

# Planegram

## AIRCRAFT YEAR BOOK 1929 - Part 2

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*"What is routine today is uncommon history making in 1929." Dick Reade*

### Chapter XIV

#### TECHNICAL DEVELOPMENT

Despite the trend toward metal structure only a few metal sheathed planes were developed in 1928, and fabric remained the common covering material. One of the metal planes, however, marked the beginning of the use of the monocoque type of structure in metal construction. It was built by the Thaden company and embodied a new type of multi-spar wings at the end of the year.

A few of the recent airplanes have tapered wings but designers in general have not adopted the practice, possibly because of the production difficulties involved when wings with a number of rib sizes are to be manufactured in quantities. However, the increased aerodynamic efficiency thus obtained has led several designers to seek a solution of the production problem. The use of large dies for stamping metal forms in production quantities promises to be come a factor in cost reduction. The Curtiss Company has constructed commercial plane ribs of one piece by means of stamping and form-

ing dies.

Attempts to reduce parasite drag resulted in a much higher degree of streamlining. One company developed a full cantilever landing gear in which all of the shock absorbing mechanism is housed within the fuselage where it does not contribute to resistance.

Wing fuel tanks proved more popular because they permit of gravity feed to the carburetor. Fuel distribution systems and other forms of airplane plumbing were not changed to any extent, though efforts were being made to eliminate fuel line failure as a cause of forced landing.

The year was marked by tremendous activity in production of engines of all sizes. Both aircooled and watercooled types appeared to have their own separate fields, the latter still employed by the Air Corps for high altitude work and speed flying, through the development of aircooled radial engines threatened to break down at least part of the other's supremacy in that kind of service.

Among the experiments with Diesel type engines for aircraft was that of the Packard Motor

Car Co. The Packard Diesel is in form of a 9-cylinder aircooled radial of about 200 horsepower using fuel oil under the injection principle. The engine was flown several times under test and was reported to have shown much promise. Development of a Diesel engine would result in fundamental changes in airplanes design.

Two six cylinder engines of the staggered radial or double throw crankshaft type were developed during the year, notably the Curtiss "Challenger," 170 h.p. at 1800 r.p.m. Another was the Brownback C-400 rated at 100 horsepower.

In the radial engine group, one of the most important developments of the year was the production of a geared type of engine by the Pratt & Whitney Aircraft Co. Its geared "Hornet," Series B, with 2:1 reduction gear, and with 1860 cubic inch displacement against the 11690 of the series A "Hornet," weighs approximately the same and is rated at 50 more horsepower than the older type. The geared "Hornet" became standard equipment in several types

*continued inside*

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### **Joe Risner, Aircraft Mechanic**

Joe has been with Mid-Continent since October of 2011.

He lives in Caruthersville with his wife Kathrin and his two kids Michael and Michele.

He loves to fish, four wheel ride, and going to the shooting range.



of planes. Pratt & Whitney also built and flew a number of geared "Wasps" in 1928.

Several departures from conventional American practice in design were embodied in the new "Whirlwind" series developed by the Wright Aeronautical Corporation. This series constitutes three engines of five, seven and nine cylinder types and having practically all of their major parts interchangeable, 150, 225, and 300 horsepower with weights materially reduced. The induction system, unusual in engines of their size, is a General Electric Rotary impellor mounted in the diffuser chamber and producing positive control of mixture.

In practically all of the new radial engines the accessories and push rods have been placed at the rear and the valve actuating mechanism enclosed. The return of the one piece master rod of the big end type and the split type crankshaft is also noticeable in the new designs. The prevalent type of cylinder construction is the steel finned barrel with cast aluminum alloy head screwed and shrunk on the barrel and with bronze valve seats shrunk into the heads. Aluminum heads bolted and shrunk onto steel or cast iron cylinder barrels have characterized the design of several of the smaller engines.

*continued next month*



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24 Easter	25	26	27	28	29	30
31						