CIVIL AVIATION HAS BIG ROLE IN DEFENSE

Major Powers Of World Turning To New Jet Aircraft

The world's major air powers are rapidly converting to jet-powered fighters and must have placed jet bombers into production. This means the speed of combat aviation is roughly 200 mph greater than it was in World War II. The U.S. is building its air power to meet or surpass possible jet opposition.

Current fighter aircraft orders for the U.S. Air Force and the Navy air arm, including the Marines, are almost exclusively for jets. Although not generally realized by the public, Air Force fighter orders during fiscal years 1949 and 1950 also were 100% for jets. During fiscal 1949 and 1950, Navy orders for fighters were approximately 90% for jet-propelled types and for fiscal 1951, based on information currently available, jets comprise 100% of the orders.

U.S. Types in Service

The Air Force has in service four jet fighter types and one jet bomber. Deliveries are beginning on another jet fighter and another jet bomber. The Navy air arm is equipped with six different types of jet fighters, and an additional type is now in production.

As far as is known, no new types of fighters or bombers on American design boards employ reciprocating engines—all are jet or turbojet types.

How the same trend is evident in foreign countries is shown by a compilation of the known types of other military or potential military powers:

- **Russia**
  - The MiG, the Yak 15 and Yak 17, in the fighter category.
  - The Tupolev four-jet bomber and the Tu-4 bomber.

- **Great Britain**
  - Among jet fighters, the Vampire, the Sea Vampire, and the Mosquito.

Russia Hikes Production

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Recent developments indicate that production of Russian jet fighters has been stepped up to the rate of 10,000 per year. (This compares with the U.S. pre-Korean rate of approximately 300 jet types.)

Aeronautical research, widening at a constantly accelerated pace in recent years, has become such an important part of the aircraft industry as to place it—in the concept of ability to maintain adequate national defense—on a par with American manufacturing ability itself.

A review of the annual reports of the major aircraft manufacturer discloses that virtually all of them have stepped up specific research activities from 20 to 40% during the past two years, in terms of both expenditures and manpower assigned to the task. Aircraft firms literally comprise one of the nation's front lines of researchers.

A sizeable percentage of present-day aeronautical research is being invested in special weapons—jet power, guided missiles, electronics devices, ser-vo-mechanisms.

A large portion of the research work and the cost of special equipment and facilities is financed by the aircraft companies themselves, both in the improvement of current types and the development of new types.

Stepped Up Aeronautical Research

Aeronautical research...

Full Recognition By Government In War Plans Needed

By Rep. Lindley Beckworth
Democrat, Texas, Chairman
Transportation Subcommittee, Interstate and Foreign Commerce Committee

Civil aviation, which prior to World War II was only a promising infant, stands ready in the current emergency to serve as an integral part of our vital transportation system. The radially increased contribution civil aviation is making to our defense effort will, accordingly, receive adequate recognition from our economic and military planning.

The increased stature of civil aviation is exemplified first by the airlines. Before World War II, they operated less than 400 aircraft and carried less than two million passengers annually. Now more than a thousand much larger aircraft fly the airlines and carry 15 million passengers annually. Air transport is unquestionably vital to defense.

The growth in non-scheduled aviation is even more striking. Before World War II, feeder airlines, charter and cargo operations were virtually non-existent. Now they give employment to thousands.

Personal aviation before 1940 was largely a luxury or sport. Its main function in the national defense was to contribute to pilot training. Now there are more than 30,000 aircraft owned and operated by corporations, business firms, ranchers and farmers plus another 30,000 used for training, charter service and for pleasure. More than 5,000 fixed-base operators provide employment for some 32,000 persons.

Recent government and industry publications have shown more than 100 individual and separate industrial uses for personal aircraft. Non-scheduled aviation, particularly privately-owned aircraft, unreasonably has become a major component of this country's transportation system. This has brought out very forcibly in the comprehensive report entitled America's Civil Air Power prepared by the Administrator of the Civil Aeronautics Administration by his Aviation Development Advisory Committee.
Problems of a Partial Mobilization

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

Many of the problems confronting the aircraft industry during the next several months stem from the fact that we as a nation are engaged in only a partial, and not in a full-scale, mobilization effort. The acute national concern over the situation in Korea tends to divert attention from the relatively limited magnitude of our defense program. Moreover, the establishment of the new economic controls—although they, too, are of relatively limited scope—likewise creates an impression that full-scale mobilization is underway.

However, many criteria clearly show the limited nature of our current production and mobilization programs. The appropriations for aircraft procurement, shown elsewhere in this issue, afford one measure. The peak rates of production to be reached under the present program some two years from now are only about 1/15th of those attained in World War II. Officials of the defense establishment have stated that, barring a further serious deterioration in the world situation, plans do not contemplate the reactivation of currently-idle World War II aircraft production plants. The Administration has announced that there will be no wage or price ceilings instituted for the time being. An intention to rely upon voluntary allocations and a limited system of military priorities rather than any comprehensive or all-inclusive controlled materials plan such as was found necessary in World War II has been clearly indicated.

This limited or partial mobilization makes for a number of difficult problems for the aircraft industry in meeting its current production assignment. Most mobilization plans, including those developed by the Munitions Board, the National Security Resources Board and the industry itself, envision all-out, full-scale mobilization for global war. Obviously, time has not been available to the agencies concerned to design, develop and finalize policies and procedures tailored to fit the peculiar requirements of partial mobilization.

Aircraft manufacturers endeavoring to expand their production have encountered difficulty in getting needed prompt deliveries of aluminum, steel, machine tools and other critical components and parts. Whether this situation will become sufficiently serious to necessitate the imposition of mandatory priorities, and even a controlled materials plan, is something that cannot now be foreseen.

Reflecting the effects of the new wave of wage increases and other factors, the costs of a large number of components utilized in aircraft manufacture have increased from 5% to as much as 40% since July 1. Such cost increases may force the Air Force to ask for another supplemental appropriation, according to Undersecretary McConne.

In the field of manpower, no controls over wages, salaries or hiring are planned for the present. The aircraft industry, therefore, will have to compete for the skilled employees it must recruit in the months ahead with producers of civilian goods now operating at record levels and currently engaged in placing into effect "a fifth round" of wage increases.

The industry is, of course, actively producing transport, personal aircraft and helicopters for the civilian market. While some of our military contractors have found numerous suppliers unable to fill military orders because of booming civilian demand, other producers of commercial craft are often told that military needs have absorbed the materials and components desired for transports and personal planes.

Scarcely any of the problems cited would occur in the form described under an all-out mobilization with curtailed production of civilian goods now under way. Yet, every one of these problems promises to increase the cost of aircraft or seriously to delay scheduled production or both.

Fortunately, the same management skills which so successfully met the production challenge of World War II are available to the country today. We can find satisfaction, therefore, in the knowledge of the existence of this invaluable reservoir of experience upon which the responsible government agencies may draw in surmounting the problems of partial mobilization.
IT TAKES TIME TO BUILD A MODERN AIRPLANE

Many Weeks Required to Make and Deliver Intricate Components for Final Aircraft Assembly

Hundreds of different manufacturing plants are required to turn out the precise parts which go into a complex modern airplane. This picture story shows the material procurement time for a few of these items—the time needed for initial shipments from the vendor’s plant after placement of the order. This applies when the design is fixed. In cases of new design, more time is needed for tooling, die making, forgings, etc. Finally, the procurement time chart does not indicate the full time needed for manufacture of an airplane, since additional weeks are required for assembly of the components.

SOURCE: Analysis of Material Procurement Time, Typical Aircraft Company (Revised Aug. 10, 1959)

"PLANES"
CIVIL AVIATION

(Continued from page 1)

There is no system of allocations or priorities, the equipment and materials needed to maintain the fleet of national aviation should be provided on the same basis as is accorded other components of the transportation system. The supply of transport and other planes used in business, and replacement parts therefor, is clearly adaptable to national defense and should be made available to the supply of equipment and replacement parts for the railroads and the steamship lines.

Manufacturers' Recognition

Adoption of this principle will necessitate recognition by our government agency charged with priorities and allocations of recent trends within civil aviation and its increased capacity in relation to other branches of transportation and in the economy as a whole. For example, a plan which merely allowed the manufacture of planes, parts and equipment at the 1949 or 1949 level, a percentage of these periods, would penalize all branches of civil aviation. This is because production of transport and personal planes and the equipment therefor was at a comparative high in 1949 and early 1950, a time when the rest of the nation's economy was booming. Delivery of transport aircraft were only 165 in 1949 and 47 in the last half of 1950, compared to 265 in 1948 and 279 in 1947 and more than 400 in 1946. Personal aircraft production in 1948 totalled only 3,379 compared to more than 15,000 in 1947 and 34,000 in 1946. Such figures graphically illustrate the reason for the statement contained in the report on civil aviation:

"...thought must be given to increasing our supply of smaller aircraft, and to manufacturing the quantity of parts which will be necessary to keep our present civil air fleet operating through time of crisis...."

Answers to Planes Quiz

1. (b) 239 foreign points on all continua.
2. (b) A 19-foot, eight-bladed, dual rotating propeller made by a U. S.
3. (a) Rolling Royce.
4. (c) GAT.
5. (b) 20 foot, eight-bladed tropic.
6. (b) 1945.
7. (b) 1935.
8. True. For the Air Force's cooperation and coordination between the ground and air forces is enabling us to concentrate our efforts which is superior in numbers. When we assume the offensive, this same cooperation and coordination will be a vital feature in the ultimate defeat of the enemy." — Maj. Gen. W. B. Kean, CG 35th Infantry Division in Korea, on Sept. 5, 1950.

RESEARCH

(Continued from page 1)

ment of commercial planes and military planes. Besides the more spectacular programs such as jets, atomic powered and supersonic planes, specific research undertakings during the past two years include:

2. High speed planes.
3. High pressure engine, 5000 psi.
4. Successful wind tunnel tests, 5000 mph.
5. Air Lastic filling, 5000 man.
6. Air Lastic filling, 5000 man.
7. Air Lastic filling, 5000 man.
8. Air Lastic filling, 5000 man.
10. Air Lastic filling, 5000 man.

Cabin superchargers, air conditioning units, fissionable fuel tanks, reversible pitch propellers, non-inflammable hydraulic fluid, square-edged stabilizers for reduction of noise.

Much work has been done in the development of new materials which can withstand the terrific temperatures and speeds of modern aircraft and conserve strategic minerals. There has also been much research in plastics and lightweight materials.

One large current project is research on use of magnesium in wing structures.