# SECTION 1.4 ATPL AIRCRAFT GENERAL KNOWLEDGE (AG)

## Unit 1.4.1 AAGC: ATPL aircraft general knowledge – all aircraft categories

### 1. Reserved

### 2. Advanced aerodynamics

2.1.1 Explain the following airspeeds;

(a) IAS;

(b) CAS;

(c) EAS;

(d) TAS.

2.1.2 Explain the aerodynamic forces acting on an aircraft in flight.

### 3. Airframe and systems

#### 3.1 Actuating systems

3.1.1 With reference to the basic principles of hydromechanics, explain and compare the following:

(a) transmission of force by an incompressible fluid;

(b) transmission of force by a compressible fluid.

#### 3.2 Hydraulic systems

3.2.1 For the following:

(a) describe the functioning of a typical hydraulic system comprising main, standby and emergency systems that have multiple pumps and services;

(b) describe the purpose and function of the major components of a hydraulic system comprising:

(i) pumps;

(ii) accumulators;

(iii) reservoirs;

(iv) selector valves;

(v) check (one-way) valves;

(c) recognise on a diagram the symbols for major components of a hydraulic system and be able to trace the functioning of a diagrammatic system (system detail at the level of typical operations manual diagram);

(d) describe the typical services operated by a hydraulic system and for a typical system, how priority is allocated to certain services.

#### 3.3 Fuel system

3.3.1 Jet fuels

(a) Avtur (Jet A1) – difference from other fuel cuts:

(i) volatility;

(ii) additives (discussion only);

(b) specific gravity:

(i) meaning;

(ii) variation with temperature;

(iii) effect of variation.

3.3.2 Carriage of fuel on aircraft

(a) fuel tanks:

(i) individual tanks;