

Don't Throw Caution to the Windsock

When flying into a non-certificated aerodrome, the windsock doesn't have all the answers.

You're on approach and the windsock is blowing straight out. Last minute questions bubble to the surface – is it a 25-knot sock? The sock's also positioned in the middle of the field, so will the wind at the threshold match the sock's indication?

Wind shift plays a role in almost 60 per cent of all weather-related accidents with more than 60 per cent of those accidents occurring during landing.

Recommended windsock standards for non-certificated aerodromes are outlined in Advisory Circular AC139-7 *Aerodrome Standards and Requirements – Aeroplanes at or below 5700 kg MCTOW – Non AirTransport Operations*.

Aerodrome Operators

Thinking of putting up a windsock? It's important to know the strip and to know the area before putting your sock up.

The positioning is absolutely vital to provide the best information, says Mark Houston, CAA Flight Operations Inspector, who has more than 12,000 agricultural flight hours.

"For an airstrip, or other non-certificated aerodrome, the operator needs to take into account local terrain, obstructions to local wind flows, trees, buildings, and possible interference for aircraft on the landing surface. Often this doesn't happen, and the sock is positioned in the easiest, not necessarily the best, spot."

Bryan Jones, CEO and Chief Pilot of Southern Wings agrees.

"Consideration should be given to local weather, and obstructions that may lead to inaccurate wind indications – for example windsocks placed on buildings, or close to trees – can give erroneous indications. Where possible, socks should be placed in an appropriate location, usually to the left of the active threshold.

"If the aerodrome is listed in the AIP, windsock location needs to be accurately depicted on the airfield landing plate to assist with overhead joining," says Bryan.

Jeremy Anderson, Nelson Aviation College (NAC) Chief Flying Instructor, says that when taking obstructions into account, the opposite also applies.

"If there are obstacles that may disturb the wind at the runway (and therefore affect aircraft performance), it's important that the windsock is positioned close enough so that these disturbances are indicated. However, this isn't always possible."

Not All Windsocks Are Created Equal

Smaller windsocks are common at back-country airstrips because, with the limited length sometimes available, a few knots on the tail can be quite critical. A larger windsock may not give an adequate indication of such light winds. Smaller windsocks are often placed lower to the ground than larger socks to indicate the wind at wing height.

When flying into non-certificated aerodromes, you need to understand the local wind patterns and realise how the wind strength indications from a small windsock differ from larger socks.

However, sometimes that is easier said than done.

"The size of the windsock can be difficult to identify accurately from the overhead," says Bryan.

"Some airfields appear to have home-made windsocks which make wind strength difficult to establish from the sock alone – many of these prove useful only for directional indication.

"Yeah, size is everything," Mark chimes in.

"Certificated airport socks tend to be larger to cater for all aircraft types. With smaller socks, the angle of the sock will only tell you the average wind speed relative to the sock's size. Get to know what the size is prior to using the airstrips."

Variations in Strength and Direction

"Gusts are indicated by large fluctuations in the sock flying angle and inflation," says Mark.



“When the windsock changes from being saggy, to straight, and back to saggy in short succession, the degree of slack between straight and saggy periods indicates the relative size of the gusts. It’s not possible to assign a specific number to the visible change, but knowing the wind is either gusting ‘just a bit’ or ‘heaps’ is important.

“But be aware that light and variable conditions, where thermal heating is present, may also cause the windsock to ‘puff up’ intermittently. When you’re approaching to land, don’t base your assessment on a single glance.

“If in doubt, stay on the ground, or continue circling until satisfied with the information you can see,” says Mark.

Make use of multiple windsocks where available, Bryan advises.

“When approaching an airfield, the effects of valley or gully orientation on wind velocity should be considered in your assessment of expected conditions. At airfields with more than one windsock, the variation between the two or three windsocks can be used to identify gusts and direction change over the landing area,” says Bryan.

“But really, in gusting conditions, the windsock should be one of the later indicators – the pilot should already be aware these conditions exist – the windsock just provides the confirmation. Pilots should be situationally aware of the local conditions and possible threats brought about by varying wind conditions well before arrival at any airfield. The windsock is only one of the tools that assists with decision making.

“Consideration should be given to obstacles and features in the upwind position, as they may indicate possible threats, windshear, or directional change – especially when affected by a crosswind. Be aware of the standard indicators including: smoke, dust, water, trees, drift, along with current weather forecasts.

“Use your knowledge of meteorology to assess the likely conditions you are about to encounter, and keep continually updating your assessment. If you haven’t been to a

particular airfield previously, then talking to the locals is encouraged,” advises Bryan.

Mark adds, “Always watch to see if the sock is swinging vigorously on its mounting pole.

“That indicates possible changes to wind velocity and direction. Some aerodromes have windshear hazards listed on their landing charts.”

Shaun Ferris, Chief Pilot at Air Fiordland, says windshear should be anticipated in any landing.

“In places like Ryan’s Creek, or Milford Sound, a variable wind direction windsock is common, so choose the runway with the safest overshoot, rather than the runway that the wind is favouring.

“Situational awareness and peripheral vision help when identifying windshear. If the ground speed feels faster than normal, start thinking about going around. You should feel and see windshear before your instruments show signs of it.

“Additionally, where an airfield is near two or more valleys, the wind can alternate between them causing large direction shifts.

“Steep approaches due to terrain often place an aircraft in a positive lift zone, which can result in high sink rates on short finals,” says Shaun.

Maintenance Required

Windsocks don’t last forever, says NAC’s Jeremy Anderson.

“Over time, the colour will fade and the material the windsock is made of will often fail, causing them to tear.”

Most socks are orange, although there are exceptions. When socks become faded, they become harder to see from overhead.

Bryan says, “Poor maintenance may lead to the sock being worn out, and therefore not indicating accurately.

“The swivel top may also seize, and therefore, won’t turn into wind correctly.” ■