AIA planes

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GILPATRIC EXPLAINS 'STRETCH-OUT'

Calls Tooling of Second Sources Production Insurance for Future

Written Especially for PLANES
by
Hon. Roswell L. Gilpatric, Under Secretary of the Air Force

The Air Force's 1952 program has two major objectives. One is to provide the United States with adequate air power as early as possible. The other is to see to it that there are in being the plant facilities for producing modern aircraft in even greater numbers should all-out war make it necessary.

It is true that the present buildup of air strength—or, in other terms, of aircraft production—has been "stretched-out." The decision to do so, made necessary by budgetary limitations, will delay equipping a 126 combat wing Air Force with modern first line planes. But the new program has advantages, not generally understood, which were not inherent in the old program of rapid buildup and rapid letdown.

These advantages are two:

1. Extending high-level production rates over a longer time will insure that the Air Force and Naval air arm will continue to be supplied with the latest and most advanced combat aircraft, though the 126 combat wings of the Air Force and the Navy air arm may not be fully modernized until late 1955 or early 1956.

2. The aircraft industry will maintain production rates at a higher sustained level and should emerge from the build-up period with the greater stability both it and the nation need for long range security. During the near term, the industry will not, however, expand as rapidly or attain production rates as large as originally planned.

Under the "stretch-out" program, the Air Force peak delivery rate is reduced from 1,250 planes a month to 900, and the attainment of this peak will not occur until 1953. As presently planned, this level of production in terms of units will be continued for several years, gradually declining to some 500 or more planes per month for the Air Force alone. In terms of airframe weight as well as numbers of jet powered as contrasted with piston engined aircraft, the curve continues upward for even a greater period of time.

"Production Insurance"

These new goals are substantial, particularly when it is recalled that total military aircraft production when war broke out in Korea was only slightly more than 200 planes per month, most of which were of the lighter, less complicated types.

(See "GILPATRIC," Page 3)

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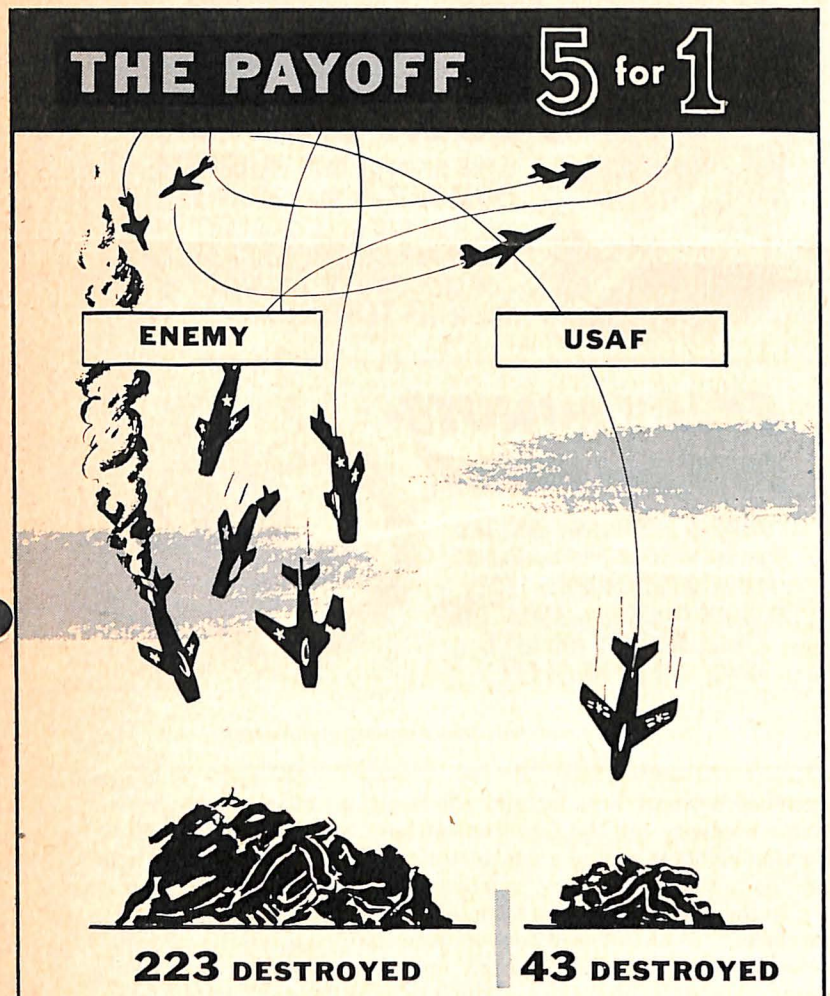
Roswell L. Gilpatric
Undersecretary of the Air Force



As of 29 February, USAF planes had shot down 223 Russian-built MiG-15 jets while losing only 43 of their own jets in air-to-air combat over Korea. USAF aircraft's superiority over Russian-built, swept-wing jets in aerial combat is 5 to 1.

U.S. Jets Outscore MiG's; Twelve New Planes Even Better

U. S. aircraft have shot down five MiG-15's for every one Air Force jet destroyed in air-to-air combat in Korea. Latest figures (as of February 29) reveal that the Reds have lost 223 Russian-built MiGs, while only 43 USAF jets have been destroyed by Chinese Communist planes.

Superiority of the American jets in air-to-air combat has been attributed to their superior firepower, better gunsights and highly-trained pilots. These advantages, plus the fact that the U. S. planes have greater range and more durability, have more than offset the MiG's speed and high rate of climb over 25,000 feet.

At least twelve new U. S. fighters in, or approaching, production are expected to outperform the MiG in all categories while sacrificing none of the better features in current American military aircraft.

Manufacturers and AMC Step up Tempo Of Efforts to Cut Costs of Airplanes

Cost reduction achievements of the nation's aircraft manufacturers have saved the American taxpayer millions of dollars, accordingly to an Aircraft Industries Association report to Lieut. Gen. E. W. Rawlings, Commanding General, Air Materiel Command.

Gen. Rawlings

The preliminary report was submitted at the request of General Rawlings, who is scrutinizing possible economy measures consistent with meeting the country's air mobilization goals. As head of the Air Materiel Command, which will spend billions of dollars for Air Force procurement this year, General Rawlings has instituted a broad-scale cost-cutting drive, both in industry and in the Air Materiel Command, in an effort to realize the maximum return for the air procurement dollar.

Gen. Rawlings, a former Air Force comptroller, has long been known for his vigorous advocacy of cost reduction efforts, both within the military and the aircraft industry.

The initial AIA cost reduction

(See "COST CUTTING," Page 2)

PLANES

Planes is published by the Aircraft Industries Association of America, Inc., the national trade association of the manufacturers of military, transport, and personal aircraft, helicopters, flying missiles and their accessories, instruments and components.

The purpose of *Planes* is to:

Foster a better public understanding of Air Power and the requirements essential to preservation of American leadership in the air;
Illustrate and explain the special problems of the aircraft industry and its vital role in our national security.

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Proprietary Rights In The Aircraft Industry

By Dewitt C. Ramsey (Admiral, U.S.N., Ret.)
President, Aircraft Industries Association

The aircraft industry has had an extraordinary record, in the interest of the national security and defense, for sharing its designs and inventions, its engineering accomplishments, and its manufacturing know-how. This cooperation was one of the major factors during World War II which helped to make aircraft manufacture in the U. S. the world's biggest single industry and enabled it to produce the air power without which our enemies could not have been defeated.

Under the present mobilization program the aircraft industry again has recognized and cooperated fully with the Government's policy of broadening the industrial base and establishing second sources for emergency purposes. This involves licensing alternate sources other than the original designer, for the production of aeronautical material ranging from complete airframes and engines, to diverse components and small parts. However, one aspect of the problem which is new is that the current licensing time element is undefined and thus is different from wartime licensing which normally is expected to end with the cessation of hostilities.

Under these circumstances the proprietary and patent rights of the designers and developers of aeronautical material could be infringed seriously in many cases.

It is very encouraging, therefore, that the Patent Policy Review Board has taken cognizance of the necessity for preserving proprietary rights and has issued recommendations to the secretaries of the three military services urging uniformity in the interpretation of "rights" clauses in procurement contracts. This refers principally to Section 9 of the Armed Services Procurement Regulations dealing specifically with patent and proprietary rights. The Navy already has issued a directive to its contracting officers along this line, and as this was written it was understood that the Air Force and Army planned similar directives.

Government policy has consistently supported proprietary design rights for contractors. In the aircraft industry this is exemplified by the establishment under Government sponsorship of a cross-licensing agreement in 1917, by the Air Corps Act of 1926, and by recommendations of the President's Aviation Committee in 1935, and the President's Air Policy Commission in 1948.

The purpose of protecting proprietary rights is to encourage research and development. In both war and peace the Government relies upon industry for advances in aviation. Without such rights it would become unattractive for industry to sponsor research and development of the type most needed by the Government.

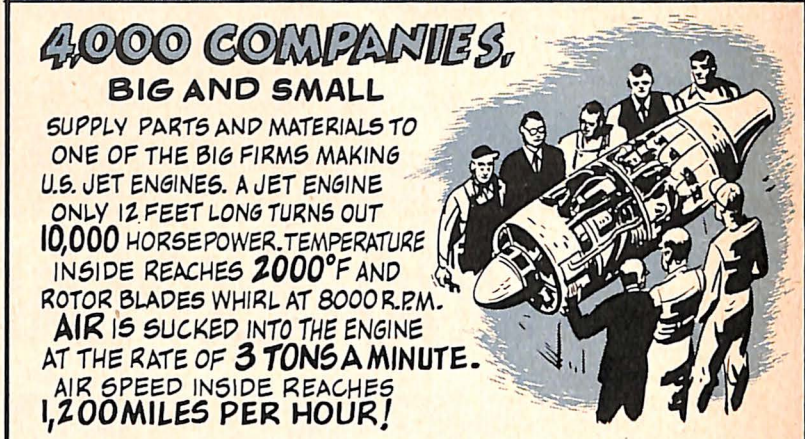
In the manufacture of today's complex airplanes—including engines and highly technical instruments and components—research and development play a vital part. Continuity of development effort is most essential. Competent technical organizations must be held together.

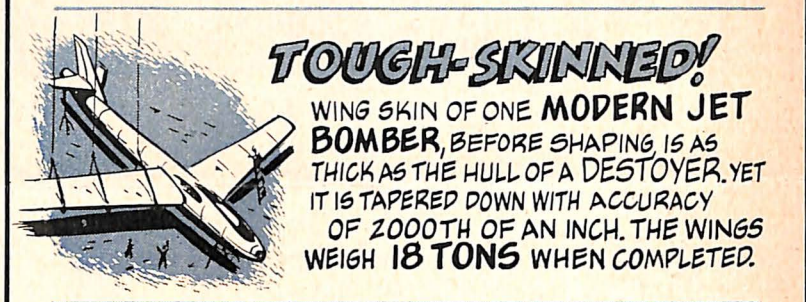
Over many years, the manufacturers in this industry have built such organizations based on continuous development with their own funds for the general advancement of aviation, irrespective of whether the first applications were to be commercial or military. In war or threat of war military applications take priority. While these firms are happy to license reputable Government contractors for the manufacture of their products when alternate sources are needed to meet production requirements or broaden the base for emergency expansion, the giving up of background and proprietary rights should never be made a precedent to award of a Government contract.

Only through the maximum encouragement of inventiveness, ingenuity and research can this country hope to be first in military effectiveness, and only through protection of private rights can such encouragement be most broadly and efficiently given. Only under most extreme necessity can the Government have any need for so-called reproduction rights in and to a contractor's background patents. These rights are the incentive and very backbone of the individual company.

In the United States we have the production capacity, and we excel as producers. What we need most is ideas, improvements, new developments, refinements. The whole aircraft industry is a creative industry—in a sense, a gigantic laboratory—which lives on ideas. Therefore, inventiveness should be given the fullest encouragement. It has to have reasonable profit incentive and protection or the flow of ideas and of research and development on which our security depends will surely dry up.

PLANE VIEWS





By Aircraft Industries Association of America

COST CUTTING

(Continued from Page 1)

report to the Air Materiel Command will be supplemented in the near future by additional individual company reports, plus details of economies effected by the industry association itself.

The reports give details, in individual company summaries, of manufacturing techniques and production economies which have resulted in a constant decrease in aircraft production costs. Despite factors beyond the manufacturers' control (inflation, aircraft complexity, increased weight requirements, higher performance goals, the need for increasing production potential), the reports indicate a steady increase in production efficiency and dollar-savings.

Typical of hundreds of cost reduction accomplishments are the following:

One manufacturer saved the taxpayers $770,700 by redesigning and simplifying a crate for shipping 30,000 drop fuel tanks.

This same company saved $100,000 in one year in the cost of blueprints by introducing a new-type camera for filming engineering drawings.

Another plane manufacturer reduced the cost of riveting on 100 airplanes by $85,000, through perfecting an automatic riveting machine.

The same company saves $150,000 a year by using key-punch cards which eliminate routine engineering hand-lettering and drafting.

The difficulties of meeting aircraft production schedules are illustrated by the World War II record when all energies were devoted to military production. In 1942 a schedule was set up calling for 522 heavy bombers to be built during 1943. This bomber had been designed well before Pearl Harbor. Yet in 1943, only 92 were actually built—less than 20% of the schedule.

GILPATRIC EXPLAINS STRETCH-OUT

(Continued from Page 1)

The new peak rates nonetheless are below original Air Force estimates of a 2,000-unit monthly production, envisioned on the assumption that national security required rebuilding the then-meager 48-wing Air Force in the shortest possible time. Those original schedules were modified when it became apparent that factors beyond Air Force or aircraft industry control would prevent their attainment unless the national economy and supporting civilian industry were to be impaired.

Second Sources

An integral part of our present planning, designed to provide rapid expansibility in case of all-out war, is the so-called "Production Acceleration Insurance Program." An adaptation of the original base-broadening program for spreading aircraft production widely through industry, it contemplates maintenance of secondary sources of supply (formerly scheduled for larger current rates of production) as active producing units. These second sources will be provided with larger quantities of tooling than their going rates of production would justify from the standpoint of low cost current operation. They will continue, however, in production although with greatly reduced schedules. Schedules of prime contractors although reduced have not been cut so sharply.

Machine Tool Orders

A significant part of the new program is placement of additional large machine tool orders as soon as present production requirements are met. Not only will this stand-by tooling provide quick expansibility insurance, but it will afford a substantial backlog of work for the machine tool industry. Long lead time tools (heat treating equipment, heavy presses, skin and spar mills, large forging equipment, and other complicated tools) will be installed with the airframe, engine and component builders.

Cuts Make-Ready Time

By late 1955 or early 1956, when the Air Force expects to have in being a modernized 126 combat wing force equipped with latest-type planes, the industry should therefore have the facilities as well as the engineering and production personnel ready to expand quickly to any all-out production that the circumstances might call for. Thus, in the event of war, by virtue of the "Production Acceleration Insurance Program," our national production potential can be mobilized without extended make-ready time to produce aircraft in larger numbers.

Achieving Safety Factor

This safety factor cannot be achieved without some increase in cost, in terms both of more tooling than needed for the immediate build-up as well as higher unit prices for aircraft and engines produced in plants operating at below optimum rates. Nevertheless, many manufacturers report that they will be able to quote lower prices as overtime and shift-differential pay is reduced, as more efficient production is obtained from the labor force as they get down the learning curve, and as some fabricating originally scheduled to be "farmed out" is recalled or diverted to subcontractors already in production.

Many of us, within as well as without the Air Force, have become impatient over the time it has taken since Korea to step up deliveries of combat aircraft. It is encouraging to note that production objectives in January and February of this year were substantially met. Of even greater significance is the fact that the proportion of combat-type aircraft, particularly jets, and the average airframe weights, are constantly increasing. In February, over 5,000,000 pounds of airframe weight were delivered to the Air Force alone. This is more than one-third of our anticipated peak.

Not Over the Hump

We are, however, not yet over the production hump, and deliveries of new combat type aircraft in substantial quantities will not materialize until we are past the two year lead time period following Korea. This is no time for complacency on anyone's part. Our present goals can only be met if all elements of the program are supported by the military services, other government agencies and industry as a whole. It will not be an easy task for anyone.

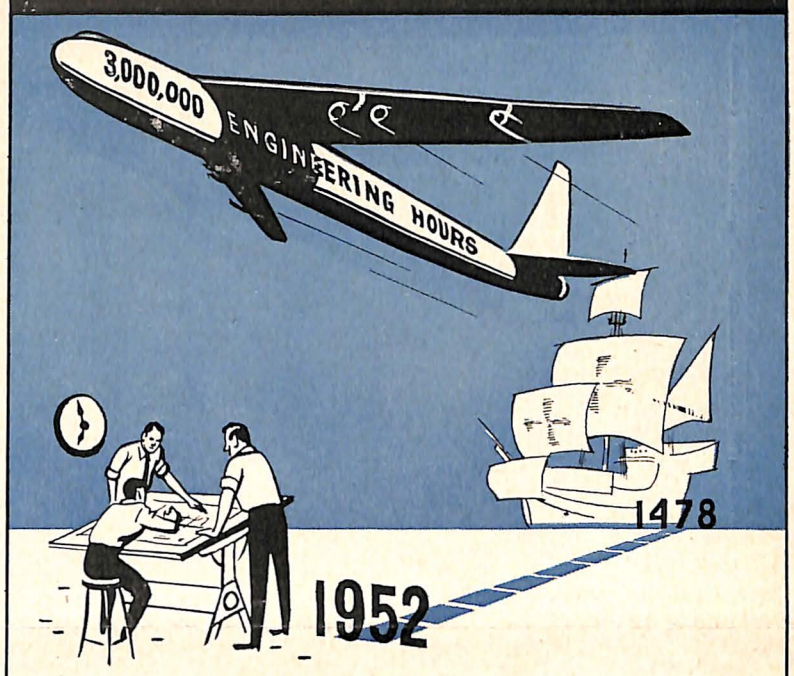
Price of Security

The aircraft industry still must recruit thousands of scientists, engineers, and technicians. The build-up program will continue to absorb materials which could otherwise be used for civilian production. Our military machine tool requirements will delay deliveries of tools to non-defense industry for months to come. This is the price of our national security. It will require the cooperation of every American.

EDITOR'S NOTE

The 126 Air Force wings referred to by Mr. Gilpatric will be combat wings. In addition, under the goal approved by the Joints Chiefs of Staff, there will be 17 transport wings —for a total of 143.

AIRCRAFT DESIGN TAKES YEARS



3,000,000 HOURS of engineering work were required to design the newest USAF heavy bomber.

If three aeronautical engineers had been assigned to this job 40 hours a week, every week without vacation, and had never been late or ill, they could have finished it in 1952—provided they had started 14 years before Columbus discovered America.

"PLANES" SOURCE: AIRCRAFT COMPANY RECORDS

New Block-Long Press To Aid Plane Program

So big — it'll take 25 freight cars to haul it, 22 months to build it, and when it's finished, it'll be a city block long —

It's a massive new extrusion press to produce improved aluminum parts for military aircraft in Phoenix, Ariz., at a substantial savings of taxpayers' dollars.

A metals plant in Phoenix has received an Air Force contract for construction of a building and installation of two giant extrusion presses, one a block long and rated at 12,000 tons capacity, the other rated at 8,000 tons.

Air Quotes

"As long as American air-atomic superiority stood in the balance against the superior Soviet position and power on the ground, the world-wide peace appeared to be relatively secure. But the rapid rise of Soviet air-atomic power began to upset the balance, and we were unable to get action in this country to meet the new challenge. Now, finally, the fact that we must maintain a definite air-atomic superiority over the Soviet Union is beginning to be recognized.

Gen. Twining

"Efforts to obscure and ignore this fact have resulted only in our having to pay a far heavier price for the air power that represents our principal hope of countering the massive Soviet threat on the ground....

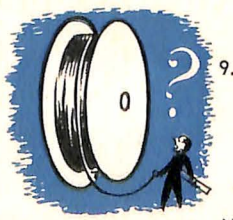
"The reservoir of United States air power had been allowed to sink far too low. The wells that fed it, the aircraft industry, and its many supporting industries, had been allowed to run almost dry. These wells have begun to produce again, and the reservoir is just beginning to rise."—*General Nathan F. Twining, Vice Chief of Staff, USAF, Jan. 13, 1952.*

PLANES QUIZ

Seventy per cent score on this quiz is excellent. Sixty per cent is good. Answers on Page four.

1. Although the principle of a jet engine is described as simple, a typical jet actually contains more than (a) 500 parts; (b) 800 parts; (c) 1,000 parts?

2. The bombing and navigation system of a modern jet bomber uses (a) 11 electronic tubes; (b) 250 tubes; (c) 400 tubes?
3. In the light aircraft field, far more "family size" airplanes (four to 10-place) are sold than the familiar one- and two-place planes. True? False?
4. Despite stepped up activity, the U.S. Air Force had its lowest non-combat accident rate in history last year. True? False?
5. What kind of power plants are used in guided missiles?
6. "Simulators" used in place of regular airplanes for training airline pilots cut the training cost (a) 40%; (b) 50%; (c) 60%?
7. A new cargo plane called "the most highly mechanized freight carrier yet designed" has as much usable space as three standard railroad refrigerator cars. True? False?
8. Do employees in aircraft manufacturing plants have opportunities for advancement to better and higher paying jobs?



9. A new USAF jet bomber contains enough electrical wiring to reach (a) 10 miles; (b) 40 miles; (c) 60?
10. When the quantity of aircraft ordered is doubled, it reduces labor cost by (a) 10%; (b) 15%; (c) 20%?

The number of agricultural planes in actual use increased 15% in 1951.

U. S. Public Health Service lists 558 approved sources of milk delivered for airline passengers in the U. S. and Canada.

Little Known Army Aviation Playing Vital Role in Combat Zone in Korea

Written Especially for PLANES

By Lt. Col. R. R. Williams, USA

Army pilots, flying light, unarmored aircraft, have completed over 140,000 missions in Korea. More than 64,000 of these were flown over enemy lines with a minimum loss of planes and men.

Extensive use of organic aircraft (assigned within units as normal equipment) in Korea is indicative of increasing requirements for Army aviation—to expedite and improve ground combat in the combat zone. Indeed, organic aviation has become one of the Army's most vital means of communication and transportation.

Col. Williams

Light, fixed-wing airplanes were first authorized for artillery units in 1942. Today, planes and helicopters are included in the equipment of the Infantry, Artillery, Ordnance, Signal Corps, Transportation Corps, Corps of Engineers and Armor. The Medical Corps also will have aircraft soon.

More than 1,500 aircraft of various types are now in use in the Army, and some 1,700 officers of its different branches are official Army pilots. Yet, these are little publicized facts, and Army aviation, now ten years old, remains relatively obscure—the least known aviation in the military services.

One reason is that the job we do is not spectacular—not glamorous. Our aircraft are not supersonic. They don't fight in the air or attack from the air. A reporter for the National Air Races put it this way: "Your airplanes aren't big enough or noisy enough to make good news copy."

No Duplication

Another reason for obscurity is the public's frequent mis-interpretation of the term "Army Aviation" as an Air Corps, or a part of the U. S. Air Force. Actually, it is not a separate branch or corps, but is distributed among the branches of the service like automotive transport equipment.

Our aircraft are employed for reconnaissance and troop and cargo-carrying within limits, but they do not duplicate these functions with respect to the Air Force. They perform that type of visual and photographic reconnaissance which may be accomplished within the combat zone by light, unarmed aircraft.

Advances in mass killing power of weapons have made battlefield dispersion an indispensable part of tactics and techniques. Units, down to the smallest size, now must be able to operate for extended periods independent of the normal surface lines of communications, and must have a mobility heretofore unknown.

Improvement in design, flight and payload characteristics as well as operational reliability of light planes and the development of larger and more versatile helicopters have progressed to the extent that their acceptance as vehicles to supplement and replace organic surface transport as commonplace is natural.

Light, fixed-wing aircraft proved their relative immunity in the air early in the North African Campaign. It was proved again in Korea where only ten Army planes have been lost to enemy action. Originally employed for adjusting artillery fire, they adjusted 90 percent of observed fire missions in World War II.

The Helicopter's Role

Since that time, planes have proved invaluable for reconnaissance, observation, emergency resupply, courier service between echelon headquarters, laying wire, evacuation of wounded, engineer survey and map making, column control, flank security patrols, photographic missions and transportation.

The helicopter was introduced to Army aviation for air evecuation early in the Korean conflict. It is ideally suited for fast and comfortable transportation of wounded back to mobile hospitals, without benefit of landing strips. Three Army units, operating 12 helicopters, have evacuated about 6,000 casualties thus far in Korea.

Like planes, however, helicopters have proved invaluable for more purposes than were ever anticipated. Army commanders have been particularly pleased with them as a means for getting around the battlefield. This caused one officer in Korea to remark that "the helicopter has robbed the battlefield of its privacy."

Two Problems Solved

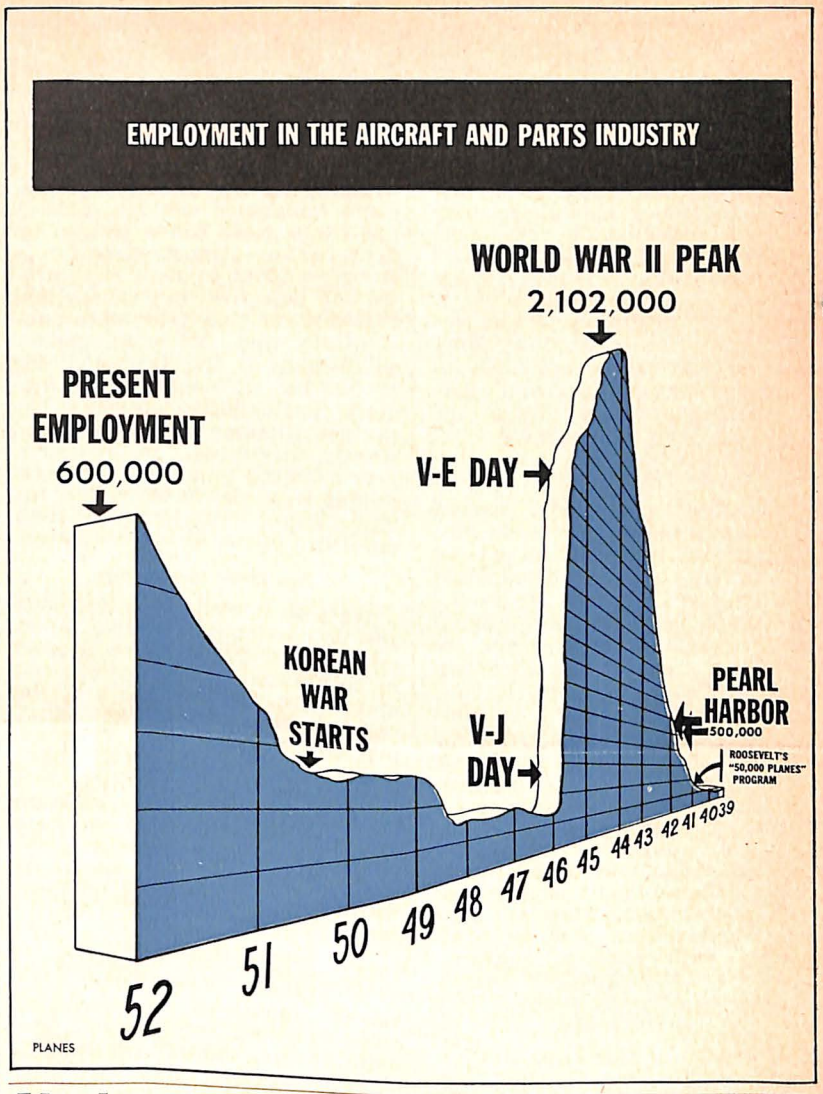
They provide an effective solution for two problems I believe are unique to the Army. Most Army radio sets have what is known as "line of sight" characteristics. A helicopter, flying near two radio sets which are close to each other, but separated by a hill mass, easily establishes the line of sight communications otherwise impossible and can act as a relay station.

When Army units must occupy high, inaccessible ground for survey operations, helicopters cut the time of accomplishment to a fraction of that required when ground transportation means are employed.

The Army is now taking steps to incorporate the rather astonishing capabilities of the helicopter into a transportation system through transportation companies, each having 21 cargo helicopters and two small utility helicopters. This should overcome most of our historical difficulties — removing the bonds that have tied the armies of the world to the ground throughout their histories.

THE AUTHOR

Lt. Col. R. R. Williams is a senior army aviator now assigned to the office of the Assistant Chief of Staff G-3, Department of the Army. He is one of the group of officers who started the present Army aviation program in 1942.



Airplanes Save Millions in Natural Resources, Forest Service Reports

Aerial forest-fire control, spraying and seeding is saving the government untold millions—according to the annual report just issued by Lyle F. Watts, Chief of Forest Service.

In 1951, planes ferried 251 "smokejumpers"—forest fire-fighters trained also as parachutists—to 158 fires. The estimated net saving in suppression costs resulting from the use of "smokejumpers" was $257,000.

In the first ten years of "smokejumper" operations (1940-49) the men jumped to a total of 1,424 fires with an estimated savings of more than $2,000,000.

Aircraft also proved of inestimable value in forest-fire detection and emergency deliveries of supplies to fire-fighters in remote areas. A total of 174 tons of cargo was parachuted to Forest Service crews in 1950. An additional 204 tons of air freight was delivered field-to-field.

Spraying of insecticides by airplane has been successful nationwide against infestations of defoliators, like the spruce budworm in Oregon and Washington, which annually threaten millions of dollars worth of timber.

Some 940,000 acres in eastern Oregon and Washington were sprayed last year; about 966,000 acres in 1950. In 1949, about 250,000 acres of Douglas fir forest in western Oregon were sprayed.

Emergency flood control treatment of burned areas in Arizona's Crook National Forest included airplane seeding in the ashes on 3,000 acres. Some 8,500 acres in New Mexico were seeded largely by aircraft.

Watt's report also states that more landing fields are planned in or adjacent to national forests to safely accommodate aircraft being employed extensively by the U. S. Forest Service for fire and pest control and other special uses.

Answers to Planes Quiz

1. (c) One typical jet engine has 15 major assemblies and more than 1,000 minor parts and components.
2. (c) Over 400 tubes, the most important of which cost up to $850.
3. True. U.S. companies in 1951 sold 1,678 four-to-ten-place planes and 624 one- and two-place planes.
4. True. USAF accident rate in 1951 was 30 per 100,000 hours flown compared to 34 in each 1949 and 1950. This includes all non-combat major accidents on a world-wide basis.
5. Both rocket and jet, which includes ram-jet, turbo-jet and pulse-jet.
6. (c) 60%. One major airline reports use of the simulator cut training costs by 60% and cut in-flight training time from 21 to eight hours per crew.
7. True. This cargo plane has 5,568 cubic feet of usable space, can carry over 25,000 pounds non-stop from New York to Paris.
8. Yes. One company reports 3,265 employees were promoted to supervisory jobs between Oct. 1, 1945 and Sept. 1, 1951.
9. (b) A swept-wing bomber now in production has 40 miles of electrical wiring.
10. (c) One major manufacturer reports: "The typical trend is a 20% reduction in labor when the quantity of aircraft is doubled."