

GOVERNOR (DEVICE)

A governor is a device used to measure and regulate the speed of a machine, such as an engine.

Examples

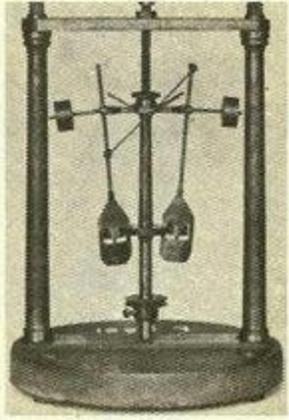
A classic example is the centrifugal governor, also known as the Watt or fly-ball governor, which uses weights mounted on spring-loaded arms to determine how fast a shaft is spinning, and then uses proportional control to regulate the shaft speed.

Automobiles are a common application, and modern automobiles are equipped with such a mechanism for various reasons.

Automobile governors

There are two types of automobile governors, one limiting the rotational speed of the engine, the other limiting the speed of the vehicle. In small, low power applications, governors are used to protect the engine from damage due to excessive rotational speed, or pushing the engine past its peak abilities. In larger, higher performance engines governors are used to limit the vehicle speed.

Many performance cars are limited to a speed of 250 km/h (155 mph) to limit insurance costs and/or to reduce pollution.



The Gibbs Governor

Gibbs [[2]] theorized that, analogous to the equilibrium of the simple Watt governor, which depends on the balancing of two torques: one due to the weight of the “balls” and the other due to their rotation, thermodynamic equilibrium for any work producing thermodynamic system depends on the balance of two entities: the heat energy supplied to and the work energy performed by the intermediate substance, in this case steam. These sorts of theoretical investigations culminated in the 1876 publication of the Gibbs' famous work *On the Equilibrium of Heterogeneous Substances* and in the construction of the Gibbs' governor, shown adjacent. These formulations are ubiquitous today in the natural sciences in the form of the Gibbs' free energy equation, which is used to determine the equilibrium of chemical reactions; also known as Gibbs equilibrium.[1]

Source : [http://engineering.wikia.com/wiki/Governor_\(device\)](http://engineering.wikia.com/wiki/Governor_(device))