

Title (en)  
HYBRID ALTERNATOR

Title (de)  
HYBRIDER WECHSELSTROMGENERATOR

Title (fr)  
ALTERNATEUR HYBRIDE

Publication  
**EP 0818077 A4 19990107 (EN)**

Application  
**EP 96908889 A 19960321**

Priority  
• US 9603914 W 19960321  
• US 41435095 A 19950331  
• US 61610696 A 19960314

Abstract (en)  
[origin: WO9630992A1] A hybrid alternator comprising a stator (702) and a rotor (710) mounted for rotation within the stator and separated therefrom by an air gap. The rotor has a rotor core defining a plurality of magnetic poles (716) wherein adjacent ones of the magnetic poles have alternating north and south magnetic fields. The plurality of magnetic poles comprises a plurality of permanent magnet poles (716a, 716b) and a plurality of electromagnetic poles (716). Each permanent magnet pole is defined by a permanent magnet (718). The plurality of permanent magnet poles comprises two (2) sets of diametrically positioned permanent magnet poles. The hybrid alternator also includes a temperature monitoring voltage regulator that provides protection against overheating damage while permitting the alternator to significantly exceed its rated output for short periods of time or in colder ambient temperatures.

IPC 1-7  
**H02K 21/12**; H02K 16/00; H02K 1/00; H02H 7/06; H02P 9/14

IPC 8 full level  
**H02H 7/06** (2006.01); **H02K 1/20** (2006.01); **H02K 1/22** (2006.01); **H02K 1/24** (2006.01); **H02K 1/27** (2006.01); **H02K 16/00** (2006.01); **H02K 16/02** (2006.01); **H02K 19/22** (2006.01); **H02K 19/36** (2006.01); **H02K 21/04** (2006.01); **H02K 21/14** (2006.01); **H02P 9/00** (2006.01); **H02P 9/14** (2006.01); **H02P 9/30** (2006.01); **H02P 9/34** (2006.01); **H02H 5/04** (2006.01); **H02K 3/51** (2006.01); **H02K 9/06** (2006.01); **H02K 11/00** (2006.01); **H02K 19/10** (2006.01)

CPC (source: EP US)  
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Citation (search report)  
• [A] DE 4139843 C1 19930624  
• [Y] WO 9500996 A1 19950105 - ECOAIR CORP [US]  
• [Y] FR 2420874 A1 19791019 - SEV MARCHAL [FR]  
• [Y] EP 0335085 A2 19891004 - NIPPON DENSO CO [JP]  
• [A] PATENT ABSTRACTS OF JAPAN vol. 018, no. 109 (E - 1513) 22 February 1994 (1994-02-22)  
• [A] JUN OYAMA ET AL: "CHARACTERISTICS OF HALF-WAVE RECTIFIED BRUSHLESS SYNCHRONOUS MOTOR WITH PERMANENT MAGNETS", PROCEEDINGS OF THE EUROPEAN CONFERENCE ON POWER ELECTRONICS AND APPLICATIONS. (EPE), AACHEN, 9 - 12 OCTOBER, 1989, vol. VOL. 3, no. CONF. 3, 9 October 1989 (1989-10-09), LEONHARD W;HOLTZ J; SKUDELNY H C, pages 1513 - 1517, XP000143582  
• [A] PATENT ABSTRACTS OF JAPAN vol. 017, no. 698 (E - 1481) 20 December 1993 (1993-12-20)  
• See references of WO 9630992A1

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