Many Different Types of Planes Required Today

U. S. aircraft manufacturers are called upon to build a number of types of military planes — each type designed to serve a particular kind of mission or purpose. Out of the experiences of the war and of postwar engineering and aeronautical advancements, all these types are steadily being refined and improved.

For the Air Force, for instance, the industry produces at least 16 distinct types of planes, exclusive of several strictly research ships which are not classed as an actual part of the military equipment completed. A similar story is true of the Navy, although the Navy does not break down its types into as many categories as the Air Force.

To understand better the multiple roles of aircraft in present-day military practice, here is a thumbnail description of the various Air Force types:

**Air Force Types**

**Fighters:** The all-purpose fighters as a type are disappearing to be replaced by specialized types. The penetration fighter is designed for bomber escort and fighter-bomber attacks in support of ground troops. The interceptor is a high-speed, high-altitude, fast-climbing airplane; its mission is to knock the attacking enemy from the skies. The night fighter's specialized purpose is obvious and it also serves in inclement weather. Due to the highly specialized nature of the work, these airplanes require extensive electronic equipment to locate and attack the target, as well as precision teamwork between pilot and radar operator.

**Big Loads, Long Range**

**Transports:** The heavy transports carry large items of Army equipment weighing up to 50,000 pounds for extended ranges, while the mediums will drop and re-supply the Army's airborne divisions. The assault transport is built for take-offs and landings on short, obstructed fields.

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**New Military Aircraft Procurement**

**FISCAL 1950 APPROPRIATIONS COMPARED WITH 1949**

**AIR FORCE**

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Total Appropriation for New Contracts: $2,317,000,000

**NAVY**

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Profits for Businessmen, Farmers

Businessmen and farmers of today have found a common solution to problems occasioned by the age—they fly.

In a current survey conducted by the Personal Aircraft Council, Aircraft Industries Association, business executives, farmers and ranchers attribute to their use of personal aircraft a general expansion of business operations and particularly in the agricultural field, opportunity for greater participation in social and civic activities.

**Remarkable Record**

Thousands of personal and executive aircraft ranging from two-place planes to multi-engined transports are achieving a remarkable record of utility and safety in the hands of these non-professional operators.

The Council survey, results of which are summarized in a booklet, "Plane Utility," brought forth responses from 110 varied business occupations in addition to the agricultural segment.

William B. Belden, assistant counsel, Republic Steel Corporation, and chairman of the Corporation Aircraft Owners Association, commented upon the results of the survey, stating:

**Great Utility**

"There could be no more substantial testimonial to the growing importance of personal aircraft in the daily operations of industry and commerce than the underlying theme of 'utility' running through the numerous comments quoted in this booklet."

"It is extremely gratifying to those of us who saw, early in the post-war era, that the dominant role of aircraft in the war pointed the way to an equally dominant role in peace. The founders of the Corporation Aircraft Owners Association were not concerned in any way with the aircraft industry. They were customers who felt that by joining together they could..."

---

"COACHES’ BRING ERA OF MASS AIR TRAVEL"

Many Different Types of Planes Required Today

Senior Johnson Predicts Big Airline Gains

Written especially for Planes

By Honorable Ed C. Johnson

Democrat, Chairman

Interstate and Foreign Commerce

U. Senates

The glamorized "air age" is showing definite signs of becoming as much a part of our lives as the "automobile age" did a generation or two ago. One of the chief advancements in aviation during the past year has been the great forward stride taken by the scheduled airlines to make air travel available through the so-called "air coaches" to great masses of people who have not been able to afford it.

Air transportation has far outdistanced all competitors in the element of speed. Absolute safety in air is a goal which is coming rapidly into actuality. Furthermore, air travel is now on its way to becoming the most economical mode of passenger transportation. Through air coach service the airlines are at last reaching the mass transportation market which consists of millions of people previously unable to pay the high cost of pullman-type air service.

40% New Passengers

One airline testified that its surveys indicate that 40% of its air-coach passengers would not have traveled by air if it were not for the low fares. Similar statements have been made with even higher percentages by practically every non-scheduled operator who has appeared before our committee.

Air coach service was launched before 1949. In the fall of that year, applications for domestic coach fares were made to the Civil Aeronautics Board by many domestic airlines. In September 1949, one of our big airlines became the first scheduled international carrier to adopt this plan. It installed seating capacity, eliminated free meals and other frills,
PLANES

Planes is published by the Aircraft Industries Association of America, Inc., the national trade association of the manufacturers of military and commercial 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.
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Los Angeles Office: 7640 Beverly Boulevard, Los Angeles 36, California.

ALL MATERIAL MAY BE REPRODUCED—MATS OF ALL CHARTS ARE AVAILABLE

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

It is becoming well understood that as President Truman once declared, "It is vital to the welfare of our people that this nation maintain developmental work and the nucleus of a producing aircraft industry capable of rapid expansion to keep the peace and meet any emergency." However, the public probably does not yet realize that the aviation industry has now become a significant and permanent part of the nation's business economy in addition to performing its primary role in the national defense.

The era when aviation might have been considered only a hobby or a casual activity for a few enthusiasts has long since passed. Aviation in all its diverse aspects is now a vital part of our lives and commerce.

The manufacturing industry in itself is a sizable part of the economy, contributing to the business and welfare of every part of the nation. In the month of September, 1949, according to Department of Labor statistics, the aircraft and parts industry, with its 258,000 employees, ranked fifth in the number of employees in the entire durable goods manufacturing segment of our economy and ranked second in the transportation equipment manufacturing field. Among these durable goods manufacturers exceeded by the aircraft industry in employment level were manufacturers of communication equipment, household furniture, fabricated structural metal products and the iron and steel foundries.

Indeed, in at least eight states in various parts of the country aircraft and parts manufacturing is the principal employer, or near the top of the list. These are California, Texas, Washington, Kansas, New York, New Jersey, Connecticut and Maryland.

But the impact of productivity in this industry is not localized. The effect spreads down through various tiers of subcontractors and suppliers in every state. Immense small business firms find outlets for their skills and products by supplying the aircraft and commercial aviation industries and their related activities, such as research and development laboratories, airport installations, communication network and meteorological stations.

A single plane builder recently reported placing 100,000 separate purchase orders to obtain thousands of tons of materials needed to build the planes required in one fighter order.

Scheduled U. S. domestic and international airlines this past fall were employing some 27,500 people. Domestic lines were providing service to 705 U. S. cities, large and small; carrying 43% of the total first class travel market as against 39% in 1948 and only 13% in 1945. They estimate that in 1950 they will carry at least 461/2%.

Private flying, with almost 100,000 personal aircraft being used in this country, has changed the lives and occupations of thousands and is contributing more and more to commerce, agriculture, industry and the development of our resources. More than 100 different types of business concerns are using private and executive transport aircraft.

Transportation of cargo by air, both in scheduled and nonscheduled service, has become a major big business enterprise.

Fixed base operators—alert small companies providing important air services in nearly every city and town of the U. S.—constitute another sizable activity of inestimable business value.

Research, employing some of the best brains and skills of the country, is constantly being pressed forward.

Although standing as the vital bulwark of air power, without which there would be no national security, the aircraft industry does not exist solely to forge and machine weapons of war. This industry and its operational counterparts, commercial and private aviation, have taken their places of growing importance in the business economy of our country.

(Continued from page one)

PROFITS

(Continued from page one)

benefit mutually through the exchange of operational and other data, and also could serve American industry as a whole by stressing the importance of company-owned aircraft in today's business world."

Charles Rose of Roseland, Arkansas, president of the National Flying Farmers Association, commented in similar vein. A Civil Aeronautics Administration survey recently published under the title "Aircraft Use in 1948" shows a substantial increase in business flying as "the most encouraging aspect of the 1948 private flying picture."

2½ Million Hours

Business flying, which includes not only flying for corporate or executive purposes but flying by individuals, including farmers on personal business, totaled 2,576,000 hours, compared with 1,966,000 hours in 1947. This was a gain of 31%, and marked the second consecutive year that business flying has registered the largest proportionate gain of any type of flying.

Approximately 32,110 aircraft were engaged in business flying. This was 36% of the total.

Among those operating their own planes in business are representatives of:

- Aluminum Boats, Alfalfa Dehydrating, Advertising Displays, Automotive, Building Contractors, Breweries, Banking, Beverage
- Chain Manufacturer, Cheese, College, Canning, Fuel, Chain Requirements, Chemicals, Candy, Concrete Products, Commissions, Dentists, Supplies, Decorations, Dyestuffs, Department Stores, Dentists, Drainage Contractors, Engineer, Electronics, Fishing Tackle, Funeral Directors, Furniture, Fibres, Farm Implements, Feed Brokers, Fishing, Veeneer (Building), Glass, Manufacturing, Grocery, Hydraulics, Machine Shop, Plumbing, Hotel Advertising, Hotel Operating, Insurance, Ice Manufacturing, Investments, Lumber Manufacturing, Logging, Lawyers, Lawn Mower Manufacturer, Lockset Plants.

Railroad Supplies


Railway Cars and Supplies, Restaurant and Store Equipment, Roofing, Radio Equipment, Real Estate, Road Construction, Restaurants, Roofers, Bearers, Sheet Metal, Sanitarium, Sanitary Ware, Spark Plugs, Sales Engineers, Steel Castings, Sawmills, Surgeons, Shipbuilding, Tool Manufacturers, Telephones, Tool Manufactures, Textiles, Theslers, Threaded Fasteners, Textile Machinery, Trucking, Wood Preserving, Water Treatment Equipment.
More Planes Needed
In Airborne Forces
Gen. Devers Asserts

Strong recommendations that the U.S. Air Force build up its troop carrier strength and be prepared to move large airborne armies if necessary were made in a recent report by General Jacob L. Devers upon his retirement as commander of the Army Field Forces.

General Devers held that present troop carrier strength, in number of planes available, is pitifully inadequate and should be built up "to a figure more in consonance with airborne requirements."

During World War II the U.S. had 15 airborne regiments, none of which played vital roles in the capture of Germany, and 109 troop carrier squadrons—or about 1,500 planes. Today the U.S. can count six airborne regiments but only 18 troop carrier squadrons—a mere 250 planes.

General Devers pointed out that the present troop carrier force could transport no more than 2,364 men and about 7,000 pounds of equipment, roughly equivalent to one airborne regiment. To move an airborne division (about 15,000 men and 111,000,000 pounds of equipment) 910 of the medium troop carrier planes now in use would be required, he said.

The retiring general also urged that continuing study be given to the problem of reducing the weight of infantry equipment to make foot troops completely air transportable. To be prepared for the supplying of large airborne operations, he urged the study of logistical support for a four-division airhead.

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Fuel consumption in the currently biggest U.S. four-engined passenger aircraft in airline operation is 467 gallons per hour. Normal fuel capacity is 7,700 gallons stored in nylon cells in the craft which weigh nearly a ton less than conventional containers.

Eleven per cent score on this quiz is inadequate and should be built up "to a figure more in consonance with airborne requirements."

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Fliers, Fly to the Fair

Historical cycle in the Air Age: The Kansas State Fair has built a landing strip on the grounds at Hutchinson, Kan., so that farmers, who once drove their horses miles to see an airplane at the fair, now can fly there in their own planes — to see the horses!

Answers to Planes Quiz

1. (a) Commercial operations were begun May 17, 1920, by a Dutch airline which is still operating. It first used British World I planes carrying two passengers in an open cockpit.

2. (c) Glenn Curtiss won the Gordon-Bennett Trophy Cup in 1919 with an "amazing speed" of 47 miles an hour.

3. (c) Each new propeller blade design is subjected to full-scale vibration testing — often at a rate as high as 10,000,000 vibrations every 24 hours. Stresses are measured at as many as 50 different places on the blade.

4. (b) A total of 807 cities are served directly by scheduled flights; most of the remaining 39,500 post offices are within a short distance of these points.

5. False. Lindbergh's U.S.-Paris flight in 1927 covered 3,610 miles. The late Bill Odum, in 1949, set a light airplane record of 4,957 miles — which was also the greatest non-stop solo distance flight.

6. (a) Two Marine Corps and Army flyers in 1910 built at Fort Baran­neces, Fla., the first aircraft for carrying passengers. They were unable, however, to interest the War Department in providing funds for such a plane.


8. (c) It has 2,300 cubic feet capacity.

9. (a) Landing gear is retracted electrically in nine seconds; lowered in three seconds.

10. (c)

Plane Types (Continued from page one)

Trainers: Basic and advanced trainers are for the two major stages in the teaching of military pilots. Another special type has been developed, with the most modern equipment, as a navigational trainer.

Other Types: Special light planes have been developed for liaison and rescue work, as have the Air Force helicopters. Reconnaissance aircraft generally are modifications of bombers or fighters to perform strategic or tactical missions.

Naval Types

Bombers: The Navy, of course, has no extreme range bombers, since its mission does not require them. For purposes of classification, Navy bombers may be broken down into two general types: the land-based patrol bomber and the carrier-based attack bomber. The former has a range comparable to the Air Force's medium bomber, and its mission is to patrol areas where enemy shipping might be encountered and to destroy it.

One type is being adapted for carrier operations. The latter type is a short range bomber, equipped with special electronic devices capable of finding enemy shipping, particularly submarines with insufficient bomb or torpedo capacity to destroy the target after landing. The attack bomber might be a jet aircraft, but present production models are either piston- or jet-powered or propelled by a combination of piston and jet power.

Fighters: The scene with the Navy is on the multiple purpose fighter. Naval fighters, are, in the main, designed for support of the fleet task, either as interceptors for defense of the fleet force against enemy aircraft and as troop support fighters for landing operations, or as attack aircraft against enemy waterborne operations. The radar-equipped all-weather fighter is, of course, included.

Partners in MATS

Transports: The Navy's prime transport is the flying-boat aircraft, large aircraft capable of very long range missions with heavy payload. Currently, the flying boat category is classified against conventional, reciprocating engines, but there is a possibility that another, turbo-prop-powered plane might enter the field. The flying boat transport is designed for use as a fleet logistic support aircraft, operating where land-type planes would be of little use.

The Navy, however, is also a partner in the Military Air Transport Service, and as such, still procures and supplies to MATS conventional land-type transport planes.

Trainers: Navy training types are similar to those of the Air Force. Basic training is taken in a single-engine, two-place counterpart of the Air Force's basic trainer. Advanced training is taken chiefly in older-type operational carrier aircraft, although the Navy, like the Air Force, has a jet trainer.

Other Types: The helicopter has probably seen more use in the Navy than it has with either of the other services. The Navy is particularly large in use of the helicopter as an assault plane for Marine amphibious operations. In addition, there are three types used for rescue work. The helicopter has also proved itself valuable for ship-shore or ship-ship liaison work. There is also the small, utility transport, an amphibian type capable of longer-ranging ship-shore duty.

A new type of Navy plane is the flying intelligence center, equipped with electronic equipment for early warning. The Navy has procured a few experimental models of this type of plane, but has not put out into large scale production. The existing model of this type is a modification of a transport airplane.

For Marine transport operations, the Navy utilizes a plane similar to the Air Force's troop carrier plane, in fact the same plane with only minor modifications.