



planes

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Gen. Hoyt S. Vandenberg Warns—

AIR POWER BUILD-UP ONLY HALF COMPLETED

Airline Capacity Jumps Ten-Fold In Past Decade

America's greatly expanded fleet of high-capacity domestic scheduled airliners today can carry ten times as many passengers as it could ten years ago.

During the past decade, the airlines have registered a steady growth in numbers of transports, in seating capacity, and in revenues.

Five times as many airliners are operating from the nation's 687 airline points today as were operating in 1943. Moreover, the average airliner is capable of carrying twice as many passengers, twice as fast—and with constantly increasing dependability and safety.

Phenomenal Growth

Ten years ago, the domestic scheduled fleet consisted of 204 transports with a total seating capacity of 3,974. Today, after the most phenomenal decade of growth in air transports in aviation's history, the fleet consists of 1,016 aircraft with a total seating capacity of 38,436.

Public acceptance of air travel has soared during these ten years, as airliners have registered steady increases in speed, dependability, safety and economy.

Last year, for the first time in history, commercial air transportation in the United States became a billion-dollar industry with passengers accounting for more than 80 per cent of the industry's revenues. Preliminary estimates indicate that this year more than 26 million passengers—equivalent to 1/6th the population of the United States—traveled by air.

Passenger Capacity Rises

During the ten years, the aircraft industry built more than 1,900 commercial transports, ranging in capacity from five-passenger executive planes to the latest airline types capable of carrying more than 90 passengers. A military transport built in the United States can carry 200 passengers.

Today, these large, fast postwar piston-engined planes are the world's most economical transports—and fly virtually all the world's express and passenger business. Eighty per cent of the aircraft operated by world airlines are produced in this country.

WHAT HAPPENED TO NATIONAL DEFENSE BEFORE KOREA

Military Spending 1946 to 1950: BILLIONS

DEMobilIZATION COSTS—WORLD WAR II	\$34.0
Aircraft	\$4.5
PAY OF TROOPS	\$19.0
ALL OTHER MILITARY SPENDING*	\$32.7

The U.S. failed to maintain reasonably modern air forces between the end of World War II and the beginning of the Korean War. As a result, the first two years of the Korean War had to be spent largely in rebuilding a military production machine that had been dismantled only five years previously. Between 1946 and 1950, an average of only \$900 million annually was spent on aircraft procurement. When war came, it became necessary for the nation to place contracts for over a billion dollars worth of aircraft per month during the first two years of the Korean War.

* Includes food, housing, clothing of troops.

"PLANES"

Guided Missiles Assume Increasing Share of Aircraft Industry Effort

Secret weapons in America's air arsenal—most of them only hinted at in official military statements—are under development in most of the nation's aircraft plants.

These weapons—guided missiles with incredible performance capabilities—are being designed, developed or produced in installations located in at least one-third the states in the union.

Problems Are Immense

More than 44 major industrial and scientific organizations are working on prime contracts in the field. They include at least 17 airframe plants, five engine plants, nine components plants, and 11 laboratories or plants of organizations not ordinarily engaged in aviation production.

Problems faced by these manufacturers and their thousands of suppliers are immense—but an indication of the strides being made in the

field is given by the rise in funds spent by the Air Force for guided missile procurement. In 1950, the USAF earmarked \$12 million to buy missiles; the 1953 fiscal budget calls for 25 times that sum.

Future Capabilities

Missiles being produced today are forerunners of the intercontinental pilotless weapons which eventually will be available. Although detailed information regarding them is secret, a leading missile manufacturer reports that the intercontinental missile is "just over the horizon." He says such a weapon "will be capable of accurately delivering to any point on the surface of the earth in a few hours a warhead carrying infinite destruction, and which because of its speed and altitude will be impossible to intercept."

Among features of these new (See MISSILES, page 4)

USAF Chief Says Relaxation Could Be 'Catastrophic'

Written Especially for PLANES

By Gen. Hoyt S. Vandenberg Chief of Staff, U. S. Air Force

A little over 29 months ago, the United States began an air power buildup, designed to recreate an Air Force capable of fulfilling global responsibilities in an era of international strain.

In these 29 months we have doubled our air strength in being. We have not, however, accomplished miracles—and we are not yet near our objective, which is air strength adequate to insure the security of the free world.

Half Obsolescent

Especially significant is the fact that more than half the aircraft in the United States Air Force today still are obsolescent. Although the aircraft industry now is largely tooled up and has reached a high level of production, we do not yet have strength adequate to fulfill our responsibilities.

In Korea, the Soviets have given more jet fighters to the Chinese forces than we have been able to assign to our own units. In Europe, the Russians have many more jets in combat units than we can muster for NATO forces.

During the past five years, in fact, (See VANDENBERG, page 3)



General Vandenberg

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.

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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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The Case for Fair Rail Rates

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

The outcome of one of the most significant rail rate cases in aircraft manufacturing history, presently before the Interstate Commerce Commission, directly affects the American taxpayer — as well as the broad cost-reduction program undertaken by aircraft manufacturers and the military services.

Under the prevailing rail rates, the nation's railroads earn more than twice as much per car (and more than 15 times as much per ton) in hauling aircraft parts as they average for hauling all other commodities. No other commodity handled in volume on the railroads is assessed rates as high as aircraft parts. Establishment of rates consistent with those charged for transportation of other goods would result in savings of millions of dollars, not only to the aircraft industry but to the Defense Department and to the taxpayer.

It is, of course, true that the burden of defense expenditures in a prolonged period of international tension inevitably is heavy. Rearmament imposes a drain upon national resources; and a financial sacrifice, through taxation, on the part of every American.

It is obviously incumbent upon defense industries to exert every effort to assure that the cost to the taxpayer remains at a minimum consistent with accomplishment of assigned mobilization tasks.

Since Korea, the aircraft industry — highly conscious of its responsibilities — has quickened the tempo of its continuing economy activities. Much has been accomplished. Much remains still to be done to ease the tremendous impact of mobilization.

A case in point is the above-mentioned complaint before the ICC, filed in an effort to secure reasonable rail rates for shipments of aircraft parts. The case had its inception in 1946, when the late Robert Patterson, then Secretary of War, asked the Justice Department to bring action before the ICC to recover "excessive" rail charges for military shipments during World War II. In the case of aircraft parts, the Justice Department also asked the ICC to establish "reasonable" future rates.

The Aircraft Industries Association joined vigorously with the Government in this effort to secure equitable rates for the future. The need for fair rates became even more pressing when the Korean War caused a tremendous acceleration in the volume of aircraft parts shipments.

In 1950, when it became apparent that the Government's case might become entangled in endless litigation over rates which prevailed years earlier in World War II, the aircraft industry filed a separate complaint with the ICC. The industry (with strong Air Force backing) asked specifically that the reasonableness of *present and future* rates be determined. These are the rates that contribute to the high cost of the current mobilization, and that are a factor in today's high taxes.

In a recent surprising move, however, the ICC announced its purpose to withhold a decision in this case until it decides the Government's case—including the prolonged questions of rates and reparations dating back to World War II.

Such an eventuality would, of course, mean an indefinite continuance of the present excessive rates on defense shipments — at a time when Congress, the military services and the aircraft industry are attempting to cut all military costs to a minimum.

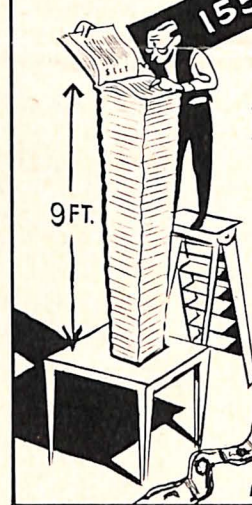
The aircraft industry has strongly urged a prompt disposition of this case, to the end that the interests of the American people and the present defense establishment will not be impeded by further delay.

Every day a decision is withheld, these rates must be paid — and add their burden to the high cost of national rearmament.

PLANE VIEWS

FAST HIGH!

A LATE MODEL JET FIGHTER WITH AFTERBURNER CAN CLIMB EIGHT MILES TO INTERCEPT HIGH FLYING ENEMY BOMBERS IN THE TIME NEEDED TO DRIVE A CAR AROUND THE BLOCK!



A MAJOR AIRCRAFT MANUFACTURER HAS TO USE A SPARE PARTS CATALOG NINE FEET THICK TO LIST 155,000 PARTS IN A SINGLE AIR FORCE BOMBER



THE AIRCRAFT INDUSTRY'S WEEKLY PAYROLL IN DOLLAR BILLS WOULD STRETCH FROM SAN FRANCISCO TO TOKYO!

by Aircraft Industries Association of America

PLANES QUIZ

Seventy per cent score on this quiz is excellent. Sixty per cent is good. Answers on Page 4.

1. The world's biggest land-based transport is capable of carrying 100,000 pounds for: (a) 3,000 miles; (b) 6,000 miles; (c) 8,000 miles?



2. Military aircraft today are based at: (a) 300 civil airports; (b) 125 civil airports; (c) 50 civil airports?

3. Since the beginning of the Korean War, USAF aircraft have damaged or destroyed: (a) 573 MiG-15's; (b) 1,266 MiG-15's; (c) 816 MiG-15's?

4. America's latest turboprop transport plane is capable of making regular trans-Atlantic passenger runs in less than: (a) 14 hours; (b) 11 hours; (c) 9 hours?

5. A standard USAF jet fighter established a new world's speed record. The nine-ton craft flew: (a) 670.9 m.p.h.; (b) 685.5 m.p.h.; (c) 699.9 m.p.h.?

6. The first jet-powered flight by an American plane occurred in: (a) 1942; (b) 1932; (c) 1946?

7. An American-built transport aircraft recently made a trail-blazing flight across the Polar regions between Los

Angeles and Copenhagen, Denmark, thus pioneering what may be a new commercial route from Southern California to Europe. This route shortens the mileage currently flown between the West Coast and Europe by: (a) 250 miles; (b) 1,000 miles; (c) 750 miles?



8. The largest known helicopter, produced by a U.S. manufacturer, is designed to lift and deliver such heavy equipment as artillery, bridge sections and

trucks. The craft, more than 30 feet tall, has rotor blades that extend, from tip to tip, more than: (a) 125 feet; (b) 75 feet; (c) 50 feet?

9. In November, deliveries of airframe weight to the Air Force alone amounted to eight million pounds. In a two-year time period, this represents an increase in production of: (a) two times; (b) three times; (c) four times?

10. The cost of paying, housing, clothing, transporting and equipping the nation's fighting men accounts for what proportion of the total military budget? (a) one-tenth; (b) one-fourth; (c) one-third?

VANDENBERG SAYS REDS EQUAL U.S. OUTPUT

(Continued from page 1)

The Soviet Union has produced five times as many planes as has the United States. Even today the Russians are equalling our output, or perhaps bettering it.

Such a situation at a time when our entire strategy of defense is dependent upon general air superiority points up vividly the fact that America's air power expansion is far from complete.

These facts are important to every American, and weigh heavily in an assessment of our capabilities. The struggle to build an adequate defense force is today reaching perhaps its most critical phase. At this juncture, production and mobilization must be sustained, or we stand to lose the ground gained during the laborious and costly post-Korean buildup.

America Took 'Holiday'

The fact that the Soviets have been able to produce greater quantities of modern aircraft than has the United States stems directly from the post war years when American air power declined while the nation depended for security upon its short-lived atomic monopoly.

During those years, while America took a holiday, the Soviets continued military spending at a rate which was 55 per cent that of their wartime peak. They raced forward in developing advanced military aircraft, expanding plane production facilities, and turning out the thousands of modern jets which now

equip the Red Air Force.

This vast Soviet effort enabled them in 1948 to build 12 military planes for every one produced by the United States.

U. S. Cut Expenditures

In the face of this postwar threat, the United States reduced the rate of its defense expenditures to 15 per cent of what it had been in World War II. In 1948, the President's Air Policy Commission and the Congressional Aviation Policy Board urged immediate steps to overcome the critical deficiency in U. S. air power. But funds to implement this restoration of strength were not made available to the Air Force. We continued to maintain an insufficient force at a cut-rate price.

Equally dangerous, we were unable to press forward at a rapid enough pace with research and development on new projects.

Fortunately, the Air Force preserved the striking power of its Strategic Air Command by concentrating on its combat readiness. This policy, which was adhered to in the face of wide criticism, permitted the United States to capitalize on its temporary monopoly in atomic bombs and to prevent major Communist aggression at a time when we were weak in all other respects.

Today, with the atomic bomb in the possession of the Soviet Union, we are entering a period of increased tension and, in some parts of the world, of acute crisis.

We have, of course, increased our

strength since Korea. When the North Koreans crossed the 38th Parallel, America had a 48-wing Air Force—a force which I once referred to as a "shoestring Air Force" because its resources were so limited in comparison to its responsibilities. Since then, we have activated and equipped 48 additional wings. In other words, we have come halfway in our program to create a 143-wing Air Force, although many of the wings we now have are not yet fully modernized.

During these two and a half years, the aircraft industry has delivered some 15,000 military aircraft of all types to the armed services. This is a commendable record, attained under trying semi-mobilization conditions which frequently hampered production. But it falls far short of the more than 60,000 planes delivered during the comparable period of World War II when the nation devoted its maximum energies to the output of war goods.

Greater Aircraft Performance

It is true, of course, that today's military aircraft fly farther, higher and faster—and are capable of inflicting with conventional explosives several times as much destruction as those of World War II, while with atomic weapons their destructive power has been multiplied enormously. Yet to build these complex fighting machines takes years from the time a production contract is placed—at least two years for a

fighter, and considerably longer for a bomber. Add to that the years of essential design and development which must precede manufacture, and the time needed to organize and train units once these planes are delivered, and the total is the lengthy "lead-time factor" which makes the creation of air power a long-range project.

No Substitute for Production

Although America's productive capacity is vast, it is impossible to cut back production today and in some future crisis ask that that production rate be restored overnight. Ingenuity may shorten lead-time a little, but nothing can circumvent it. There is no real substitute for maintaining productive capacity by producing.

Without the greatest constancy of purpose on the part of the aircraft industry, the armed forces, other government agencies and, most important, the American people who support and direct them, we could find ourselves relaxing before the job is fully accomplished. Such a relaxation of effort could be catastrophic.

We must meet our air power goals if we are to have the strength to counter the threat against our national security and the peace of the world. The goals can be lowered no further. We dare not postpone the date of their attainment.

Air Quotes

"We must plan ahead. It requires years for modern weapons to progress through the design and development stages and into mass production. To the fullest possible extent, we must develop

now the best means of delivering atomic explosives in the future. The security of this nation rests on the combined wisdom of our military leaders, our scientists, our industrialists and our Government



in selecting the right devices, producing enough of them, and constantly improving upon them. No matter how large our stockpile of atomic bombs may be, our A-bombs will do us no good unless we are able, despite opposition, to deliver them accurately against the heart of an aggressor."—James H. Doolittle, Special Assistant on Research and Development Matters to Chief of Staff, U. S. Air Force, November 11, 1952.

West Coast Women Leave Kitchens To Build Complex Bomber Assembly



A highly-complex aircraft assembly containing more than 800 individual parts is being produced by women who were West Coast housewives only a short time ago.

Today, because of the nationwide shortage of skilled technicians and aircraft workers, these women are employed by a major aircraft subcontractor in Southern California.

One of these women is a former dancing teacher. Another once worked in a cabinet shop. Only five of the women in the entire production line had ever worked previously with sheet metal.

Yet they are producing and assembling the maze of 800 separate parts required for a big bomber's engine shrouding (used to shield the "hot

parts" of the plane's exhaust system). And they are doing the job with efficiency hitherto undreamed of in unskilled personnel. Only the most difficult welding is handled exclusively by men.

The answer to the production problem faced by this manufacturer, confronted with shortages of trained and skilled personnel, has been a short intensive period of training (sometimes conducted in a local vocational school). Following this training period, workers are assigned production-line jobs under a system in which highly-simplified operations have been achieved through careful operational breakdown and floor layout by the company methods department.

PLANE FACTS

- In 13 years, a single airline has made more than 40,000 trans-atlantic flights—equal to flying the entire population of the world once around the world.

- A new streamlined bomb designed for modern combat planes enables some present-day fighters to fly 50 miles an hour faster than when World War II type bombs are used.

- A single aircraft auxiliary power system, now under development, can furnish enough electrical power for 40 average houses.

- Altogether, 1,412 firms (983 of them small businesses) in 28 states participate directly with a major airframe manufacturer as suppliers of materials in a jet bomber. Some 79 per cent of the resultant purchases by these subcontractors, in turn, are made with small business firms.

- A 36,000-pound precision jig-borer—essential to build tools for a late jet aircraft—is accurate to 2/10,000th of an inch, less than half the thickness of a human hair.

Airlines and Government Laying Plans For Advent of 'Copter Passenger Lines

The airlines, Government agencies, and state aviation officials in three separate actions during December focused attention on the prospect of early helicopter passenger service in the United States.

In late November, L. Welch Pogue, former Civil Aeronautics Board chairman, announced that helicopter passenger service would be started in 1953 in New York, Los Angeles and perhaps Chicago.

ATA Organizes Committee

Shortly afterwards, the Air Transport Association—composed of scheduled U. S. airlines—organized a committee to study possibilities of regular certificated helicopter routes.

Said ATA President, Vice Admiral Emory S. Land: "Helicopter operations . . . have been under observation by the airlines for some time. The advent of larger helicopters gives promise of providing a means whereby the airlines can continue improvement of their short-haul operations."

NASAO Acts

Meantime, the National Association of State Aviation Officials formed a Helicopter Committee with instructions to suggest State actions to "prepare intelligently and wisely for the widespread operation of helicopters in the future." NASAO also urged formation of a Joint Helicopter Committee of national, state and municipal groups to work out cooperation "made necessary by the coming of the helicopter."

NASAO called for a review of

state laws and regulations applicable to helicopters. "This is particularly required with respect to airport planning, the establishment of public and private heliports, visibility limitations, minimum altitudes of flight, airport traffic patterns, and other matters where the differences between helicopters and fixed wing airplanes justify regulatory treatment."

While these two national organizations paved the way for early 'copter passenger operations, the Civil Aeronautics Administration began a survey of estimated helicopter operations in the period from 1955 to 1960. The CAA survey should be completed in about six months.

MISSILES

(Continued from page 1)

weapons, now under development, are powerplants with amazing new power, aerodynamic and structural designs without engineering precedent; and guidance systems containing electronic devices more sensitive than any previously developed. One of the latter, for example, is capable of "thinking" at a rate 10,000 times the speed of the human brain.

In the foreseeable future, these missiles will probably be powered by engines developing about 500,000 pounds of thrust—or 125 times the power of today's greatest piston engine. Such power should enable flight at speeds approaching 20,000 miles per hour—more than 15 times the speed of the rotation of the earth.



SAFETY ON THE JOB

Disabling injuries per 100 million employee man hours . . .



AIRCRAFT INDUSTRY

ALL MANUFACTURING

Workers in the aircraft industry continued to record an outstandingly high safety record during the first six months of 1952. The industry's low injury-frequency rate reflects wide-scale safety programs underway in aircraft plants, and the use of modern fabricating machinery equipped with safety devices.

"PLANES"

SOURCE: U. S. DEPT. LABOR

Civil Air Force Has 8,200 Planes Ready for Action in U.S. Defense

Comparatively few Americans know that a 208-group civil air force backed by the nation's largest non-military radio network and 80,000 volunteers—is ready for action in national defense at a moment's notice.

More than 8,200 light utility-type aircraft—largely the same types used daily by American businessmen for speedy, economical transportation—are available to this organization, known as the Civil Air Patrol. And 9,500 radio stations (7,000 of them mobile) stand ready for lightning transmissions in event of an attack on the United States or other emergency.

Emergency Roles

If this country were bombed tomorrow, these thousands of Civil Air Patrol aircraft would be operating within hours in all parts of the nation—performing emergency transportation tasks, photographic missions, ambulance service, traffic control, reconnaissance, police patrol, air search and rescue, decontamination and other missions.

Even under peacetime conditions, CAP—an official auxiliary of the Air Force—performs numerous emergency tasks and conducts an intensive air training program. During the first 10 months of 1952, for example, pilots in CAP's 1,664 squadrons flew 15,500 hours on official missions, 5,600 hours on air search and rescue flights, and 5,250 hours on other missions, such as participating in exercises for the ground observers corps. Over 18,000 CAP members participated directly in these operations.

In 1951, in addition, members of CAP were given over two million man-hours of active defense training.

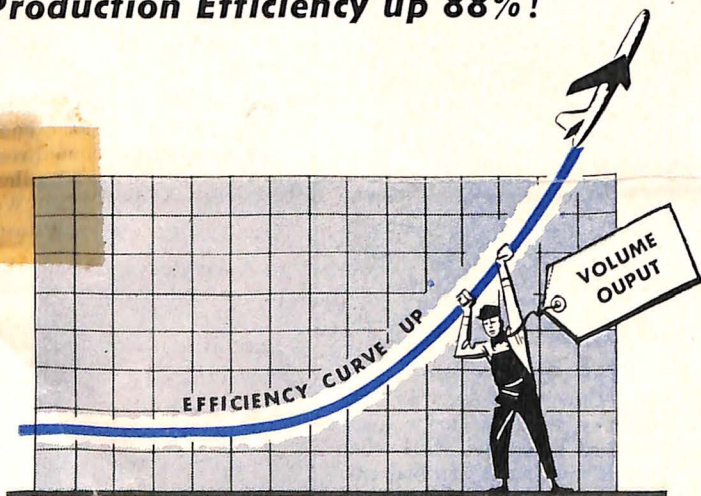
Civil Aircraft Utility

In conducting its operations, CAP works closely—and without compensation for its members—with such organizations as the Air Rescue Service, U. S. Forestry Service, state forestry officials, fire departments, state and local police agencies, U. S. Coast Guard, veterans' organizations, the American Red Cross, airlines, the United States Navy, and Community Chest and other welfare agencies.

The constantly-increasing use of American utility aircraft in business, agriculture, professions and other peacetime tasks has served in part to establish a reservoir of civil defense aircraft in the nation.

VOLUME OUTPUT INCREASES EFFICIENCY

Production Efficiency up 88%!



VOLUME production and new manufacturing techniques developed by the aircraft industry enable production of a modern jet bomber in just 12 per cent of the manhours required to build the first production model. This represents a saving per plane substantially greater than the normal improvement expected as production rates increase. Greater production efficiency has decreased unit price of the bomber according to original estimates, despite higher costs of labor, materials and subcontracted parts.

"PLANES"

SOURCE: Typical Aircraft Manufacturer

Answers to Planes Quiz

- (c) 8,000 miles.
- (a) 300 civil airports.
- (b) 1,266 MiG-15's. As of November 24, this figure broke down as follows: 503 destroyed, 88 probably destroyed, 675 damaged.
- (c) 9 hours.
- (c) 699.9 m.p.h. On one of the speed runs, the jet exceeded 700 m.p.h.
- (a) October 1, 1942.
- (b) 1,000 miles.
- (a) 125 feet. It is jet powered.
- (c) four times. Deliveries in November, 1950, were 2,000,000 pounds compared with 8,000,000 pounds in November, 1952.
- (c) approximately one-third.