

Title (en)

Valve driving apparatus of an internal combustion engine.

Title (de)

Ventilsteuervorrichtung für eine Brennkraftmaschine.

Title (fr)

Dispositif de commande de soupape pour moteur à combustion interne.

Publication

**EP 0455937 A1 19911113 (EN)**

Application

**EP 91101372 A 19910201**

Priority

JP 12007390 A 19900511

Abstract (en)

pressure source (17) and an accumulator (16) for pressurizing operating hydraulic oil and accumulating the pressurized operating hydraulic oil, and adapted to drive an intake and exhaust valve (2) by controlling the operating hydraulic oil in the accumulator, is improved. The improved apparatus comprises two logic valves (11, 14) communicated with each other for opening and closing a high-pressure hydraulic oil path communicated with an upper side of an intake and exhaust valve driving piston (9), two electromagnetically driven control valves (13, 15) for controlling opening and closure of the two logic valves, the control hydraulic oil for opening and closing the logic valves and the operating hydraulic oil for driving the intake and exhaust valve to open being fed from the accumulator at a high pressure, and means for closing the intake and exhaust valve with a resilient force generated as a result of lift of the intake and exhaust valve driving piston upon opening of the intake and exhaust valve. Preferably, the means for closing the intake and exhaust valve with a resilient force, consists of an air cylinder (6), and an air piston (5) adapted to slide within the air cylinder as driven by the intake and exhaust valve driving piston (9) and to generate a pneumatic resilient force. <IMAGE>

IPC 1-7

**F01L 9/02**

IPC 8 full level

**F01L 9/10** (2021.01); **F16K 31/12** (2006.01)

CPC (source: EP KR)

**F01L 9/10** (2021.01 - EP); **F01L 25/02** (2013.01 - KR)

Citation (search report)

- [A] FR 1361178 A 19640515 - MITSUBISHI SHIPBUILDING & ENG
- [AP] EP 0391507 A1 19901010 - MITSUBISHI HEAVY IND LTD [JP]
- [A] GB 2102065 A 19830126 - SULZER AG [CH]
- [AD] PATENT ABSTRACTS OF JAPAN, vol. 14, no. 575 (M-1062)[4518], 20th December 1990; & JP-A-02 248 607 (TECH. RES. ASSOC. HIGHLY RELIAB. MARINE PROPUL. PLANT) 04-10-1990
- [A] PATENT ABSTRACTS OF JAPAN, vol. 9, no. 51 (M-361)[1774], 6th March 1985; & JP-A-59 188 016 (HITACHI) 25-10-1984

Cited by

CN102713173A; AT403835B; CN103388502A; GB2572965A; CN110500156A; EP1416128A1; CN104632317A; DE10135377A1; EP2295786A1; CN101988451A; GB2291121A; GB2291121B; CN104791043A; US5586533A; US5586526A; CN114087076A; US6907851B2

Designated contracting state (EPC)

CH DE DK LI

DOCDB simple family (publication)

**EP 0455937 A1 19911113; EP 0455937 B1 19940810**; DE 455937 T1 19920227; DE 69103323 D1 19940915; DE 69103323 T2 19941201; DK 0455937 T3 19941212; JP 2527268 Y2 19970226; JP 2809354 B2 19981008; JP H04128508 A 19920430; JP H0444408 U 19920415; KR 910020298 A 19911219; KR 940010284 B1 19941022

DOCDB simple family (application)

**EP 91101372 A 19910201**; DE 69103323 T 19910201; DE 91101372 T 19910201; DK 91101372 T 19910201; JP 25712590 A 19900928; JP 9067690 U 19900831; KR 910007516 A 19910510