Aviation News Features

ACCA

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

a note to Editors . . .

DID YOU KNOW that in 1940 six times as many American warplanes went to Great Britain and Canada as in 1939? You will find the facts and figures behind this increased aid to the embattled democracies in Cols. 7 and 8. The story is graphically illustrated by the pictogram in Cols. 5 and 6.

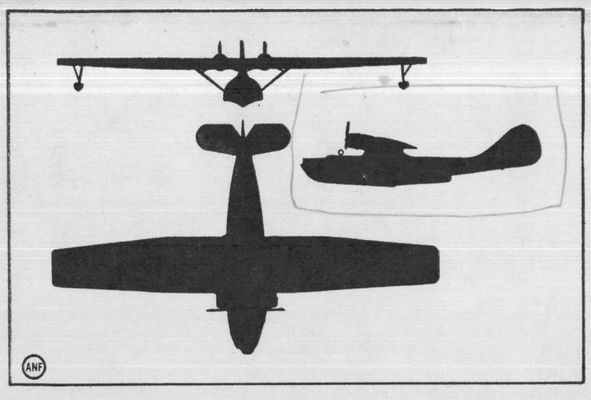
DID YOU KNOW that our own warplanes are being transformed into the hardest hitting, most completely defended fighting ships in the world? The details are in that top-head story in Col. 4.

If you would like a mat of the three-column head "Aircraftsmen Around the Clock" please write to Aviation News Committee, 7046 Hollywood Blvd., Los Angeles.

Vol. 1, No. 5 **January 15, 1941**

Know America's Planes

CONSOLIDATED PATROL BOMBER



Introducing the "eyes of the Navy." Symbol of the strides made by the aircraft industry in meeting the needs of hemisphere defense, the Consolidated Model 28 flying boat pictured here is a long-range patrol bomber capable of flying 4000 miles or more nonstop. Our Navy, which designates the big ships as PBYs, already has more than 200 of these flying boats and many more are in production at San Diego. Characteristic of the PBYs are the wing floats (see upper sketch) which retract in flight to form the outer tips of the wing.

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Defense Plane Building Speeded by Work of Lofting Departments

Shipbuilding Art Is Improved and Modernized to Save Time in American Aircraft Plants

Borrowing the name and improving the technique of a shipbuilding art, the aircraft plants of the nation have developed a department which greatly speeds up the production of airplanes for defense — the lofting division.

The lofting division works with the engineering department on one hand and the shop on the other—coordinating and facilitating the work of both of these divisions. Lee Willardson, supervisor of the template loft at the Buffalo plant of the Bell Aircraft Corp., explained the process to the Aviation News Committee of the Aeronautical Chamber of Commerce:

"The fuselage, wings and other parts of a modern airplane present curved surfaces which must be 'faired,' or given smooth, consistent curves. This is 'lofting' proper or 'lines' work, as it is called. Throughout this phase of its work, lofting is in constant contact with engineering, as the two departments team up to perfect the design of the plane. The resulting contours, shapes, etc., must then be transferred to templates, or metal patterns, for the guidance of the craftsmen in the shop.

THOUSANDS NEEDED

"Thousands of these are needed for a single airplane, and they must all be exactly coordinated so that the parts made from them will fit together with perfect precision.

"Without this department, countless hours would be added to the time now needed to fabricate plane parts and assemble them into finished products."

The initial job in the process is to lay down on the floor of the department full-sized lines or shapes of the airplane. A preliminary sketch of the profile is penciled on the loft floor and then the contours are faired with wooden batten to eliminate dips and hollows. A few more technical steps are taken, following which the engineers take over these body plans for use in making detailed drawings by tracing directly from the indicated lines.

The lines from the body plan are then transferred to thin sheets of galvanized steel, which are cut along the indicated lines to fit exactly the contours of the part in work. This sheet metal, when completed, becomes a master template to be used only for reference.

ACTS AS GUIDE

After it is cut, the master template is drilled with rivet holes, tool holes, etc. Then it acts as a guide in making as many exact duplicates as are wanted for use in the shop. These shop templates serve as unerring guides for cutting out and drilling various parts of the airplane. Placed over the metal blanks, they indicate exact sizes and shapes and the precise location of every hole. By using the master templates, shopmen are enabled to check parts by visual examination, and the time-consuming use of engineering drawings and scales is unnecessary on parts made with templates.

Parts made from templates can be accurately assembled without the necessity of using fixtures or jigs.

BAILING OUT MADE EASY

* * * * * * * * *

Just Press Lever and Doors Fly Off

BUFFALO, Jan. 00.—(ANF)—"Bailing out"—the war-time pilot's method of escape when his ship is disabled in aerial combat—is no problem in the Airacobra, the famous single-seater pursuit plane built by Bell Aircraft Co.

Appreciative of the fact that a pilot occasionally has difficulty getting out of the cockpit of a damaged ship in the air, Bell engineers equipped the Airacobra's pilot compartment with two doors, resembling those on automobiles.

Normally the doors are operated with a latch, but should the latch be damaged by gunfire, the pilot has only to press a lever near the instrument panel and each door pops off its hinges and falls away from the fuselage, leaving the airman a choice of two wide exits through which to make his parachute jump to safety.

Bell Airacobras are being produced for the air forces of both the United States and Great Britain.

PLANE FACTS: *Many U.S. Ships Flying Atlantic*

Many American airplanes are being flown nonstop across the Atlantic for delivery to Great Britain, according to Lord Beaverbrook, British minister for aircraft.

* * *

The Indian Gliding Association of Bombay has purchased a number of American sailplanes for use in training 300 pilots for the British Empire.

* * *

Two new commercial training planes—the Ryan ST-3 and Howard DGA-125—make their bows. Like the high-speed fighters and bombers of the Army and Navy, both are low-wing monoplanes. The ST-3, though a commercial version of the famous ST military trainer line, is really a new ship, the first units being powered with Kinner radial motors. The DGA-125, designed especially for secondary and instructor courses of the Civilian Pilot Training Program, is particularly suited for small airports.

* * *

Airplane wings covered with a new material known as Fiberglas —a product of the Owens-Corning Fiberglas Corp. — are undergoing weather tests at the Taylorcraft Aviation Corp., Alliance, O.

* * *

Employment at the two California plants of Douglas Aircraft Co. has passed the 20,000 mark and is still rising.

$101,000,000 Worth of Plant Contracts!

Defense Awards Show Rapid Expansion

The rapidity with which the American aeronautical industry is expanding to keep pace with the demands of the national defense program is indicated in the recent announcement by the National Defense Commission that contract awards totaling more than $101,000,000 have been let for aircraft, engine and plane accessory plant construction and equipment.

Aeronautical projects thus approved and their respective costs follow:

Douglas Aircraft, Santa Monica, Calif., $11,254,700; Consolidated Aircraft, San Diego, $17,536,973; Vultee Aircraft, Downey, Calif., $4,294,798; Pratt & Whitney (engines), East Hartford, Conn., $15,559,000; Hamilton Standard Propeller, East Hartford, Conn., $1,961,746; Vought-Sikorsky, Stratford, Conn., $1,600,000; Boeing (Stearman Division), Wichita, Kans., $3,367,943; Beech Aircraft Corp., Wichita, Kans., $1,619,509.

Fairchild Airplane & Engine, Hagerstown, Md., $982,891; Ford Motor Co., Detroit (for manufacture of Pratt & Whitney engines), $21,965,420; RCA Mfg. Co., Camden, N. J. (for radio equipment), $2,370,034; Republic Aviation Corp., Farmingdale, L. I., $5,210,513; Grumman Aircraft, Bethpage, L. I., $3,500,000; Bell Aircraft, Buffalo, N. Y., $1,023,200; Edo Aircraft Corp., College Point, L. I., $365,000; Liberty Aircraft, Farmingdale, L. I., $1,088,000; Lycoming Division, Aeronautical Manufacturing Corp. (engines), Williamsport, Pa., $1,597,491; Boeing Airplane Co., Seattle, Wash., $7,368,849.

AEROQUIZ

Army Air Corps Has 96,000 Men

Q—What is the present personnel of the U. S. Army Air Corps?

A—96,180 as of Jan. 15. The personnel has doubled since June 30, now totaling 6180 officers. 7000 flying cadets. 83,000 enlisted men. Under the rearmament program the corps will have a total of 176,100 by June 30, 1941—10,000 officers. 15,000 flying cadets. 151,000 enlisted men.

Q—Are airplanes really equipped with cannon?

A—Aircraft "cannon," as differentiated from machine guns, are quick-firing automatic weapons using explosive or armor piercing shells. Calibers are as large as 37 millimeters (nearly one and a half inches).

Q—How many inspections are involved in the construction of an airplane?

A—As many as 22,000 are considered necessary to assure absolute efficiency and safety.

Q—What is "dope" in aviation parlance?

A—A liquid which is applied to cloth surfaces of airplanes. This is done to produce tautness, increase strength and act as a filler.

License Plates Tell Story of Employment

Automobile license plates in the crowded parking areas around aircraft plants give mute testimony that the aviation industry is providing increasing employment for men from every state in the union.

Daily the number of automobiles, bearing workmen to and from the plants, takes an upward bound. And daily, a check at nearly any of the major plants would show license plates from nearly all of the states, though without exception home town residents are given preference in employment.

The cars pass in and out of the plant parking lots in a 24-hour cavalcade, as the plants work around-the-clock to build airplanes for defense.

Newest, Biggest Guns Installed on U. S. Planes

America Taking Advantage of Lessons Learned in European War

WASHINGTON, Jan. 00—.(ANF)—Profiting from lessons taught by the European war, American aircraft manufacturers rapidly are transforming their product into the hardest hitting, most completely defended fighting airplanes in the world, an Aviation News Committee survey disclosed today.

When it became apparent armor-plated warplanes were impervious to assault with weapons in use during the early stages of the war, a race to install more powerful guns in greater numbers on fighting ships developed immediately.

In this race, the survey revealed, American manufacturers are well to the fore. When the belligerent nations, rather suddenly, began armoring their fighting craft, British officials went into hurried consultation with the U. S. plane firms holding huge English orders. Revisions were planned quickly, and installation of more guns, of heavier caliber, was gotten under way.

An example of the results achieved is the fact that one notable American pursuit type being received by the British in quantity, which originally mounted four machine guns, now mounts six. Shortly it will mount eight guns.

HERE ARE DETAILS

While official restrictions prevent disclosure of complete details regarding armament of war planes being built in this country, the following facts, gleaned by the Aviation News Committee, give strong testimony that this country's aircraft output is not surpassed, with regard to armanent, by that of any world power:

1.—The aerial cannon. This devastating weapon is exclusively an American development. It is being installed both on planes for Britain and for the American services. Ranging in size from 20 millimeters to 37 millimeters, the aerial cannon fires a highly explosive shell capable, in most instances, of knocking out of the air any craft which is hit. Pursuit interceptors armed with this weapon can stand off at distances upward of a mile and effectively attack bombing planes.

MACHINE GUNS

2.—The .50 caliber machine gun. American manufacturers grasped the importance of this weapon. The heretofore popular .30 caliber gun, it was learned, wrought no serious havoc on the armor plate being installed by all nations. The .50 caliber weapon has demonstrated its ability to pierce this armor. Hence there has been a sharp swing by American manufacturers to almost exclusive installation of the .50 caliber gun.

3.—The power-driven gun turret. This turret, usually embodying multiple machine guns—anywhere from two to five—has been recognized as an indispensable adjunct to the armament of all categories of bombers. Hence, the power-driven turret is now being installed by American manufacturers.

MORE GUNS PER SHIP

4.—Increased fire power. Due to the fact that, in the early stages of the emergency, fighting airplanes were being designed primarily for the defense of the far-flung Americas, emphasis was more on range factors than on armament. The restricted scope of the European war theater quickly taught plane manufacturers that in building planes for Britain, range could be discounted, but increased fire power was absolutely necessary. Hence installation of more guns, particularly on pursuit planes, was begun.

MODEL BUILDERS HELP

More than 200 model airplane hobbyists are working at the Langley Field laboratories of the National Advisory Committee for Aeronautics.

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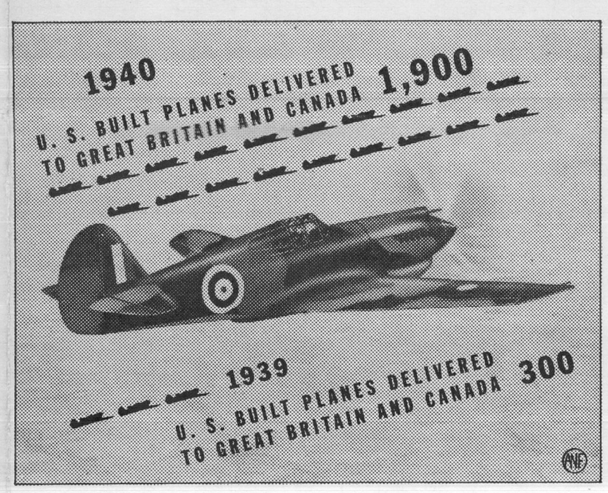
MORE SHIPS FOR BRITISH



America's aid to the embattled democracies is illustrated by this chart, released by the Aeronautical Chamber of Commerce of America, which shows how deliveries of American aircraft to Great Britain and Canada zoomed 600 per cent in 1940. The ship is a Curtiss Tomahawk pursuit, one of the many military models the American aircraft industry, cooperating with President Roosevelt's behest, is producing for Great Britain in ever increasing numbers. The manufacturers of this model announce they are delivering eight planes a day to the British.

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'Full Speed Ahead', Curtiss-Wright Response to Defense Program Needs

Expansion Program for Planes, Engines and Propellers Hits Rapid Stride

By GUY W. VAUGHAN
President, Curtiss-Wright Corp. and Wright Aeronautical Corp.

As an example of the American aircraft industry's response to emergency demands, the Curtiss-Wright Corp. continues to advance "full speed ahead" with its unprecedented program geared up with that of national defense. Facilities for producing airplanes, engines and propellers for the U. S. Army and U. S. Navy have been enlarged from 1,886,000 to about 4,200,000 square feet, but will be expanded to nearly 10,000,000 square feet of production area, or more than 500 per cent; employment has been increased from 11,100 to over 28,000, but will eventually total nearly 86,000 workers.

NEW FACTORIES

During 1940 our aircraft engine manufacturing subsidiary, Wright Aeronautical Corp., enlarged its plant area from 1,000,000 to almost 3,000,000 square feet by erecting Plant 2 with 540,000 square feet at Paterson, N. J., in 57 working days, acquiring a third plant of 450,000 square feet in Fair Lawn, N. J., leasing a fourth plant of 430,000 square feet in East Paterson, N. J., and making additions totaling 200,000 square feet. A new factory of 1,700,000 square feet and a magnesium plant of 110,000 square feet are rising rapidly near Cincinnati and at Fair Lawn, N. J., respectively.

The Curtiss Aeroplane Division during 1940 expanded its Buffalo plant from 517,000 to about 700,000 square feet, acquired an additional building of 100,000 square feet and recently broke ground at Buffalo (N.Y.) Municipal Airport and Columbus, O., for two plants totaling 2,356,000 square feet.

ST. LOUIS PLANT

The St. Louis (Mo.) Airplane Division recently began construction of a plant of 1,200,000 square feet to replace its present factory of 149,000 square feet. The Curtiss Propeller Division's Clifton, N. J., and Pittsburgh plants totaling 220,000 square feet are being supplemented with the completion of a new factory of 370,000 square feet in Caldwell, N. J., and the recent acquisition of an Indianapolis factory of 400,000 square feet.

The construction and equipping of these plants in such a short time is a mammoth project in itself, but the recruiting and training of apprentice-workers offers greater problems. The Wright engine factories have increased personnel from about 5000 to approximately 15,000, will eventually employ 30,000 workers; the Curtiss airplane divisions have raised employment from about 5250 to over 11,000 and will increase this figure to approximately 45,000; the Curtiss Propeller Division, employing about 850 workers, now has nearly 2700, but will subsequently employ nearly 11,000 workers.

24 HOURS A DAY

While speeding this expansion every plant is engaged 24 hours per day in production. The Curtiss Aeroplane factory alone is turning out eight fighter planes daily for Great Britain's R. A. F. in accordance with President Roosevelt's request for all aid to England, and is developing other types for the U. S. Army and U. S. Navy.

The Wright plants are producing engines totaling approximately 1,000,000 horsepower monthly, and working toward a goal of 2000 Cyclone engines monthly; the Curtiss Propeller Division is accelerating production of propellers for engines of 1000 horsepower and over. Supplementing this is our continuous development of new types of equipment.

COOPERATION PRAISED

The success of this mammoth expansion and production program to date may be traced to the splendid cooperation Curtiss-Wright Corp. has received from the government services, the War and Navy Departments, the Treasury Department and the Reconstruction Finance Corp.; and to the wholehearted cooperation and loyal support we have had from our own organization in carrying it through to a conclusion.

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U. S. Planes for Britain up 600 per cent in Year

Survey Reveals R. A. F. and Canada Received Nearly 1900 Ships During 1940; Huge Increase Last Six Months

WASHINGTON, Jan. 15.—(ANF)—American manufacturers responded to the British appeal for airplanes to wage war against the dictators by delivering six times as many aircraft to Great Britain and Canada in 1940 as they did in 1939, an Aviation News Committee survey disclosed today.

Studying authentic government statistics, the Committee found that the U. S. aircraft industry turned over nearly 1900 planes in 1940, as compared to about 300 the previous year.

HUGE INCREASE IN SIX MONTHS

Research by the Committee on behalf of the Aeronautical Chamber of Commerce also revealed a tremendous step-up in delivery of aircraft to Britain and Canada in the last six months of the year just ended, as compared to the first six months of that year.

From January to June, 1940 (inclusive) about 275 airplanes were delivered. For the July-December period, deliveries zoomed to about 1600 ships.

GAIN OF OVER 600 PER CENT

This represents a percentage increase of more than 600, and is indicative of the effort being made by the American aircraft industry to meet the British appeal to "rush planes, planes and more planes," the Committee pointed out.

More than half of all the airplanes exported from the United States went to Britain and Canada—about 1900 out of approximately 3450. Of the number which did not go to Britain and Canada, about 750 were exported to France before that nation's collapse. A large number of these fighting craft were taken over by Britain following the "peace of Compiegne." Conversion of French contracts to British standards and requirements increased the necessary time element required for deliveries.

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AID TO BRITAIN

(See story above)

Tremendous acceleration of airplane exports to Great Britain and Canada is shown in the following figures compiled by the Aviation News Committee of the Aeronautical Chamber of Commerce of America:

Total Planes Exported (January-June, 1940)	**1467**
Planes Exported to Great Britain, Canada	**273**
Total Planes Exported July-December, 1940	**1980***
Planes Exported to Great Britain, Canada	**1612***
TOTAL PLANES EXPORTED TO BRITAIN, CANADA IN 1940	**1885***

(*December estimated. Statistics incomplete at present.)

CONCLUSIONS: That while Great Britain and Canada received in the first six-month period only about one-seventh of total U. S. aircraft exports, these countries during the last half of the year got more than four-fifths of these exports; and that the American aircraft industry increased its production for export to Britain and Canada by more than 600 per cent in a six-month period. Reflected is a necessary changeover throughout the industry from production of peacetime airplanes — commercial transports, etc.,— to production of fighting planes. This changeover entailed drastic revisions of design, including installation of armor plate, leakproof gas tanks and armament.

500 FEET OF FILM

A 500-foot roll of film—enabling aerial photographers to make 650 individual shots without reloading —is an outstanding feature of the new C-3 aerial topographic camera now being manufactured by the Abrams Instrument Co. of Lansing, Mich.

QUOTE *and* END QUOTE

"The aircraft industry has no intention of being defeated or even discouraged by the immensity of the task assigned to it—production of 36,000 warplanes for the United States and Great Britain.

"Last year was a period of preparation and expansion. This year will be the year of production. It will bring concrete results."—**Col. John H. Jouett, president, Aeronautical Chamber of Commerce of America.**

"There is great interest all over the country in the expansion program. It is being shown by a tremendous growth in civilian (aviation) training schools."—**Brig. Gen. Rush B. Lincoln, commander, Air Corps Technical Schools.**

"The Brewster Buffalo, American-built single-seat monoplane fighter with 800 hp. Wright Cyclone engine, is earning golden opinions among British fighter pilots for its extraordinary ease of maneuver."—**The Aeroplane, famed British aviation magazine.**

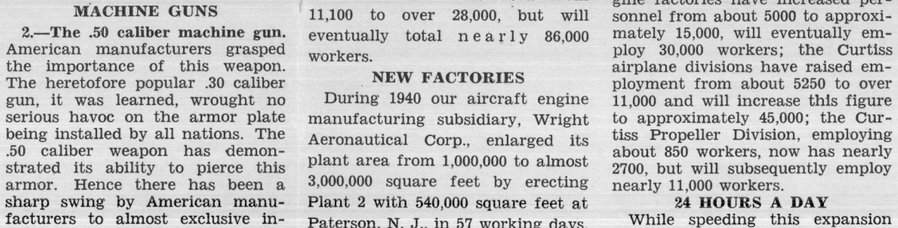
Three Trainers a Day, Record of Ohio Plant

TROY, O., Jan. 00.—(ANF)—Three complete training planes a day, seven days a week . . . that's the record of Waco Aircraft Co.

To meet the need created by the nationwide Civilian Pilot Training Program, the Waco organization voluntarily devoted more than 80 per cent of its maximum production capacity to the building of PT-14 trainers, attaining the high volume of production within three months.

The company also manufactures several types of high-performance sport and commercial cabin biplanes.

AIRCRAFTSMEN AROUND THE CLOCK



You might call them the "earth-bound pilots."

Day after day they climb into the cockpits or cabins of our newest, fastest, biggest military airplanes and taxi the ships out onto the test fields of aircraft plants from coast to coast. But though they may travel thus for many miles on the ground during the course of a year, they never permit their hands to push the throttles to the point where the wheels will leave the ground.

They leave that job to other men.

"They" are the men of what most aircraft plants call "Field Operations." And their activities are a vital phase of the national defense program.

When a completed airplane leaves a factory's final assembly line it passes into the hands of Field Operations, whose job it is to "groom" the ship for its test flight.

In charge of that job is the crew chief, a man of wide and amazing knowledge . . . a licensed airplane and engine mechanic who must make certain the men in his crew fill gasoline and oil tanks, service and adjust the engines and do a dozen other jobs that guarantee everything functions perfectly.

Once these jobs are completed, the crew chief eases himself into the pilot's seat. Pushing the throttles forward, he taxis the ship down to the end of the runway, where the compass is "swung" or boxed. Then he taxies back to the hangar for a final check of the engines.

Once more he rolls the ship out onto the runway. A practiced glance at the instruments assures him everything is well.

At this point the test pilot walks onto the stage and the crew chief exits quietly . . . until the test flight is over. But as he retires he can tell himself, quite truthfully, that in many ways he knows more about the ship than the pilot who has replaced him at the controls.

Doesn't all this "ground flying" create a yen for actual flying? The answer is, yes, quite frequently. Some crew chiefs own and fly their own light planes. Many others are student pilots. And not a few eventually become test pilots themselves.

Airplane Engine Section Taken on 'Flight' in New Wind Tunnel

Development at Vultee Plant Permits Testing Before Ship Is Even Built

This is the fouth of a series of articles illustrating, by example, the manner in which research and engineering keep the aircraft industry ahead of the prevailing need.

VULTEE FIELD, Calif., Jan. 00.—(ANF)—A new type of wind tunnel in which the entire engine section of an airplane can be tested under flight conditions before the plane itself is even built has just been placed in operation at the Vultee Aircraft factory near Los Angeles.

Considered of far-reaching importance as a means of speeding the development of new military aircraft designs, the tunnel symbolizes the strides made by the American aircraft industry in meeting the national defense program needs.

Vultee engineers expect these "laboratory flight tests" to lead to elimination of one-half to two-thirds the usual time required for actual flight tests.

For, by running the tunnel tests of a power plant installation (which consists of assembled engine, propeller, cowling, etc.) in advance they will be able to solve major problems which otherwise would not be encountered until after the prototype of a new line of airplanes has been completed and taken into the air.

Under this arrangement, the power plant installation would be completed ahead of the other sections of the plane, the reverse of the usual procedure.

Designed to reproduce conditions encountered in actual flight, the new tunnel is in two "pieces." The entire engine section is mounted in the throat of one of these and the usual ground tests are run. Then the first tunnel section is rolled forward on tracks and coupled to the second section, known as the "booster."

This contains a 1000-horsepower electric motor propelling air at regulated velocities to compensate for the movement of an airplane in a power climb.

With the extensive instrument facilities possible under laboratory conditions, as compared with the limited number useable in an actual test flight, engineers say they can gather much more comprehensive and accurate data than otherwise would be available in the time required for completing the tests.

According to company executives, Vultee is the first aircraft manufacturer to extend the usual ground cooling test methods for engine sections to include simulated conditions of flight.