

Title (en)  
HYDRAULIC PUMP/MOTOR APPARATUS

Title (de)  
HYDRAULISCHE PUMPE/MOTOR

Title (fr)  
APPAREIL MOTEUR/POMPE HYDRAULIQUE

Publication  
**EP 0935070 A1 19990811 (EN)**

Application  
**EP 97909615 A 19971023**

Priority  
• JP 9703857 W 19971023  
• JP 28232496 A 19961024

Abstract (en)  
A hydraulic pump and motor system includes a cylinder block (5) with a plurality of fluid chambers (18, 19), each of which has a volume increased and decreased as a piston (16, 17) is reciprocated. The cylinder block (5) is mounted, together with a shaft (4), rotatably in a housing (3) and is rotated along a valve plate (8). The cylinder block (5) when rotated causes each piston (16, 17) to be contractingly operated from an upper dead point to a lower dead point and be expandingly operated from the lower dead point to the upper dead point. A first and a fourth kidney port (30, 40) are formed in the valve plate (8) in a region of one of the left and right hand sides of a straight line (X) that lies connecting between those upper and lower points. A third and a second kidney port (40, 31) are formed in the valve plate (8) in a region of the other of the left and right hand sides of the straight line X). When the cylinder block (5) is rotated, the system causes some of the fluid chambers (18, 19) to communicate with the first and second kidney ports (30, 31) in turn, thereby providing a first pump/motor unit, and at the same time causes the remainder of the fluid chambers (18, 19) to communicate with the third and fourth kidney ports (40, 41) in turn, thereby providing a second pump/motor unit. <IMAGE>

IPC 1-7  
**F04B 1/24**; **F04B 1/30**

IPC 8 full level  
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CPC (source: EP)  
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DE

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**EP 0935070 A1 19990811**; **EP 0935070 A4 20040526**; JP 3203487 B2 20010827; WO 9817913 A1 19980430

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