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## SAFETY ALERT

**No: SA 2014.02**

**Date: August 4<sup>th</sup> 2014**

**Subject: Side Slipping**

Side-slipping refers to a deliberate cross-controlled manoeuvre where the control stick is held to one side while the rudder pedals are deflected to the opposite side, i.e. left stick with right rudder or vice versa. This is not to be confused with normal transient uncommanded divergences of the yaw string or skid ball caused by gusts. This notice deals with the issue of deliberate cross controlling.

In the fixed-wing world side slipping has a limited purpose where the rate of descent of a fixed-wing plane can be dramatically increased by cross-controlling or sideslipping without the airspeed increasing, useful if a plane is too high and needs to land into a confined area. It is important to note that side-slipping is often subject to limitations in the flight manuals of certified fixed-wing planes, and that the side-slipping characteristics of certified planes will have been explored during the certification process.

In the gyro world, although cross-controlling is clearly possible, it has no purpose because gyros are fully capable of rapid descents in a way fixed-wing planes aren't. Unfortunately, gyro side-slipping fatal accidents have occurred in the past, including several that have found their way on to You Tube. Deliberate cross-controlling seems therefore to be associated with "stunting" and ill-conceived showing-off type manoeuvres.

There are a number of reasons why ASRA ***strongly recommends*** that deliberate gyro sideslipping **MUST** be avoided. They are:

- (1) the side-slipping characteristics and behaviour of our uncertified gyros are largely unknown;
- (2) the ASI reading will become completely unreliable because of pitot tube position error;
- (3) an increasing amount of accident evidence suggests as a cross-controlled gyro turns increasingly side-on, the airframe is very likely to roll into the side-on airflow because of dramatically increased airframe drag;
- (4) the deliberate cross-controlling will mean the stick will already be held harshly over in the direction of the slip;
- (5) as the gyro turns more side-on, the airframe rolling couple caused by drag will suddenly exacerbate (or join with) the control stick deflection;
- (6) the gyro is then likely to suddenly roll into the slip at a rate that will exceed the pilot's capacity to correct even will full opposite stick;



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(7) the airframe roll angle will easily exceed the plus or minus 9 degree head tilt angle making effective recovery completely impossible;

(8) depending on the direction of propeller rotation, propeller torque might significantly contribute to the airframe-rolling tendency; and

(9) sudden engine failure or deliberate throttle-chop in a high-powered cross-controlled situation could well result in an unexpected airframe roll response similar to the drag effect and engine-on torque effect mentioned above.

Video evidence from the February Nowra fatality shows that in the event of a gyro essentially tuning sideways (in that case caused in part by a rudder malfunction), even with the stick held neutral and not moved, the gyro will still viciously roll into the now sideward incoming airflow at a rate well beyond the capacity of most pilots to react to.

There can be no justification whatsoever for a gyro pilot deliberately setting up a cross-controlled situation, given the risks and hazards outlined above.

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