include:

The need for simple, more rugged rotor hub assemblies;

Collapsible rotor blades for ease in transport, storage, and replacement;

Development of hot-cycle rotors for use with tip jets operable at temperatures above 1200°F;

Development of unique transmission devices which match more efficiently the gearing of power plants to helicopter rotors or to propellers of V/STOL or conventional aircraft;

Development of airframe-power plant combinations specifically designed for optimum operational efficiency; and

Development of a lightweight, foolproof, and maintenance-free in-flight hoisting system for use with both V/STOL and VTOL aircraft.

5 even problem areas are also listed for use with V/STOL aircraft and, it seems to me, give evidence of our continuing interest in the advancement of this concept for ultimate Army use. Besides the two listed above as applicable to both V/STOL and helicopter useage, we seek assistance in the development of:

Lightweight propeller systems which will

offer significant gains in performance as well as reduce vibration and stress levels;

A more reliable means for transmitting power from engine to propulsion units than the conventional shafting systems in current use; and

Design of declutching systems for use with the interconnected propeller systems on some V/STOL aircraft. (This would provide a means in emergency to uncouple and feather a damaged propeller before it could endanger the aircraft.)

Also sought are:

An optimum airframe power plant configuration for a family of high-speed, bodylift, transportation aircraft, and

New techniques for reduction of downwash and re-ingestion of foreign matter in engines of aircraft and ground effects machines.

Additional specified problem areas deal with the Transportation Corps' intense interest in significantly improving the supply and maintenance aspects of all Army aircraft. Improved maintenance and supply is often among the more important fallout benefits from component developments such as new rotor hubs, collapsible rotor blades, improved transmissions, and others mentioned above.

Aside from these, we have listed six additional problems directly related to supply and maintenance. Included are:

The need for integrated lubrication systems and heat exchange systems to reduce weight and maintenance;

Radical improvement in air filtration systems for gas turbine intakes which can increase overhaul life well beyond the present limits for operation in contaminated environments;

Reliable methods for integrating electrical and electronic systems with the basic airframe to include provisions for ease of maintenance and servicing;

Light-weight long-life aircraft batteries



which will make possible a considerable reduction in supply requirements;

Development of simple, standardized control systems which will cut training time, minimize crashes due to pilot error, and greatly facilitate supply and maintenance requirements; and

Investigation of the increased use of structural plastics in aircraft construction as a means of achieving greater strength, reduced weight, and lessened maintenance requirements.

Although we are already funding projects in a few of the problem areas, they are listed because the necessity for further research is indicated by past or expected results. For the most part, however, the listings represent challenging new problems which are wide open to research and for which solutions are very urgently needed.

We hope that scientists in industry and education or private inventors will write for copies of the Guide and join us in this effort. Copies can be obtained by writing the Commanding Officer, U.S. Army Transportation Research Command, Fort Eustis, Va.

MAJ. GEN. PO-YIN PU (CENTER, LEFT) COMMANDING OFFICER, AIRBORNE INFANTRY REGIMENT, TAIWAN, PRESENTS BRIG. GEN. ROBERT B. NEELY (3D FROM RIGHT), COMMANDANT, US ARMY TRANSPORTATION SCHOOL,
WITH A MEMORIAL PLAQUE FROM HIS COMMAND AS OTHER FORMOSAN OFFICERS LOOK
ON. GEN. NEELY, IN TURN, PRESENTED THE
GROUP WITH T-SCHOOL INSIGNIA. (US ARMY
PHOTO).

Proposed solutions may be submitted to him. Independent inventors should submit their proposed solutions to the National Inventors Council, U.S. Department of Commerce, Washington 25, D. C.

LIGHT OBSERVATION AIRCRAFT

By the time you read this item we fully expect that our letters inviting interested industries to participate in the design competition for the new Light Observation Aircraft will already be in the mail.

Navy, which is monitoring this develop-

ment for the Army, was furnished the final coordinated Army position on the military specifications in late September. This was the last step before sending out the invitations for the design competition.

The LOA, you will recall, is the aircraft recommended for development by the Army Aircraft Requirements Review Board, headed by Lt. Gen. Gordon B. Rogers, Deputy Commanding General of CONARC. The Board gave the "green light" to development of the LOA after studying military evaluations of design concepts submitted by some 46 companies who had responded to a request to study Army aircraft requirements for the next decade.

Early this year, the design concepts were translated into tentative military characteristics by CONARC and in June were given to interested companies for comment and advance planning purposes. The final military characteristics then received Army General Staff approval before transmittal to Navy.

Two design proposals for the LOA will actually be selected for initial construction, with first flights slated about January 1963. Seven aircraft of each of the two designs will be built to carry us through the extensive test program which has been planned for the aircraft. At the end of the testing, expected to be completed sometime in 1963, we will pick the best of the two designs for production.

In case you have forgotten, the performance characteristics call for a 2 to 4-place aircraft, i.e., a pilot, observer, and minimum provisions for two additional passengers. With pilot and 400 pound payload, it is to have an endurance of about 3 hours, be able to hover at 6,000 feet in 95° temperatures, and to cruise at 110 knots. The engine hasn't been selected but we expect that it will be a small newly developed lightweight turbine. Missions include observation and target acquisition, reconnaissance, and command control.

▲ unique, lightweight, rocket-powered ejection seat for emergency use in Army vertical take-off and landing research aircraft is under development by TG and the Columbus, Ohio Division of North American Aviation, Inc.

Previously developed ejection seats enabled the pilot to escape safely only when the aircraft was in forward motion or had sufficient altitude for the parachute to open effectively. The newly developed seat, however, operates without the necessity for forward speed and provides a safe means of escape at any height from ground level to 10,000 feet. This makes it particularly adaptable to the V/STOL aircraft which take off and land like a helicopter and convert in the air to forward flight.

The rocket-propelled seat is equipped with a fully automatic, quick-opening parachute. The seat weighs only 68 pounds, half the weight of similar units presently in use. The company will utilize anthropomorphic dummies, simulating a variety of weights and sizes of pilots, in the forthcoming tests of the system.

The Army has taken an important step toward greater uniformity and efficiency in contracting for maintenance of its aircraft. A team of technically qualified specialists is now available to assist commander's contracting officers and maintenance personnel engaged in negotiating and awarding maintenance contracts.

Provisions of AR 715-720, published 4 August 1960, require the Chief of Transportation to furnish a contract assistance team to aid CONUS commanders in the case of each air maintenance contract having an estimated dollar cost exceeding \$100,000. Use of the team is optional for contracts of lesser cost.

Uniform application of high standards and improved techniques will result in more effective maintenance. This should reduce maintenance cost and promote flight safety.

Mike Button

Box 209, Main Office, St. Louis 66, Missouri

The new type fire extinguishers, which "Mike" told Lt. Boyle about in the April edition, did not put out the maintenance fire. As a matter of fact, it started a couple of brush fires here and abroad, with "Mike's" prediction coming to pass.

First one was a letter to "Mike" after it hit the fan, because there were no instructions on how to adapt the new extinguisher to aircraft when they would not fit in the same location.

CWO Raymond Woodruff down at Fort Benning had 33 aircraft which put him into a bind and he told his troubles to "Mike."

So, I got with the Engineers, here at TMC, and caused a TWX to be sent out to everybody encountering similar problems with the issue of the new type to replace the A-20.

I got to looking over the TWX instructions, then got together with a few people, and here's today's instructions which everybody concerned has agreed to, which will no doubt take the pressure off.

The problem as generated is threefold:

In four types of aircraft they must be relocated and we only have fixes for two; the Sioux and the Iroquois. The other two, the Bird Dog and the Shawnee (cockpit) we don't have, as yet.

H-21 FIX

TCMAC-EPI 06-2042 message stated the H-21 fix, but after reconsideration there is a doubt as to whether it will work. The H-21 Project Officer is working on it, as of this writing, to prove or disprove the instructions contained in the TWX. As soon as he comes up with the answer to a few questions, he'll go to the field with the scoop. However, if the instructions in the TWX won't work after you dig into it, don't forget that UR (Form 1275) to TCMAC attentions: EH-21.

The L-19 fix is still in the mill and just as soon as the L-19 Project Officer gets this one hacked, he'll disseminate the fix to the troops.

H-13 FIX

The Sioux (H-13) can be taken care of very nicely if you follow the following real carefully:

- Remove type A-20 fire extinguisher and bracket from aircraft.
- Locate a line on the cabin floor threesixteenths (3/16) inch forward of and parallel to the centers of the existing two forward holes which were used for mounting the type A-20 fire extinguisher bracket.
- Locate a fore and aft line on the cabin floor through the center of the existing outboard mounting holes which were previously

used to secure the type A-20 extinguisher bracket.

- 4. Place the bracket, furnished with fire extinguisher FSN 4210-555-8837, on the cabin floor, aligning the longitudinal centerline of the bracket with the line drawn on floor in paragraph above. Align the transverse centerline of the top mounting holes of the bracket with the fore and aft line drawn on floor in paragraph above.
- Line drill four (4) holes in the cabin floor, with a nine-thirty seconds (0/32) inch drill, utilizing the bracket, positioned per paragraph above, as a template.
- De-burr holes drilled in cabin floor and paint edges of holes with a coat of zinc chromate primer FSN 8010-514-1861.
- 7, Install bracket on floor using four (4) AN 4H-5 bolts FSN 5306-182-1926, four (4) AN 960-416 washers FSN 5310-275-9222; and four (4) MS 20365-428 (or 428A) nuts FSN 5310-208-9252.
- Install the new fire extinguisher, FSN 4210-555-8837, in the bracket.

HU-1A FIX

If you have Iroquois (HU-1A) the fix is as follows:

- Remove type A-20 fire extinguisher and bracket from aircraft.
- Locate a line on the cabin floor at the aircraft fuselage station 61.
- Locate a fore and aft line on the cabin floor, five and three-quarters (5-3/4) inches to the right of longitudinal centerline of the aircraft.
- 4. Place the bracket, furnished with fire extinguisher FSN 4210-555-8837, on the cabin floor, aligning the longitudinal centerline of the bracket on the line drawn on floor in paragraph 2 above. Align the transverse centerline of the bottom mounting holes in the bracket with the fore and aft line drawn on floor in paragraph 3 above.
- 5. Line drill four (4) holes in the cabin floor, with a nine-thirty seconds (9/32) inch drill, uti-

lizing the bracket, positioned par paragraph 4 above, as a template.

- De-burr holes drilled in cabin floor and paint edges of holes with a coat of zinc chromate primer FSN 8010-514-1861.
- 7. Install bracket on floor using four (4) AN 4H-6 bolts FSN 4306-182-1526, four (4) AN 960-416 washers FSN 5310-275-9222, and four (4) MS 20365-428 or (428A) nuts FSN 5310-208-9252.
- Install the new fire extinguisher, FSN 4210-555-8837, in the bracket.

OTHER AIRCRAFT

Now for all the remainder of the standard DA aircraft, you're gonna haft to do a little creating on your own.

So, for all aircraft not requiring relocation, try this for size:

- Remove existing type A-20 fire extinguisher and bracket from aircraft.
- 2. Fabricate a plate, as shown in figure 1, from one-eighth (1/8) inch sheet steel FSN 9515-184-8467, FSN 9515-640-4203, or FSN 9515-184-8811, in accordance with the following instructions:
- a. Cut a piece, seven-eighths (7/8) inch by two (2) inches from any of the above steels.
- b. Contour one long side to a two and threefourths (2-3/4) inch radius.
- c, Drill two (2) holes on the radial centerline centered seven-thirty seconds (7/32) inch and nineteen-thirty seconds (19/32) inch up from the long straight edge of the plate with a number eleven (11) drill.
- d. Utilizing a numbr eighteen (18) drill, drill one (1) hole centered three-eighths (3/8) inch up from the long straight edge of the plate and fifteen-thirty seconds (15/32) inch each side of the radial centerline.
- Attach fabricated plate to bracket furnished with fire extinguisher FSN 4210-555-8837, as follows:
- a. Place the plate on the bracket with the radial centerline of the plate on the longitudinal centerline of the bracket with the plate

curvature butting against the curvature over the top two (2) mounting holes in the bracket. Clamp the plate and bracket securely together.

b. Utilizing a number eleven (11) drill, drill two (2) holes through the bracket, on the longitudinal centerline, using the previously drilled holes in the plate as a template.

c. Countersink these two (2) holes on the back side of the bracket with a one-hundred (100) degree countersink.

d. Remove plate from bracket. Coat mating surface of plate with one (1) coat of zinc chromate primer FSN 8010-514-1861.

e. Rivet the plate to the bracket utilizing two (2) AN 427M6-8 rivets, FSN 5320-118-2070.

f. Drill two (2) holes in bracket utilizing a number eighteen (18) drill through the remaining two (2) holes in the plate, using the plate as a template.

 The following steps will locate the bottom mounting holes in the bracket furnished with fire extinguisher, FSN 4210-555-8837.

a. Place the bracket for the A-20 fire extinguisher back-to-back on the bracket for fire extinguisher FSN 4210-555-8837 and temporarily secure the two brackets together with two AN 520-8 screws in the top two (2) mounting holes of the brackets.

b. Utilizing the bottom two (2) holes of the A-20 bracket, line drill two (2) holes with a number eighteen (18) drill through the bracket furnished with fire extinguisher FSN 4210-555-8837.

c, Separate the two brackets and de-burr all holes in the new bracket.

d. Apply one (1) coat of zinc chromate primer, FSN 8010-514-1861, to all bare metal surfaces and apply finish coat to primed areas utilizing Shade 11136 red gloss enamel, FSN 8010-297-2094 (ENG).

5. Install the new bracket in the aircraft, at the same location from where the type A-20 fire extinguisher was removed, utilizing four (4) AN 520-8 screws of the correct length applicable to the aircraft concerned.

 Install the new fire extinguisher, FSN 4210-555-8837, in the bracket.

PLANT TOUR



EDWARD T. BOLTON (RIGHT), HILLER AIR-CRAFT EXECUTIVE VICE PRESIDENT, GREETS COURTNEY JOHNSON, ASSISTANT SEC-RETARY OF THE ARMY (LOGISTICS) DU-RING THE LATTER'S TOUR OF HILLER'S PALO ALTO FACILITIES, (HILLER PHOTO).

WRAP-UP

That's about it, but don't let the inspections slide; perform them as specified on fire extinguishers until you get additional instructions.

Also, should you have any question relating to the fire extinguishers, where they are placed, or any good ideas for improving the locations of them, get in touch with TCMAC-E here at St. Louis—they'll be glad to listen to your side of the picture.

Too, "Mike's" always here to help when you need it, so get in touch. I'll go to bat for you as I did on this one.

Informationally yours,
MIKE BUTTON



In the Field

VETERAN ZUNI INDIAN FIREFIGHTERS PICK UP LUNCHES AND EQUIPMENT PRIOR TO BEING AIRLIFTED TO THE FIRELINE BY ARMY H-21. FT. ORD'S 33RD TRANS CO, WITH THREE CREWS, ASSISTED DURING A RECENT BLAZE IN YOSEMITE NATIONAL PARK, (U.S. ARMY PHOTO).



LT. GEN. ROBERT F. SINK (RIGHT), CG, XVIII ABN CORPS, PRESENTS GRADUATION CERTIFICATES TO, L-R, CWO KENNETH G. ANDERSON, CWO CHARLES R. JONES, AND LT. THOMAS R. HOWELL UPON THEIR COMPLETION OF THE FT. BRAGG HELICOPTER INSTRUMENT FLYING COURSE. (US ARMY PHOTO/FARMER).

AUGSBURG, GERMANY New High

Logging a total of 2,330 flying hours during a one month period, the 24th Aviation Company—Inf Div believes that it has recorded a unit flying record in this category. The record was established during August when the Aviation Company supported the 24th Infantry Division in Exercise Summer Shield. Flying weather was typical for Germany with fog, rain, and haze quite prevalent. Utilizing 49 assigned aircraft ranging from L-19s to H-19s (with one U-1A thrown in), the unit flew 1,144.50 fixed wing hours and 1,185.45 rotary wing hours during the month.

During this period, unit maintenance provided a 73% availability factor, a remarkable feat in itself in the face of the extremely high commitments the unit had to fulfill. This maintenance support contributed greatly to the unit's safety record not only during this particular month but also in the I Jan-30 Jun 1960 period, a period for which the 24th Aviation Company received a Seventh U.S. Army Aviation Safety Award. The 24th is under the command of Maj. Charles O. Ruple, Capt. Elmer Geiges serving as Safety Officer.

Lt. David J. Allen 24th Aviation Company

FT. ORD, CALIFORNIA Airfield Redesignation

Fort Ord's new air facility will be named Fritzsche Army Airfield, in honor of the memory of the late Major General Carl F. Fritzsche, Army officials announced recently.

The formal name designation will occur at a ceremony next March 18, the first anniversary of the opening of the field. General Fritzsche was commanding general at Fort Ord from October 15, 1958, until last September 30 when he lost his life in a plane accident near Oakland, Calif.

Thus far more than \$3½ million have been authorized for construction of the facility. It is the first and largest Army airfield west of the Mississippi that was designed specifically for Army operations. Its ultimate value will be about \$7 million. Having a 3000-foot runway with 500-foot overruns on each end, the field will be an all-weather, 24-hour a day installation, operating with the most advanced instrument approach and departure systems. Present programming anticipates a completely equipped airfield during fiscal year 1962.

CAMP WOLTERS Requiem for Mickey

Lt. Mickey D. Moth, the latest resident of Camp Wolters "Butt Hill" Cemetery, was laid to rest by Warrant Officer Candidate Class 61-IW in early October, Discovered flitting around in the WOC quarters by an inspection party, Lt. Moth was promptly put out of commission by SFC Harry Edgin, one of the school's tactical NCO's.

Following a consultation with Maj. Clarence L. Hopkins, the post chaplain, the traditional funeral arrangements were made by members of Class 61-1W. After laying in state for a period of five days, Lt. Moth was solemnly placed in a hearse (a wheel-



barrow), and accompanied by his bereaved "wife," Lt. Moth went to Valhalla trailed by a one-man band playing a dirge on a dilapidated butt can, and a ceremonial firing squad armed with mop handles.

The funeral oration was delivered by "Reverend" Kennedy (Candidate Joseph B. Kennedy), after which the firing squad fired a volley and the colors were presented to Mrs. Moth (Candidate Jack M. Sloan). (Photo). Overcome with grief she



was carried to her quarters by the candidates, reviving shortly thereafter at a class "wrap-up" coffee call.

The "burials," a tradition at Camp Wolters, provide an entertaining respite in the rigorous WOC pre-flight training schedule. The lower photo shows Lt. Moth's stone among those of some of his predecessors, WOC Willie W. Fly, WOC Sweet Pea, and WOC Marlboro.



WARRANT OFFICER BEVAN SMITH OF THE ROYAL AUSTRALIAN ENGINEERS AND HIS FAMILY LOOK OVER THE USAPHS CHOPPER HE WILL FLY DURING HIS ROTARY-WING QUALIFICATION TRAINING. SMITH WILL RETURN TO AMBERLY, QUEENSLAND, TO SERVE AS AN INSTRUCTOR AT THE AUSTRALIAN ARMY AVIATION CENTER.



LT. GEN. EDWARD J. O'NEILL (LEFT), CG, FIRST US ARMY, ACCEPTS A DESK-MODEL L-23F FROM BEECH AIRCRAFT AS PRESENTED BY LT. COL. JOHN L. BRIGGS, STAFF AVIATION OFFICER. THE MODEL DUPLICATES THE ASN OF THE GENERAL'S AIRCRAFT. (BOTH PHOTOS, U.S. ARMY).

FT. BRAGG, N.C. Initial Graduates

Closely paralleling the course at USAAVNS, the Fort Bragg Helicopter Instrument Course recently graduated its first four students, Lt. Gen. Robert F. Sink, XVIII Airborne Corps commander, presening the diplomas to the initial graduates. The course—which includes 75 hours of flying instruction, 82 hours of ground school training, and 25 hours of synthetic flight simulator time—is expected to graduate 16 aviators each year.

The individual aviators' units support the program by supplying a suitable aircraft each flying day. The 10-week course of instruction was set up by Lt. Col. Raymond C. Jones, XVIII Airborne Corps aviation officer, and is under the direct supervision of the Fort Bragg Aviation Combat Readiness Division, commanded by Capt. Raymond J. Kangas.

HAWAII Similar Setup

In another part of the globe, the first two students graduated Helicopter Instrument Qualification Course 61-1 at Schofield Barracks, Hawaii. The first such course to be completed in the Pacific area, 61-1 consisted of 75 hours of flying time, 72 hours of ground school, and 25 hours of synthetic flight simulator instruction. Hooded and actual instrument flight instruction is flown in the H-21G Shawnee.

CWOs Joseph M. Truitt and Wayne C. Adams, both of the 3rd Platoon, 6th Trans Co-LH, attached to the 25th Inf Div, were the initial graduates. The course is under the direction of Lt. Col. Marvin L. Lindmark, 25th Infantry Division aviation officer, with CWOs Robert Sable and Leonard H. Burroughs serving as instructors.

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USAADC Avn Sect

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1113 Cliffdale Dr. Haslett, Mich. Woolnough, J. P. Qtrs 15-A

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Stu Off Co, Box F-3 Ft. Rucker, Ala. Fletcher, H. M.

3033 Hendrix Columbus, Ga. Foster, M. P.

110th Avn Co APO 168, NY, NY Furbush, M. E.

1906 Main St. Glastonbury, Conn. Henderson, R. P. 17th Avn Co FW-TT

Ft. Ord, Cal. Holmes, H. E. 15th Avn Co

APO 24, San Fran, Cal. Johnson, P. H. 80 Trans Co-LH

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WOS

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Whitesboro, NY

SFCS

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SP-5s

Mullinax, J. W. 203 7th St. Spring Lake, NC

SP-15

Schuldt, H. E. 11th Trans Co-LH APO 46, NY, NY

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Hennington, H. M., Maj. Crystal Springs Miss.

Maulding, W. E., Mr. 55 Magnolia Dr. Belleville, III.

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5100 Marconi Ave. Carmichael, Calif. Oleson, T. S., Mr.

4333 Chippewa, Apt. 2 St. Louis 10, Mo. Prahl, Jean C., Mrs.

618 Calle Medina Tucson, Arix.

Tambornini, Mazell, Mrs. 1503 Kenneth Ave. Murfreesboro, Tenn.

Webster, Dick A., Mr. 131 North Ludlow Dayton 2, Ohio

OBITUARIES

Chief Warrant Officer Clayton L. Alderson, assigned to the 91st Transportation Company, Schleissheim, Germany, sustained fatal injuries on September 23, 1960 when the H-34 helicopter of which he was pilot crashed and burned while on a service mission. CWO Alderson is survived by his wife, Mrs. Barbara M. Alderson, of 3937 Duke Street, Ashland, Ky.

Chief Warrant Officer Richard K. Brown, assigned to the 17th Aviation Company (FW-LT), sustained fatal injuries on September 30, 1960, when the U-1A aircraft of which he was pilot crashed and burned near Orinda, Calif., during a cross-country service mission. He is survived by his wife, Mrs. Barbara E. Brown, of 185 Guadalcanal Road, Fort Ord, California.

Second Lieutenant Edward J. Giles, assigned to the U.S. Army Aviation School, sustained fatal injuries on September 23, 1960, when the H-34 helicopter of which he was co-pilot crashed while operating in a tactical landing strip on the Fort Rucker, Ala., reservation. Lieutenant Giles is survived by his parents, Mr. and Mrs. Orson T. Giles, of Route 1, Appomattox, Va.

Chief Warrant Officer Kenneth R. Kiester, assigned to the 17th Aviation Company (FW-LT), sustained fatal injuries on September 30, 1960, when the U-1A aircraft of which he was co-pilot crashed and burned near Orinda, Calif., during a crosscountry service mission. He is survived by his wife, Mrs. Alta M. Keister, of 142 Del Mar Drive, Salinas, Calif.

Chief Warrant Officer Robert D. Smith, assigned to the 91st Transportation Company, Schleissheim, Germany, sustained fatal injuries on September 23, 1960, when the H-34 helicopter of which he was copilot crashed and burned while on a service mission. He is survived by his wife, Mrs. Ann L. Smith, of Route 1, Indianola, Okla.

Captain Atillio J. Tambornini, assigned to the 1st Battle Group, 20th Infantry, Fort Kobbe, Canal Zone, was killed in a military aircraft accident on July 11, 1960, near Gamboa, Canal Zone. Captain Tambornini is survived by his wife, Mazell M. Tambornini, and his sons, Steven Alan and Jeffrey Lee of 1158 Main Street, Willimantic, Conn.

First Lieutenant Richard H. Weinhardt, assigned to the 1st Howitzer Battalion, 36th Artillery, APO 715, N.Y., N.Y., sustained fatal injuries on August 6, 1960, when the L-19 aircraft of which he was pilot stalled and crashed near Dolan Barracks, Schwaebisch Hall, Germany. Lieutenant Weinhardt is survived by his wife, Mrs. Marilyn Weinhardt of 24 Major Appleby's Road, Ardsley, N.Y.

Employment Notice

■ Competitive Examination for Career-Conditional Appointment to the position of Training Instructor (Aircraft Maintenance), GS-7, entrance rate of \$5355 per annum, will be accepted until further notice by the Board of US Civil Service Examiners, US Army Aviation Center, Ft. Rucker, Alabama. For information write the Regional Director, Fifth US Civil Service Region, Peachtree-Baker Building, 275 Peachtree Street, N. E., Atlanta 3, Georgia. Ask for announcement Number 5-106-17 (60). The necessary forms may be obtained from any post office and they are: Card Form 5001-ABC, Standard Form 57 and Standard Form 15.

ALABAMA REGION:

Consolidation

At a recent meeting of officers of the ALABAMA REGION, the ARMY AVIATION CENTER CHAPTER, and the COMBINED TEST ACTIVITIES CHAPTER, the Forst Rucker Chapters were consolidated, the ARMY AVIATION CENTER CHAPTER to represent all AAAA members within the greater Fort Rucker area, and members of the COMBINED TEST ACTIVITIES CHAPTER to be affiliated, henceforth, with the AATC.

The step, intended to bring all Fort Rucker members under one banner for the purposes of meetings and administrative recording, had the blessing of all parties.

The new Region and Chapter officers

are as follows:

Alabama Region

President: Col. Jack L. Marinelli
Exec. VP: Lt. Col. Oliver J. Helmuth
VP, Army Affairs: Lt. Col. Eugene F. Bacon
VP, NG Affairs: Lt. P.N. Moore
VP, Reserve Affairs: Maj. Marvin H. Snead
VP, Industrial Affairs: Lt. Col. John W. Oswalt
VP, Public Affairs: To be elected
Secretary: Capt. Ralph W. Parkinson

Army Aviation Center Chapter

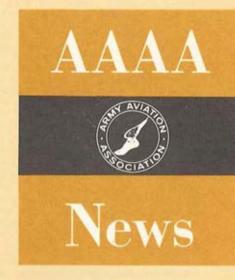
President: Col. Allen M. Burdett, Jr.
Exec. VP: Lt. Col. John R. Riddle
VP, Army Affairs: Lt. Col. Jomes B. Gregoria, Jr.
VP, Industrial Affairs: Maj. Byron H. Brite
VP, Public Affairs: Mr. Nell S. Dodson
Treasurers Maj. Raymon J. Sweezey
Secretory: Capt. Athol M. Smith

PIKES PEAK CHAPTER:

Subject: Caribou

Two specialists from Fort Rucker were the guest speakers at a recent meeting of the *PIKES PEAK CHAPTER* held at Fort Carson, Colo.

Gapt. Forrest W. Johnson, USABAAR, addressed the Chapter membership on the various projects currently under consider-



ation at the U.S. Army Board for Aviation Accident Research. He was followed by Capt. Merrill Jameson, a U.S. Army Aviation Board project officer at Fort Carson for altitude testing of the Caribou. Capt. Jameson's comments on the Caribou, together with Capt. Johnson's earlier remarks, made for "one of the most interesting Chapter meetings held to date."

The Chapter Get-Together was climaxed by a flight demonstration of the Caribou at Butts Army Airfield. Brig. Gen. A. H. Manhart, Commanding General, Fort Carson, was present for the demonstration and flew with Capt. Jameson in the Caribou.

ALAMO CHAPTER:

Rolling Again'l

"After a hectic summer of field training (NG type), conventions (AAAA type), and a heavy flying schedule in-between, the ALAMO CHAPTER is rolling again.

Our September meeting was enlivened by the visit of Col. Robert H. Schulz, Director of Instruction, USAAVNS, who presented the membership with a number of insights into various current and future trends in Army aviation—all of which led naturally into a fine libation-discussion period.

During this latter period, Capt. Lew Neville gave us a good rundown on the official side of the recent AAAA convention.

The ALAMO CHAPTER also wishes all to note that we are on the way toward an effective integration of our active and non-active duty membership, chiefly sparked by our President, Lt. Col. Don Beseth, the AO of the 90th Inf Div, Texas-ARNG, and the State Maintenance Officer. Don's doing a fine job in pulling all members together under the workable banner of the AAAA. We invite any and all comments from the older Chapters as to measures to increase the effectiveness of this desirable program.

With winter almost upon us, we'd like to add this: if any of you "Yankees" get tired of the snow and ice, the ALAMO CHAPTER welcomes one and all to the "City in the Sun," San Antonio. Happy to

see you!"

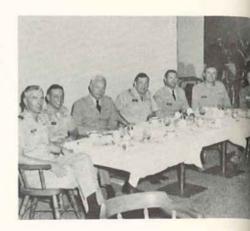
Richard A. Humes VP, Public Affairs

FORT MEADE CHAPTER A Look Ahead

The optimum—a visit and an address by the Director of Army Aviation, together with interesting presentations by two distinguished industry members—marked the Fall Meeting of the FORT MEADE CHAP-TER.

Termed a "roaring success," the meeting provided another military-industry springboard, the Chapter members receiving thorough briefings on the current programs

HEAD TABLE



HEAD TABLE AT RECENT PIKES PEAK LUN-CHEON GET-TOGETHER. L-R: LT COL TUGMAN, CO, 16TH SKYCAV; CAPT LEVINSON, VP, NG; CAPT HUGHES, USABAAR; MAJ JEFFREY, PRES; CAPT JOHNSON, USABAAR; LT COL KINLEY, AO, ARADCOM; AND CAPT. CROW, EXEC VP. (US ARMY PHOTO/MCLEAN).

pursued by the Vertol Division of Boeing and the Fairchild Engine & Plane Corporation as provided by company executives Norman Taylor of Vertol and Charles Hurchamp of Fairchild.

General von Kann's informal address revolving around the acceptance of AA, the present and future status of Army Aviators, present and future hardware, and logistical support provided many interesting insights to those in attendance.

Though stating the obvious, particularly after a most rewarding meeting, the Chapter looks forward to an even brighter future in the activities of AAAA.

Capt. Harry E. Ziegler President FORT MEADE CHAPTER GENERALS BG Wm. B. Bunker

COLONELS Cecil H. Davidson Kemuel K. Blacker Albert B. Evans W. L. Calhoun

LT COLONELS Henry N. Weggeland Raymond G. Jones Raymond R. Evers Vincent W. Fox M. H. Parson Cyril D. Stapleton Francis W. Holden, Jr. Spurgeon Neel Philip J. Van Winkle Richard A. Hansen

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Homer L. Walker Quitman W. Jones James W. Epperly Fred Hiatt Rodney V. Anderson Wm. J. Meehan Bertram G. Leach Chauncey L. Veatch Jack B. MacDougall Martin K. Cochran Howard R. Johnston William R. Koch Melvin D. Tate William M. Maling Billy G. Haney Donald M. Vosel Edward C. Seymour William W. Spalding Gene R. Rasmussen Edward A. Farris Bob R. Goode Samuel L. Workman William C. Weaver Ronald T. Walker Donald L. Miller Ralph E. Henderson Henry H. Tomme James H. Waynick George Poppas, Jr. Kenneth W. Armstrong Charles W. Mooney Harry W. Droter Randolph C. Bourgeois Harry P. Frizzell William C. Rousse Charles F. Drenz Dan P. Panageas

Harvey W. Huntzinger Richard E. Ellsworth Thomas C. Smith Raymond P. Eastburn Kenneth R. Haas William L. Alford Edwin B. Junge George T. Burton Max E. Young William F. Koehler John L. Credeur Carlyle G. Schumann Wendell C. Stoneham Vastine S. Steubing Robert W. Klaus Richard W. Leister Henry N. Berry, Jr. James O. Poulnot Harlan E. Choate Robert M. Fowler Chesley B. Maddox, Jr. Lawrence R. Fralick William R. Fonshell, Jr. Gene E. Vollmer John R. Bennett Frank C. Bowman William L. Hindman Johnnie L. Bohannon Harold J. Hill Robert D. Anderson

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Charles E. Dixon Linley G. Vittitow Roy W. Moore William B. Jackson Lynn D. Askins Robert E. Allen James F. Neeson James R. Talbert

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Harold W. Byars Robert P. Greene

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M/SGTs Crawford L. Blackburn Ferol L. Stanton Arval L. King John J. Sumka

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Warner R, Johnson
Frank P. Casares
Wilburn Seymour
Leonard L. Brent
Henry D. Davis
Jos. D. L. Buckland

S/SGTs Harold V. Vartanian

SGTs Irvin L Travis Richard Morillo Albert F. D'Giovanna John H. Treviranus Andrew J. LaBruzzo Merrill W. Taylor Herbert L. Wood

PFCs Alfred A. Koemm Robert J. Keller, Jr.

PRIVATES James H. Rogness

SPECIALISTS SP-6s Hobert L. Edwards

SP-5s
Sherman J. Hawk
John D. Hordubay
Anthony J. DeFencis
Jesse T. Mayfield
Richard S. Patterson
Joseph H. Cleary
Elzie O. Beck, Jr.
Eugene Deaton
Archie Phillips, Jr.
Robert W. Berggren
Donald S. Johnson
Donald L. Olson

SP-4s
Jerome Sheedy
Denis A, LaValle
William R, Nichols
Claire D, Schaap, Jr.
Alvin H, Nonnemacher
Dennis L. Olson
Melvin J, Gould
George Mortanian
High D, O'Rear
Danny J, Swearengin

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Mr. James H. Bennett, Jr.
Mr. Douglas Brown
Mr. Maxwell N. Brown
Mr. Herb Caldwell
Mrs. Peg G. Coale
Mr. Anthony L. Hronick

Mr. Ned L. Kragness Miss M. Margaret Weiss Mr. Kenneth C. Weber Mr. Bayard T. McWilliams Mr. Robert P. Pettengill Mr. William H. Gillispie Mr. Joseph G. Ambrosa Mr. Paul L. Seabase Mr. Sid A. Austin Mr. Earl A. Ragg Miss Diane M. Walker Mr. Raymond E.Naughton Mrs. Eva E. Tomlin Mr. Ben. F. Schemmer Mr. A. E. J. Johnson, Jr. Mr. Richard A. Dean Mr. John C. Swann Mr. William Main Mr. Henry S. Dunning, Jr. Mr. Ted S. Oleson Mr. Donald S. Barton Mr. John H. Argus Mr. George A. Trogolo Mr. George F. Taylor Mr. David W. Sevier Mr. Tony N. O'Truk Mr. Loy D. Lingle Mr. J. Don C. Heyden Mr. Robert V. Fogerty Mr. Kenneth S. Dressler Mr. Roy E. Degenhart Mr. James M. Ackerley Mr. F. G. Heldmann Mr. Homer W. Drew Mr. Devoine E. Prutzman Mr. Robert H. Hartley Mr. Wilmer L. Preston Mr. William G. Renshaw Mr. Reuben D. Best L/Cdr Joe E. Guffey Mr. Thomas M. Sherlack Mr. Donald R. Campbel Mr. Wm. W. Masters Mr. Charles W. Caesar Mr. Robert D. Spencer Mr. Joseph A. Moro Mr. Harry A. Striker Mr. Eric H. Petersen Mr. Lawrence J. Gepper Mr. Gary A. McCord Miss Shirley A. McCallun Mr. Earl W. Barr

Looking Back On the Mutiny...

ADDRESS BY BRIGADIER GENERAL CLIFTON F. VON KANN, DIRECTOR OF ARMY AVIATION, ODCSOPS, TO THE AMERICAN HELICOPTER SOCIETY, AT STRATFORD, CONNECTICUT, NOVEMBER 3, 1960.

Tonight I thought it might be interesting to review a recurring symptom in the cycle of development of every new aircraft, for it seems that there comes a time in every airplane or helicopter program when the panic button is pushed all the way and voices on all sides whisper in sepulchral tones, "YOU - HAVE - BOUGHT - A -DOG!"

There is no way to explain the horrible feeling that comes, after three years of enlightened development and "X" millions of dollars, when you are told, ". . . but it won't fly!" This usually occurs the day after you have successfully battled for funds to support this particular project for the next two years.

History will attest that there has never been a flying machine in the Army inventory (and I suspect this applies to the other services as well) that has not gone through this painful cycle. If we had heeded all the warnings of our doomsday critics, I am certain we would still be mounted on horses.

Helicopters, in particular, are subject to this panic stage. In fact, it is rather common to have a whole series of panic stages as a helicopter grows through the years. This accounts for the sensitivity of helicopter manufacturers—they know that someone is going to push the button; if not today, soon.

Having watched this procedure at rather close range, I am still without a logical explanation. In fact, I am sure there is no logic to it. Perhaps it is an instinctive part of the cycle analogous to the migration of the lemmings.

Let's examine the typical peaks of joy and valleys of depression in the life of an ordinary helicopter. First, the highest peak. It is hot out of the design concept stage and into the cocktail brochure. (It will never be as good again.) It is the finest thing since Coca Cola and is a panacea for any problem you care to mention. Company officials wear a rather smug expression and talk of a stock-split soon.

Then comes the first valley. The engine that was to power this dream ship is found to be made of metal, weighs a few pounds, and burns fuel. The original concept did not take this into active consideration. Obviously, performance will suffer.

Next peak—the mock-up. Now we can show something. You can just see by looking at it that here is a real machine. Potential customers seem to come from everywhere to take a look, make a few sage remarks, and leave the impression that they're ready to buy a thousand.

Valley-slippage. If the target date for first flight were met, it would mean taking off without rotor blades or engine installed. Careful engineering department types are mad at sales-happy promotion types in front office for setting such an impossible goal. Front office types are mad at foot-dragging, super-meticulous engineers who want to turn this stage into a life-time project. Comptroller is mad at all departments, but this is normal.

Peak-first flight. There will always be a great number of people who do not understand why a helicopter flies. THIS INCLUDES MANY HELI-COPTER ENGINEERS. So naturally they are elated and fascinated when a new one actually gets airborne. A great deal of handshaking and photography goes on and the same potential customers who kicked the tires on the mock-up are back to kick the tires on the real thing. EVERY-ONE seems to be wearing a tie clasp featuring the new ship.

Then, the lowest valley. Some time in the testing stage, just as real production is being geared up, there is bound to be full panic. It may stem from anything—paint peeling near the exhaust seat covers not holding up—the horrible realization that the engine life is not eternal—anything can trigger it.

But the conclusion is always the same. "Let's stop this thing now and not throw good money after bad!" And, oh, how contagious this is. The comptroller always did think the program was too expensive and now is saying "I told you so." Hundreds of people rush in with alternate proposals to fill the gap created by this so-called

failure. Old cavalrymen point out that we never should have gotten rid of the horse, Gloom prevails.

It is here that those in charge must ignore all advice, stock up on tranquilizers, lock their office doors, damn the torpedoes and full speed ahead. This takes a certain amount of courage; they are usually very much alone. All the evidence is on the other side and a career or two is likely to be at stake.

And of course there have been examples which proved that sometimes the doom-criers were (you will pardon the expression) dead right. This is a most critical period that can only be conquered by unwarranted optimism. To waiver is to fall.

The next peak is perhaps not very high in the terms of absolute altitude, BUT looking back into the very low valley we just left, it is very impressive and gratifying. A couple of our potential owners have actually bought a few articles and are trying them out. Preliminary reports indicate a few "bugs" but generally they are satisfied and pleased. There is every indication that they will order more and that the helicopter will join the ranks of the accepted standard family.

Other valleys and peaks will certainly follow, but I think I've charted most of the major ones, which all of you recognize in passing. They seem to be inevitable. The up and down climb is wearing; however, I don't know how to avoid it.

Unfortunately, too many people have panic buttons. There are industry ones. The military has them at all levels. Civilian customers have special ones. Thousands of people have the authority to say "no"; few can say "yes". And always always—there is something a little further down the road which seems to offer a little more than the current item.

There is always the temptation to reach enough years ahead where dangles the carrot of a troublefree future. Unfortunately, continually moving goals ahead have the effect of never having hardware "now."

There comes a time when one must leave the lovely world of concepts, pick one, and translate this into reality. Blinders (not blind folds!) are a requirement at this stage to prevent the peripheral possibilities from getting our eye off the target. For as you are well aware, usually just as you think you are about to make ends meet, SOMEONE MOVES THE ENDS.

In carting our seismograph record of the development cycle, I have ignored all but the earthquake recordings. It goes without saying that there are daily ups and downs to add further to the overall patterns. When the totality of these are all plotted, you cannot help but conclude that close association with a helicopter program tends to be a nervous occupation.

You can attribute any stammering or stuttering in my talk tonight, then, to the fact that the Army is just starting off on a new cycle of development with a design competition for a new light observation helicopter. Probably the understatement of the year would say that doing business with the military entails a degree of complication. The arrangement whereby the Army deals through other services to buy aircraft does not help to simplify an already complex system,

Within the Army itself, we are primarily organized to fight a war, not to buy aircraft. If one were to set up an organization with this as a principle function, one would probably not copy the Army's method. Our very philosophy of decentralization in the employment of our aircraft for combat, creates many difficult administration problems. I doubt if anyone present is stunned with surprise at this simple fact. I can report that we have already gone through a couple of minor panic spasms, and we are not even started down the road.

We don't know what this helicopter will look like, but I've already been told that it doesn't look good. I've been told it's under-powered and over-powered, and that it should not be turbine powered. Some critics have complained we are buying a Cadillac, while an equal number say we have set our sights too low.

No one in the Army has the foggiest notion how the actual competition will turn out, but there have been inferences that the Army is already locked in concrete on one manufacturer or another. Every day I am confronted with a new speculation that is presented as cold fact. At times this is fascinating, but more often it is frightening, for the Army has made every effort to ensure complete fairness to everyone concerned with this new development. In the future, I'm regretfully sure that we will go through some of the symptoms I mentioned earlier and probably invent a few new ones along the way.

But, no matter how lightly I have dealt with our development cycle, I would like to assure you that I am very serious when I say—no matter how many problems may arise in developing this new observation helicopter, the Army is completely confident that the industry of the United States will come up with a final end product that is the finest in the world. I am positive this trust is not misplaced.

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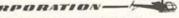
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