



**Calhoun: The NPS Institutional Archive**  
**DSpace Repository**

---

Center for Interdisciplinary Remotely-Piloted Aircraft Studies (CIRPAS) or Interdisciplinary Remotely-Piloted Aircraft Studies (CIRPAS)

---

2014-06-11

# Pelican

---

<http://hdl.handle.net/10945/42196>

*Downloaded from NPS Archive: Calhoun*



Calhoun is a project of the Dudley Knox Library at NPS, furthering the precepts and goals of open government and government transparency. All information contained herein has been approved for release by the NPS Public Affairs Officer.

**Dudley Knox Library / Naval Postgraduate School**  
**411 Dyer Road / 1 University Circle**  
**Monterey, California USA 93943**

<http://www.nps.edu/library>



## Pelican

[Pelican Request Form \[PDF\]](#)

## Background

---

The Pelican is a highly-modified Cessna 337, O2, Skymaster originally developed by the Office of Naval Research for low-altitude, long-endurance atmospheric and oceanographic sampling. Through an SBIR program between Zivko Aeronautics and GA, the air vehicle was configured to operate as a true Predator UAV surrogate for the U.S. Navy. Pelican has supported several military exercises that require a UAV capability for the troops to work with, but where a real UAV wasn't practical to operate due to FAA restrictions. With Pelican, the US Military can realistically train with capabilities very close to those of the UAV's that they will work with on the battlefield.

## Benefits

---

Pelican provides a low-risk, low-cost test and evaluation alternative to a UAV. The Predator's EO/IR payload has been integrated into Pelican for control via the Predator UAV's GCS. To the user, Pelican's link and video/data download is identical to what one would expect from a Predator aircraft. With the CIRPAS Encoder System aircraft and target location can be superimposed onto the Predator video as closed caption. Pelican video can also be viewed on L3 Coms' Rover III, although currently w/o metadata information displayed.

## Advantages

---

The major advantage with Pelican is that the Pelican platform avoids the airspace restrictions and other complications associated with unmanned aircraft operations. CIRPAS' Pelican has been used extensively in urban exercises where a Predator or other UAV would be difficult or impossible to fly due to FAA restrictions. The Pelican's Skyball can be operated by any Predator based Ground Control Station if the proper software is installed. An additional fact to note is that the Pelican system is much less costly than a Predator system to deploy and operate.

The Pelican UAV Surrogate System consists of the Pelican, the Predator Ground Control Station (GCS), the Predator Ground Data Terminal (GDT), a 35KW Generator, and various ground support equipment. The Data link between the Pelican and GDT/GCS is identical to Predator's Line of Site (LOS) link.

The more the military can work with UAV technology, even through a surrogate, the more likely UAV technology can be worked into operating concepts, doctrine, leadership and education for joint war fighting. The Pelican has been used as a surrogate UAV in six major DoD Training Exercises since 2001, providing the military with vital Predator experience that they otherwise would not receive.

The Pelican air vehicle can also be integrated with a variety of different payloads and provides an excellent test bed for payloads that are intended for eventual integration into the Predator.

## Specs

---

- Maximum Altitude - 10k -12.5k ft

(Aircraft flight weight and weather condition dependant)

- Standard Operating Speed - 80 - 130 KIAS
- Maximum Design Speed - 165 KIAS
- Aircraft Payload Capacity - 1700#  
(this capacity must include the following: Pilot, Fuel load, Combination of Payload Placements)
- Payload Placement Maximums - Nose - 350#  
Inside Aircraft Cabin - 1000# (Max Dim. - 38" wide, 68" long, 33" high)  
Wing Hard points - 900# max combined (4ea). Maximum per side - 430#, Maximum per Hard point - 325#
- Maximum Fuel Load - 122 Gal. (732#)
- Aircraft Empty Weight - 2600#
- Aircraft Gross Weight - 4300#

## Pelican Site Considerations

---

- Runway minimum should be 3000 ft.
- Hangar Space minimum 45 x 35 ft.
- Fuel requirement 100LL
- Direct Line of Site to Operational Area
- VHF Communication required to Air Craft in Operational Area
- Location near hangar or Tarmac for GCS, GDT and GSE.

## Ground Control Station

---

The UAV Ground Control Station (GCS) is housed in a rugged 20' container on a dual axle suspension to allow local movement of the unit. Placement of the GCS requires a level, hard-packed surface; a concrete or asphalt pad is desirable to provide support for the leveling stands. The GCS should be placed near the aircraft ramp and hangar (if feasible). If the GCS can not be located close to a taxiway or ramp that could be used for engine run-up, then communications between the GCS and run-up area must be provided. Carefully check for line of sight obstruction from its planned operating position.

## Ground Data Terminal

---

The GDT is normally setup <100 ft. from the GCS on a hard-packed pad, preferably asphalt or concrete. The GDT should have unobstructed line of sight to all taxiways, runways, and approach/departure corridors. The location of the GDT also depends on and requires knowledge of the operating area. Line of Sight (LOS) to the AV is required for operations without over the horizon communications. The antenna shall be placed away from structures and vehicle traffic that may result in multi-path interference. Vegetation, trees, etc., are obstructions due to high water content.

## GCS Power Generator

---

CIRPAS owns a trailer-mounted Multiquip generator, Model #DCA-45SSIU2 used to power the GCS either as primary or secondary source. The generator has been modified to include a Hubbell connector consistent with the CIRPAS GCS power input plug.

**This is an official U.S. Navy website.**

All information contained herein has been approved for release by the NPS Public Affairs Officer.  
Contact the Webmaster