CRUISER II
TACTICAL UAS

magline

CRUISER II GENERAL OVERVIEW

Platform

GPS / INS systems will substitute current systems to allow for readiness during calibration and accurate measurents to enable almost GPS loss navigation

Current FCS will handle new INS/GPS, however new FCS will be proposed for enhanced capabilities

COTS Avionics

Cloud Cap technologies integrated full autonomous autopilot system with DGPS corrections, Iridium satellite backup radio link, available at various frequencies

Ground station ready for mission, payload and intelligence management

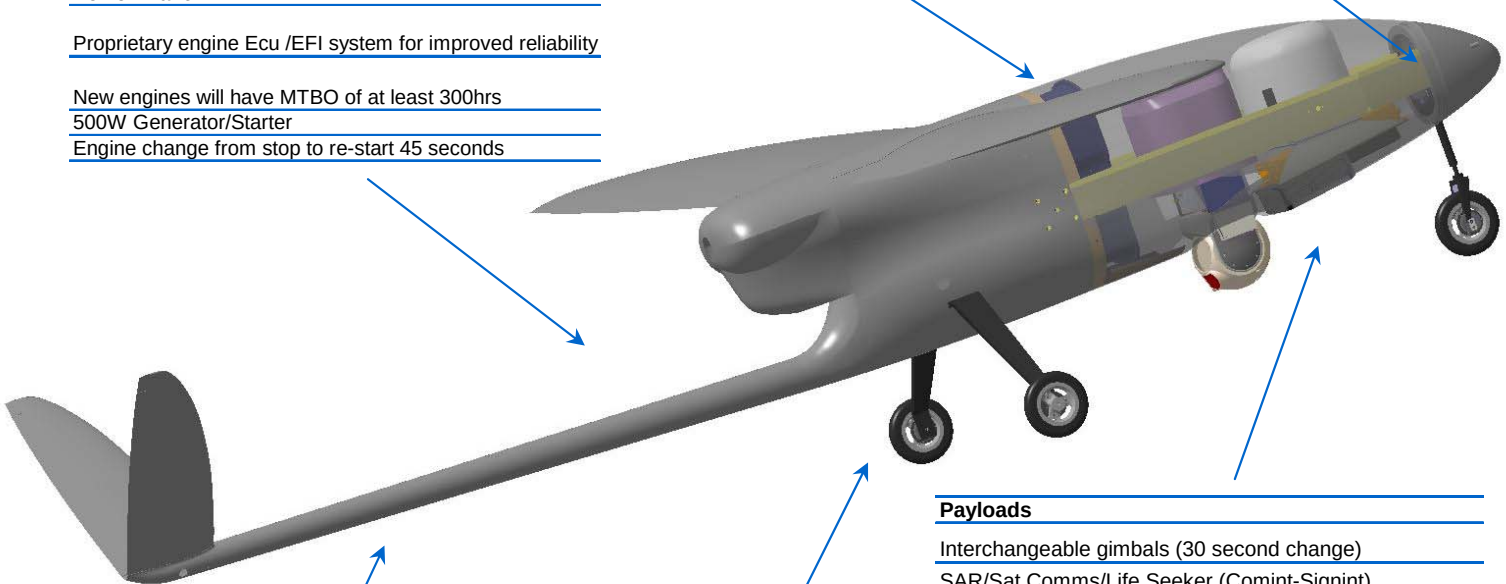
Power Plant

Proprietary engine Ecu /EFI system for improved reliability

New engines will have MTBO of at least 300hrs

500W Generator/Starter

Engine change from stop to re-start 45 seconds



Payloads

Interchangeable gimbals (30 second change)

SAR/Sat Comms/Life Seeker (Comint-Signint)

Quick integration for third party payloads

Launch & Recovery

Catapult and wheeled lauch

Safety parachute for recovery or standard landing in prepared non paved runways

Wheel brakes for short landing strip operations

Structure

Modern Composite material structure

Extra layers of Kevlar on the surface helps prevent crack when landing in rough terrain

Composites processing will determine light weight capabilities

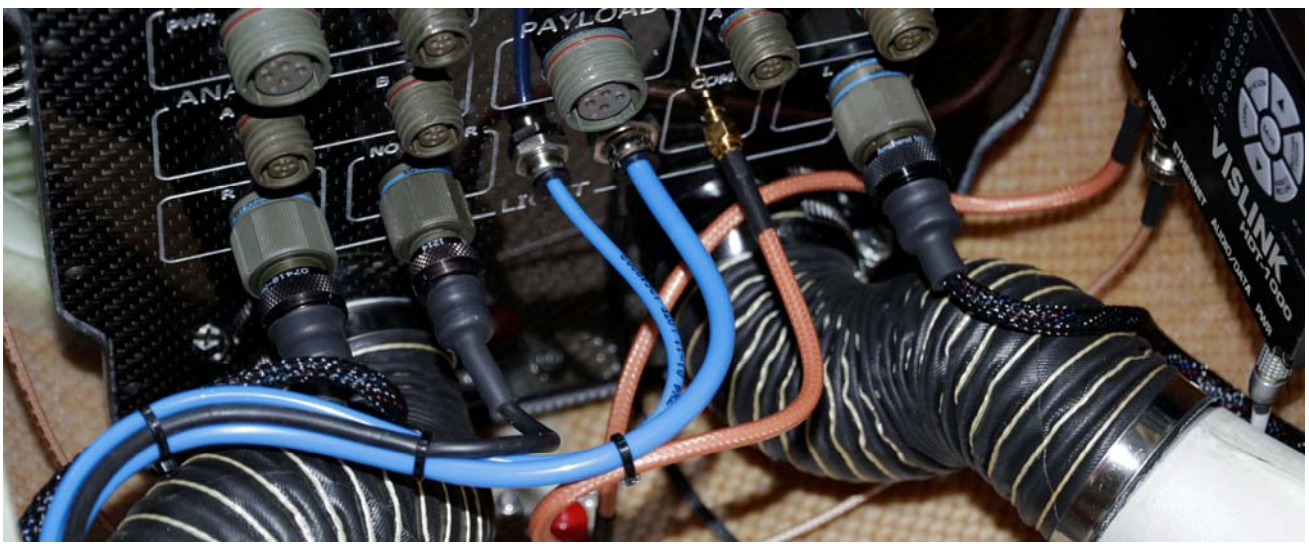
ADVANCED STANDARD EQUIPMENT

Avionics equipment

Piccolo autopilots (CCT) are instegrated at any level of advanced features (DGPS, Iridium Sat Link) always allowing full automated autoland.

Avionics box is isolated, and damped from external vibrations allowing for catapult launch. Box can be quickly interchanged in a 3 minute quick process.

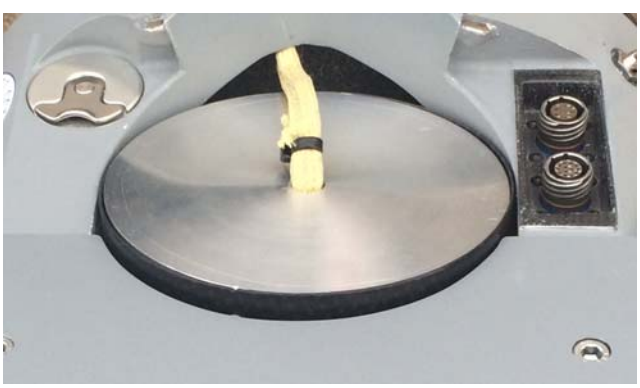
Aditional payloads can be quickly integrated as box provides power and serial communication military connectors to external equipment.



Safety Parachute

Safety para can be operated during emergency phases or else can be operated as normal operating procedure in areas where landing strip touchdown safety would be compromised.

Parachute is CO2 cartridge operated and can be replaced after every ejection.



ADVANCED STANDARD EQUIPMENT

Payload Interchangeability

Payload retract mechanism provides a quick release system that enables any Payload to be replaced in less than a minute. This capability allows for multiple low cost Gimbals to be installed to better condition the UAV for the specific mission.

Retract helps maintain Gimbal away from external weather, rock and rubble hitting the sensor, expanding its life time.

Video System

Advanced video transmission system allows for 2 independent video signals to be broadcast simultaneously, or one in HD.
Ranges vary upon amplifiers installed (2W-10W).

COFDM equipment with diversity channels, allow for long /short range antennae configuration for maximum range.

ADVANCED STANDARD EQUIPMENT

TASE400SD

TASE400HD

Standard Equipment (Payload) Configuration
Tase Gimbals, from 300 series up to Tase 400 series for enhanced surveillance capabilities.
Sat Comm backup link enabled as safety data link to enable control of the aircraft in case that RF terrestrial comms are lost.
DGPS with Aling ™ feature provides improves accuracy down to 2cm and heading accuracy down to 0,2º

ADVANCED OPTIONAL EQUIPMENT

TASE400LRS

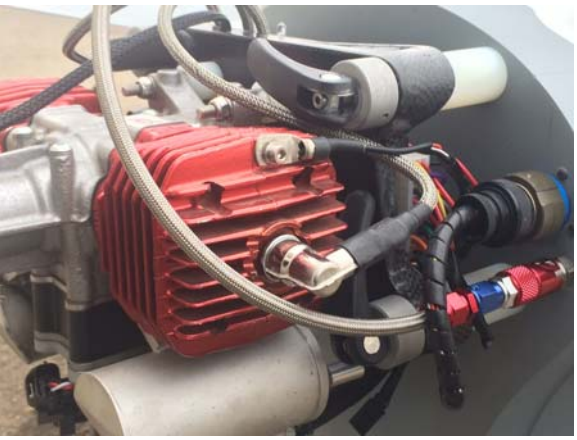
TASE400DXR

Optional Equipment
System allow for quick interchangeabiility of Tactical grade Gimbals, from NIIRS 7 up to 9. EO (SD / HD) and IR, Lwir and MWIR options available.
Additional payloads available for cargo bay, to include Sat Comms for video, Sigint and Commint equipment (with installed antennae array).

Sigint / Commint sensors
Life Seeker

Sat Comms
Real Time Video & Data Link

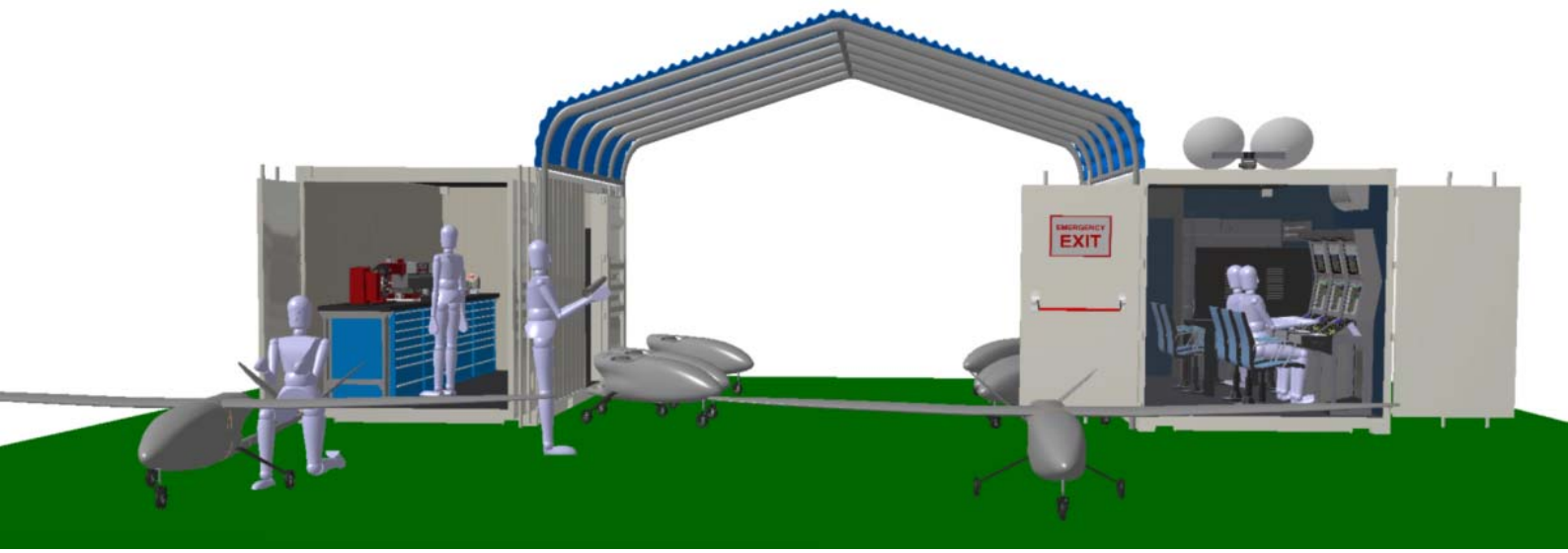
OPERATIONS SUPPORT



Systems & Payload Modularity

Modularity has been a goal achieved in the design of this UAS to conform a round product that can be easily operated in remote locations without the need for technical support.
Mudularity allows for the least investment in major high cost Payloads, maximizing their operational time due to the almost zero downtime for platforms at the maintenance or service levels

All systems are quickly interchangeable in a matter of few minutes, from Engine, to Avionics, Payload, Gimbal, and also every other piece of equipment in the Ground Station.

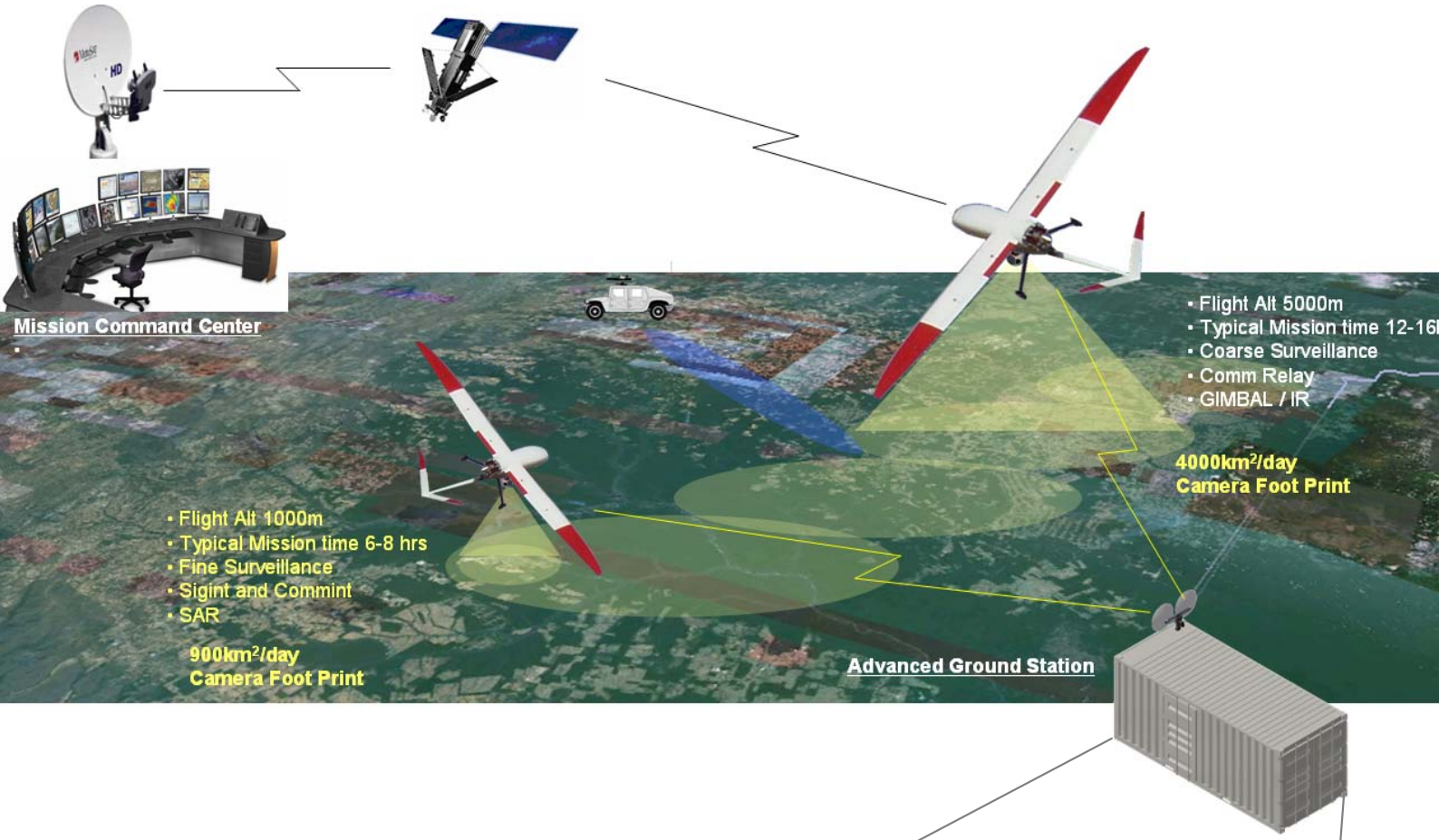


Maintenance and Service

Maintenance is achieved by means of advanced training. The level of in the field maintenance required is always replacement of components.

Servicing the aircraft can be done on stage, leaving lower level maintenance issues at depo level, or enroling into Magline Service Program by which replacement systems are shipped anywhere in the world depending as scheduled with operations.

OPERATIONS SUPPORT

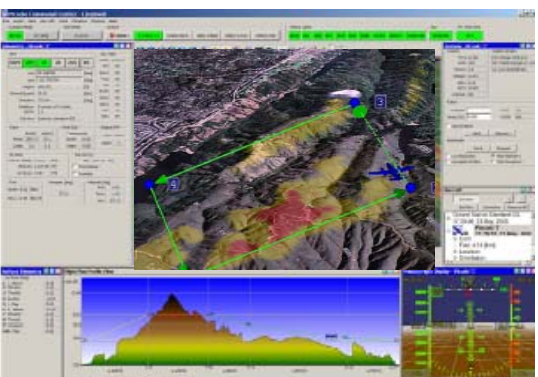


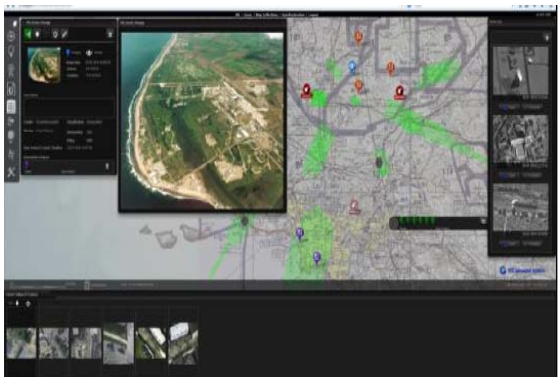
Mission Equipment

AVO: Operator controls Piccolo Command center software for mission parameters, flight planning and in flight system configuration.

MPO: Controls Viewpoint software which manages control of the Gimbal and other

PED: Operator manages UTC Aerospace Sytems imagery database for comprehensive intelligence data gathering at the Tactical level.



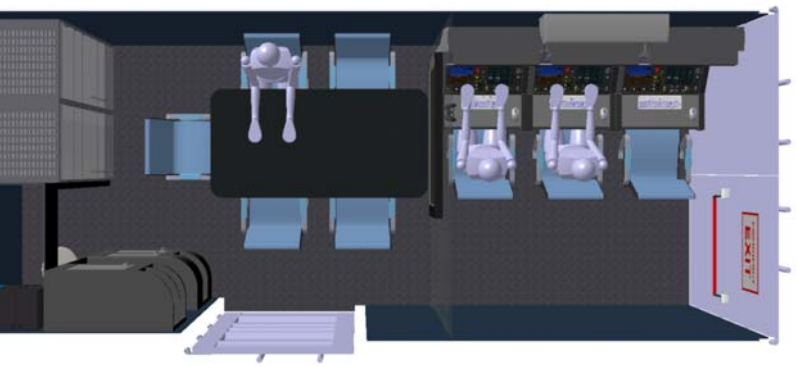


TACTICAL CONOPS

Main Operations Base

Reporting to a Command and control center, MOB is equipped with equipmet for independent mission support on stage.

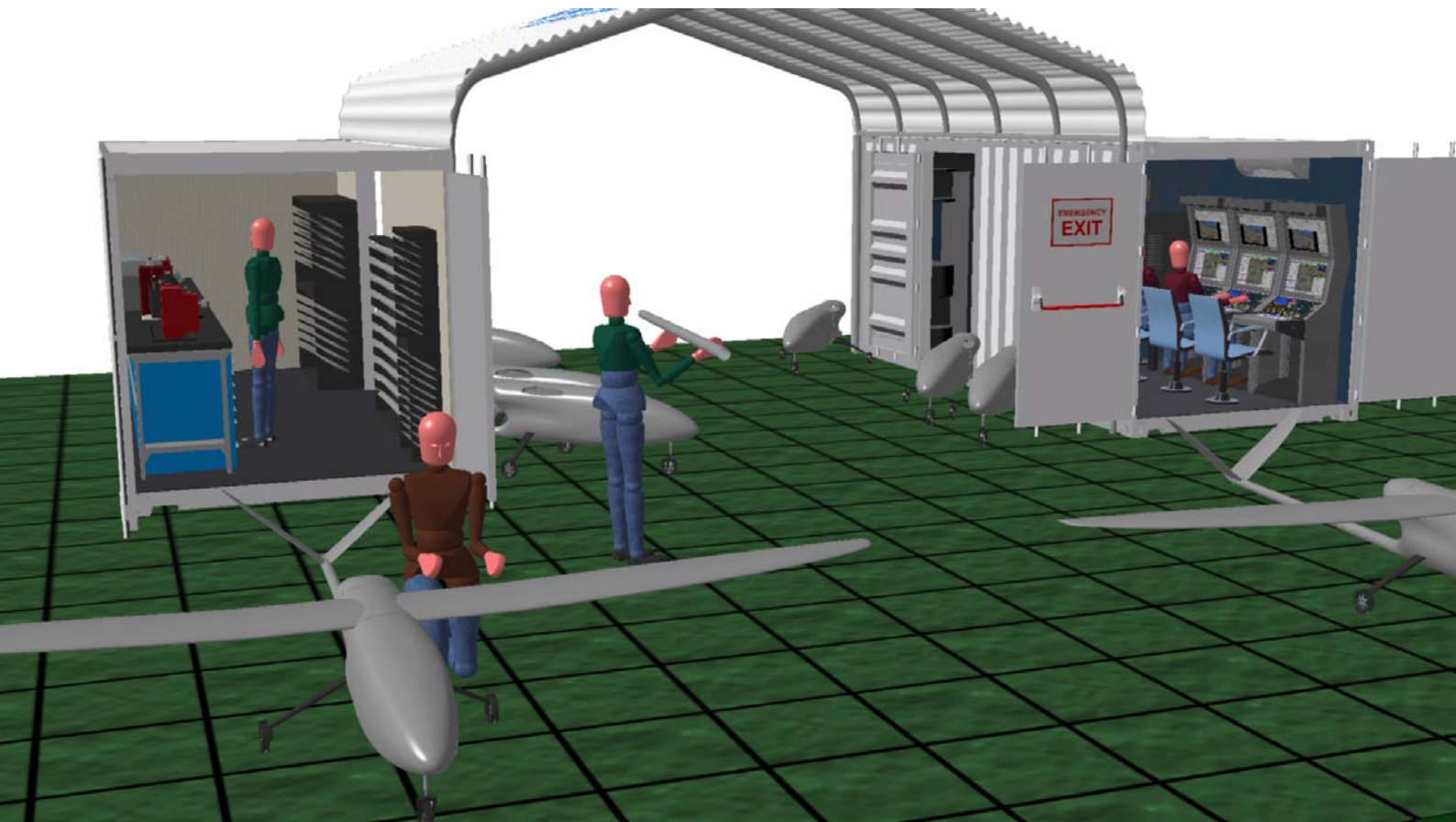
1x 20 Container is an advance maintenance and repair shop, while a second 20´container´serves as a Control Center, Mission briefing and planning independently from any other ground facility.



Equipment

Container #1: Ground Control Station
Computer racks, Video receiver system, Consoles, Antennae (Tracker and Onmidirectional), Lavatory, A/C, Briefing area. Mission Command Console, Payload Command Console, PED Console.

Container #2: Maintenance Shop
Electronics test bench, Test kits, Optical cleaning kit, Engine test box, Bench tools, Hand tools.



SISTEM´S CONFIGURATION

Cruiser II UAS is a higly flexible system that can be configured for a number of different missions. Depending on the duration of the mission, and the readiness needs, system can operated from a portable ground station all the way up to conform a MOB, with two containers for sustained operations, in environments where supplies are more difficult to deliver, for a semi-permanent deployment.

Likewise, aircraft are highly configurable, and modular, allowing for quick and easy set up for a system, which are flight ready in record time.

It enables mission command to share multiple aircraft with their payloads, engines, etc… delivering the maximum number of hours possible per equipment.

Configuration Structure for a 24h (16 hrs mission time) aircraft operation

Mission

ISR		300km range surveillance mission around MOB

Air Segment

Platforms (1x backup)	3	2x operational during day, and 2 at night + one backup
Gimbal EO/IR + Retract	1	EO 2ºFoV and MWIR 2.2ºFoV
Gimbal LRS (extended range)	1	Extended EO range down to 1.03º FoV / Mwir
Engine package (2) extra	2	For quick replacement to avoid downtime during inspections

Main Operations Base Operates up to 10 simultaneous flights

GCS 20´ISO CONTAINER	1	
Tracker Antennae	1	
Ground receiver	1	
Video receiver	1	Requires more antennae for multiple simultaneous UAS
Systems racks		Computers, Racks, APU, Displays, Server, Ethernet
Utilities (included)		A/C, APU, Lavatory, Briefing area
Maintenance 20´ISO CONTAINER	1	
Tools and service trolley	2	
Fueling tools	1	

CRUISER II VEHICLE SPECIFICATION

Product Benefits

Low Maintenance, High Flight Time
Higly operable with low training hours
Low Cost Tactical ISR Capabilities
Modern FCS / Avionics GS / Detection Systems

General dimensions

Length: 3,5m
Windspan: 5.2m

Payload area dimensions

Length/Height/Width: 600mm x 350mm x 275 mm

Characteristics

Structure
Autoclave cured Carbon-Kevlar Composite Structure
Aerospace grade materials & manufacturing processes
High tensile strength fibers, matrix & bonding adhesives
Power Plant
1x 110cc Piston engine with extended MTBO and service.
INS/GPS
Modern highly accurate INS/GPS from Cloud Cap Technologies
Autopilot
Standard advanced Piccolo Autopilot from Cloud Cap Technologies
Launch Options
Catapult ready
Wheeled launch in unpaved runway
Recovery Options
Ballistic Parachute 5m/s descent rate
CO2 operated replaceable cartrigde
Payload
Cloud Cap Technologies Tase 500 Multipurpose Gimbal
Cloud Cap Technologies Tase 400 DXR (Day only) Gimbal
Cloud Cap Technologies Tase 400 LRS Gimbal
Fixed array of EO stabillized still cameras large format 6x39 Mpix
Sat Comms (Data & Video) / Sigint Commint / SAR (upon request)

Spec Sheet

Range
250 km in direct LOS (@ 2000m)
500 km with Sat link BLOS (@ any altitude) -backup-
up to 250 km for video in LOS (with 10 W amplifier)
Max Operational Height
3000m
Max Speed
150kmh
Operational Speed
110kmh
Payload Capacity
15 Kg
Overall Weight
65 Kg
Endurance with standard fuel
8Hrs (@ max payload)-10 hrs (min payload)
Endurance with extended fuel
12Hrs (@ max payload)-16 hrs (min payload)

Cruiser II Product Portfolio

First Low Maintenance UAS
Modern Structure, Avionics, Engine and Payload plant for modular ISR Tactical operations

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