

# OVERVIEW OF NSF/NCAR AIRBORNE PLATFORMS

Jørgen B. Jensen

NCAR / EOL / RAF

## Operational constraints:

GV:	Altitude:	Surface - 51 kft Surface - 170 hPa	(typically 47-48 kft)
	Airspeed:	80 - 260 m/s	
	Payload:	5,600 lbs	
	Installation:	Cabin, fuselage and <u>wing pods (PMS and 20-inch pods)</u>	
C-130:	Altitude:	Surface - 26 kft	
	Airspeed:	80 - 150 m/s	(typically 110 – 130 m/s)
	Payload:	13,000 lbs payload	
	Installation:	Cabin, fuselage and <u>wing pods (PMS and large pods)</u>	

# GV PMS pylon installation

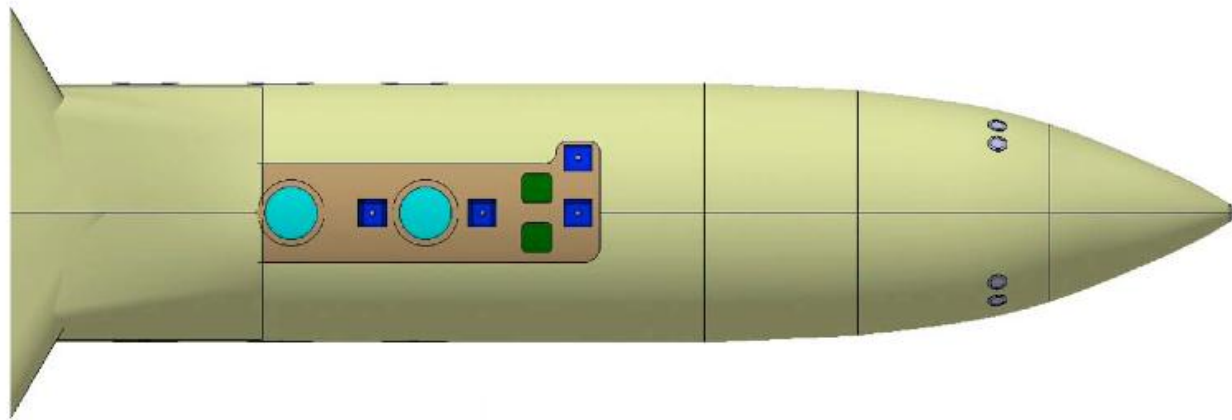


# GV PMS pylon installation



Cabin apertures: Two 20" apertures on belly, one aperture on top.

May be possible to build a pressure vessel, such that cabin remains pressurized, but instrument is inside the skin of the aircraft. Need a "window" to keep airflow from being too turbulent.



**Figure 5.3: View of GV lower fuselage, showing instrument aperture plates (green), optical view ports (light blue), fuselage mounts (dark blue), and four forward fuselage pads (grey circles). Drawing courtesy of Lockheed Martin.**

GV wing hardpoint power capabilities:

2x 20 Amp 115 VAC 60 Hz

1x 20 Amp 115 VAC 400 Hz

1x 20 Amp 28 VDC (anti-ice)

Design to slightly less to allow for safety margin

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Large wing pod (20")

One under each wing. HIAPER Cloud Radar (HCR) in one pod.





## C-130



10 PMS cans, 2 large wing pods

Belly opening for sidwards scanner (external pressure, e.g. AIMR)

Instruments:

HAI5: 14 instruments developed for the GV (trace gas, lidar, particles, radiation, etc.)

Facility instruments: See <https://www.eol.ucar.edu/aircraft-instrumentation>