

G520T Egrett (VH-ARA)



Airborne Research Australia



Flinders University, Adelaide

Environmental Research

Version 5 May 2004

Aircraft specifications

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

Standard Instrumentation – Aircraft Parameters

Instrument	Parameter(s)	Range	Resolution	Accuracy	Comments
Trimble TANS Vector GPS 2 independent units	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°	
Novatel 12-channel GPS	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
Radio transmission indicator	periods of transmissions on aircraft's VHF and UHF transceivers		50Hz		

Standard Instrumentation – Atmospheric Parameters

Instrument	Parameter(s)	Range	Resolution	Accuracy	Comments
BATprobe with FUST (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
Central system	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