

The Longitudinal Axis.

The aircraft's **longitudinal axis** is illustrated in *Figure 1.14*. Rotation about the **longitudinal axis** is termed **roll**. **Roll** is controlled by the **ailerons**.

The Lateral Axis.

The aircraft's **lateral axis** is illustrated in *Figure 1.14*. Rotation about the **lateral axis** is termed **pitch**. **Pitch** is controlled by either the **elevators**, or by an **all-moving tailplane** or **stabiliser**.

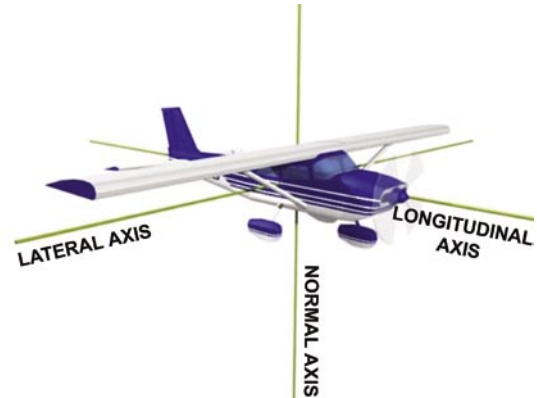


Figure 1.14 The Aircraft Axes.

The Normal Axis.

The aircraft's **normal axis** is illustrated in *Figure 1.14*. Rotation about the **normal axis** is termed **yaw**. **Yaw** is controlled by the **rudder**.

THE FLYING CONTROLS.

Primary Flying Controls.

The **primary flying controls** control the aircraft in **pitch**, **roll** and **yaw**. The movement of the flying control surfaces in response to the movement of the cockpit controls in light aircraft is achieved mechanically. This means that the control surfaces are connected directly to the cockpit controls by a system of cables, rods, levers and chains.

Pitch Control.

Pitch control is obtained through the use of either **elevators** (see *Figure 1.15*), an all moving **stabilator** (see *Figure 1.23*) or canard control (see *Figure 1.13*). For the purpose of this chapter, we will assume that the aircraft has **elevators** fitted to the **tail plane**. The **elevator** is controlled by fore and aft movement of the control column or control wheel (see *Figure 1.17*). Rearward movement of the control column causes upward movement of the **elevator** which causes the aircraft to **pitch** nose upwards, and vice versa.

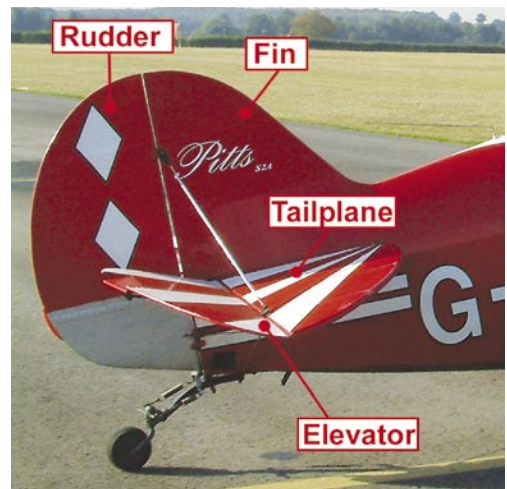


Figure 1.15 Elevators and Rudder.

Roll Control.

Control in **roll** is achieved by **ailerons** (see *Figure 1.16*). Turning the control wheel or moving the control column to the right causes the right **aileron** to move up and the left **aileron** to move down, inducing **roll** to the right and vice versa.

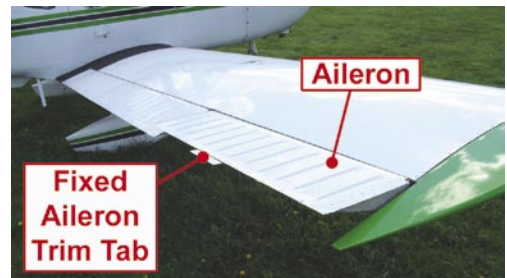
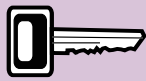


Figure 1.16 An Aileron.



The movement of an aeroplane about its normal (vertical) axis is known as yaw.