

WAMASC Newsletter



August 2020

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should any individual have anything at all they would like to contribute, share or add to this newsletter, please feel free to contact the [editor](#) through the [Club Secretary](#) via ✉ secretary@wamasc.com.au – enjoy

Bad Angel

In exceedingly rare circumstances one can find that the truth can be stranger than fiction – not often – but here is a story with aviation connections that will have you thinking.

The **Pima Air & Space Museum** in America, houses many beautifully restored aircraft including one **P-51 Mustang** called **BAD ANGEL**.

Her name proudly emblazoned on the side of her fuselage distracts for just a short time a very strange vision – the patch work of assorted kills painted below the canopy. What is quite remarkable is the story those markings tell. Firstly, the pilot was an 'ACE'. Secondly, they show something exceedingly rare, the fact that the pilot of this aircraft was only one of three Americans to have kills against all three Axis' of Power (**Germany, Italy, and Japan**) during WWII.



What is even more astounding is the third point in this story – an **American Flag** displayed proudly alongside these kills (markings).

OK! So, this girl shot down one of her own? Nothing really new there, it has happened before, especially during conflict – today we refer to it as, 'friendly fire'. but that would make it an accident against your own team. Should this faux pas occur it is not something that would be proudly displayed for all and sundry to see. It is not spoken of – so how is it so?

In 1942, the United States needed pilots for its war effort. Lots of planes and lots of pilots. **Lt Louis CURDES** was one of those pilots. As a 22 year old he found himself shipped off to the Mediterranean post graduating FTS (Flight Training School) to take up the war effort in the skies over Southern Europe. He arrived at the 82nd Fighter Group, 95th Fighter Squadron in April 1943 and was assigned a



P-38 Lightning. Ten days into his tenure he shot down three German **Messerschmitt Bf-109** fighters. A few weeks later, he downed two more **German Bf-109's**. In less than a month of combat, Louis was an Ace. During the next three months, Louis shot down an **Italian Mc.202** fighter and two more **Messerschmitt's** before his luck ran out.

He was shot down by a German fighter on August the 27th 1943 over **Salerno**, Italy. Captured by the Italians, he was then sent to a POW camp near **Rome**. No doubt this is where he thought he would be spending the remaining years of the war. That was not to be the case as only a few days later, the Italians surrendered. That upcoming surrender may have already been written in the wind with the Italian camp security becoming a little lapse, as Louis and a few other pilots had already escaped before the Germans could take control of the camp.

Now one might think that such harrowing experiences would have taken the fight out of Louis – but once again, he volunteered for another combat tour of duty. This time, Uncle Sam sent him to the **Philippines** where he flew **P-51 Mustangs**. Soon after arriving in the Pacific Theatre, Louis downed a **Mitsubishi** reconnaissance plane near **Formosa**.

Up until this point, young Lt Louis CURDES combat career had been stellar. His story was about to take a twist so bizarre that it seems like the fictional creation of a Hollywood screenwriter. Attacking the Japanese-held island of **Bataan**, one of Louis' wingmen was shot down. The pilot ditched into the ocean. Circling overhead, Louis could see that his wingman had survived, so he stayed in the area to guide a rescue plane and protect the downed pilot. It was not long before he noticed another, larger airplane, wheels down, preparing to land on the Japanese-held airfield on Bataan. Moving in to investigate he realized to his surprise that the approaching plane was, in fact, a **Douglas C-47 transport with American markings**. He tried to make radio contact, but without success and manoeuvred his Mustang in front of the big transport aircraft several times in an attempt to wave it off. Unfortunately, the C-47 just kept heading towards its landing target oblivious to the fact that it was about to land on a Japanese held (occupied) island. Should this occur the occupants onboard would become captives and held as POW's. Lt CURDES had read the daily newspaper accounts of the war and was very much aware of the vicious and inhumane treatment administered to POW's by the Japanese. He knew that whoever was in that American **C-47** would be, upon landing, either dead or wish they were (the occupants of that aircraft were mainly medical



personnel). Audaciously, he lined up his **P-51** directly behind the **C-47**, carefully sighting one of his 50 calibre machine guns on its starboard engine and knocked it out. Still the C-47 continued on toward the Bataan airfield. CURDES shifted his aim slightly and knocked out the remaining port engine, leaving the baffled pilot no choice but to ditch into the ocean. The big plane came down in one piece about 50 yards from the bobbing wingman he had been protecting and keeping an eye on. At this point, nightfall and low fuel forced Louis to RTB (return to base).

The next morning, Louis flew cover for the rescuing **PBY (Catalina)** that picked up his downed wingman plus 12 passengers and crew, including two female nurses, from the C-47. All survived. In another twist Lt CURDES **married one of those nurses!** For shooting down an unarmed American transport plane, Lt. Louis CURDES was awarded the **Distinguished Flying Cross** and promoted. Thereafter,

on the fuselage of his P-51 **Bad Angel**, he proudly displayed the symbols of his kills: seven **German**, one **Italian**, one **Japanese** and one **American**.

Gyroscopic Precession

In last month's issue of our Newsletter I revisited and spoke about **P-Factor** – one of the myriads of strange phenomena that can and will affect the way your aircraft operates and flies. Let's now revisit **Gyroscopic Precession** and add another phenomenon into the mix of things trying to catch you out (many of us have encountered strange behavioural traits presented by our aircraft that cannot always be attributed to 'dumb thumbs').

Gyroscopic Precession is a big word – but what does it mean? Unbeknownst to most anything that revolves or spins such as a **propeller** or **wheel** will exhibit a force referred to as '**Precession**'.

Ponder this little fact and I will guarantee that most of you have done it at some time in your life and experienced the resultant effect.

Take a bicycle wheel and hold it with both hands by each alternate axle end and have someone rotate the wheel. When asked to tilt that spinning wheel in any particular direction you will note that you encounter a strange opposing force resisting and countering your every move or input. Indeed, any attempt to move the wheel in the direction you desire is met with a strange invisible force fighting against you.

For those who can remember an old **spinning top** as a child – should you spin that top directly in front of yourself and wish it to move directly away from you (not left or right) – you would presume that you would only require a gentle outward push forward in the direction that you want it to go.

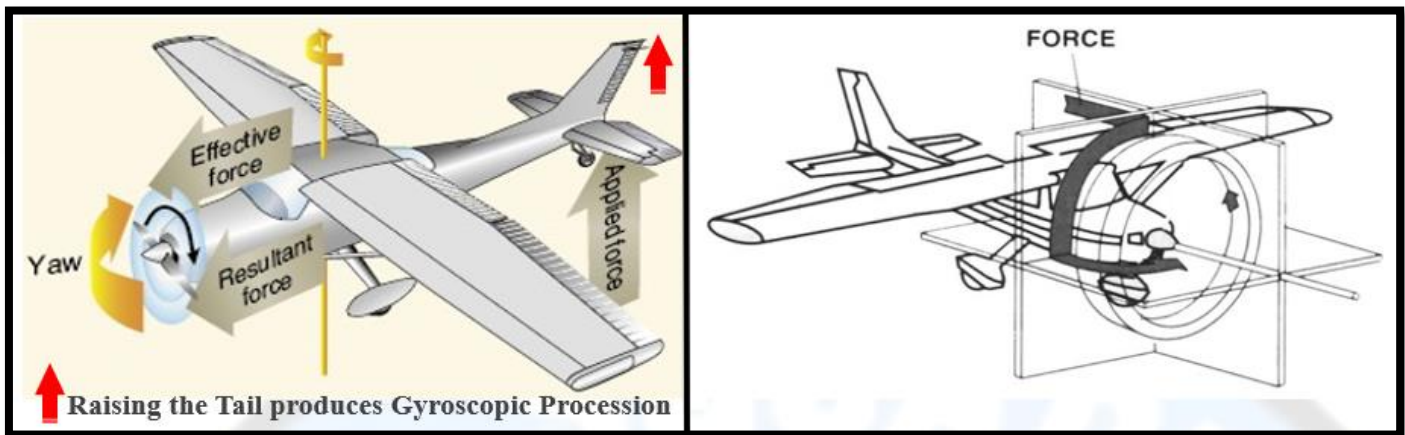
This is not the case as the rules of physics state that the end resultant is always 90° to the direction of input; therefore, if the top is spinning in a **clockwise** rotation, to make it move forward and directly away from you, one would have to push the top from the **left** side.

I reiterate that I have raised the topic of **Gyroscopic Precession** to enlighten members that it is not always **ground effect, wind, P-Factor, torque thrust (twist) or dumb-thumbs** that cause your aircraft to make those subtle unwarranted movements as if it was possessed by some unholy force.

It could and can be any one of the above phenomena mentioned or even a combination of said and it is worth pointing out that in the real world of aviation most aircraft when retracting their undercarriage will automatically apply brakes to prevent the wheels spinning (that is they stop the wheels rotating when entering their housing compartment). This is done for a couple of reasons; firstly, to prevent damage to hydraulic lines in the wheel bay should a tyre have delaminated and secondly to prevent that strange force (phenomenon) **Gyroscopic Precession** forcing the nose of the aircraft downward when trying to climb on take-off.

Think and consider the forces associated from anything that spins such as a wheel or propeller etc. Their effect on an aircraft, due to their rotation has a phenomenal input into what that aircraft does. Just think how a single engine aircraft will turn more efficiently one way as opposed to the other as it does not have to fight against the torque twist of the rotating propeller (I will speak about propellers in a later edition of this Newsletter).

Precession is a change in the orientation of the rotational axis of a rotating body. In an appropriate reference frame, it can be defined as a change in the first **Euler angle**, whereas the **third Euler angle** defines the rotation itself. In other words, the axis of rotation of a precessing body itself rotates around another axis. A motion in which the second Euler angle changes is called **nutaton**. In physics, there are two (2) types of precession: they being **torque-free** and **torque-induced**.



I previously mentioned a **spinning top** which is a very remarkable piece of kit because it tends to defy gravity while it is spinning. If spun fast enough, a spinning top will rise to a vertical position and happily stay there despite the fact that it will fall over if it stops spinning.

The basic physics behind this effect is that a torque is required to rotate an object. The torque is equal to the rate of change of angular momentum. There is nothing magic about that. It is the rotational equivalent of what happens when an object accelerates along a straight line. In that case, the force on the object is equal to the rate of change of its momentum.

Angular momentum is similar to linear momentum, but it refers to motion in a circular rather than a straight-line path. Usually, the torque acting on a spinning top is just due to the weight of the top. If the top is perfectly upright there is no torque acting on it but if it leans sideways then it will tend to fall over due to the torque about the bottom end. It will indeed fall over if it is not spinning. If it is spinning, then it does something else. Instead of falling down, it ‘falls’ sideways.



That’s the amazing part. This effect is described as **precession**.

Much like a propeller, although on a horizontal axis, a spinning top precesses slowly around a vertical axis through its point of support while it spins rapidly about its own axis. The usual ‘explanation’ is that the change in angular momentum must be in the same direction as the torque on the top – that is, in the sideways direction. The spin axis must move sideways instead of down. This is one of the reasons we see some of our model aircraft assisted to fly with the use of Gyro’s. The stability increase is mind boggling – but have you ever seen what happens to that ‘Tail Dragger’ when the Gyro fitted to the Rudder doesn’t shut down and it just carries on in a straight line.

Canteen Update

With operations at the Field basically returning to normal many have questioned why the Canteen is not functioning. Please be advised that **WAMASC is unable to meet the requirements (criteria) presently** needed to do so hence the Canteen will remain closed until further notice.

Unfortunately, a short mandatory COVID-19 training course for anyone handling food is a requirement. Add to this the 2²m rule and Social Distancing requirements it is not feasible.





Busy-Bee

Saturday the 25th of July 2020 saw approximately forty people attend a WAMASC 'Busy-Bee' at the Field to perform some much needed clean up and maintenance etc.

The Chairman and his Committee wish to extend a hearty thankyou to all who participated – your efforts are greatly appreciated.



Truly superior pilots are those who use their superior judgment to avoid those situations where they might have to use their superior skills.