

Title (en)

Electrical starter for an internal combustion engine with a protection device

Title (de)

Elektrostarter für einen Verbrennungsmotor mit einer Schutzvorrichtung

Title (fr)

Démarrreur électrique pour moteur à combustion interne muni d'un dispositif de protection

Publication

EP 1092867 A3 20020731 (DE)

Application

EP 00120966 A 20000927

Priority

DE 19949822 A 19991015

Abstract (en)

[origin: EP1092867A2] The control circuit (5) for an electric starting motor, at an internal combustion motor, is structured to determine the heating and/or the load on the starting motor, at least at one point of the motor (1), from the voltage waves in the main current circuit of the starter motor current (I). The threshold value transmitter (10) gives the set max. loading on the electric starter motor (1). A comparator uses the motor loading and the threshold value to generate a signal if the threshold value is breached upwards or downwards. On receipt of the signal, a cut-out (20) restricts the force flow to the IC motor (6), and cuts the current flow to the starter motor (1). The control circuit (5) registers the current (I) to the armature of the start motor (1) and the temp. of the motor carbon brushes.

IPC 1-7

F02N 11/08; F02N 11/10

IPC 8 full level

F02N 11/08 (2006.01)

CPC (source: EP US)

F02N 11/0859 (2013.01 - EP US); **F02N 11/106** (2013.01 - EP US); **F02N 2200/044** (2013.01 - EP US); **F02N 2200/045** (2013.01 - EP US)

Citation (search report)

- [X] US 4389692 A 19830621 - SANDER KLAUS [DE], et al
- [X] FR 2717961 A1 19950929 - VALEO EQUIP ELECTR MOTEUR [FR]
- [X] EP 0771947 A1 19970507 - NIPPON DENSO CO [JP]
- [X] US 3666990 A 19720530 - STROBL GEORG, et al
- [X] US 5345901 A 19940913 - SIEGENTHALER DAVID R [US], et al
- [X] US 5343351 A 19940830 - QUANTZ CHESTER C [US]
- [X] US 4947051 A 19900807 - YAMAMOTO KYOHEI [JP], et al

Designated contracting state (EPC)

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DOCDB simple family (publication)

EP 1092867 A2 20010418; **EP 1092867 A3 20020731**; **EP 1092867 B1 20100120**; AT E455958 T1 20100215; DE 19949822 A1 20010419; DE 50015849 D1 20100311; ES 2338404 T3 20100507; JP 2001115936 A 20010427; JP 4996007 B2 20120808; US 6661195 B1 20031209

DOCDB simple family (application)

EP 00120966 A 20000927; AT 00120966 T 20000927; DE 19949822 A 19991015; DE 50015849 T 20000927; ES 00120966 T 20000927; JP 2000314178 A 20001013; US 68845000 A 20001016