

SECTION 1.7 NAVIGATION (NV)

Unit 1.7.1 PNVC: PPL navigation – all aircraft categories

1. Reserved

2. General navigation

2.1 Form of the earth

2.1.1 Describe:

- (a) the shape and rotation of the earth;
- (b) latitude, longitude;
- (c) the difference between true and magnetic north;
- (d) how distance and direction are measured and applied to navigation;
- (e) magnetic variation and compass deviation;
- (f) the relationship between magnetic heading, relative heading and magnetic bearing.

2.2 Time

2.2.1 Explain the terms UTC, local mean time, local (standard) time, local summer time.

2.2.2 Determine within +/- 5 min the beginning and end of civil twilight from AIP daylight and darkness graphs.

2.2.3 Complete conversions between LMT, UTC, local (standard) times, including local summer time.

2.2.4 List factors which may cause daylight to end earlier than the time extracted from AIP darkness graphs.

2.3 Basics – Extract information from documents

2.3.1 On a WAC and AIP 'visual' charts (if applicable) which cover the local area of operation:

- (a) identify, without reference to the chart legend:
 - (i) major features to assist in map reading, for example, roads, rivers, lakes;
 - (ii) obstacles and spot heights, including elevation or height above terrain;
 - (iii) CTA, PRDs, and aerodrome data on VTC/ERC (if applicable);
- (b) decode other symbols with reference to the chart legend;
- (c) assess the general height of the terrain from hypsometric tints and contours;
- (d) estimate track and distance;
- (e) demonstrate and explain the reason for chart orientation in flight.

2.3.2 On visual AIP charts identify airspace boundaries and symbols with reference to the chart legend.

2.3.3 Use ERSA to extract:

- (a) runway data;
- (b) data pertaining to prohibited, restricted and danger areas.

2.4 Computation techniques

2.4.1 Use mental rules of thumb to estimate:

- (a) time interval using estimated GS and distance, for example, 120 kt = 2 nm/min;
- (b) endurance given fuel flow and fuel available (excluding reserve fuel).

2.4.2 Apply magnetic variation to obtain magnetic direction.

2.4.3 Carry out conversions between:

- (a) feet/metres;
- (b) nm/km;
- (c) lbs/kg;