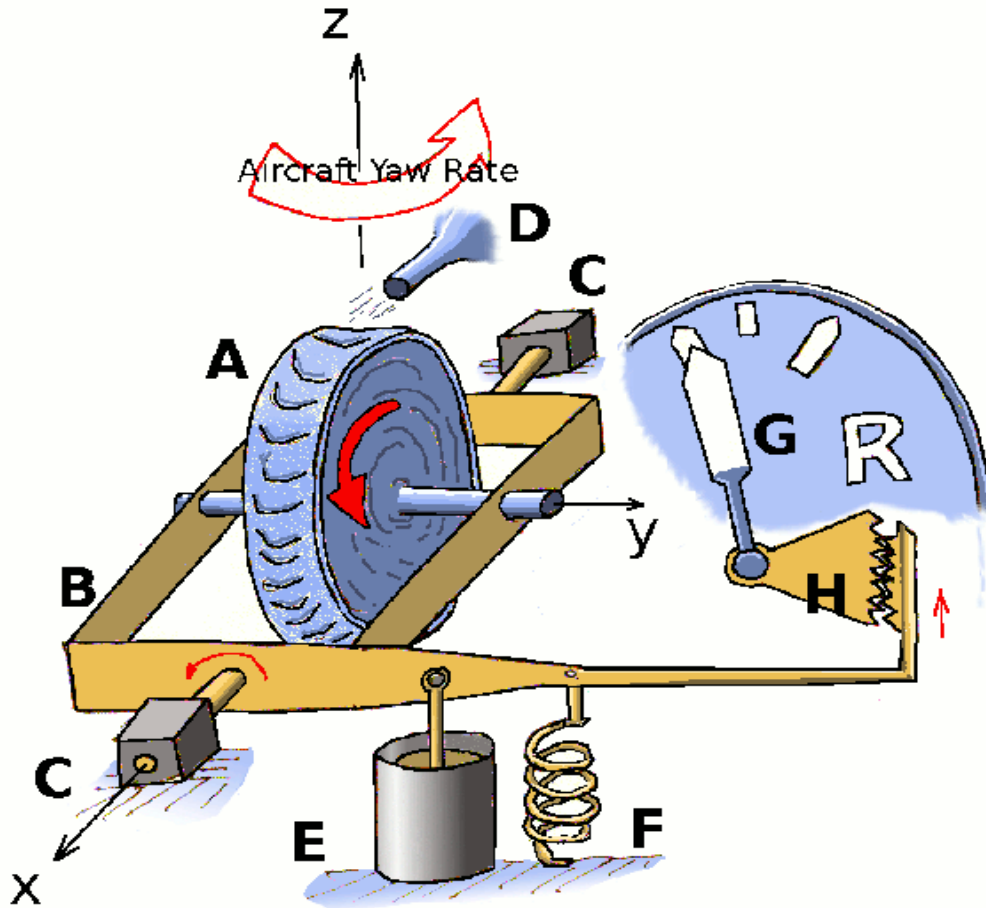




## Turn and Bank Indicator



A schematic diagram of a turn and bank indicator is shown, with the typical components and an indication of their mode of operation.

The gyroscope (A) is maintained at a high rotation rate using a jet of compressed air (D) produced by the engine manifold system. The gyroscope is supported on a frame (B) supported on gimbals (C) so that it is free to rotate.

If the aircraft is turning (about axis  $z$ ) the yaw rate coupled with the gyro spin rate (about axis  $y$ ) will produce a cross product vector or angular acceleration and hence a rotation about orthogonal axis ( $x$ ). Effectively the gyro is trying to precess due to the applied aircraft rotation. Free rotation about axis  $x$  is moderated by the spring (F). The force in this spring counteracts the tendency for the frame to rotate due to the precession and will be proportional to the turn rate.

A damper (E) is used to remove unwanted vibration. The gearing (H) translates the restricted motion of the frame to an indicator (G) showing the turn rate.