

ENGINEERING

# Bombing Planes Being Built In Automobile Factories

## Details of Program for Apportioning Manufacture of Parts and Assemblies for Defense Is Made Public

**D**ETAILS of the program by which the automobile industry will build bombing planes for the U. S. Army, in addition to other defense work, including 13,000 military vehicles now being turned out monthly, were given at the National Aeronautic Meeting of the Society of Automotive Engineers in Washington.

C. C. Carlton, managing director of the Automotive Committee for Air Defense, told the engineers that, in a four months' study, facilities of 800 factories have been surveyed for their possible contributions to the program. Three bombers are to be built. One is the B-24D, a four-motor craft now constructed by Consolidated Aircraft Corporation. Another is the two-motored B-25, of the North American Aviation Company, and the third the two-motored B-26, of the Glenn L. Martin Company.

The Ford Motor Company has been allocated production of parts and assemblies of the B-24D. These will be shipped to two Army-owned assembly plants, one at Ft. Worth, Texas, to be operated by Consolidated, the other at Tulsa, Okla., which the Douglas Aircraft Company will operate.

### New \$11,000,000 Plant

"The Ford Motor Company" Mr. Carlton said, "is about to build a new \$11,000,000 plant in which it will build airframe assemblies for this bomber, and the Ford Company believes that it will be possible to have this plant in production before the end of this year. This plant will produce wings, fuselages, noses and stabilizer assemblies on a moving production line which it is believed will prove unique in the aviation industry.

"The immediate plan is for Ford to build 600 sets of assemblies for the Consolidated B-24D long-range, four-motor bomber, and the same number for the Douglas Aircraft Company. Production early next year is expected to reach 50 complete assemblies per month for each company. This huge new plant will be located near Ypsilanti, Michigan. The first section will be 800 feet wide and

300 feet deep; behind this will be another section 1,200 feet long and 400 feet wide, and if the government decides to assemble complete planes in this plant, the building will be extended to house an assembly line a mile and a quarter long."

The Ford Company is already undertaking other large defense orders, said Mr. Carlton. They now have nearly completed a \$21,000,000 aircraft engine plant, for which ground was broken last Sept. 17. This will produce Pratt and Whitney engines at the rate of one per hour. These, he said, are 18-cylinder, double-row radial engines of two types, one developing 1850 and the other 2000 horsepower.

The General Motors Corporation has undertaken production of parts and assemblies for 100 B-25 bombers per month. The G-M Allison Division in Indianapolis, he stated, is turning out 350 liquid-cooled engines monthly, a number which will be increased several fold in the near future. The Buick division is breaking ground for a plant in Chicago to build 500 Pratt and Whitney radial engines per month. The corporation will also build submarine engines for the Navy, airplane control instruments, machine guns, and many other articles, their defense assignments already totalling \$683,400,000.

### Parts for Martin

The Chrysler Corporation will build parts for the Martin bombers, to be shipped to Omaha. They are also preparing to build tanks, and are building other military vehicles.

The Goodyear Tire and Rubber Company has been allocated the production of complete wing and all tail surfaces for the Martin B-26 bomber. They are also building wings and tail surfaces for the Consolidated PB-2Y3.

To the Hudson Motor Car Company, Mr. Carlton said, has been allocated the aft section of the fuselage for the Martin B-26, in addition to other work, some for the Wright Aeronautical Corporation, totalling several millions of

dollars. At the end of the year, he told the meeting, the automotive industry will have 150,000 men working on defense production, in addition to the bomber program.

The technique of mass production of airplanes "is as far removed from automobile manufacture as the automobile was from carriage building," Henry C. Hill, of the Wright Aeronautical Corporation, declared.

### Tenfold Increase

"We have been used to producing 200 or 300 engines per month, where now we need to produce 2000 to 3000 per month. In other words we must increase our rate of production approximately 10 times. To most people this increased production rate is merely a matter of applying the well-known production methods of the automobile industry. This naive statement has just enough truth in it to confuse the minds of many people both inside and outside of the aviation industry. Between the statement and the actual fact the gulf is very wide indeed. It is true that the principles developed by the automobile people in Detroit must be applied to aircraft and engine production, but we are sure that it is equally true that these principles must be modified and further developed to suit the new set of standards and the new tempo required in the aircraft field."

Mr. Hill pointed out that civil aviation does not require more than a small fraction of the number of planes used for military purposes.

"Diverting our design and construction efforts from commercial to military aircraft is relatively easy compared to the main problem confronting us—which is mass production," he stated. "There was no mass production in aircraft or aircraft engine manufacture before Germany tried it. It is a striking fact that airlines as we know them now do not need many airplanes to carry on a very substantial traffic. The reason for this is that the airplane completes its trip so quickly that many more trips are possible with the same airplane in a given period of time, than with the train, or the automobile. The trip from New York to Chicago, for example, takes 4¼ hours by air. It is obvious that in a 24-hour day three or four one-way trips can be made with only one airplane. It is significant that the largest domestic airline in this country has all told less than 100 airplanes."

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