

Advanced skills: Ryan Voight investigates Proper Prone Form



All photos: Ryan Voight

I FIRST HEARD OF PPF WHEN I STARTED FLYING WITH VETERAN PILOT, 2010 US OPEN CLASS CHAMPION AND 2011 CHELAN CLASSIC WINNER DAVE GIBSON, so I'm going to go ahead and credit him for the term. Known by many other names, albeit less concise, PPF stands for Proper Prone Form.

In our early hang gliding training we learn how to control a glider from the uprights. At some point we begin having higher, longer flights and it becomes practical (for comfort mostly) to lay down and fly 'prone' on the base tube. We get taught how to transition down to the bar and how to transition back to the uprights. We learn how to get in and out of our harness. But PPF seems to be something most learn over time and with experience, much more so than specific instruction.

In addition to being observant of people's flying styles, I have recently become a mentor for some pretty advanced pilots. I've been finding that PPF is something people can stand to benefit from - especially at the H3 [Pilot] level and up. Proper prone form has many benefits, the biggest being the ability to be more precise

in your inputs, as well as conservation of energy (which really helps on long flights, or many consecutive flying days!).

A little history: flying prone was an evolution of the sport to improve performance, because the frontal area of a prone body is far less than in the seated position where hang gliding originated. Proper prone form maximizes the performance gain by minimizing drag and physical exertion.

First step, get loose! Your whole body should be relaxed and letting the harness support you. Of course that requires a proper fitting harness, which is important beyond just comfort. With your body loose, your shoulders, elbows, wrists and hands need to be loose, too. Obviously you use these muscles to weight shift (as well as



your core, as we'll talk about later), but when not weight shifting you should be as loose as possible.

Loose hands are essential - it's *hang* gliding, not *hold on* gliding. If you're death-gripping the bar you are throwing out valuable information about your wing and the air you are in. In fact, contact with the glider should be as light as practical. I strongly prefer to fly with open palms, and just my fingertips on the top of the bar. Finger tips are very sensitive, and the light contact allows you to really feel out the wing and air. Flying that loose takes practice, but working on it pays huge dividends in the quality and precision of your flying.

True conservation of motion is only possible once you are really feeling the wing.

Once you're loose and sensitive to your wing, it's time to focus on 'conservation of motion'. What that means is not making unnecessary inputs, or overdoing the inputs that are necessary. True conservation of motion is only possible once you are really feeling the wing, so it's important to go in order. Some turbulence is just turbulence, while other turbulence can turn the wing or require pitch input ...



From this angle we can see Dave Gibson is a master of the light grip - pulling *in* while making contact only with the front of the bar

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Here we can see what flying fast looks like when not using proper prone form. Straight arms limit pitch range, control and feel. Rocking head-up further limits pitch control, as well as being aerodynamically inefficient

and being loose and sensitive helps decipher if any input is needed.

also rocks your body more upright, which again is terribly inefficient no matter how

Any weight transmitted onto the bar is a nose-down pitch input whether you know it or want it.

When an input *is* needed, try to shift your weight slowly and smoothly. Big 'stabs' of weight shift are inefficient, and with them comes more adverse yaw ... which can sometimes lead to requiring more input to correct bank or course heading. Slower, smooth inputs also let you keep lighter contact on the wing, better feeling how much input to give and how long to hold it.

When you shift your weight to the side, it's important to keep your body aligned with the airflow. The draggiest harness pointed straight into the airflow is still cleaner than a slick race harness turned sideways! To do this, focus on steering with your hips. Don't pull your shoulders over, or push your feet over ... bring your hips over, and use your core to keep your body straight.

Do not, under any circumstances, push down on the top of the bar! Because the control frame is raked forward, the base tube is forward of your hang-point... which means any weight transmitted onto the bar is a nose-down pitch input, whether you know it or want it. In addition to not being loose and sensitive to the wing, pushing down makes it very difficult to accurately judge and manage airspeed. Bar position becomes irrelevant, because the glider is now flying faster than it should be for a given bar position.

Done to its extreme, pushing down on the bar leads to straight arms with locked elbows ... which severely handicaps your ability to control the glider. Pushing down

racy your harness might be. I have observed many H3s and H4s [roughly Pilot



Here we can see the author flying fast using a loose grip, making contact with only the front of the bar and pulling it back toward his belt buckle

and Advanced Pilot level] that are guilty of this bad habit, so don't feel too bad if you're a pusher-downer. Please break that habit immediately, and thank Dave Gibson for his eloquent terminology of PPF.

To avoid pushing down on the bar remember to stay loose, and then take the term 'pull in' literally. Pull the bar back toward your feet and in toward your body. Think about trying to pull the centre of the bar to your belt buckle. Pushing down on the bar requires contact with the top of it, so when you want to fly fast treat the top of the bar like hot lava. Pulling *in* only requires contact with the front 'leading edge' of the base tube, and in smooth air can be done with completely open hands.

If you can learn to relax and loosen your body, to fly with a light touch and keep your body aligned with the airflow - I promise you will see huge performance gains.

If you can learn to relax and loosen your body, to fly with a light touch, to smooth and conserve your body motion, and keep your body aligned with the airflow - I promise you will see huge performance gains ... both in your flying, and your physical performance. You will climb better, being more in-tune with your wing and where the best lift is. You will glide better, eliminating unnecessary drag from your body or wing (unnecessary glider inputs deform the wing creating drag). You will be a more accurate pilot too - being able to feel

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The author demonstrates PPF despite using a training harness with no leg support. Without the leg support it is even more critical to not push down on the bar

the need for and apply very minute corrections. And you'll be less fatigued, able to fly longer more comfortably ... and won't be sore (or at least as sore) after many consecutive days.

Looking at the best pilots in the sport, it's easy to see a common body type ... and none of them look like body builders. Multiple World Record holder Larry Tudor was pretty much a bean-pole! The truth is hang gliding is a finesse sport, and PPF is a

crucial way for advancing pilots to take their flying to 'the next level'. Weight shift is just another way of saying 'balance', and in every balance sport - running, skating, skiing, gymnastics ... the top athletes are those that have learned to maintain disciplined control of their bodies and use economy of motion

This article was originally published in Hang Gliding and Paragliding Magazine, January 2014.

Mexico Pre-Worlds

The British team (Steve Blackler, Rob Gregg, Richard Lovelace, Gordon and Kathleen Rigg and Wayne Thompson) returned from Valle de Bravo in March having flown several practice days and seven challenging tasks. Conditions in the air were tough, with 8 - 10-up thermals and very difficult outlandings (at up to 10,000ft!). On the ground illness, injury, cartel-controlled no-land areas and armed police at goal made their presence felt.

The Italians won ahead of the French and US teams; the Brits finished 10th. Unusually for the pre-Worlds there was a high incidence of real top guns, often amounting to a likely Worlds team, not least from the Italians and French. Quite a few pilots decided to stop flying and many others, including Rob Gregg and Kathleen Rigg, had their flying stopped prematurely by injury or glider damage.

The British team was boosted by the presence of Cyril Stewart, a prospective BOS pilot who has been flying Valle de Bravo for years. The area is very reliable and even mediocre days are rare. However the flying is very challenging and acclimatisation to the high altitudes is essential. The Worlds next year are going to be interesting indeed. A full report will appear next month.

1	Christian Ciech	Icaro Laminar	6,274
2	Zac Majors	Wills Wing T2C	6,090
3	Antoine Boisselier	Icaro Laminar	5,925

16	Gordon Rigg	Moyes Litespeed RX	4,818
43	Steve Blackler	Wills Wing Talon	2,467
47	Wayne Thompson	Wills Wing T2C	2,328
51	Richard Lovelace	Wills Wing T2C	1,977
58	Cyril Stewart	Icaro Laminar	1,342
69	Kathleen Rigg	Moyes Litespeed RX	393