50TH ANNIVERSARY OF POWERED FLIGHT — PROGRESS • SECURITY

planes

Vol. 9, No. 5, May, 1953 — OFFICIAL PUBLICATION OF THE AIA AIRCRAFT INDUSTRIES ASSOCIATION

U. S. PLANES HOLD ALL WORLD AIR RECORDS

AMERICAN AIR LEADERSHIP

***FIRST** supersonic aircraft*

***FIRST** four-jet bomber*

***FIRST** six-jet bomber*

***FIRST** eight-jet bomber*

***FIRST** carrier-based jet bomber*

***FIRST** jet bomber used in combat*

United States manufacturers have produced more single- and multi-engined jet planes—and more research aircraft—than the rest of the world combined, with the exception of Soviet Russia.

'PLANES'

American Combat Planes Dominate Official Listings

Aircraft produced by the U. S. aircraft industry hold the official world records for flying higher, faster and farther than planes built by any other nation in the world.

Four of the world records — for speed and distance — are held by American-designed aircraft types currently operational in the Korean theater and at the free world's outposts against Communist aggression.

The altitude mark is held by an American balloon, Explorer II, although an unofficial record was made recently by an advanced U. S. research plane, which reached a height of over 79,000 feet. This same aircraft, harbinger of things to come, reached an unofficial top speed of more than 1,238 m.p.h.

Also Hold 'Class' Records

There are only five officially-recognized world records — for altitude, speed in a straight line, speed in a closed circuit, distance in a straight line, and distance in a closed circuit. All these records are held by American-designed planes. In addition, planes produced by the United States aircraft industry currently hold 80 per cent (36 out of 45) of the world "class" records established over different courses and with varying payloads for military-type reciprocating-engined aircraft, jets and helicopters.

Score Combat Victories

The jet fighter that has captured the world speed crown (698.505 m.p.h. on a straight course) today is the United Nation's leading conqueror of the MiG-15 in Korea, and has amassed an 11-1 "kill" ratio over the Russian-made jet in air-to-air combat. Jet fighters built by the U. S. aircraft industry are currently the only fighting planes, now operational in quantity with NATO or in the Far East, considered superior to the Soviet jets.

In the distance categories, both world record-holders are operational military aircraft. A U. S. Navy patrol bomber holds the official world non-stop distance record (11,235.6 miles) and a USAF medium bomber, with atomic-bomb carrying capability, possesses the closed-circuit distance record of 8,854.308 miles.

More advanced, higher perform-

(See WORLD RECORDS, page 3)

Sales Jump in '52—But Profit Margin On Airframes Is Below U. S. Average

In the accelerated program of building the nation's air defenses, the 12 leading U. S. airframe manufacturers boosted 1952 sales 88.5 per cent over 1951, but their net earnings of $81.7 million represented only a 2.2 per cent margin on sales, according to a survey recently completed by the Aircraft Industries Association (AIA).

This earnings rate of 2.2 per cent on sales in 1952 compares with a 5.4 per cent margin for 1,783 manufacturing concerns surveyed by the National City Bank of New York. The National City Bank's survey of 33 aircraft and parts manufacturers showed a 2.4 per cent margin on sales.

Twelve Major Companies

The AIA survey was made on the basis of data presented by twelve major airframe companies responsible for over 90 per cent of the airframe weight produced during 1952.

Federal taxes for the period climbed to $138.8 million from $68 million in 1951. This represents a "tax-bite" of 62.9 per cent on total income earned.

Backlogs reported by the companies at the end of 1952 totaled approximately $11 billion as compared to $8.5 billion at the close of the previous fiscal year.

The turnover rate of working capital increased from 7.2 times in 1951 to 12.1 times in 1952. This increased efficiency in the use of working capital funds was largely responsible for the industry's ability to finance the expansion of approximately $1.8 billion in sales with an increase in working capital of only $33.9 million.

Financial Risks Rise

Company-owned inventories now stand at 118.6 per cent of net worth and 172.2 per cent of working capital, comparing respectively with 99.0 per cent and a 139.6 per cent relationship during the years 1941-1946.

"These figures, among other things," the AIA survey reports, "indicate the magnitude of industry's financial risks and the vulnerability of its working capital and net worth to even a small percentage of loss on these inventories in the event of termination. This highlights the vital importance to this industry of contract termination procedures that will provide for a fair, fast and final settlement of all claims. Further-

(See AIRFRAME, page 2)

Ike First President With Pilot License

President Dwight D. Eisenhower is the first pilot ever to land in the White House.

The story came to light when it was discovered that the man who was Supreme Commander of Allied Expeditionary Forces in World War II has the honor of being the first president in history to hold a pilot's license — certificate number 93258.

Coincidentally, President Eisenhower assumed the highest public office in the United States in the same year that the Fiftieth Anniversary of Powered Flight is being celebrated throughout the country.

The President has been a pilot for 14 years. He learned to fly in 1939, when he was stationed in the Philippines as a lieutenant colonel on the staff of General Douglas MacArthur.

In 1941, during the Louisiana maneuvers, he piloted an Army lightplane while inspecting units. An aviation executive who was with him at the time later wrote:

"After we took off from a narrow little machine gun range, I turned the controls over to him and he flew for the rest of the day, flying 12

(See PRESIDENT, page 4)

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.

Publication Office: 610 Shoreham Building, Washington 5, D. C.

New York Office: 350 Fifth Avenue, New York 1, New York.

Los Angeles Office: 7660 Beverly Boulevard, Los Angeles 36, California.

The Pattern for Long-Range Economy

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

United States aircraft manufacturers have never in their history been engaged in a more intensive drive to cut the unit cost of aircraft than that which is now underway throughout the industry.

In the aircraft industry's view, there has never been a time when such an effort was more essential. The cost of new and complex aircraft, with their tremendous advances in fire power required to maintain superiority over advances in other parts of the world, is necessarily high. Today, therefore, a long-standing cost-consciousness has become crystallized in an industry-wide campaign to make every air procurement dollar produce the maximum possible dividends.

Cost-reduction projects themselves are not new to the nation's plane builders. As an operating principle under the system of competitive enterprise, aircraft manufacturers have consistently worked to build U.S. air power in the most economical manner consonant with the attainment of highest quality.

It is a source of satisfaction to members of the industry that its cost reduction program has already paid substantial dividends in dollar savings to the American taxpayer. In recent months, while concentrating on the multitude of problems involved in gearing a giant industry to an increased production effort, the economy program undertaken by aircraft builders has cut millions of dollars from air power's price-tag.

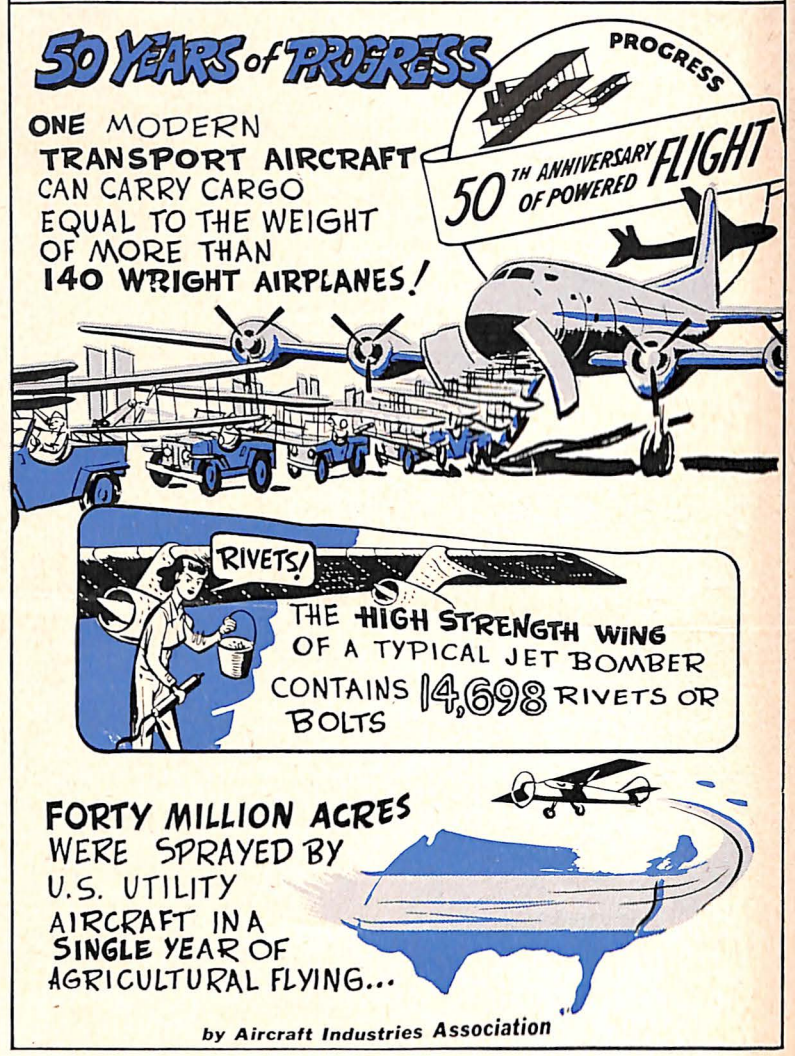
Industry-wide standardization of a single nut-and-bolt, for example, cut the cost of U.S. air power by a million dollars. In a single year, employee suggestion programs in aircraft plants saved over four and a half million dollars. One manufacturer's new method for making an aircraft part reduced the Government's costs by more than a million dollars.

These are typical of savings effected daily throughout the aircraft industry in the unremitting search for more efficient, less costly and more rapid methods of building the planes America needs for its defense.

It is, of course, impossible to reduce some of the elements of aircraft cost. So long as planes must fly farther, faster and higher, with ever-increasing bombloads and with far greater firepower, the price must exceed that of the planes of earlier vintage. The complex instruments required by supersonic aircraft also are costly, as are the thousands of engineering and skilled-labor hours, the stronger materials, the giant machine tools, and the other components which contribute to the superiority of our aircraft.

In other areas, substantial reductions in the cost of air power can be made only by national policy decisions. Such savings would accrue through the adoption of consistent, long-range procurement programs in place of fluctuating production schedules with their accompanying high cost of alternately building-up and tearing-down manufacturing organizations. It is pertinent in this connection to recall that in 1947 the President's Air Policy Commission estimated such long-range planning would reduce the cost of air power by some 20 per cent. A review and fresh appraisal of that Commission's findings and recommendations appear to be a most appropriate and timely undertaking.

PLANE VIEWS



Airframe Backlogs Rise But Earnings Stay Below Average

(*Continued from page* 1)

more, carrying these heavy investments in inventory will undoubtedly cause some serious financial problems if the current production program is unduly extended."

Pointing up the heavy risks undertaken by the manufacturers in the current crisis, the AIA report declared:

"In contrast with World War I and World War II, the post-Korean production expansion has been largely industry-financed, as represented by higher investments in inventory and brick and mortar and machine tool facilities. This expanded private investment has been accompanied by a drastic reduction in Government advances which, at the end of the 1952 fiscal year, stood at $91.5 million compared with an average of $305 million for the 1941-1945 period."

The report continued:

"These heavy investments in inventories and facilities represent risks that may become serious if there are any sudden and drastic changes in the present production program. Continual low earnings have not provided adequate reserves to meet even modest losses on these inventories or to carry these expanded facilities."

PLANE FACTS

- De-icing equipment in the tail assembly of a giant U. S. transport plane produces enough heat to warm a dozen six-room homes.
- A typical World War II bomber carried an 11-man crew and contained 10 miles of electric wiring. A new jet bomber carries a three-man crew — and has 27 miles of wiring, exclusive of wiring in automatic equipment. Space saved by reducing the number of crew members is used for fuel; and the automatic equipment with a tremendous amount of additional wiring does the work previously done by eight men.
- The flight of the first Wright plane, in 1903, covered a distance only about one-half the wingspan of a modern heavy bomber.
- It takes more than three times as many tools to produce today's high-powered jet engines as it did to build early model jets.
- Through use of fuselage dive brakes, a modern high-speed combat plane's vertical dive speed can be cut from 500 to 300 m.p.h.
- Jobs which formerly required 30 minutes are now done in three minutes through use of a new beam-bending machine — used to bend high-strength aluminum alloys in aircraft production.

U.S.-Built Aircraft Fly Higher, Faster and Farther, And Dominate List of Official World 'Class' Records

(*Continued from page* 1)

ance aircraft are currently under development by the U. S. aircraft industry, which has built more jet planes than any other country with the exception of Russia, and which since Korea has delivered more than 20,000 modern military planes to the U. S. armed forces and U. S. allies. At least five of these more advanced jet fighter types are now entering production in the United States.

The official F.A.I. world air records are as follows:

Maximum speed over a 1.864-mile course: 698.505 m.p.h, held by a U. S.-built jet fighter.

Maximum speed in a closed circuit: 652 m.p.h., held by a U. S.-designed jet fighter. (Subject to F.A.I. confirmation.)

Distance in a straight line: 11,235.600 miles, held by a U. S.-built patrol bomber.

Distance in a closed circuit: 8,854.308 miles, held by a U. S.-built medium bomber.

Altitude: 72,394.795 feet, held by a U. S. balloon.

Official F.A.I. world "class" records for Class C, Group II airplanes, Class C, Group I airplanes, and rotorplanes are as follows:

Class C, Group II
Reciprocating Engines

Distance, closed circuit: 8,854.308 miles, held by a U. S.-built medium bomber.

Distance in a straight line: 11,235.600 miles, held by a U. S.-built patrol bomber.

Altitude: 56,046 feet, held by an Italian-built biplane.

Maximum speed over a 1.86-mile measured course: 469.22 m.p.h., held by a German-built fighter.

Maximum speed at high altitude: 464.374 m.p.h., held by a U. S.-built fighter.

Speed for 62.137 miles without payload: 469.549 m.p.h., held by a U. S.-built fighter.

Speed for 310.685 miles without payload: 436.995 m.p.h., held by U. S.-built fighter.

Speed for 621.369 miles without payload: 431.094 m.p.h., held by a U. S.-built fighter.

Speed for 1,242.739 miles without payload: 447.470 m.p.h., held by a U. S.-built fighter.

Speed for 3,106.849 miles without payload: 338.392 m.p.h., held by a U. S.-built medium bomber.

Speed for 6,213.698 miles without payload: 273.195 m.p.h. held by a U. S.-built medium bomber.

With Payload, 2,204.622 Pounds

Altitude: 47,910 feet, held by U. S.-built medium bomber.

Speed for 621.369 miles: 325.713 m.p.h., held by Italian-built aircraft.

Speed for 1,242.739 miles: 365.649 m.p.h., held by U. S.-built medium bomber.

Speed for 3,106.849 miles: 338.392 m.p.h., held by U. S.-built medium bomber.

With Payload, 4,409.244 Pounds

Altitude: 46,522 feet, held by U. S.-built medium bomber.

Speed for 621.369 miles: 369.692 m.p.h., held by U. S.-built medium bomber.

Speed for 1,242.739 miles: 365.649 m.p.h., held by U. S.-built medium bomber.

Speed for 3,106.849 miles: 338.392 m.p.h., held by U. S.-built medium bomber.

With Payload, 11,023 Pounds

Altitude: 45,253 feet, held by U. S.-built medium bomber.

Speed for 621.369 miles: 369.692 m.p.h., held by U. S.-built medium bomber.

Speed for 1,242.739 miles: 365.649 m.p.h., held by U. S.-built medium bomber.

Speed for 3,106.849 miles: 266.023 m.p.h., held by U. S.-built medium bomber.

With Payload, 22,046 Pounds

Altitude: 41,562 feet, held by U. S.-built medium bomber.

Speed for 621.369 miles: 357.731 m.p.h., held by a U. S.-built medium bomber.

Speed for 1,242.739 miles: 357.035 m.p.h., held by a U. S.-built medium bomber.

Speed for 3,106.849 miles: 266.023 m.p.h., held by a U. S.-built medium bomber.

With Payload, 33,069 Pounds

Altitude: 39,521 feet, held by U. S. medium bomber.

Greatest payload carried to altitude of 6,562 feet: 33,435 pounds, held by U. S.-built medium bomber.

Class C, Group I
Jets

Altitude: 59,445 feet, held by British fighter.

Maximum speed: 698.505 m.p.h., held by a U. S. fighter.

Speed for 62.137 miles without payload: 652 m.p.h., held by U.S.-designed fighter. (Subject to F.A.I. confirmation.)

Speed for 621.369 miles without payload: 510.925, held by British fighter.

Speed for 1,242.739 miles without payload: 440.298 m.p.h., held by U. S. fighter.

With Payload, 2,204.622 Pounds

Speed for 621.369 miles: 410.431 m.p.h., held by U. S. light bomber.

Climb to 9,842.5 feet: 1 min., 15.5 sec., held by British fighter.

Climb to 19,685 feet: 1 min., 50 sec., held by British fighter.

Climb to 29,527.5 feet: 2 min., 27 sec., held by British fighter.

Climb to 39,370 feet: 3 min., 9.5 sec., held by British fighter.

Class E
Rotorplanes

Distance in a straight line without payload: 1,217.137 miles, held by U. S. helicopter.

Distance, closed circuit, without payload: 621.369 miles, held by U. S. helicopter.

Altitude without payload: 21,220 feet, held by U. S. helicopter.

Maximum speed without payload: 129.552 m.p.h., held by U. S. helicopter.

Speed for 62.137 miles in closed circuit, without payload: 122.749 m.p.h., held by U. S. helicopter.

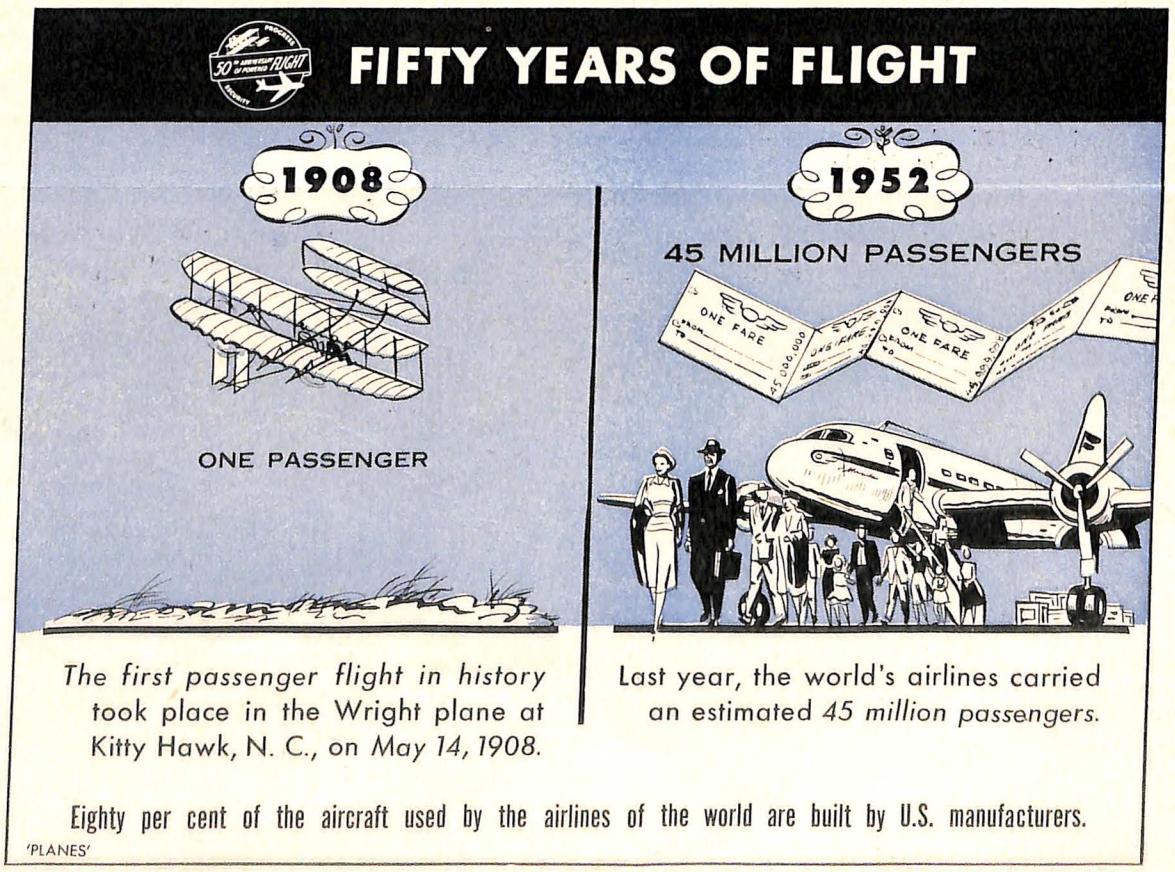
Speed for 621.369 miles in closed circuit, without payload: 66.642 m.p.h., held by U. S. helicopter.

Air Quotes

"God has been merciful to us in that we have always been granted ample time to prepare. Distance and the Allies have absorbed the first shock of the onslaught, providing time for us to arm. But in the future we might be the initial target. All the world will now acknowledge that any aggressor nation seeking domination of the earth must defeat the United States and must defeat us before we can achieve our maximum strength. Therefore, if global war comes to us again, the first blow will be struck not at Warsaw but at Washington; not at London but at Los Angeles; not even at Pearl Harbor but at Pittsburgh. I have no means to see into the future, no more than you—but you and I can logically deduce that we must have an adequate defensive force in being on the day war begins — or we will have no need for any other."—*Dwight D. Eisenhower, February 19, 1947.*

Jobs Multiply

In 1946, a typical aircraft engine manufacturer required workers in 2,432 different jobs to build piston engines. Today, this same company produces turbojet, ramjet, turboprop and piston engines, and the number of different jobs has risen to 3,051.



Eight U. S. Research Planes Probe Mysteries of 'Sonic' Air Speeds

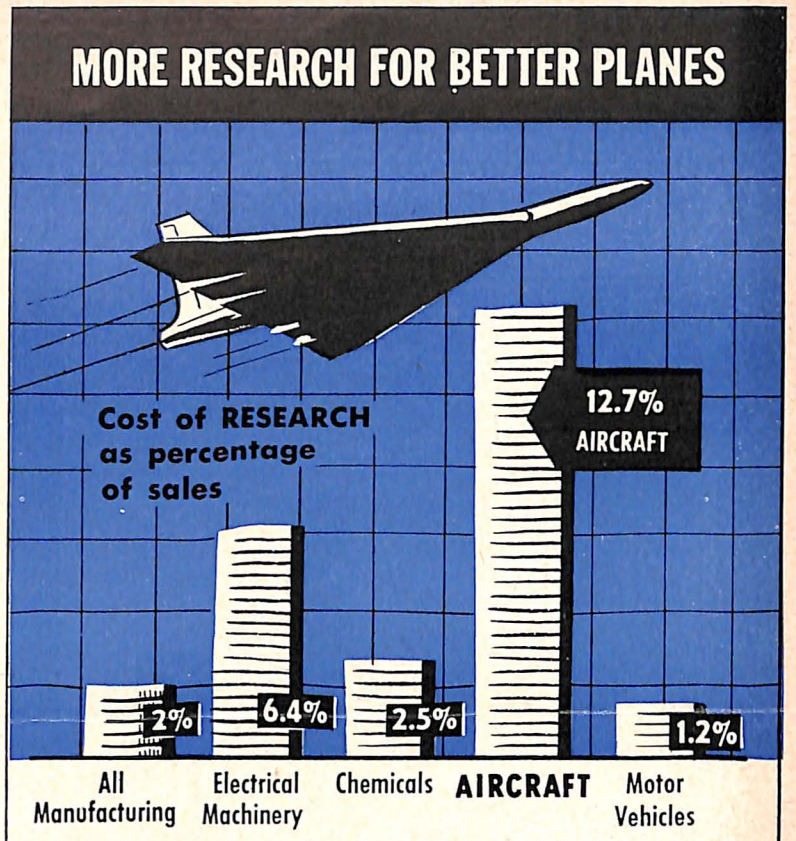
A stable of eight high-powered, ultra-streamlined research planes — built by the U. S. aircraft industry — have come up with many of the answers to high-speed flight problems posed by the supersonic era.

These eight planes — plus a number of duplicates — are flying laboratories — built to explore the transonic and supersonic speed zones. Data obtained from repeated flight tests will be incorporated in the newer jet fighters and bombers built for the nation's Air Force and Naval air arm.

Three of these eight research planes already have made history. One was the first to break through the "sonic barrier" and is now in the Smithsonian Institution in Washington, D. C. Another has hurtled through the air at 1,238 m.p.h. at an altitude of 79,494 feet — faster and higher than man has ever flown before. And the third is a one-time holder of the official world's speed record.

The remaining five vary from a tailless midget with a wingspan under 27 feet, to a sweptwing craft with stainless steel wings and tail, and a Monel metal body, reportedly built to fly as fast as 2,250 m.p.h.

Unhampered by the weight of armament, these sleek, high-speed planes are helping to solve many of the problems now blocking man's further conquest of the air.



For every dollar of sales, the aircraft industry spends six times as much money in research as does the average U.S. manufacturing industry. To create aircraft that fly higher, farther, faster and with greater armament than those of a potential enemy, the aircraft industry is confronted with a staggering increase in the number of man-years required for research, design and development.

'PLANES' Source: Labor Department & Defense Department

Eisenhower One of Three Presidents Who Have Flown As Chief Executive

(*Continued from page* 1)

miles here to inspect a bivouac area from the air, then 22 miles in another direction to check on something else.

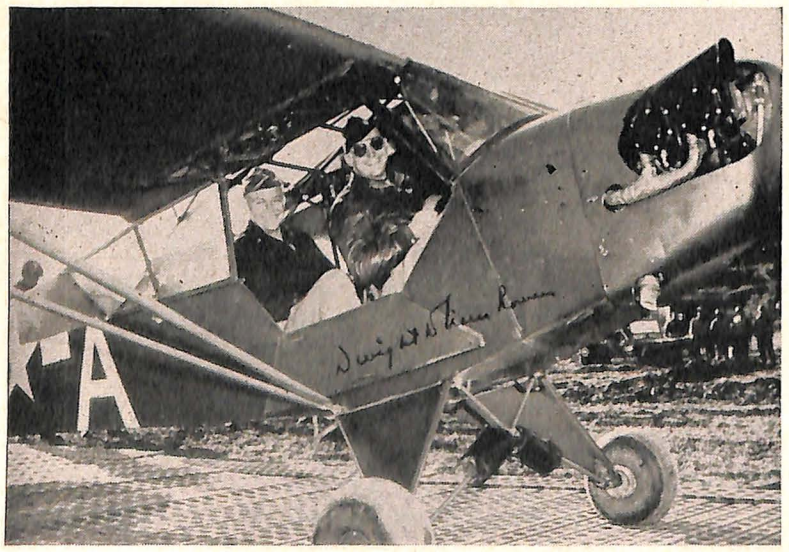
"It was difficult navigation, but he was remarkably accurate. I was quite impressed because he hadn't flown for several years, had never been in a lightplane, and the field on which he made his final landing was anything but desirable."

The plane President Eisenhower checked out in, in the Philippines, was an Army Air Corps PT-13, a far cry from the sweptwing jets of today's Air Force. This was an open cockpit biplane used almost exclusively by the Army for primary training at that time. The plane's 220-horsepower engine had a top speed of 125 m.p.h., and the gross weight was about 2,600 pounds. A typical primary trainer today has an 800-horsepower engine, a top speed of over 300 mp.h., and grosses 7,000 pounds.

Not only is Mr. Eisenhower the first president to be a pilot, but he is one of only three presidents who have ever flown while in office. Franklin D. Roosevelt became the first chief executive to fly when he took his initial presidential flight in 1943, but it was ex-President Harry S. Truman who really took advantage of this time-saving means of transportation. He covered almost 135,000 miles by air while he was president. His wide use of the airplane introduced a new mode of transportation for presidential campaigning.

During the recent presidential campaign, the vice-presidential and presidential candidates of both parties used the airplane to get their story across in all sections of the country.

President Theodore Roosevelt, who was in office when the Wright brothers first flew at Kitty Hawk in 1903, created quite a sensation when he took his first flight. Just shortly out of the White House, Roosevelt went aloft with Pilot Arch Hoxsey on October 11, 1910, during a flying meet sponsored by the St. Louis Aero Club.



One of few photos of President Eisenhower at the controls of an aircraft was taken during World War II. He learned to fly in a military trainer in the Philippines in 1939, but also piloted a light liaison craft during the pre-World War II Army maneuvers in Louisiana in 1941.

Big Plane Crosses Pacific—And Lands Before It Takes Off

A big transport of one of America's larger airlines recently outdid itself on a flight from Tokyo to Seattle, Wash. It left the Japanese capital at 9:10 one Sunday morning and after flying 4,961 miles across the Pacific arrived at Seattle-Tacoma airport at 9:07 a.m. — still Sunday (local Seattle time) and several minutes before it had taken off in Japan.

Landing only at Shemya, in the Aleutians, where it put down to refuel, the American-built airliner averaged over 310 m.p.h. on its long overseas flight. Flying the Great Circle route, its flight time was only 15 hours and 56 minutes.

These American-built planes frequently shave time off their scheduled 17 hour and 54 minute flight by taking advantage of strong tail winds. These winds, plus the International Date Line and several time zones, made this unusual flight possible.

Another "record" flight was made by one of these air transports flying a more southerly route, last fall when it picked up one of these "jet streams" off the coast of Japan. The help from these winds enabled it to completely pass the gas stop at Wake Island and it clipped seven hours off the schedule as it made the 18-hour run from Tokyo to Honolulu non-stop.

Aircraft Industry Training 27,000 Skilled Workers

Thousands of Americans have found the road to better jobs and better pay in the aircraft industry—and they're being paid while they learn.

A recent Government survey shows that 27,000 Americans currently are enrolled in in-plant training programs in 86 aircraft plants throughout the nation.

Designed to alleviate the shortage of skilled aircraft workers which has hampered the plane-manufacturing industry since the post-Korean buildup got underway, the plant training programs have produced workmen capable of handling the highly-skilled jobs required on modern plane production lines.

The Government survey indicated current shortages of tool and die makers, aircraft and engine mechanics, jig and fixture builders, machinists, and machine operators, among others.

The survey notes that the complexity of modern high-performance planes has made it necessary for workers to become proficient in a relatively wide variety of skills. Advent of the jet engine and other late aircraft developments have resulted in production-method changes which increase the need for worker adaptability.