

# G520T Egrett (VH-ARA)



Airborne Research Australia



Flinders University, Adelaide

**Environmental Research**

## Aircraft specifications

<b>Aircraft Type</b>	Grob G520T Egrett VH-ARA	
<b>Manufacturer</b>	<a href="#">Grob Aerospace</a> Germany	
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>• Length: 13.67m</li> <li>• Height: 5.66m</li> <li>• Wingspan: 33.00m</li> </ul>	
<b>Powerplant</b>	<ul style="list-style-type: none"> <li>• Garrett TPE 331-14F-801L turbo-prop</li> </ul>	
<b>Max Take-off weight</b>	4,700kg	
<b>Empty weight</b>	3,697kg	
<b>Scientific Payload</b>	<ul style="list-style-type: none"> <li>• 440kg maximum</li> </ul>	
<b>Certification etc.</b>	<ul style="list-style-type: none"> <li>• IFR and VFR operations</li> <li>• Restricted Category</li> <li>• No flight into Known-Icing Conditions when external stores installed</li> </ul>	
<b>Crew</b>	1 or 2 (pilot + scientist/mission specialist)	
<b>Cruising speed range</b>	<ul style="list-style-type: none"> <li>• 90 – 150kts IAS – up to 280kts TAS at high altitude</li> <li>• 165 – 280km/h IAS – up to 440km/h TAS at high altitude</li> <li>• 45 – 75m/s IAS – up to 140m/s TAS at high altitude</li> </ul>	
<b>Endurance / Range</b>	<ul style="list-style-type: none"> <li>• 5 – 9hrs depending on power setting and flight profile</li> <li>• max. range 3,000km / 1,600NM depending on power setting</li> <li>• max range at max scientific payload: 1,200km / 640NM</li> </ul>	
<b>Ceiling</b>	<ul style="list-style-type: none"> <li>• 15,000m / 49,000ft</li> </ul>	
<b>Special characteristics</b>	<ul style="list-style-type: none"> <li>• Crew must wear helmet and oxygen mask at all times</li> <li>• Cabin altitude at max. cruising altitude: ~7,000m / 21,000ft</li> <li>• For detailed flight options, contact operator.</li> </ul>	
<b>Electrical power</b>	<ul style="list-style-type: none"> <li>• 28VDC, 12VDC, 240VAC with total of 5kVA</li> <li>• 115VAC 400Hz, 5kVA</li> <li>• AC only available for engine RPM&gt;90%, ie. from take-off to landing</li> </ul>	
<b>Aircraft avionics</b>	<ul style="list-style-type: none"> <li>• slaved HSI-system</li> <li>• 2 VHF, 1 UHF communications transceivers</li> <li>• Transponder Mode C</li> </ul>	
<b>Special features</b>	<ul style="list-style-type: none"> <li>• hardpoints under both wings (up to 60kg each)</li> <li>• pylons and pods available for hardpoints</li> <li>• removable fuselage bay (“U-Bay”)for up to 250kg of instrumentation</li> <li>• fuselage bays for instrumentation</li> <li>• room for approximately 30kg of instrumentation in 19” rack in cockpit</li> <li>• operator’s console in rear cockpit</li> </ul>	

## Standard Instrumentation – Aircraft Parameters

Instrument	Parameter(s)	Range	Resolution	Accuracy	Comments
<b>Trimble TANS Vector GPS</b> <b>2 independent units</b>	time	UTC	1ms 1Hz	1ns	using 1s-pulse
	position/altitude(lat/lon)	global	1m 1Hz	5..20m	better with differential correction
	ground speed (3-D)	0..200m/s	0.1m/s 1Hz	0.1m/s	better with differential correction
	attitude (pitch, roll, heading)	0..60° 0..360°	0.1° 10Hz	0.1°	
<b>Novatel 12-channel GPS</b>	time	UTC	1ms 10Hz	1ns	using 1s-pulse
	position/altitude(lat/lon)	global	1m 10Hz	5..20m	better with differential correction
	3-D ground speed	0..200m/s	0.1m/s 10Hz	0.1m/s	better with differential correction
<b>Radio transmission indicator</b>	periods of transmissions on aircraft's VHF and UHF transceivers		50Hz		

## Standard Instrumentation – Atmospheric Parameters

Instrument	Parameter(s)	Range	Resolution	Accuracy	Comments
<b>BATprobe with FUST</b>  (up to 2 probes mounted under the wing, plus one on top of the vertical fin)	flow angles (angles of attack and sideslip)	±30°	0.02° 50Hz	0.1°	
	indicated and true airspeed	10..170m/s	0.1m/s 50Hz	0.2m/s	
	static pressure	1100..70hPa	0.1hPa 50Hz	0.5hPa	
	air temperature	-80..+100°C	0.1° 50Hz	0.5°	
	3-D accelerations	±1.5g	0.001g 50Hz	0.01g	
	3-D wind and turbulence	0..100m/s	0.02m/s 50Hz	0.1m/s	

## Standard Instrumentation – Data Systems

System	Capabilities	Comments
<b>Central system</b>	Several PC/104-based real-time systems	

## Instrumentation for Egrett available from international partners

A wide range of additional instruments and sensor systems is available through ARA's international partners. These instruments and systems can easily be fitted to the Egrett and are available to the users of the aircraft.

The partners include

- DLR – German Aerospace Centre, Oberpfaffenhofen, Germany
- UMIST – University of Manchester, Institute of Science and Technology, Manchester, UK
- University of Wales, Aberystwyth, UK
- York University, Toronto, Canada