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STRESS ANALYSIS OF 7.50-16 TYRE USING FINITE ELEMENTS

by

E.A.A.G.Edirisinghe B.Sc.

Sri Lanka Tyre Corporation,

Kelaniya, Sri Lanka.

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Supervisor

Dr.K.P.Fernando,

Senior Lecturer,

Polymer Technology Division,

University of Moratuwa,

Moratuwa.

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SYNOPSIS

The Finite Element method of structural analysis has achieved a rapid development within the tyre industry. This is basically due to the ability of dealing with complexities of modern tyres, which was the main obstacle earlier, which limited the applications and accuracy of the simpler models obtained through closed-form formulations. The advantage of the FEM is significant in its application to larger size tyres such as light truck and truck tyres.

In this report the FEM is described and applied in the stress analysis of a 7.50-16 light truck tyre, considering it as an axi-symmetric case. In supporting this three cases are considered and compared. These are namely,

a)The inflated tyre without imposing any other modes of deformations.

b)The inflated tyre subjected to a foot print load

c)The inflated tyre at a bend carrying a dead load.

In analyzing the structure for the given tyre the parameters mentioned earlier are considered as the input data for the program. The language used in computing stress strain and displacements is FORTRAN 77 (Microsoft version 4.0)

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