

Title (en)  
STARTING DEVICE FOR INTERNAL COMBUSTION ENGINES

Title (de)  
STARTVORRICHTUNG FÜR BRENNKRAFTMASCHINEN

Title (fr)  
DISPOSITIF DE DEMARRAGE POUR MOTEURS A COMBUSTION INTERNE

Publication  
**EP 1322861 B1 20060503 (DE)**

Application  
**EP 01969267 A 20010831**

Priority  
• DE 0103361 W 20010831  
• DE 10046987 A 20000922

Abstract (en)  
[origin: DE10046987A1] The device has a starter motor whose starter pinion can engage the engine gear rim with the aid of an engagement relay and spring. The relay has a switch contact in the starter motor main circuit that switches on towards the end of the engagement relay stroke, pull-in and holding relays subjected to a start signal during starting. The holding winding is in series with a control switch element changed to conducting by a timing element. The device has a starter motor whose starter pinion can engage the engine gear rim with the aid of an engagement relay (19) and engagement spring. The relay has a switch contact (24) in the main circuit (36) of the starter motor that switches on towards the end of the engagement relay stroke and pull-in (22) and holding (23) relays subjected to a start signal during the starting process. The pull-in winding is switched off when the starter motor is switched on. The holding winding is connected in series with a control switch element (28) that is controlled into the conducting state by a timing element (29) connected to a starting signal connection.

IPC 8 full level  
**F02N 15/06** (2006.01)

CPC (source: EP)  
**F02N 11/0851** (2013.01); **F02N 15/067** (2013.01); **F02D 2041/2079** (2013.01); **F02N 11/087** (2013.01)

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