

a note to Editors . . .

DELIVERIES—Aid to Britain is an accomplished and ever-growing fact, though the Lend-Lease phase of America's aerial production program for the democracies is just getting under way. For details of record-breaking deliveries to the British see Col. 8.

PRODUCTION—Photographic proof of the rate at which U. S. fighters are rolling off assembly lines should interest your readers. Note the pictures in Cols. 3, 4 and 5.

ENGINES—Are aircraft engines of 3000 horsepower in the offing? You'll find the answer in Col. 6.

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Aircraft Payrolls Show Steady Gains; Employment Climbs Economic Benefits of Big Plane Program Seen in Three States

LOS ANGELES, Nov. 00.—(ANF)—Personnel and payroll, vital factors in the nation's expanding economy, continue to register spectacular gains in the American aircraft industry, the Aviation News Committee reported today.

Highlighting a survey were the following facts:
Pennsylvania: Weekly earnings of aircraft workers increased more than 50 per cent in a six-month period.

California: Average hourly earnings of California factory workers reached a rate of 86.4 cents per hour, highest in the state's history, with aircraft industry making a leading contribution to this economic benefit.

Michigan: Aircraft payrolls were up 125 per cent over a year ago. Aircraft employment showed a gain of 106 per cent for the same period.

As the aircraft industry accelerated its drive toward peak production of warplanes for the democracies, individual companies reported big gains in employment.

North American Aviation, Inc., hired 2808 new employees for its Inglewood, Calif., plant plane in less than a month. On the busiest day during that period 208 employees were hired. At its Dallas, Tex., plant the company took on 307 new workers in a week.

Fairchild Engine & Airplane Corp. reported hiring more than 700 employees in one month for its Long Island and Maryland plants.

At the new Cincinnati, O., plant of Wright Aeronautical Corp., the hiring rate reached 400 per week.

The affiliated Lockheed Aircraft Corp. and Vega Airplane Co., of Burbank, Calif., claimed a new record for aircraft industry hiring when employment passed the 50,000 mark.

Let's Go! U.S.A.—Keep 'em Flying!
PLENTY OF RIVETS
Three machines capable of stamping out 8,000,000 airplane rivets a week are in operation at the Bell Aircraft Corp.

Keep 'em Rolling!

Production of \$110,520,731 worth of airplanes in nine months was reported recently by Douglas Aircraft Co., Inc. Sales for the first nine months of the company's fiscal year were 143 per cent above the similar period in 1940.

Let's Go! U.S.A.—Keep 'em Flying!
Defense production of the Lockheed Aircraft Corp. during the first three-quarters of 1941 broke all company records with an output of \$99,000,000 in airplanes and parts.

Let's Go! U.S.A.—Keep 'em Flying!
Evidence of the production speed being achieved by the American aircraft industry is the announcement that by mid-1942 Consolidated Aircraft Corp. deliveries of big bombers and flying boats will equal every 10 days the total output for the first 10 years of the company's history.

Let's Go! U.S.A.—Keep 'em Flying!
**Army Air Schools
Get New Trainers**

**AT-9 and AT-11 Used for
Advanced Instruction**

Two new twin-engine trainers, designed to instruct pilots in the flying of the Army Air Forces' fast multi-engine fighters and bombers, are now being delivered to advanced Army air schools.

The two new planes, the Curtiss AT-9 and the Beech AT-11, are both all-metal, low-wing monoplane and are equipped with retractable landing gear.

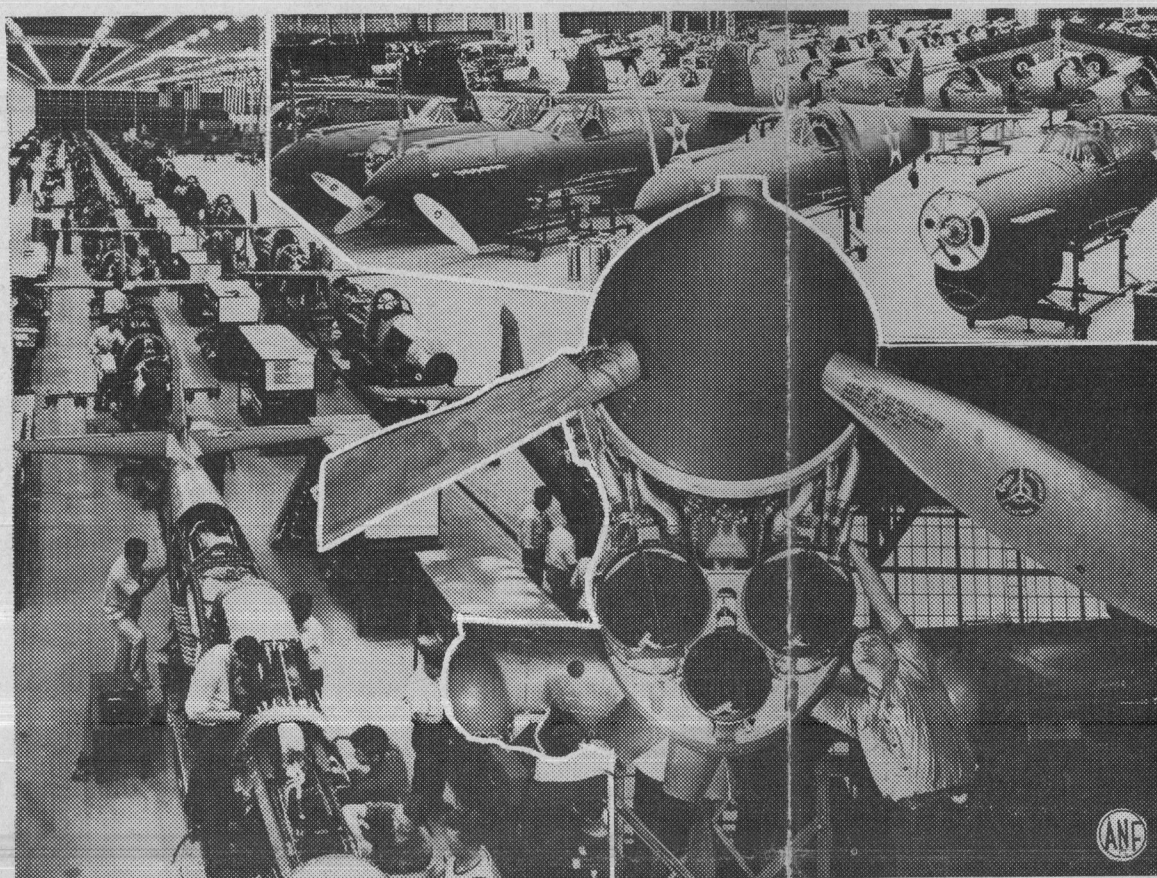
The Curtiss ship normally accommodates a crew of but two, but has provision for four. It has the operating characteristics and performance of larger multi-engine tactical craft, including numerous instruments.

The Beech AT-11, which is equipped with flexible guns and bomb racks, will be used for specialized training of bombardiers and gunners.

Let's Go! U.S.A.—Keep 'em Flying!
SAVING TIME, MONEY
Production of airplane wing beams has been cut from 100 hours to 45 minutes by a recent invention. An equal saving was effected in costs, which were slashed from \$175 to \$8.

RELEASE NOVEMBER 15

Mass Production for U. S. Pursuit Ships



Mass production by the American aircraft industry of the world's swiftest fighters is illustrated in these photographs from the Aviation News Committee of the Aeronautical Chamber of Commerce. Left—Bell Aircraft (P-39) pursuits roll along a power-driven assembly line at Niagara Falls, N. Y. Upper Right—Scores of P-40D pursuits under construction at the Curtiss-Wright plant at Buffalo, Lower Right—An unusual view of the nose and propeller of a P-40D. The fighters shown here are but two of many types of military aircraft being produced in record numbers for the United States, Britain and other democracies.

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AERONAUTICAL RESEARCH

Airplane Templates Reproduced by X-ray and Camera Speed U. S. Output

**New Techniques Slash Time Between Engineering
and Assembly of Aircraft**

Faced with the biggest expansion program in the nation's history, America's aircraft industry launched into research to find new and revolutionary methods of speeding production. The problem of reproducing templates, the master patterns for airplane production, was a vital one. Below are the stories of how two aircraft manufacturing firms, one on the Pacific Coast, the other in the East, found ways of meeting this problem.

LOS ANGELES, Nov. 00.—(ANF)—An X-ray photo template system which will duplicate any master pattern in an hour's time with absolute accuracy has been installed at the plant of North American Aviation, Inc., at Inglewood, Calif.

In some cases, the new method is saving several days over the old manual production system. In addition to the regular metal templates, or master patterns, the process can reproduce the lines on masonite dies used in forming sheet metal parts, and can duplicate the lines on wood jigs used with profiling machines.

This speedier duplication technique is considered of particular importance in view of the fact that aircraft companies are building branch plants throughout the country, which require copies of the templates.

With such a system it would be possible for North American's branch plant in Texas to teletype California for a master template duplicate and know that the duplicate was on its way in little more than an hour.

NEW YORK, Nov. 00.—(ANF)—A new photo reproduction process adopted by Republic Aviation Corp. of Farmingdale, L. I., is eliminating much of the time factor between engineering and production of military aircraft.

By the new process the original layout of a template is made on a sheet of transparent or translucent plastic which has previously been spray-coated with an opaque covering.

The layout is worked by scribing through the opaque covering, exposing the clear plastic surface underneath. Lines thus formed constitute a master negative, which can be photographically reproduced as many times as required.

This also eliminates the possibility of accumulative error.

Let's Go! U.S.A.—Keep 'em Flying!
**American Light Planes
Used to Fly the Mail**

Light airplanes built in American factories made news last week in widely separated parts of the Western Hemisphere.

According to word received by the Aviation News Committee from the Dominican Republic, four 75-horsepower Piper Cub Cruisers now fighting with the RAF—learned to fly in the U. S. Civil Aeronautics Administration's pilot training program.

Let's Go! U.S.A.—Keep 'em Flying!
CAA TRAINS FIGHTERS!
Two-thirds of the members of the American Eagle Squadron—the famous unit of U. S. citizens now fighting with the RAF—learned to fly in the U. S. Civil Aeronautics Administration's pilot training program.

AEROQUIZ U. S. Bomber Has What It Takes!

Q—What are the advantages of the American heavy bomber?

A—Ability to operate at altitudes above the range of anti-aircraft fire, combined with tremendous bomb loads and a range which permits it to strike far behind battle lines at the industrial heart of an enemy country.

Q—What is the heaviest caliber weapon carried by military aircraft?

A—The 37 mm. shell-firing cannon. It is part of the armament of two American pursuit planes—the Bell Aircraft (P-39) and the Lockheed Lightning (P-38).

Q—What is a longeron?

A—A part of the frame of an airplane fuselage or engine nacelle, running fore and aft.

Q—What is an airfoil?

A—Any surface of an airplane—wing, aileron, rudder, etc.—designed to obtain a useful reaction from the air through which it moves.

Q—How much does a 2000-horsepower radial aircraft engine weigh?

A—2265 pounds.

Q—What is a flame damping exhaust?

A—An airplane exhaust system so designed that the engine exhaust flames do not reveal the presence of the ship to any enemy at night.

Q—Is there such a thing as a true "flying wing" airplane?

A—Yes, the new Northrop Wing is an example. It has no tail and every part of the airfoil contributes to the "lift."

Let's Go! U.S.A.—Keep 'em Flying!
**RAF Yank Says Planes
from America Are Tops**

NEW YORK, Nov. 00.—(ANF)—Pilot Officer Oliver Garfield Holton, one of the first two volunteers to join the Eagle Squadron, the all-American unit of the Royal Air Force, told the Aviation News Committee during a recent visit to New York.

"The new American planes arriving in England are sweet jobs and match anything that any other nation has. Every pilot who gets a chance to fly the Douglas DB-7, a twin-engine medium bomber now being used by the British as a night fighter, says he wouldn't want to go up in anything else at night."

THE ARTISTS DO THEIR BIT Drawings Help Speed Plane Output

Amid the bustle and din of American airplane factories, the pens and brushes of artists are making a substantial contribution to national defense.

By turning out a unique type of drawing these artists, the Aviation News Committee reports, are aiding not only in speeding production but in the training of the thousands of new workers being absorbed by the aircraft industry.

The drawings help out production corners by portraying in three-dimensional form the manufacturing details of an airplane to be constructed. So simple are they that they may be read and understood with practically no study, thus eliminating the time required to read elaborate blueprints.

At the California plants of Douglas Aircraft Co., where this production illustration idea was pioneered, complex designs, and vast amounts of data are translated into simple drawings. Approximately 500 such drawings are needed for each airplane, beginning with a perspective diagram of the entire airplane and its major structural sub-assemblies, and going on down through separate illustrations of manufacturing units, control, fuel and hydraulic systems, etc.

Each worker in each position along the assembly line is furnished with detailed drawings showing just what he is to do and how he is to do it. Included are specific instructions on the materials required and the tools to be used.

The three-dimensional drawings have also proved of great value in training classes of prospective aircraft workers.

U. S. AIRCRAFT DELIVERIES TO BRITISH REACH \$330,000,000

Test Cells Point Way to Engines of 3000 Horsepower New Tunnels Big Enough to Handle 28-Foot Propellers

NEW YORK, Nov. 00.—(ANF)—Completion of 69 giant cells at an American factory today pointed to the possibility that aircraft engines of 3000 horsepower and more will soon be available for the world's fastest warplanes.

At present, approximately 2000 horsepower is the maximum turned up by any aircraft engine.

Two of the 69 new type cells have just been put into operation at the Paterson, N. J., plant of the Wright Aeronautical Corp. According to the Aviation News Committee, each cell is more than twice as large as any now in use—large enough, in fact, to accommodate engines equipped with propellers 28 feet in diameter.

FOR TOMORROW'S PLANES
Here development is progressing in the field of more and more powerful engines—designed for planes far larger than any in the air today. As a result of the work going on in the new cells, designers of those new-day planes will have tested and proved engines around which to build their super-aircraft.

Not only in the race for more power with less weight, but in the search for long life and reliable service, American airplane engines are far ahead of the field.

Tests now being made in the new cells are to determine if each part of the motor meets the rigid specifications to which it was designed. Each engine operates under its own power for seven hours, then is torn down for inspection of every component part, reassembled and sent back to the cell for another run of five hours as a final check before shipment.

HUGE TUNNELS
Structurally, these new test cells resemble huge tunnels, 108 feet in length, open at both ends to permit air flow. For 24 feet at each end of the tunnel there is a honeycomb sound-absorbing treatment. This permits smooth and free passage of the air while the deafening noise is toned down by the honeycomb.

Huge airplane engines necessarily require a tremendous rush of air over the fins and around the baffles to keep them cool. In the test cells there is no natural forward movement to push air through these fins, hence, an artificial airflow, approximating that set up by a plane in flight, has been provided by a blower powered by a 250-horsepower motor.

Let's Go! U.S.A.—Keep 'em Flying!
**Conveyor Belt Speeds
Bomber Production
Man-Hours Cut in Half by
Modern Methods**

BALTIMORE, Nov. 00.—(ANF)—New techniques which speed production of military airplanes are constantly being adopted by the American aircraft industry.

The Aviation News Committee reports inauguration of a new production technique at the Glenn L. Martin factory at Baltimore by which the man-hours of work on bombers have been cut in half.

The new procedure is represented by a belt-conveyor. Along this all the various machine and hand operations necessary in the making of certain airplane parts and sub-assemblies are placed and the pieces move through at a predetermined speed. Thus, the work that one or two men ordinarily do in making the sub-assembly has been broken up among a number of men, each of whom operates one machine or performs one type of hand operation.

Two or more assemblymen at the head of the belt pace the line. Before them are jigs into which the pre-formed or pre-shaped pieces are fitted together and the initial drilling operations performed—vari-colored patterns indicating instantly the size of the drill to be used.

The pieces are then placed on the moving belt and a drill pressman picks them up and drills the required holes. Farther along riveting machine operators fit certain sections together and rivet them. Another man burrs the rivets. At more distant stations alongside the belt, other men fit other parts of the sub-assembly together and perform other functions. Eventually at the foot of the line a workman picks up the completed piece, stamps it with the proper part number and turns it over to the inspector for checking.

Company officials point out that one man who does but one type of work or operates but one type of machine is less likely to make errors than a man who does a variety of jobs to complete one operation.

PLANE FACTS: 10,000 Props in Six Years

Indicative of the aircraft industry's steadily mounting production tempo, the propeller division of Curtiss-Wright Corp. recently completed the 10,000th propeller it has produced since 1935.

Built at Clinton, N. J., the prop, a four-blade type with a diameter of 13½ feet, was shipped to the Glenn L. Martin Co. at Baltimore for installation on a B-26 bomber for the U. S. Army Air Forces.

Let's Go! U.S.A.—Keep 'em Flying!
The paint shop of the new "blackout" plant of the Grumman Aircraft Corp. at Bethpage, L. I., is operated with air pressure higher than that outside the plant. When the shop doors are opened, the air pressure forms an invisible "wall," preventing the entry of dust.

Let's Go! U.S.A.—Keep 'em Flying!
A small steel device known as a "spider" is used to hold in place the whirling steel blades of an airplane propeller. Though a propeller develops a pull of 185,000 pounds—a force equal to the weight of a standard Pullman car—the "spider" utilized on Hamilton Standard props is small and light enough to be picked up by hand.

Let's Go! U.S.A.—Keep 'em Flying!
**More Triumphs for
American Warplanes!
Liberator Routs Nazis;
Hudsons Score**

LOS ANGELES, Nov. 00.—Add exploits of American-made planes in Europe's aerial warfare:

Word received by the Consolidated Aircraft Corp. at San Diego told how one of its long-range four-engine Liberator bombers routed three Nazi Condors (Germany's newest four-engine plane) and bombed a submarine in less than three hours. The Liberator, which was escorting a ship convoy, was hit by a shell from one of the Condors but the big plane is so robust the crew wasn't aware of the damage until they landed at their base. Liberators are powered by American-made Pratt & Whitney engines.

To Lockheed Aircraft Corp. at Burbank, Calif., came dispatches recounting the feat of a flight of twin-engine Hudson bombers in attacking a Nazi supply base at Alesund, Norway, during a snowstorm. The Hudsons, powered by Wright engines, sank or damaged seven ships, set fire to a fish oil factory and machine gunned troop barracks.

Let's Go! U.S.A.—Keep 'em Flying!
**AMERICAN BOMBER HITS
560 mph in Test Dive**

Demonstrating the ability of American-built bombers to dive away from an attacking fighter, a Martin Baltimore recently "peeled off" at 23,000 feet and plunged earthward at a speed of 560 miles per hour.

Let's Go! U.S.A.—Keep 'em Flying!
ENGINES FOR THE DUTCH
To bolster Democracy's defense in the Far East, the Netherlands East Indies has placed an order for a large number of aircraft engines with Kinross Motors, Inc., Los Angeles. The engines will be installed in Ryan primary training planes, manufactured at San Diego.

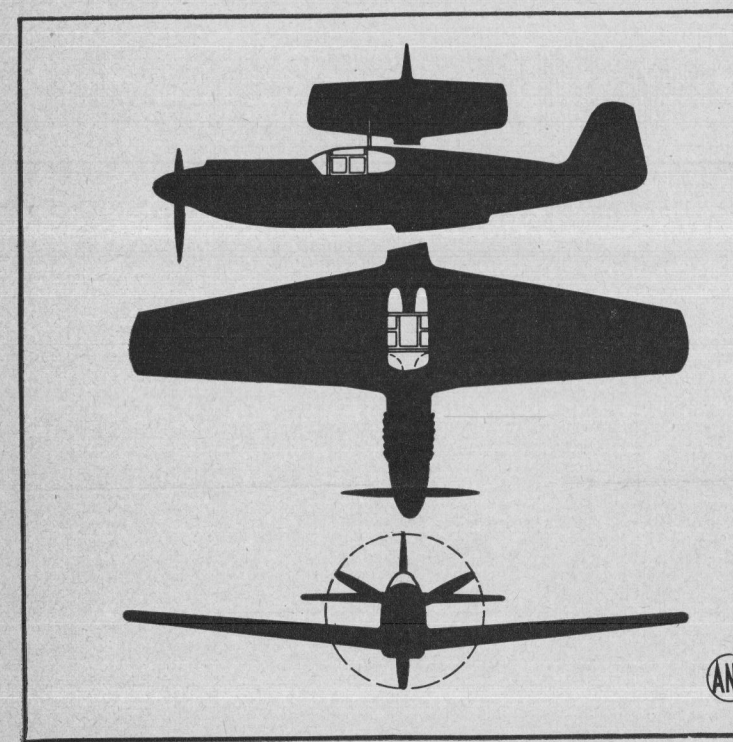
Let's Go! U.S.A.—Keep 'em Flying!
**Recording the Odd and Unusual
in America's Vast Aircraft
Production Program**

WARPLANE'S "INNARDS"

This strange-looking arrangement of tubes is really the complete fuel system of a modern fighting airplane, brought out into the open where it can be studied under test conditions. The picture, from the Aviation News Committee, shows engineers of Vultee Aircraft, Inc., subjecting the fuel system to the widely divergent pressures which would be encountered at various altitudes during flight. By such methods the American aircraft industry is speeding the building of the world's finest military airplanes.

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Know America's Planes NORTH AMERICAN MUSTANG



Fast, hard-hitting fighters rank high among the aerial weapons America's aircraft industry is creating for Great Britain. This is one of the newest, swiftest, most potent—the North American Mustang. Details of armament and performance are still secret, but the Mustang (like its U. S. Army version, the P-51) is known to incorporate the highly-efficient laminar flow wing, the P-51 is known to incorporate the highly-efficient housing an Allison in-line engine, the air scoop back of and below the wing, the square wing tips and the nearly rectangular tail plane.

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