

The Magneto Ignition System

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Introduction

Since 1985 the National Transportation Safety Board has cited magnetos as a cause or factor in 92 accidents involving 22 fatalities and 21 serious injuries. This is surprising in that only one magneto is required to operate the engine. Yet, possibly this is the problem. Because the magneto is considered redundant there is a tendency to operate it until it fails.

Magnetos are reliable and provide a redundant safety factor, but they have the potential of causing engine failure if they are not inspected and serviced. When the magneto bearings fail on one obsolete magneto model, the rotor seizes causing the gear teeth inside the engine to break. The broken gear uncouples both magnetos causing instant engine shut-down. Worn impulse coupling rivets can cause engine failure when the impulse coupling engages in flight. The adage "if

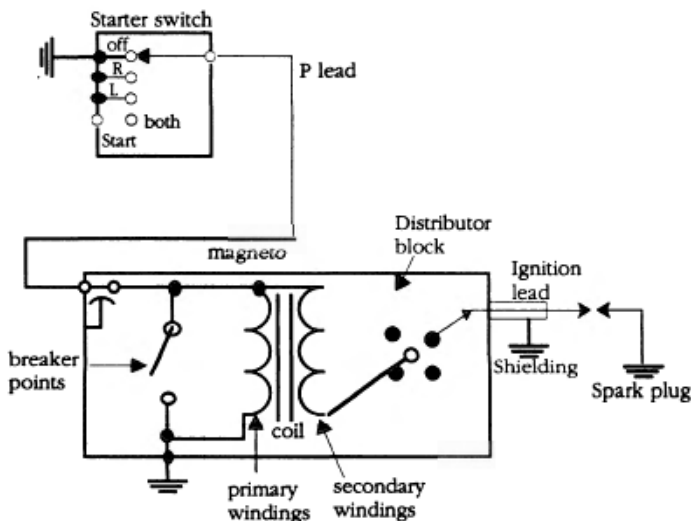
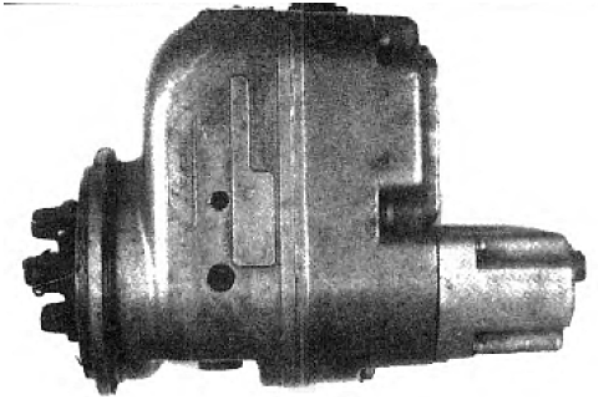
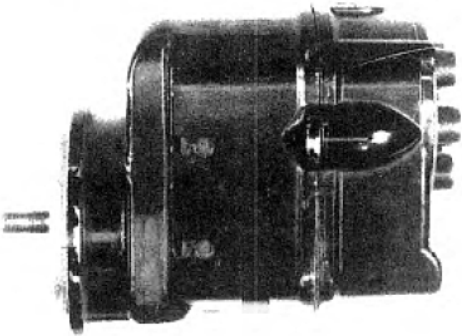


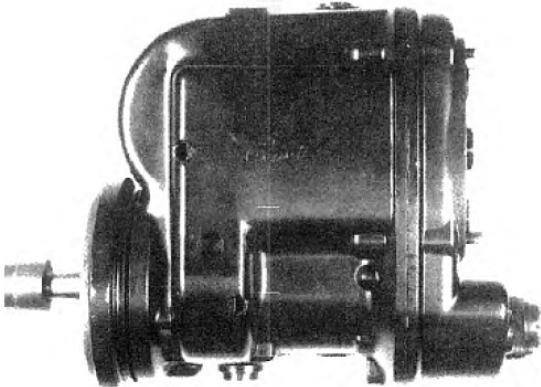
Figure 1. Schematic diagram of magneto circuit.



Bendix S-20 Or S-200



Slick 4200



Bendix S-1200

Figure 2. Magneto models showing relative size.

it's not broke-don't fix it" translates to "operate it until it fails-and hope it doesn't take the engine (and us) when it does".

These are tough words to start a book. When we open up magnetos for overhaul we see that many are not receiving proper preventative maintenance. With an understanding of the magneto's mechanical and electrical design you have the know ledge to make the correct maintenance decisions so that your magnetos operate safely and reliably.

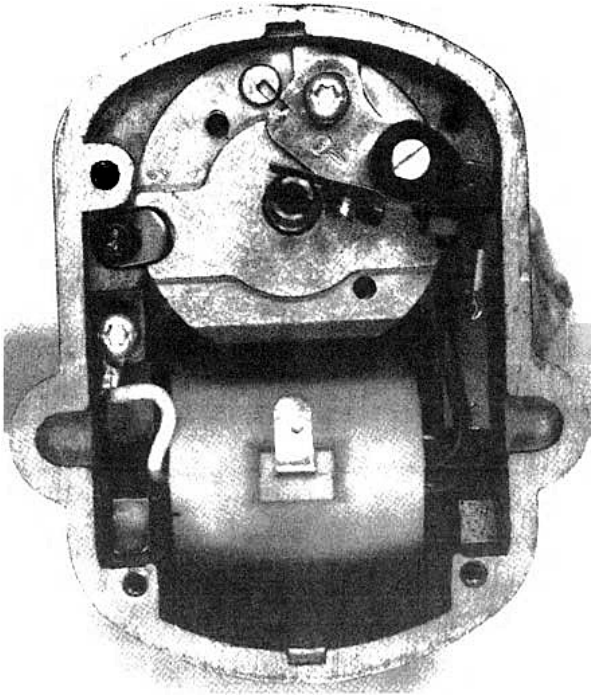


Figure 3. Inside of a 4200 series Slick magneto.