

Vehicle drift Phenomenon interpretation for using half car model.

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Abstract: The vehicle drifts are several causes of this phenomenon. In this paper the impact drifts the lateral force caused by the change in camber angle, and RAT were studied. Based on the literature of understanding of the relationship between the lateral force generated by the vehicle and the RAT and to the interpretation tire factors affecting vehicle drift phenomenon model car 1/2. And can be checked by simulating the lateral force due to camber change and aligning moment and drifts amount from the ramp the road inclination angle can be confirmed. The most important factor to determine the tire lateral force and aligning moment is the slip angle of the slip angle of the tire slip angle=0, the lateral force generally 0. Despite the slip angle 0 camber can be caused by the lateral force. Because of slip angle 0 of tires in the straight state the exist road inclination angle but the lateral force according to the change of the tire camber angle due to the gradient of the road, the vehicle does not remain straight drifts will occur.

Key Words: Vehicle Drift, Lateral Force, Aligning Torque, Plysteer, Conicity,
RAT(Residual Aligning Torque), Camber Trust, Caster Trail

Nomenclature

A : Lateral Force, N
B : Aligning Torque, Nm
C : Angle, degree
D : Time, sec
E : Distance, Drift, meter

Subscripts

C : cornering stiffness
F : force
K : aligning moment stiffness
M : moment
L,R : left, right

1. INTRODUCTION

Vehicle drift is one of the whole main item evaluating the quality of the car by a phenomenon to drift in left or right without associating with the intention of the going straight run tide of the driver for inside and outside the country. There are environment and a vehicle factor and a tire factor for the main cause of the vehicle drift. There are a slope load, cross wind, vehicle distribution of load, right and left wheel alignment difference, torque steer, suspension system spring power laterality and, for the environment and the vehicle factor, there are conicity, PRAT(Plysteer Residual Aligning Torque), right and left diameter difference in the tire factor.

In this study, the research literature on the basis of the conventional theoretical study phenomena that

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affect vehicle drift factors due to changes in tire factor analysis focuses on half car simulation model was designed.

Because a vehicle drift is a dynamic phenomenon, to make quarter car simulation; for rolling interpret it. In addition, there are many variables in the one which I drift, and analyzes the influence of the tire factor for phenomenon of the front wheel part under the influence of vehicle rear wheel when I make full car. Therefore I chose half car simulation model to analyze a tire factor to have an influence on if a front wheel part of the vehicle drift.

2. SECTION TITLE

In the factor which greatly serves to drift by documents investigation by camber and caster trail of the vehicle and PRAT of the tire and road crown may drift. Tire PRAT higher in the positive direction of the right drift tend to and In the negative direction of the larger trend of relatively greater drift left. When PRAT of the appropriate size cannot be chosen, the choice is very important appropriate RAT because the vehicle can have that drift to the specific direction. Because vehicle drift properties by other factors must be considered, the PRAT choice of the tire must choose appropriate PRAT by a vehicle.

When it is occurred by a problem in the production of the tire, the drift by the influence of conicity is unrelated to time to watch that it occurs so that it maintains the same in one direction to incline at a characteristic point of view of conicity of the vehicle with conicity.

I set the factor which you must consider in a dynamics model through various grounds such as the top. In consideration of a change of camber and caster trail which were the characteristic of the vehicle, I considered a vehicle characteristic change by rolling. And you must consider vehicle drift phenomenon by road crown and can look for a price of most suitable PRAT through this.

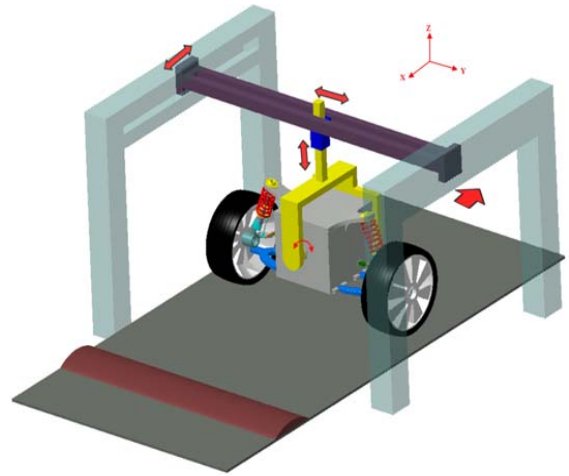


Fig.1 For the analysis of drifts half car dynamic model

3. CONCLUSION

Several vehicle drift variable have been discussed; The vehicle pulls have a effect the typical factor like caster trail and camber thrust ets. The factor of tire is the PRAT and conicity, and external factor is the road crown. The reason of the vehicle drifts is not affected by the one factor but complexity of various factor. but, on account of these factor independently affecting, the vehicle stability could be assured, thereby giving variety to the each factor. According to theses reason, Diffusing the factor affecting the vehicle drifts is important for assuring the vehicle performance.

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