

# Eagle Eye Pocket Guide

**Bell**  
**Helicopter**  
A Textron Company



*Modern tactical UAVs must be expeditionary by design, exhibit a wide range of speed and altitude combinations, be highly reliable, easy to maintain and provide mission flexibility. They must survive in hostile environmental conditions to include enemy sophisticated air defense systems.*

*But most of all, they must be able to quickly put and then keep “eyes on target.”*

*The Bell Eagle Eye provides land and naval force commanders a single UAV solution to meet these requirements using about half the manpower of existing fixed wing or helicopter-based systems. The Eagle Eye tilt-rotor offers the best of both worlds; vertical take-off and land, rapid transition to high-speed flight, coupled with real staying power, autonomous operations.*

*Eagle Eye has the ability to stay focused on the main task:*

**“EYES ON TARGET”**

***Anytime, anyplace, anywhere***

***Bell Eagle Eye UAV***



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## Introduction

The development of the Eagle Eye UAV represents a new era in unmanned vehicle operations – the deployment of a vehicle that surpasses the capabilities of all other VTOL and tactical UAVs while also reducing the cost of operations. This achievement is derived from a technology that belongs to only one company – Bell.

Tiltrotor technology enables the Eagle Eye to provide unmatched speed, endurance, reliability, and low cost of operations – attributes that military forces around the world have been seeking since the advent of unmanned vehicle operations. The Eagle Eye provides the operator with a single platform that can:

- Conduct VTOL and or a simplified launch and recovery within a confined area.
- Operate at low speeds for precise targeting and special operations.
- Loiter within a large speed range where low power is required to extend loiter and coverage areas
- Accelerate to high cruise and dash speedsto enable responsiveness and minimal time to target.

The Bell Eagle Eye combines advanced technology with unmatched reliability to maximize mission effectiveness with minimal cost.



**Bell's TR911X 7/8<sup>th</sup> Scale Demonstrator**



The TR911X led to the selection of Eagle Eye as the air vehicle for the USCG Deepwater Program

## **Background/History**

Bell is a premier rotorcraft manufacturing company that has pioneered the development of vertical-lift technology for over 60 years and has delivered over 30,000 advanced rotorcraft. Bell's technical capability in airframe manufacturing and systems integration spans the entire product life cycle: from design engineering, to production and assembly, to integration and test, and through life-cycle logistic support. Bell's core competencies in the commercial and military sectors and in tiltrotor technology are a result of its dedicated, focused, and imaginative work designing, developing, and manufacturing a wide variety of systems.

Bell leveraged this impressive set of core competencies to build the original Eagle Eye UAV, the TR-911X. This fully integrated demonstration UAV was successfully flown to 370 km/hr (200 knots) cruise speed and altitudes over 4200 meters (14,000 ft.) with an operational payload of approximately 98 kg (200 lbs). The demonstrator successfully completed over ninety hours of flight tests and required less the one hour of maintenance per flight hour.

Only Bell has this proven record in developing a reliable, safe, advanced VTOL UAV that provides increased mission effectiveness for customers around the world.

## Summary of Achievements

Yuma Proving Grounds, Yuma, AZ  
Under Contract with U.S. Navy PMA-263

1998 Objective	Demonstrated in 1998
VTOL Operations	HOGES @ 1100 ft/95° with 210lb payload
Flight Time of 50 hours	55.5 hours
110 nm Radius of Action	315 nm range during mission profile
0 – 150 kn Airspeed range with 200 lb. payload	0 – 200 knots TAS cruise with 210 lb. payload.
13000 ft Altitude with 200 lb. payload	14,458 ft (> 15000 ft DA)
200 lb Payload	210 lb.
75% Reliability	> 95% Reliability
< 1.0 MMH/FH	



2000 Objective	Demonstrated in 2000
10 consecutive automatic landings in 30 attempts.	10 successful landings in 10 attempts.
Landing within 6.5 ft. of designated spot.	All landings within 2.0 ft. of designated spot.
Autoland completion rate of 90%	100% completion rate

## The Tiltrotor Advantage

The Eagle Eye's ability to take off and land vertically and then seamlessly transition to forward flight as a high speed fixed wing aircraft provides operational advantages to land and sea commanders that cannot be found with any other UAV product.

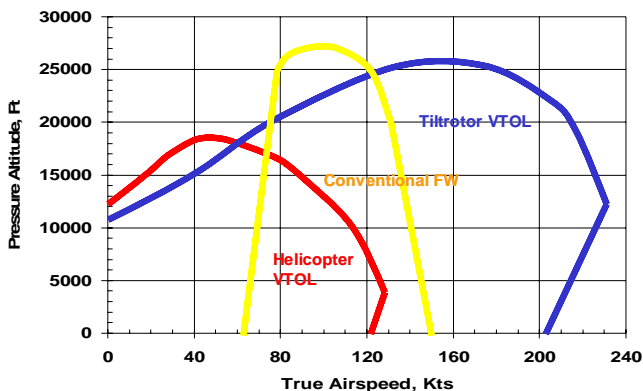
Vertical launch and recovery operations eliminate the need for prepared runways, large areas of obstacle-free land, nets, or parachutes or airbags. Precise navigation and system redundancy significantly reduce the potential for damage to the air vehicle or mission payload that are typically found with other UAV systems.





The Eagle Eye has a 50 knot speed advantage over the fixed wing aircraft and an 80 knot speed advantage over a helicopter UAV at sea level. At 12,000 feet the comparable speed differences are 80 knots and 120 knots respectively. This advantage allows the Eagle Eye to move quickly from place to place as situations change. This flexibility allows an operator to provide his combatants with real-time intelligence information with minimal delay between points of interest.

### Tiltrotor UAV Flight Envelope



**Tiltrotor Provides Unmatched Operational Performance**

## **Multi-Mission Applications**

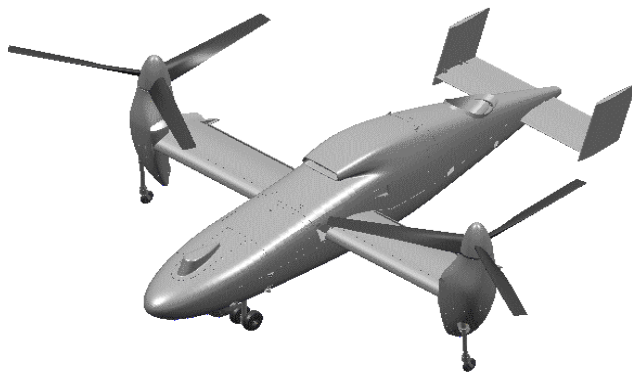
Tactical UAV's are intended to compliment, not replace, existing helicopter, fixed wing and other reconnaissance/surveillance assets by performing the more routine, sometimes dangerous aerial missions thus preserving the manned assets for when they are absolutely required. This synergy between manned and unmanned tactical assets significantly reduces overall operating costs and greatly increases mission effectiveness. Because the loss of an unmanned air vehicle can be more easily accepted than the loss of a manned aircraft, UAV's such as the Eagle Eye are also ideally suited for high risk missions such as NBC detection, target location and designation, armed attack, and urban aerial operations.

When equipped with the appropriate mission equipment, the Bell Eagle Eye will be capable of performing unmanned aerial missions such as:

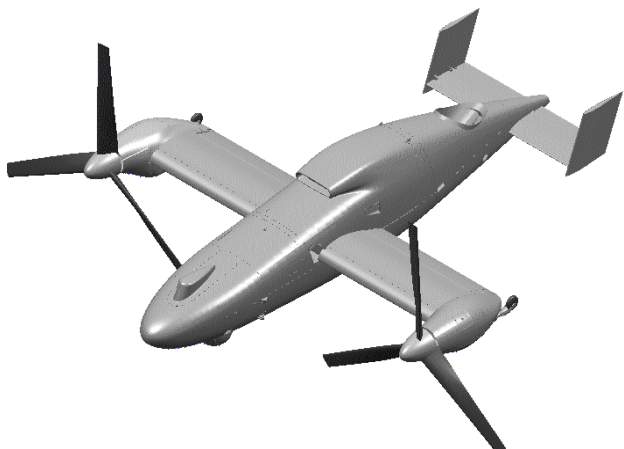
- Reconnaissance and Surveillance over Both Land and Sea
- Border Patrol
- NBC Detection and Contaminated Area Operations
- Real-time Situational Awareness for Tactical Forces
- Cooperative Engagement Platform Providing Target Identification,
- Designation for:
  - Naval/Artillery Gun Fire
  - Attack Helicopters
  - Air Strikes
  - Extended Range Munitions
- Anti-Submarine Warfare
  - Delivery of Sonobuoys
- ECM, ECCM, ESM
- Airborne Radio Relay
- Delivery of Critical Supplies
- Fisheries Protection
- Fire Detection

## General Characteristics

The Eagle Eye design is a tiltrotor configuration with two 10-ft rotor systems and transmission nacelles that are mounted on each wingtip. The air vehicle operates as a helicopter when taking off and landing vertically. Once airborne, the nacelles are rotated 90 degrees forward, thus converting the aircraft into a turboprop airplane for high-speed, fuel-efficient flight. A single centerline-mounted engine located in the center fuselage section powers the mechanically synchronized rotor system. The drive train consists of a centerline-mounted “T” 90-degree gearbox that provides power to the wingtip-mounted proprotor gearboxes, which in turn, power the rotor system for flight.



**Eagle Eye – Helicopter Mode**



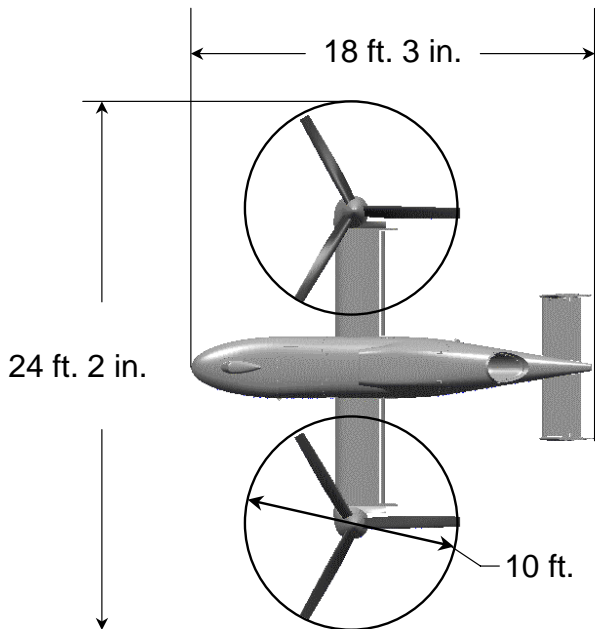
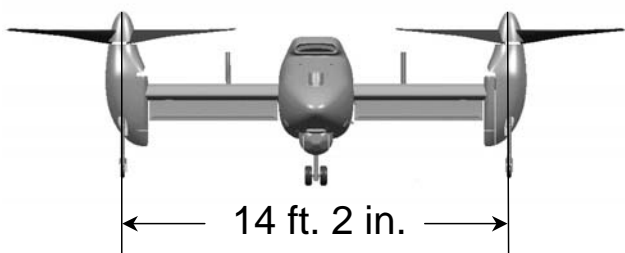
**Eagle Eye – Airplane Mode**

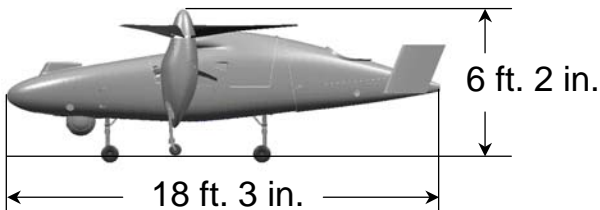


**Eagle Eye Internal Layout**

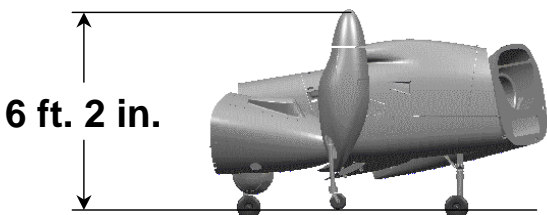
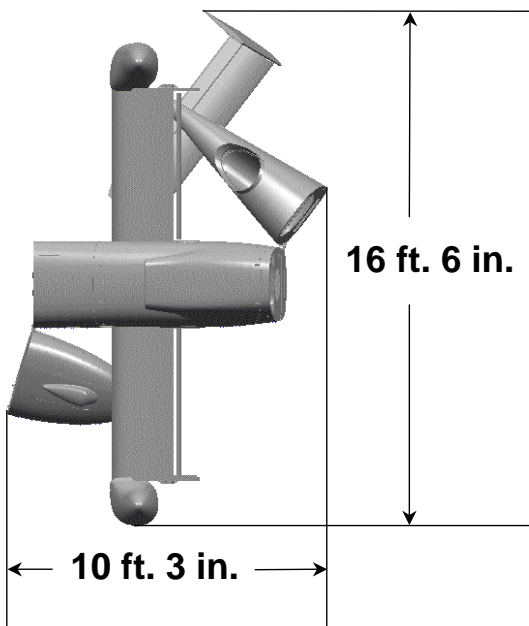
## External Dimensions

The Eagle Eye air vehicle provides VTOL operations and high-speed flight without compromising transportability. The aircraft is transportable via truck, rail, ship, and transport aircraft including the C-130, C-17, and C-5. The air vehicle can also be slung beneath suitably equipped vertical lift aircraft.





The folding nose and tail of the Eagle Eye allow the vehicle to fit within the identified transportation options and provide accessibility to all critical avionics and mission



## Operational Characteristics

The Eagle Eye provides performance that cannot be found elsewhere within the UAV industry. The attributes of the tiltrotor configuration equate to valuable advantages to the operator; advantages that increase overall mission effectiveness without increasing the cost of operation or maintenance requirements.

**SPEED** -The Eagle Eye has the capability to **exceed 200 knots at maximum continuous power** to rapidly transit to areas of interest.

**RANGE** – The Eagle Eye has the capability to fly **over 800 nm** between takeoff and landing locations to enable deployment into theatre from positions well removed from threats or observation.

**Altitude** – The Eagle Eye is currently limited to **an altitude range of 0 to 20,000 ft** to promote operational capability and vehicle survivability, and because there is no mission requirement to fly higher. The Pratt & Whitney 200/55 engine that powers the Eagle Eye is based on the 207 engine used in Bell's 427 light twin helicopter that has not been certified for operations above 20,000 ft. If the need arises, Bell will address removing this limitation.



**Endurance** – The Eagle Eye is designed to provide 3 hours of time on station at a location that is 100 nm from the point of departure while carrying a 200 lb. payload. Using the unique capability to loiter in a minimum power configuration in airplane mode, the vehicle can provide **approximately 6.0 hours of total endurance with 200 lbs. of payload.**

**Icing Detection capability** – The Eagle Eye is equipped with an ice-detection sensor that alerts the operator of ice accretion on critical surfaces. The vehicle can transit through light icing without damage as the operator modifies the flight path of the aircraft to exit from the icing conditions.

## Airframe

The airframe consists of the forward fuselage, center fuselage, aft fuselage, wing/flaperons, and pylons.

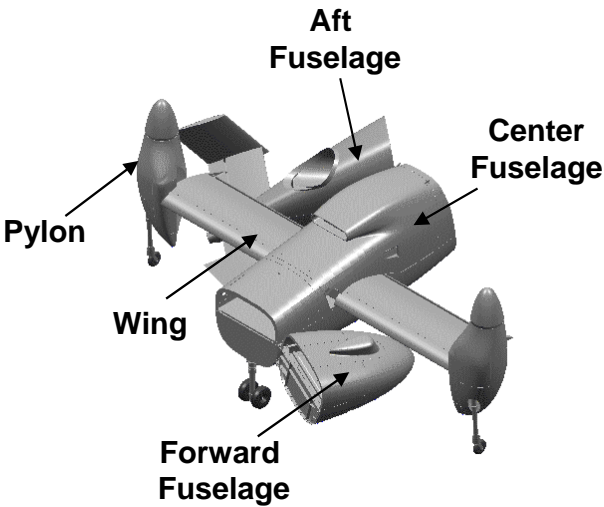
**Forward Fuselage** The forward fuselage assembly is designed to hold the modular mission payload. Support beams and mounted adapter plates are used to retain the payload to the airframe to allow for payload insertion and removal with reduced workload and time.

**Center Fuselage.** The center fuselage assembly contains the main elements of the aircraft propulsion system, landing gear system, fuel system, air management system, and the flight control computer.

**Aft Fuselage.** The aft fuselage includes the horizontal and vertical stabilizers and is hinged on the right-hand side of the aircraft and stows under the right wing and center fuselage. The aft fuselage houses most of the navigation equipment.

**Wing/Flaperons.** The wing structure is mostly composite, with a forward and aft spar, lower skin laminate, and an upper skin laminate. These components are assembled to make the wing torque box. The flaperons are one-piece composite element attached to the wing.

**Pylons.** The pylon structure is composed of upper and lower halves for easy access and disassembly. Clearance holes and/or access doors allow visual inspection of the gearbox oil level sight glass and other important inspection procedures.



**Eagle Eye Airframe Components**

## Engine

A Pratt & Whitney PW PW200/55 turboshaft engine powers the Eagle Eye. This new-generation helicopter engine features excellent reliability, fuel consumption, ease of maintenance, smoke-free signature, and 3,000-hour time-between-overhaul (TBO) components. The engine has been designed to operate in a maritime environment, it provides a 5-minute takeoff rating of 641 uninstalled engine shaft horsepower (UESHP) at 4,000-ft ISA conditions.

The PW200/55 is basically the same engine as the PW207D used in Bell's Light Twin helicopter, the Model 427. Minor changes to the PW207D increase its reliability, reduce its cost and weight, and tailor the engine to the UAV application:



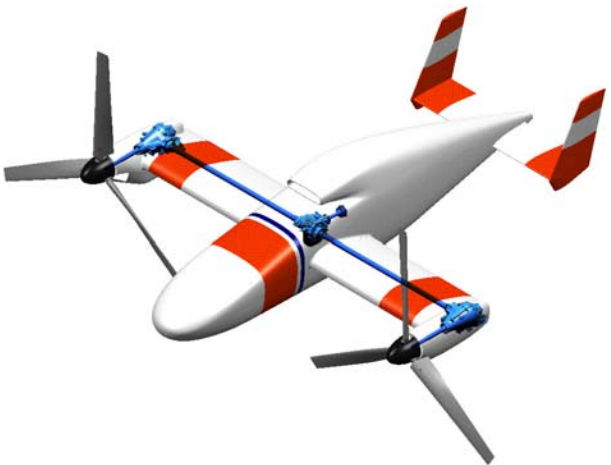
**The P&W PW200/55 Turboshaft Engine**

## Drive System

Bell has designed the Eagle Eye drive system to provide high reliability and ease of maintenance to reduce life cycle cost. The system also has been designed for inherent survivability in hostile environments.

The drive system consists of the following components:

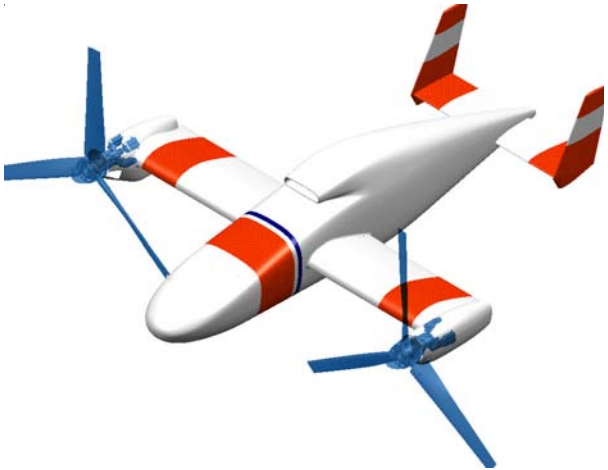
- An input drive shaft and couplings to transmit torque from the engine to the midwing gearbox
- The midwing gearbox,
- Wing shafts to connect the midwing gearbox to the proprotor gearboxes,
- Proprotor gearboxes,
- Oil cooling for the midwing gearbox.



**The Simple, Reliable Eagle Eye Drive System**

## Proprotors

The Eagle Eye proprotors have been designed to increase producibility, durability, function, and structural strength, and to minimize weight. The wing tip rotor-gearbox installations rotate on the gearbox spindles from 98 degrees (8 degrees aft of helicopter mode) to 0 degrees (airplane mode) in order to achieve the most efficient configuration. The left hand rotor rotates clockwise and is attached to the left hand wingtip gearbox and a right hand rotor rotates counter clockwise on the right hand wing tip gearbox. Each rotor includes three blades, a rotor hub assembly, hub spring assembly, controls assembly, and the spinner assembly.



**Eagle Eye Proprotor System**

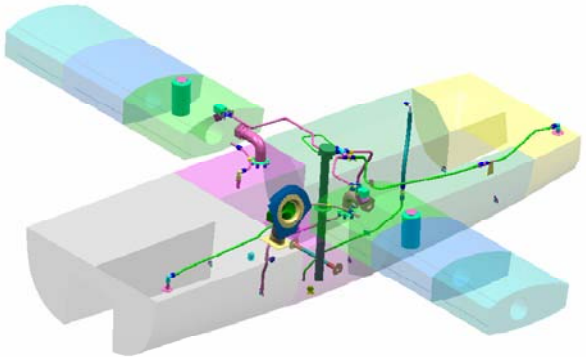


**Schematic view of Left-Side Proprotor System**

## Fuel System

The Eagle Eye fuel system is a simple and reliable design, which ensures that fuel is always available to the engine throughout the aircraft envelope and operating environment. The system is comprised of integral-type (wet) wing and fuselage fuel tanks, a simple suction lift engine feed system, a reliable gravity fuel transfer system, an open atmospheric vent, a gravity refuel system, and a defuel/drain system.

The system is designed for operation down to  $-40^{\circ}\text{F}$ . A military standard, three-inch gravity refuel cap and adapter is provided, along with a single point defuel valve to meet gravity fill and defuel requirements.



**Eagle Eye Fuel System**



## Avionics

The design of the Avionics system onboard the Eagle Eye reflects Bell's intense focus on providing a safe and reliable air vehicle. The system includes the following elements:

- Flight Control System (FCS)
- Flight Control Computer (FCC) / Actuator Drive Unit (ADU)
- Navigation Sensor (embedded GPS/INS)
- Air Data Computer (ADC)
- Radar Altimeter
- Decklock Device
- IFF transponder
- Ice detection sensor
- Communication system (VHF/UHF Radio)
- Engine and transmission sensors
- Fuel sensors
- Electrical power system
- Wiring and equipment installation
- Airborne Data Link Terminal
- UCARS Transponder
- Payload Interfaces

The fully integrated dual redundant flight control system includes redundant sensors, processing elements, drive electronics, monitoring, wiring, actuator motors, and data links. The system also includes built-in Fault Detection Logic and automatic reconfiguration following most failures. This approach provides a cost effective increase in reliability.

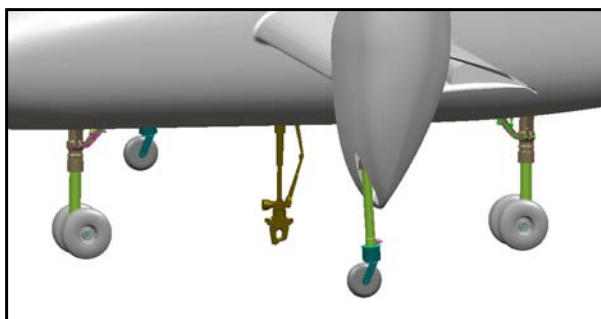
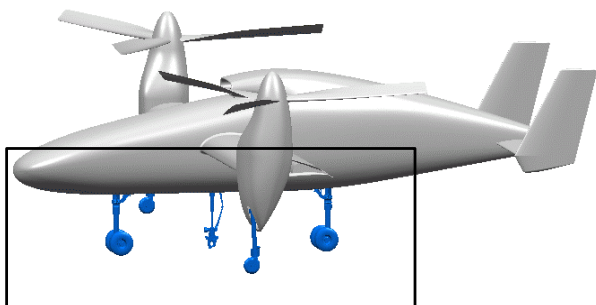
## **Electrical Systems and Battery**

The air vehicle primary electrical system is a 28 volt DC system comprised of one starter/generator, one generator, a battery, and distribution system. During normal operating conditions the generator that is driven by the power turbine side of the engine provides all system power. In the event that unit fails the starter/generator (which is powered by the engine gas producer turbine) will pick up the bus and is capable of supporting all system loads while maintaining safe flight operations. The battery is connected to the main bus during all normal operations to improve power quality and to maintain charge. Although external power is normally utilized for maintenance, the battery may be used for short-term system checks.

The standard 28VDC military receptacle is located on the side of the fuselage and provides power for ground operation and engine starting. It supplies all electrical loads until the generator is placed on-line, at which time it is automatically disconnected from the main bus. Once the engine is started and the generator is on-line, the ground crew can remove the external power cable by pulling the release on the remote external power disconnect. This allows the ground crew to stay a safe distance away from the air vehicle.

## Landing Gear

The Eagle Eye utilizes a dual-wheel tandem landing gear with outriggers. All four points employ separated gas/oil struts to absorb landing loads. The main landing gear are mounted on the fuselage centerline and retracted into the fuselage during flight. Outriggers are attached to the pylon gearboxes, which tilt forward during airplane flight mode.



**Eagle Eye Landing Gear /  
Deck Arrest System**

## **Deck Arrest System**

The Eagle Eye can be equipped with a deck arrest system that is placed within the landing gear bay between the forward and aft main landing gear assemblies. The deck arrest system is electronically actuated upon touchdown and extends below the aircraft to secure the vehicle to a NATO-standard grid attached to the ship. The system has been designed to keep the aircraft secure to the NATO grid during the launch and recovery stages of shipboard operations.

The deck arrest system includes a hook assembly that is attached to the end of screw shaft mounted within the aircraft. When the system is actuated, the shaft lowers the assembly beneath the aircraft to latch onto the intersection of two holes within the NATO-standard grid. In the event of a miss, the gimbaled system can quickly retract and re-extend to capture the grid and secure the aircraft.

# Eagle Eye Deck Arrest Probe and Hook



**Hamilton Sundstrand**

A United Technologies Company

# Claverham Limited

## **Ground Control Station / Datalink**

Bell's focus on satisfying customer requirements is evident in the design of the Eagle Eye system. The mature air vehicle command and control software and dual redundant architecture can be integrated into existing or new land or sea based ground control stations.

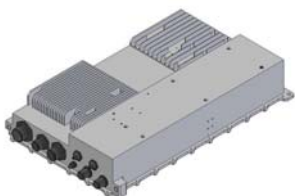
Bell understands ground control stations and the need to provide a low workload, intuitive environment for the air vehicle and payload operators. The successful deployment of the TR911X prototype was a direct result of the application of Bell's core competency in systems integration to the design of the TR911X GCS. This corporate expertise allows Bell to configure the Eagle Eye system in a manner that satisfies customer requirements in the most cost-effective and efficient manner.



## Eagle Eye Data Link System

The reconnaissance mission for Eagle Eye UAV demands a high-bandwidth, reliable data link system capable of operating at ranges of 100 nm or more in all weather conditions where the Eagle Eye mission is planned. An **L-3 Communications** dual UAV data link system provides redundant command and control links for extremely safe UAV operation. Both links deliver jam-resistant linkage to a ground or shipboard surface terminal while providing greater than 95% availability in most regions of the world.

### Internal Datalink Components



Primary RFE



Secondary Airborne Modem Assembly



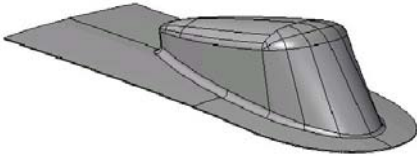
Secondary Airborne Modem Assembly



communications

The Eagle Eye's primary link system utilizes **Tactical Common Data Link (TCDL)** technology, which maximizes interoperability with hundreds of other TCDL and CDL deployments, world wide. The return link, equivalent to 6.5 T-1 cable connections, is currently used for transmitting real-time color video, radar, and voice data.

### External Datalink Components



Forward Primary  
Antenna

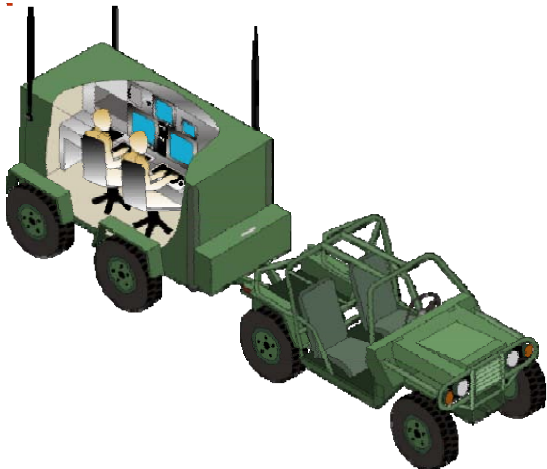


Aft Primary  
Antenna

Secondary  
Antennas

The future of the Eagle Eye is a network centric, multi-mission asset providing C4ISR capabilities during joint operations. The Eagle Eye data link system is already responsive to the need for networked information sharing, greater connectivity, high fidelity video imagery, efficient use of bandwidth, and assured access and control. It is also the correct baseline for growth in every one of those areas.





Bell stands ready to apply its corporate expertise to the selection and application of specific datalinks as desired by the customer. Bell's system is TCDL compliant and can be adapted to meet the requirements of another standard if desired by the customer.

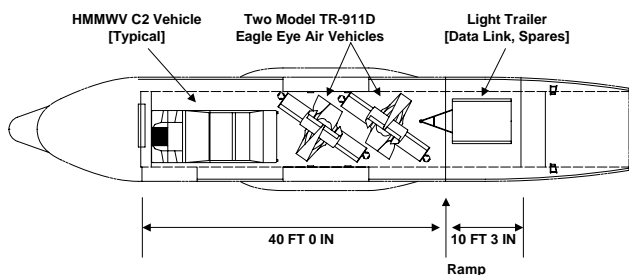


**Bell's  
Command and Control Software  
can be integrated into any  
Land-or Sea- Based GCS.**

## Deployability

The Eagle Eye is transportable by air, sea, rail and highway modes. It is C-5, C-17 and C-130 transportable with roll-on / roll off. It can be carried on maritime pre-positioned ships, break bulk, roll-on/roll-off, barge carrying, container ships and on all vessels of the Army, Navy, and Marine Corps strategic/tactical sea-lift watercraft fleet as well as tactical watercraft. It meets highway transportation policies. The system takes less than 20 minutes for transport preparation and can be operational within 20 minutes of removal from the transport aircraft. The Eagle Eye can be airlifted by rotorcraft using hard attachment points on each side of the airframe.

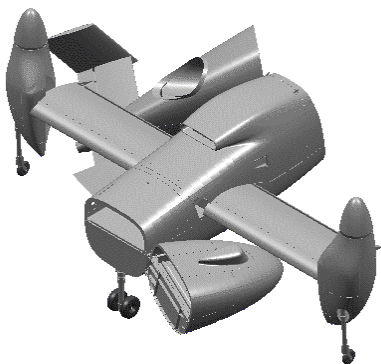
The entire Eagle Eye system can be loaded into a single C-130 for transport. The system is capable of being secured to the floor or deck of transport craft with integrated, permanently marked, tie-down systems.



**Conceptual Depiction of Eagle Eye UAV System in a C-130**

## Accessibility

The Eagle Eye is designed to reduce maintenance workload and minimize maintenance time by providing access to all components. The folding nose and tail provide significant access to aircraft avionics and the mission payload.



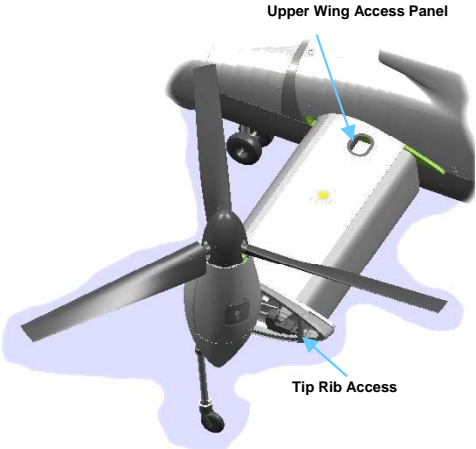
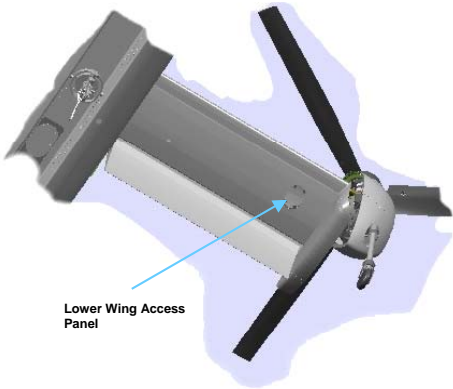
### **Folding Capability Provides Significant Access to Avionics/Payloads**

The hinged engine cowl allows maintainers to access the engine and systems contained within the center fuselage, even in adverse weather and wind conditions.

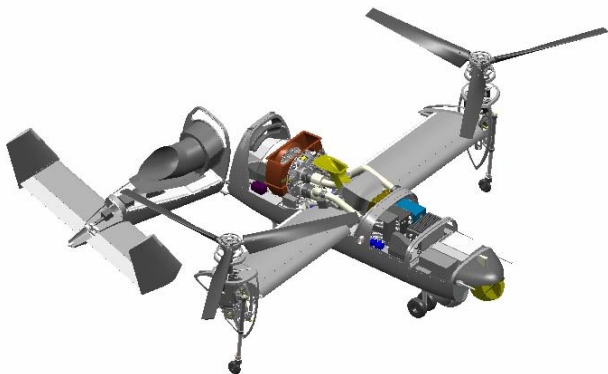


### **Hinged Engine Cowl Provides Access to Engine and Aircraft Avionics**

Access panels are provided in the upper and lower portions of the wing to aid inspections and maintenance. Access to the wing is also provided through the tip rib located at the end of each wing.



Removable panels and detachment of the engine cowl provide complete access to all components contained within the nose, center fuselage, and aft fuselage.



**Complete Access is Provided by Easily-Removable Cowlings and Panels**

## Support Equipment

The Bell VUAV system will require a minimal amount of equipment to support USMC operations. A complete listing of aircraft loose gear and peculiar support equipment is shown below.

### Aircraft Loose Gear

Plug Assy, Protective, Engine Inlet, Cowling
Cover, Protective, Engine Exhaust, Cowling
Cover Set, Protective, PR Blade
Blade Maint Install/Removal Protective Cover
Cover Set, Protective, Cooling Air Inlet
Cover Set, Protective, Cooling Air Exhaust
Cover, Protective, Fuselage Section Air Inlet
Cover, Protective, EO/IR Sensor
Cover, Protective, Fuselage Fwd End
Cover, Protective, Fuselage Aft End
Cover, Protective, Pitot Tube
Cover Set, Open Nose & Empennage

## **Peculiar Support Equipment**

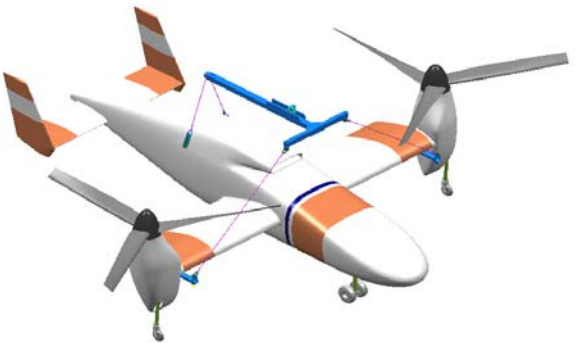
Tow Bar, Aircraft, UAV, Shipboard
Adapter Set, Air Data
Container, Stowage, PR Blades
Cover Set, Aircraft Maintenance (Blade, Drive Coupling, etc.)
Fixture, Hub & Blade Static Balance
Mast Protector
Pin Set, Blade Alignment/Installation
Pin Set, Flight Control Rigging
Remote Disconnect Adapter, DC Power Cable
Aircraft Hoisting & Jacking Assy
Sling, Aircraft Empennage
Sling, Aircraft Nose
Sling, Hub & Blade
Sling, PRGB / MWGB
Pylon, Lifting Eye (connects to PRGB Mast)
Tool Set, Unscheduled Line Maintenance
Load Support, Folded Empennage Section
Load Support, Folded Nose Section
Oil Drain Fitting, Gearbox
Oil Drain Fitting, Engine
Tool, Input Shaft R&R
Axle Jack Adapter, Main Mount
Wash Rig, Compressor, Portable, P&W Engine
Pitch Link Adjustment Tool

## Provisions for Maintenance

Provisions have been included in the design of the air vehicle and support equipment to reduce maintenance workload and time. Jack and Hoist fittings have been included in each wing section to support jacking and hoisting of the air vehicle by crane or air vehicle.

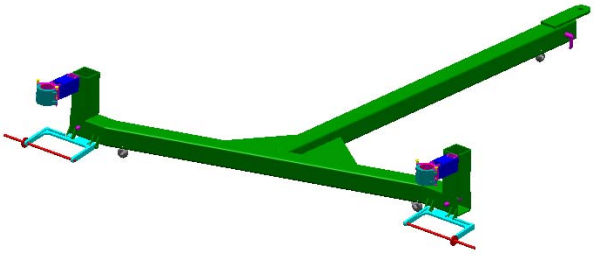


**3-point jacking allows  
for the landing gear to be cycled.**

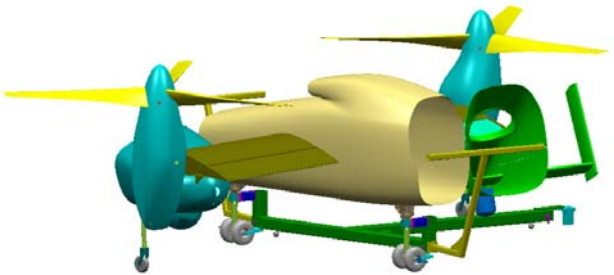


**Hoist Support Equipment allows for  
self-centering 3-point lift**





## Conceptual Tow Bar Design



**The Tow Bar permits precise aircraft positioning on deck and within confined spaces.**

## **USCG Sea Based Manning**

Two people are required to support an Eagle Eye system consisting of two air vehicles and one ground control station for operations totaling 1200 flight hours per year per aircraft.

These manpower levels are produced by Bell's continuous focus on providing exceptional reliability, minimal maintenance burden, and minimizing short-term scheduled maintenance tasking during the design of the air vehicle and the incorporation of mature system elements. This approach makes the Eagle Eye a force multiplier with the capability of sustained field operations, maximized OPTEMPO while maintaining safe and efficient operations. The Eagle Eye's reduced maintenance burden makes reduced manning a reality.

## **Training**

The Bell Eagle Eye training program will provide specified required training in an efficient and effective manner to produce qualified Air Vehicle Operators and Maintenance personnel for system deployment and support. The training curriculum will be derived from the training developed for the USCG Deepwater program and will be refined using a rigorous Instructional System Design (ISD) process to satisfy unique customer requirements.

**Air Vehicle Operator (AVO) training** will include:

- Introduction to the VUAV system
- Route and Payload Planning
- Crew Coordination
- Normal Operating Procedures
- Preflight, Flight, and Post Flight Operational Procedures
- Safety of Flight Requirements
- Emergency Procedures

Upon completion of this course, the trainee will be able to safely fly the VUAV under limited supervision.

**Maintenance Training** will consist of two courses

- Airframe/ Powerplant
- Avionics

**Airframe/Powerplant Training** will address organizational level maintenance on the power plant, drive train, and airframe elements. Training will include:

- Air Vehicle familiarization
- VUAV maintenance training courses for:
  - Flight Line Operations
  - System/Subsystem Operation
  - Preventive and Corrective Maintenance
  - System Component Removal and Replacement
  - Assembly and Disassembly
  - Repair Procedures

**Avionics training** will address organizational maintenance on the electrical and electronic elements of the following elements:

- VUAV air vehicle
- Ground Control Station
- Sensor Payload
- Data Link
- Launch and Recovery System.

# Appendix A

## USCG Selected Mission Equipment

- FLIR Star SAFIRE™ III
- Telephonics RDR 1700 Radar
- Sierra Nevada UCARS

## FLIR Star SAFIRE™ III



FLIR Systems Star SAFIRE III is the latest in the SAFIRE line of commercially developed, military qualified airborne thermal imaging system. The SAFIRE III raises the standards for image quality, range performance, and stability.

The SAFIRE III contains the following unique features:

- Microscanned 640 x 480 Detector that provides the highest resolution available from an airborne image.
- 3 Field-of-View (FOV) Color Spotter Scope with Haze Penetration Filter provides clear imagery at extremely long distances through degraded conditions.
- Autofocus for all imagers to minimize operator workload.
- Five-axis active stabilization

## Telephonics RDR 1700 Radar



Telephonics Corporation will be supplying the Multi-Mode Radar that will be carried aboard the USCG version of the Eagle Eye. The MMR will be derived from the RDR-1700 Radar shown above.

The RDR-1700 is a Search, Surveillance, and Weather Avoidance Radar System that has been primarily designed to support airborne search and surveillance operations. However, the radar also serves in secondary roles such as terrain mapping, weather avoidance, beacon navigation, and oil slick detection.

The nose-mounted, digital, color, RDR-1700-based system will include three lightweight boxes: the antenna/pedestal unit, the receiver-transmitter unit, and the interface unit. The radar will operate in the X-band and will provide 120-degree scanning

## Sierra Nevada UCARS



Sierra Nevada Corporation's (SNC) Unmanned Aerial Vehicle (UAV) Common Automatic Recovery System – Version 2 (UCARS-V2) is used to provide precision navigational information to support Eagle Eye automatic launch and recovery operations.

The UCARS-V2 has been designed for sustained operations in the shipboard environment. The system includes practical and proven technology for deck motion stabilization equipment.

Features of the system include:

- An Airborne subsystem that provides a point source for precision tracking, contains omnidirectional and directional antennas, and is compatible with the Eagle Eye 28VDC power system.



- A Ground-based Track subsystem that locates and tracks the airborne transponder, is built to survive in a topside ship environment, and supports flight deck or pedestal installations using ship power.
- 35 GHZ Airborne to Track subsystem communication that is difficult to jam and detect.
- High reliability and availability with minimal preventive maintenance.
- Comprehensive Built-in-Test (BIT), straightforward troubleshooting, and corrective maintenance in less than 30 minutes.
- No need for special equipment for operation or maintenance
- Meets strict shipboard and airborne E3 requirements (MIL-STDS-461 & 464)

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