

# Aviation Engine With Duplex Parts Designed by Arthur Chevrolet

*Duplicate carburetion, oil feed control, camshafts and valves are built into powerplant to increase safety factors in commercial aircraft flight.*

By ARTHUR C. BUCK



NEW four-cylinder air-cooled inverted aviation engine of light weight and with duplicate working parts is being developed by Arthur Chevrolet, widely known builder of race cars and automobile engines and president of the Arthur Chevrolet Aviation Motors Corporation.

Then engine, according to its inventor, weighs only 325 pounds and is capable of developing 150 hp. at 2700 r.p.m. It is designed to fill the need in the aircraft industry for a lighter weight, higher efficiency power unit in the moderate priced commercial type airplane.

The four-in-line construction of the new Chevrolet engine makes for smaller resistance area at the head of the plane, the engineer explained, and, with the engine inverted, its width of less than twelve inches eliminates the "blind spot" which engines of 40 in. width, in common use, cause for the flier.

A six-in-line and a twelve-cylinder engine are also in the process of development in the Chevrolet shops. Patents cover twenty-three features of the new powerplants.

## Known as "Chevolair"

The four-in-line unit, known as the "Chevolair," was placed on the testing block late in May and has passed through long periods of continuous operation without faltering, being stopped only to make changes in types of carburetion, according to Mr. Chevrolet.

The designer asserts that besides developing greater horsepower to the cu. in. of piston displacement than any other aviation engine now in use, the four-cylinder job, by accurate check, is running cooler than any other air-cooled aircraft or automobile engine now in use. Temperatures of oil are maintained at approximately 122 deg. Fahr., whereas in other air-cooled aviation plants it stands at about 160 deg. through steady operation.

Mr. Chevrolet, in telling the history of his achievement, declares he has been at work for three years on this task, always keeping the industry's demand for safety uppermost in his mind.

"The main object," he said, "was to remove the fear of breaks and stops in the powerplant while in flight; to make the factor of safety as great as possible. With that idea in view I designed an engine in which practically all working parts are duplicated. Government regulations require duplicate magnetos. I went a step further and built a powerplant also having duplicate carburetion, duplicate oil feed control and camshafts in duplicate, with duplicate valves—all built into the en-

gine. It might possibly be called an uno-lateral engine.

"As a parallel, it could be said that the laws of nature which gave all animals duplicate members of the body were followed in designing this engine. A man has two eyes, two arms, two legs, two ears, and so on, with the result that if one member is lost the other can take its place. So it is with this engine. Failure of one oil feed control, one carburetor, one camshaft, and so on, will not reduce the dependability or efficiency of the engine, and, above all, will not occasion stops that many times have proved fatal to fliers.

## Designed for Long Life

"The engine also is built so as to remove all possible chance of adjustments coming loose. It is so constructed that after it has been assembled no adjustments are required. Added to these factors are others so designed that it will have five times the life of other airplane engines.

"The power output in the first two weeks the engine was on the testing block is far beyond my expectations and even beyond anything anyone before this time had thought possible. The power curve ranges from 85 hp. at 1500 r.p.m. to 150 hp. at 2700 r.p.m. And the maximum has not yet been attained. Through the period of testing we have not had any failures in parts or operation, and no 'bugs' in engineering have been uncovered, as usually is the case in design of new engines. It has been run every day and does everything asked of it and is as sound as when it was put together, which bears out the theories of design.

"It is our firm opinion that it will create a sensation when it is released in aviation circles. We more firmly believe it represents a powerplant development that every airplane designer has been looking for. Our tests have produced concrete evidence of these facts."

Mr. Chevrolet expressed the belief that the engine could be manufactured on a production basis comparable with the production of automobiles and as efficiently and economically.

The designer has been building gasoline engines for thirty years and was one of the pioneers in engineering the high efficiency racing engines of the present day.

In the early days he was a member of the famous Chevrolet brothers racing team.

Announcements of production plans of the Chevrolet aviation plant will not be made for several months, the engineer said, until tests have thoroughly proved this engine and perhaps other larger engine developments the firm may undertake. B. P. Prunk is vice-president of the company, and G. S. Griffin secretary-treasurer.