

THE JACOBS R755 L4MB TO R755 B2 ENGINE CONVERSION

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Two of the most frequently asked questions which we field, both at fly-ins and by telephone are, “What is the difference between the 245 HP. and 275 HP. Jacobs engines?” and, “How can I make my 245 HP. engine into a 275 HP. one?” Lets begin by looking at the lineage of these engines.

The 245 HP. engine (civilian L4MB, military R755-9) was a product of the Great Depression (1934) and as such found a limited market in pre war Wacos, Staggerwings, and a handful of other designs. It was World War II, and specifically the UC78 Bamboo Bomber that provided the demand for large numbers of the Jacobs R755-9 engine. Multiplied thousands of those 245 HP. engines were produced, which both firmly established Jacobs Aircraft Engine Co. of Pottstown, PA as a leading manufacturer of small radial engines and gave us the good availability of these engines that we now enjoy some fifty-five years later.

At the wars end Jacobs redesigned the 245 HP. engine by increasing the compression ratio with high compression pistons, enlarging the interior of the induction housing, and rejetting the carburetor. These modifications resulted in the R755-A2 engine of 300 HP. After a short production run with choked steel cylinders, all later A2 engines incorporated straight bore chrome cylinders.

By the early 1950's Jacobs found themselves with literally tons of military surplus R755-9 parts, but without much of a demand for that engine. The natural question arose: “What if we mated the higher compression pistons and chrome cylinders of the A2 with the lower end of the R755-9?” The result was the highly successful R755-B2. Though Jacobs chose to rate the engine at 275 HP., the power curves show that it actually produced 282 HP. @ 2200 RPM. Thus, the R755 B2 is actually a converted R755-9 rather than a new design in its own right.

In a Service Information Letter dated 2/25/54, Jacobs Aircraft Engine Co. supplied information concerning the conversion:

“In order to convert the R755-9 to the R755 B2 there are certain requirements which we must abide by in order to comply with CAA regulations, such as:

- 1) All parts must be inspected and checked to the present production drawings and specifications.

- 2) All interchangeable parts must be re-numbered to the current numbering system.
- 3) All cylinders porous chrome plated.
- 4) New style pistons.
- 5) New piston ring configuration.
- 6) New front case oil flange.

To make the conversion, checking equipment and blueprints should be available.”

The question many have asked in light of the above is, “Can I legally convert my R755-9 to a R755 B2 in my garage?” We posed the question to the FAA, both the local FSDO and Regional Engineering office. The consensus was that certainly anyone who could read an overhaul and parts manual could install the correct parts to convert a 245 HP. to a 275 HP. The problems come with the data plate and type certificates. The L4MB engine was built under TC 121 but the R755 B2 was approved under TC 237. By what authority (the FAA asked) would a person move an engine from one TC to another and what will you do for a new data plate?

Radial Engines, LTD. solved this problem by engaging a DER to approve the conversion data and by obtaining an FAA approval to make the conversion. Since the Jacobs Service Information Letter stated that all parts must be inspected to current drawings and re-numbered to the current (4000 series) numbering system, the conversion is only practical in conjunction with an engine overhaul.