

Title (en)
VALVE OPEN/CLOSE TIMING CONTROLLER

Title (de)
ZEITGEBER FÜR VENTILÖFFNUNG UND -SCHLIESSUNG

Title (fr)
CONTRÔLEUR DE TEMPORISATION D'OUVERTURE/DE FERMETURE DE SOUPAPE

Publication
EP 2322770 B1 20130501 (EN)

Application
EP 10755783 A 20100216

Priority
• JP 2010052267 W 20100216
• JP 2009074114 A 20090325

Abstract (en)
[origin: EP2322770A1] Disclosed is a valve timing control apparatus capable of avoiding inadvertent realization of a locked state by effectively preventing pulsating pressure of fluid generated in association with torque variation of a cam shaft from having any effect on a fluid passageway used for lock releasing. The apparatus includes a first fluid passageway for feeding/discharging fluid to/from an advanced angle chamber, a second fluid passageway for feeding/discharging fluid to/from a retarded angle chamber, a third fluid passageway for feeding/discharging fluid to/from a locking mechanism capable of locking relative rotation between an inner rotor and an outer rotor, a first switching valve for controlling the feeding/discharging of the fluid to/from the first fluid passageway and the second fluid passageway, a second switching valve for controlling the feeding/discharging of the fluid to/from the third fluid passageway, a pump for feeding fluid to the first switching valve and the second switching valve, and a check valve for inhibiting communication of the fluid from the first switching valve to the second switching valve and allowing communication of the fluid from the second switching valve to the first switching valve.

IPC 8 full level
F01L 1/02 (2006.01); **F01L 1/344** (2006.01)

CPC (source: EP US)
F01L 1/022 (2013.01 - EP US); **F01L 1/3442** (2013.01 - EP US); **F01L 2001/34426** (2013.01 - EP US); **F01L 2001/3443** (2013.01 - EP US); **F01L 2001/34463** (2013.01 - EP US); **F01L 2001/34466** (2013.01 - EP US); **F01L 2001/34473** (2013.01 - EP US); **F01L 2001/34476** (2013.01 - EP US)

Cited by
EP2899377A1; EP2708707A3; EP2636858A1; CN103306769A; US9157343B2; US8776748B2; WO2013064261A1

Designated contracting state (EPC)
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 SE SI SK SM TR

DOCDB simple family (publication)
EP 2322770 A1 20110518; **EP 2322770 A4 20120111**; **EP 2322770 B1 20130501**; CN 102165147 A 20110824; CN 102165147 B 20130911; JP 2010223172 A 20101007; US 2011162606 A1 20110707; WO 2010109982 A1 20100930

DOCDB simple family (application)
EP 10755783 A 20100216; CN 201080002708 A 20100216; JP 2009074114 A 20090325; JP 2010052267 W 20100216; US 201013063877 A 20100216