

Title (en)

METHOD FOR HEATING THE LIQUID COOLANT OF AN INTERNAL COMBUSTION ENGINE AFTER A COLD START

Title (de)

VERFAHREN ZUM ERWÄRMEN DES FLÜSSIGKEITSKÜHLMITTELS EINES VERBRENNUNGSMOTORS NACH EINEM KALTSTART

Title (fr)

PROCEDE DE CHAUFFAGE DU LIQUIDE DE REFROIDISSEMENT D'UN MOTEUR A COMBUSTION INTERNE APRES UN DEMARRAGE A FROID

Publication

**EP 3894684 A1 20211020 (FR)**

Application

**EP 19823803 A 20191119**

Priority

- FR 1872575 A 20181210
- FR 2019052755 W 20191119

Abstract (en)

[origin: WO2020120852A1] The invention relates to a method for controlling a propulsion system, comprising a heater to heat a liquid-coolant circuit before the start, an oil circuit, said method involving measuring the temperature of the liquid (1) and measuring the temperature of the engine oil (2), comparing the difference between these two temperatures with a temperature threshold that can be calibrated as a function of friction losses by the engine, if, after the start, the difference is above said calibratable temperature threshold, a control law determines an engine speed setpoint vector that determines the exiting of the start (10) which is dependent on the temperature of the oil (2) and if, after the start, the difference is below said calibratable temperature threshold, a control law determines an engine speed setpoint vector that determines the exiting of the start (10) which is dependent on the temperature of the liquid (1).

IPC 8 full level

**F02D 41/06** (2006.01); **F02N 19/10** (2010.01)

CPC (source: EP)

**F02D 41/062** (2013.01); **F02D 41/068** (2013.01); **F02N 19/10** (2013.01); **F02D 41/064** (2013.01); **F02D 2200/021** (2013.01);  
**F02N 2200/023** (2013.01); **F02N 2200/024** (2013.01)

Citation (search report)

See references of WO 2020120852A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**FR 3089563 A1 20200612; FR 3089563 B1 20201113; EP 3894684 A1 20211020; EP 3894684 B1 20230118; WO 2020120852 A1 20200618**

DOCDB simple family (application)

**FR 1872575 A 20181210; EP 19823803 A 20191119; FR 2019052755 W 20191119**