

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 A2 20030702 (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 1-7

**F02N 15/06**

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)

Citation (search report)

See references of WO 0225105A2

Designated contracting state (EPC)

DE ES FR GB IT

DOCDB simple family (publication)

**DE 10046987 A1 20020418**; DE 50109711 D1 20060608; EP 1322861 A2 20030702; EP 1322861 B1 20060503; ES 2259672 T3 20061016; WO 0225105 A2 20020328; WO 0225105 A3 20020627

DOCDB simple family (application)

**DE 10046987 A 20000922**; DE 0103361 W 20010831; DE 50109711 T 20010831; EP 01969267 A 20010831; ES 01969267 T 20010831