

GEAR STUDY AND RIGID PAVEMENT METHODOLOGIES

AND ANALYSIS FOR BOEING 747

P. P.TAPKIRE¹ & BHAVANA MAKAM²

¹H. O. D, Department of Civil Engineering, N. B. Navale Sinhgad College of Engineer,
Solapur, Maharashtra, India

²Research Scholar, Department of Civil Engineering, N. B. Navale Sinhgad College of Engineering,
Solapur, Maharashtra, India

ABSTRACT

The aim of this paper is about the study done for the selection of aircraft on the basis of gears i.e. to enable the aircraft to manoeuvre on ground and the methods applied for finding out stresses in slabs. For the purpose wheels are required over which the aircraft may run and carry the entire weight of the aircraft. The major portion of total loads carried by two main gears which are provided in the fuselage or in the wings near the junction of fuselage and wings. Therefore, the third wheel, which is provided near the tail or nose, carries very small portion (about 10%) of the total load. Large modern day aircraft utilize either bicycle or tricycle landing gears. In the case of tricycle landing gears, the main gear load can be of single, dual or twin tandem type.

Most rigid-airfield pavement design techniques are based at least in part upon theoretical stresses in elastic slabs, modified by field experience and appropriate safety factors. The safety factors are applied depend to a large extent upon the type of feature like stress, the slabs etc. The magnitude of distress of rigid airfield pavement depends upon repetition of load, gear configuration, gross load, tire pressures and type of features(i.e taxiways,runway).

According to theoretical analysis, the magnitude of stresses in pavements depends also upon the modulus of subgrade reaction, modulus of elasticity of the concrete and poissons ratio of the concrete.

KEYWORDS: Rigid Pavement, Gears, Portland Cement Association (PCA), Corps Engineer's Method, Westergaard's Method, Boeing 747