Eye spy – not a toy

On a cold, windy late February afternoon the BAPCO Journal is at a large demolition site high above Portsmouth, courtesy of Hampshire Fire and Rescue Service. Why? To see how the brigade is using a radio-controlled helicopter to help with all manner of responsibilities – Dan Worth reports.

If the connection is lost between the handset controlling the helicopter and the device, the machine returns to its take-off position under it's own power.

The day started at a Marriott Hotel where Peter Crook, Group Manager Specialist Response, from Hampshire FRS gave a detailed talk on the value to commanders of a remote-controlled helicopter, underlining it was not just a "toy for the boys", but something that was having a significant impact on their work.

He explained that the investment in the technology had only been undertaken because there was a clear operational benefit. From a command and control point of view the helicopter offers the ability to provide aerial views, video footage, still shots, and thermal imaging, all from a position that would previously have been unavailable.

The helicopter also provides live relevant pictures – previously images from Google maps, for example, were often several years out of date. A telling example was a tyre dump. The owner had a permit to store 750,000 tyres. Photos taken from the helicopter revealed five million. Using the helicopter here enabled the service to be aware of the risk posed by the tyres before a problem ensued.

The helicopter has also been used in training to provide a faster and more efficient way of assessing performance. On an exercise carried out in conjunction with the coastguard the helicopter enabled live images and footage to be broadcast back to the mobile command unit, allowing the commanding officer to assess the situation on arrival, rather than having to attend the scene of the incident and then return to the command centre, helping to improve the efficiency of the operation and provide more relevant information to the commander.

Flight controller Graham Libby, the designated senior pilot for Hampshire Fire and Rescue (due to his experience of flying model helicopters), gave a talk on the importance of checks and regulations when flying the helicopter.

As would be expected, there a number of safety criteria and safety measures to be carried out before the blades can start spinning. Libby emphasised that the pilot must always have the final say in any flights made. If for any reason he does not wish to fly – or he believes it is unsafe to fly due to conditions – there should be no pressure to do so.

Before each flight the pilot must carry out a series of checks on the machine and on the conditions to ensure it is safe to fly. Furthermore, because the pilot has to give his full concentration to controlling the helicopter, he needs a second person to monitor the screen which displays both the view from the helicopter's camera and its flight information, including how long the batteries have left. This helps the pilot keep his attention on the helicopter and the images it is trying to capture.

The risk of having the helicopter come down in an unknown area, where it could be dangerous, means that the helicopter has an in-built, return-to-base function. This means if the connection is lost between the handset controlling the helicopter and the device, the machine knows where it set off from, and it will return there under it's own power. The helicopter made by Carvec also has GPS and altitude sensors allowing it to hold its position automatically.

There followed talks from members of the Civil Aviation Authority on the necessity and importance of obtaining all the relevant permissions for using these helicopters. There are also to be changes to weight limits that will affect the geographical usage of helicopters. This presentation underlined that despite being a small, unmanned craft, the use of a remote-controlled helicopter constitutes an aircraft that requires all the necessary permissions as other manned devices, albeit within different parameters.

The day moved to the aforementioned demolition site where the assembled guests were given the chance to see the helicopter in action. At the demonstration a command and control vehicle was set up to demonstrate how the images from the helicopter are sent back and viewed by commanders. This gave the guests a chance to see for themselves the clarity of the footage and images sent back and how the helicopter can be maneuvered by the operator and assisted by a colleague who watches the monitor. Libby also demonstrated the helicopter's return to base mode, by not touching the controls for 45 seconds, which automatically makes it start to return to the GPS position it has stored in its database at take off.