Integrated mechanics of hybrid electrical air-cushion tracked vehicle for swamp peat

ABSTRACT

This paper presents an integrated mechanics for the design of hybrid electrical air-cushion tracked vehicle. The air-cushion of HETAV is protected with a novel-design air-cushion supporting system which can adjust automatically. A propeller is installed on the vehicle to develop additional thrust for overcoming the dragging motion resistance of the air-cushion system. The mean values of traction for the vehicle with propeller compared with no propeller increased 10.21% and 6.47% for the vehicle weight of 2.45 kN and 3.43 kN, respectively. Similarly, it was found that the mean values of vehicleôs motion resistance decreases 12.63% and 25.81% for the vehicle weight of 2.45 kN and 3.43 kN, respectively.

Keyword: Air-cushion; Auto-adjusting-supporting system; Hybrid vehicle; Propeller