



Assembled and Released by the Aviation News Sub-Committee of the Public Relations Committee, Aeronautical Chamber of Commerce of America

(Release Jan. 1)

FIRST THINGS FIRST: The American aviation industry had a job to do in 1940. That job was to expand existing facilities and personnel to a point where in 1941 the industry could produce the thousands of military airplanes required for defense.

Between Jan. 1, 1940, and Jan. 1, 1941, the aviation industry doubled its productive floor space and nearly tripled the number of its productive employees.

Thus the decks have been cleared for production—1941's big job.

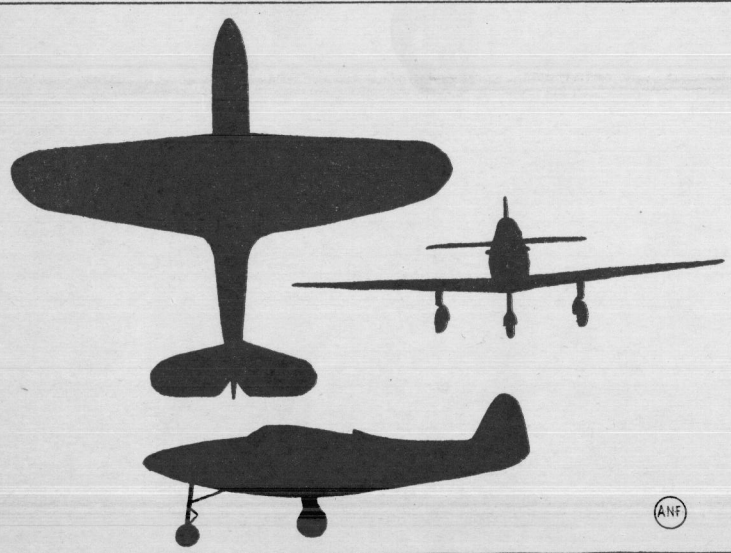
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AVIATION NEWS COMMITTEE

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Know America's Planes

BELL AIRACOBRA



Here are three views of one of our finest interceptor pursuit airplanes. Note the tricycle landing gear and the long, slim nose. They are characteristic features of the Bell Airacobra, a one-place monoplane in which the Allison liquid-cooled engine is located behind the pilot.

EDITORS: IF YOU ARE NOT RECEIVING AVIATION NEWS FEATURES' MATS OR GLOSSY PRINTS, PLEASE WRITE TO AVIATION NEWS COMMITTEE, 7046 HOLLYWOOD BLVD., LOS ANGELES, FOR THIS SERVICE.

PLANE FACTS:

It Climbs a Mile While You Count 60

An interceptor-fighter which climbs at the amazing speed of a vertical mile in 60 seconds... that's the new 21B, now in production at the St. Louis Airplane Division factory of the Curtiss-Wright Corp.

According to the designers, who announce the ship has a "guaranteed speed of 333 miles per hour..." the CW-21B starts climbing virtually from a standing start, which, coupled with the high rate of climb at a steep angle, allows for its operation from temporary fields of small dimensions.

The U. S. Army is converting obsolete training planes into radio-controlled targets for anti-aircraft gunners.

A new twin-engine amphibian plane—the "Widgeon"—has been placed on the market by the Grumman Aircraft Engineering Corporation of Bethpage, N. Y. Designed for private owners, the Widgeon is powered by two Ranger motors of 200 horsepower each and will seat four under ordinary conditions or five with a reduced fuel load.

"Lancer" Is New U.S. High Altitude Fighter Plane Batters Top Speed Guarantee in Test

NEW YORK, Jan. 00.—(ANF)—Another formidable aerial fighter, the "Lancer," built by the Republic Aviation Corp. at Farmingdale, L. I., has undergone tests, with reports from Army Air Corps representatives that it has exceeded its top speed guarantee by more than 20 miles per hour.

The "Lancer," company officials revealed, was designed as a high-altitude fighter with a super-charged Pratt & Whitney engine, giving the ship extreme efficiency as a weapon to combat bombing planes which now seek highest altitudes to avoid anti-aircraft gunfire.

They're YOUR PLANES Today every man, woman and child in America owns a part of an airplane, because the tax dollars of the nation are paying for the Army and Navy aircraft, which are, of course, the property of the people. Hence, Mr. and Mrs. Smith, from coast to coast, are buying airplanes—billions of dollars' worth at a crack!

AEROQUIZ U.S. Navy Uses 7 Types of Planes

Q—What are the principal types of aircraft used by the U. S. Navy?

A—Long-range patrol bombers, torpedo bombers, shipboard fighters, scout (dive) bombers, scout observation ships, utility transports and trainers.

Q—What is a constant speed propeller?

A—One which instead of gaining speed in dives and losing speed in climbs automatically maintains a constant, predetermined number of revolutions per minute.

Q—How does the value of American aircraft deliveries in 1940 compare with that of last year?

A—Deliveries for 1940 totalled \$625,000,000, as against \$225,000,000 in 1939.

Missouri City Gets Huge Aircraft Plant North American Factory Will Employ 15,000

In line with the rapid pace at which American airplane production is expanding comes announcement that Kansas City, Mo., will be the site of a million-square-foot plant to be erected by North American Aviation, Inc., of Inglewood, Calif.

The building will be designed for use, after the current national defense emergency, as a U. S. Army Air Corps maintenance depot for twin-engine and four-engine bombers.

North American, already constructing a 600,000 square foot factory near Dallas, Tex., will employ about 40,000 workers at peak production: 12,000 at Inglewood, 13,000 in Texas and 15,000 in Kansas City.

Baltimore Plane Plant Increases Working Area

BALTIMORE, Jan. 00.—(ANF)—More than 3,800,000 square feet of enclosed manufacturing space will be utilized for airplane production at the Glenn L. Martin Company plant when expansion now under way is completed during 1941.

The factory will then have one of the largest areas in the United States devoted exclusively to plane manufacture, according to the Aeronautical Chamber of Commerce.

Aircraft Industry Lets Millions in Sub-Contracts, Aiding Smaller Firms Army and Navy Experts Laud Spreading of Work as Means of Speeding Up Defense

NEW YORK, Jan. 00.—(ANF)—Confronted with the task of supplying the greater portion of the military and commercial airplane needs of two great nations, American plane manufacturers are rapidly adopting a "spread-the-load" policy which involves considerable sub-contracting or "farming out" parts of their defense orders to smaller concerns.

War and Navy department officials are in agreement with the "prime" contractors—those holding direct Army and Navy orders—that this policy appears to represent the best means of spreading the rearmament load and accelerating production in view of potential bottlenecks created by the sudden demand for machine tools.

Such large-scale sub-contracting is but the development of a trade practice which has long been standard among the larger plane manufacturers.

Col. John H. Jouett, president of the Aeronautical Chamber of Commerce of America, estimates that the airplane manufacturers are at present sub-contracting ten per cent of their products, and engine and propeller manufacturers up to forty per cent.

Parts Association In Southern California, center of much of the dollar-volume aircraft manufacturing at present, parts fabricators have formed the Aircraft Parts Manufacturers Association to expedite the sub-contracting phases of this work.

HUGE SUB-CONTRACTS Only recently the Douglas Aircraft Company of Santa Monica, Calif., announced that \$75,000,000 worth of plane parts would be purchased from factories in many parts of the nation—some of them as far away as the eastern seaboard.

The plane manufacturers and the government officials in charge of procurement join in pointing out that this widespread system of sub-contracting will be highly beneficial to the industry in a number of ways.

First, it will help speed completion of the nation's airplane defense program; likewise it will insure work for the smaller machine and fabricating plants. It will permit the plane manufacturers to increase their production schedules by freeing them of the necessity of manufacturing everything under one roof.

Leading Aircraft Plants Working 24-Hour Basis Industry Pledges Support in Speeding Defense Production

NEW YORK, Jan. 00.—(ANF)—Most of America's leading aircraft and engine factories are now working "around the clock" to speed up the production of airplanes for national defense and others will be in a position to do so in the near future.

This fact was revealed by Col. John H. Jouett, president of the Aeronautical Chamber of Commerce, in pledging the National Defense Committee of the industry's full support in the drive to arm America in the air.

Amplifying on a recent statement by Defense Commissioner William S. Knudsen on aircraft production, Col. Jouett pointed out that "delays and shortages outlined by Mr. Knudsen have not been of our making."

"Defense Commissioner Knudsen," Col. Jouett continued, "can depend on the aircraft industry for complete and sincere cooperation in his efforts to get 24 hours of production out of each 24 hours at our disposal."

"The full scope of the program is just beginning to unfold. Most of the larger units in the industry already are working on a three-shift, 24-hour basis and others will be in a position to do so soon."

"The industry will welcome suggestions or measures on the part of the Government which will permit further acceleration of production effort now restricted by factors beyond our control. These include completion of new factories, increase of sources and volume of machinery and supplies and legal limitation on working hours."

Col. Jouett pointed out that last summer, when the pending procurement schedule was first outlined, the manufacturers warned the Government that its proposed program would require more time and greater facilities than were available, or in sight.

"However," he added, "the manufacturers said they would do everything in their power to carry it out in full. To make this possible, the aircraft manufacturers in the last year added more than 100,000 shop employees and increased productive space from 11,900,000 square feet to 22,500,000 square feet, with approximately the same increases still to come."

"That unprecedented expansion and numerous change orders and revisions of new models ordered by the Government resulted in some delays. In spite of that, as Mr. Knudsen points out, we feel the program is moving at a rapidly increasing rate and will be completed successfully if all groups concerned with our national safety give full-hearted support."

Under these circumstances a military airplane is no simple machine to produce. Here, in brief, are the various major steps in its creation: Engineering—Where the ship is designed to the specifications of the buyer. Production engineering—Stepping into the picture early, the production engineer and the production planning department make certain the proper tools, jigs, etc., are designed and ready, in order that no factors exist which might halt the steady flow of production.

Material release—Here rests the job of obtaining and clearing the stock and materials needed for the building of the plane. Fabrication—Here the raw stock is cut, milled, bent and hammered into the thousands of parts that make up the airplane. Tools range from the simple hand tools to the electric spot-welding apparatus to huge metal shapers and presses exerting millions of pounds of pressure.

Sub-assembly—Here the small symphony of the riveting machines rises to a crescendo, as workers build each airplane in sections... tail assemblies, fuselages, center wing sections, outer wing panels, cockpit canopies, landing gears. These sections feed steadily into: Final assembly—Long lines of ships flow through the factory, the airplanes taking on more of their final form at each station, as new sections are added. Last major step usually is installation of the power plants, after which the planes move from the factory onto the plant airport for flight testing.

Inspection—Running through the entire process of building an airplane is the minute inspection of raw stock, parts, assembled units and finally the completed ship.

American aircraft manufacturers, the Aviation News Committee learned, have evolved many methods of speeding up production for national defense—developing new tools, increasing the movement of parts from station to station, synchronizing the tempo of assembly.

But there has been no elimination of methods that make for higher performance, no short cuts that might mean sacrificing the high standards of safety which have become synonymous with American aircraft.

Building U. S. Warplanes Is Precision Job But Makers Have Found Many Ways to Speed Up Production

LOS ANGELES, Jan. 00.—(ANF)—Answers to the question—"How are modern warplanes built?"—are found behind the scenes in America's factories where aircraft builders have established methods attaining a happy medium between custom work, such as goes into a battleship, and mass production, illustrated by today's automobile.

Custom work, painstaking and detailed, must be maintained, for the warplane is a precision machine—although it may weigh up to 80 tons!

Mass production results must be attained to provide the nation with a powerful air force.

A PRECISION MACHINE At a leading factory here, the Aviation News Committee of the Aeronautical Chamber of Commerce watched step-by-step the creation of military planes for the United States and Britain.

Immediately apparent was the fact that airplanes, and most particularly high-speed military airplanes, cannot be "punched out" in mass, like doughnuts popping from a show-window baking machine.

As one aeronautical engineer put it:

"The modern airplane is a precision machine, which must be able to travel at speeds of 300 to 400 miles per hour. Called upon to perform the most difficult maneuvers at such tremendous speeds, it must be built to withstand stresses far greater than in any comparable machine, for failure of any structure or part can mean only one thing—disaster."

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QUOTE and END QUOTE "Some of the American planes we are receiving are equal to the best we produce. For example, the speed of the Curtiss P-40 is equivalent to that of the Spitfire, which we think is very good."

—Lord Beaverbrook, British minister of aircraft production. "Defense Commissioner Knudsen can depend on the aircraft industry for complete and sincere cooperation in his efforts to get 24 hours of production out of each 24 hours at our disposal."

—Col. John H. Jouett, president, Aeronautical Chamber of Commerce of America. "The U. S. War Department has not only developed but is procuring equipment which, from all information which can be secured from observers in Europe, is equal or superior to that now employed abroad."

—Gen. George H. Brett, U. S. Air Corps. LOTS OF PARTS One of the heavy duty radial motors used in our latest bombers, pursuit ships and airliners contains some 5500 parts.

Survey Shows Plants in '40, Planes in '41

Aircraft Factories Double Floor Space, Triple Shop Personnel

LOS ANGELES, Jan. 1.—(ANF)—A year's end statistical roundup today showed a record of accomplishment in the American aircraft industry's first national defense job plant expansion.

Decks are cleared for the industry's 1941 task—large quantity production of military planes. While accomplishing tremendous expansion of plant and shop personnel, the manufacturers of airplanes, engines, propellers and accessories more than doubled production, the Aviation News Committee of the Aeronautical Chamber of Commerce reported.

PLANTS FIRST ESSENTIAL Pointing out that the thousands of airplanes required for national defense could not be built without the necessary plant facilities, the committee said:

"Expansion was the aeronautical industry's job in 1940—that and the hiring and training of men to build the airplanes needed by the United States and Great Britain. How well the industry has handled its 1940 assignment may be judged by the following statistics:

"At the start of 1940 the industry had 11,983,896 square feet of working space. At the end of 1940 this total had been expanded to more than 22,500,000 square feet.

EMPLOYEES TRIPLED "On January 1, 1940, there were 60,000 productive workers employed. On January 1, 1941, that figure had risen to better than 165,000.

"In other words, the aeronautical industry doubled its productive working space, spending more than \$83,000,000, and providing employment for thousands of construction workers. It practically tripled its employment rolls.

"And while it was doing all this, the industry was still able to make spectacular gains in production. The dollar value of airplanes delivered in 1940 was more than two and a half times that of 1939."

PLANE MAKERS HEAR Music with Meals

Curtiss-Wright Workers Get Recess from Din

BUFFALO, Jan. 00.—(ANF)—Music has been added to the luncheon menu of thousands of airplane makers at the Curtiss-Wright Corporation.

Convicted that workers function more efficiently after a recess from the noise and clatter accompanying engine production, Curtiss-Wright officials have ordered all mechanical equipment shut down during the daily lunch period.

While employees eat their lunches, a loudspeaker broadcasts musical selections which range from operatic arias and symphonies to swing numbers.

One Aircraft Engine Uses 30 Kinds of Iron, Steel

Thirteen different types of iron and steel are utilized in the construction of a modern high-power aviation engine, according to technicians of the Pratt & Whitney Co. of East Hartford, Conn.

There are approximately 60 active specifications covering ferrous metals used in building the motors. Four of the specifications call for the use of cast iron and others require the following treated steels: varying tensile strength and durability:

Carbon steels, free-machining carbon steels, nickel steels, chromium steels, chrome nickel steels, chrome molybdenum steels, chrome vanadium steels, nickel molybdenum steels, stainless steels, special analysis valve steels, nitriding steels and special purpose steels.

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U. S. Looks Ahead - - to 4000 hp. Engines

National Research Body Reveals Plans for Cleveland Lab

WASHINGTON, Jan. 00.—(ANF)—A power plant wind tunnel capable of testing airplane engines with 4000 horsepower—twice as potent as any motor now in existence—will be one of six major structures at the huge new airplane engine research laboratory to be built at Cleveland, O., by the National Advisory Committee for Aeronautics.

Designed to conduct scientific research on the fundamentals of aircraft engine materials and design, fuels, supercharging equipment and propellers, the \$8,400,000 plant—to be the largest and most important in the world—is expected to be ready for operation early in 1943.

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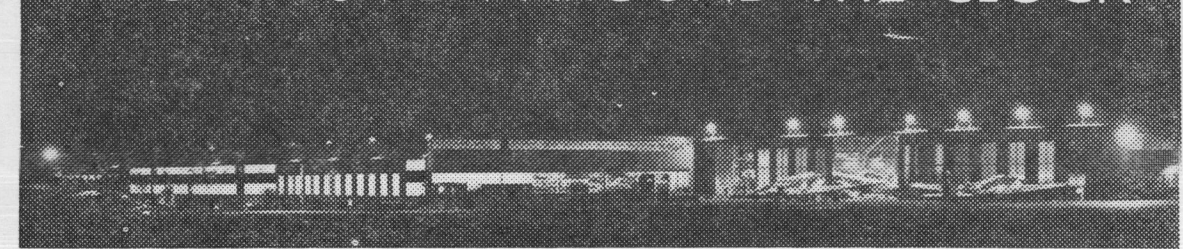
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AIRCRAFTSMEN AROUND THE CLOCK



It's a rare aircraft worker who tells his wife how good he is at housework! But the man who knows how to wash and iron finds these homely domestic talents a definite asset during working hours. An appetite for wielding a vacuum cleaner or sewing a fine seam also comes in handy.

Production of airplanes, whether they're four-motored bombers or light private ships, involves many chores which are closely related to the tasks of a modern housewife. Ribstitching, which resembles sewing a dress on a dressmaking frame with its lattice-work of steel rings and loops, is an essential

phase of airplane construction. Needles are often 12 inches long and sometimes, just to make things more difficult, they're curved and double-pointed. A stout tape is "pinked" into place between the ribstitches and the fabric to give additional strength.

And at least one modern bomber requires the use of 96 zippers! Ironing serves to take wrinkles out of reinforcements which are doped, rather than sewn, into place. To eliminate fraying, the material is first given a coat of dope and then cut to shape. The dope makes the fabric wrinkle and stiff—hence the need for a hot iron.

The drilling of thousands of holes in metal sections causes loose filings to accumulate in not-easily accessible parts of a plane. Dropped nuts, rivets and washers have the same habit. To get them all out, vacuum cleaners with plenty of "pull" are used. Surfaces are also vacuumed carefully before they are painted.

Washing—using soap and water and air pressure—enables aircraft workers to test gasoline tanks for leaks. Even the smallest defect causes the solution to bubble. These tell-tale areas are immediately repaired and not until the tanks are completely bubble-proof are they passed by the inspector.