

THE KINEMATIC ANALYSIS OF A SPATIAL WINDSHIELD WIPER MECHANISM

ALEXANDRU Petre¹, BUTA Adrian-Constantin²

Transilvania University of Braşov

¹alex.p@unitbv.ro, ²acbuta@unitbv.ro

Keywords: spatial wiper mechanism, kinematic analysis.

The structural, geometrical and constructive variety of the windshield wipers mechanisms for the cars is very vast, one of this variant can be the spatial linkage mechanism. If consider the inclined and convex of the windshield, the mechanism pivots are inclined with α angle accountable to car global reference frame is XYZ. The structure and the geometry of this mechanism are represented in figure 1.

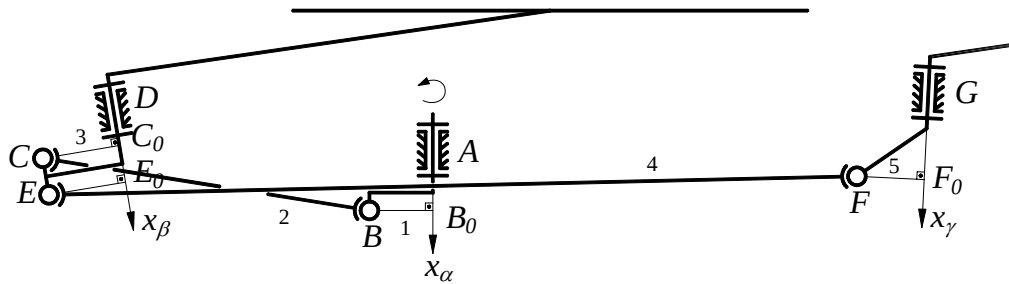


Fig. 1. The spatial windshield wiper mechanism.

For this mechanism was presented the geometrical parameters, was deduction the relations for the kinematical analyses φ_3 (φ_1) and φ_5 (φ_1) who described the movement of the wiper arms.

In the final was effectuate the numerical calculus for the movement functions of the wipers arms and the connecting rods too (φ_3 , φ_5 , φ_2 , v_2 , φ_4 and v_4). For example are presented the drawings from figure 2.

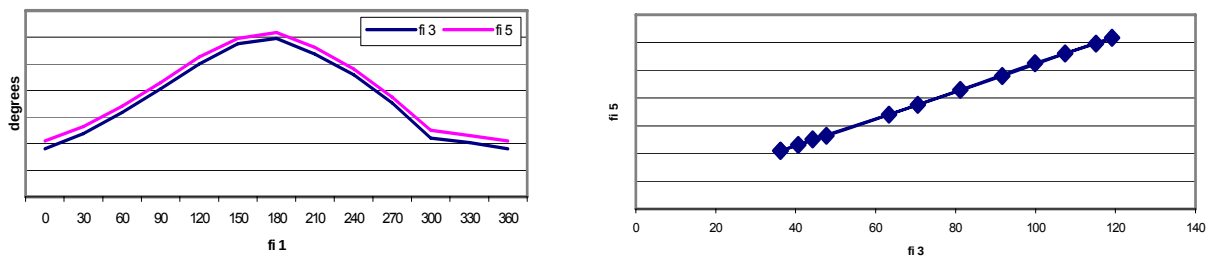


Fig. 2. The history of the angles (φ_3 and φ_5) by the input angle (φ_1) and between them.

References

- [1] Alexandru, C., Buta, A.C., „ *Mecanismele ștergătoarelor de parbriz – Modelare și prototipare virtuală*”, Editura Universității „Transilvania”, ISBN: 973-635-635-3, Braşov, 2006.