Virginia Airport, Durban, Runway 05 seen from a distance of about two nautical miles

BEATING DARKNESS

Report by Kevin Barker

NEVER BEFORE has it been more clear in South Africa in particular and Africa in general, that brightly lit runways are becoming few and far between.

Unfortunately, as is the case with so many inventions, it takes fatalities before the general populace understands and appreciates the viability of a new product. Add to this Eskom's inability to supply constant power to South Africa, and the advantages of a system independent of electricity become as clear as daylight.

This is exactly the case in point with the Landingeyes reflective runway lighting system, which has seen serious development since *World Airnews* last had a look at the ingenious system when it was first introduced some years ago. Landingeyes today provides affordable, full-blooded portable night landing systems.

Brainchild of Durban engineer and pilot, Gavin Brown, the upgrades to the system now feature PAPIs, as well as threshold and taxi lights.

Stepping away from using purely reflective materials to light up a runway, the new system makes additional use of high power, low voltage LED lights, connected to a small portable 12-volt battery system. Consisting of two light boxes with coloured lenses calibrated to a standard glideslope, the PAPI portion of the system can be set up in less than 15 minutes by a single person. The permanent part of the system, the reflectors, can be left in place once erected.

With laser-cut frames and jigs, setting up the PAPI system is as easy as securing the light boxes to the ground with three stakes, and then levelling them off with a calibrated spirit level. Once levelled, connecting them to a battery is all that is required. The entire structure is made of ICAO-compliant materials that do not pose a risk to aircraft movements. It has also been tested by the SABS.

Initially intended as an emergency backup system, Landingeyes has proved to be a life saver when it comes to mercy flights and patient evacuation in outlying areas. So much so, that in countries like Namibia, Tanzania and Botswana, it is being used full time at various airfields, especially in the mining sector. The South African CAA, like its counterparts, has certified the system for use at domestic airfields, catering to aircraft up to Category B (below 12 500 lbs).

The entire system consists of runway edge reflectors that basically do the job of standard electric landing lights. These require only the aircraft's landing light shining on them to be seen. Coupled to this, LED runway threshold lights (green and red), and the LED PAPI system give the impression of a normally lit runway, making it possible for use by low-time pilots.

In certain countries like Canada, a similar system of reflectors is used. However, they feature only a strobe light at either end of the runway. In making the runway appear as normal as possible, Brown has opted to reproduce the entire array of lights, as used by most runways.

The PAPI installation

Brown mentioned that certain conditions like strong crosswinds create quite a challenge, as they require the aircraft's nose to be pointed outside of the scope of the reflectors. However, a system of SOPs has been created to cater for conditions like this – in this case flying an offset final approach course, in order to have the landing lights shining on to the reflectors.

It was for this reason that it was decided to add a PAPI and threshold lights to the system to offer more guidance to pilots when they were not flying straight at the runway.

Whereas the reflectors are only visible to the pilot when shining landing lights on them, the PAPI and threshold lighting system is visible throughout most of the circuit, and forms a very easily identifiable beacon on which to base an approach.

In order to save battery life, the system can be operated by the pilot using his radio, much in the same fashion as pilot controlled lighting. ✈