

Title (en)

HYDRAULIC SYSTEM PROVIDING ENERGY RECOVERY BY DOUBLE SPOOL DIRECTIONAL VALVES DURING TILTING/LOWERING IN BUCKET CYLINDER ON LOADER SIDE AND IN ARM / BUCKET CYLINDERS ON EXCAVATOR SIDE IN BACKHOE LOADER, WHEEL LOADER AND EXCAVATOR MACHINES

Title (de)

HYDRAULIKSYSTEM MIT ENERGIERÜCKGEWINNUNG DURCH DOPPELSCHIEBERRICHTUNGSVENTILE WÄHREND DER NEIGUNG/SENKUNG DES SCHAUFELZYLINDERS AUF LADERSEITE UND BEI ARM-/SCHAUFELZYLINDERN AUF BAGGERSEITE BEI EINEM BAGGERLADER, RADLADER UND BAGGERMASCHINEN

Title (fr)

SYSTÈME HYDRAULIQUE POUVANT FOURNIR UNE RÉCUPÉRATION D'ÉNERGIE PAR VALVES DIRECTIONNELLES DOUBLE TIROIR PENDANT LE BASCULEMENT/ABAISSEMENT DANS UN VÉRIN DE GODET SUR UN CÔTÉ CHARGEUR ET DANS DES VÉRINS DE BRAS/ GODET SUR UN CÔTÉ EXCAVATEUR DANS UNE CHARGEUSE-PELLETEUSE, CHARGEUSE SUR PNEUS ET MACHINES EXCAVATRICES

Publication

EP 4200481 A1 20230628 (EN)

Application

EP 21827172 A 20210730

Priority

- TR 202013253 A 20200821
- TR 2021050758 W 20210730

Abstract (en)

[origin: WO2022039697A1] The invention relates to a hydraulic system developed to provide energy recovery during tilting of the first pressure compensator tilting/lowering proportional directional valve (OR1) (2.1) in tilting/lowering-lifting cylinder hydraulic control block (2.0) in construction equipment such as backhoe-loaders, wheel loaders, wheel and crawler excavators. Said hydraulic system is positioned in the hydraulic control block (2.0) of the tilting / lowering-lifting cylinder in the bucket, arm and bucket cylinders (5.0) and prevents the tilting/lowering-lifting cylinder hydraulic control block (2.0) level losses in the cylinder during idle mode. Said hydraulic system comprises the following; the first pressure compensator tilting/lowering proportional directional valve (OR1) that provides flow control at the user input for minimum pump output flow (Q) and pressure, joystick movements when the joystick is not moving (2.1) and the second pressure lifting proportional directional valve (OR2) (2.2); third proportional throttle valve (OR3) (2.9) Provides automatic excavation transition period by canceling regeneration and pressure-dependent regeneration during excavation in idle tilting/lowering movements and controlling the flow rate depending on the pressure at the user exit; fourth check valve (2.8) and compensator (2.10); MP pressure sensor (2.14) in MP line, MA pressure sensor (2.12) in MA line and MB pressure sensor in MB line (2.13).

IPC 8 full level

E02F 9/22 (2006.01); **F15B 11/00** (2006.01); **F15B 21/14** (2006.01)

CPC (source: EP)

E02F 9/2217 (2013.01); **F15B 11/024** (2013.01); **F15B 21/14** (2013.01); **F15B 2211/20515** (2013.01); **F15B 2211/20523** (2013.01); **F15B 2211/20538** (2013.01); **F15B 2211/20546** (2013.01); **F15B 2211/20584** (2013.01); **F15B 2211/253** (2013.01); **F15B 2211/30505** (2013.01); **F15B 2211/3054** (2013.01); **F15B 2211/3057** (2013.01); **F15B 2211/30575** (2013.01); **F15B 2211/3058** (2013.01); **F15B 2211/3144** (2013.01); **F15B 2211/31523** (2013.01); **F15B 2211/31541** (2013.01); **F15B 2211/31552** (2013.01); **F15B 2211/327** (2013.01); **F15B 2211/329** (2013.01); **F15B 2211/50527** (2013.01); **F15B 2211/5159** (2013.01); **F15B 2211/6309** (2013.01); **F15B 2211/6313** (2013.01); **F15B 2211/6346** (2013.01); **F15B 2211/665** (2013.01); **F15B 2211/6651** (2013.01); **F15B 2211/6652** (2013.01); **F15B 2211/6654** (2013.01); **F15B 2211/7107** (2013.01); **F15B 2211/7128** (2013.01); **F15B 2211/761** (2013.01); **F15B 2211/781** (2013.01); **F15B 2211/88** (2013.01)

Designated contracting state (EPC)

AL 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 RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

WO 2022039697 A1 20220224; EP 4200481 A1 20230628; EP 4200481 A4 20240717; TR 202013253 A2 20210322

DOCDB simple family (application)

TR 2021050758 W 20210730; EP 21827172 A 20210730; TR 202013253 A 20200821