



Information Bulletin

Title: Remotely Piloted Vehicle Threat

Date: June 7, 2004

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ATTENTION: Federal Departments and Agencies, Homeland Security Advisors, State Emergency Managers, First Responders, Security Managers, and Information Sharing and Coordination Centers.

DHS intends to update this information bulletin should it receive additional relevant information, including information provided to it by the user community. Based on this notification, no change to the Homeland Security Advisory System (HSAS) level is anticipated; the current HSAS level is YELLOW-ELEVATED.

OVERVIEW:

(U//FOUO) Recent intelligence reporting confirms terrorist interest in the use of Remotely Piloted Vehicles (RPV). RPVs fall into two categories; Unmanned Aerial Vehicles (UAVs), which are military hardware, or Remote Controlled Aircraft (RCAs), which are hobby model aircraft or commercial remote controlled aircraft.¹ We have no specific information to indicate an imminent attack in the United States using such vehicles, but it is important to ensure that the above-named recipients are fully aware of these capabilities. We urge all recipients to be alert and report any suspicious incidents that fit the descriptions of possible indicators listed in this Information Bulletin.

(U//FOUO) Use of RPVs represent a potentially viable tactic against some targets defended by standard protection measures. Although RCAs have not been used by

¹ In this article, a UAV – once launched – is understood to be capable of flying to a predetermined destination using on-board flight control and navigation equipment (i.e. global positioning systems) without further requirement for post-launch human intervention. Conversely, an RCA requires receipt of flight control radio signals during flight from a ground controller able to modify the observed flight path. UAVs are generally larger, more expensive and sophisticated, and able to carry larger payloads.

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terrorists to date, because of their novel capabilities it is prudent to consider the possibility from the point of view of potential consequences, use scenarios, and indicators of such use. Terrorists may find the use of these vehicles attractive because they are relatively quiet, have a low radar signature, are easy to operate and typically have a useful payload capacity.

(U) Although protective measures against RPV attacks are not well developed, awareness of the threat is an important first step in this development.

(U//FOUO) From a threat perspective, UAVs/RCA s may be characterized by range, payload, accuracy, and availability. Today RCA s with payload capability of up to 25 kg, ranges of several kilometers, and accuracy of a few meters are commercially available.

(U//FOUO) The types of RCA s that are most likely available to terrorists have relatively small payloads compared to other possible delivery means. Thus they are best suited to chemical, biological, or radiological attacks or precisely targeted explosive attacks against targets that are difficult to reach by other means. The target set of greatest concern for RCA attack includes large outdoor events, ceremonial gatherings, or special events involving high level officials.

(U//FOUO) Terrorist capabilities required for a successful chemical or biological attack include mastery of the RCA technology, production of a highly lethal chemical or biological material, and development of a suitable dispersal mechanism subject to the weight limitations of the RCA. For an explosive attack, capability to target the RCA very accurately and to fuse the warhead would be required. While these technical capabilities may seem challenging, we should not ignore the possibility that terrorist groups may have or could develop them.

BACKGROUND:

(U//FOUO) Commercially available RCA s are capable of carrying a sufficiently large payload to constitute a weapon of mass effect (WME). Additionally, GPS-controlled autopilot systems can be procured and, in some cases, even delivered installed on commercially available RCA s. A RCA could offer a launch-and-forget platform for delivering high explosives or, more likely, a WME. Either in parts or fully assembled, weaponized RCA s might be difficult to distinguish from the hundreds of recreational versions that are used regularly and easily accessible to model airplane enthusiasts. Global Positioning System (GPS)-controlled autopilots in helicopters configured for crop dusting are commercially available from several countries including Japan, China, France, Russia, and South Korea. Some of these RCA s can be pre-programmed to reach up to 1000 intermediate flight path and altitude reference points.

DISCUSSION:

(U//FOUO) Small UAVs – difficult to control under existing arms and export control regimes—can be obtained from numerous vendors worldwide, including legitimate and

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possibly unsuspecting U.S. vendors. More than 60 countries either manufacture or possess UAVs and more than 160 programs exist worldwide. Very small RCAs and associated control equipment can be obtained through hobby catalogs. A commercial firm, for example, offers a small RCA for under \$15,000 USD that comes with an autopilot, GPS receiver, and wireless video-link; this model has a 0.5-kilogram (~1.1 lbs) payload.

(U//FOUO) Table 1 summarizes the typical characteristics of fixed-wing RCA model aircraft that terrorists might employ as airborne improvised explosive devices (IED) or reconnaissance platforms.

Table 1: (U) Typical Characteristics of RCA Model Aircraft

Fuselage length	1.2 - 2 meters
Wingspan	1.5 - 3 meters
Cruise Duration	30 min (fueled engine) 10 min (electric) Indeterminate (glider)
Payload	15 kg
Controlled Range (single human pilot from launch to target; visual line of sight required)	1.5 km
Maximum fuel range (assumes control hand-off to forward-placed operator near target)	15-20 km
Ability to hit 1x1 m target at range (skilled, experienced pilot, visual line of sight to target, without assistance at target)	Good at 75 meters Fair at 100 meters Poor at >150 meters
Transmitter Frequencies	27, 54, 72, 75 MHz (if purchased in U.S.) 27, 35, 41 MHz (if purchased in Europe)
Acoustic Signature (power applied)	High (fueled engine) Low (electric) None (glider)
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(U//FOUO) A container with two UAVs usually used by intelligence agencies to take spy photographs was taken into custody by the Sri Lankan Customs Preventive Unit on 20 November 2003.² The recovered UAVs can be assembled by a skilled mechanic within ten minutes using only a screwdriver, according to a Sri Lankan official. This is the first-ever detection of such modern miniature aircraft in Sri Lanka. The drones could be loaded with explosives (or Chemical/Biological material) and flown to a desired location, using highly sensitive six channel radio frequency remote control. Customs officers found three radio antennas, and a high ranking Navy officer revealed that the three antennas can cover a total distance of 180 km. They are currently used only by the Navy.

² SAP2003112000007 Colombo Daily News (Internet Version-WWW) in English 20 Nov 03 [Report by Asanga Warnakulasuriya: "Customs seize spy planes"] [FBIS Transcribed Text].

(U//FOUO) Palestinian Fatah militiamen have allegedly conducted RCA model aircraft flight tests, achieving a range of 1 kilometer at 300 meters altitude for a flight of two to three minutes in duration. To mitigate the inability of the RCA pilot to see (and thus further control) the aircraft in Israeli built-up areas, one group has used a tactic that remotely turns off the motor so that the aircraft descends to the ground and explodes. This scheme would decrease the likelihood of prior detection since it removes the aircraft's acoustic signature near the intended target.

(U//FOUO) Evidence recovered from the Colombian FARC (Fuerzas Armadas Revolucionarias de Colombia – International Front of the Revolutionary Armed Forces of Colombia) insurgent group provides an example of another terrorist group that has already weaponized a model aircraft with conventional explosives. During an August 2002 raid on a FARC drug-processing facility, the Colombian military recovered several RCA model aircraft possibly intended as airborne Improvised Explosive Devices (IED), including one carrying a 1-kg payload of C-4 explosive (see Figure 1).



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Figure 1: (U) R/C Model Aircraft Loaded with High Explosives

SUGGESTED PROTECTIVE MEASURES

1. (U//FOUO) Officials should contact RCA aircraft trainers, and ask them to look for suspicious persons and contact DHS at the telephone number shown below. For example, a novice pilot wanting to learn how to fly giant scale aircraft without first learning to fly smaller aircraft.
2. (U//FOUO) Officials should contact hobby shop owners, and ask them to look for suspicious purchases and contact DHS if anything noteworthy is observed. For example, a novice pilot wanting to buy several large aircraft, several engines, or several transmitters.
3. (U//FOUO) DHS will ask the FBI to contact autopilot suppliers (there are only a few) to have them look for suspicious orders, such as a new, non-commercial customer wanting to buy multiple autopilots.
4. (U//FOUO) GPS-aided autopilots are inexpensive, lightweight, and easy to obtain. A RCA is most likely to be guided by a GPS-aided autopilot. Local law enforcement is asked to be on the lookout for people taking GPS measurements in unusual places within a city and investigate.

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via e-mail at DHS.IAIP@HQ.DHS.GOV.

DHS encourages recipients of this Information Bulletin to report information concerning suspicious or criminal activity to local law enforcement, local FBI's Joint Terrorism Task Force or the Homeland Security Operations Center (HSOC). The HSOC may be contacted at: Phone: (202) 282-8101.