



# SD-8

# QUICK FACTS

## SUPERB PERFORMANCE, SMALL PACKAGE

An alternator unlike any other — the spline-driven SD-8 offers the benefits of an exceptionally lightweight alternator, and a design with proven durability in the rugged world of aerobatic aircraft for over 25+ years. Weighing just 2.9 lbs., with a rated output of 8 amps @ 3500 alternator RPM, the SD-8 may be mounted on either the vacuum pump accessory pad, or on a hydraulic pump pad adapter (using a special Lycoming hydraulic pump pad adapter). It features a precision CNC machined billet aluminum mounting flange, two heavy-duty sealed ball-bearings,



and a special “shear section” drive coupling. Includes our external PMRiC regulator, and a 504-1 (14v) or 504-2 (28v) PM/OV Filter Kit. The PMRiC features a rectifier bridge, special field-adjustable regulator circuitry, and a built-in heat sink; the 504-1 (or 504-2) provides over-voltage protection — and warning — for aircraft electrical systems. Available in both 14v and 28v configurations, the SD-8 Alternator is intended for homebuilt aircraft, and is typically used in day -VFR operations to power a starter, Nav/Com, and transponder.

### FEATURES

- Permanent Magnet design — no brushes or slip-rings
- Precision CNC machined billet aluminum mounting flange
- Two heavy-duty sealed ball-bearings
- “Sheer Section” drive coupling
- Complies with AND20000 pad specifications
- Weight: 2.9 lbs.

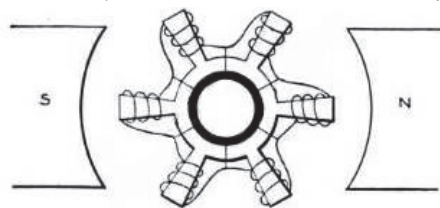
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## THE ANATOMY OF A “DYNAMO”

$$\text{Kinetic Energy} = \frac{Wv^2}{2g}$$

The SD-8 Alternator from B&C Specialty Products is technically a “Dynamo” — a modern-day relative of the device created by pioneering physicist Michael Faraday.

In essence, a dynamo converts mechanical energy into electrical energy. It does this by developing — or “inducing” — an electrical current in response to motion within



a magnetic field. In the case of our SD-8, this magnetic field is provided by a series of permanent magnets that have been secured inside the perimeter of a cup-shaped housing. As this magnetic housing rotates around a fixed wire core, the result is

alternating current (AC). Once regulated for maximum usefulness with a rectifier-type regulator that converts — or “rectifies” — the AC into direct current (DC), this output is suitable for powering aircraft radios, lights, or other devices, and for recharging a lead-acid battery.

A dynamo-type device such as the SD-8 has several rather distinct advantages. Most notable is its sheer simplicity, with neither brushes or slip-rings to wear over time or require maintenance. Similarly, since they contain fewer parts, dynamos are remarkably lightweight, offering an excellent (and very favorable) power to weight ratio.

### PRICING

SD-8 Alternator, with PMRiC Regulator and PM/OV Filter Kit (Homebuilt) \$575

### ALSO OF INTEREST

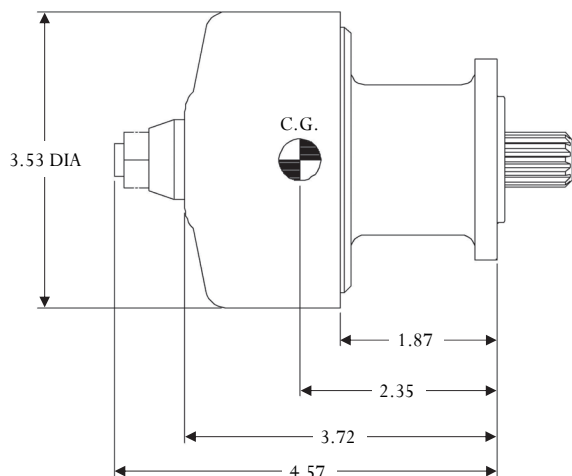
PMRiC-14 Regulator, 14v (Homebuilt), if purchased separately \$75

PMRiC-28 Regulator, 28v (Homebuilt), if purchased separately \$75

504-1 PM/OV Filter Kit, 14v (Homebuilt), if purchased separately \$70

504-2 PM/OV Filter Kit, 28v (Homebuilt), if purchased separately \$70

## SD-8 DIMENSIONS AND SPECIFICATIONS



Alternator RPM	Output AMPS
5000	10.7
4500	10.2
4000	9.4
3500	8.4
3000	6.8
2500	4.7
2000	2.3

At 13.8 Volts

*This part is not STC'd or PMA'd and is sold for amateur-built aircraft*

## THINKING AHEAD WITH SAFETY OF FLIGHT IN MIND

An in-flight emergency such as an over-voltage event is something that many people would rather not think about. Like being struck by lightning, few actually experience it — but those who do tend to remember it vividly.

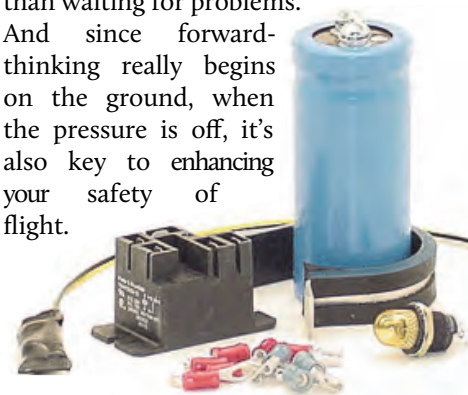
As with any other rare but grave possibility, it is always wise to find ways of protecting yourself — and your aircraft — against an OV “lightning strike.” Careful system planning and implementation are of key importance.

It is for this reason that every SD-8 Alternator is accompanied by our 504-1

Permanent Magnet/Over-Voltage (PM/OV) Filter Kit. This kit provides crucial over-voltage protection for the SD-8 through the use of a “crowbar” over-voltage protection circuit and a 20 Amp relay. Each kit also contains a clear-yellow warning light that will illuminate — providing valuable visual indication — if the OV protection circuit has been “tripped” (or when the alternator switch has been left off), as well as a filter capacitor to reduce radio noise and enhance regulation.

Why all the fuss?

Simple. Active prevention is better than waiting for problems. And since forward-thinking really begins on the ground, when the pressure is off, it's also key to enhancing your safety of flight.



## APPLICATION NOTES: LYCOMING AND CONTINENTAL ENGINES

The SD-8 Alternator is designed for AND20000-spec pads, such as those typically found on Lycoming and Continental engines.

**General.** The SD-8 is mechanically driven via a spline, and so consequently, Alternator RPM (and output) is tied to engine RPM. The chart at the right may be used to determine Alternator RPM for your particular application.

**Lycoming.** The preferred mounting location on these engines is the Vacuum

Pump Accessory pad. Alternately, the Hydraulic Pump pad may be used in select installations, however this will

Engine and Mounting Location	Ratio: Pad RPM to Engine RPM
Lycoming Vacuum Pump Pad	1.3 to 1
Lycoming Hydraulic Pump Pad	1.3 to 1
Continental O-200 Vacuum Pump Pad	1.5 to 1

require a special Lycoming adapter assembly.

**Continental.** The O-200 engine has a Vacuum Pump Accessory pad located on the front of the engine (underneath side). Since the SD-8 “hangs” upside down in this installation, these units require a special modification to the Alternator’s magnetic housing, in which “weep holes” are added to allow rain and/or atmospheric condensation to escape rather than being retained.