

# Terminology

<b>Airspeed</b>		
KIAS	<b>Knots Indicated Airspeed</b>	Speed in knots as indicated on the airspeed indicator.
KCAS	<b>Knots Calibrated Airspeed</b>	KIAS corrected for instrument error. Note this error is often negligible and CAS may be omitted from calculations.
KTAS	<b>Knots True Airspeed</b>	KCAS corrected for density (altitude and temperature) error.
Va	<b>Max Manoeuvring Speed</b>	The maximum speed for full or abrupt control inputs.
Vfe	<b>Maximum Flap Extended Speed</b>	The highest speed permitted with flap extended. Indicated by the top of the white arc.
Vno	<b>Maximum structural cruising speed</b>	Sometimes referred to as "Normal operating range" Should not be exceeded except in smooth conditions and only with caution. Indicated by the green arc.
Vne	<b>Never Exceed speed</b>	Maximum speed permitted, exceeding will cause structural damage. Indicated by the upper red line.
Vs	<b>Stall Speed</b>	The minimum speed before loss of control in the normal cruise configuration. Indicated by the bottom of the green arc. Sometimes referred to as minimum 'steady flight' speed.
Vso	<b>Stall Speed landing configuration</b>	The minimum speed before loss of control in the landing configuration, at the most forward C of G*. Indicated by the bottom of the white arc.
Vx	<b>Best angle of climb speed</b>	The speed which results in the maximum gain in altitude for a given horizontal distance.
Vy	<b>Best Rate of Climb speed</b>	The speed which results in the maximum gain in altitude for a given time, indicated by the maximum rate of climb for the conditions on the VSI.
Vref	<b>Reference speed</b>	The minimum safe approach speed, calculated as $1.3 \times V_{so}$ .
Vr	<b>Rotation speed</b>	The speed which rotation should be initiated.

Vat	<b>Barrier speed</b>	The speed nominated to reach before the 50ft barrier or on reaching 50ft above the runway.
*forward centre of gravity gives a higher stall speed and so is used for certification		
	<b>Maximum Demonstrated Crosswind</b>	The maximum demonstrated crosswind during testing.
<b>Meteorological Terms</b>		
<b>OAT</b>	<b>Outside Air Temperature</b>	Free outside air temperature, or indicated outside air temperature corrected for gauge, position and ram air errors.
<b>IOAT</b>	<b>Indicated outside air temperature</b>	Temperature indicated on the temperature gauge.
	<b>Standard temperature</b>	The temperature in the International Standard atmosphere for the associated level, and is 15 degrees Celsius at sea level decreased by two degrees every 1000ft.
	<b>Pressure Altitude</b>	The altitude in the International Standard Atmosphere with a sea level. pressure of 1013 and a standard reduction of 1mb per 30ft. Pressure Altitude would be observed with the altimeter subscale set to 1013.
	<b>Density Altitude</b>	The altitude that the prevailing density would occur in the International Standard Atmosphere, and can be found by correcting Pressure Altitude for temperature deviations.
<b>Engine Terms</b>		
BHP	<b>Brake Horse Power</b>	The power developed by the engine (actual power available will have some transmission losses).
RPM	<b>Revolutions per Minute</b>	Engine drive and propeller speed.
	<b>Static RPM</b>	The maximum RPM obtained during stationery full throttle operation
<b>Weight and Balance Terms</b>		
	<b>Arm (moment arm)</b>	The horizontal distance in inches from reference datum line to the centre of gravity of the item.
C of G	<b>Centre of Gravity</b>	The point about which an aeroplane would balance if it were possible to suspend it at that point. It is the mass

		centre of the aeroplane, or the theoretical point at which entire weight of the aeroplane is assumed to be concentrated. It may be expressed in percent of MAC (mean aerodynamic chord) or in inches from the reference datum.
	<b>Centre of gravity limit</b>	The specified forward and aft point beyond which the CG must not be located. The forward limit defines the controllability of aircraft and aft limits – stability of the aircraft.
	<b>Datum (reference datum)</b>	An imaginary vertical plane or line from which all measurements of arm are taken. The datum is established by the manufacturer.
	<b>Moment</b>	The product of the weight of an item multiplied by its arm and expressed in inch-pounds. The total moment is the weight of the aeroplane multiplied by distance between the datum and the CG.
MZFW	<b>Maximum Zero Fuel Weight</b>	The maximum permissible weight to prevent exceeding the wing bending limits. This limit is not always applicable for aircraft with small fuel loads.
BEW	<b>Basic empty weight</b>	The weight of an empty aeroplane, including permanently installed equipment, fixed ballast, full oil and unusable fuel, and is that specified on the aircraft mass and balance documentation for each individual aircraft.
SEW	<b>Standard Empty Weight</b>	The basic empty weight of a standard aeroplane, specified in the POH, and is an average weight given for performance considerations and calculations.
OEW	<b>Operating Empty Weight</b>	The weight of the aircraft with crew, unusable fuel, and operational items (galley etc).
	<b>Payload</b>	The weight the aircraft can carry with the pilot and fuel on board.
MRW	<b>Maximum Ramp Weight</b>	The maximum weight for ramp manoeuvring, the maximum takeoff weight plus additional fuel for start taxi and runup.
MTOW	<b>Maximum Take off Weight</b>	The maximum permissible takeoff weight and sometimes called the maximum all up weight, landing weight is normally lower as allows for burn off and carries shock loads on touchdown.
MLW	<b>Maximum Landing Weight</b>	Maximum permissible weight for landing. Sometimes this is the same as the takeoff weight for smaller aircraft.