On one of the approaches to the description of movement of high-speed transport and technological units

© S.D. Popov

Bauman Moscow State Technical University, Moscow, 105005, Russia

The main way to study the movement of high-speed transport and process units (HSTPU) is a physical model experiment. However, when designing of HSTPU it is expedient to use complex mathematical models. In this case, one of the central place is given to an adequate description of the movement of the body of HSTPU and its component parts, suitable for describing all the possible cases with minimal computational errors, as well as providing opportunities to save computational resources. This requires an adequate description of the general case of spatial movement of the HSTPU body, when it is possible to change all the angular coordinates in a wide range, and considered periods of time may be large. In addition, some types of HST are able to move at great speeds and have the resources to enable them to perform strenuous exercises virtually along all coordinates. These features are taken into account by the described in the article motion pattern of the HSTPU body.

Keywords: *high-speed transport and process units, complex mathematical models, model of spatial movement, self-propelled unit, maneuvering of the self-propelled unit.*

Popov S.D. (b. 1950) graduated from Bauman Moscow Higher Technical School in 1973. Ph.D., Assoc. Professor of the Wheeled Vehicles Department of Bauman Moscow State Technical University, Chief designer of Research and Production Center «Special Machine Building» at Bauman Moscow State Technical University. e-mail: cm-10@narod.ru