

Throwing a Little Light on Things

by Capt Tony Keene

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On reflection, it does seem like a bright idea.

Take a pylon, coat it with reflective material and place several dozen of them alongside a darkened runway. As an aircraft approaches, the pilot switches on his landing lights and the airfield is instantly illuminated. No need for electrical power, batteries or a whole lot of "high tech."

"We did trials on this passive approach lighting system during a tactical airlift exercise in February," said MWO Bob McLennan, of 8 Air Communications and Control Sqn (8 ACCS) at 8 Wing Trenton, Ont. "The pilots were picking them up five to seven nautical miles out. It's like putting your car headlights on high and seeing the highway markers jump out of the dark." McLennan is an air traffic control warrant officer with 8 ACCS. He says the Air Transport Group sent in a request to buy two of the kits, developed by the Canadian firm of Reginald Bennett International Inc. of Ajax, Ont. The lighting kits will replace the battery-operated tactical airfield lighting system or BOTALS, which has proven heavy and expensive.

"It could be used for search and rescue operations at remote airfields or to light helipads for tactical helicopters," McLennan says. "It is effective emergency lighting, as we could deploy it in a few hours."

The system also includes approach strobe lights which are run by solar-charged batteries. The pilot can activate these by clicking his transmit button a certain number of times and turn them off the same way once his landing lights have acquired the reflectors. The approach lights flash in sequence, showing the way towards the runway threshold.

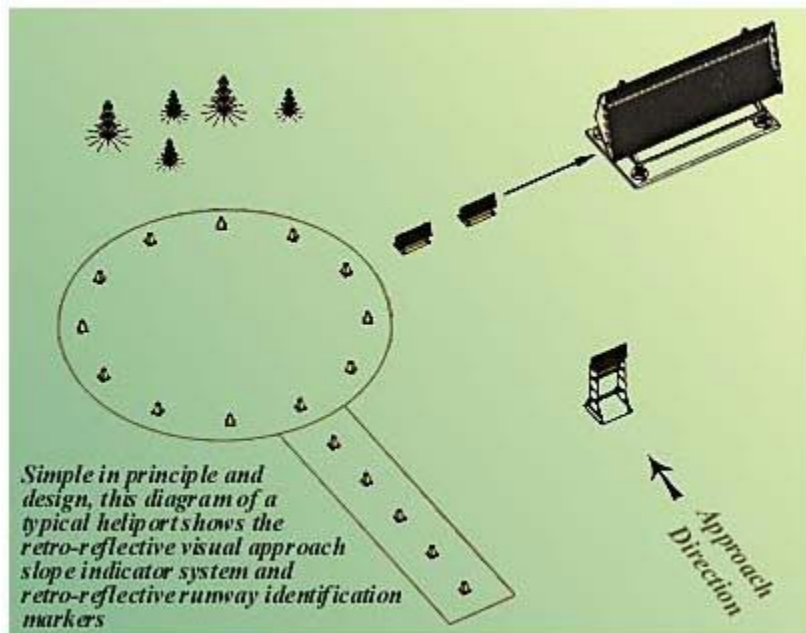
"One thing we haven't done a trial on, but which has potential, is the use of infrared," McLennan says. "This would be particularly good for night tactical helicopter operations, with an infra-red light on the aircraft and the pilot wearing night-vision goggles. The reflection is just the same."

The reflectors are four-sided pylons, about knee high. They come in high, medium and low-intensity, and in various colors. 8 ACCS is looking for white high-intensity ones for taxiways. Red-and-green halved reflectors will be used to the ends of runways. Two complete kits, including the approach lights, will cost much less than the BOTALS equivalent and that doesn't include the cost of replacing batteries, which only last four or five days in cold weather.

The reflectors are also line-of-sight, which means that observers at right angles to the runway won't see the light at all. During the trials, pilots were able to yaw their lights to about 26 degrees either side before losing the reflection.

The system will not replace the portable airfield lighting system, or PALS, which is already in use by 8 ACCS. That system takes one or two days to set up and is semi-permanent, requiring a lot of power and cables. But the reflective system can be set up in a matter of hours with the pylons being placed just like those that mark highway construction zones. They can be filled with sand or gravel for ballast and anchored with pins pushed into the ground.

There are 124 markers in each kit, which can be loaded aboard a Hercules in three of the large metal "Paul Bunyan" containers used for search and rescue stores and other equipment. And it weighs a lot less than the battery-power system.



MWO McLennan and Sgt Pat Meuse, the squadron's ATC standards and training officer, met with company president Reg Bennett to find ways to make the system more suitable for military needs.

One of the results was the pylons are now collapsible, making them easier to store and transport.

"They can be set up on any airfield," Meuse says. "Quicker and easier than PALS, they are also passive and the pilot controls the approach lights."

The system also requires much less maintenance than electrical lights. There are no bulbs or glass to replace and the aluminum reflector panels wipe clean with a damp cloth.

(Capt Keene is a public affairs officer at Air Transport Group Headquarters, Trenton.)