

HYDRAULIC ACTIVE SUSPENSION FLOW CONTROL SYSTEM

ABSTRACT

The present disclosure relates to a hydraulic active suspension flow control system. The system includes a hydraulic oil tank, a variable displacement pump with an oil suction port communicating with the hydraulic oil tank, and a check valve, a servo valve and a suspension cylinder connected to an oil outlet of the variable displacement pump in sequence, the suspension cylinder being controlled by the servo valve, the variable displacement pump being connected to an engine through a clutch, an accumulator being connected between the servo valve and the check valve. The system further includes an oil pressure sensor mounted at an outlet of the accumulator, an engine revolution speed sensor, a vehicle speed sensor, and a flow controller configured to control displacement of the variable displacement pump. The flow controller performs closed-loop control over an output pressure and flow of the active suspension hydraulic system based on an accumulator outlet pressure, a vehicle speed and an engine revolution speed, such that the accumulator outlet pressure is kept basically stable and the output flow of the variable displacement pump is basically consistent with flow required by the active suspension system. By means of the closed-loop control, the active suspension system can operate stably and continuously, reducing engine power consumed by the active suspension system and reasonably utilizing engine power.

Figure 1