

## Unmanned Aircraft Assist U.S. in Hunt for Explosives

By **ANDY PASZTOR**

PARIS—U.S. fighting forces and their allies in Iraq are turning to increasingly sophisticated technologies, including miniature unmanned aircraft built by Honeywell International Inc., to try to detect deadly explosive devices buried on the battlefield.

Honeywell has installed infrared cameras and other sensors on small, remotely-controlled helicopter-like devices—dubbed Micro Air Vehicles—that can hover directly above suspicious sites and send images back to soldiers using a portable handheld terminal. Believed to be the first unmanned aerial vehicle of its type specifically deployed in Iraq to detect buried explosives, it weighs about 14 pounds, takes off vertically and can operate at altitudes from barely a few inches off the ground to more than 10,000 feet.

Watch video of Honeywell's micro air vehicles, designed to help U.S. troops find improvised explosive devices on the ground in Iraq.

The rollout is part of a broader trend to devise more advanced equipment to detect and disarm so-called Improvised Explosive Devices, responsible for the majority of U.S. fatalities in the fighting in Iraq. The move comes as British forces are edging toward using cutting-edge radars developed by a Raytheon unit to hunt for such devices from much higher altitudes. But those techniques haven't yet been declared operational.

The U.S. Air Force in the past has tried

installing specialized sensors on C-130 aircraft to hunt for IEDs, and the military has invested in various classified efforts to deal with the problem. But the enemy has managed to stay a step ahead, devising ever more lethal explosives. Recently, U.S. officers and defense industry officials have been disturbed by a new trend: hiding decoys in the ground and then exploding real devices when U.S. troops are responding to the fakes.

The Honeywell system is expected to be discussed at the international air show here. Barely a foot in diameter, the micro vehicles can fly at more than 50 miles per hour. They are part of the company's push to develop new surveillance technologies to expand its military, space and homeland security businesses. Honeywell's aerial vehicles are particularly suited for detecting buried explosives. Unlike manned planes or larger unmanned aircraft that often zoom past targets, the MAV's sensors can focus and stare at a particular site in order to let operators carefully study the images.

"The hover capability is a big differentiator," according to Ed Wheeler, a senior Honeywell aerospace executive in charge of the program. Eventually, the airborne vehicles could be used to fly down streets and conduct surveillance for the military in urban neighborhoods, Wheeler said. Honeywell also is high on the possibilities of using the technology for such applications as helping conventional helicopters avoid hitting utility lines; and possibly checking border crossings. Honeywell said foreign law-enforcement officials

have expressed an interest in importing the flying vehicles.

Initially developed to provide over-the-hill surveillance to infantry forces, the MAVs have been adopted by the Army as part of its long-term modernization plans. "We think the Army is going to buy a lot of these," Wheeler said in an interview before the show started.

Building on Honeywell's expertise in precise navigation, the aerial vehicles can be programmed to fly totally automatically or they can be commanded from a touch screen. Before heading for Iraq, the technology was tested through more than 3,500 flying hours. In some instances, the aerial vehicles were able to blow the sand or soil off the top of test explosive devices placed in shallow hiding places, according to Honeywell.

Developed over the past few years under a Pentagon research contract, the first batch of so-called MAVs is being deployed in Iraq to help infantry troops. But it's the Navy, with its background in electronic warfare, that was one of the project's biggest boosters and is now actually in charge of deploying the initial units, according to company and industry officials. The technology feature ease of operation, with crews needing only a brief training period to control the flying vehicles from portable ground stations small enough to go anywhere. Unlike larger unmanned aircraft such as the Predator, no piloting skills or knowledge of aerodynamics is necessary to direct the Honeywell flying devices.