

**BATMAV is the name of the system; WASP III is the AV name**

## **1 BATMAV SYSTEM DESCRIPTION**

### **1.1 Introduction**

The Battlefield Air Targeting Micro Aerial Vehicle (BATMAV) is a hand-launched reconnaissance and surveillance tool. The Wasp Air Vehicle transmits live airborne video images and location information to a Ground Control Station (GCS). This capability enables operators to navigate, search for targets, recognize terrain, and record all information for analysis. BATMAV provides operational capability in the following areas:

- Remote reconnaissance and surveillance.
- Force protection.
- Convoy security.
- Target acquisition.
- Battle damage assessment.

This operators manual provides technical information and guidance for assembly, operation, maintenance, and field repair.

### **1.2 System Specifications**

The Wasp Air Vehicle can be launched and recovered in minutes without special equipment on unprepared terrain. The system employs a self-stabilizing configuration with stability augmentation and provides ease of control and steady video imagery. Air and ground components are lightweight and easily configured for back-pack transport. The Wasp Air Vehicle is battery-powered and has extremely low visual, acoustic, and thermal signatures. The optics package includes two integrated Electro-Optical (EO) color cameras (front- and side-look) and a removable payload with either front- and side-look Pan, Tilt, Zoom (PTZ) EO color cameras for day operations, or an infrared (IR) camera (front- or side-look, zoom) for night operations. The Wasp Air Vehicle flies for 45 minutes on a rechargeable Lithium Ion (Li-Ion) battery pack. The BATMAV system is typically operated by a Vehicle Operator (VO).

**Table 1-1 System Components**

<b>Quantity</b>	<b>Description</b>
2	Air Vehicle with EO cameras
1	GCS (Hub Unit, RF Unit, Cable, and Antenna)
1	Universal Battery Charger
2	GCS Battery
1	Joystick
1	EO/IR Payload Set with Plate
2	Mast
1	Field Repair Kit (FRK)
1	Spares Kit
2	Air Vehicle Flight Log
1	Operator Manual

### **1.3 Air Vehicle**

The Wasp Air Vehicle is assembled from four components in under a minute. It is broken down for storage and transport into a single case measuring 17" x 12" x 3". The loaded case weighs approx. 2 lb. and holds one Air Vehicle and spare parts. The assembled Wasp Air Vehicle is shown in Figure 1-1.



**Figure 1-1 Wasp Air Vehicle**

The Wasp Air Vehicle's characteristics are listed in Table 1-2. System limitations are shown in Table 1-3.

**Table 1-2 Air Vehicle Characteristics**

<b>Parameter</b>	<b>Characteristic</b>
Wingspan	28.5 in.
Length	9.3 in.
Weight	Approx. 16 oz. (450 g.)
Normal Operating Altitude	150 to 500 ft. AGL
Nominal Low Altitude	75 ft. AGL
Speed	20 - 40 mph (10-18 mps, 600-1080 mpm)*
Range	3 - 5 km Line of Sight (LOS)
Endurance	45 min.
Climb Rate	500 ft./min. at 100 ft. MSL
Turn Rate	360 deg. in 20 sec.
Motor	Direct drive electric
Air Vehicle Batteries	Li-Ion (rechargeable)
Launch Method	Hand-launched
Landing	Manual glide or autonomous landing
Navigation	C-code GPS and electronic compass
Flight Control	Manual or autonomous
* mps = meters per second, mpm = meters per minute	

**Table 1-3 System Limitations**

<b>Parameter</b>	<b>Characteristic</b>
Wind Speed	<ul style="list-style-type: none"> <li>• Minimum: No restrictions</li> <li>• Maximum: 15 knots</li> </ul> <p>The Wasp Air Vehicle can be operated in winds higher than 15 knots, but will have reduced mission capability and higher risk of damage during launch, landing and recovery.</p>
Rain	Maximum: 0.15 inch per hour, except for Battery Charger, which should not be operated in rain.