

Title (en)  
APPARATUS FOR CONTROLLING SWASH-PLATE PUMP AND MOTOR

Title (de)  
GERÄT ZUM KONTROLLIEREN VON TAUMELSCHEIBENPUMPE UND MOTOR

Title (fr)  
DISPOSITIF DE COMMANDE D'UNE POMPE ET D'UN MOTEUR A DISQUE EN NUTATION

Publication  
**EP 0821163 A4 19981216 (EN)**

Application  
**EP 96909350 A 19960411**

Priority  
• JP 9601006 W 19960411  
• JP 8668795 A 19950412

Abstract (en)  
[origin: WO9632587A1] An apparatus for controlling swash-plate pumps and motors, provided with a piston (40) fitted slidably in a cylinder bore (31) formed in a housing (20), a large-diameter pressure receiving chamber (43) and a small-diameter pressure receiving chamber (44) defined on both end sides of the piston and permitting the piston to be moved in one direction and in the other by a pressure oil in these chambers, a spool (47) slidably fitted in a spool bore (45) formed in an axial core portion of the piston, a first port (58), a second port (65) and a drain port (66) which are provided between the piston and spool and adapted to be put in a communicating state and shut-off state in accordance with the relative movements of the piston and spool, a third pressure receiving chamber (54) defined on one end side of the spool and adapted to move the spool in one direction by a pressure oil therein, and a spring (74) urging the piston and spool in the other direction, the piston and a swash-plate (4) being connected together so that, when the piston is moved, a tilt angle of the swash-plate varies, the small-diameter pressure receiving chamber communicating with the swash-plate type pump or a primary port (26) of a motor, the first port communicating with the small-diameter chamber and third pressure chamber, the second port communicating with the large-diameter pressure receiving chamber, the drain port communicating with a tank (18) via the interior of the housing, the first and second ports being shut off from each other with the second port and drain port communicating with each other when the piston is moved in one direction relatively to the spool, the first and second ports communicating with each other with the second port and drain port shut off from each other when the piston is moved in the other direction relatively to the spool.

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IPC 8 full level  
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CPC (source: EP KR)  
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• [Y] US 4248573 A 19810203 - UEHARA KAZUO, et al  
• [Y] EP 0549883 A1 19930707 - SAMSUNG HEAVY IND [KR]  
• [A] GB 1397084 A 19750611 - LUCAS INDUSTRIES LTD  
• See references of WO 9632587A1

Cited by  
CN106062288A; EP2944818A4

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