

THOUGHTS ON TOWING BEHIND THE PAWNEE

After 11 flight instructional flights on Saturday and Sunday following are thoughts and observations about towing behind the Pawnee. These training flights included three 400' rope breaks.

Saturday winds at 16 knots gusting to 20 at 280, with runway 27 operational.

Sunday winds at 8 knots gusting to 12 at 200 with runway 18 operational.

INITIAL ACCELERATION

On all flights acceleration was smooth, but faster than behind the Super Cub. This resulted in the controls of the glider rapidly achieving control. We were airborne between one-quarter and one-third of the way down the runway.

Ron Houle is training tow pilots to push the accelerator on a count of "one-one-thousand, two-one-thousand." Glider pilots who have towed behind Pawnees in other locations where the accelerators are moved quickly forward note that rapid acceleration results in the glider dropping its right wing. It would be prudent to be mindful of that possibility on rollout. This makes it especially important that **NOTHING** be in front of the glider during roll out. While this is a responsibility of the FOO, as a PIC, that is ultimately your choice.

RATE OF CLIMB

The still air rate of climb was between 600 and 700 feet/minute.

On Saturday, with a 15 knot headwind, the glider was at 200' indicated when over the far end of the runway (given the lag in the altimeter reading it is likely the true altitude was around 230').

On Sunday altitudes over the far end of the runway varied from 100' to 150' indicated.

Airspeed on tow is around 65 knots.

SIGHT PICTURE

The Pawnee is a low-wing aircraft, and the sight picture is significantly changed, especially in boxing the wake.

The tow sight picture that worked well for the standard tow was to put the Pawnee's wheels on the horizon.

RELEASE POSITION BEHIND PAWNEE

The glider is lower behind the Pawnee on tow than behind the Super Cub. Which means that if there is a rope break the glider is about 10° higher nose up than behind the Super Cub. After release there is a pronounced rate of slowing with that 10° up.

BOXING THE WAKE

The wake turbulence is slightly rougher than that of the Super Cub. The turbulence starts lower and ends lower than behind the Super Cub.

Both tow pilots reported that given the power of the engine and the Pawnee's crisp controls, they felt minimal tugging on the controls during the wake box despite the glider being lower.

SLACK LINES

Slack line recovery was easier and quicker. This is likely due to the high rate of climb pulling out the slack.

Both tow pilots reported that they felt minimum force on the tow plane during slack lines and recoveries.

Because of rate of climb is so much faster, I had to dive more precipitously to induce a slack line, consider yourself warned that this may happen during flight reviews and training flights.

TIME ON TOW

The rate of climb is about 50% faster than behind the Super Cub, resulting in the tow being 33% faster.

SLOWER TOWS

Chief Tow Pilot, Ron Houle provided the following comments about pilots needing slower tows:

"60 mph tow is not a problem with the Pawnee, I towed Laura twice at 60. The normal Pawnee takeoff is flaps up, full flaps for landing, they act as speed brakes.

The previous owner towed banners at 60 and 70 mph, he modified the flaps to add a setting to tow at 60, It's about a 5 degree setting for a little lift and better stall margins."

ANALYSIS

The Pawnee is a delight to tow behind. The glider is quickly up to speed on the take-off roll, decreasing the likelihood of a wing drop, and increasing the crispness of all controls for staying in position. The climb rate is fast, the airspeed higher, and it is less reactive to the tugs and pulls of the glider.

However, there is a risk behind the Pawnee during a low rope break.

If the rope breaks at 200' it is unlikely that the glider could be turned quickly enough to land on the downwind runway. It would be prudent to set 300' AGL as the new minimum altitude for a return to the runway. Here's how I would recommend a 300' rope break be conducted (if the wind speed allows for a safe downwind landing):

1. **DROP THE NOSE IMMEDIATELY!** You will be in a higher nose-up position than you are used to.
2. Fly straight ahead (away from the runway) until no-lower-than-225' is read on the altimeter. This will provide greater distance from the runway for a downwind landing, which will compensate for drift during the turn. There is a lag in the altimeter, and it is likely that an altimeter reading of 225' will be a true altitude of 200'.
3. Land as normal.

Despite an extensive ground briefing about the necessity of flying straight (away from the runway) after a low rope break, and talking about it during the preflight checklist, two of the three students immediately turned after the "rope broke." I believe that the rule of primacy took over and the students flew as they were trained to fly behind the Super Cub. This rule of primacy is likely to impact all of us, and I would encourage pilots, while doing the emergency plan during their preflight checklist, to make a deliberate point of saying to themselves something to the effect: "The new minimum release is 300', I will drop the nose immediately, and fly away from the runway until 225' is indicated on the variometer."

The good news about rope breaks is that the glider is much closer to the runway after a 500' or 800' break, making a return to the cross runway, or a full abbreviated pattern, safer.

Another significant advantage of the Pawnee is that the tow pilots report much greater visibility and an ability to see ahead and below during the landing pattern.

On busy days both the FOO and the pilots staging for a flight should anticipate a quicker turn around in tows and be ready for the next tow earlier than we did with the Super Cub.

The flight instructors welcome the chance to fly with any pilot who would like training on towing behind the Pawnee, and I would strongly recommend all pilots with less than 200 hours total glider flight time, do so before their first solo Pawnee tow. I will be recommending that First Flight With An Instructor be mandatory during the 2022 flight season so that all pilots get this flight training.

Finally, Leon Zeug, using the benefit of his extensive experience towing behind Pawnees, did a thorough and thoughtful analysis of how to tow behind our Pawnee—which is posted on our IO site, and published in the newsletter. Please do more than read it, study it, so that this knowledge becomes instinctive.

Safe flying,

Stephen Nesser, CFI
Chief Flight Instructor