



DOE ASP G-1



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www.pnl.gov/atmospheric/programs/raf.stm

Outline

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- ▶ Future



Cabin Layout

Cabin dimensions:

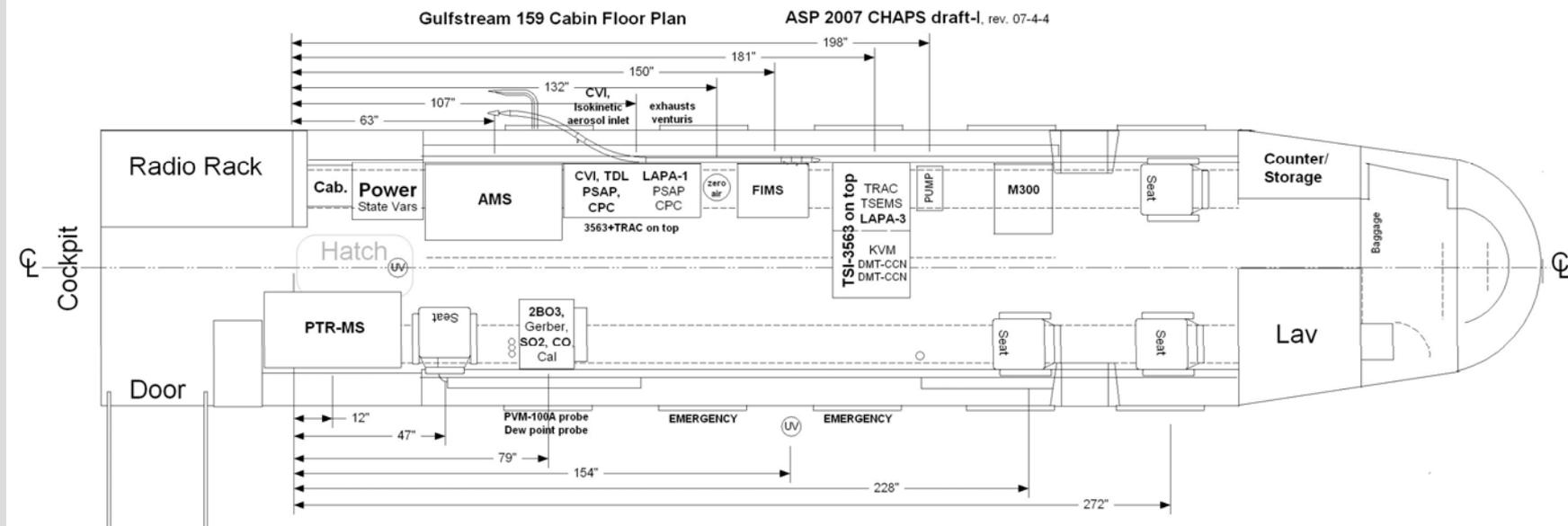
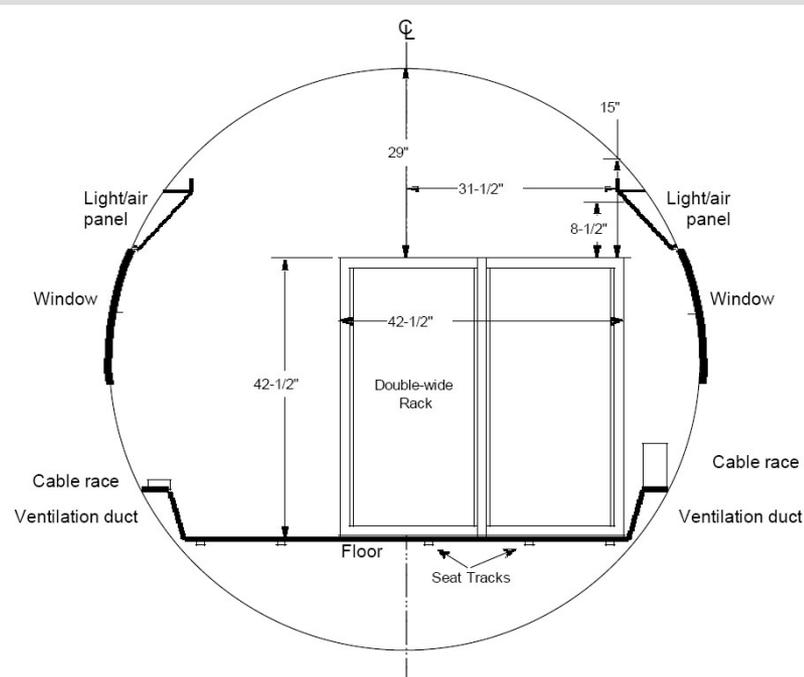
length, 21 ft (6.4 m)

width, 7 ft (2.13 m)

height, 6 ft (1.83 m)

Standard 19" equipment rack dimensions:

| | Single | Double |
|---------|-----------------|-------------------|
| depth, | 17 in. (43 cm) | 24 in. (61 cm) |
| width, | 22 in. (56 cm) | 42.5 in. (108 cm) |
| height, | 42 in. (107 cm) | 42 in. (107 cm) |



G-1 Technical Information

Aircraft length: 63.75 ft (19.44 m)

Aircraft wingspan: 78.33 ft (23.88 m)

Aircraft height: 23.33 ft (7.11 m)

Engines: twin turboprop, Rolls Royce Dart Mark 529-8X (1990 shp)

Maximum gross weight: 36,000 lb (16,330 kg)

Nominal operating altitude: 500 ft AGL to 25,000 ft (7.5 km) MSL

Maximum operating altitude: 30,000 ft (9 km) MSL

Cruise speed: 250 - 330 knots (130 - 170 m s⁻¹)

Nominal sampling speed: 195 knots (100 m s⁻¹)

Nominal rate of climb: 250-2000 ft min⁻¹ (1.27-10 m sec⁻¹)

Endurance, with maximum fuel: 6 hours

Endurance, with typical fuel: 4 hours

Range, with maximum fuel: 1500 nautical miles (2780 km)

G-1 Research Aircraft Information

Crew capacity: 2 pilots and 1 to 5 research staff

Cabin payload at max. gross weight: with full fuel, 2500 lb (1,134 kg)

Cabin payload at max. gross weight: with typical fuel, 4000 lb (1814 kg)

Electrical power: auxiliary generator, 400 A @ 28 VDC provides
up to 4,000 V-A at 115 VAC 60 Hz and
up to 4,000 V-A at 230 VAC 60 Hz, and
remainder at 28VDC

Supplemental air conditioning: Three (3) 7000-BTU heat-exchangers

Data system: Science Engineering Associates, M300

Data telemetry: Iridium, NAL satellite modem

Navigation: TANS (10Hz attitude), Garmin 500, ...

State variables: Rosemount T & P, 5-port gust probe, TDL H₂O, ...

Aerosols: isokinetic inlet, PCASP, CPC, PSAP, nephelometer, ...

Radiation: UV, 7-chan Vis, IR

News

NASA Catalogue of Aircraft BPA

<http://airbornescience.nasa.gov/platforms/platforms.html>

Battelle capital for wing pylons

FSSP, CAPS, T, CIN, 2D-S, CSI, CPI, ...

Battelle capital for inverter upgrade

- phase lock to external power
- multiple output busses

Position announcements

- Chief Pilot
- Director of Maintenance and Pilot

Current Activities

Test flight:
Single
Particle
Laser
Ablation
Time-of-flight
mass
spectrometer
(SPLAT II)



Current Activities (cont'd)

Preparations for VOCALS

-Oct 15 – Nov 15, Arica Chile

Overall objective is to examine how the chemical and microphysical properties of aerosols, and their ability to act as CCN differs between remote marine air-masses and marine air-masses that have been influenced by anthropogenic aerosols, and how these differences in aerosol loading and properties influence the properties of the clouds that form in these different environments.



Future

- ▶ Increase collaborations
NASA, ARM, NSF, ...
- ▶ Improve platform
cloud measurement capabilities, ...
- ▶ Capitalize on strengths
Power, size, availability, standards (IWG1)...



Madronich, from NCAR C-130