

Alternators

Keeping the lights lit on those long trips. . .



B&C L-60, 60-Amp alternator. An aviation adaptation of a Nipon-Denso automotive alternator to aviation.

- **Brand new**
- **Disassembled and modified for external regulation**
- **Super-Balance rotor**
- **Rate of return for 10+ years of deliveries has been under 1% for the fleet.**

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B&C's 20-amp, vacuum pump pad driven machine.

- **Starts out as a 40 amp alternator (same raw material as for the L-40).**
- **New drive end casting and shear shaft adapter.**
- **Same alternator works in both 14 and 28 Volt systems.**

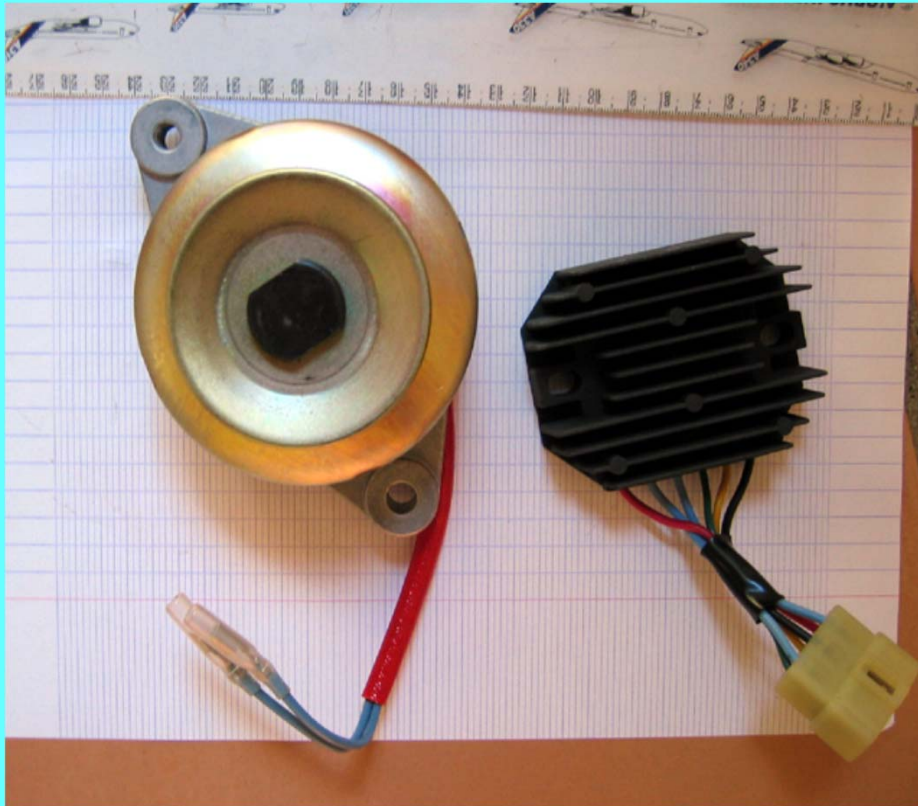
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This 8-Amp, pad driven alternator launched B&C some 25 years ago.

- **Permanent magnet.**
- **One moving part**
- **No slip rings**
- **Exceedingly robust**

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Exemplar PM alternator found on range of small industrial and commercial engines.

- **Outputs available from 6 to 30 amps**
- **Regulator/Rectifiers are relatively inefficient but the price is sure right!**

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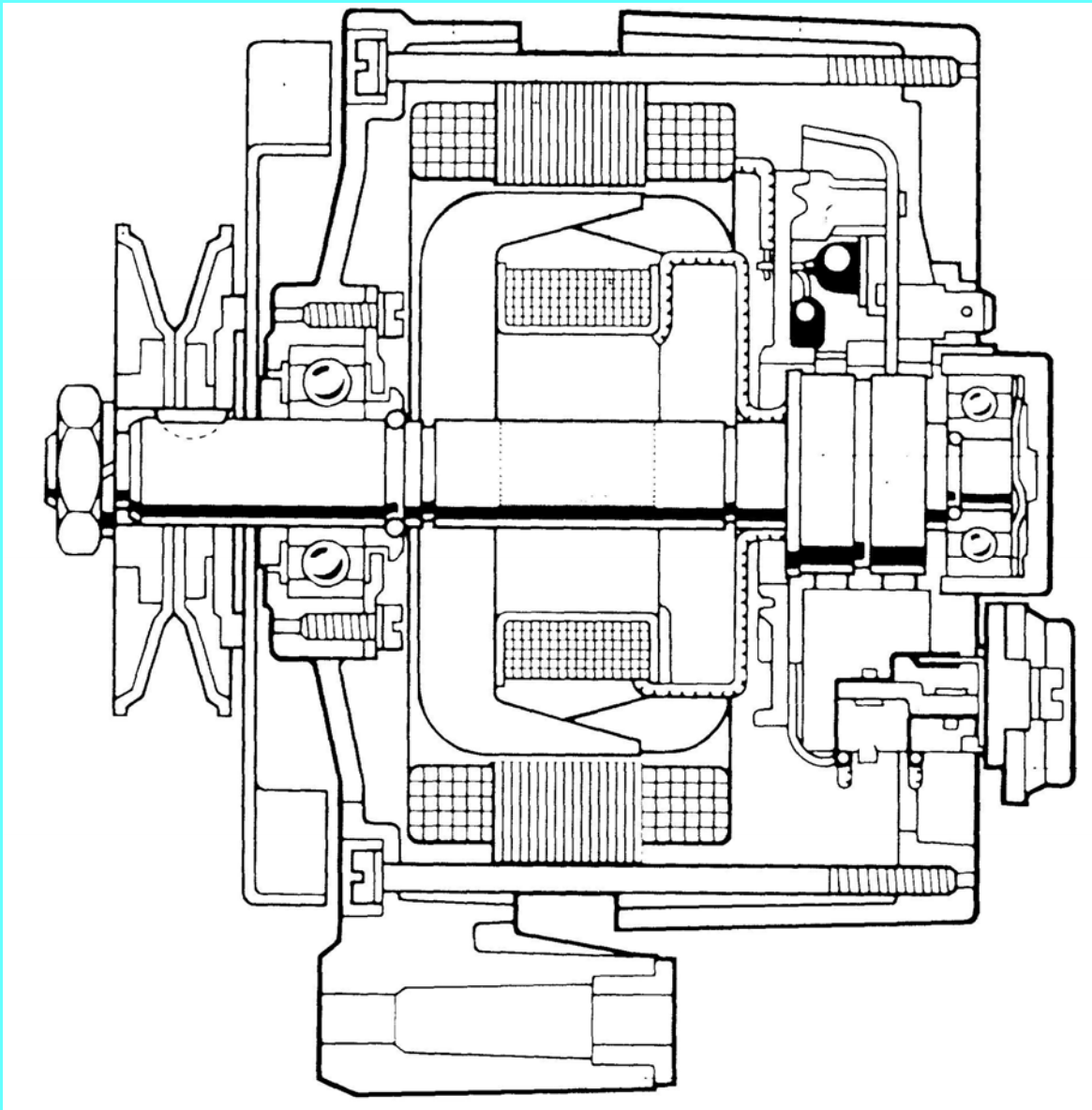
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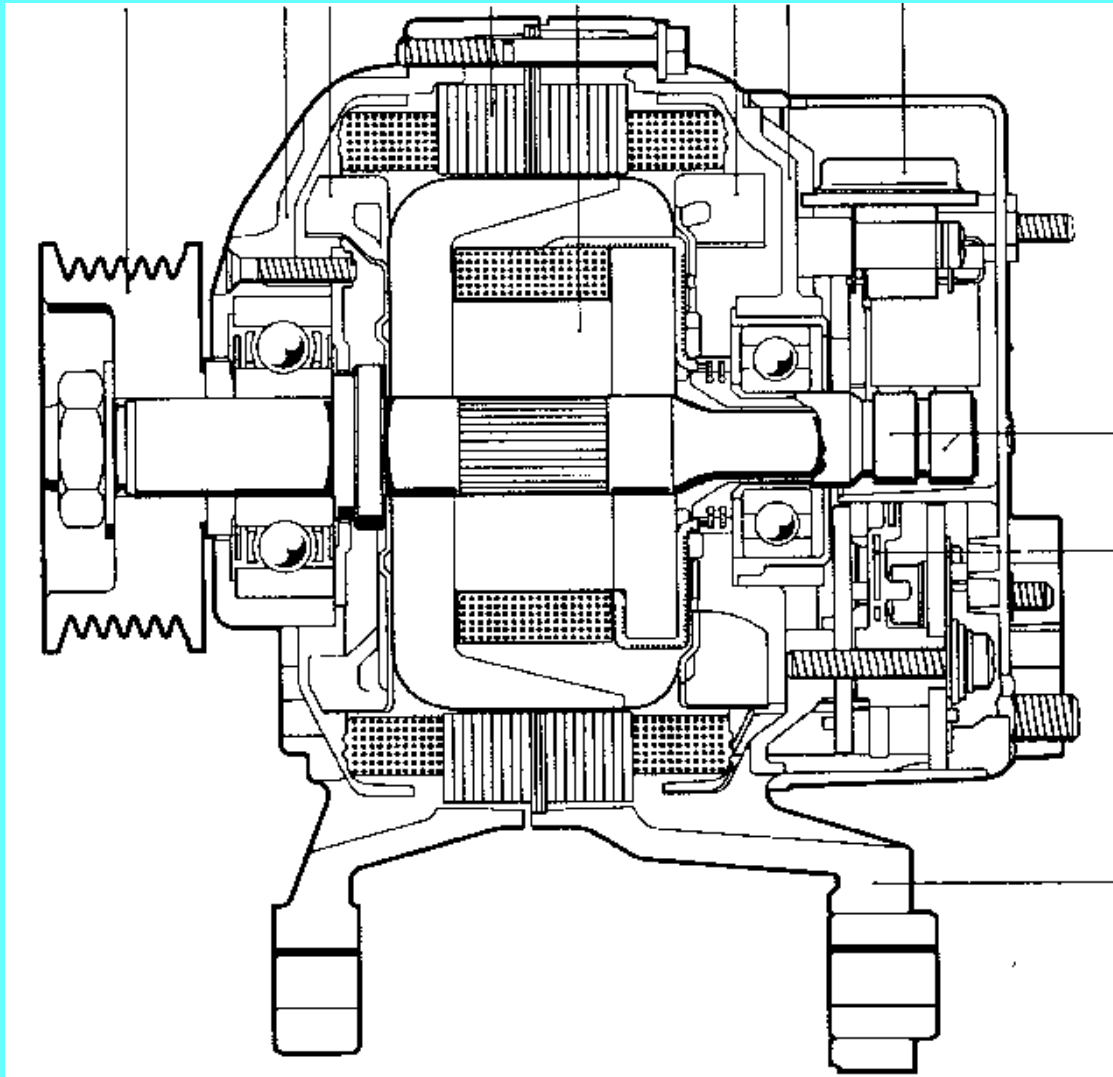
Noise filter and OV protection kit for PM alternators.

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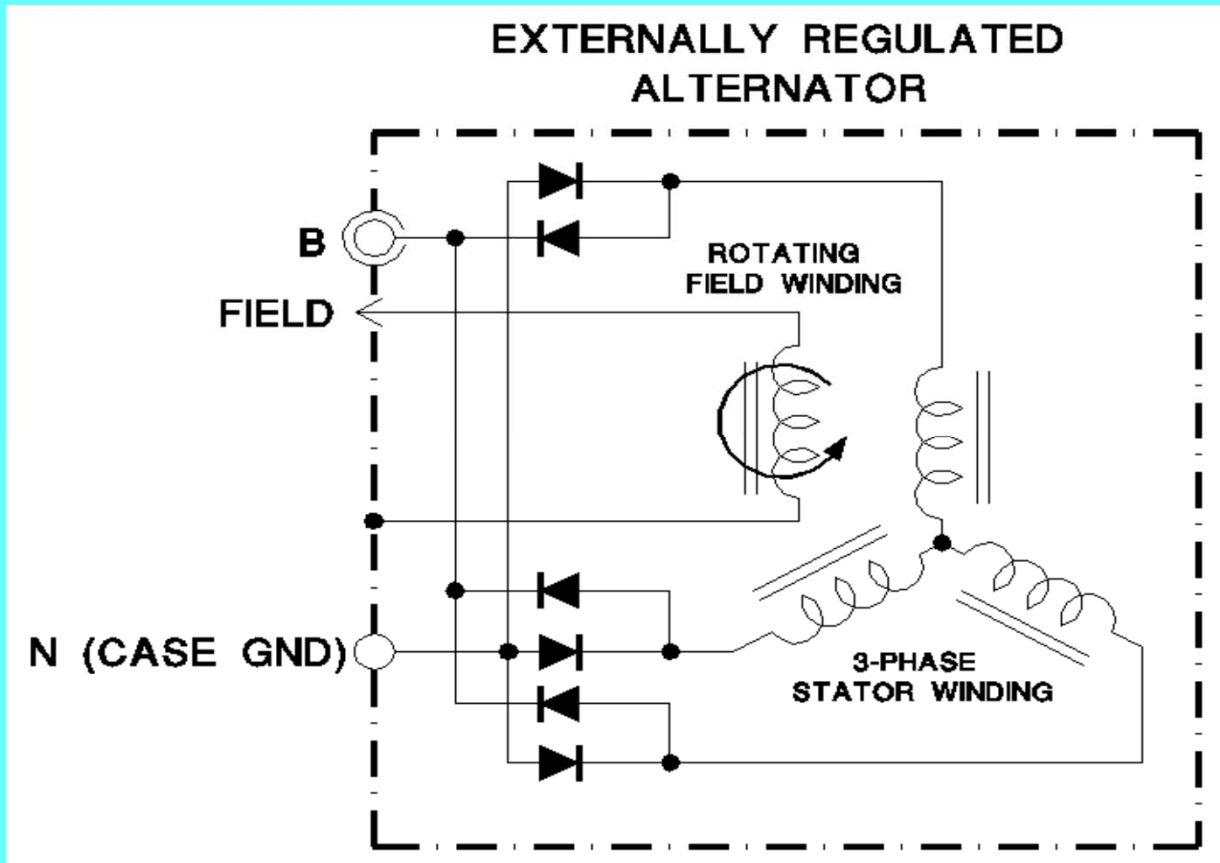
**Cutaway view of
alternator with an
external fan**

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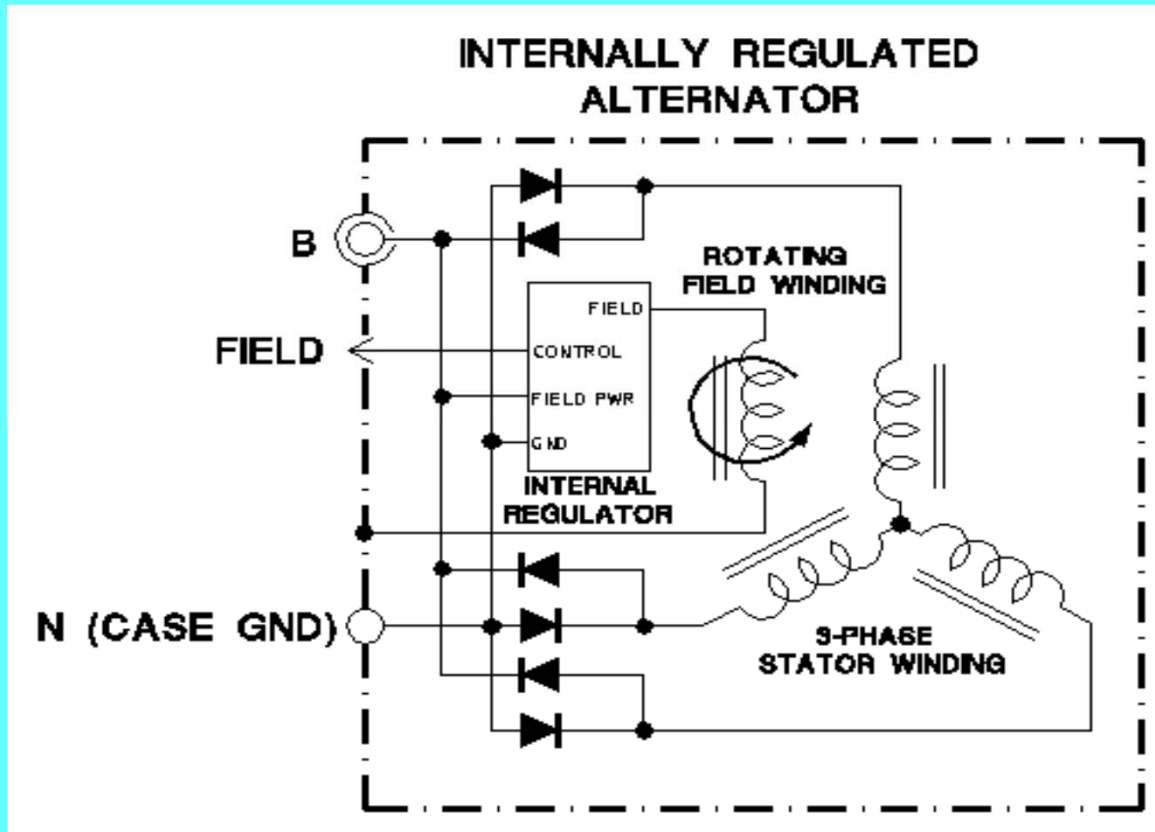
Cutaway view of
alternator with
internal fans

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**Simplified
schematic of
externally regulated
alternator**

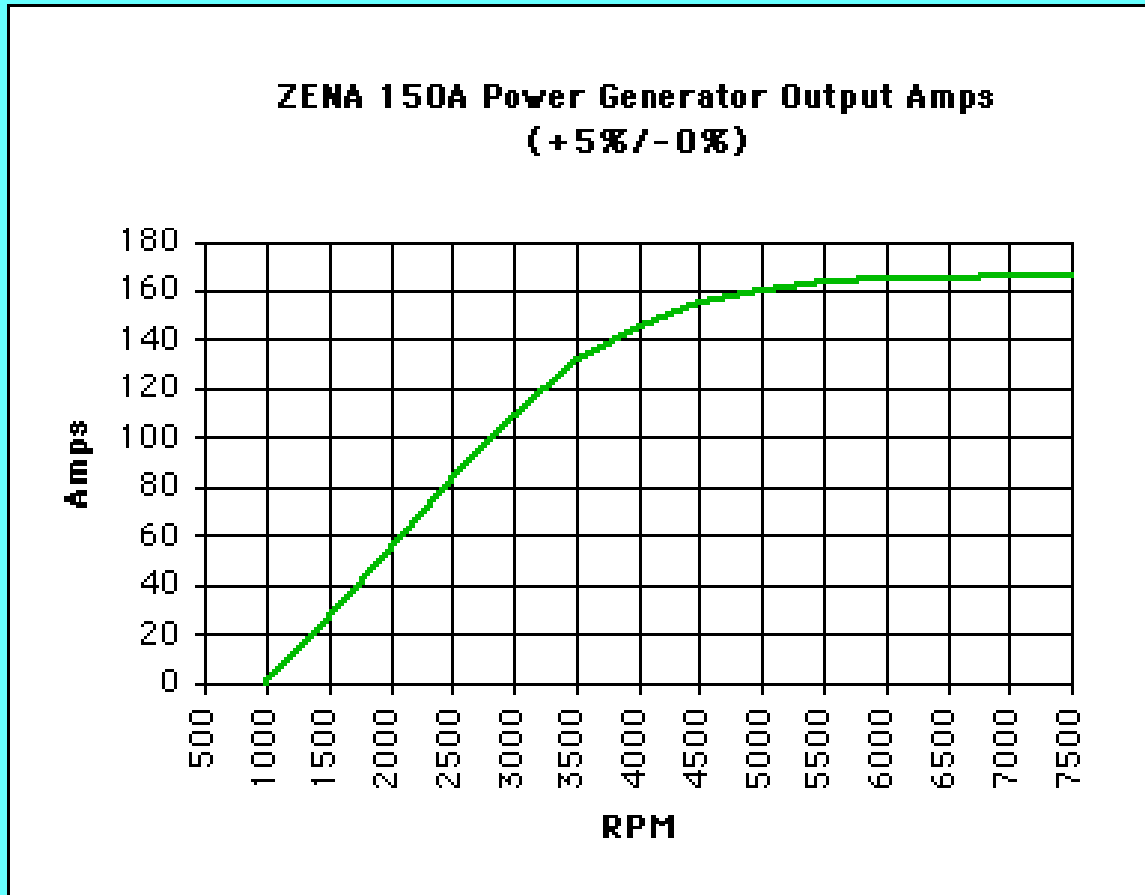
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Simplified schematic of internally regulated alternator.

- Note that field excitation power comes from **INSIDE** the alternator.
- There is no opportunity to exercise external control over field excitation in case of a regulator failure

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**Exemplar RPM vs.
output current for
an automotive
alternator . . .**

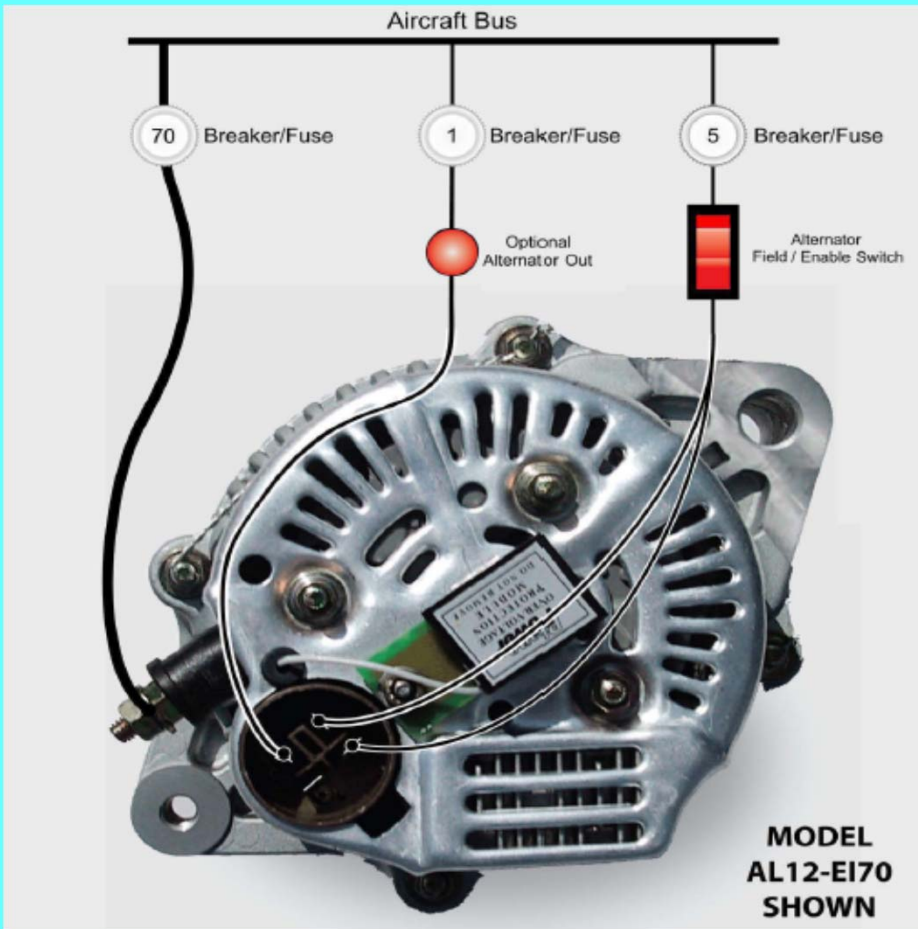
Plane-Power: the new kid on the block . . .



- **Plane-Power of Granbury, TX offers a line of automotive adaptations to the OBAM and TC aviation industry . .**

- **They choose to run their machines a bit slower than B&C (note larger diameter pulley).**

Plane-Power: the new kid on the block . . .



- The 5A breaker carries field excitation current.
- The OV protection module is a “crowbar” style device that opens the field breaker by deliberate fault to ground.
- As INTERNALLY regulated alternators go this product seems entirely suitable for use on aircraft and should be considered
- The ‘Connection does NOT recommend a 70A breaker on the bus for this product. An ANL-50 or ANL-80 limiter feeding the starter contactor on the firewall is a better approach . . .

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Generators are not dead . . .



Alternators

- **Generators are very much alive and well on the heavy iron. Here's the 400A Starter-Generator on a Beechjet.**
- **Generators are still the practical choice because they'll readily run as a motor for starting the engine and convert to a generator for powering ship's systems.**
- **Modern designs are going to brush-less technology but they're very expensive and take up a lot more volume in the airplane . . .**

In a nutshell . . .

- Adaptations of automotive technology have a **DEMONSTRATED** advantage over the majority of certified products for low cost, lower weight, and greater longevity.
- *Before Plane-Power*, it the internally regulated automotive product was difficult to adapt to aircraft. The pilot had no positive ON/OFF control over the stock alternator.
- Lack of positive control made it impossible to provide over-voltage protection.
- B&C has the undisputed record for reliability and serviceability in automotive adaptations for aircraft. Plane-Power is the up-and-comer to watch. Odds of becoming the value-leader in alternators for OBAM aviation are quite good.
- B&C's vacuum pump pad driven alternators are still the products of choice for stand-by alternators on most all-electric airplanes. The pad-driven machines may also be considered as primary power for simple airplanes.