

B&C SPECIALTY PRODUCTS



QUICK FACTS

SUPERB PERFORMANCE, SMALL PACKAGE

The spline-driven SD-8 Alternator offers the benefits of a compact, exceptionally lightweight alternator, and a design with proven durability in the rugged world of aerobatic aircraft.

Weighing 2.9 lbs., with a rated output of 8.4 amps @ 3500 alternator RPM, the SD-8 may be mounted on either the vacuum pump accessory pad, or on the hydraulic pump pad. It features a strong billet aluminum mounting flange, two sealed ball-bearings, and a "shear section" designed into the drive coupling.

Every SD-8 also comes with the PMR1C regulator. Designed for use with the SD-8 Alternator, the PMR1C features a rectifier bridge, adjustable solid-state

regulator circuitry, and a built-in heat sink. Available for both 14v and 28v electrical systems, the SD-8 has been used extensively in day VFR aircraft to power a starter, Nav/Com, and transponder.



SD-8 Alternator
(Homebuilt), 14v or 28v

FEATURES:

- Permanent Magnet design — no brushes or slip-rings
- 3-D machined billet aluminum mounting flange
- Two sealed ball bearings
- "Shear Section" drive coupling
- Complies with AND20000 pad specifications
- Weighs only 2.9 lbs.

PRICING

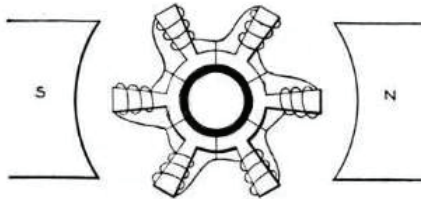
SD-8 Alternator, with Regulator (Homebuilt)	\$430
PMR1C-14 Regulator, 14v (Homebuilt), if purchased separately	\$65
PMR1C-28 Regulator, 28v (Homebuilt), if purchased separately	\$65
504-1 PM/OV Filter Kit, 14v (Homebuilt)	\$65
504-1 PM/OV Filter Kit, 28v (Homebuilt)	\$65
Modification for use on Continental O-200 (adds weep holes)	\$30

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 so by developing—or "inducing"—an electrical current in response to motion within a magnetic field. On the 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

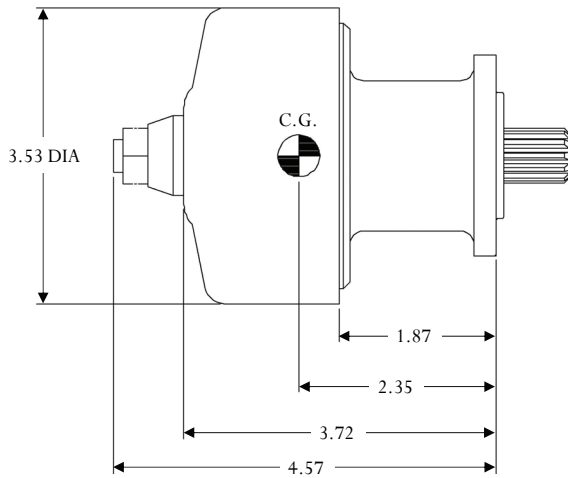
suitable for powering aircraft radios and lights, or for recharging a lead-acid battery.

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

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- SD-8 Dimensions and Specifications
- Thinking Ahead with Safety of Flight in Mind
- Application Notes for Lycoming and Continental Engines

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 only.

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 must also be accompanied by

a Permanent Magnet/Over-Voltage (PM/OV) Filter Kit. Available for both 14v and 28v applications, these kits provide 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 if the OV protection circuit has been “tripped” (or when the alternator switch has been left off), and a filter capacitor to reduce radio noise and enhance regulation.

Why all the fuss?

Simple. Active prevention is better than unexpected 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 FOR 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.