SECTION 4.06 AIRSPACE AND NAVIGATION

PILOT RESPONSIBILITIES

Preparation for a cross country flight invariably requires significantly more planning than a local flight. Precise knowledge of Controlled Airspace, Prohibited, Restricted or Danger area boundaries forms only a small part of the many considerations when planning cross country flight. This Section outlines resources which provide planning information useful to recreational pilots.

RAAus pilots should familiarise themselves with CAO 95.10, 95.32 and 95.55 specific to their aircraft group. Each CAO outlines operational guidelines and limitations for recreational pilots and aircraft. Remember that additional relevant information is contained in the CARs and AIP.

Fuel planning is a critical component of navigation, requiring careful management and monitoring by pilots.

CHARTS

EN-ROUTE CHART-LOW (ERC-L): ERC-L covers a large area with the purpose of presenting the relationship between aerodromes and the various types of airspace, aeronautical aids and facilities. Controlled Airspace is shown tinted and the vertical 'steps' shown with blue lines for Class C & D airspace and brown for Class E airspace. This chart also details military airspace, prohibited, restricted and danger areas, frequencies for FIAs, CTAFs, fly neighbourly airspace, areas of activity including parachuting, gliding and sport aviation and more. No topographical information is presented making the ERC-L unsuitable for in-flight visual navigation. For VFR Pilots the ERC-L is essential for planning a cross-country flight outside areas depicted on a VTC or VNC.

VISUAL TERMINAL CHART (VTC) 1:250,000 scale: A VTC is issued to show airspace surrounding a Controlled Aerodrome in greater detail than is possible on a VNC or ERC-L. When operating in the vicinity of any Control Zone the VTC should be utilised and pilots should ensure complete familiarisation with the features shown. This chart details airspace including Class C, D, E and G, military airspace, prohibited, restricted and danger areas, frequencies for ATC, CTAFs, areas of activity including parachuting, gliding and sport aviation and includes waypoints used by VFR aircraft entering controlled airspace, overlaid on topographical information.

VISUAL NAVIGATION CHART (VNC) 1:500,000 scale: A VNC covers a wider area than a VTC due to the larger scale, and is extremely useful for recreational aircraft navigation. A VNC includes similar information to a VTC, including airspace boundaries overlaid over topographical features, aerodromes and includes lines of magnetic variation (isogonals).

WORLD AERONAUTICAL CHART (WAC) 1:1,000,000 scale: A WAC represents the standard plotting and navigation chart for recreational pilots. It does not provide any airspace information (refer to ERC-L, VTC or VNC) but is essential for cross country navigation over longer distances. A WAC provides detail of roads, railways and rivers, mountain ranges, elevations, aerodrome and town positions, and includes isogonals.

PLANNING CHART AUSTRALIA (PCA): A PCA is an essential part of pre-flight planning, which outlines appropriate areas for weather forecast requests, and the locations referred to in weather forecasts along with appropriate communication frequencies of Flight Watch.

SECTION 4.06 AIRSPACE AND NAVIGATION

EN-ROUTE SUPPLEMENT AUSTRALIA (ERSA) is a listing of aerodromes in Australia, outlining aerodrome elevation, CTAF and FIS frequencies, runway alignment, aerodrome operator contact information, fuel availability and more. There are many useful reference sections in ERSA including operating limitations for Prohibited, Restricted and Danger areas, with special area and fly neighbourly procedures, emergency reference procedures, conversion tables and code/decode pages. ERSA is designed to be used in conjunction with the VTC, VNC and the ERC-L for flight planning and is required to be carried on any navigational flight.

ELECTRONIC FLIGHT BAGS are permitted for the purposes of flight planning by RAAus pilots; however use of appropriate back up options including printed charts and ERSA must be considered in accordance with CASA legislative requirements. Members are advised to reference CAAP 233-1(1) for guidance material.

AIRSPACE INFORMATION

LEGEND: Shown on every chart to assist in decoding symbols used on respective charts such as ERC-L, VNC, VTC and WAC.

IMPORTANT SYMBOLS include:

On ERC-L, VTC and VNC, purple symbols are used to indicate aeronautical activity:

Gliding activity, including aero towing and winch launching of gliders.
Gliders use and monitor 122.5, 122.7 and 122.9.

Parachute Area: Pilots should be cautious if not familiar with Drop Zones and parachute operations, which may operate at aerodromes or private fields and check NOTAM's.
A telephone briefing is recommended if unfamiliar with the operation. May show band of operating altitude.

Winch or auto tow launched sports aviation operation (Launching cables may extend to 3000ft AGL).

Hang Glider Area: Shows approved operating area.

Area of significant recreational aeroplane activity, flying training areas often shown.

Model Aeroplane activity (symbol usually only shown if operating above 400AGL).

SECTION 4.06 AIRSPACE AND NAVIGATION

RESTRICTED AREAS: Shown as a red outline containing a red 'R' and a three digit number. Restricted areas may be active 24 hours per day, or have specific hours of operation and/or height limitations. Activation times and operational limitations are listed in ERSA and on VNC, VTC and ERC-L, and can be confirmed by checking current NOTAMS. Pilots should be aware that some restricted areas can be re-activated on short notice. Temporary restricted areas are sometimes established by NOTAM. Restricted areas around military aerodromes become controlled airspace when activated and may only be entered by recreational pilots complying with specific criteria as outlined in CAO 95.32 and 95.55, upon receipt of a clearance.

DANGER AREAS: Shown as a red outline containing a red 'D' and a three digit number. Recreational aircraft may operate in Danger Areas, remaining aware of the special purpose for the areas, usually flying training which may include low flying training. Check ERSA for further details.

PROHIBITED AREAS: Shown as a red outline containing a red 'P' and a three digit number, Prohibited areas must never be entered at any time.

CONTROLLED AIRSPACE: Controlled airspace is classified alphabetically according to the degree of service provided to a pilot by Air Traffic Control and the level of equipment to be carried in the aircraft (e.g. radio or transponder) in order to gain access to the service provided.

CONTROL ZONE: A Control Zone is controlled airspace which goes down to ground level, surrounding a controlled aerodrome. Control Zones are shown on charts (red for military and blue for civil). Controlled Airspace may only be entered by recreational pilots complying with specific criteria as outlined in CAO 95.32 and 95.55, upon receipt of a clearance.

CONTROL AREAS: Other than in Control Zones, controlled airspace is called Control Area. Charts showing Control Areas detail a lower limit, which is shown as a height Above Mean Sea Level (AMSL). Markings such as 'LL 3000' on a chart mean aircraft operating at an altitude below 3000 FT AMSL are outside controlled airspace. **NOTE**: Some Control Zones and Control Areas do not operate full time and revert to CTAF outside the hours of Air Traffic Control Service.

VFR Route: A series of purple dots on a VTC or VNC detailing a route used for transit of particular airspace. If some or all of a VFR Route is contained within controlled airspace, a clearance must be obtained prior to entering. Furthermore, recreational pilots must comply with the requirements of CAO 95.32 and 95.55 in order to utilise these routes in controlled airspace.

CTAF: Common Traffic Advisory Frequency. A CTAF is simply an area *in the vicinity* of an aerodrome where a common frequency has been designated in order to ensure clear communications between pilots. An aerodrome may be Registered (REG), Certified (CERT), or Military (MIL) or *designated* by CASA as described in ERSA, or promulgated by NOTAM and require a serviceable radio to be carried and used when operating within the vicinity of these aerodromes. Uncertified and Unregistered (UNCR) aerodromes are depicted in ERSA with a grey background. Pilots operating in the vicinity of these aerodromes do not specifically require the use of a radio and should refer to CAAP166-1(2) for detailed information.

The classifications of the airspace and the equipment and clearance requirements can be found in the VFR Guides, available on the CASA website www.casa.gov.au *Education – Pilots guides and education.* Information may also obtained using Airservices website www.airservicesaustralia.com *Flight Briefing – Pilot and airside safety*