

Title (en)
METHOD FOR CONTROLLING VARIABLE DISPLACEMENT PUMP

Title (de)
VERFAHREN ZUR STEUERUNG EINER VERDRÄNGERPUMPE

Title (fr)
PROCÉDÉ DE COMMANDE DE POMPE À DÉPLACEMENT VARIABLE

Publication
EP 2703652 A4 20150715 (EN)

Application
EP 12870275 A 20120302

Priority
JP 2012055315 W 20120302

Abstract (en)
[origin: EP2703652A1] A method for controlling a variable displacement pump by calculation by a controller using a closed-center-type directional control valve, the method allowing effective utilization of the variable displacement pump while avoiding the risk of engine stall is provided. [Means for Resolution] The method includes the steps of: determining a first virtual discharge pressure from the real discharge flow rate of the variable displacement pump based on a characteristic curve defining the relation between discharge pressure and discharge flow rate of the variable displacement pump; determining a virtual bleed-off flow rate based on a virtual bleed-off area of the closed-center-type directional control valves determined according to the operation amount of the directional control valves, and determining a second virtual discharge pressure of the variable displacement pump based on a value obtained by subtracting the actuator flow rate and the virtual bleed-off flow rate from the virtual discharge flow rate of the variable displacement pump; and controlling the variable displacement pump based on a smaller value of the first virtual discharge pressure and the second virtual discharge pressure.

IPC 8 full level
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CPC (source: EP KR)
E02F 9/2235 (2013.01 - EP); **E02F 9/2296** (2013.01 - EP); **F04B 49/00** (2013.01 - KR); **F04B 49/24** (2013.01 - EP); **F15B 11/00** (2013.01 - KR); **F15B 11/0423** (2013.01 - EP); **F15B 2211/20523** (2013.01 - EP); **F15B 2211/20553** (2013.01 - EP); **F15B 2211/3111** (2013.01 - EP); **F15B 2211/6326** (2013.01 - EP); **F15B 2211/6333** (2013.01 - EP); **F15B 2211/634** (2013.01 - EP); **F15B 2211/6346** (2013.01 - EP); **F15B 2211/6652** (2013.01 - EP)

Citation (search report)

- [A] JP H1061605 A 19980306 - HITACHI CONSTRUCTION MACHINERY
- [A] US 2007193262 A1 20070823 - IWAMOTO YUUICHI [JP]
- [A] JP H1047306 A 19980217 - UCHIDA YUATSU KIKI KOGYO KK
- [A] JP 2000027803 A 20000125 - UCHIDA HYDRAULICS CO LTD
- [A] JP 2012031998 A 20120216 - BOSCH REXROTH CORP
- [A] JP 2007278457 A 20071025 - BOSCH REXROTH CORP
- See references of WO 2013128622A1

Cited by
US11913477B2; DE102022200249A1; US9784368B2; US10393260B2

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