

## Pointer FQM-151A Unmanned Aerial Vehicle (UAV) System



**Pointer Team with TQM Flag awarded in 1991  
Over 120 aircraft have been built to date**

The Pointer UAV is a low-cost UAV System. Pointer can be hand-launched and recovered in minutes without special equipment on unprepared terrain. All airborne and ground equipment fit into 3 lightweight, man-portable, containers.

A self-stabilizing Air Vehicle configuration, with stability augmentation avionics, provides ease of control and steady video imagery. Pointer is electric powered and it has low visual, acoustic and thermal signatures.

The system is designed for maximum durability and versatility at a minimum life cycle cost. The low cost permits expendability, and when appropriate custom components or application specific upgrades can be incorporated.

### Pointer Project Milestones – 15 Years of Achievement

Year	Achievements
2000	Pointer System Enhancements: Ruggedized, Smaller GCU, Smaller IR Thermal Imager, P(y) Code GPS Receiver
1995	Pointer Systems Upgrades: Global Positioning System (GPS) AutoNavigation Capability, Infrared Thermal Imaging Camera Day/Night Capability
1991	Total Quality Management (TQM) Flag for Manufacturing Excellence & Customer Satisfaction received from the U.S. Naval Air System Command's Joint Project for UAVs
1990	Pointer Systems Upgrades: Color Camera and GEN II Night Vision Camera, Forward & Side-look Payload Options
1988	First Systems Delivered for Operation by US Marines
1986	Pointer's First Flight with Black & White Camera.

### Basic System Definition

Qty	Component
1	Ground Control Unit (GCU)
1	Air Vehicle with Shipping Containers
1	Payload (Daylight Standard)
3	Batteries
1	Battery charger



**Basic Pointer System**

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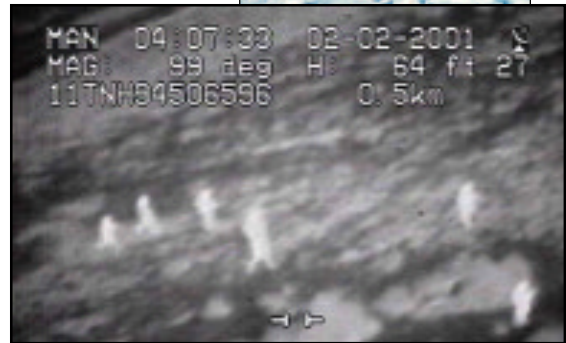
Pointer Operating at Below Freezing Conditions at Mountain Home AFB , ID, February, 2001

**Technical Specifications**

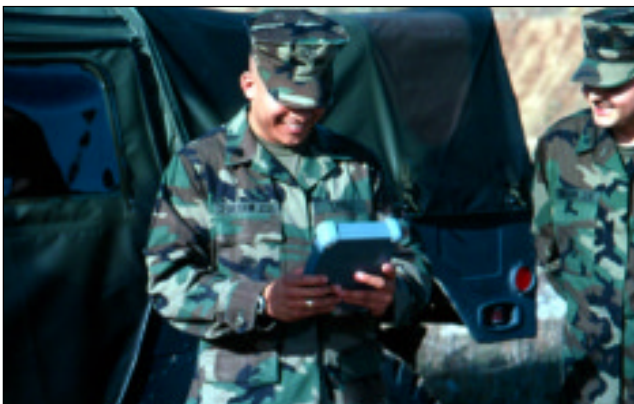
Air Vehicle System	Dimension	Unit
Wingspan	108	Inches
Length	72	Inches
Nominal Weight	8.1	Lbs.
Gross Weight	10	Lbs.
Payload Capacity	2	Lbs.
Battery Weight	2.2	Lbs.

**Pointer UAV System's Performance**

Flight Duration 1 to 1.5 hours (depending on conditions)  
 Airspeed 22-50 mph  
 Patrol Radius 3-5 miles



Night Vision Capabilities Demo at Mountain Home, ID. February, 2001



Marines based in Encino, CA using Pointer Avionics

**Training** AeroVironment provides Basic Operator's Training on customer's site or at AeroVironment's Simi Valley facility. Fundamentals of the Pointer System are learned during a hands-on course, including safety checks, O-Level maintenance, mission planning and flight proficiency exercises. Advanced Mission Training and Flight Instructor courses are also available. Pointers can be successfully assembled, launched, flown and recovered by operators with minimal training and no-previous flight experience.

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### System's Capabilities

- Video Camera..... Daylight color CCD camera.
- Infrared Camera..... Microbolometer Thermal Imaging Sensor (optional).
- VCR Recorder ..... Hi8 VCR (optional).
- GPS Receiver ..... Military P/Y code<sup>1</sup> and Civilian C/A code for accurate air vehicle or target location.
- AutoNavigation ..... Selectable flight modes for Altitude Hold, Waypoint Navigation, Auto Loiter and Fly-Home Mode. In-flight programmable waypoints.
- Remote Launch..... Permits hand-off to concealed Ground Control Unit
- AutoLand..... Vertical, deep stall landing command produces stable controlled descent for vehicle recovery. Permits recovery in unimproved locations not accessible to normal skid landing approach methods.
- Loss of Link Fail-Safe .... Pre-set memory assures safe recovery.
- Failsafe Power Systems... Minimizes range safety issues.
- Weather Resistant..... Operates in freezing conditions and up to 110°F. Tolerates precipitation and blowing sand/dust up to 25 knots.
- Quick Assembly ..... Set-up time is less than 5 minutes. No tools are required for assembly.
- Very Low Cost ..... Amortized procurement, training, operation, & maintenance costs.
- Life Span ..... 100 Flights in nominal conditions.



Night Vision Exercise at George AFB , February, 2001

### Future Enhancements:

- Photographic Images ..... 35-mm photographic camera (black & white, color or infrared film).
- Volumetric Air Sampler .. Airborne filters gather samples for post-flight substance identification.
- Vehicle Mount..... Permits UAV operation from a moving vehicle.



Pointer Demo at George AFB, February, 2001



<sup>1</sup> Must have written approval from USAF JPO.

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