STOP-AND-START PLANE BUYING IS COSTLY

U.S. Develops 34 Jets Compared to 24 British Types

The U.S. aircraft industry has a backlog of experience and "know how" in the development of jet powered aircraft probably unequalled by any other nation, according to a resume of Air Force and Navy jets which have been built and are flying.

In the field of jet transport plane development alone the British hold acknowledged leadership, with such planes already flying, while no jet plane for commercial passenger or transport service has ever been built— or even started—in the U.S.

Production Limited

The British showed 24 types of jet planes at their recent annual exhibition at Farnborough. The U.S. has a total of 34 different types of jet aircraft flying or being evaluated, according to records of the Navy and Air Force. Experience in the conventional aircraft field shows that U.S. aeronautical engineers can change from military to commercial types successfully when finances are available.

In both countries, the jets developed are not yet experimental, with relatively few having been produced in quantity even by peace-time standards. In the U.S. only two jet fighters have been produced at any time, mostly for testing how attaining such a rate. In Great Britain, only two jet fighters have been in production.

Actually the number of jets produced in both countries combined amounts to only a "dribble" compared to World War II standards.

List of Types

Here is the box score on U.S. jets: The Air Force has 11 types of multi-jet bombers, 12 types of fighters, and one trainer. The Navy has seven types of jet planes in operation. The military services have five types of planes using both jet and reciprocating engines. Going even further into aeronautical frontiers, the services have three rocket-powered planes and two types with both jet and built-in rocket power. In addition, the Air Force is developing a helicopter propelled by ram-jet engines.

Statistical results of the aerial war on grasshoppers read like a page out of "Believe It or Not," but it is more important that the undertaking set a pattern through which millions of dollars' worth of crops, range lands and livestock will be saved to the American economy in the future through the use of airplanes. And the recurring grasshopper plagues, against which man has been almost helpless since Biblical times, eventually may be wiped out entirely.

The 1949 infestation struck hardest in northern Wyoming and southern Montana where the grasshopper population reached as high as 2000 per square yard. U.S. Department of Agriculture entomologists, using three government-owned planes and contracting with private firms for 37 individually-owned planes, declared aerial war on the hungry insects.

Because of the wide geographical scope of the grasshopper plague, only the airplane has provided an effective means of control.

Airplane Becomes First Successful Weapon Against Grasshopper Plague

Mahon Demands Better Planned Appropriations

Written especially for Planes

Honorable George H. Mahon
Democrat, Texas, Chairman
Subcommittee on Military Appropriations
U.S. House of Representatives

The House of Representatives several times in the last few years has registered its conviction that our first line of defense is the Air Force. That being the case, it is imperative that we at all times support a logical and consistent program intended to guarantee that we have the most modern and effective Air Force in the world. I am proud that the House of Representatives has recognized the need for logic and economy in providing for the national defense.

A year ago we decided that thoughtful and careful studies of our requirements by such impartial and qualified agencies as the President, the Senate (Senate Appropriations Committee) and the Congressional Aviation Policy Board should receive adequate emphasis in our planning. The findings of these groups had great weight and were supported by the studies and hearings of our own committee. Our decision was that a gradual build-up to the 70-group Air Force was essential.

This year the House of Representatives again held firm to their belief in consistency and adherence to sound planning. We were faced with a budget involving a complete scrapping of the 70-group plan that had been recommended by the Finletter and Congressional Boards. The House decided instead by an overwhelming vote that the build-up towards a 70-group Air Force should be continued.

Our decision was based both upon our conviction that we must have an adequate Air Force and on a belief that it would be unwise to recommend a drastic cutback to the national security to cut back sharply Air Force appropriations just one year after the program had been started.

I firmly believe that adherence to a sound program and not the...
Your 3c. in U.S. Security

Few Americans doubt in this atomic age that air power, ready for defense and equally ready for retaliation in the event of attack upon us, must be of vital concern to the citizens of the United States throughout the foreseeable future.

At the same time, probably few citizens realize that only three cents of their Federal tax dollar in the 1949 fiscal year went for the procurement of aircraft—the front line of the nation's military security. Because of personal interest in his own security and his investment in it, every citizen properly should know more about the aircraft manufacturing industry, its problems, and the manner in which it is discharging its obligations to the country.

Unlike other business enterprises, the aircraft industry has little that resembles a normal free market. Government aircraft procurement today comprises approximately 85% of the industry's total production. The manufacturers have comparatively little control over the volume and nature of their markets, which depend upon a complex set of factors translated into an annual appropriation for the procurement of aircraft.

Yet despite this dependence on the government market, healthy competition flourishes and the competitive spirit accounts to an appreciable extent for the industry's progress and accomplishments.

But its problems are many. Their solutions depend upon and in the main call for long-range Government planning—and a full understanding by the public of the issues involved.

Another point of difference between the aircraft and other major manufacturing industries is the unusual close integration with technology and science. Technical factors are ever present in all phases of the industry's operation, and are among the principal determinants of success for any individual company.

Also, unusual capital and manpower problems result from the instability of its work load. Communities find it difficult to understand and to be reconciled to the violent and irregular employment fluctuations of the industry. Problems of management multiply with every change in procurement programs.

Obviously, the aircraft industry can operate more effectively and at lower cost with a relatively stabilized total market. Wide annual variations in procurement budgets should be supplanted insofar as possible by establishment of a carefully planned long-range program subject to annual review by the Congress.

This need was aptly summarized by the American Legion at its recent national convention in a resolution urging that

"the Congress immediately enact legislation to authorize a succession of five-year programs, renewable yearly, for research, development, and procurement of aircraft for the Air Force and naval air arm for the purpose of maintaining the industry in a state of production capable of rapid expansion."

When we visualize air power and its potentials, we must begin at the beginning. The beginning is the aircraft industry. It is upon the health and stability of this industry that our national security must depend.

Frank C. Ramsey (Admiral, U.S.N., Ret.), President, Aircraft Industries Association
**Facts and Figures**

Production of a typical new-fighter plane requires about 13,500 special tools.

Quality requirements for production of new combat planes are so rigid that one company uses on an average, one inspector for each 10 direct workers.

Princeton University and California Institute of Technology now have jet propulsion centers devoted to development of peacetime applications of rockets and jet propulsion.

The world's largest airplane tire—weighing more than a quarter of a ton with its inner tube—has been made in England for a British military transport. It contains 224 miles of nylon cord.

More than 80% of California's rice crop is sown from the air.

An airplane propeller manufacturing firm operates a 10,000-watt broadcasting station which cannot be heard; it produces vibrations to test propellers.

Great Britain not listed for socialization.

It's passengers on flights from California to Hawaii were riding the use of liquid hydrogen as fuel carrier-based jet fighter which has no landing wheels but makes belly deck.

**Competition Keen In All Stages of Plane Contracts**

The life cycle of an airplane is a story of business competition from its very beginning to its final end as an obsolete vehicle.

Design price and performance figures in the technical evaluation built up through the years by the Air Force and Navy Bureau of Aeronautics. Probably no other Government-awarded business must meet such intense competition and rigid tests as an airplane contract.

First in the cycle is design competition.

When aircraft are to be procured for a given type of operation, competitive proposals are advertised through a formal announcement of a design competition.

The competition is open to the companies which wish to bid for the business submit designs—either modifications of an existing airplane or a totally new configuration.

**Extensive Studies**

The extent of competition in this phase of the cycle is indicated by the fact that an Air Force trainer design competition last year brought forth 22 different designs from 18 companies.

These are not fancy advertising brochures, but consist of comprehensive design studies which may cost the company anywhere from $40,000 to a quarter of a million dollars to prepare. They represent intensive work by the most competent, and therefore the highest paid engineers.

Next comes the design contract, one or more of which may be awarded to one of the companies with the most promising entries, after careful evaluation. These awards, termed Phase I contracts, call for detailed engineering and usually for construction of one experimental plane or aircraft.

If, after completion of Phase I, the design still looks promising, the Government may award a second or an experimental or Phase II contract, calling for the construction of two or 3 experimental planes for flight and structural tests.

**PLANEs QUIZ**

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

1. The announced altitude record for a U. S. jet plane is: (a) 52,000 feet; (b) 48,486 feet; (c) 40,000 feet?

2. Memory test—What are the following famous planes and for what are they noted? (a) the “Tucolest Turtle”; (b) the “Enola Gay”; (c) the “Pacusan Dreamboat”; (d) the “Lucky Lady II”; (e) the “Winnie Mae”? 7

3. How many individual parts do you think go into the jet plane which holds the official world's speed record?

4. A successor to the first successful helicopter in the United States was observed in September. It was the (a) tenth; (b) fifteenth; (c) twenty-fifth;

5. The fastest U.S. transcontinental flight was: (a) under four hours; (c) under five hours; (b) under six hours?

6. Passenger loads on the world's airlines in one year will total: (a) 10,000,000 persons; (b) 20,000,000; (c) 5,000,000?

7. Six nations have airlines providing regular services across the Atlantic between the U. S. and Europe. Among these, the U. S. has (a) 45%, (b) 55%, (c) 70% of all the traffic?

8. A scheduled overseas airliner takes off from the U. S. on an average every 10 minutes; (b) every hour; (c) every five hours.

9. A scheduled airline plane is taking off or landing within the United States on an average of (a) every 10 minutes; (b) every five minutes; (c) every seven seconds?

10. True. False. Ordinary 100 horse-power lightplanes have successfully flown around the world.

**Air Force costs for 1 year, compared with amounts spent on tobacco, alcohol**

$8,800,000,000 SPENT IN 1948 FOR ALCOHOLIC BEVERAGES

$4,147,000,000 SPENT FOR TOBACCO IN 1948

*Of this amount $3,000,000,000 is for Air Force plane procurement. In addition, the Navy was voted $1,000,000 for plane procurement

*Sources: Dept. of Commerce "Prices"

**Aircraft Mechanic Schools**

A list of 102 aircraft mechanic schools in the U. S., shown alphabetically according to regions, is available from the Civil Aeronautics Administration Publications Section, Washington, D. C. Ratings of each school are given.

**Jet Types**

(Continued from page one) jets but had not yet put them in combat-type planes, military records indicate. The Germans were experimenting with jets as early as 1941, but there has been no plane manufacturing in Germany since VE-Day.

The U. S. has far outstripped the British in jet bomber development. The first U. S. multi-jet bomber flew on March 17, 1947; three other types were flight tested the same year and still another one flew May 19, 1948.

While the famous Whittle jet engine, developed by a British flight captain during the war, is still basically the jet power plant in use by the U. S. today, many developments and refinements have been made by U. S. engineers. For instance, in new metalurgy techniques the U. S. has made major advancements which increase range and power, military observers report.

**Varied Experiments**

U. S. experiments in the jet field include a tiny (15 feet long) parasite fighter plane to be carried in the belly of a bomber and released to intercept attackers. Two versions of the unique “Flying Wing” are equipped with jet engines. Also being tried is a delta-wing ( wedge-shaped) jet plane, indicative of the wide range of cero-dynamic studies which have built up the backlog of U. S. experience with jet power.

Other jet prototypes have been built, tested and evaluated, but not put into production when it was found that they would not meet requirements.
Answers to Planes Quiz

1. [a] 52,000 feet. The 48,846 figure is the height from which a Navy plane clearly photographed Washington, D. C.
2. [a] The “Truculent Turtle” is the F2Y patrol plane which flew 11,239 miles, Australia to Columbus, O., non-stop in 1946. (b) The “Enola Gay” is the specially equipped B-29 which dropped the first atom bomb on Hiroshima. (c) The “Gay” Post and Harold Gatty flew around the world in eight days, non-stop, 23,452 miles, in approximately 94 hours. (d) The “Winnie Mae” was the plane in which Willy Post and Harold Gatty flew around the world in eight days, 16 hours.
3. 500,000 pieces, including about a quarter of a million rivets and bolts.
5. [a] A U. S. jet bomber flew across the continent in three hours and 46 minutes.
6. (b) 20,000,000, according to International Air Transport Association figures.
7. [c]
8. [a]
9. [c]
10. True. Between Aug. 9 and Dec. 10, 1947, Clifford V. Evans, Jr., and George W. Truman flew around the world in two 100 hp planes, covering slightly less than 26,000 miles.

Air Quotes

“As a requirement of the 70-group Air Force program, there must be an aviation industry prepared to give us the aircraft and equipment we need now and capable of rapid expansion in event of an emergency. The aviation industry in this sense is understood to include a strong air transport system of commercial aviation.”
—Gen. Hoyt S. Vandenberg, Chief of Staff, U. S. Air Force

Long Range Planning Needed to Stabilize Aircraft Jobs

Stability Sought

In Aircraft Jobs

Employment in aircraft plants is subject to sharp fluctuations, not through the fault of management, but as a result of government procurement decisions which in turn hinge upon annual appropriations by Congress. Congressional long-range planning, at least on a five-year basis, has long been urged by the industry.

The number of people working in airplane plants at mid-year stood at 167,441, in contrast to the peak wartime figure of 1,256,945. The President’s Air Policy Commission and the Congressional Aviation Policy Board pointed out that unless a steady body of trained and skilled workers can be maintained in peacetime, effective expansion will be more difficult in emergency.

Community Aspects

A labor union report that in one instance 80 tool and die makers were laid off by a West Coast airplane factory for a period of approximately three months. At the end of the lay-off, only one of the 80 returned. During that period, 177 had found employment in other jobs (in some cases at a lower rate of pay). (Source: Chicago Tribune, 15 May 1949)

Prefering for Western “Hopper Roundup”

A Department of Agriculture plane being loaded with poison bait to be distributed over range-land in the first “all-out” aerial war against the grasshopper plague.

[Image of a chart showing the relative percentages of engines, propellers, and airframe for a plane, labeled “Many Industries Share Air Appropriations.”]

[Table showing Lightplane Operating Costs, with columns for fuel, oil, shopping, maintenance, and total cost per hour, and rows for different types of operations.]