AIM: To conduct experiment of trifler suspension.

APPARATUS REQUIRED: Main frame, Trifilar suspension, Weights, Stopwatch, Thread.

#### INTRODUCTION:

Trifflar Suspension (Torsional Pendulum):- It is also used to find the moment of inertia of a body experimentally. The body (say a disc or flywheel) whose moment of inertia is to be determined is suspended by three long flexible wires A, B and C, as shown in fig.-b. When the body is twisted about its axis through a small angle 0 and then released, it will oscillate with simple harmonic motion Trifflar suspension is a disc of mass m (weight w) suspended by three verticalcords, each of length I, from a fixed support. Each cord is symmetrically attached to the disc at the same distance r from the mass of the disc.

#### THEORY:

The disc is now turned through a small angle its vertical axis, the cords becomes inclined. One being released the disc will perform oscillations about the vertical axis. At any instant

Let: o = angular displacement of the disc

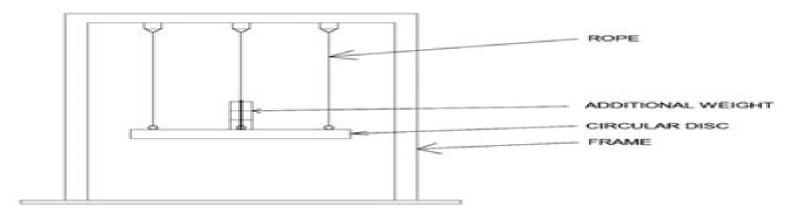
F = tension in each cord =w/3

Inertia torque =  $i \times o$ 

Restoring torque = 3 × horizontal component forces of each string × r

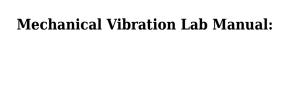
Inertia torque = restoring torque

## TRIFILAR



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**RM Cervero** 



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