Army Aviation

AUGUST 31, 1968

When you're hunting an enemy, there's nothing like a faithful Indian scout.

1968 version.

(See back cover)

In record time, Boeing tripled the Chinook's ton-mile productivity.

Boeing's first Chinook, the CH-47A, which met all performance guarantees and was named the Army's standard medium transport helicopter, had a maximum payload of 13,800 pounds, with a speed of 107 mph.

In June, 1966, Boeing was awarded the contract for two new Chinook models—the CH-47B and C.

In May, 1967, Boeing delivered the first B models. They could lift 19,300 pounds and fly 172 mph.

In March, 1968, Boeing started delivery of the C models. These will lift 23,100 pounds and fly 183 mph.

In less than two years, Boeing's Vertol Division made the Chinook lift 69% more, go 72% faster and 72% farther, achieving a tripling of ton-mile productivity.

BOEING HELICOPTERS

This plaque goes to each Army pilot who logs a thousand flying hours in the Army Mohawk surveillance system. This month Grumman salutes Major James L. Rungee, Captain Burwin P. Reed,and Captain Jimmy W. Stinebaugh, all of whom have earned the plaque.

Man is the heart of the system. Grumman never forgets it.

Major James L. Rungee is currently serving as Commanding Officer of the 73rd Aviation Company in Vietnam. Prior to his assignment with the 73rd, he served as Executive Officer of the 188th Assault Helicopter Company from its start in the fall of 1966 at Fort Campbell. He arrived in-country with the 188th in April 1967 and came to the 73rd in July 1967. Major Rungee began fixed-wing flight training in 1957 and rotary-wing training in 1959. In 1963, Major Rungee attended the OV-1 Mohawk Qualification course and served as Mohawk gunnery instructor at Jacksonville Naval Air Station.

Captain Burwin P. Reed is presently assigned to the OV-1 Branch, Department of Fixed Wing, Ft. Rucker, Alabama. After Mohawk transition, Capt. Reed was assigned to the USASETAF Aviation Company, Verona, Italy. After 16 months in Italy, he was assigned to the 131st Aviation Company in Vietnam. While serving with the 131st, he received the Distinguished Flying Cross, Bronze Star, and Air Medal with 22 oak leaf clusters.

Captain Jimmy W. Stinebaugh has accrued over 1000 flying hours in the Mohawk since February 1964. After Mohawk transition, Capt. Stinebaugh was assigned to the 3rd Aviation Battalion, Kitzingen, Germany. After 16 months, he was assigned to the 73rd Aviation Company in Vietnam. While serving in Vietnam, he received the Good Conduct Medal and Air Medal with 13 oak leaf clusters. Capt. Stinebaugh is presently assigned to the OV-1 Branch, Department of Fixed Wing, Ft. Rucker, Alabama.

GRUMMAN
Aircraft Engineering Corporation
Bethpage, L. I., New York

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ARMY AVIATION MATERIEL ISSUE

AUGUST 31, 1968

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Current News

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ROTARY WING AIRCRAFT

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V/STOL AIRCRAFT AND GROUND EFFECT MACHINES

PAGES 84 THROUGH 94

3 big reasons why your Army is going commercial.

1. Transmission powerlines. A Sikorsky S-64 Skycrane recently erected 40.75 tons of steel sections on two 300-foot towers in just 4 hours, 11 minutes of flight time. Operation would have required weeks with conventional surface equipment. The airlift was one of a continuing series of S-64 development projects now underway.

Skycrane®

2. Oil operations. As oil exploration and production sites move to increasingly remote inland and offshore areas, surface transportation becomes more and more difficult, costly and time consuming. The answer? Airlift by Sikorsky.

3. Heavy construction. 10-ton payload capacity of Skycrane can save time and cut costs in heavy construction jobs. Photo at right shows Skycrane positioning one of five prefab sections of a mountain-top ski lodge. The entire airlift took 80 minutes of flight time. Result: a saving of 20 percent in costs and 60 percent in time.

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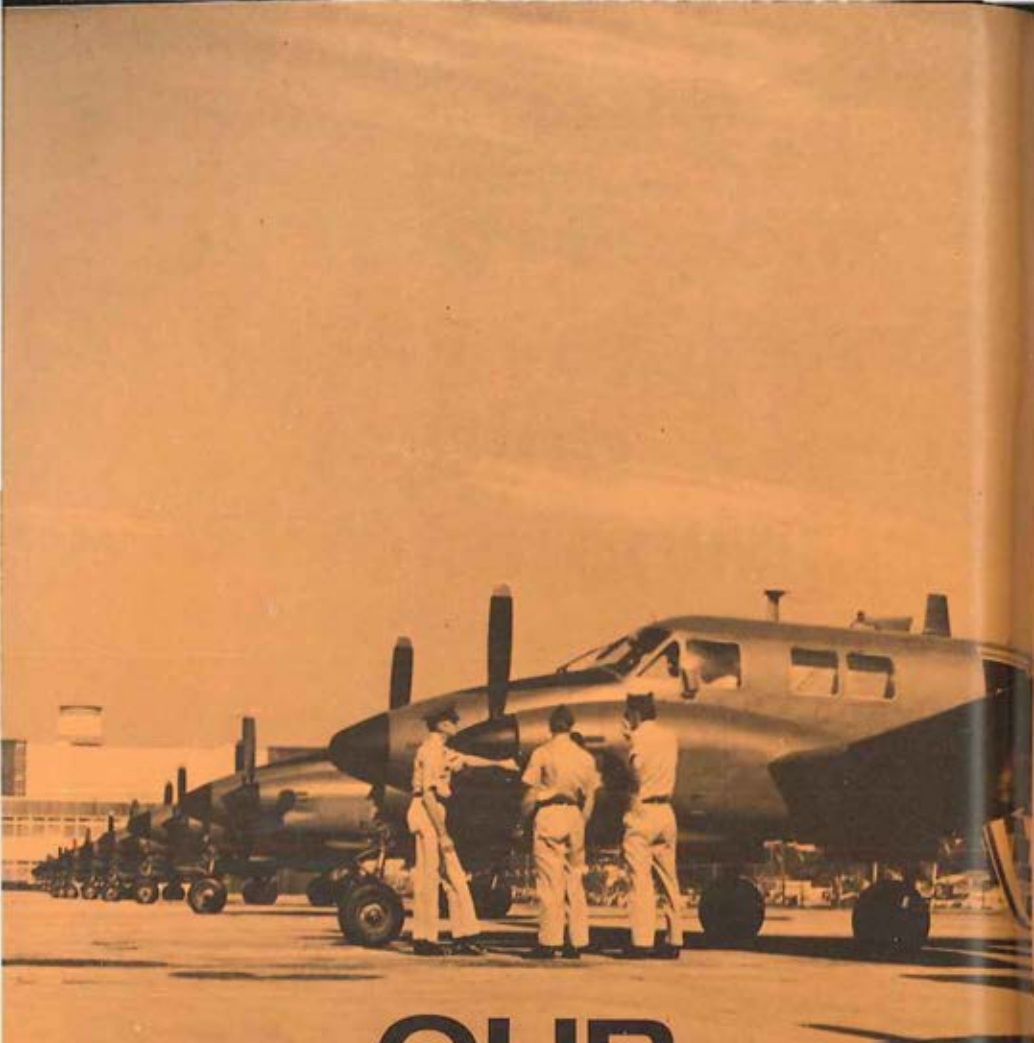


OUR AIRCRAFT INVENTORY

By Brigadier General
EDWIN L. POWELL, JR.
Director of Army Aviation,
OACSFOR, DA

FOR the last few years, this issue has been devoted to the hardware of Army Aviation — the basic tools of our trade. This portion of our many faceted program has always been of special interest to me since I have been associated with aircraft development in many of my assignments.

As the Director of Army Aviation, I look at our present and projected inventory on a daily basis, and I thought it might be useful to share a few of my thoughts and a bit of my concern with you.

Any aircraft system is very complex and — when one considers the R&D investment, basic production, spares, operations, and maintenance over its normal ten year life span — very expensive. Recognizing this, one should not be too surprised to find that every aircraft program receives a great deal of scrutiny and much soul-searching before it becomes part of the operational fleet.

Every fiscal year there is a period of rejustification and re-establishing the requirement. This process is not peculiar to aircraft, for it applies to any high cost item in the Defense Department inventory. But aircraft seem to receive particular attention at every level, so much so that I am continually surprised that Army Aviation has come as far as it has.

There have been many hard internal decisions within the Army in the last few years that have allowed us to proceed toward our airmobility goals. The old saying, "*Ya don't get somethin' fer nothin!*" is painfully true. At the Department of Defense level this is blithely known as "*tradeoffs.*"

So when you look at your new *Huey* or *Chinook*, you should remember that many a non-rated general looked at the price tag *before* it was bought and was asked what he would give up to get that aircraft. I can think of no greater tribute to the concept of airmobility than the fact that organic aviation has appeared so essential to our highest leaders that they were willing to sacrifice other valuable items and organizations to achieve an aviation capability.

Hard decisions ahead

Many other hard decisions still lie ahead. New systems are needed to replace that portion of the fleet that will have exceeded its useful life. Technology has pointed the way toward new capabilities that will become a "must" for a modern Army.

But don't expect it to come easy! The Army is sort of in the position of the fire company; they must keep the old engine ready to go until the new one is delivered and tested. We will have thousands of *Hueys* in the inventory for many years

OUR AIRCRAFT INVENTORY

(Continued from Page 9)

until we can develop and produce its successor, the *UTTAS,* in quantity. We will have to break down some loads or leave them behind until a true heavy lift helicopter is in the hands of the troops.

Future requirements

I could tick off many other future requirements: a new surveillance system to replace the *Mohawk;* a better means to make artillery airmobile; a system to replace the *Chinook;* and many other potential needs.

My concern, indeed the Army's concern, is not whether we need these systems, but whether we can afford them in the quantity we forecast in the time frame we desire. The probable answer is "*not entirely.*" We are already past the point where some new systems should have started development, and much of our effort has focused on the immediate needs of Vietnam.

We'll move ahead!

However, I do have confidence we will move ahead, even if the pace is less than 120 steps a minute for all systems. My confidence stems from those commanders who have used Army Aviation in combat and have woven it into their every battle plan. These leaders know the limitations of our present aircraft and they will inevitably influence the quality and quantity of our future fleet.

These gentlemen are very pragmatic, so I must caution those of you who tend toward the exotic. For example, the average combat commander is far less interested in high speed than high reliability. He has a great tendency to look at expensive black boxes with suspicion until it can be proven they are essential to his mission. When he thinks of moving the state-of-the-art forward he is more likely to be thinking in terms of a higher availability rate and lower maintenance rather than a new propulsion system.

A new magnitude

Let's face it! The ground commander is not interested in aircraft per se. He is only interested in aircraft to the extent that they can enhance his capability to do his mission better, faster, and with less cost in lives. This might appear to be tunnel vision to some aviation enthusiasts, but over the years it has proven sound.

Witness the *AAFSS.* No one can say this is not a sophisticated system and a large step forward in the state-of-the-art. But the *AAFSS* was sold on its practical advantages and inherent potential to give the ground commander a new magnitude of fire support and manuever. I am convinced that when Army Aviation can demonstrate it has a good product, you will find a great deal of imagination among these pragmatic, hardnosed leaders.

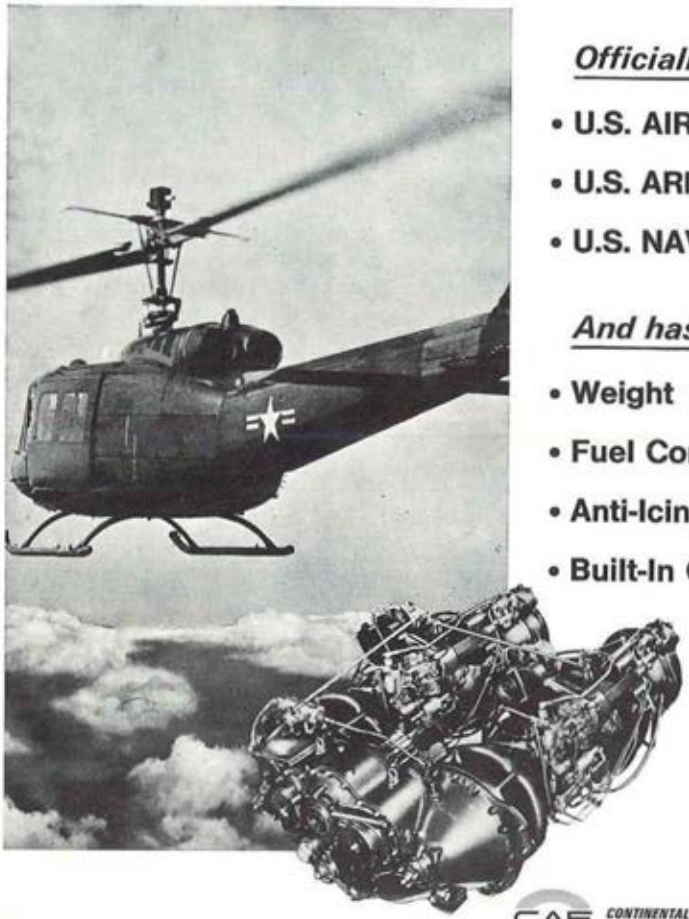
Tactics vs technology

Several years ago, Dr. E. F. Fisher, Jr., of the Office, Chief of Military History, produced a book entitled *Weapons and Equipment Evaluation and Its Influence Upon Organization and Tactics in the American Army 1775-1963.* (You may breathe now.)

Throughout the book, Dr. Fisher gives example after example where tactics have lagged behind technology. He

(Continued on Page 12)

The Continental T67 Twin is still the only turbine that has been successfully flown . . .



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OUR AIRCRAFT INVENTORY

(Continued from Page 10)

attributes the shocking casualty rates among the infantry in the Civil War and World War I to the discrepancy between weapons and tactics.

In my experience, aviation technology usually led the Army tactician until the advent of the *Howze Board* and the subsequent airmobility tests, and that ever since then the Army has been asking for more qualitative capability than industry can provide. The tactician would like to use his aviation assets in almost all weather and particularly at night. He wants mobile firepower that can match his troop airmobility. And he wants to do all this without being tied down by a tremendous logistic and maintenance burden. In other words, the tactician feels he must work within the constraints of our present equipment, and he can foresee great possibilities when he is free of these limitations.

There are many who will cry at this point, "*Why, then, hasn't the Army moved out to get an operational quantity of V/STOL vehicles? Isn't this an area where technology is far ahead of the user?*"

The answer to the V/STOL question could well be the subject of a thesis in itself. However, I think a fair summary is that after hundreds of millions have been spent in research, practical Army V/STOL vehicles are still far from a reality.

If we had unlimited resources we could probably move faster, but we will still have to prove its advantages to the field commander and ask what he is willing to trade. I'm convinced we shall reach a point of positive decision to procure certain categories of V/STOL aircraft sometime in the future, as surely as we transitioned from the horse to the truck. We have done much of our homework already and the Army can be proud of its efforts to date.

Many questions unanswered

But realistically, we must recognize that many V/STOL questions remain unanswered. At the present time V/STOL appears to offer, along with its performance advantages, a myriad of logistical and operational problems which are the direct opposite of the field commanders' goals.

Historically, the Army has a reputation for conservatism, but it has also been noted for innovation. On balance, I think this describes our future aviation program. There are real limits on how fast we can proceed on hardware — dollars, spaces, and organization. However, one only has to look ten years back to get a grasp of what Army Aviation may look like ten years hence.

LTG A. S. Collins, Assistant Chief of Staff for Force Development, is shown pinning stars on BG Edwin L. Powell, Jr., the Director of Army Aviation, in an August 1 promotion ceremony. He is assisted by Mrs. Powell. (USA photo)

Grumman to build the extraordinary Twin Otter

Through arrangement with the de Havilland Aircraft of Canada, Grumman will assemble and deliver the Twin Otter for potential U.S. military applications.

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World-wide service is available through the facilities of de Havilland of Canada and Grumman of Bethpage, New York. Both companies have built substantial reputations for dependability and reliability throughout the world.

DH CANADA

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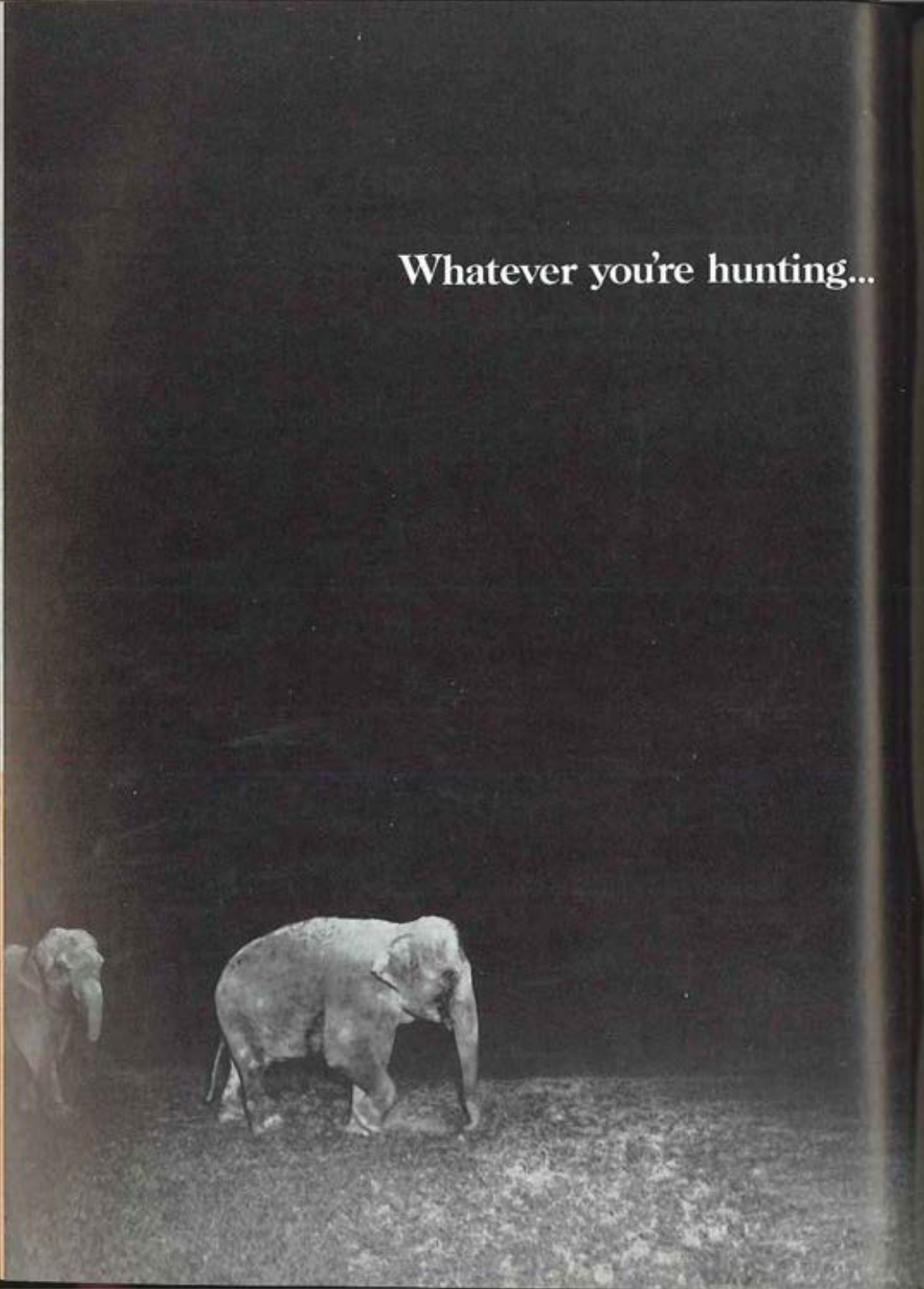
Whatever you're hunting...

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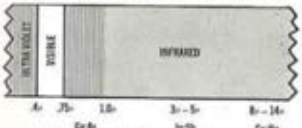

Coverage of TI optical sensors

These include line-scanning reconnaissance systems, direct-view night vision surveillance systems, covert illumination devices and forward-looking attack sensors—

Cassegrainian optical system

all currently being delivered to the U.S. Army, Navy, and Air Force. Such TI achievements in infrared technology as unique optical-scanning techniques, mercury-doped germanium and mercury cadmium telluride detectors, multiple detector arrays, gallium arsenide emitters and infrared window material have resulted in significant advances in the state of the art in night vision.

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TEXAS INSTRUMENTS
INCORPORATED

Lieutenant General William B. Bunker, Deputy Commanding General at AMC, emphasizes the importance of the missions of surveillance and targeting in making . . .

A System Glance At Reconnaissance

THANKS to the crucible of Vietnam we have been congratulating ourselves on the substantial increases which Army Aviation has given to the mobility and firepower functions of the Army. At the same time it is disappointing that we cannot claim the same progress in our contribution to the missions of surveillance and targeting.

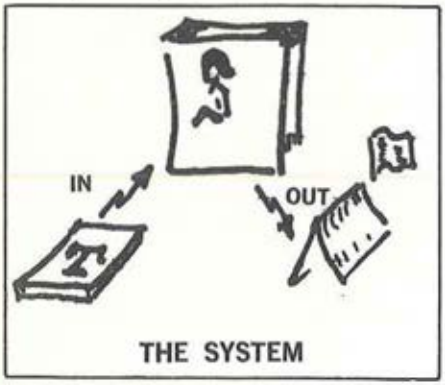
When you recall that Army Aviation (whether you date it from the Civil War balloons, the Wright *Flyer* at Ft. Myer or the Piper *Cubs* in Louisiana) was created to perform just this function, this poor progress is even more of an anomaly. Before too many *Mohawk* and *Firefly* operators leap on me, I'll cite General Johnson's oft repeated remarks about our "*blindness on the battlefield*," and General Westmoreland's on the difficulty of beating the enemy in Vietnam as my authorities.

We have certainly not been stinted in the equipment — the *Mohawks*, the IR, and other sensors on our *Hueys* — our R&D Programs for advanced devices in the SEANITE OPS and the OV-1D *Mohawk* are extensive. We also have an extensive systems study in TARS-75, some of whose findings are already being implemented in Vietnam. In spite of all this, however, Army Aviation has not yet managed to make the contribution to this important function that it should and can.

II

In line with the techniques of analysis we are all learning in the Pentagon these days, we should first give a description of the system we are discussing to ensure a common frame of reference.

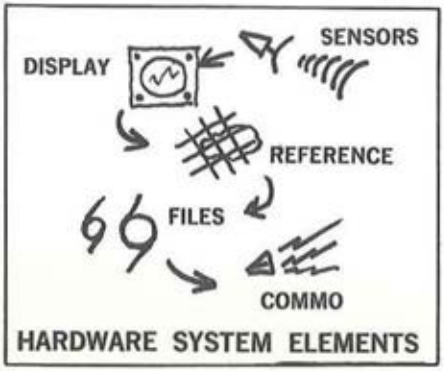
Our system is bounded on the input side by the targets (or threats) and on



THE SYSTEM

the output side by useful (an important criterion) information delivered to the user (or decision maker). From a functional point of view current doctrine gives as essential subsystems: 1) acquisition, 2) identification, 3) registration, 4) correlation, and 5) transmission to the user. An organizational element charged with each of these functions can be easily identified in units from the battalion to the field army.

From a hardware point of view we can also find a similar rational of subsystems of 1) sensors, 2) interpreters, 3) references, 4) comparators, and 5) communications. Here too, in varying



HARDWARE SYSTEM ELEMENTS

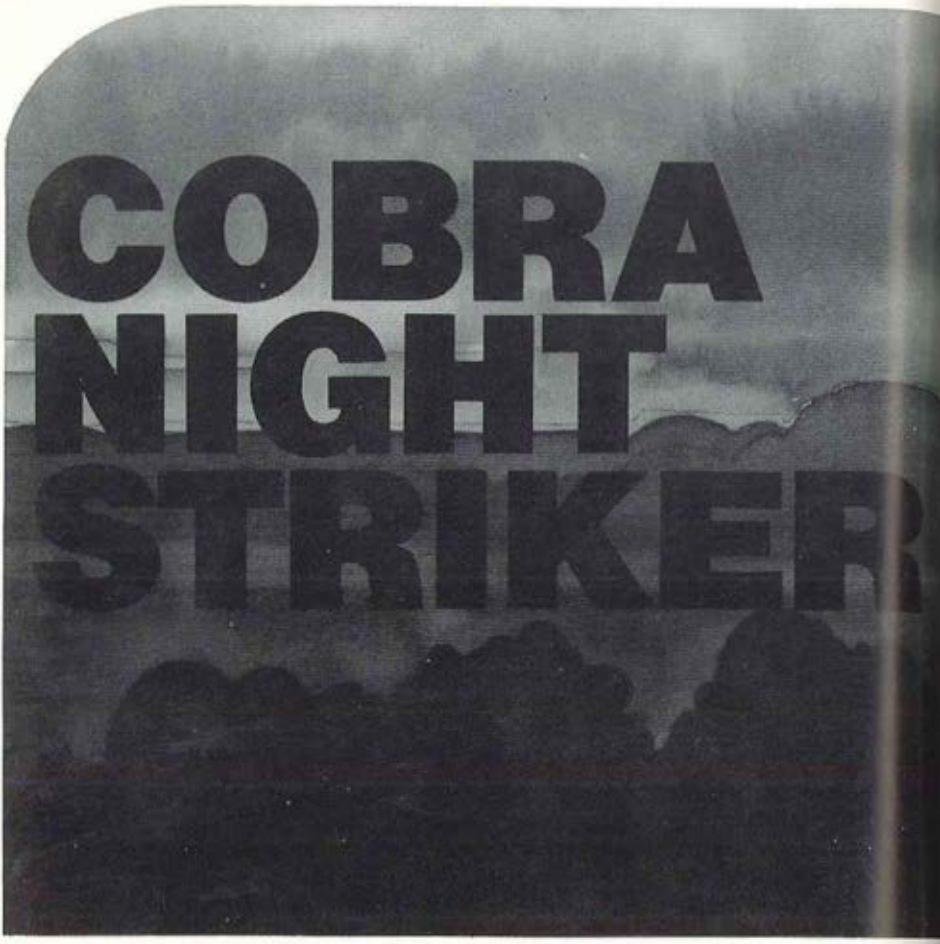
degrees of integration (from the SEAMORE and D-model *Mohawks* at one extreme to the oral reports of the *Fireflys*), we can find existing hardware to perform all of these functions.

We have been investing sizable amounts of effort in the past several years in all elements of this system. From TARS-75[1] studies by CDC we have streamlined our organizational structure from the front line battalions to the rear to ensure the smooth flowing functional systems. We have exploited technological progress to put more and better ground surveillance equipment (radar, sound rangers, image intensifiers). Our SEANITE OPS[2] programs of aerial sensors are adding improved capabilities to our aerial surveillance systems.

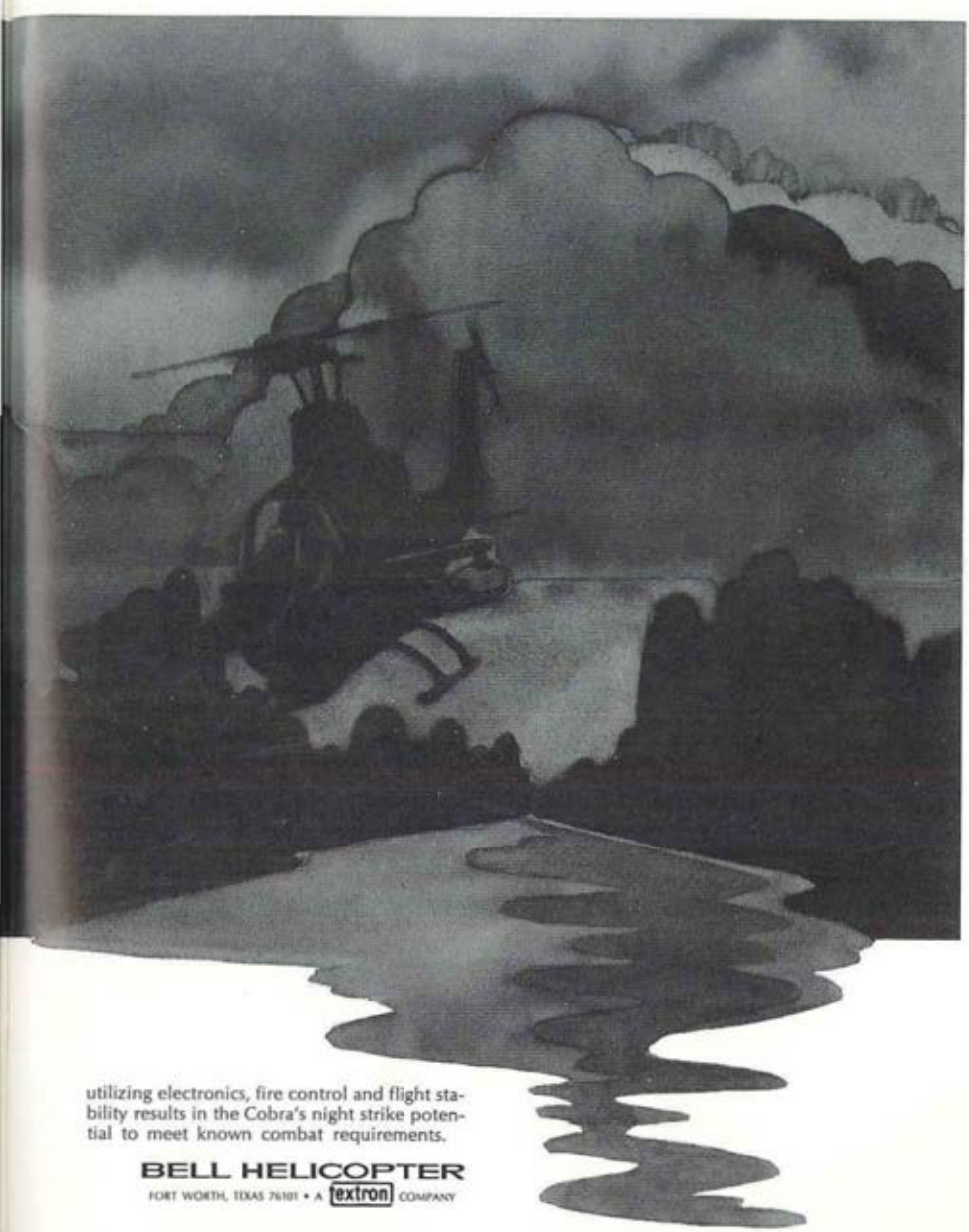
(Continued on Page 20)

TARS-75[1] *– Target Acquisition Reconnaissance Study, 1975.*

SEANITE OPS[2] *– Southeast Asia Night Operations.*



Eyes that pierce the black of night will give Bell's HueyCobra new effectiveness for 'round the clock mission completion. When installed, Bell's rotor-radar system . . . vital to successful use of augmenting sensors . . . will enable the Cobra to search and destroy . . . to deliver strikes when the going's the roughest from dark to dawn. Bell's systems engineering approach



utilizing electronics, fire control and flight stability results in the Cobra's night strike potential to meet known combat requirements.

BELL HELICOPTER

FORT WORTH, TEXAS 76101 • A textron COMPANY

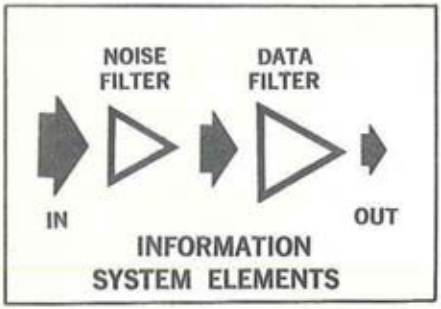
A SYSTEMS GLANCE AT RECONNAISSANCE

(Continued from Page 17)

Still the system is *not* being praised by the customer!

III

Perhaps if we change our perspective to another analogy we can find a better clue as to why there is a problem. If we look at the system from an information theory point of view, we find a slightly different breakdown of functions. Transmitting information through a noisy channel involves two functional requirements — 1) filtering of exogenous noise, and 2) filtering of redundant data.



Obviously the critical element of this system is that the rates of flow through the system elements be compatible. Thus, if man with his 2 to 10 bit/second transfer rate is used between two 2 to 10 kilobit/second channels the whole system will become clogged and unstable. Even if the whole system delivers its output undelayed there remains the significant problem of how the decision maker can survive the deluge.

The usual answer to this problem (if we regard this as but a specialized version of the typical management information system) is to structure the information hierarchially. Thus, the battalion sends to the rear only that information needed by the brigade and the brigade filters for the division.

For the same reasons that have led to the notorious "paperwork explosion" in both government and industry, this idea is more theoretical than real. Either the lower echelons filter out the really essential clues (cf Marshall's *River and the Gauntlet*) or higher levels have to establish duplicating sensors to get the information which they feel will be important from their perspective.

Certainly, regarded as an Information System, we see some of our problems in the *Mohawk*. Here, we've found the human operator, in spite of his low transfer rate, to be an essential ingredient. Certainly, too, even with the organizational structure of BICS[3] and BICCS[4] from TARS (the hierarchial principle), our commanders are not getting the information they feel they need.

IV

Looking for a moment at the content of this information flow will help us further to develop the problem. As the mobility of the Army and the range of its weapons have increased, the area of interest of the commander has grown. A glance at some of the target arrays used in the war games of our systems analyists with "threats" numbered in the thousands gives one a feel for the dimensions of the problem.

As someone has remarked, "*Our big targeting problem is that it is composed of so many small targets.*"

The problem could be analogous to

(Continued on Page 84)

BICs[3] – Battlefield Information Centers (Artillery only).

BICCs[4] – Battlefield Information Control Centers (All other than Artillery).

ARMY AVIATION MATERIEL ISSUE

FIXED WING

PAGES 21-44

L-1 VIGILANT

Two-place observation/reconnaissance airplane. Vultee-Stinson.

ENGINES

One Lycoming R-680-9 engine of 295 hp.

PROPELLERS

Hamilton-Standard constant speed propeller, 8 ft. 6 in. diameter.

SPECIFICATIONS

Gross weight: 3,325 lb.

PERFORMANCE

Cruise speed: 114 mph. Service ceiling: 14,000 ft. Max. range: 275 st. mi.

REMARKS

This aircraft was originally designated the O-49. The procurement was handled by the Army Air Corps. All models had flaps and slots. Originally 142 L-1s were purchased off-the-shelf and 182 A models were obtained later. Procurement of all other models was negligible.

L-2

Two-place observation/reconnaissance airplane. Taylorcraft.

ENGINES

One Continental O-170-3 engine of 65 hp.

PROPELLERS

Sensenich two-bladed fixed pitch wooden propeller, 6 ft. diameter.

SPECIFICATIONS

Gross weight: 1,300 lb.

PERFORMANCE

Cruise speed: 96 mph. Service ceiling: 10,050 ft. Max. range: 265 st. mi.

REMARKS

During the period 1941 through 1944, the Army procured 1,942 L-2s. This metal framed, fabric covered aircraft was originally designated the O-57. The L-2 was procured in the A through M models, all models having 65 hp. except the L model, which was 50 hp.

L-3

Two-place observation/reconnaissance airplane. Aeronca.

ENGINES

One Continental O-170-3 engine of 65 hp.

PROPELLERS

The A model had a Freedman-Burnham ground adjustable, two-bladed propeller with aluminum hub. The B & C models had a Sensenich fixed pitch wooden propeller.

SPECIFICATIONS

Gross weight: 1,300 lb.

PERFORMANCE

Cruise speed: 87 mph. Service ceiling: 7,750 ft. Max. range: 190 st. mi.

REMARKS

The L-3 was a fabric covered, metal frame airplane, originally designated the O-58. A total of ten models were purchased. All were tandem, except the F and G models, which had side by side seating. Largest procurement was in 1942 when 875 were purchased. The following year 490 entered the Army inventory with a total of 1,464 ultimately procured.

L-4 CUB

Two-place observation/liaison aircraft. Piper Aircraft Corp., Lock Haven, Pa.

ENGINES

One Continental O-170-3 piston engine of 65 hp.

PROPELLERS

Two-bladed Sensenich fixed-pitch wooden propeller.

SPECIFICATIONS

Span: 35 ft. 4 in. Length: 22 ft. 4 in. Height: 6 ft. 7 in. Empty weight: 658 lb. Gross weight: 1,220 lb.

PERFORMANCE

Max. speed (SL): 87 mph. Cruise speed (SL): 75 mph. Service ceiling: 9,300 ft. Max. range: 190 st. mi.

REMARKS

From the initial procurement in 1942 until 1945, 9,404 L-4s were delivered to the Army. Ten models were purchased. All were tandem except the E and F models. While the L-2, L-3, and L-4 were all officially referred to as "Grasshoppers", the civilian name "Cub" stayed with the L-4.

L-5 SENTINEL

Two-place observation/reconnaissance airplane. Vultee-Stinson.

ENGINES

One Lycoming O-435-1 engine of 185 hp.

PROPELLERS

Sensenich fixed pitch two-bladed wooden propeller, 7 ft. 1 in. Diameter.

SPECIFICATIONS

Gross weight: 2,020 lb.

PERFORMANCE

Cruise speed: 100 mph. Service ceilinp: 15,800 ft. Max. range: 420 st. mi.

REMARKS

The L-5 had a metal frame fuselage, wood and metal airfoil structure, and was fabric covered. Originally used only by the Army Air Corps, it was designated the O-62. Army Liaison pilots operated these aircraft from 1945 and during the first months of the Korean hostilities. The "drop" rear seat permitted cargo or litter carrying capabilities. A total of 3,975 L-5s were delivered between 1942 and 1945.

L-6

Two-place observation/reconnaissance airplane. Interstate.

ENGINES

One Aircooled O-200-5 engine of 102 hp.

PROPELLERS

Two-bladed U.S. Propeller made fixed pitch propeller, 6 ft. 4 in. diameter.

SPECIFICATIONS

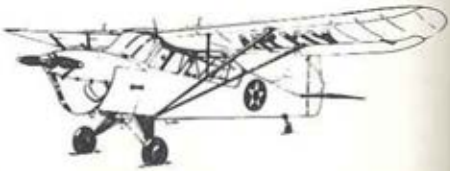
Gross weight: 1,650 lb.

PERFORMANCE

Cruise speed: 87 mph. Service ceiling: 12,100 ft. Max. range: 692 st. mi.

REMARKS

This fabric covered aircraft was known commercially as the S-1B Cadet. Its original Army Air Corps military designation was the O-63.



The Decca Navigator System provides accurate and reliable navigation and position fixing equipment for every military and naval vehicle including . . .

A RECEIVER FOR MEN ON FOOT.

MINIDEC

This Decca Receiver is in field trial in Viet Nam now. The common navigation system reference will permit complete co-location of land elements with cooperating air and sea units.

DECCA SYSTEMS INCORPORATED

WASHINGTON, D.C. 20036

L-13

Three-place Observation / reconnaissance airplane. Consolidated Vultee.

ENGINES

One Aircooled XO-425-5 engine of 245 hp.

PROPELLERS

Two-bladed variable pitch propeller, 8 ft. 6 in. diameter.

SPECIFICATIONS

Gross weight: 2,900 lb.

PERFORMANCE

Cruise speed (SL): 106 mph. Service ceiling: 15,000 ft. Max. range: 488 st. mi.

REMARKS

Although the Army Ground Forces tested two of these aircraft in 1945, the L-13 was not accepted at that time. Later, the AGF did procure the L-13 and by June, 1951, there were 43 of this model in the Army inventory. The L-13 could carry two litters in place of the rear passenger seats. Production prototypes had folding wings, but these models were not procured by the Army.

L-14

Three-place observation airplane with med-evac capability. Piper Aircraft Corp., Lock Haven, Pa.

ENGINES

One Lycoming O-290-3 piston engine of 130 hp.

PROPELLERS

Two-bladed Sensenich model 76 JB 44 propeller.

SPECIFICATIONS

Span: 35 ft. 10 in. Length: 23 ft. 3 in. Height: 7 ft. Empty weight: 1,100 lb. Gross weight: 1,800 lb.

PERFORMANCE

Max. speed (SL): 117 mph. Cruise speed (SL): 104 mph. Service ceiling: 14,500 ft. Max. range: 345 st. mi. Endurance: 3.5 hours.

REMARKS

The Army Ground Forces procured five L-14s and cancelled an order for 845 more on VJ Day. The airplane had long landing gear and a litter carrying configuration.

L-15 SCOUT

Two-place observation airplane. Boeing.

ENGINES

One Lycoming 0-290-7 engine of 125 hp.

PROPELLERS

Two-bladed variable pitch propeller.

SPECIFICATIONS

Gross weight: 2,216 lb.

PERFORMANCE

Cruise speed (SL): 86 mph. Service ceiling: 12,500 ft. Max. range: 217 st. mi.

REMARKS

This was a production prototype that was never produced in quantity. Twelve YL-15s were procured by the Army between 1947 and 1949. The aircraft used spoilers instead of ailerons and full flaps. The Observer was seated backwards.

L-16

Two-place observation/reconnaissance airplane. Aeronca.

ENGINES

One Continental 0-190-1 engine of 95 hp.

PROPELLERS

Two-bladed McCauley fixed pitch metal propeller, 6 ft. 1 in. diameter.

SPECIFICATIONS

Gross weight: 1,300 lb.

PERFORMANCE

Cruise speed (SL): 81 mph. Service ceiling: 14,500 ft. Max. range: 252 st. mi.

REMARKS

This metal frame, fabric covered aircraft was the military version of the Aeronca "Champion". The L-16 was the most inexpensive aircraft ever purchased by the military. The initial date of Army procurement was in 1948, with a total of 609 eventually being delivered. The L-16 was used extensively in the early part of the Korean conflict.

L-17 NAVION

Four-place utility/liaison airplane. Ryan (North American).

ENGINES

One Continental 0-470-7 engine of 205 hp.

PROPELLERS

Two-bladed Hartzell variable pitch metal or plastic propellers, 7 ft. diameter.

SPECIFICATIONS

Gross weight: 3,050 lb.

PERFORMANCE

Cruise speed (SL): 121 mph. Service ceiling: 10,900 ft. Max. range: 592 st. mi.

REMARKS

Three models of the L-17 were procured by the Army. The "A" models (185 hp.) were first purchased in 1947 with the inventory high point of 42 being reached in 1951. The "B" and "C" models (205 hp.) were purchased in FY 1949 with 196 "B"s and 35 "C"s being inventory highs in 1949. The Navions were turned over to Army flying clubs when they were phased out of service.

L-21

Two-place observation/liaison aircraft. Piper Aircraft Corp., Lock Haven, Pa.

ENGINES

One Lycoming O-290-D piston engine of 125 hp.

PROPELLERS

Two-bladed Sensenich fixed pitch metal propeller.

SPECIFICATIONS

Span: 35 ft. 4 in. Length: 22 ft. 3 in. Height: 6 ft. 8 in. Empty weight: 935 lb. Gross weight: 1,500 lb.

PERFORMANCE

Max. speed (SL): 120 mph. Cruise speed (SL): 110 mph. Service ceiling: 16,000 ft. Max. range: 300 st. mi. Rate of climb: 1,000 fpm.

REMARKS

Since initial delivery date in 1951, the Army procured 150 A models and 69 B models. This metal-frame fabric-covered airplane was used mainly as a trainer. The B model saw extensive use in the Far East. The L-18C, purchased for MDAP, was the same as the L-21 except that it had a 90 hp. Continental engine.

O-1 BIRD DOG

Two-place liaison, observation aircraft. Cessna Aircraft Company, Wichita, Kansas.

ENGINES

One Continental O-470-11 piston engine rated at 213 hp.

PROPELLERS

McCauley fixed-pitch two-bladed metal propeller.

SPECIFICATIONS

Span: 36 ft. Length: 25 ft. 10 in. Height: 7 ft. 4 in. Empty weight: 1,614 lb. Gross weight: 2,430 lb.

PERFORMANCE

Max. speed (SL): 115 mph. Cruise speed (SL): 100 mph. Cruise speed, 10,000': 106 mph. Service ceiling: 1,850 ft. Max. range: 592 st. mi. Endurance: 4.67 hours. Rate of climb: 1,040 fpm.

REMARKS

The TO-1D is the instrument trainer version of this aircraft and is structually stronger. It has a variable-pitch propeller and an instrument panel in the rear, which may be enclosed for hooded flight. The O-1E encorporates the redesigned structural changes of the TO-1D. The O-1F is a modified TO-1D with its rear instrument panel, VOR, and UHF radios removed, and bomb shackles and a VHF radio installed.

L-25

One-place experimental aircraft. McDonnell Aircraft Corp., St. Louis, Missouri.

ENGINES

One Continental R-975-19 engine.

ROTOR SYSTEM

Single three-bladed rotor and two-bladed pusher propeller.

SPECIFICATIONS

Empty weight: 4,277 lb. Gross weight: 5,505 lb.

PERFORMANCE

Max. speed (SL): 195 mph. Service ceiling: 11,800 ft. Max. range: 368 st. mi.

REMARKS

The Army procured two L-25 aircraft from McDonnell for state-of-the-art research. This was the only aircraft given three separate designations. It was also called the XV-1 and the XH-35.

LC-126

Four-place utility aircraft. Cessna Aircraft Company, Wichita, Kansas.

ENGINES

One Jacobs R-755-11 direct drive engine of 300 hp.

PROPELLERS

Hamilton Standard constant-speed metal, 7 ft. 9 in. diameter.

SPECIFICATIONS

Span: 36 ft. 2 in. Length: 27 ft. 4 in. Height: 8 ft. 3.5 in. Empty weight: 2,250 lb. Gross weight: 3,350 lb.

PERFORMANCE

Max. speed (SL): 180 mph. Cruise speed (SL): 135 mph. Cruise speed, 10,000': 165 mph. Service ceiling: 19,800 ft. Max. range: 900 st. mi. Endurance: 4 hours. Rate of climb: 1,200 fpm.

REMARKS

In 1950, five LC-126B's were purchased by the USAF for the Army National Guard. The Army issued a contract in 1952 for 63 LC-126C's for use in such varied missions as search and rescue, light cargo transport, and instrument training.

T-37

Two-place jet trainer. Cessna Aircraft Company, Wichita, Kansas.

ENGINES

Two Continental J-69-T-9 turbo jets developing 1,840 lbs. thrust.

SPECIFICATIONS

Span: 33 ft. 10 in. Length: 29 ft. 4 in. Height: 9 ft. 5 in. Gross weight: 6,600 lb.

PERFORMANCE

Max. speed: 408 mph at military power 21,730 rpm, 35,000 ft. Cruise speed: 368 mph at normal power 20,700 rpm at 35,000 ft. Service ceiling: 39,200 ft. Max. range: 796 st. mi. Endurance: 2.8 hrs. Rate of climb: 3,200 fpm.

REMARKS

This aircraft is procured by the U.S. Air Force as a primary jet trainer. Three T-37s were loaned to the Army in 1958 for the purpose of evaluating the use of high speed, high performance aircraft for long range artillery adjustment and observation as well as low altitude, high speed flight.

G-91

One-place tactical/reconnaissance jet fighter. Fiat Aviation Div., Turin, Italy.

ENGINES

Two GE J85-13 engines of 4,078 lb/ thrust each, with after-burner.

SPECIFICATIONS

Span: 29 ft. Length: 39 ft. 3 in. Height: 14 ft. 5 in. Empty weight: 8,380 lb. Gross weight: 19,070 lb.

PERFORMANCE

Max. speed (SL): 715 mph. Operational ceiling: 27,600 ft.

REMARKS

In 1961, the U.S. Army received the loan of three of these NATO fighters to be used for test and evaluation as a high speed, high performance observation aircraft. Testing was discontinued after two of these jets were lost in separate accidents.

T-37

CV-2 Caribou

Tactical transport STOL aircraft. De Havilland Aircraft of Canada, Ltd., Downsview, Ontario.

ENGINES

Two Pratt & Whitney R2000-7M2 engines of 1,450 hp each.

PROPELLERS

Hamilton Standard three-bladed metal variable pitch.

SPECIFICATIONS

Span: 95 ft. 8 in. Length: 72 ft. 7 in. Height: 31 ft. 9 in. Empty weight: 16,920 lb. Gross weight: 28,500 lb. Places: Crew of two and 32 passengers or 14 litters plus 8 troops.

PERFORMANCE

Max. speed (SL): 216 mph. Cruise speed (SL): 170 mph. Cruise speed, 7,500' at 50% power: 182 mph. Service ceiling: 27,500 ft. Max. range: 1,400 st. mi. Rate of climb: 1,575 fpm.

REMARKS

Since initial procurement in November 1959, the Army brought 173 Caribou into its inventory. According to the joint Army-Air Force agreement of April 1966, the Army released all CV-2 Caribou aircraft to the U.S. Air Force.

CV-7 Buffalo

Tactical transport STOL aircraft. De Havilland Aircraft of Canada, Ltd., Downsview, Ontario.

ENGINES

Two GE T64-10 turbo-prop engines of 2,850 shp each.

PROPELLERS

Hamilton Standard three-bladed metal reversible pitch, 165 in. diameter.

SPECIFICATIONS

Span: 96 ft. Length: 77 ft. 3 in. Height: 28 ft. 7 in. Empty weight: 22,864 lb. Gross weight: 41,000 lb. Places: Crew of two and 41 passengers or 35 Paratroopers or 24 litters and six troops.

PERFORMANCE

Max. speed (SL): 267 mph. Cruise speed (SL): 253 mph. Cruise speed, 5,000': 277 mph. Service ceiling: 31,000 ft. Max. range: 529 st. mi. Rate of climb: 2,050 fpm.

REMARKS

The Buffalo is a larger turbo-prop version of the CV-2 Caribou. Since April 1965, four prototypes have been built under a U.S.-Canadian production-sharing agreement.

OV-1 MOHAWK

Two-place observation/surveillance airplane. Grumman Aircraft Engineering Corp., Bethpage, L.I., New York.

ENGINES

Two Lycoming T53-L-15 turbines of 1,100 shp each.

PROPELLERS

Hamilton Standard three-bladed reversing and feathering, 10 ft. diameter.

SPECIFICATIONS

Span: 42 ft. Length: 41 ft. Height: 12 ft. 8 in. Gross weight: 12,675 lb.

PERFORMANCE

Max. speed (SL): 325 mph. Cruise speed (SL): 207 mph. Service ceiling: 33,000 ft. Max. range: 774 st. mi.

REMARKS

Three basic configurations of the Mohawk have been produced—the "A" for visual and photographic; the "B" for visual, photographic, and side-looking radar (SLAR); and the "C" for visual, photographic, and infrared. The electronic equipment varies with each model, resulting in changes in gross weight, performance, and cost. First Mohawk deliveries were made to the Army in 1960.

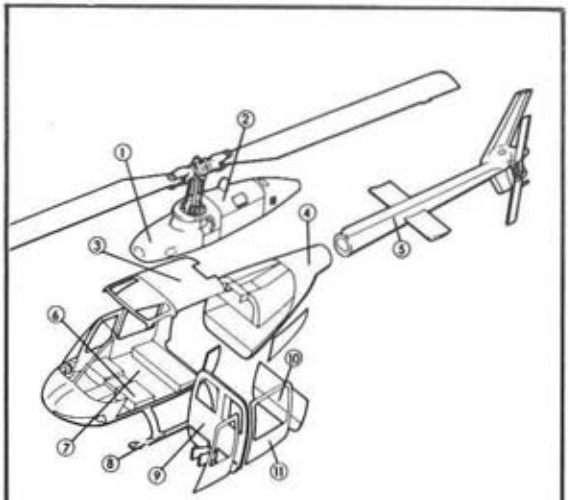
Designed to operate from small, unimproved fields, the Mohawk features a 55-knot stall speed and short takeoff and landing capabilities similar to the Army's single engine observation aircraft. Its bugeye cockpit canopy provides exceptional visibility to its two-man crew.

Why are all these Beech people

Because Beech built almost everything you can see on this one! It's the new Bell JetRanger 206, selected after competition to be the new Army OH-58A light observation helicopter. Delivery starts in mid-1969 with the contract covering a 5-year period. You bet Beech is excited!

And it's no surprise that Bell is subcontracting the entire fuselage of the JetRanger to Beech. Beech received the coveted Bell Golden Rotor award for excellence of quality in production for two years in a row—1966 and 1967. The awards were based on Beech production of 74 different types of panels for the famous Bell UH-1 "Huey" helicopter which has served in Vietnam as a gunship, medical evacuation transport, troop transport and general utility helicopter.

In fact, one Beech-developed procedure in bonding reduced the ratio



1. Pylon cowling
2. Engine cowling
3. Contoured roof
4. Aft fuselage
5. Tail boom
6. Seats
7. Main fuselage
8. Skid gear
9. Turnover structural bulkhead
10. Bulkhead
11. Doors

so excited about a helicopter?

of rejection to production so dramatically that Bell made it mandatory for all manufacture. Is it any wonder then that Beech produces so many parts for the JetRanger? The diagram above shows the important subassemblies.

Want to know more about the full range of Beech subcontract capabilities? Write, wire or phone Contract Administration, or Aerospace Marketing, Beech Aircraft Corporation, Wichita, Kansas 67201, U.S.A.

Beech Aerospace Division

Beech Aircraft Corporation • Wichita, Kansas 67201 • U.S.A.

U-10 HELIO COURIER

Six-place STOL utility aircraft. Helio Aircraft Corp., Bedford, Mass.

ENGINES

One Lycoming GO-480-G1D6 developing 295 hp.

PROPELLERS

Hartzell three-bladed constant-speed, 96 in. diameter.

SPECIFICATIONS

Span: 39 ft. Length: 31 ft. Height: 8 ft. 10 in. Empty weight: 2,037 lb. Gross weight: 3,600 lb.

PERFORMANCE

Max. speed (SL): 170 mph. Cruise speed (SL): 150 mph. Cruise speed, 10,000': 164 mph. Service ceiling: 16,500 ft. Max. range: 1,100 st. miles. Endurance: 14 hours. Rate of climb: 1,125 fpm.

REMARKS

Originally designated the L-24, the Helio Courier was an "off-the-shelf" purchase in 1963 for operational testing and evaluation. Twenty U-10s have been procured through FY 1965. Purchased for use by U.S. Army Special Forces Groups.

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U-1A OTTER

Eleven-place utility STOL aircraft. De Havilland Aircraft of Canada, Ltd., Downsview, Ontario.

ENGINES

One Pratt and Whitney R-1340-59 piston engine developing 600 hp.

PROPELLERS

Hamilton Standard three-bladed metal variable pitch.

SPECIFICATIONS

Span: 58 ft. Length: 41 ft. 10 in. Height: 12 ft. 7 in. Empty weight: 4,431 lb. Gross weight: 8,000 lb.

PERFORMANCE

Max. speed (SL): 153 mph. Cruise speed (SL): 120 mph. Cruise speed, 5,000': 138 mph. Service ceiling: 17,400 ft. Max. range: 580 st. mi. Rate of climb: 735 fpm.

REMARKS

Since the initial procurement in March 1955, the Army has purchased 205 Otters. The U-1A is one of the few service aircraft to retain its original designation.

U-6 BEAVER

Six-place utility aircraft. De Havilland Aircraft of Canada, Ltd. Downsview, Ontario.

ENGINES

One Pratt & Whitney R-985 AN-1, -3, -39, -39A engines of 450 hp.

PROPELLERS

Hamilton Standard two-bladed metal variable pitch.

SPECIFICATIONS

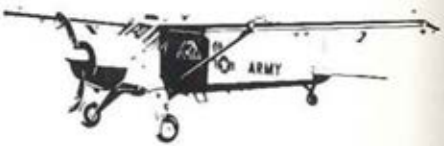
Span: 48 ft. Length: 30 ft. 4 in. Height: 10 ft. 5 in. Empty weight: 3,000 lb. Gross weight: 5,100 lb.

PERFORMANCE

Max. speed (SL): 156 mph. Cruise speed (SL): 125 mph. Cruise speed, 5,000': 130 mph. Service ceiling: 20,000 ft. Max. range: 690 st. mi. Endurance: 8 hours. Rate of climb: 850 fpm.

REMARKS

A rugged all-purpose aircraft originally used as a civilian "bush plane", the Beaver perfoms a wide variety of Army missions. Since initial procurement in 1951, the Army has purchased 654 U-6 aircraft. L-20 was the former designation of the Beaver.



U-8D SEMINOLE

Six-place, command/liaison utility transport. Beech Aircraft Corp., Wichita, Kansas.

ENGINES

Two Lycoming GSO-480-1 engines rated at 340 hp each.

PROPELLERS

Hartzell, 3-bladed, constant speed.

SPECIFICATIONS

Span: 45 ft. 3-3/8 in. Length: 31 ft. 6-15/32 in. Height: 11 ft. 6½ in. Empty weight: 4,978 lbs. Gross weight: 7,300 lbs.

PERFORMANCE

Max. speed (SL): 212 mph. Cruise speed (SL): 179 mph (65% power). Cruise speed, 5,000 ft. (65% power): 187 mph. 10,000 ft. (65% power): 195 mph. Service ceiling: 25,500 ft. Max. range: 1,320 st. mi. Endurance: 8.2 hrs. Rate of climb: 1,585 fpm.

REMARKS

The U-8D Seminole is the military version of the Beechcraft Model 50 Twin-Bonanza. Under contract in 1960, a number of U-8Ds were modified to the RL-23D (RL-8D) configuration incorporating the APQ86 SLAR installation. A total of 206 Seminoles have been purchased from 1952 through FY 65.

U-8F SEMINOLE

Seven-place utility command/liaison aircraft. Beech Aircraft Corp., Wichita, Kansas.

ENGINES

Two Lycoming IGSO-480-A1A6 engines. 340 hp each.

PROPELLERS

Hartzell, 3-bladed, metal, diameter 93 inches.

SPECIFICATIONS

Span: 45 ft. 10 in. Length: 33 ft. 4 in. Height: 14 ft. 2 in. Empty weight: 4,987 lb. Gross weight: 7,700 lbs.

PERFORMANCE

Max. speed (SL): 212 mph. Cruise speed (SL): 181 mph. Cruise speed, 5000 ft. (65% power): 187 mph. 10,000 ft. (65% power): 196 mph. Service ceiling: 27,100 feet. Max. range: 1,272 st. mi. Endurance: 8.38 hrs. Rate of climb: 1,304 fpm.

REMARKS

The U-8F is the military counterpart of the Beechcraft Queen Air 65 executive transport. A total of 71 U-8Fs have been procured through FY 65 since the initial purchase date in 1959.

U-9 AERO COMMANDER

Five-place utility, command/liaison aircraft. Aero Commander, Bethany, Okla.

ENGINES

Two Lycoming GO-480-1 piston engines of 550 hp.

PROPELLERS

Hartzell 3-bladed variable-pitch, metal propellers.

SPECIFICATIONS

Span: 49 ft. 6 in. Length: 35 ft. 2 in. Height: 14 ft. 6 in. Empty weight: 4,475 lb. Gross weight: 7,500 lb.

PERFORMANCE

Max. speed (SL): 255 mph. Cruise speed (SL): 198 mph. Cruise speed, 10,000': 226 mph. Service ceiling: 22,900 ft. Max. range: 1,150 st. mi. Rate of climb: 1,525 fpm.

REMARKS

The first U-9 (YL-26) was obtained by the Army in 1953. Since then, three later models, the B, C, and D, have been procured in addition to a conversion of the D model to carry special electronic gear. Nine Aero Commanders (all models) were in the Army inventory as of Jan., 1965 of twenty purchased.

T-41B

Four-place, single engine trainer. Cessna Aircraft Company, Wichita, Kan.

ENGINES

One Continental IO-360 of 210 hp.

PROPELLERS

One McCauley two-bladed constant speed propeller. Diameter, 6'4".

SPECIFICATIONS

All metal, high wing, fixed gear. Span: 36'2". Length: 26'6". Height: 8'11". Empty weight: 1,255 lbs. Gross weight: 2,500 lbs.

PERFORMANCE

Max. speed: 153 mph. Cruising speed: 148 mph. Rate of climb: 910 fpm at 2,500 lbs. Service ceiling: 17,500 feet. TO 50 ft obstacle: 1,045'. LA 50 ft obstacle: 860'

REMARKS

First delivery of six T-41Bs made in November, '66, with delivery of complete 255-ship order to be made by March, '67. Off-the-shelf version of Cessna's commercial Model 172. Nav / Com equipment includes three C-1611C/AIC interphone sets, an RT-515R-1 VHF Nav/Com radio with VOR course deviation indicator, an AN/ARN-83 low freq ADF, a BEI-901C emergency VHF transceiver with a single channel on 121.5, and provisions for an AN/ARC-54 FM radio for air-to-air and air-to-ground communications.

T-42A

Four-place instrument/transition trainer. Beech Aircraft Corp., Wichita, Kan.

ENGINES

Two Continental IO-470-L engines, rated at 260 hp each.

PROPELLERS

McCauley 2-blade, metal, 78 in. diameter.

SPECIFICATIONS

Span: 31 ft. 8 in. Length: 26 ft. 7 in. Height: 9 ft. 6 in. Empty weight: 3,197 lb. Gross weight: 5,100 lb.

PERFORMANCE

Max. speed (SL): 235 mph. Cruise speed (SL): 200 mph. Cruise speed, 5,000 ft. (65% power): 210 mph. 10,000 ft. (65% power): 218 mph. Service ceiling: 19,700 ft. Max. range: 1,065 nm (with 45 min. reserve). Endurance: 7.5 hrs. Climb rate: 1,670 fpm.

REMARKS

In Feb. 1965, 55 T-42As were ordered for delivery between Aug. 65 and June 66. The T-42A is used primarily as a fixed-wing, twin-engine instrument trainer by the Army Aviation School Instrument Training Division at Fort Rucker, Alabama. The secondary mission of the airplane is the twin-engine transition of single-engine rated Army Aviators and is capable of fulfilling other military roles. The T-42A is the military counterpart of the Beechcraft B55 Baron.

U-21A

8-12 place utility tactical transport aircraft. Beech Aircraft Corporation, Wichita, Kan.

ENGINES

Two United Aircraft of Canada PT 6A-20 free shaft turbine engines of 520 hp. each.

PROPELLERS

Beech full feathering, reversible propellers. 7'9" diameter.

SPECIFICATIONS

Span: 50'3". Length: 35'6". Height: 14'2". Empty weight: 6,065 lbs. Gross weight 7,700 lbs.

PERFORMANCE

Max. speed. 10,000': 225 knots. Cruising speed, 10,000': 210 knots. Rate of climb: 1,500 (SL). Service ceiling at max gross wt: 27,000. TO 50' obstacle: 1,400'. LO 50' obstacle: 2,300'.

REMARKS

Initial U-21A acceptance took place on April 16, 1967. Procured to provide support for tactical units, rather than as general administrative support mission aircraft. DA ordered 48 under a $9.8 million contract in October, 1966, with deliveries by June, 1967. Modified version of Army's NU-8F, which underwent initial user evaluation in March, 1964, as well as modified version of Beechcraft Queen Air.

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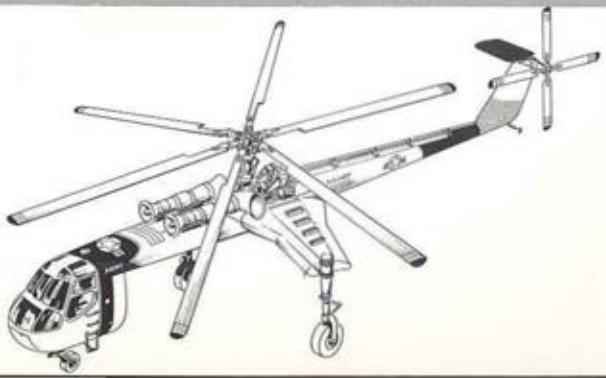

OH-13 SIOUX

Two-place observation helicopter. Bell Helicopter Company, Fort Worth, Texas.

ENGINES

One Lycoming C-435-23 piston engine of 250 hp.

ROTOR SYSTEM

Single two-bladed semi-rigid main rotor. Two-bladed metal tail rotor.

SPECIFICATIONS

Rotor diameter: 37 ft. Length: 31 ft. 7 in. Height: 9 ft. 4 in. Empty weight: 1,800 lb. Gross weight: 2,950 lb.

PERFORMANCE

Max. speed (SL): 81 mph. Cruise speed (SL): 81 mph. Cruise speed, 5,000': 88 mph. Service ceiling: 13,400 ft. Max. range: 191 st. mi.

REMARKS

The Army procured its first YR-13 in December 1946. Models procured include A, B, C, D, E, G, H, and K. See index for other OH-13 models. Since 1946, the Army has procured a total of 2,197 OH-13s of all models.

XH-15

Two-place experimental observation helicopter. Bell Helicopter Company, Fort Worth, Texas.

ENGINES

One Continental XO-470-5 turbo supercharged engine of 280 hp.

ROTOR SYSTEM

Single two-bladed rotor system, wooden blades.

SPECIFICATIONS

Rotor diameter: 36 ft. 10 in. Length: 43 ft. Gross weight: 2,700 lb.

PERFORMANCE

Max. speed (SL): 100 mph Service ceiling: 20,000 ft. No other mission data available. Only experimental work completed.

REMARKS

Because the XH-15 never became a production article, many of the parameters were never firmly established. The XH-15 was designed as a high altitude helicopter for the U.S. Air Force and was probably the first helicopter to incorporate a turbo supercharged engine.

H-16B

Research cargo helicopter. Piasecki Aircraft Corp., Philadelphia, Pa.

ENGINES

Two Allison T56-A-5 turbine engines of 2,100 shp each.

ROTOR SYSTEM

Tandem four-bladed metal fully articulated rotor system.

SPECIFICATIONS

Rotor diameter: 82 ft. Gross weight: 46,700 lb. Places: crew of three and 47 troops.

PERFORMANCE

Cruise speed (SL): 143 mph. Service ceiling: 15,600 ft. Max. range: 200 st. mi.

REMARKS

The Army procured two YH-16s for test and evaluation purposes. The second H-16 was an "A" model employing the Allison T38 turbine engine. The test project was terminated in 1956.

H-17

Heavy lift aircraft test vehicle. Hughes Tool Company, Aircraft Div., Culver City, California.

ENGINES

One TG-180 (J-36) modified gas turbine engine of 3,480 hp.

ROTOR SYSTEM

Single two-bladed metal main rotor, 130 ft. diameter and 68 in. chord.

SPECIFICATIONS

Rotor diameter: 130 ft. Gross weight: 46,000 lb. Three-place.

PERFORMANCE

Test aircraft, no performance data available.

REMARKS

This was the initial effort to produce a flying crane or heavy lift aircraft. The H-17 was a test vehicle procured by the U.S. Air Force in 1953. Evaluation data was supplied to the Army. This project was launched by the Kellett Company and later taken over by Hughes.

Tough machine for a tough war.

The Army's new aerial scout in Vietnam is the OH-6A Cayuse. It was designed to handle close-quarters reconnaissance like nothing else...

Flashing up to enemy territory at airplane speeds (150 mph). Patrolling forest clearings too narrow for other choppers, and getting right down among the trees. Fighting it out with a blazing minigun. Or getting lost *fast* (0 to 60 mph in five seconds).

The compact Cayuse can also take the pounding you get when you're right on top of the enemy. Recent reports...

"You wouldn't believe the hits we take and still fly home."

"My Cayuse took a round clear through the tail rotor drive shaft. I didn't even know we were hit. We flew the ship another four hours before a mechanic found the holes."

"50-caliber groundfire knocked out the engine of our OH-6A. It came down through the trees, and rolled into a ball with no aft fuselage left. But the crew compartment remained intact. In fact, my whole crew walked away with slight scratches."

Another way to say tough. Pilots and crew chiefs alike will tell you the OH-6A excels in availability, reliability and maintainability. It's the kind of machine the men who fly it deserve.

The Cayuse, built by Hughes Tool Company, Culver City, California.

Hughes Helicopters

YH-18A

Four-place utility helicopter. Sikorsky Aircraft Div., Stratford, Connecticut.

ENGINES

One Franklin 0-425-1 piston engine of 245 hp.

ROTOR SYSTEM

Single three-bladed metal main rotor and two-bladed metal 5 ft. 5 in. dia. anti-torque rotor.

SPECIFICATIONS

Rotor diameter: 33 ft. Length: 35 ft. 6 in. Height: 8 ft. 8 in. Gross weight: 2,700 lb.

PERFORMANCE

Max. speed (SL): 110 mph. Cruise speed (SL): 92 mph. Service ceiling: 13,800 ft. Hover ceiling (OGE): 1,100 ft. Max. range: 305 st. mi. Endurance: 3.5 hours. Rate of climb: 1,050 fpm.

REMARKS

Four YH-18As were procured by the Army in 1950 for operational and engineering tests and evaluation.

UH-19

Twelve-place utility helicopter. Sikorsky Aircraft Division, Stratford, Conn.

ENGINES

One Curtiss-Wright (Lycoming) R-1300-3 piston engine of 700 hp.

ROTOR SYSTEM

Single three-bladed main rotor and a two-bladed metal 8' dia. anti-torque rotor.

SPECIFICATIONS

Rotor diameter: 53 feet. Fuselage length: 41 ft. 2 in. Height: 15 ft. 6 in. Empty weight 5,250 lb. Gross weight: 7,500 lb.

PERFORMANCE

Max. speed (SL): 112 mph. Cruise speed (SL): 91 mph. Service ceiling: 10,600 ft. Hover ceiling (OGE): 2,300 ft. Max. range: 360 st. mi. Endurance: 4.3 hours. Rate of climb: 1,020 fpm.

REMARKS

The UH-19 was the world's first transport helicopter and the first to be used for commercial scheduled passenger service. Since initial procurement in Nov. 1949, 355 Chickasaws have been brought into the Army inventory through FY 65.

H-24

Two-place observation helicopter. Seibl Helicopter.

ENGINES

One Lycoming 0-290-D1 engine of 130 hp.

ROTOR SYSTEM

Single two-bladed main rotor, wooden blades.

SPECIFICATIONS

Rotor diameter: 29 ft. Gross weight: 1,540 lb.

PERFORMANCE

Cruise speed (SL): 58 mph. Service ceiling: 4,300 ft. Max. range: 98 st. mi.

REMARKS

Two H-24s were procured in 1951 for operational and engineering evaluation. The aircraft was also considered for aeromedical evacuation purposes.

H-25

Eight-place utility helicopter. Piasecki Aircraft Corp., Philadelphia, Pa.

ENGINES

One Continental R-975-42 engine of 475 hp.

ROTOR SYSTEM

Tandem three-bladed rotor system.

SPECIFICATIONS

Rotor diameter: 35 ft. Gross weight: 5,500 lb.

PERFORMANCE

Cruise speed (SL): 92 mph. Service ceiling: 12,700 ft. Max. range: 357 st. mi.

REMARKS

The H-25 was developed for the Navy for rescue operations. With minor modifications, it met Army operational needs in cargo and utility missions. Fifty H-25s were procured by the Army, but were later turned over to the Navy for use.

TENTH AAAA ANNUAL MEETING

SHERATON-PARK HOTEL
WASHINGTON, D.C.

WEDNESDAY, OCTOBER 30
Early Bird Reception

THURSDAY, OCTOBER 31
General Membership Meeting
President's Annual Report
Elections of National Officers

A.M. Panel Presentation

Chapter Delegates' Luncheon
(Open to General Membership)

P.M. Panel Presentation

President's Reception

Cub Club "Happy Hour"

Unit Reunions and Dinners

FRIDAY, NOVEMBER 1

A.M. Panel Presentation

Honors Luncheon Reception

1968 AAAA Honors Luncheon

P.M. Panel Presentation

Diehards' Reception

FREE REUNION SUITES!

The AAAA will provide a gratis Reunion "Hospitality Suite" on Thursday afternoon and evening, October 31, to each AAAA Chapter, or military unit (active duty or reserve forces) that registers **twenty-five** persons at the 1968 AAAA Annual Meeting. Advance registrants should indicate their "Reunion" Chapter or unit on the form appearing on the reverse side. "Hospitality Suite" registrations are to be completed by noon, October 31. Present and former commanders desiring to hold a "unit" reunion during the course of the AAAA's Tenth Annual Meeting are encouraged to list their "reunion" in the September, 1968 issue.

OCTOBER 30 - NOVEMBER 1

1968 AAAA ANNUAL MEETING

SHERATON-PARK HOTEL — WASHINGTON, D.C.

ADVANCE REGISTRATION

Advance registrations will be accepted July 1-Oct. 21 (see coupon below). All reservations will be confirmed by mail. Registration badges and social function tickets will be available at the AAAA Registration Desk, Sheraton-Park Hotel, beginning 1:00 P.M. Monday, Oct. 28.

SOCIAL FUNCTIONS . . . GUESTS

Tickets may be purchased for guests by registrees for all social functions. Only registrees may attend AAAA and professional presentations.

Full remittance for registration and all tickets must accompany Registration Coupon.

REFUNDS FOR CANCELLATIONS

Phone cancellations of tickets will be accepted until noon, Wednesday, October 23. Letter cancellations should be postmarked no later than October 21.

ROOM RESERVATIONS

Write Sheraton-Park Hotel, Washington, D.C. 20008, or hotel of choice. Military rates at Sheraton-Park if in uniform or with ID active-duty card. AAAA cannot accept requests for reservations. State that you will attend AAAA meeting.

Civilian Rates at Sheraton-Park:

Single Room	$13.50-$19.00
Twin Room	$17.50-$23.00
1-Bedroom Suite	$35.00-$40.00
2-Bedroom Suite	$70.00-$90.00

Active Duty Rates at Sheraton-Park:

Single Room	$13.50-$17.50
Twin Room	$17.50

On-Post Quarters For Military Personnel:
Write Hq, Military District Washington, Attn: G1, Washington, D.C. 20315 on or before 25 Sep.

ADVANCE REGISTRATION COUPON

Detach and mail to: ARMY AVIATION ASSOCIATION OF AMERICA, 1 Crestwood Road, Westport, Conn. 06880 — Make check payable to

Enclosed please find $..... in payment of my registration for the 1968 AAAA Annual Meeting and tickets indicated below:

Function	Quantity Desired	Unit Prices **Military	Civilian	Amount
1. Registration	.....	$ 5.00	$15.00	$.....
2. President's Reception* (Oct. 31)	.....	$ 5.00	$15.00	$.....
3. Honors Luncheon and Reception* (Nov. 1)	.....	$ 7.00	$15.00	$.....
4. Combined Attendance (Includes 1, 2 and 3)				
Member Alone	.....	$12.00	$40.00	$.....
Member and Wife	.....	$20.00	$50.00	$.....

*Separate tickets are required for each social function.
**Includes civilian employees of the Armed Services.

NAME.....
(Print or type) (Rank or title of position)

ADDRESS.....
(Print or type)

THIS APPLICATION WILL BE ACCEPTED ONLY IF ACCOMPANIED BY PAYMENT IN FULL

H-26

One-place observation research helicopter. American Helicopter.

ENGINES

Two XPJ49-AH-3 tip-mounted pulse jet engines, 36 lb/thrust.

ROTOR SYSTEM

Single two-bladed teetering rotor system, blades by Prewitt.

SPECIFICATIONS

Gross weight: 810 lb.

PERFORMANCE

Cruise speed (SL): 75 mph. Service ceiling: 7,000 ft. Max. range: 100 st. mi.

REMARKS

The Army procured five YH-26s during the period 1952-1954 for engineering and operational evaluation.

H-30

Two-place observation helicopter. McCulloch Motors.

ENGINES

One Franklin 6A4-200-C6 engine of 200 hp.

ROTOR SYSTEM

Tandem three-bladed rotor system.

SPECIFICATIONS

Rotor diameter: 22 ft. Gross weight: 2,000 lb.

PERFORMANCE

Cruise speed (SL): 90 mph. Service ceiling: 12,000 ft. Max. range: 198 st. mi.

REMARKS

Two H-30s were procured by the Army in 1952 for operational and engineering evaluation.

H-31

Eight-place utility helicopter. Doman Helicopters Inc., Danbury, Connecticut.

ENGINES

One Lycoming SO-580-D engine of 400 hp.

ROTOR SYSTEM

Single four-bladed main rotor system, wooden blades. Three-bladed tail rotor, wooden blades.

SPECIFICATIONS

Gross weight: 5,200 lb.

PERFORMANCE

Cruise speed (SL): 78 mph. Service ceiling: 5,700 ft. Max. range: 450 st. mi.

REMARKS

The Army procured two H-31s in 1952 for tests and evaluation. The aircraft had a completely sealed, rigid, non-articulated rotor system. The commercial designation was the LZ-5.

H-32 HORNET

Two-place observation helicopter. Hiller Aircraft Company, Palo Alto, Calif.

ENGINES

Two Hiller HR J2B Ram Jet engines of 30 lb/thrust each.

ROTOR SYSTEM

Single two-bladed metal main rotor and single two-bladed wooden tail rotor, 32 in. diameter,

SPECIFICATIONS

Rotor diameter: 23 ft. Gross weight: 1,080 lb.

PERFORMANCE

Cruise speed (SL): 70 mph. Service ceiling: 11,500 ft. Max. range: 28 st. mi.

REMARKS

The Hornet first flew in 1950, although the Army did not take delivery of the aircraft until 1956, when six were received.

H-33 (XV-3)

Two-place tilting-rotor research aircraft. Bell Helicopter Company, Fort Worth, Texas.

ENGINES

One R-985 engine.

ROTOR SYSTEM

Two two-bladed semi-rigid tilting rotors.

SPECIFICATIONS

Rotor diameter: 23 ft. Length: 30 ft. 4 in. Height: 13 ft. 7 in. Empty weight: 4,200 lb. Gross weight: 4,850 lb.

PERFORMANCE

Max. speed (SL): 150 mph. Cruise speed (SL): 130 mph. Service ceiling: 12,000 ft. Max. range: 140 st. mi.

REMARKS

The Army procured two prototypes of the H-33 in 1958. The Convertiplane achieved 100 per cent in-flight conversion of its tilting rotors in Dec. 1958, the world's first such performance by this type aircraft. Over 100 full conversions were made during tests conducted. The Convertiplane was also designated the XV-3.

H-39

Four-place utility helicopter. Sikorsky Aircraft Division, Stratford, Connecticut.

ENGINES

One Turbomeca Artouse II-XT-51-T3 turbine.

ROTOR SYSTEM

Single four-bladed articulated main rotor and metal three-bladed 6', 4" dia. anti-torque rotor.

SPECIFICATIONS

Rotor diameter: 35 ft. Length: 41 ft. 9 in. Height: 9 ft. 7 in. Empty weight: 2,105 lb. Gross weight: 3,361 lb.

PERFORMANCE

Max. speed (SL): 150 mph. Cruise speed (SL): 138 mph. Service ceiling: 17,900 ft. Hover ceiling (OGE): 15,100 ft. Max. range: 265 st. mi. Endurance: 2 hours. Rate of climb: 1,680 fpm.

REMARKS

The H-39 was basically a modified H-18 with an Artouse II gas turbine engine installed. In 1954 the Army obtained one of these helicopters to be used for operational and engineering evaluation. The H-39 set World Records in 1954 for its class for Speed: 156.1 mph and Altitude: 24,220 feet.

AH-1G HUEYCOBRA

Two-place armed helicopter. Bell Helicopter Company, Forth Worth, Texas.

ENGINES

One Lycoming T53-L-13 gas turbine of 1,400 shp.

ROTOR SYSTEM

Single two-bladed Model 540 "door hinge" main rotor, 27 in. chord. Two-bladed tail rotor, 8 ft. 6 in. diameter.

SPECIFICATIONS

Rotor diam.: 44 ft. Length: 53 ft. Height: 13 ft., 6 in. Width: 3 ft., 6 in. Weight (gross): 9,500 lbs.

PERFORMANCE

Cruise speed: 130 knots. Radius of action: 130 n.m. Rate of climb: 1,580 fpm. Payload: 3,052 lbs (fuel and ord).

REMARKS

The AH-1G, in replacing the UH-1 armed helicopter, provides increased range, endurance, and greater firepower, insuring swift reaction to the tactical situation. Its missions include search and target acquisition, reconnaissance by fire, multiple weapon fire support, and troop helicopter support. The HueyCobra was initiated by Bell Helicopterstrictly as a company project in March, 1965, with first company flight tests being conducted in September of that year. The first Army flight tests were held in November, 1965. In March, 1966, DOD authorized procurement of the AH-1G, the first helicopter designed specifically as a weapons platform. The first production HueyCobra was delivered in March, 1967, with several aircraft reaching USARV in August, 1967. The basic armament configuration calls for the TAT-102A automatic gun (7.62-mm).

FLIGHT PAY PROTECTION PLAN PREMIUM TABLE

IF MONTHLY FLIGHT PAY IS:	YOUR ANNUAL FLIGHT PAY IS:	YOUR ANNUAL PREMIUM RATE IS:	YOUR SEMI-ANNUAL PREMIUM IS:	YOUR QUARTERLY PREMIUM IS:
$245	$2,940	$51.45	$26.75	$13.85
240	2,880	50.40	26.20	13.60
230	2,760	48.30	25.15	13.10
225	2,700	47.25	24.65	12.80
220	2,640	46.20	24.10	12.55
215	2,580	45.15	23.60	12.30
210	2,520	44.10	23.05	12.05
205	2,460	43.05	22.55	11.75
200	2,400	42.00	22.00	11.50
195	2,340	40.95	21.50	11.25
190	2,280	39.90	20.95	11.00
185	2,220	38.85	20.45	10.70
180	2,160	37.80	19.90	10.45
175	2,100	36.75	19.40	10.20
170	2,040	35.70	18.85	9.95
165	1,980	34.65	18.35	9.65
160	1,920	33.60	17.80	9.40
155	1,860	32.55	17.30	9.15
150	1,800	31.50	16.75	8.90
145	1,740	30.45	16.25	8.60
140	1,680	29.40	15.70	8.35
135	1,620	28.35	15.20	8.10
130	1,560	27.30	14.65	7.85
125	1,500	26.25	14.15	7.55
120	1,440	25.20	13.60	7.30
115	1,380	24.15	13.10	7.05
110	1,320	23.10	12.55	6.80
105	1,260	22.05	12.05	6.50
100	1,200	21.00	11.50	6.25
95	1,140	19.95	11.00	6.00
90	1,080	18.90	10.45	5.75
85	1,020	17.85	9.95	5.45
80	960	16.80	9.40	5.20
75	900	15.75	8.90	4.95
70	840	14.70	8.35	4.70
65	780	13.65	7.85	4.40
60	720	12.60	7.30	4.15
55	660	11.55	6.80	3.90
50	600	10.50	6.25	3.65

30-Day Enrollment Period For New Flight Pay Insurance Coverage To Open September 1

NEXT FPPP ENROLLMENT PERIOD TO OPEN MARCH 1-31, 1969

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SEPT. 1-30 APPLICATION FOR FLIGHT PAY INSURANCE

NEW COVERAGE ONLY

I have enclosed a check or a money order made payable to the **LADD AGENCY, INC.** for my (annual) (semi-annual) (quarterly) premium of

$ PREMIUM

I understand that in making application for the coverage during the month of **SEPTEMBER** the effective date of my coverage will be **OCTOBER 1**, and that my policy shall be my receipt.

Complete the application in its entirety during the month of **SEPTEMBER.** Select your premium payment mode (annual, semi-annual, quarterly). Make your premium check payable to **LADD AGENCY, INC.,** and mail it with your application during **SEPTEMBER** to the **LADD AGENCY, INC.,** 1 Crestwood Road, Westport, Conn. 06880. Allow 2-3 weeks for the delivery of your policy.

Rank or Grade | Name | ASN | Monthly Flight Pay

ADDRESS (Post Office Box Number, Residence or Quarters Address is Desired)

City | State | Zip | Years of Service for Pay Purposes

I certify that I am currently on flying status with a U.S. Army unit; that I am in good health at the time of making this application; that I am entitled to receive incentive pay; that no condition is known to me at this time that could result in my loss of flying status for physical reasons; and that no action is pending to remove me from flying status for failure to meet required physical standards. I authorize the Company, or Company-designated representatives, to examine all official medical records that may be pertinent to any claim that I may submit.

SIGNATURE_____ **DATE**_____

(Sign, date, and mail during Sept. only).

This coverage is **limited** to AAAA Members.

☐ I am an AAAA Member.

ANNUAL DUES $7.00

INITIATION FEE $2.50

The initiation fee applies to the applicant's **first year** membership only, and covers the one-time provision of a membership decal and a personal lapel insignia. The application form and a check for $9.50 made payable to **"AAAA"** should be returned to: **AAAA**, 1 Crestwood Road, Westport, Connecticut 06880. The individual membership shall become effective on the first day of the month after the month of application.

IMPORTANT: Your premium check should be made payable to **LADD AGENCY, INC.**

CATEGORY OF AAAA MEMBERSHIP

- ☐ Active U.S. Army establishment
- ☐ U.S. Army National Guard component
- ☐ U.S. Army Reserve Component
- ☐ Other. Describe below.

_____

_____

H-41 SENECA

Four-place observation helicopter. Cessna Aircraft Company, Wichita, Kansas.

ENGINES

One Continental FSO-526 horizontally mounted piston engine of 260 hp.

ROTOR SYSTEM

Single two-bladed metal main rotor. Two-bladed metal 7 ft. diameter tail rotor.

SPECIFICATIONS

Rotor diameter: 35 ft. Length: 42 ft. 5 in. Height: 8 ft. 5 in. Empty weight: 2,080 lb. Gross weight: 3,000 lb.

PERFORMANCE

Max. speed (SL): 122 mph. Cruise speed (SL): 95 mph. Cruise speed, 10,000': 120 mph. Service ceiling: 12,200 ft. Hover ceiling (OGE): 6,500 ft. Max. range: 310 st. mi. Endurance: 3.37 hours. Rate of climb: 1,030 fpm.

REMARKS

The Army procured ten H-41 helicopters in 1957 for high altitude operation tests and evaluation. No others were purchased.

YHC-1

28-place medium transport helicopter. Boeing Vertol Div., Morton, Pa.

ENGINES

Two T58-GE-6 turbines of 1,050 shp each.

ROTOR SYSTEM

Tandem three-bladed rotors.

SPECIFICATIONS

Rotor diameter: 48 ft. 4 in. Length: 44 ft. 7 in. Height: 16 ft. 10 in. Empty weight: 11,716 lb. Gross weight: 18,700 lb. Overload gross wt.: 21,400 lb.

PERFORMANCE

Max. speed (SL): 168 mph. Cruise speed (SL): 155 mph. Service ceiling: 13,700 ft. Hover ceiling, OGE: 6,500 ft. Max. range: 115 st. mi Rate of climb: 1,700 fpm.

REMARKS

The Army procured three YHC-1s in 1959 for tests and evaluation. Engineering and operational data obtained from this aircraft led to the development of the CH-46, the Boeing 107, and the CH-47 Chinook.

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CENTRISEP™ AIR CLEANERS
Compact, inertial-type cleaners remove sand, dust and other rotor-whipped abrasives from air, prevent erosion of vital parts, protect instrument visibility in cabin. Self-cleaning and long lasting.

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A giant step toward fewer maintenance problems, lower maintenance costs, 3 micron absolute Ultipor filters remove fine particles (1-5 micron size) that act as a "lapping" compound, grinding on — and wedging between — critical valve and pump surfaces. Standard filters, too coarse to stop small-sized contaminants, can never approach the savings in reduced downtime of aircraft using our Flying Ultipor filters.

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Protect expensive system components like pumps, controls, bearings, gears and many others from destructive contamination. Highest dirt capacity, long service intervals. Elements use latest cleanable or disposable filter media. New designs available for today's high-temperature fuel systems.

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Keep abrasive wear to a minimum by effectively removing harmful particulate matter from transmission oil. All new "sequence filter" principle makes continuous filtration possible, even during cold starts.

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CH-21 SHAWNEE

Cargo helicopter. Boeing Vertol Div., Morton, Pa.

ENGINES

One Curtiss-Wright R-1820-103 developing 1,425 hp.

ROTOR SYSTEM

Tandem 3-bladed rotors.

SPECIFICATIONS

Rotor diameter: 44 ft. Length: 52 ft. 7 in. Height: 15 ft. 9 in. Empty weight: 8,950 lb. Gross weight: 15,200 lb. Places: Crew of three and 20 troops or 12 litters.

PERFORMANCE

Max. speed (SL): 127 mph. Cruise speed (SL): 98 mph. Service ceiling: 18,600 ft. Max. range: 245 st. mi. Endurance: 2 hrs. 41 min.

REMARKS

Since the initial date of procurement in June 1950, the Army purchased 334 CH-21s of all models. The Shawnee was, until late 1963, the workhorse of Vietnam, when it was phased out, being replaced by the ubiquitous Huey.

More pounce to the ounce for the Army

A new kind of weapon is revolutionizing the Army's combat mobility in Vietnam. Three SK-5 Air Cushion Vehicles built by Bell Aerosystems are now stalking the enemy in the soggy Mekong Delta region. These ten-ton "monsters" are tough as a rhinoceros . . . fast as a gazelle. They can skim over water, mud and swamp at speeds up to 70 mph to get where the action is. Bristling with firepower — including a bow-mounted grenade launcher and four machine guns — they can then sit and fight indefinitely. These three SK-5s are the first armored Air Cushion Vehicles now in production for the U. S. Army Aviation Materiel Command. They feature higher performance engines, an improved control system, and greater troop/cargo carrying capacity than the three original Bell ACVs now in their second tour of Vietnam patrol duty for the Navy.

The muck that mires is no longer a problem

BELL AEROSYSTEMS—A extron COMPANY Buffalo, New York

Proven Systems Capabilities for Aerospace • Defense • Transportation • Communications

CH-34 CHOCTAW

16-place cargo and light tactical transport helicopter. Sikorsky Aircraft Division, Stratford, Conn.

ENGINES

One Curtiss-Wright R-1820-84 piston engine of 1,425 hp.

ROTOR SYSTEM

Single four-bladed main rotor, and four-bladed metal, 9 ft. 4 in. dia. antitorque rotor.

SPECIFICATIONS

Rotor diameter: 56 ft. Overall length: 65 ft. 8 in. Height: 15 ft. 10 in. Empty weight: 7,675 lb. Gross weight: 13,000 lb. Overload gross wt: 14,000 lb.

PERFORMANCE

Max. speed (SL): 122 mph. Cruise speed (SL): 108 mph. Service ceiling: 9,500 ft. Hover ceiling (OGE): 2,400 ft. Max. range: 276 st. mi. Rate of climb: 1,100 fpm.

REMARKS

The Army procured a total of 437 Choctaws of all models through FY 65. The VH-34 version was used for VIP transport, notably as the first helicopters of the Executive Flight Detachment.

ARMY AVIATION ASSOCIATION

GENERAL PURPOSES

To advance the status, overall esprit, and the general knowledge and proficiency of those persons who are engaged professionally in the field of U.S. Army aviation in the active U.S. Army forces and in the Reserve Forces of the U.S. Army.

To preserve and foster a spirit of good fellowship among military and civilian persons whose past or current duties affiliate them with the field of U.S. Army aviation.

To advance those policies, programs, and concepts of the Association of the U.S. Army, the National Guard Association, and the Reserve Officers Association that are of benefit to the AAAA membership.

SPECIFIC OBJECTIVES

Fostering a public understanding of Army aviation and arousing a public interest in this segment of the military forces.

Exchanging ideas and disseminating information pertinent to Army aviation through the media endorsed by the Association.

Inspiring Army-wide and nationwide interest in Army aviation careers.

Cementing relationships between those interested in Army aviation in the active U.S. Army forces and the Reserve Forces of the U.S. Army.

Motivating Army aviation personnel to increase their knowledge, techniques, and skills.

Maintaining historical records of Army aviation.

Conducting meetings, seminars, symposiums, exhibitions, air meets, etc.

Recognizing outstanding contributions within Army aviation.

Providing special types of group plans of individual benefit to the membership.

Stimulating good fellowship nationally, regionally, and locally.

PARTIAL PROGRAM LIST

An AWARDS PROGRAM in which outstanding individual and unit achievements receive National recognition.

A CHAPTER ACTIVITIES PROGRAM in which outstanding industry and military leaders address the widespread Chapter organizations on specific areas of Army aviation interest.

A FILM EXCHANGE PROGRAM in which the member is afforded the opportunity of viewing current developments in the state of the art as portrayed through the medium of industry films.

A LOCATOR SERVICE PROGRAM in which the member is assisted in his efforts to keep abreast of the location of his contemporaries.

A SCHOLARSHIP AWARDS PROGRAM in which the sons and daughters of members receive scholarship assistance annually is pursued in conjunction with the AAAA Scholarship Foundation, Inc., a separate, non-profit educational foundation that works closely with the Army Aviation Association.

A SCIENCE AWARDS PROGRAM conceived by the Washington, D.C. Chapter in which the Association endeavors to interest young people in the aviation sciences by sponsoring cash scholarship awards at the Annual Science Fair-International and numerous individual Certificates of Achievement at some 220 local and regional Science Fairs. AAAA individual members serve as judges at local, regional, and national fairs.

ARMY AVIATION ASSOCIATION APPLICATION FOR MEMBERSHIP

I wish to become a member of the Army Aviation Association of America (AAAA). I have enclosed my Membership Dues and the first-year Initiation Fee. Please start my ARMY AVIATION MAGAZINE subscription and send my membership credentials.

☐ My past or current duties affiliate me with the field of U.S. Army aviation or its allied pursuits.

☐ My past and current duties have not affiliated me with the field of U.S. Army aviation but I wish to further the aims and purposes of the AAAA.

.....

(Please Print) Rank/Grade Name

ADDRESS .....

(Post Box Number, Residence or Quarters Address is Desired)

CITY ..... STATE .....

SIGNATURE .....

Failure to sign above invalidates this application.

ANNUAL AAAA DUES . . $7.00
INITIATION FEE . . . $2.50

The initiation fee applies to the applicant's first year membership only, and covers the one-time provision of a membership decal and a personal lapel insignia. The application form and a check for $9.50 made payable to "AAAA" should be returned to: AAAA, 1 Crestwood Road, Westport, Connecticut 06880

CATEGORY OF MEMBERSHIP

☐ Active U.S. Army establishment
☐ U.S. Army National Guard
☐ U.S. Army Reserve component
☐ Other. Describe below.

_____
_____
_____

CH-37 MOJAVE

Medium cargo helicopter. Sikorsky Aircraft Div., Stratford, Conn.

ENGINES

Two Pratt & Whitney R-2800-54 piston engines of 2,100 hp each.

ROTOR SYSTEM

Single five-bladed main rotor and four-bladed metal 15 ft. dia. anti-torque rotor.

SPECIFICATIONS

Rotor diameter: 72 ft. Length: 88 ft. Height: 22 ft. Empty weight: 20,690 lb. Gross weight: 31,000 lb. Places: Crew of 3 and 36 troops or 24 litters.

PERFORMANCE

Max. speed (SL): 130 mph. Cruise speed (SL): 115 mph. Service ceilings: 8,700 ft. Hover ceiling (OGE): 1,100 ft. Max. range: 145 st. mi. Rate of climb: 910 fpm.

REMARKS

Since initial procurement in 1956, the Army has purchased 91 CH-37 Mojaves through FY 65. The Mojave is loaded through clam-shell doors in the aircraft's nose.

CH-47A CHINOOK

Medium transport helicopter. Boeing Vertol Div., Morton, Pa.

ENGINES

Two Lycoming T55-1-L-7 turbines of 2,650 shp each.

ROTOR SYSTEM

Tandem 3-bladed rotors.

SPECIFICATIONS

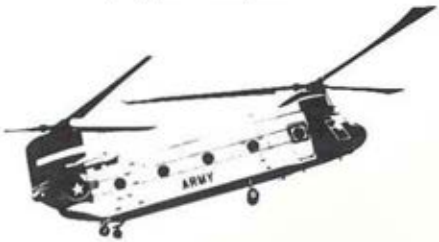
Rotor diameter: 59 ft. 1 in. Fuselage length: 51 ft. Overall length: 83 ft. Height: 18 ft. 6 in. Empty weight: 17,913 lb. Gross weight: 33,000 lb. Overload gross wt.: 38,550 lb.

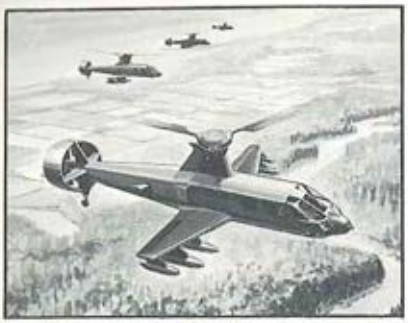
PERFORMANCE

Max. speed (SL): 178 mph. Cruise speed (SL): 164 mph. Service ceiling: 9,500 lb. Hover ceiling, OGE: 7,750 ft. Max. range: 115 st. mi. Rate of climb: 1,750 fpm.

REMARKS

Since the initial date of procurement in 1960, the Army has added 198 Chinooks to its inventory. In 1963 the CH-47 was classified as the official Army medium transport helicopter. Armed and armored versions are now in operation in Vietnam. The Chinook can transport a full rifle platoon of 44 combat-equipped troops.

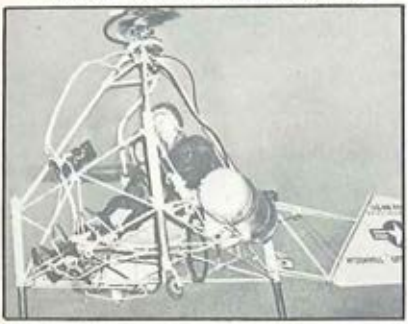




Piasecki 16H-1B Pathfinder, 1964

Kaman HOK-1, 1957

Fairchild-Hiller



McDonnell H-20, 1952

Del Mar DH-2C Target Drone, 1966

Bell Aerosyste

Bell H-12

Bell Aerosystems X-14, 1959

Goodyear In

Bell twin-engine UH-1D, 1966

Del Mar Whirlymite, 1966

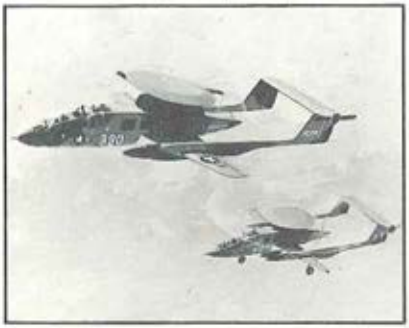
Boz

-Porter, 1964

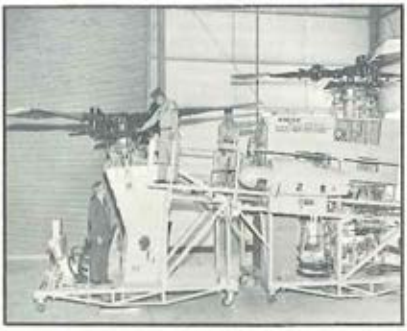
Vertol 6-engine V/STOL, 1959

Bell Winged Helicopter, 1963

ribao, 1963



Ryan Disc-Rotor, 1966



CH-47 Composite Trainer, 1963

lane, 1959

Canadair CL-84 Tilt-Wing, 1965

Sikorsky VH-3A, 1962

962

Cessna L-27 (USAF), 1964

L-23 with fuel tank outriggers

CH-47B CHINOOK

Medium transport helicopter. Boeing Vertol Division, Morton, Pa.

ENGINES

Two Lycoming T-55-L-7C turbines of 2,850 shp at 16,000 rpm.

ROTOR SYSTEM

Tandem 3-bladed rotors of 60′ diameter.

SPECIFICATIONS

Fuselage length: 51′. Overall length: 99.17′. Height: 18.65′. Empty weight: 19,375 lbs. Design gross weight: 33,000 lbs (40,000 lbs. max.).

PERFORMANCE

Max. speed: 196 mph. Cruise speed: 177 mph. Service ceiling: 16,300′. Hover ceiling (OGE): 10,650′. (IGE): 14,200′. Max. range: 351 mi. Rate of climb (SL): 1,990 at NRP.

REMARKS

An advanced version of the CH-47A Chinook, the "B" Model returns improved flight performance through redesigned rotor blades and stepped up turbine engines. The 33-seat "B" made its first flight in October, 1966, and will be followed by a "C" model with yet another increase in performance.

SIOUX SCOUT

Two-place experimental armed helicopter. Bell Helicopter Company, Fort Worth, Texas.

ENGINES

One Lycoming TVO-435 turbo supercharged engine of 260 hp.

ROTOR SYSTEM

Single two-bladed main rotor 37 ft. diameter. Two-bladed metal tail rotor, 5 ft. 10 in. diameter.

REMARKS

The Scout was an extensively modified OH-13 featuring aerodynamic refinements for reduced drag, stub wings, internal fuel cells, an integrated nose gun system, mounting points for external stores, and increased maneuverability. Tests on the Scout led to concepts for design of the AH-56A Huey-Cobra.

16H-1C

Eight-place developmental shaft compound, ring-tail helicopter. Piasecki Aircraft Corporation, Phila., Pa. 19153

ENGINES

One GE T-58-5 turbine engine, 1,500 shp.

ROTOR SYSTEM

Fully-articulated 3-bladed main rotor and a 3-bladed controllable pitch ducted tail-prop for forward propulsion and anti-torque directional control.

SPECIFICATIONS

Rotor diameter: 44 ft., Empty Weight: 4,800 lbs., STOL gross weight: 8,150 lbs., Disc Loading: 5.36 lb./sq. ft., STOL Gross weight: 10,800 lbs.

PERFORMANCE

Max. speed (SL): 207 mph, Cruise speed (SL): 187 mph @ 80% Takeoff power, Service Ceiling: 18,700 ft., Hover Ceiling (OGE): 7,800 ft., Max. Range: 450

REMARKS

Private development initially by PiAC as 16H-1 Pathfinder, it was later modified to the Pathfinder II under a joint Army-Navy contract to explore high speed.

HO-1 DJINN

Two-place observation helicopter. Sud Aviation, Paris, France.

ENGINE

One Turbomeca Palouste 4 turbo-generator.

ROTOR SYSTEM

Single two-bladed main rotor, diameter 35 ft. 5 in. Air bled from compressor is fed to blade-tip ejectors providing thrust for rotational power.

SPECIFICATIONS

Fuselage length: 17 ft. 5 in., Height: 8 ft. 7 in. Empty weight: 794 lb. Max gross weight: 1,676 lb.

PERFORMANCE

Max. speed (SL): 78 mph. Cruise speed (SL): 62 mph. Hover ceiling OGE: 4,000 ft. Hover IGE: 2,500 ft. Range: 125 st. mi. Endurance: 2 hours 15 min.

REMARKS

The Army procured three YHO-1s for engineering and operational evaluation as an observation aircraft. It was the first helicopter to receive the new HO designation.

HO-3

Two-place observation helicopter, Brantley Helicopter Corp., Frederick, Oklahoma.

ENGINES

One Lycoming VO-360 engine of 162 hp.

ROTOR SYSTEM

Single three-bladed; Brantley designed two-section blades.

SPECIFICATIONS

Rotor diameter: 28 ft. 3 in. Overall length: 21 ft. 9 in. Height: 6 ft. 9 in. Empty weight: 1,020 lb. Gross weight: 1,670 lb.

PERFORMANCE

Max. speed (SL): 100 mph. Cruise speed (SL): 90 mph. Service ceiling: 9,000 ft. Hover ceiling (IGE): 4,000 ft. Normal range: 250 st. mi. Rate of climb: 1,400 fpm.

REMARKS

The Army purchased five HO-5s for evaluation. The aircraft had skid gear instead of wheels.

CH-54A TARHE

Heavy lift helicopter. Sikorsky Aircraft Div., Stratford, Connecticut.

ENGINES

Two Pratt & Whitney JFTD-12A-1 turbines of 4,050 shp each.

ROTOR SYSTEM

Single six-bladed main rotor and four-bladed metal, 15 ft. 4 in. dia. anti-torque rotor.

SPECIFICATIONS

Rotor diameter: 72 ft. Overall length: 88 ft. 7 in. Height: 25 ft. 7 in. Empty weight: 18,217 lb. Gross weight: 38,000 lb. Alt. gross wt.: 42,000 lb. Crew of 3 and 2 passengers in cockpit, plus 67 troops or 48 litters in pod.

PERFORMANCE

Max speed (SL): 124. Cruise speed: 110. Service ceiling: 13,000'. Hover ceiling: 7,000' (OGE); 11,900' (IGE). Normal range: 220. Rate of climb: 1,400 fpm.

REMARKS

The CH-54 carries a 10-ton payload and is designed to carry its cargos externally. It has a rear-facing seat for the third crew member who has a clear view of the load during pickup and delivery. Delivery can be accomplished from a hover by means of a hoist. The Army CH-54 inventory also includes universal pods which serve as mobile hospitals, command posts, etc.

OH-4A

Four-place light observation helicopter. Bell Helicopter Company, Fort Worth, Texas.

ENGINES

One Allison T63 turbine engine of 250

ROTOR SYSTEM

Single two-bladed main rotor system, two-bladed tail rotor, metal, 5 ft. 2 in. diameter.

SPECIFICATIONS

Rotor diameter: 33.3 ft. Length: 38 ft. 8 in. Height: 8 ft. 10 in. Empty weight: 1,536 lb. Gross weight: 2,573 lb.

PERFORMANCE

Max. speed (SL): 135 mph. Cruise speed (SL): 111 mph. Cruise speed, 5,000': 111 mph. Service ceiling: 20,000 ft. Hover ceiling (OGE): 8,000 ft. Max. range: 283 st. mi. Endurance: 2 hrs. 35 min. Rate of climb: 1,100 fpm.

REMARKS

The OH-4A was the first of three LOH competitors to fly, taking to the air in December, 1962. Five OH-4s were delivered to the U.S. Army Aviation Test Board for tests and evaluation in January, 1964.

OH-5A

Four-place light observation helicopter. Hiller Aircraft Company, Palo Alto, California.

ENGINES

One Allison T63-A-5 turbine engine of 250 shp.

ROTOR SYSTEM

Single two-bladed Hiller "L" rotor by Parsons. Two-bladed metal anti-torque rotor.

SPECIFICATIONS

Rotor diameter: 35 ft. 6 in. Empty weight: 1,370 lb. Gross weight: 2,530 lb.

PERFORMANCE

Max. speed (SL): 128 mph. Service ceiling: 17,200 ft. Hover ceiling (OGE): 12,000 ft. (IGE): 16,900 ft. Endurance: 8.1 hours. Rate of climb: 1,850 fpm.

REMARKS

Five OH-5As were built for the Army to test and compare with two other versions of the proposed LOH. The first flying model was turned over to the Army in December 1963. The OH-5A was eliminated from the LOH competition. A modified version of the Hiller LOH is marketed as the FH-1100.

OH-6A CAYUSE

Four-place light observation helicopter. Hughes Tool Co, Aircraft Div., Culver City, California.

ENGINES

One Allison T63-A-5A turbine of 252 shp (derated).

ROTOR SYSTEM

Single four-bladed main rotor and two-bladed metal anti-torque rotor, 4 ft. 2 in. diameter.

SPECIFICATIONS

Rotor diameter: 26 ft. 4 in. Overall length: 30 ft. 4 in. Fuselage length: 23 ft. Height: 8 ft. 6 in. Empty weight: 1,156 lb. Mission gross wt.: 2,163 lb. Overload gross wt.: 2,700 lb.

PERFORMANCE

Max. speed (SL): 143 mph. Cruising speed (SL): 143 mph. Service ceiling: 15,500'. Hover ceiling (OGE): 7,600'. (IGE): 9,150' Normal range: 413 mi. at 5,000'. Rate of climb (SL): 1,550 fpm. Normal fuel capacity: 400 lbs.

REMARKS

The OH-6A was the winning design of three LOH proposals tested and evaluated by the U.S. Army Aviation Test Board. The initial date of procurement for the Pawnee was May 26, 1965 with deliveries to USARV commencing in early '68. Organic to division, brigade, and battalion or equivalent units, the OH-6A is used in performing command and control, visual observation, target acquisition and reconnaissance missions.

OH-13S SIOUX

Three-place observation helicopter. Bell Helicopter Company, Fort Worth, Tex.

ENGINES

One Lycoming TVO-435-25 turbo-supercharged engine of 260 hp.

ROTOR SYSTEM

Single two-bladed metal main rotor. Two-bladed metal tail rotor, 5 ft. 10 in. diameter.

SPECIFICATIONS

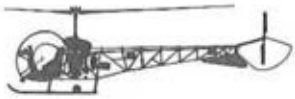
Rotor diameter: 37 ft. Overall length: 43 ft. 3 in. Fuselage length: 32 ft. 7 in. Height: 9 ft. 3 in. Empty weight: 1,936 lb. Gross weight: 2,850 lb.

PERFORMANCE

Max. speed (SL): 105 mph. Cruise speed (SL): 93 mph. Cruise speed, 5,000': 92 mph. Service ceiling: 18,000 ft. Hover ceiling (OGE): 15,000 ft. Max. range: 324 st. mi. Endurance: 2 hours. Rate of climb: 1,190 fpm.

REMARKS

The Army has procured a total of 283 OH-13S models through FY 65.



TH-13 SIOUX

The Army has procured 220 OH-13 T models through FY 65. Navigational equipment in this ship includes VOR, ADF, glide slope, slaved gyro compass, and attitude indicator. Portions of the bubble are blacked out to allow for hooded flight training.

OH-23D

Three-place observation helicopter. Hiller Aircraft Company, Palo Alto, California.

ENGINES

One Lycoming VO-435-23B engine of 250 hp.

ROTOR SYSTEM

Single two-bladed main rotor, metal blades by Parsons, Hiller Rotormatic system.

SPECIFICATIONS

Rotor diameter: 35 ft. 5 in. Fuselage length: 27 ft. 9 in. Overall length: 40 ft. 8 in. Empty weight: 1,816 lb. Gross weight: 2,700 lb.

PERFORMANCE

Max. speed (SL): 95 mph. Cruise speed (SL): 82 mph. Service ceiling: 13,200 ft. Hover ceiling (OGE): 5,200 ft. (IGE): 1,250 ft. Max. range: 197 st. mi. Rate of climb: 1,050 fpm.

REMARKS

The "D" model Raven has been used mainly as the primary helicopter trainer until late 1965 when it began being replaced by the TH-55A. The OH-23 is still in use operationally in the field.

OH-23G

Three-place observation helicopter. Hiller Aircraft Company, Palo Alto, California.

ENGINES

One Lycoming VO-540 engine of 305 hp.

ROTOR SYSTEM

Single two-bladed main rotor. Two-bladed tail rotor, 5 ft. 6 in. diameter.

SPECIFICATIONS

Rotor diameter: 35 ft. 5 in. Fuselage length: 28 ft. 6 in. Overall length: 40 ft. 8 in. Height: 10 ft. 2 in. Empty weight: 1,759 lb. Gross weight: 2,800 lb.

PERFORMANCE

Max. speed (SL): 96 mph. Cruise speed (SL): 90 mph. Service ceiling: 15,200 ft. Hover ceiling (OGE): 5,800 ft. Max. range: 225 st. mi. Rate of climb: 1,290 fpm.

REMARKS

The "F" model is the same as the "G" with the following exceptions: fuselage length — 29 ft. 6 in.; four-place; and the empty weight is 1,813 lb.

TH-55A

Two-place primary trainer helicopter. Hughes Tool Company, Aircraft Div., Culver City, Cal.

ENGINES

One Lycoming HIO-360-B1A engine of 180 hp.

ROTOR SYSTEM

Single three-bladed main rotor and four-bladed metal anti-torque rotor, 3 ft. 4 in. diameter.

SPECIFICATIONS

Rotor diameter: 25 ft. 3½ in. Overall length: 22 ft. 4 in. Height: 8 ft. 3 in. Empty weight: 1,008 lb. Gross weight: 1,600 lb.

PERFORMANCE

Max. speed (SL): 86 mph. Cruise speed, 5,000': 81 mph. Service ceiling: 11,500 ft. Hover ceiling (OGE): 4,000 ft. (IGE): 6,400 ft. Max. range: 187 st. mi. Endurance: 2.5 hours. Rate of climb: 1,350 fpm.

REMARKS

The TH-55A (formerly designated the HO-2) was purchased as an off-the-shelf item after tests and evaluation by the Army. The initial date of procurement was Nov. 1964. By June 30, 1965, 257 TH-55As had been brought into the Army inventory.

UH-1B IROQUOIS

Nine-place utility helicopter. Bell Helicopter Company, Fort Worth, Texas.

ENGINES

One Lycoming T53-L-11 turbine engine of 1,100 shp.

ROTOR SYSTEM

Single two-bladed main rotor. (Later models will have the model 540 "Door-hinge" rotor system).

SPECIFICATIONS

Rotor diameter: 44 ft. Overall length: 53 ft. Fuselage length: 42 ft. 7 in. Height: 12 ft. 8 in. Empty weight: 4,523 lb. Gross weight: 8,500 lbs.

PERFORMANCE

Max. speed (SL): 138 mph. Cruise speed (SL): 124. Service ceiling: 16,700'. Hover ceiling (OGE): 12,700'. (IGE): 16,800'. Normal range: 312 st. mi. Rate of climb: 2,350 fpm.

REMARKS

The Army has procured a total of 1,306 UH-1Bs from 1960 to the end of FY 65. The original Army designation, HU-1, gave rise to the common nick name "Huey". The Bell H-40 was produced as an aero-medical ambulance, but because of its versatility became an interim replacement for the piston powered cargo helicopters. (All figures listed here are based on the UH-1B at max. gross weight and with the standard rotor).

UH-1D IROQUOIS

12-15 place tactical transport helicopter. Bell Helicopter Company, Fort Worth, Texas.

ENGINES

One Lycoming T53-L-11 turbine engine of 1,100 shp.

ROTOR SYSTEM

Single two-bladed metal main rotor. Two-bladed metal anti-torque rotor, 8 ft. 6 in. diameter.

SPECIFICATIONS

Overall length: 53.9′. Fuselage: 44.6′. Height: 13.4′. Empty weight: 4,717 lbs. Normal gross wt: 9,500 lbs.

PERFORMANCE

Max. speed (SL): 138 mph. Cruise speed: 124 mph. Service ceiling: 22,000′. Hover ceiling (OGE): 14,000′. (IGE): 18,200′. Range: 315 mi. Rate of climb: 2,350 fpm (SL).

REMARKS

Since the initial date of procurement in 1961, the Army has purchased 1,254 Iroquois through FL 65. With the incorporation of the Lycoming T53-L-13 engine in the "D" in early 1967, the Huey's hot day performance should be substantially improved. Called a "slick" by Army pilots in Vietnam, the UH-1D is the backbone of all airmobile operations within the combat zone.

UH-2

A compound version of the utility helicopter. Kaman Aircraft Corporation, Bloomfield, Conn.

ENGINES

One GE T58-8 turbine engine of 1,250 shp, and one GE J-85 turbojet of 2,500 lb/thrust for auxiliary propulsion.

ROTOR SYSTEM

Single four-bladed main rotor. Three-bladed tail rotor, 9 ft. 4 in. diameter.

SPECIFICATIONS

Rotor diameter: 44 ft. Length: 52 ft. 6 in. Height: 13 ft. 7 in. Empty weight: 6,100 lb. Gross weight: 8,637 lb.

PERFORMANCE

Max. speed (SL): in excess of 225 mph. No other performance figures available.

REMARKS

The UH-2 compound Seasprite was flown in 1965 under a joint Army/Navy test program to investigate the high speed potential of the Seasprite rotor system. The UH-2 compound is basically a UH-2 with stub wings and an auxiliary jet engine added.

XH-51A

Two-place research helicopter. Lockheed-California Company, Burbank, California.

ENGINES

One United Aircraft of Canada PT-6B-6 turbine engine of 500 shp.

ROTOR SYSTEM

Single four-bladed Lockheed rigid-rotor system. 6.5 ft. tail rotor.

SPECIFICATIONS

Rotor diameter: 35 ft. Fuselage length: 32 ft. 4 in. Height: 8 ft. 2 in. Empty weight: 3,100 lb. Gross weight: 4,000 lb.

PERFORMANCE

Max. speed (SL): 174-plus mph. Cruise speed (SL): 144 mph. Hover ceiling (OGE): 7,000 ft. Range: 287 st. mi. Endurance: 2.7 hr. Rate of Climb: 1,850 fpm.

REMARKS

The XH-51A was developed under a joint Army/Navy contract as a research vehicle for high performance rotary wing aircraft. The first flight of the XH-51A was in Nov. 1962. It is equipped with retractable landing gear.

XH-51A

Two-place research compound helicopter. Lockheed-California Company, Burbank, California.

ENGINES

One United Aircraft of Canada PT-6B-6 turbine of 500 shp, and one Pratt & Whitney JT-12A turbojet.

ROTOR SYSTEM

Single four-bladed Lockheed rigid rotor system. Two-bladed tail rotor, 6.5 ft. diameter.

SPECIFICATIONS

Rotor diameter: 35 ft. Fuselage length: 32 ft. 4 in. Height: 8 ft. 2 in. Wing span: 16 ft. 10.5 in. Empty weight: 3,800 lb. Gross weight: 4,700 lb.

PERFORMANCE

Max. speed (SL): 272 mph. Cruise speed (SL): 230 mph. Service Ceiling: 20,000 ft. Hover Ceiling (OGE): 2,500 ft. Range: 270 st. mi. Endurance: 4 hrs. Rate of Climb: 3,500 fpm.

REMARKS

This compound helicopter is basically an XH-51A with stub wings and a jet engine added. The aircraft was developed under an Army-sponsored program.

YUH-1B

Research compound helicopter. Bell Helicopter Company, Fort Worth, Texas.

ENGINES

One Lycoming T53-L-11 turbine engine of 1,100 shp and two J69-T27 turbojet engines of 1,260 lb/thrust each.

ROTOR SYSTEM

Single two-bladed main rotor with tapered blade tips. Two-bladed tail rotor.

SPECIFICATIONS

The aircraft is basically the UH-1B with modifications for mounting the two turbojet engines, two stub wings, and the addition of fairings around the mast and cross tubes. Rotor diameter: 44 ft. Overall length: 53 ft. Fuselage length: 42 ft. 7 in. Height: 12 ft. 8 in.

PERFORMANCE

The YUH-1B has been flown in excess of 250 mph in level flight. No other performance data available.

REMARKS

The YUH-1B was developed under a joint program by Bell Helicopter Company and the U.S. Army Transportation Research Command (TRECOM).

AH-56A CHEYENNE

Two-place high-speed compound helicopter. Lockheed-California Company.

ENGINES

One General Electric T64-GE-16 turbine of 3,435 shp.

ROTOR SYSTEM

Single rigid rotor, 50.4′; 10.0′ tail rotor; 10.0′ pusher propeller for horizontal mode propulsion.

SPECIFICATIONS

Length: 54.7′. Height: 13.7′. Wing span: 26.7′. Empty weight: 11,718 lbs. Gross weight 16,995 lbs.

PERFORMANCE

Max. speed (SL): 253 mph. Cruising speed (SL); 241.5 mph. Service ceiling: 26,000 feet. Hover ceiling (OGE): 10,-600 feet. Max. range: 874 st. mi. Max. ferry range: 2886.5 st. mi. Max. rate of climb: 3,420 fpm. Vertical rate of climb: 2,100 fpm. Endurance: 5.4 hours.

REMARKS

The No. 1 prototype of the Army's AAFSS (Advanced Aerial Fire Support System) was rolled out on May 3, 1967, thirteen months after the contract was let, with the 10th and final prototype being accepted in August, 1968. Lockheed and its 813 suppliers are to build 375 of the advanced gunship helicopters for the U.S. Army.

A SYSTEMS GLANCE AT RECONNAISSANCE

(Continued from Page 20)

developing a wave with both ultra high frequency and long wave length. Targets of three men and an automatic weapon, obstacles only five or six feet deep, elevation differences of 100 meters — information which can be filtered out of the systems of the Navy or Air Force — are vital elements of intelligence to the ground commander.

The density problem is, by itself, bad enough but it is exacerbated (no Pentagon paper today is complete without that word!) by the rate of change of all of the data elements. If only the little targets would move more slowly and the larger ones more rapidly we might have a chance! To be really effective in giving the commander the information he wants it looks like we would need a command post like one of those Air Defense or SAC control rooms of which we've all seen pictures!

V

Before I convince you that the problem is too big to be solved and run out of the space that Art has allowed me, I'd better offer some ideas to meet the situation.

Firstly, of course, we need one single and cohesive group to bring the whole problem into a systems focus. Currently the Artillery target acquisition efforts (which themselves are not the same for Air Defense, missiles and tubes) are not integrated with the intelligence system. Army Aviation is primarily engaged in improving sensors and data flow with little recognition of its impact on the transmission and processing subsystems. I think that the Signal Corps (or ECOM as its successor) should get back into the aviation business to serve as the systems manager of this important function.

From a hardware point of view I think that we have got to develop a nodal filtering system by which each sensor is told the known data in order that it can forward only new information — Shannon's Information Theory points out that data that the recipient already has is noise, not information! Statistical analysis will have to be more effectively employed in our interpretation systems to give us guidance and control over our sensors.

All of this is a role for Army Aviation as important — the Chief of Staff says more than —the problems of firepower and mobility. The techniques, the hardware, even the doctrine and organization are available. What is required is intelligent systems engineering.

Let's give our eyes back to the commander!

FORT WORTH, Texas — The U.S. Army continued to bolster its aviation inventory with the awarding of a letter contract of more than $60,000,000 on August 5 to Bell Helicopter Company.

The order, announced by President E. J. Ducayet, is one of the largest single orders for UH-1 aircraft received by Bell, and calls for the delivery of 900 UH-1H *Huey* troop-carrying helicopters. Delivery of the aircraft is to be made in 1970. Only the Army's 1966 order for more than 2,100 UH-1 Iroquois aircraft exceeds the newest contract. The latest order carries an initial funding of $60,767,550.

The Model UH-1H is the upgraded version of the UH-1D through installation of the 1,400 horsepower Lycoming T53-L-13 engine. The "D" model is powered by the 900 shp Lycoming T53-L-11 engine. In a separate order, the Army said it is acquiring 524 UH-1 rotary-wing blades under a $1,700,385 contract.

ARMY AVIATION MATERIEL ISSUE

V/STOL AND GEMS

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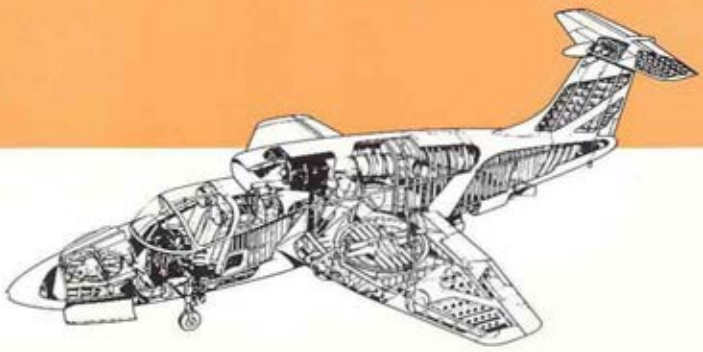


VZ-1E

Greater mobility for the individual soldier on scouting and reconnaissance missions was the object of this research vehicle by Hiller Aircraft. The flying platform was kinesthetically controlled. A ducted fan, powered by three 40 hp Nelson H-59 engines, provided propulsion and lift. The VZ-1, known as the Pawnee, weighed approximately 465 lbs.

VZ-2PH

A research tilt-wing aircraft built by Boeing Vertol that operated both as a vertical take-off and landing aircraft and as a conventional plane. The VZ-2PH aircraft completed full transition from vertical take-off to cruise and back to vertical landing in July, 1958. The interconnected propellers were powered by one T-53 gas turbine engine.

VZ-3RY

A research aircraft built by Ryan employing two propeller deflected slipstreams. Vertical flight was achieved by deflecting the slipstreams downward by means of a high-flapped wing. The propellers were interconnected and powered by a single T-53 turbine engine mounted in the fuselage.

VZ-4DA

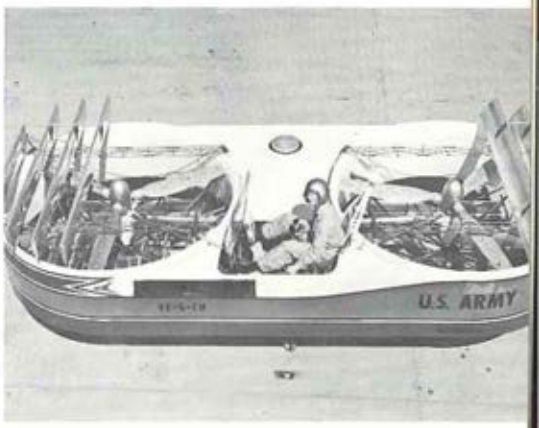
This VTOL aircraft was built by Doak with ducted propellers on the wing tips that rotated through 90 degrees to convert the plane in flight. To land, the propellers were again turned to the vertical position. The entire plane maintained the conventional horizontal attitude at all times. One T-53 turbine engine powered the interconnected ducted propellers.

VZ-5FA

A research aircraft built by Fairchild that achieved VTOL capability by deflecting the slipstream downward by means of a high-flapped wing. The four interconnected propellers were powered by a single T-58 turbine engine. NASA conducted wind tunnel and flight tests.

VZ-6CH

A single place research aircraft designed by Chrysler to explore the aerial jeep concept. Shafting from a single 380 hp reciprocating engine transmitted power to the two ducted propellers. Propulsion was obtained from a combination of vehicle nose down attitude and the rearward propeller slipstream deflection accomplished by duct exit vanes.

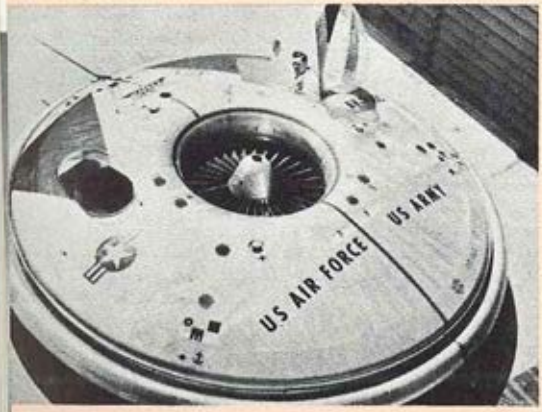


VZ-7AP

This aerial jeep research vehicle was originally designed and constructed by Curtiss-Wright utilizing four ducted fans. Finally the ducts were removed. The vehicle was powered by a single Artouste II turbine.

VZ-8PB

An aerial jeep research vehicle powered by two Artouste II turbine engines. Developed by Piasecki, the VZ-8PB derived lift from two 3-bladed rotors. An earlier version, utilizing a single turbine, made its first flight in 1958. The craft's low silhouette enabled it to hug the ground, fly under low bridges, between buildings or other obstacles.



VZ-9A

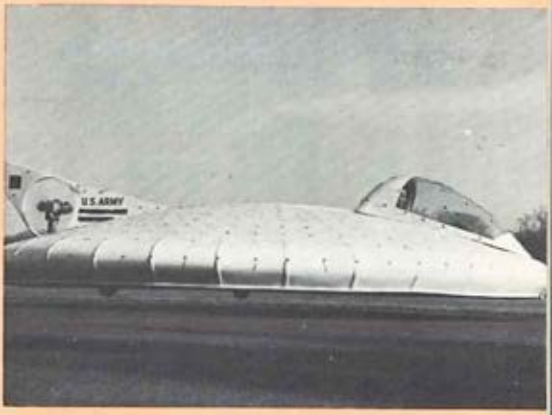
Designed to explore vertical take-off and landing techniques, this vehicle operated in ground effect only. Developed by AVRO Aircraft of Canada under U.S. Army and Air Force sponsorship.

CW AIRCAR

A 4-place Ground Effects Machine (GEM), designed by Curtiss-Wright to skim 6 to 12 inches off the round at speeds up to 35 miles per hour. Two of these machines were bought "off-the-shelf" to obtain research information on basic operating principles.

PRINCETON GEM

This Ground Effects Machine (GEM) was designed and built by Princeton University under Army contract to study the GEM phenomenon and particularly the problems of stability and control.



HZ-1DE

One of several approaches to the flying platform, this research vehicle by DeLackner provided data on the unducted propeller concept for an individual lift device. A later version used metal skids as landing gear instead of the outriggers and inflated rubber bags. Power was supplied by a 40 hp Kiekhaefer Mercury Mark 55 engine.

XV-4A

Experimental VTOL aircraft. Lockheed-Georgia Company, Marietta, Georgia.

ENGINES

Two Pratt & Whitney JT-12 turbo jets of 3,200 lb/thrust each. 40% augmentation for a total of 8,300 lb/thrust in VTOL mode.

LIFT SYSTEM

The aircraft achieves vertical flight by diverting the high velocity jets from both engines through a series of nozzles and ducts into mixing chambers in the center of the fuselage and thence downward toward the ground. Bombay-type doors in the top and bottom of the fuselage open to expose the mixing chambers and nozzles.

SPECIFICATIONS

Span: 25 ft. 10 in. Length: 33 ft. Height: 11 ft. 9 in. Empty weight: 5,000 lb. VTOL gross weight: 7,200 lb.

PERFORMANCE

Max. speed (SL): 660 mph. Service ceiling: 50,000 ft. Range: 920 st. mi. Rate of climb: 18,000 fpm.

REMARKS

In mid-1966, the U.S. Air Force took over operational control of the XV-4A.

XV-5A

Experimental fan-in-wing aircraft. Ryan Aeronautical Co., San Diego, Calif.

ENGINES

Two GE J85-5 turbines of 2,650 shp each.

LIFT SYSTEM

The aircraft gets its vertical lift from downward thrust produced by two five-foot diameter fans submerged in the wings. The fans are powered by the exhaust from the engines.

SPECIFICATIONS

Span: 29 ft. 9 in. Length: 44 ft. 6 in. Height: 14 ft. 8 in. Empty weight: 7,500 lb. VTOL gross weight: 12,500 lb. STOL gross weight: 15,500 lb.

PERFORMANCE

Max. speed (SL): 545 mph. Cruise speed, 30,000': 440 mph. Service ceiling: 45,000 ft. Hover ceiling (OGE): 12,000 ft. Max. range: 1,200 st. mi. Rate of climb: 9,500 fpm.

REMARKS

Two XV-5As have been built under the Army program. Transition to forward flight is accomplished by vectoring control vanes (louvers) mounted under the back wing fan.

XV-6A

One-place vectored thrust V/STOL aircraft. Hawker Siddeley Aviation Ltd., Kingston-Upon-Thames, England.

ENGINES

One Bristol Siddeley Pegasus engine of 15,500 lbs/thrust.

SPECIFICATIONS

Span: 22 ft. 10 in. Length: 42 ft. 4 in. Height: 10 ft. 8 in. Empty weight: 10,180 lb. Gross weight: 17,500 lb.

PERFORMANCE

Max. speed (SL): 0.91 Mach. Cruise speed (SL): 0.89 Mach. Cruise speed, 10,000': 0.90 Mach. Service ceiling: 45,000 ft. Max. range: 1,245 st. mi. Endurance: 2.75 hours. Rate of climb: 13,000 fpm.

REMARKS

In 1961 the U.S. Army procured three of the nine XV-6As in the Tripartite Squadron and later took control of the three F.R.G. aircraft. The six XV-6As (built in Britain as the P. 1127) underwent tri-service evaluation in the U.S. in early '66. DOD does not plan a production order for the plane.

XV-8A FLEEP

One-place flex-wing utility vehicle. Ryan Aeronautical Company, San Diego, California.

ENGINES

One Continental pusher piston engine of 210 hp.

SPECIFICATIONS

Span: 33 ft. 5 in. Length: 26 ft. Empty weight: 1,029 lb. Gross weight: 2,359 lb.

PERFORMANCE

Max. speed (SL): 81 mph. Cruise speed (SL): 55 mph. Max. range: 133 st. mi.

REMARKS

The XV-8A is a light aircraft with short field landing capability designed as a simple flying truck to operate from unimproved areas. The Fleep uses wings of flexible material attached to a keel. Leading edge members form a V-shaped kite-like surface.

XV-9A

Two-place hot cycle research helicopter. Hughes Tool Co., Aircraft Div., Culver City, California.

ENGINES

Two GE YT64 gas generators.

ROTOR SYSTEM

Single three-bladed main rotor driven by blade tip propulsion.

SPECIFICATIONS

Rotor diameter: 55 ft. Fuselage length: 45 ft. Height: 12 ft. Empty weight: 8,600 lb. Gross weight: 15,300 lb. Overload gross wt.: 25,500 lb.

PERFORMANCE

Max. speed (SL): 138 mph. Cruise speed (SL): 92 mph. Cruise speed, 5,000': 92 mph. Service ceiling: 17,300 ft. Hover ceiling (OGE): 13,200 ft. Rate of climb: 2,000 fpm.

REMARKS

In September 1962, the Army procured one XV-9A aircraft for research, testing, and evaluation.

X-19

Six-place experimental V/STOL aircraft. Curtiss-Wright Corp., Wood-Ridge, New Jersey.

ENGINES

Two Lycoming T55-L-7 turbines of 2,650 shp each.

PROPELLERS

Four Curtiss-Wright plastic three-bladed 13 ft. dia. propellers cross-shafted and mounted on ends of two stub wings.

SPECIFICATIONS

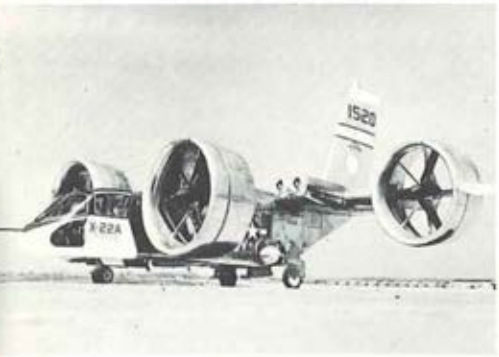
Span: 34 ft. 6 in. Length: 44 ft. 5 in. Height: 17 ft. Empty weight: 9,750 lb. Gross weight (VTOL): 13,660 lb. Gross weight (STOL): 14,750 lb.

PERFORMANCE

Max. speed (SL): 460 mph. Cruise speed (SL): 400 mph. Max. range: 520 st. miles. Rate of climb: 3,250 fpm.

REMARKS

Two aircraft were procured under a tri-service contract managed by the U.S. Air Force. One X-19 was destroyed in an accident in late 1965. No longer an active project.



X-22A

Eight-place V/STOL research aircraft. Bell Aerosystems Co., Buffalo, N.Y.

ENGINES

Four YT58-GE-8D turboshaft engines of 1,250 hp each mounted on aft wing.

PROPELLERS

Four 3-bladed Hamilton Standard, seven foot, cross-shafted propellers.

SPECIFICATIONS

Span: 39.2 feet; Length: 39.6 feet; Height: 20.7 feet; VTOL Gross weight: 16,274 lbs; max gross: 18,016; STO over 50 feet — 720 feet.

PERFORMANCE

Max. speed (SL): 322 mph. Hover ceiling: 11,000 feet. Endurance: VTOL, 2.9 hrs — STOL, 4.4 hrs; Range: VTOL, 455 n. mi. — STOL, 685 n.m.

REMARKS

Tri-service program under Navy-administered contract. Roll-out took place on May 25, 1965 with maiden hovering flight on March 17, 1966. STOL first accomplished on June 30, 1966, with first VTOL, transition to conventional flight, and return to VTOL occuring on March 1, 1967.

XC-142A

Tilt-wing, deflected slipstream, V/STOL medium transport aircraft. LTV Aerospace Corp., Dallas, Texas.

ENGINES

Four GE T64-6 turboprops of 3,080 shp each.

PROPELLERS

Hamilton Standard four-bladed fiberglass, 15 ft. 6 in. diameter, cross-shafted. Three-bladed tail rotor for longitudinal control at low speeds.

SPECIFICATIONS

Span: 67 ft. 6 in. Length: 58 ft. Height: 26 ft. Empty weight: 23,000 lb. Gross weight, STOL: 41,500 lb. Gross weight, VTOL: 37,500 lb. Places: 35.

PERFORMANCE

Max. speed (SL): 430 mph. Cruise speed (SL): 285 mph. Cruise speed, 10,000': 345 mph. Service ceiling: 25,000 ft. Hover ceiling (OGE): 6,000 ft. Max. range: 460 st. mi. Endurance: 6.5 hours. Rate of climb: 6,800 fpm.

REMARKS

Five XC-142As have been built under a tri-service developmental program with Hiller Aircraft, and Ryan Aeronautical as associate contractors.

OV-10A

Light armed reconnaissance aircraft. North American Aviation, Columbus Div., Columbus, Ohio.

ENGINES

Two AiResearch T76 turboprops of 715 hp each.

PROPELLERS

Hamilton Standard three-bladed, counter-rotating, metal, 8 ft. 6 in. diameter.

SPECIFICATIONS

Span: 30 ft. 3 in. Length: 40 ft. 11 in. Height: 15 ft. 1 in. Empty weight: 5,257 lb. Gross weight: 10,000 lb. Places: One to six, depending on configuration.

PERFORMANCE

Max. speed (SL): 305 mph. Cruise speed (SL): 218 mph. Cruise speed, 10,000': 234 mph. Service ceiling: 19,000 ft. Max. range: 1,035 st. mi. Endurance: 2.75 hours. Rate of climb: 2,100 fpm.

REMARKS

Has many configurations to fill various counterinsurgency missions. '67 deliveries under Navy-administered contract.

NU-8F

Seven-place command/liaison utility transport aircraft. Beech Aircraft Corp., Wichita, Kansas.

ENGINES

Two Pratt & Whitney PT6A-6 turbine engines rated at 550 shp each.

PROPELLERS

Hartzell, 3-blade, constant speed.

SPECIFICATIONS

Span: 45 ft. 10½ in. Length: 35 ft. 4¼ in. Height: 14 ft. 8 in. Empty weight: 5,081 lbs. Gross weight: 9,300 lbs.

PERFORMANCE

Max. speed (SL): 239 mph. Cruise (SL): 239 mph. Cruise speed, 10,000 ft.: 260 mph. Service ceiling: 27,400 ft. Max. range, 16,000 ft.: 1,470 st. mi. Endurance: 6.8 hrs. Rate of climb: 1,900 fpm.

REMARKS

The NU-8F is a turbine powered, unpressurized U-8F. The increased speed, useful load, and range make it an excellent addition to the Army fleet. One NU-8F was procured by the Army in 1964.

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