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(57) Abstract :

An automated tire pressure balancing device (100) for multi-axle vehicles comprises a control unit (101), tire-mounted sensors (102), an air manifold (103), compressor (104), solenoid valves (105), rotating air coupling (107), and user interface (106). The device monitors and automatically balances tire pressures in real-time across all axles using programmable thresholds and dynamic air transfer, improving vehicle safety, fuel efficiency, and tire life.

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